

APPENDIX A: TRAFFIC COUNTS

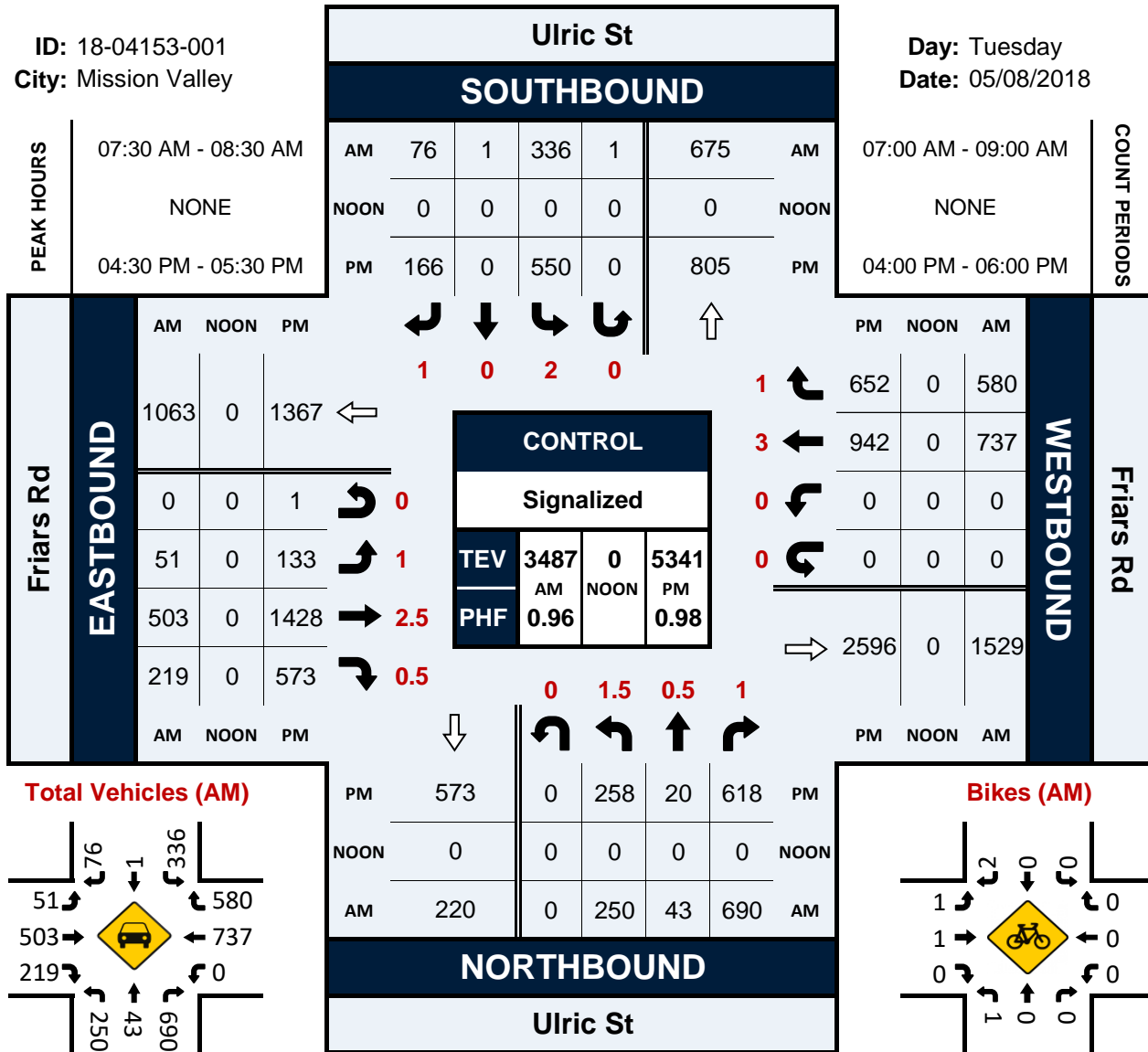


Ulric St & Friars Rd

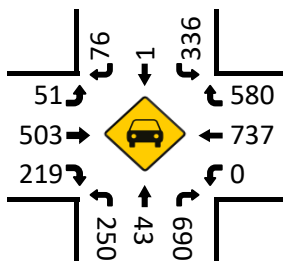
Peak Hour Turning Movement Count

ID: 18-04153-001
City: Mission Valley

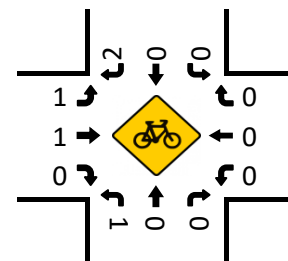
Day: Tuesday
Date: 05/08/2018



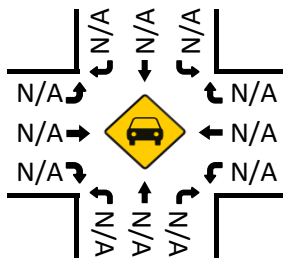
Total Vehicles (AM)



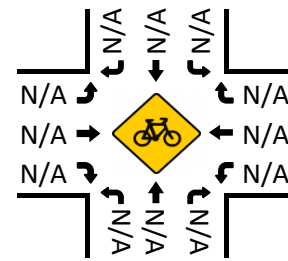
Bikes (AM)



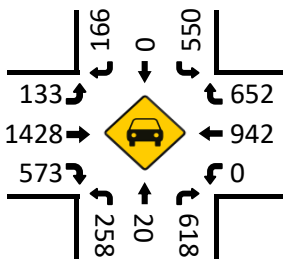
Total Vehicles (Noon)



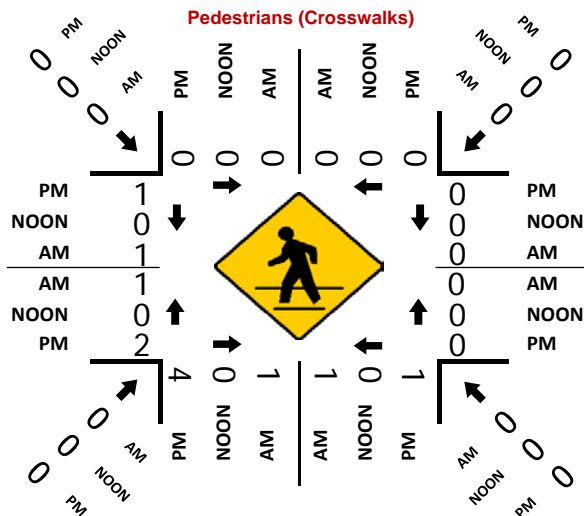
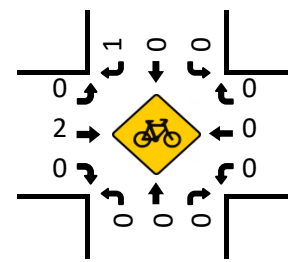
Bikes (NOON)



Total Vehicles (PM)



Bikes (PM)

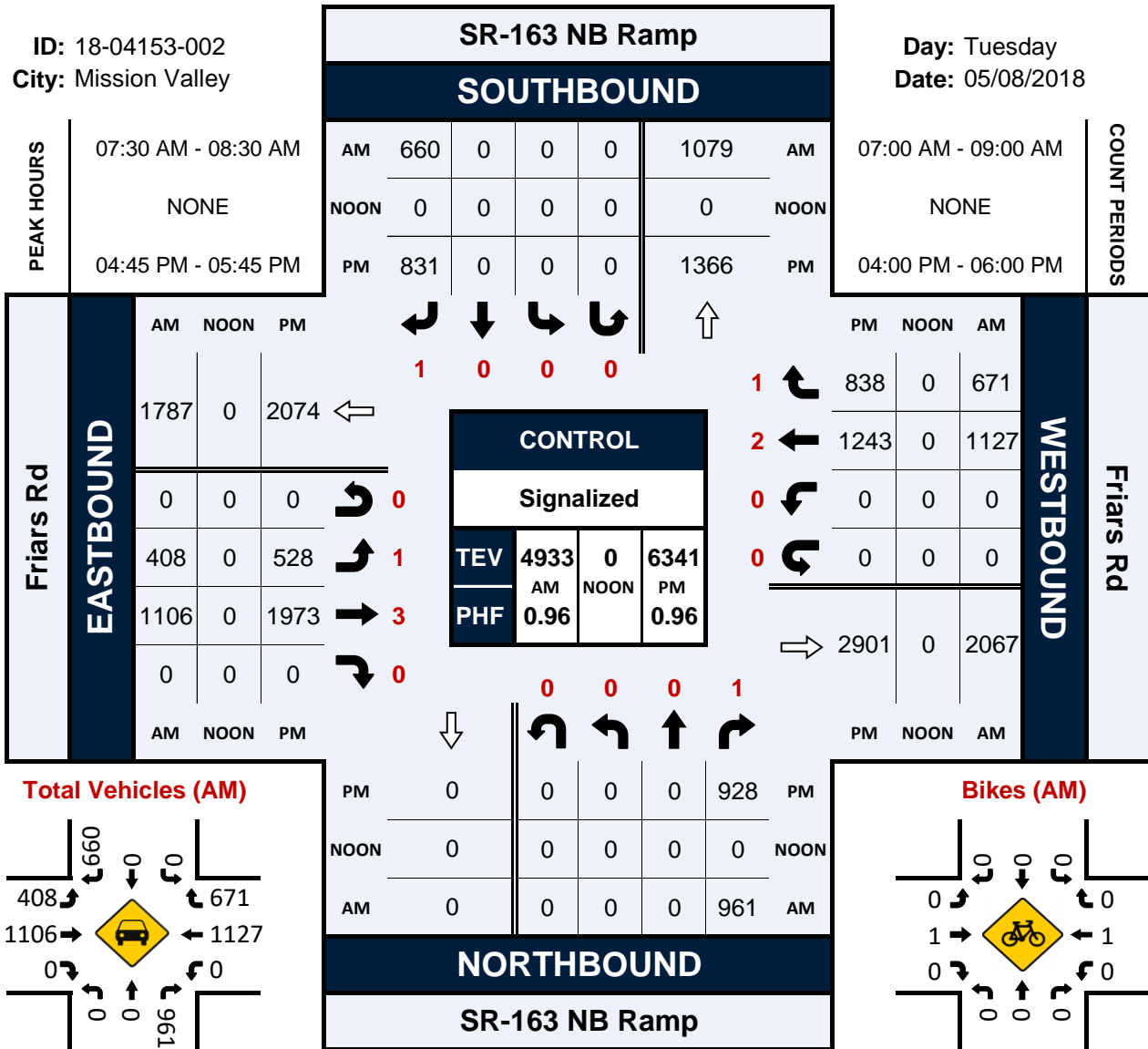


SR-163 NB Ramp & Friars Rd

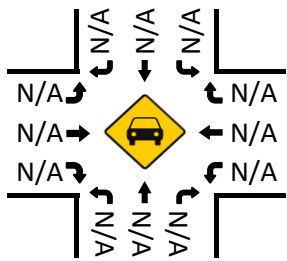
Peak Hour Turning Movement Count

ID: 18-04153-002
City: Mission Valley

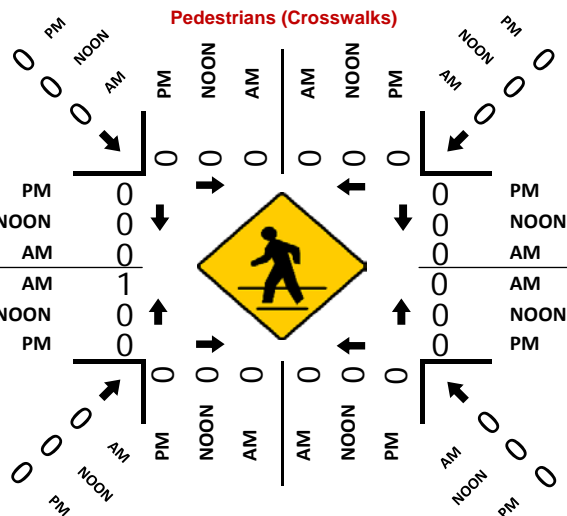
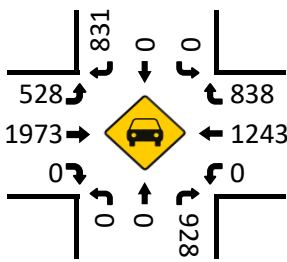
Day: Tuesday
Date: 05/08/2018



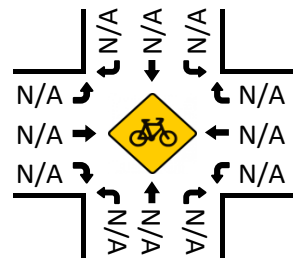
Total Vehicles (AM)



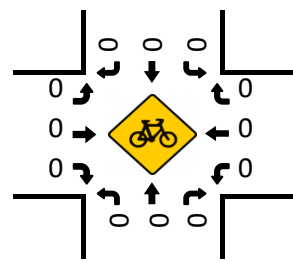
Total Vehicles (PM)



Bikes (NOON)



Bikes (PM)

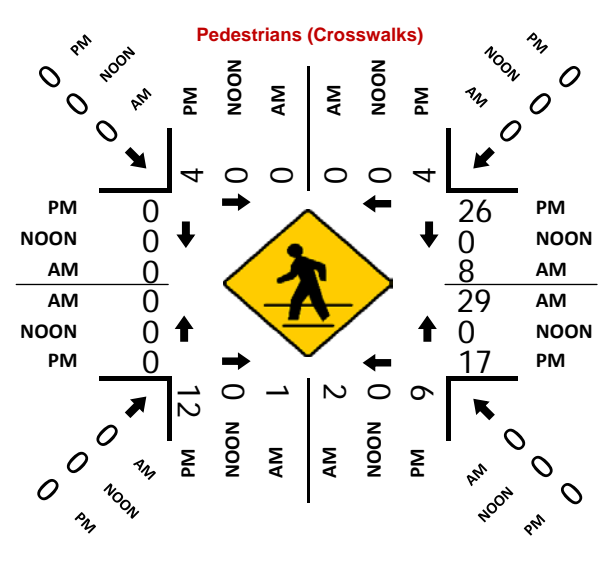
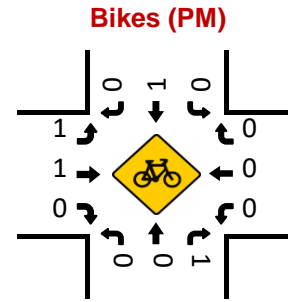
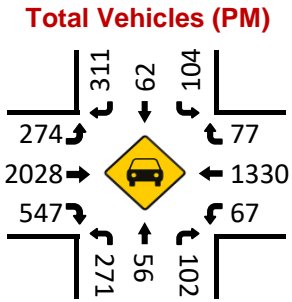
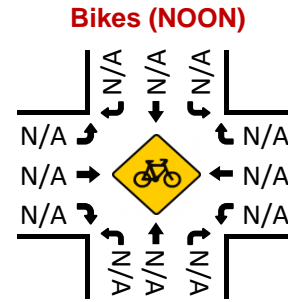
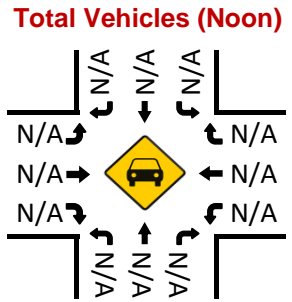
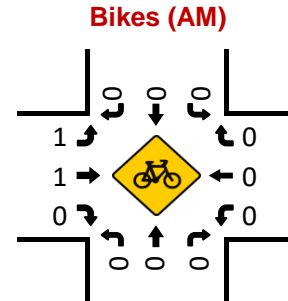
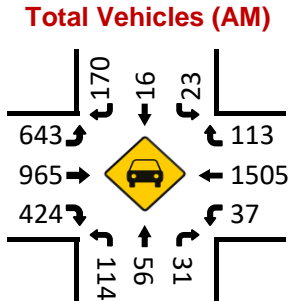
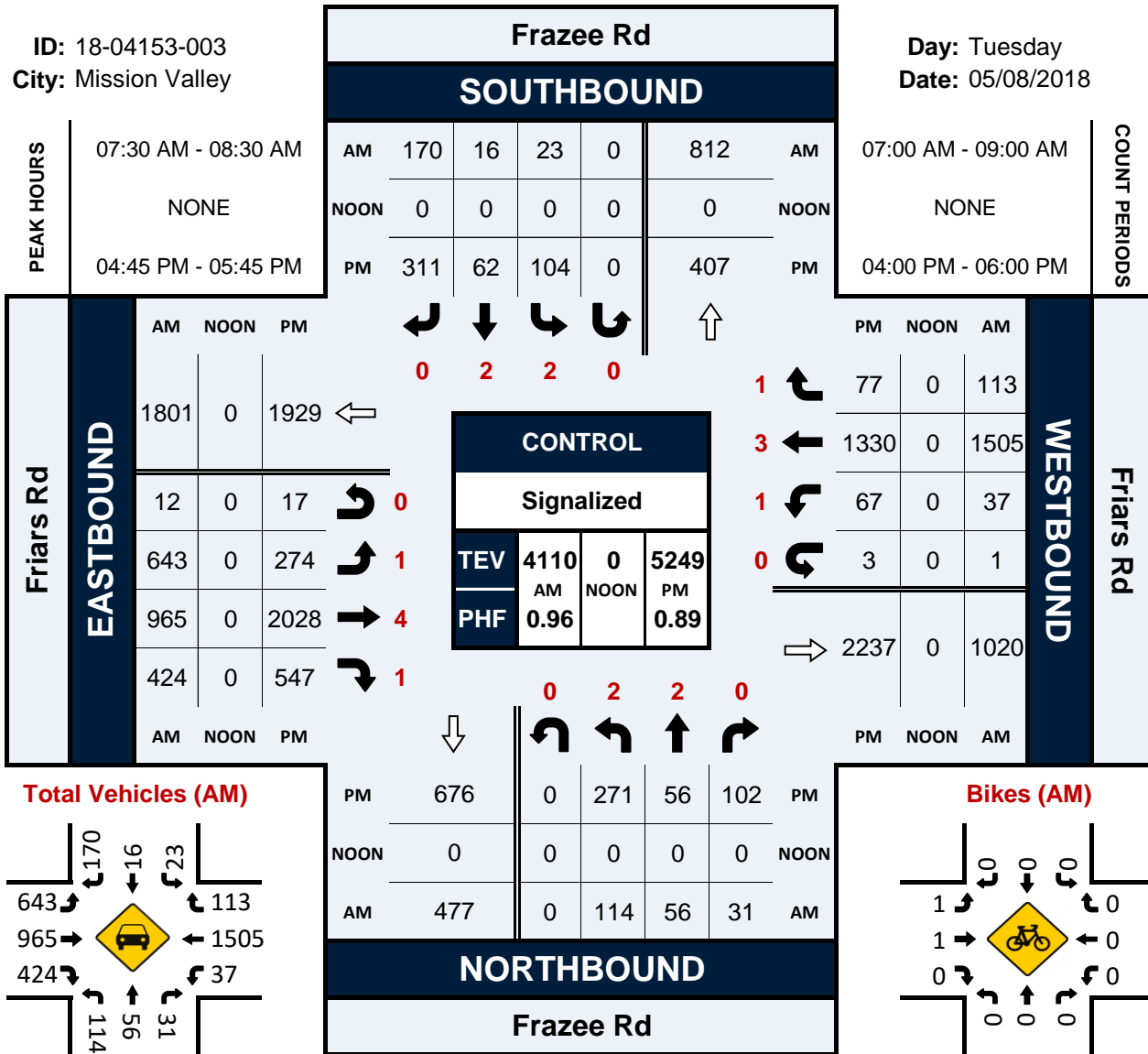


Frazer Rd & Friars Rd

Peak Hour Turning Movement Count

ID: 18-04153-003
City: Mission Valley

Day: Tuesday
Date: 05/08/2018

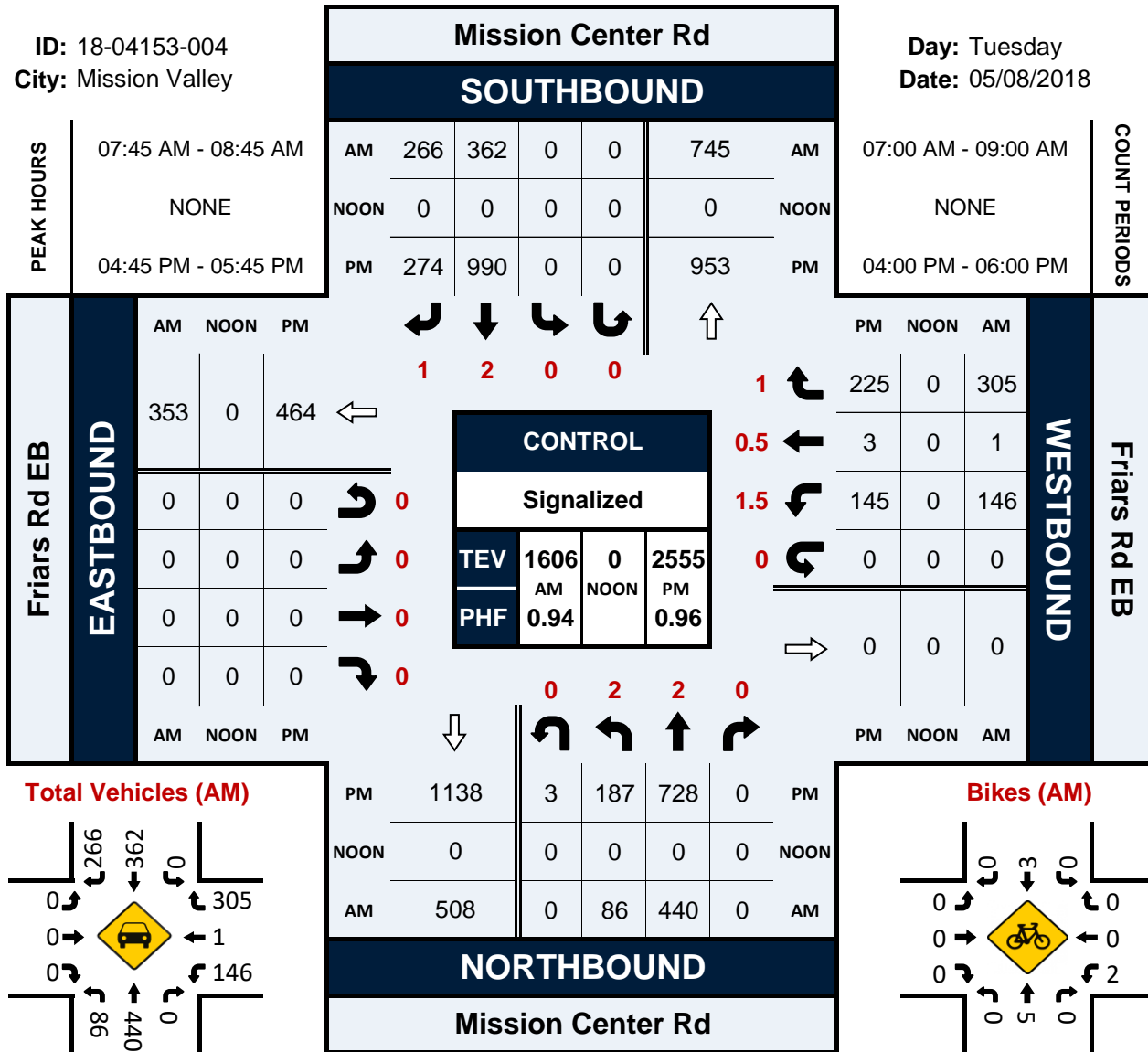


Mission Center Rd & Friars Rd EB

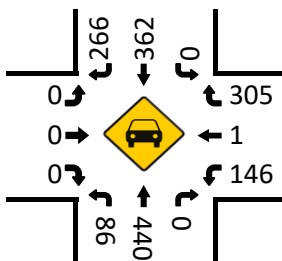
Peak Hour Turning Movement Count

ID: 18-04153-004
City: Mission Valley

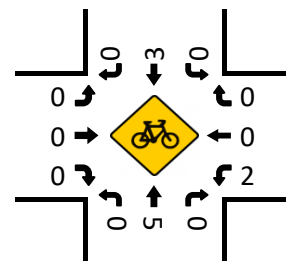
Day: Tuesday
Date: 05/08/2018



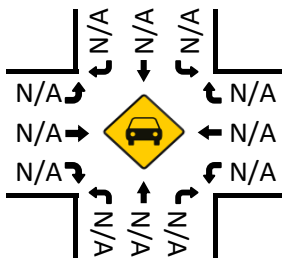
Total Vehicles (AM)



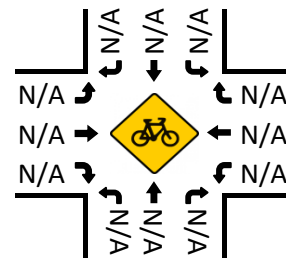
Bikes (AM)



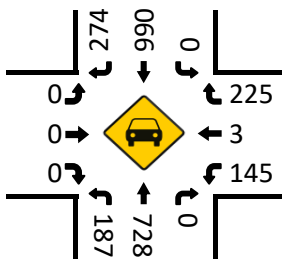
Total Vehicles (Noon)



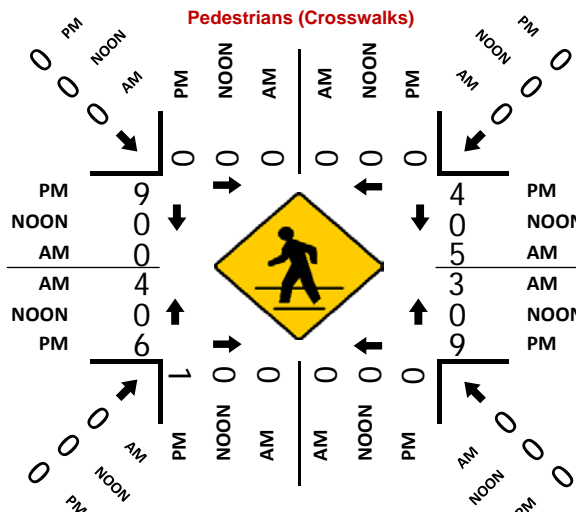
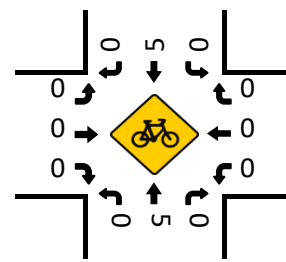
Bikes (NOON)



Total Vehicles (PM)



Bikes (PM)

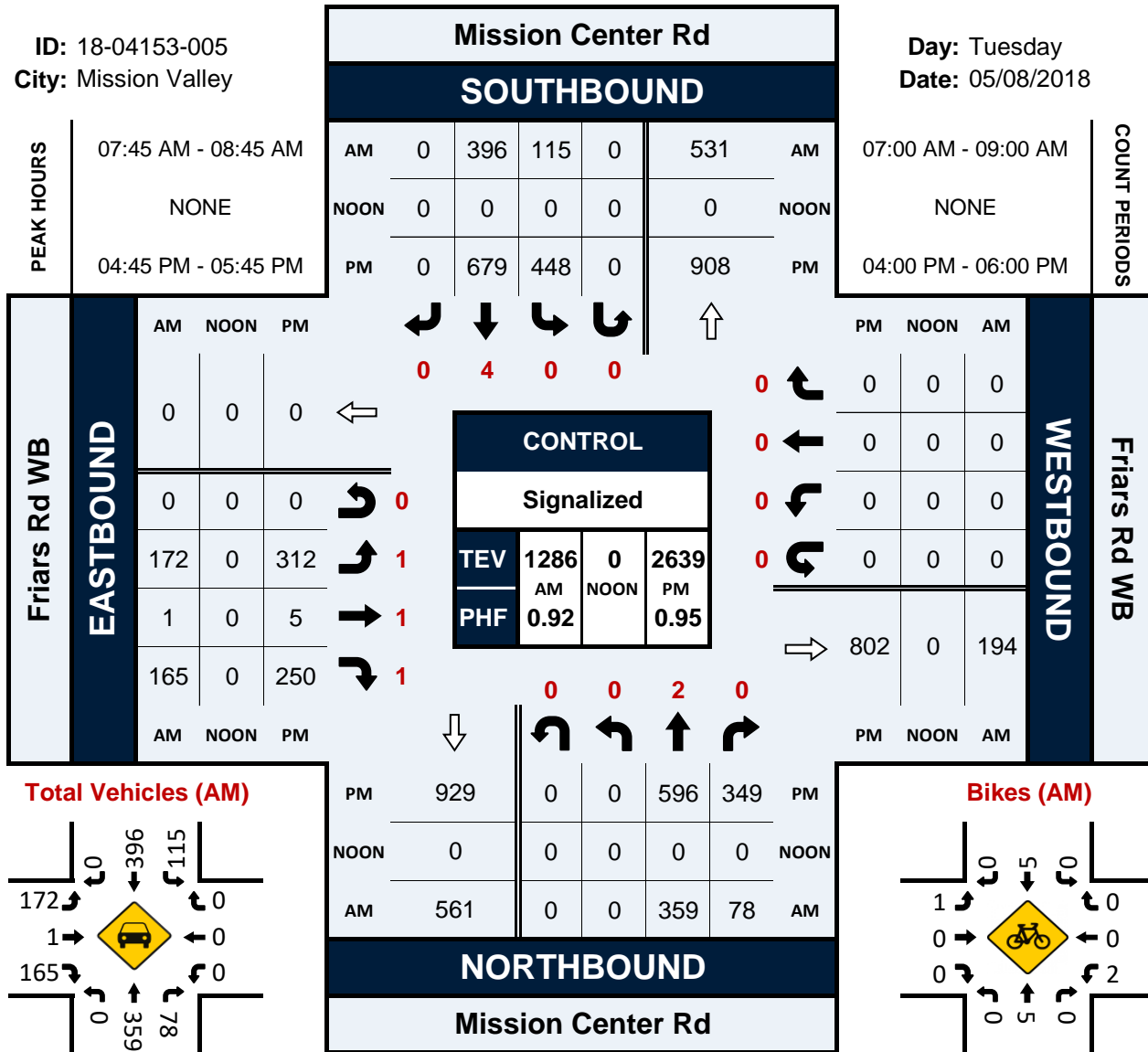


Mission Center Rd & Friars Rd WB

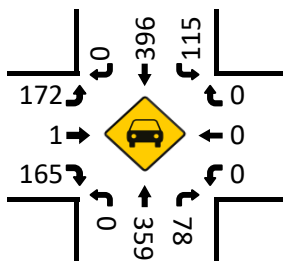
Peak Hour Turning Movement Count

ID: 18-04153-005
City: Mission Valley

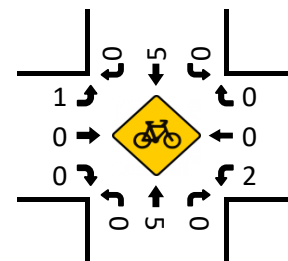
Day: Tuesday
Date: 05/08/2018



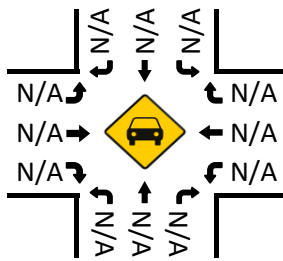
Total Vehicles (AM)



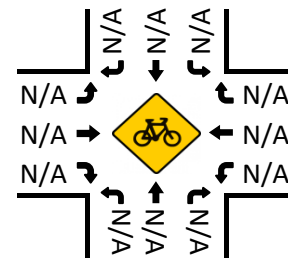
Bikes (AM)



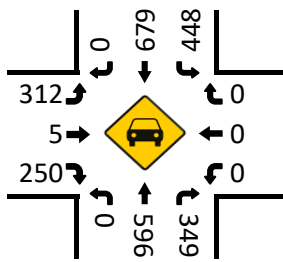
Total Vehicles (Noon)



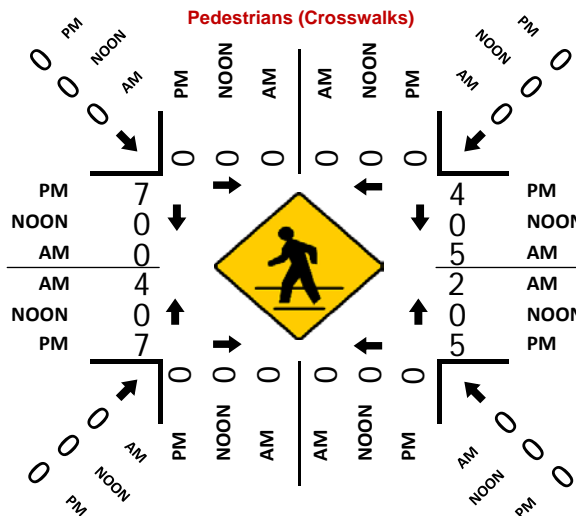
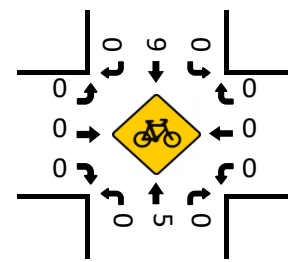
Bikes (NOON)



Total Vehicles (PM)



Bikes (PM)

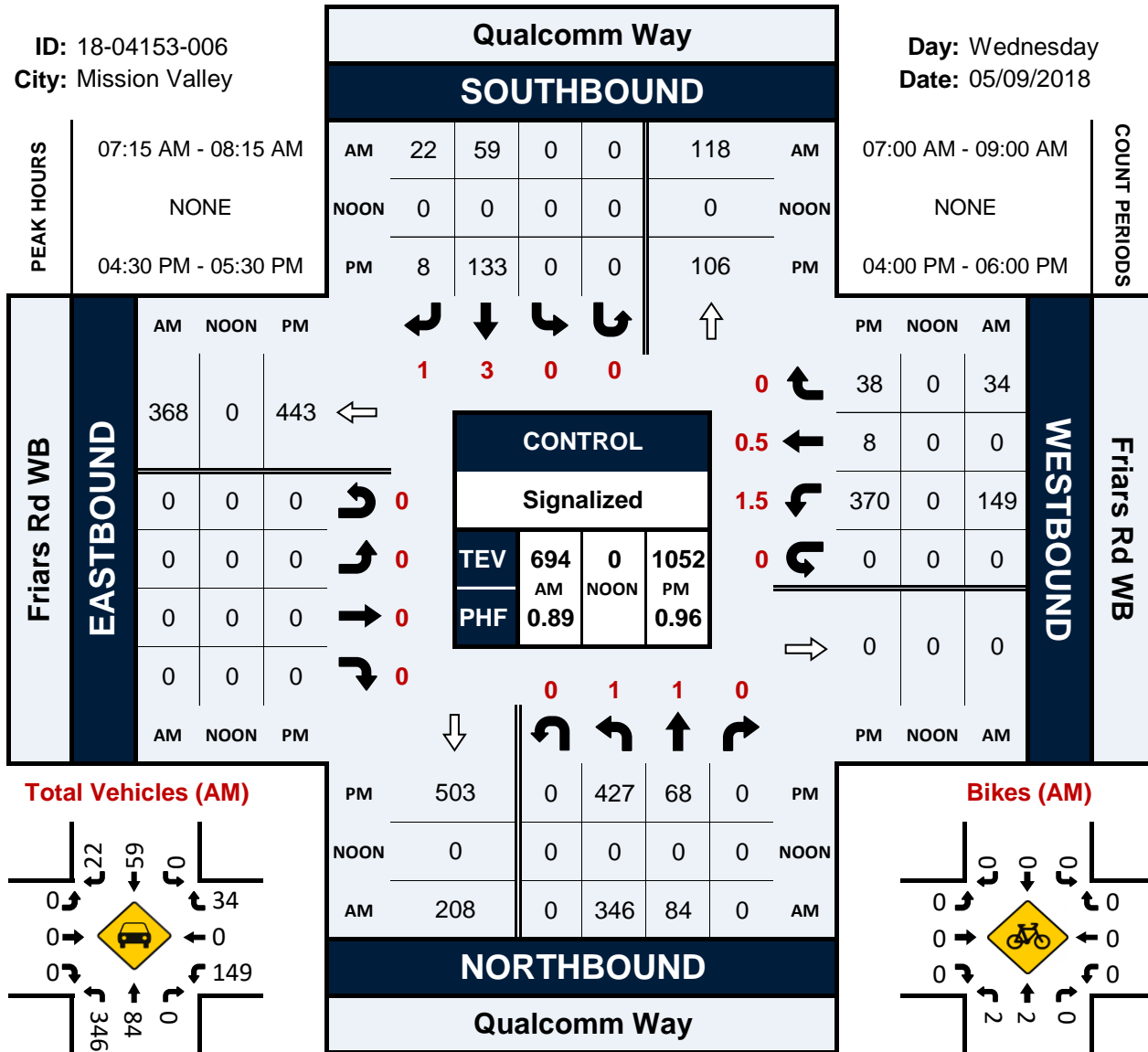


Qualcomm Way & Friars Rd WB

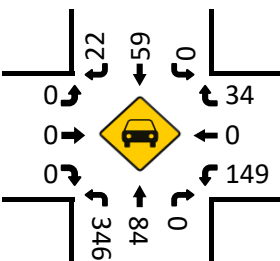
Peak Hour Turning Movement Count

ID: 18-04153-006
City: Mission Valley

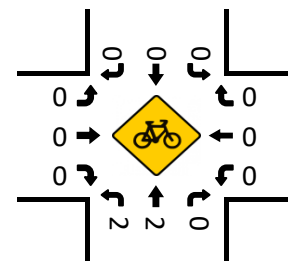
Day: Wednesday
Date: 05/09/2018



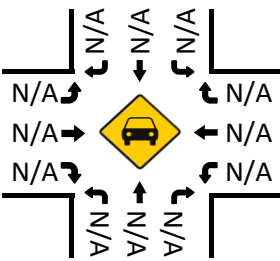
Total Vehicles (AM)



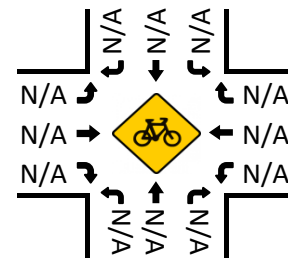
Bikes (AM)



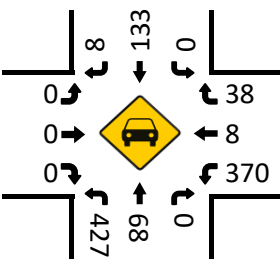
Total Vehicles (Noon)



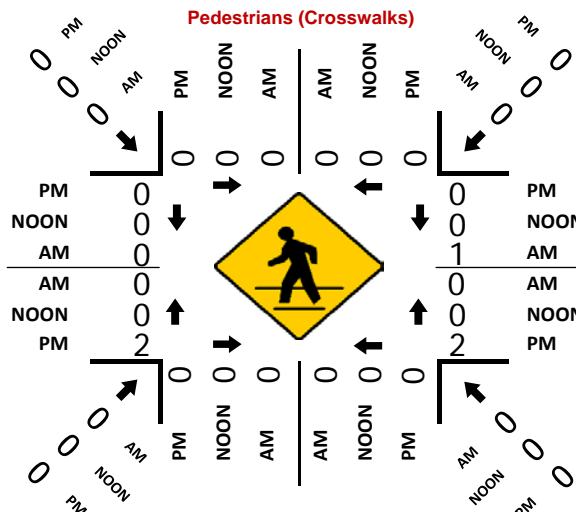
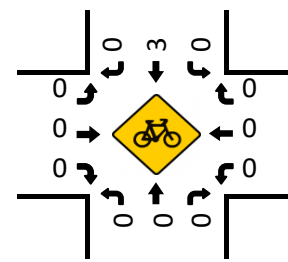
Bikes (NOON)



Total Vehicles (PM)



Bikes (PM)

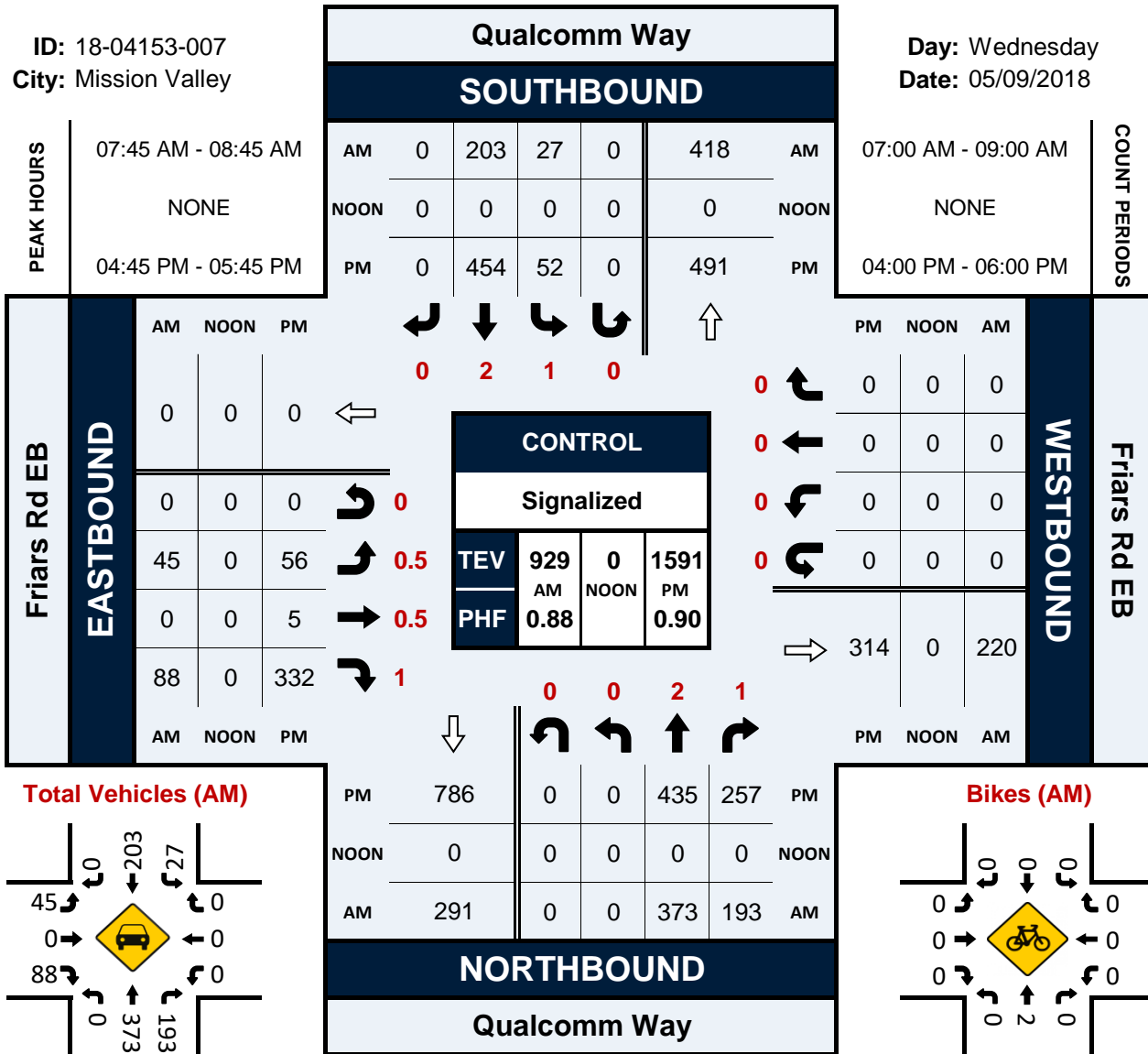


Qualcomm Way & Friars Rd EB

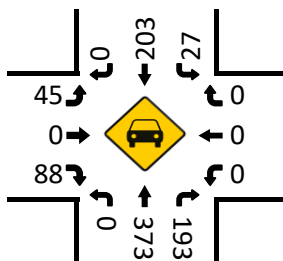
Peak Hour Turning Movement Count

ID: 18-04153-007
City: Mission Valley

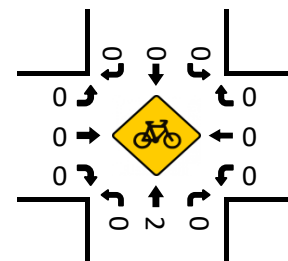
Day: Wednesday
Date: 05/09/2018



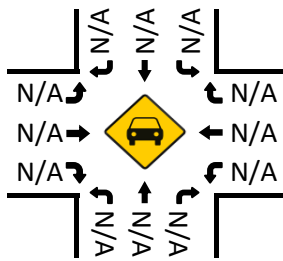
Total Vehicles (AM)



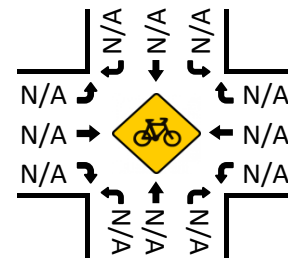
Bikes (AM)



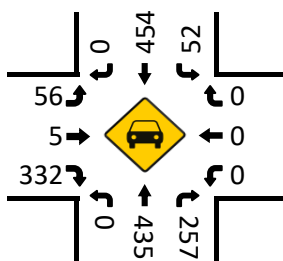
Total Vehicles (Noon)



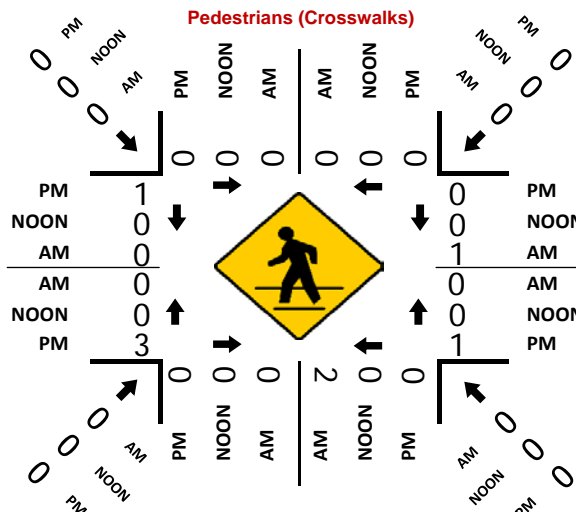
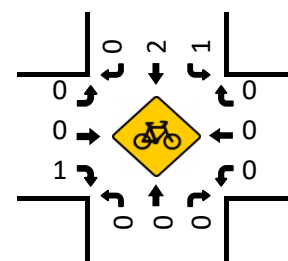
Bikes (NOON)



Total Vehicles (PM)



Bikes (PM)

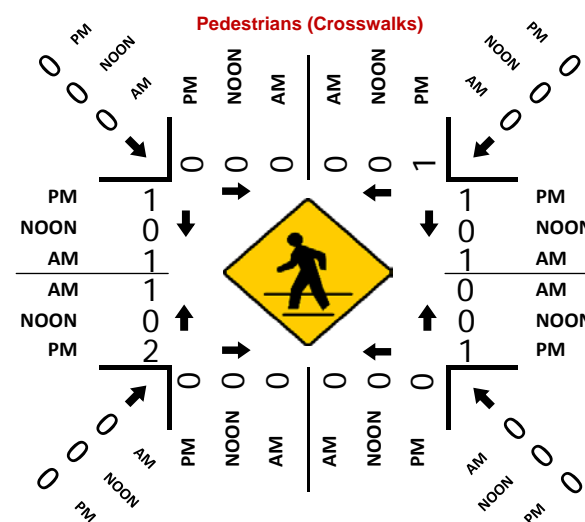
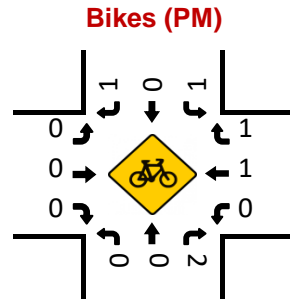
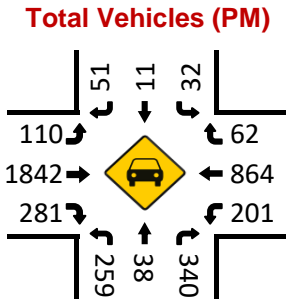
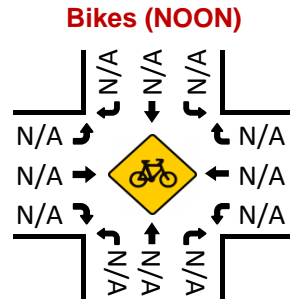
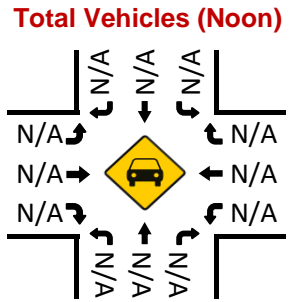
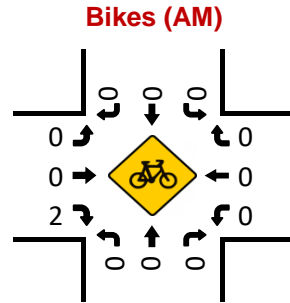
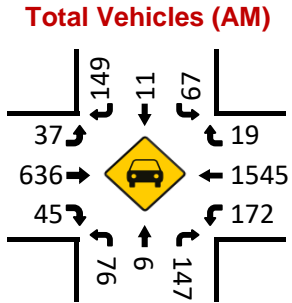
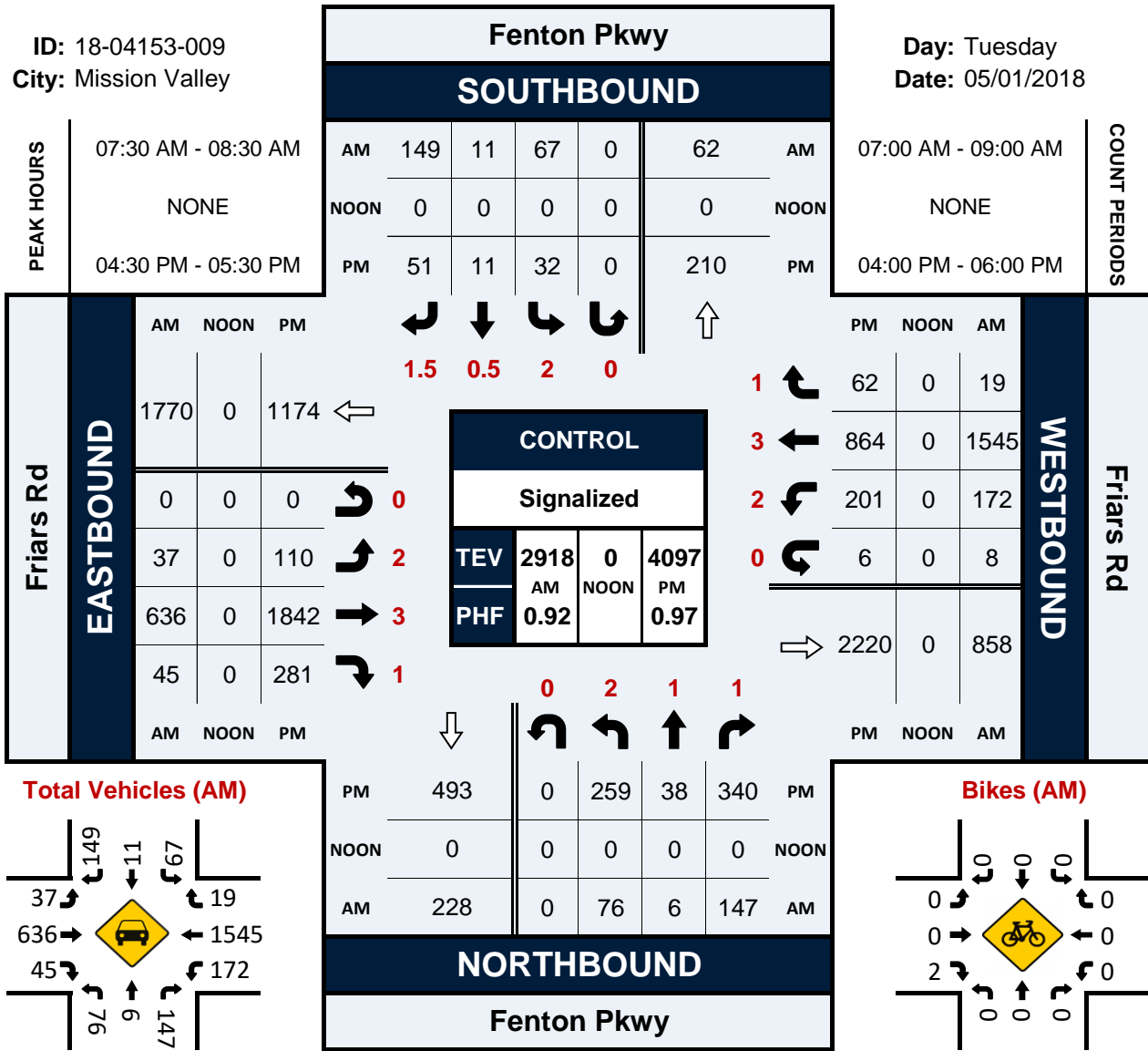


Fenton Pkwy & Friars Rd

Peak Hour Turning Movement Count

ID: 18-04153-009
City: Mission Valley

Day: Tuesday
Date: 05/01/2018

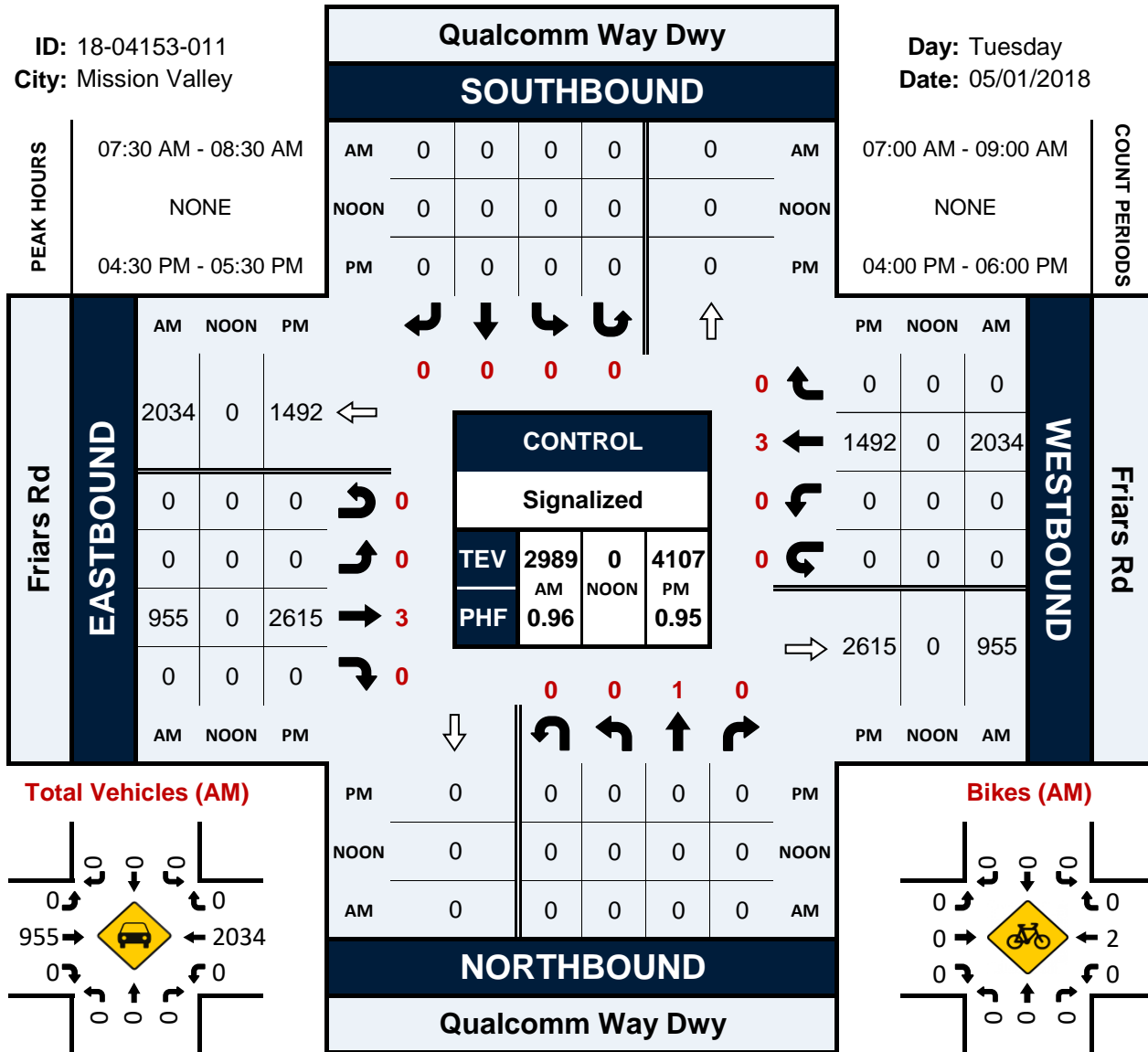


Qualcomm Way Dwy & Friars Rd

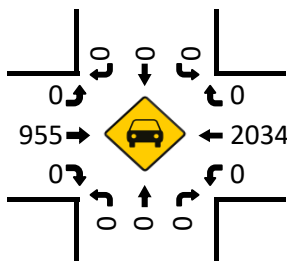
Peak Hour Turning Movement Count

ID: 18-04153-011
City: Mission Valley

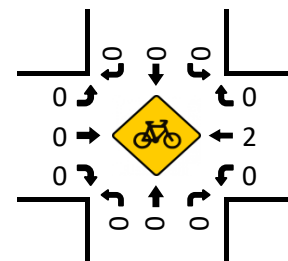
Day: Tuesday
Date: 05/01/2018



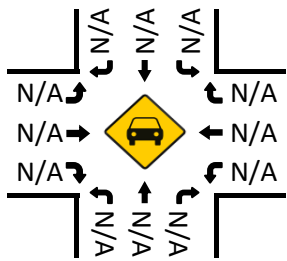
Total Vehicles (AM)



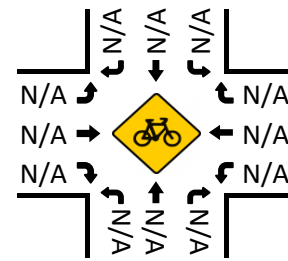
Bikes (AM)



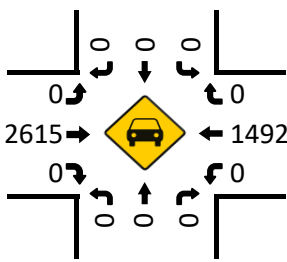
Total Vehicles (Noon)



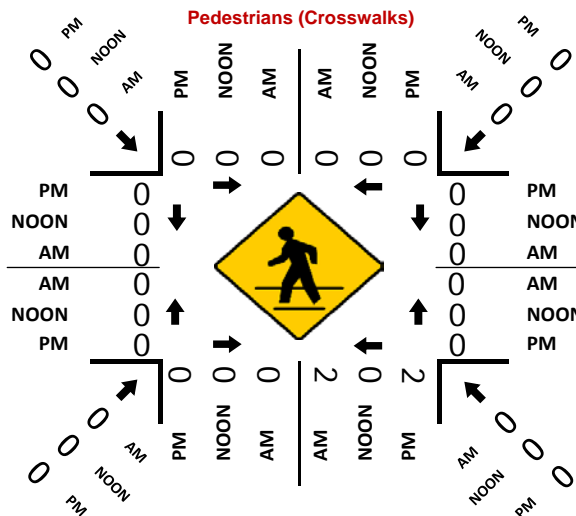
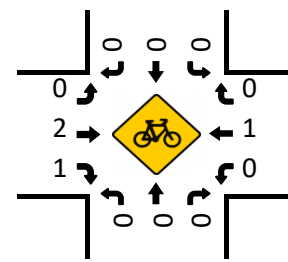
Bikes (NOON)



Total Vehicles (PM)



Bikes (PM)

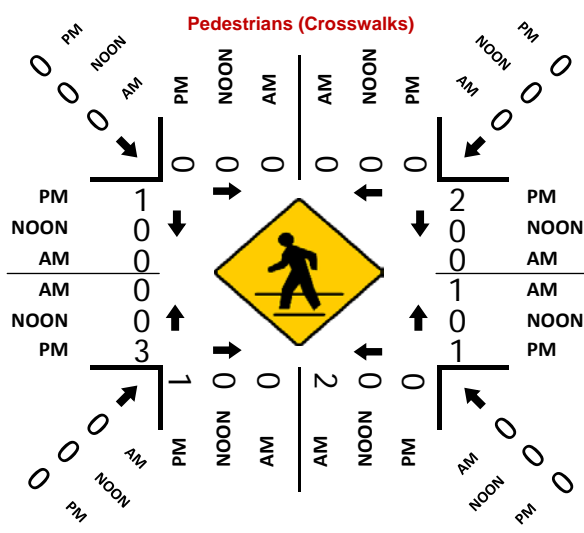
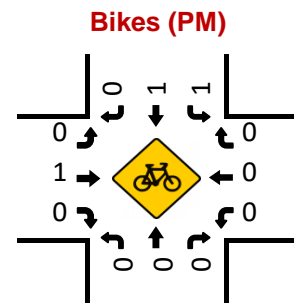
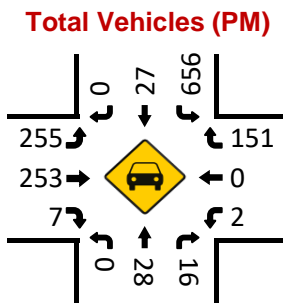
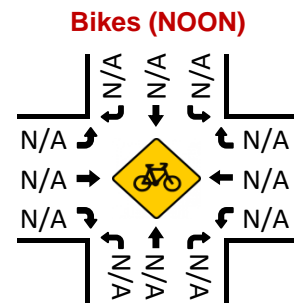
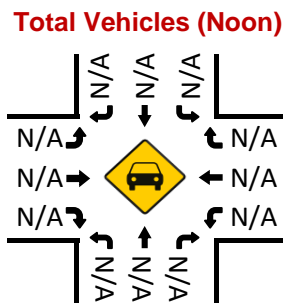
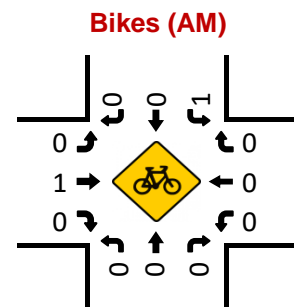
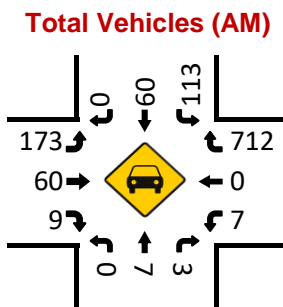
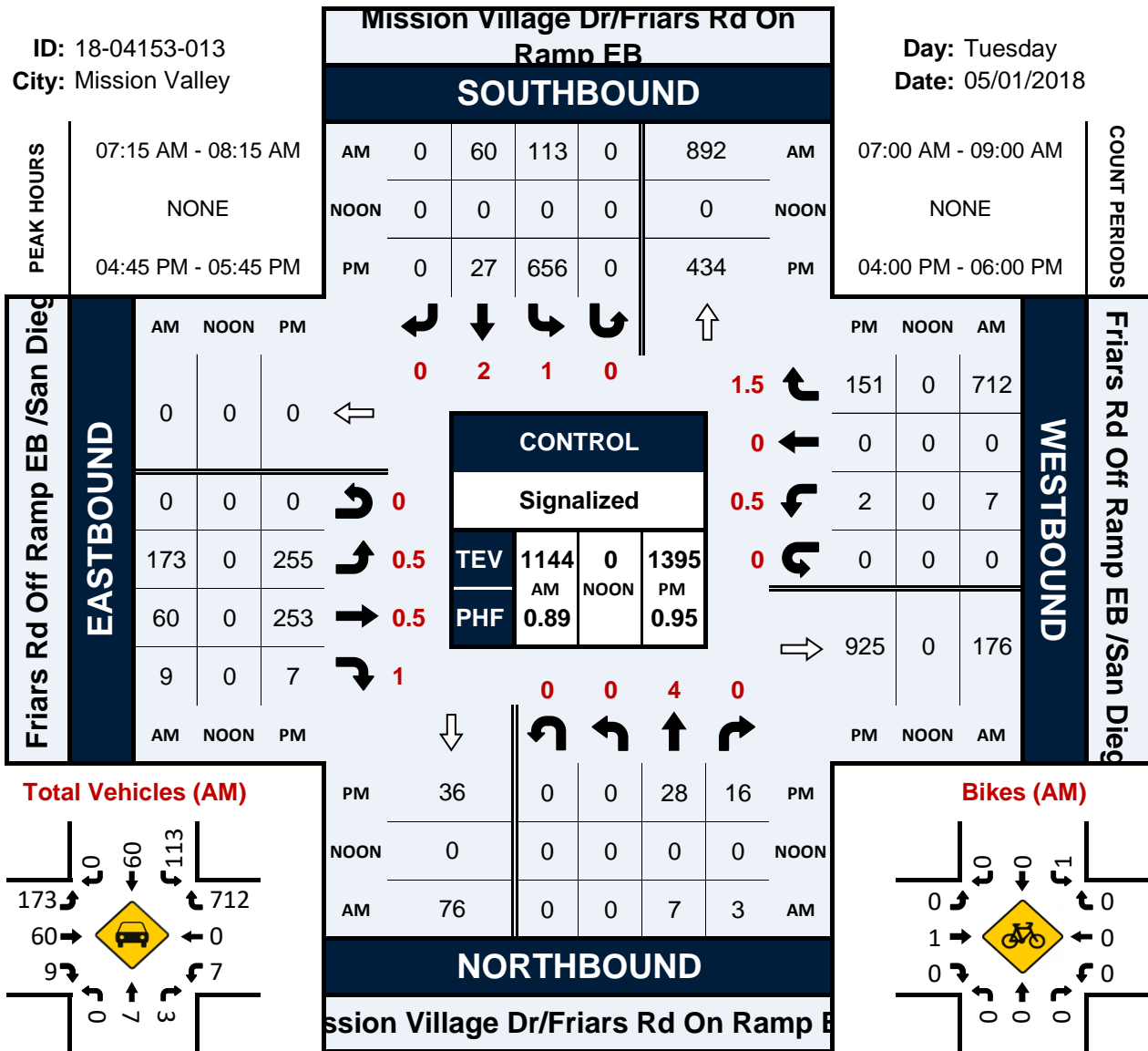


Mission Village Dr/Friars Rd On Ramp EB & Friars Rd Off Ramp EB /San Diego Mission Rd

Peak Hour Turning Movement Count

ID: 18-04153-013
City: Mission Valley

Day: Tuesday
Date: 05/01/2018

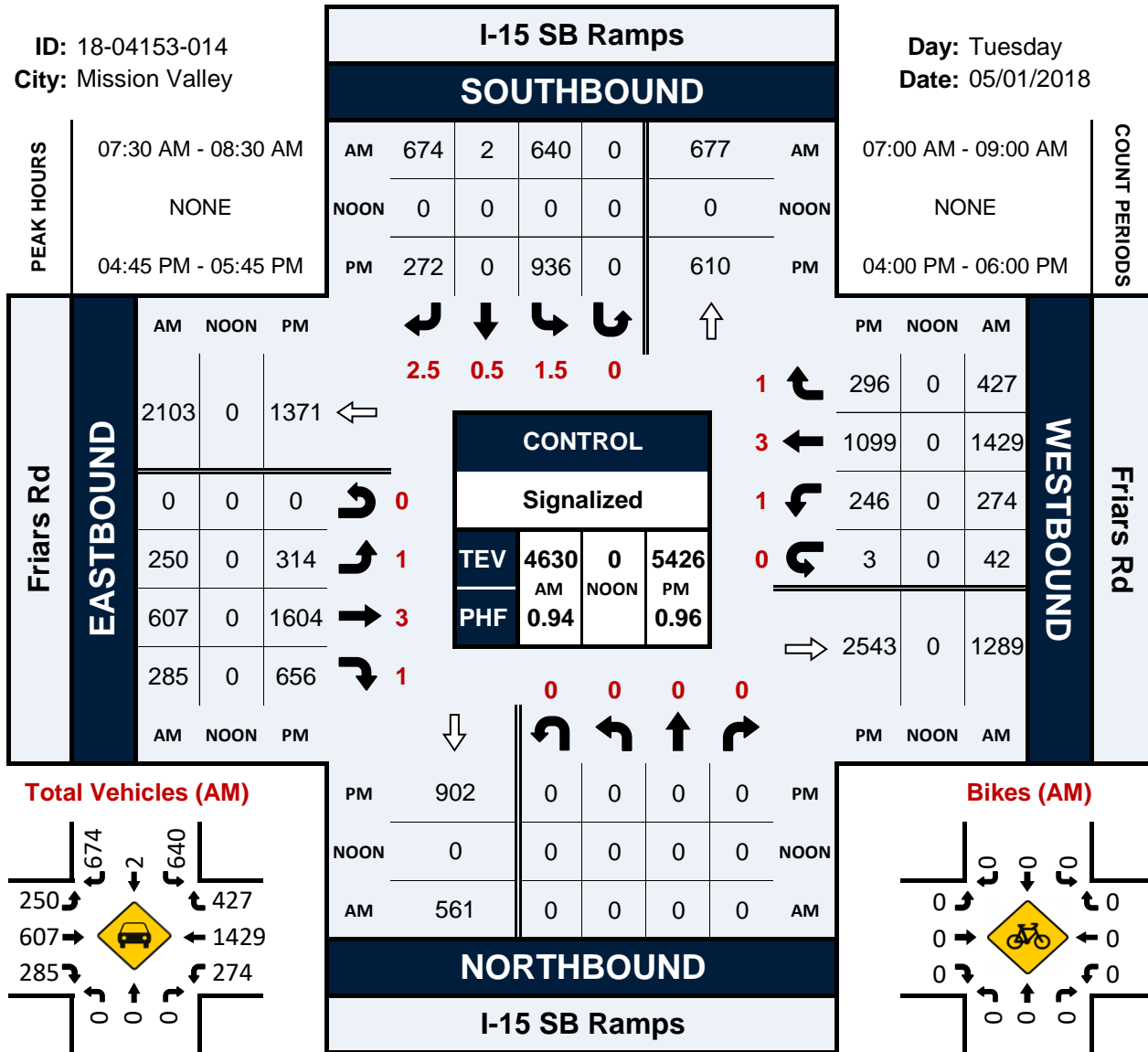


I-15 SB Ramps & Friars Rd

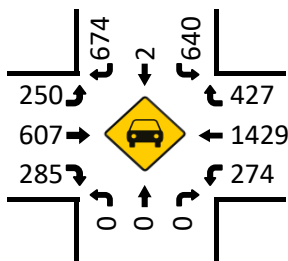
Peak Hour Turning Movement Count

ID: 18-04153-014
City: Mission Valley

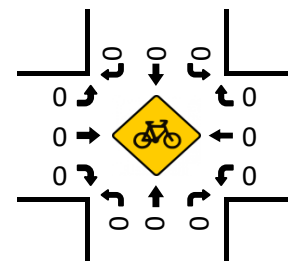
Day: Tuesday
Date: 05/01/2018



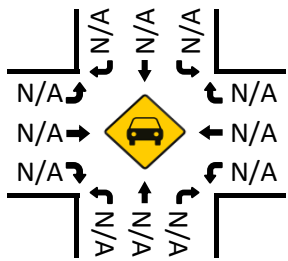
Total Vehicles (AM)



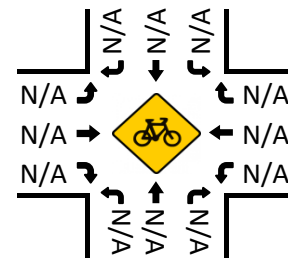
Bikes (AM)



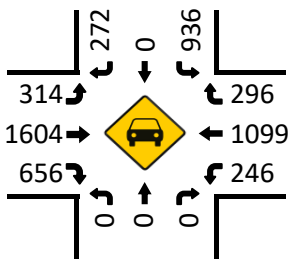
Total Vehicles (Noon)



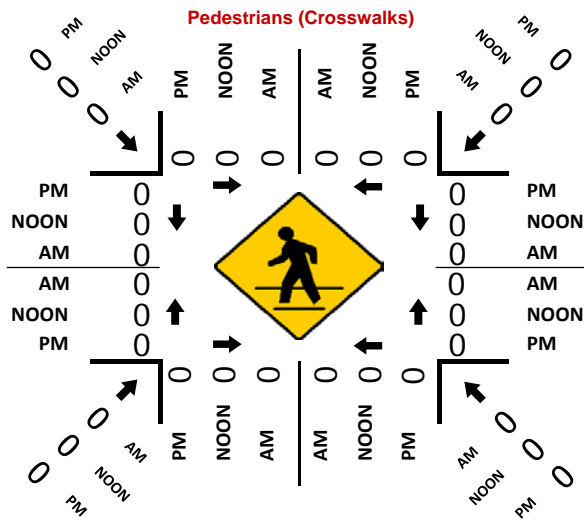
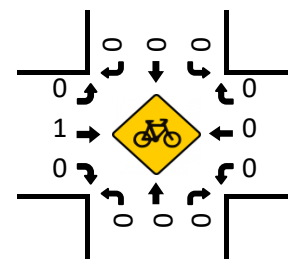
Bikes (NOON)



Total Vehicles (PM)



Bikes (PM)

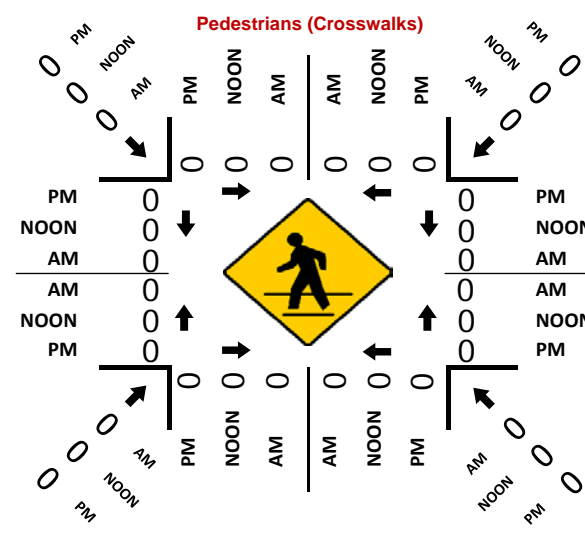
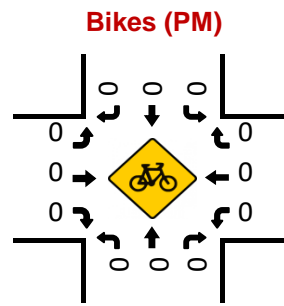
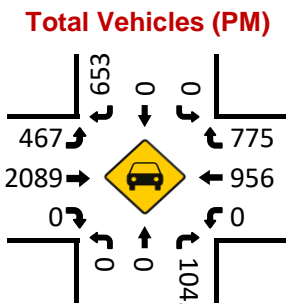
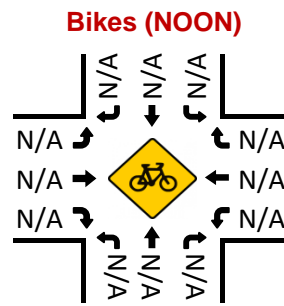
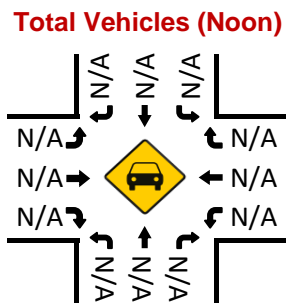
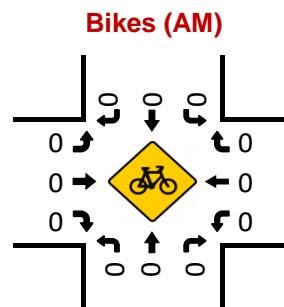
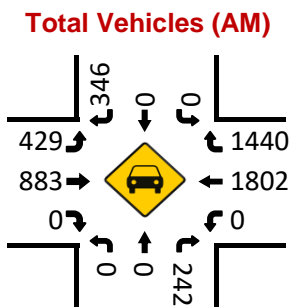
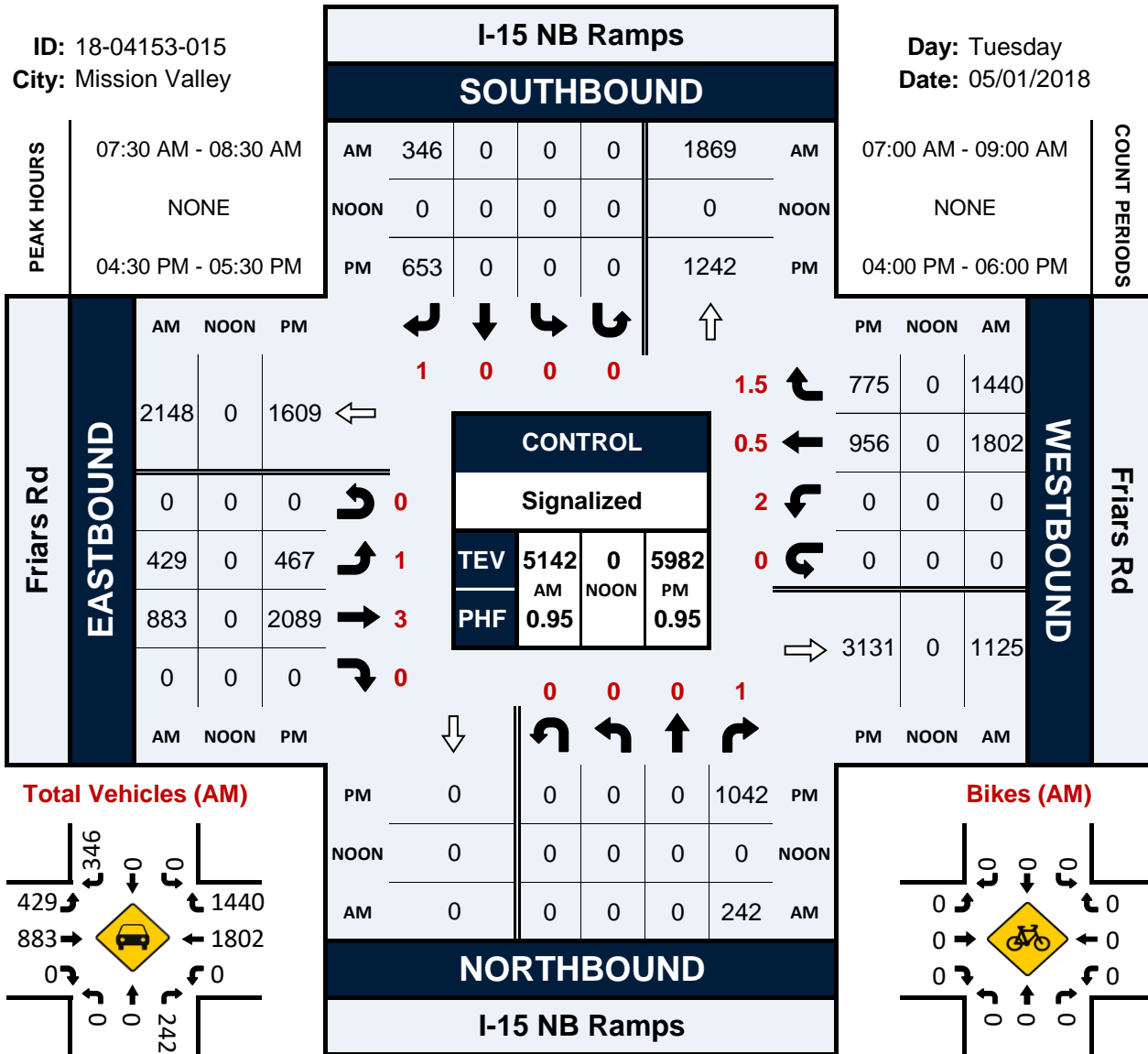


I-15 NB Ramps & Friars Rd

Peak Hour Turning Movement Count

ID: 18-04153-015
City: Mission Valley

Day: Tuesday
Date: 05/01/2018

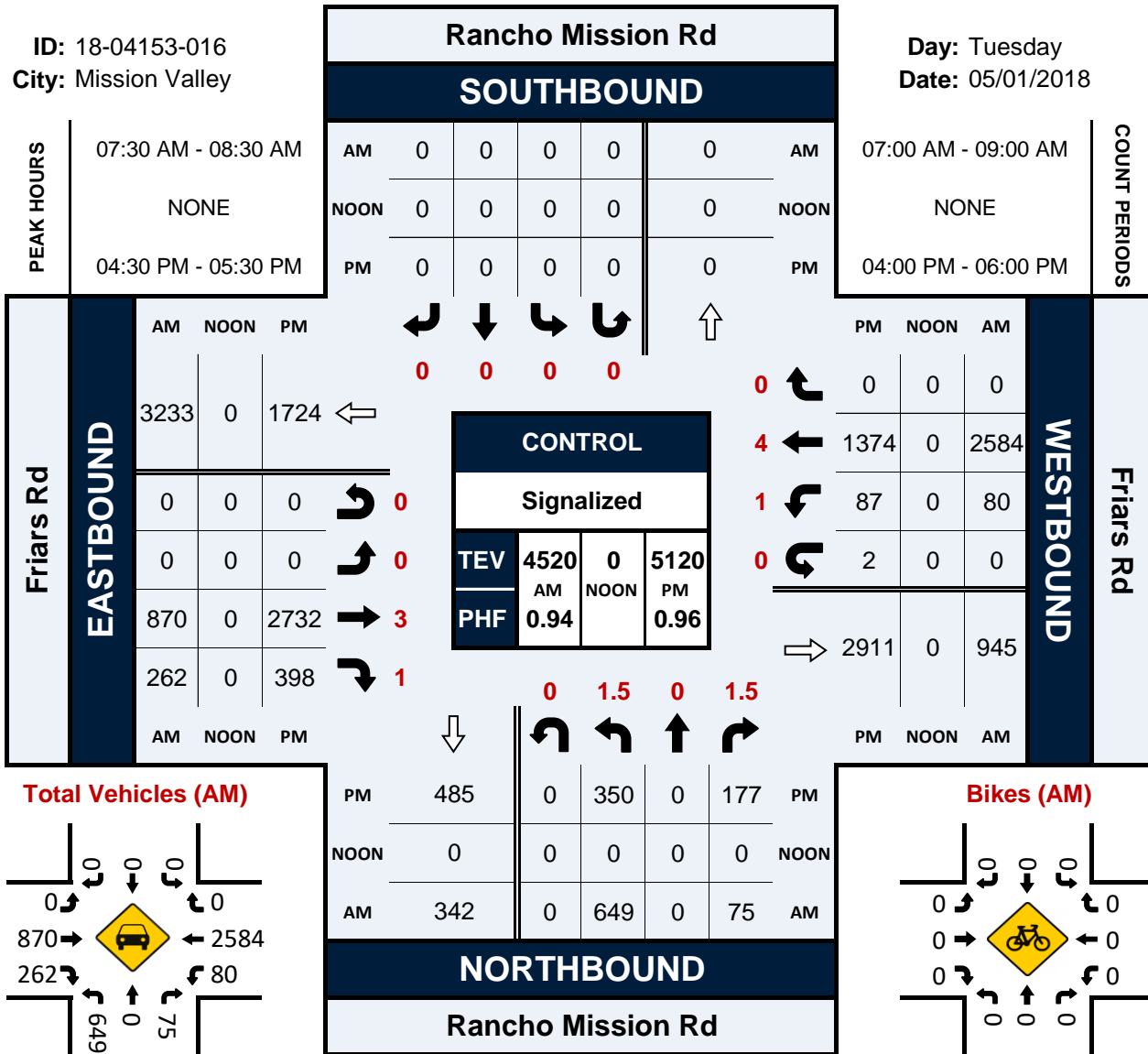


Rancho Mission Rd & Friars Rd

Peak Hour Turning Movement Count

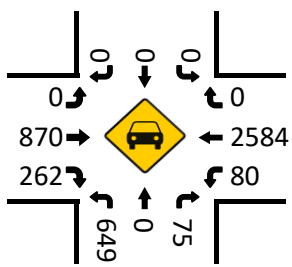
ID: 18-04153-016
City: Mission Valley

Day: Tuesday
Date: 05/01/2018

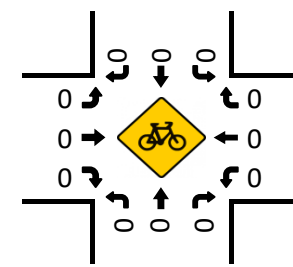


CONTROL			
Signalized			
TEV	4520	0	5120
	AM	NOON	PM
PHF	0.94		0.96

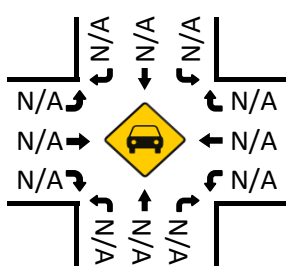
Total Vehicles (AM)



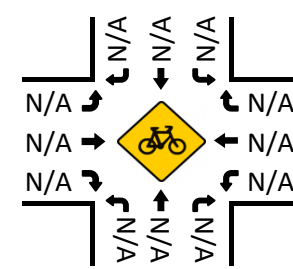
Bikes (AM)



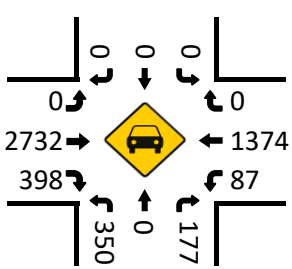
Total Vehicles (Noon)



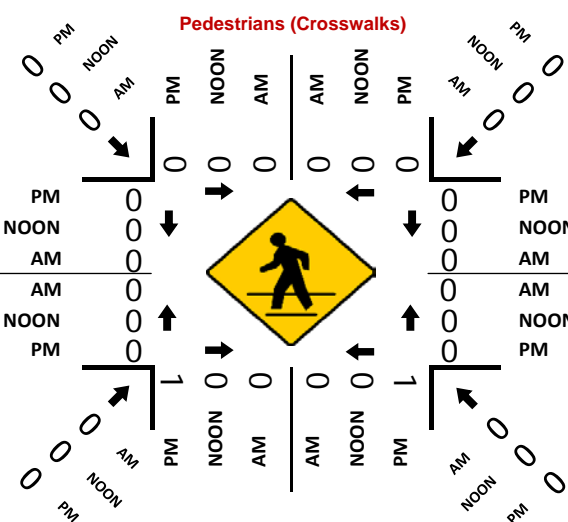
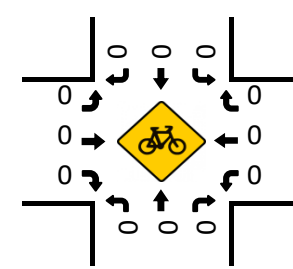
Bikes (NOON)



Total Vehicles (PM)



Bikes (PM)

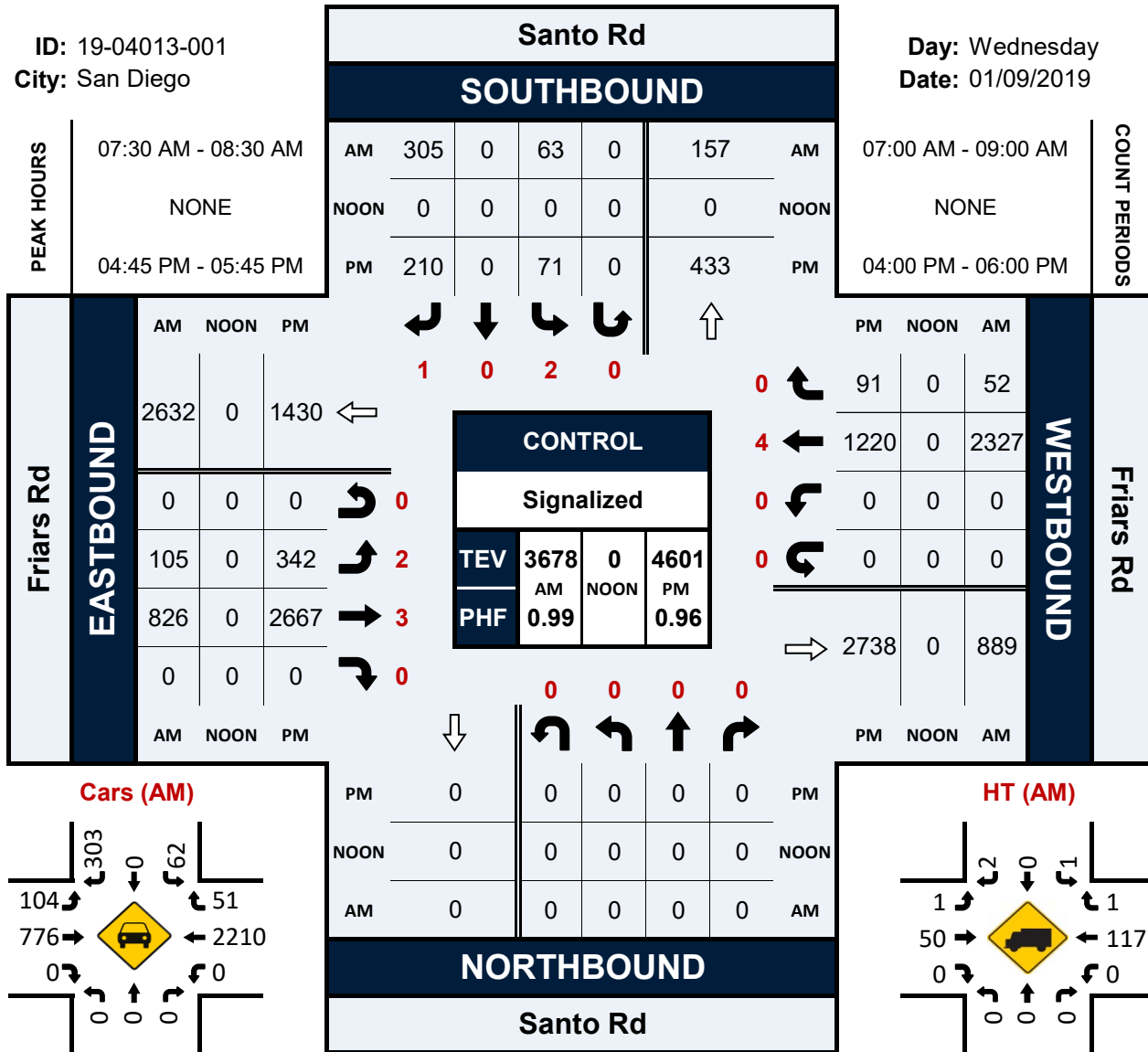


Santo Rd & Friars Rd

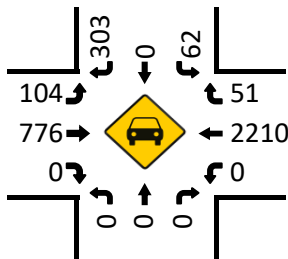
Peak Hour Turning Movement Count

ID: 19-04013-001
City: San Diego

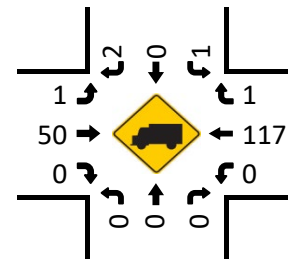
Day: Wednesday
Date: 01/09/2019



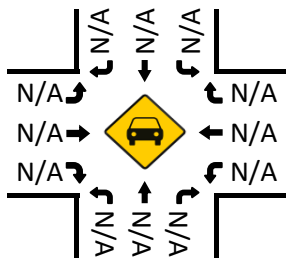
Cars (AM)



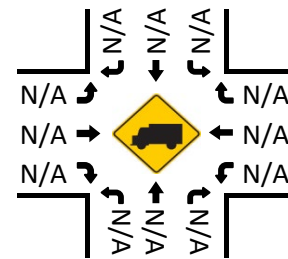
HT (AM)



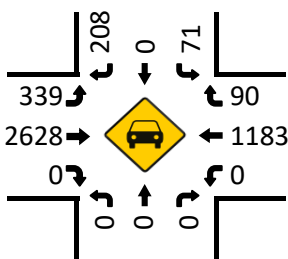
Cars (NOON)



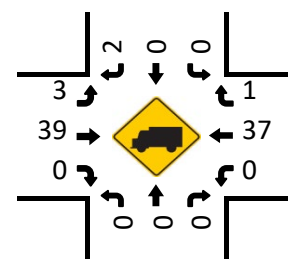
HT (NOON)



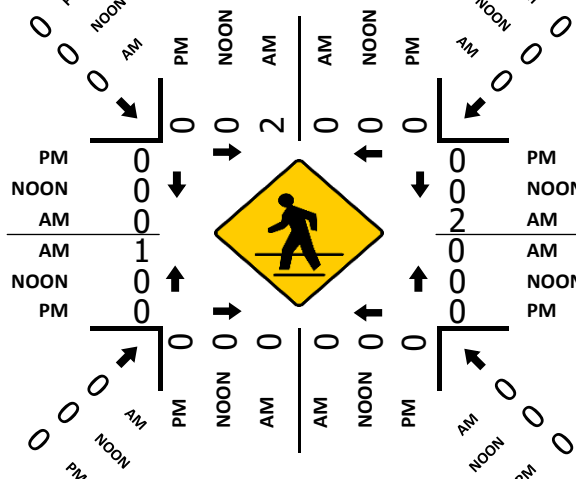
Cars (PM)



HT (PM)



Pedestrians (Crosswalks)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Santo Rd & Friars Rd
City: San Diego
Control: Signalized

Project ID: 19-04013-001
Date: 1/9/2019

Bikes

NS/EW Streets:	Santo Rd				Santo Rd				Friars Rd				Friars Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	2	0	1	0	2	3	0	0	0	4	0	0	0
7:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
					0.00%	0.00%	100.00%	0.00%									
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
					0.250												
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	2	0	1	0	2	3	0	0	0	4	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0	4
									0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: Riverdale St & Friars Rd
City: San Diego
Control: Signalized

Project ID: 19-04013-002
Date: 1/9/2019

Bikes

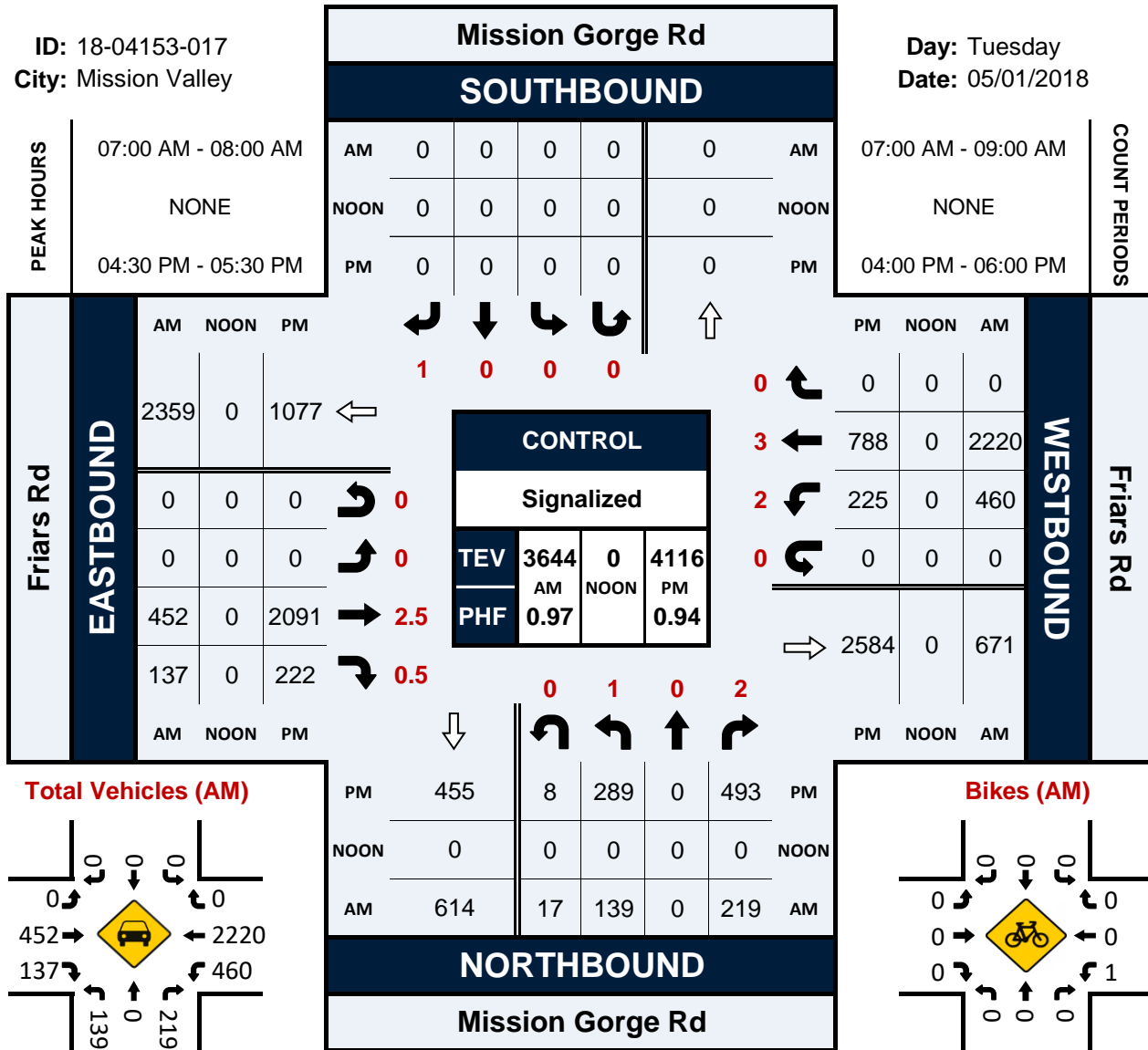
NS/EW Streets:	Riverdale St				Riverdale St				Friars Rd				Friars Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1 NL	0.5 NT	0.5 NR	0 NU	1 SL	1 ST	0 SR	0 SU	1 EL	3 ET	1 ER	0 EU	1 WL	3 WT	0 WR	0 WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	0	TOTAL 3
APPROACH %'s :					0.00%	100.00%	0.00%	0.00%					100.00%	0.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250
													0.250				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1 NL	0.5 NT	0.5 NR	0 NU	1 SL	1 ST	0 SR	0 SU	1 EL	3 ET	1 ER	0 EU	1 WL	3 WT	0 WR	0 WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2
4:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	0	0	0	0	0	1	0	0	0	1	0	0	0	3	0	0	TOTAL 5
APPROACH %'s :					0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0

Mission Gorge Rd & Friars Rd

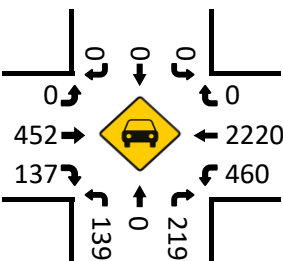
Peak Hour Turning Movement Count

ID: 18-04153-017
City: Mission Valley

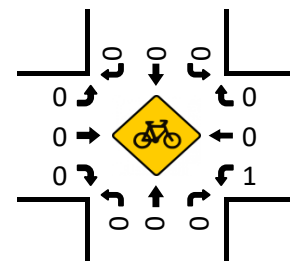
Day: Tuesday
Date: 05/01/2018



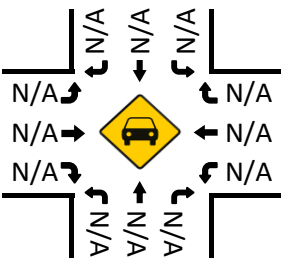
Total Vehicles (AM)



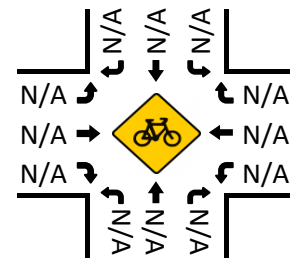
Bikes (AM)



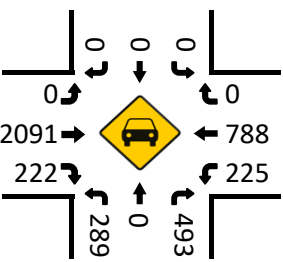
Total Vehicles (Noon)



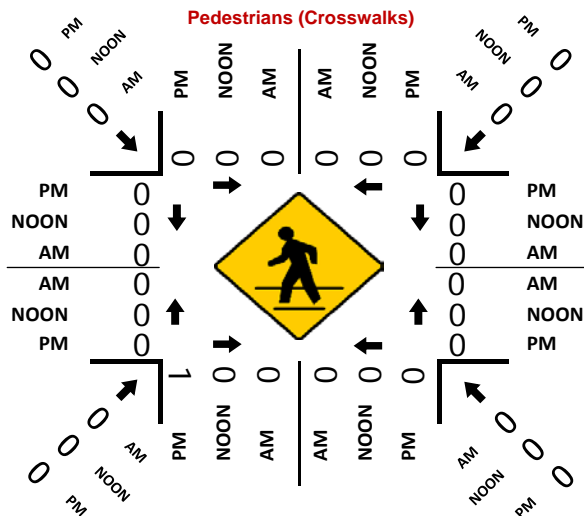
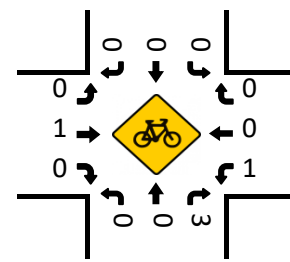
Bikes (NOON)



Total Vehicles (PM)



Bikes (PM)

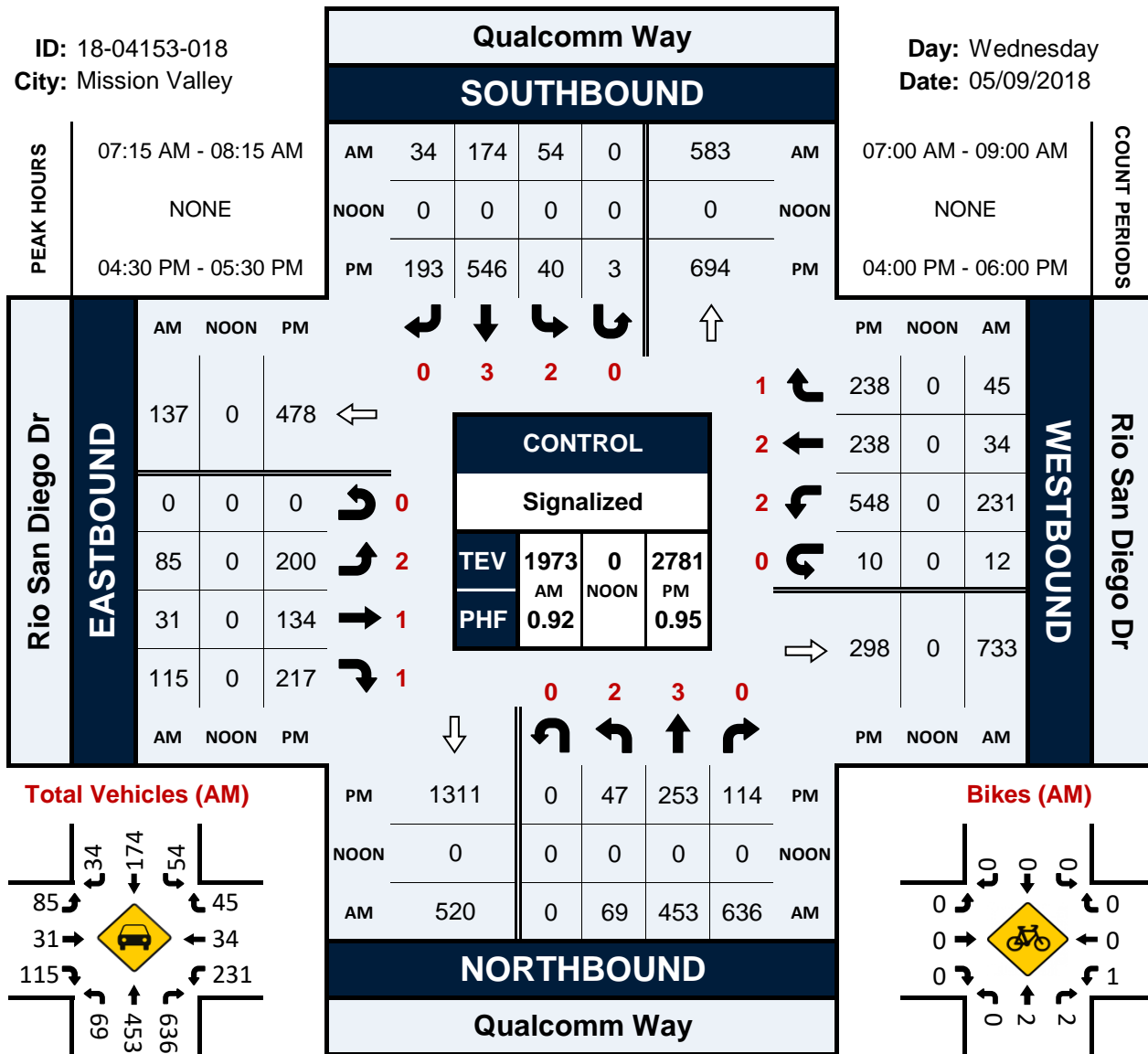


Qualcomm Way & Rio San Diego Dr

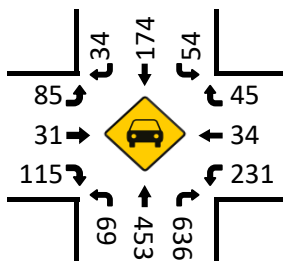
Peak Hour Turning Movement Count

ID: 18-04153-018
City: Mission Valley

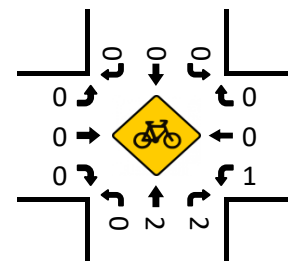
Day: Wednesday
Date: 05/09/2018



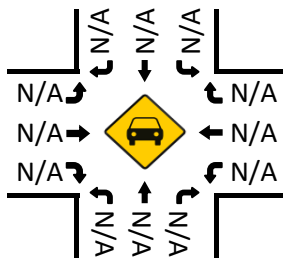
Total Vehicles (AM)



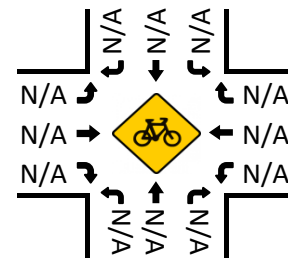
Bikes (AM)



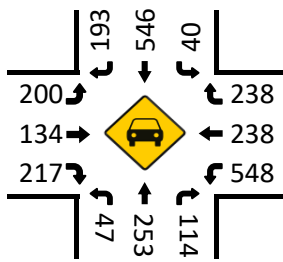
Total Vehicles (Noon)



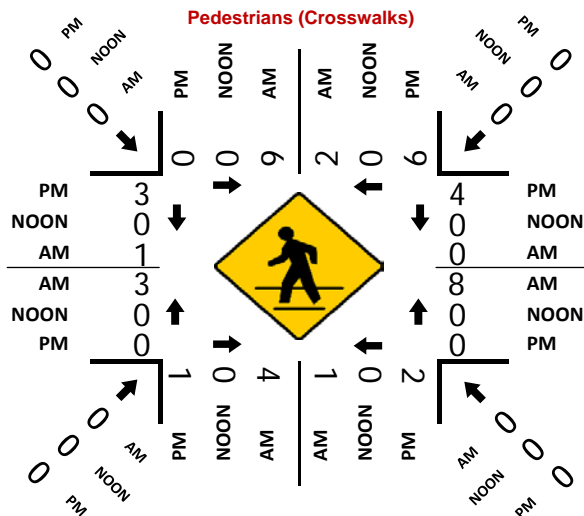
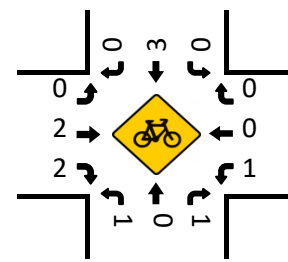
Bikes (NOON)



Total Vehicles (PM)



Bikes (PM)

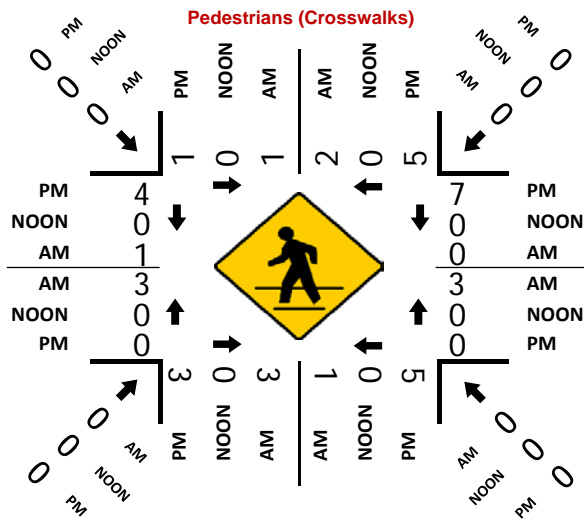
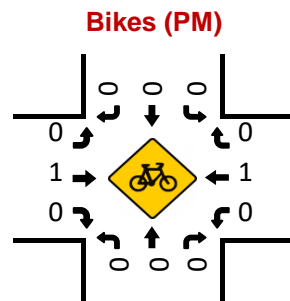
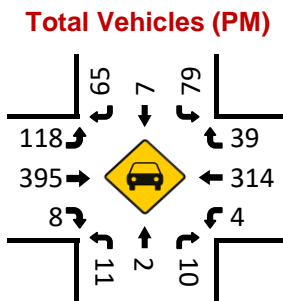
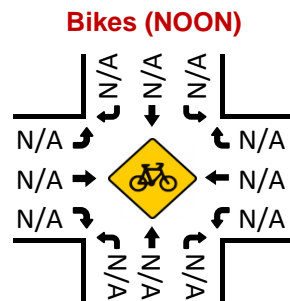
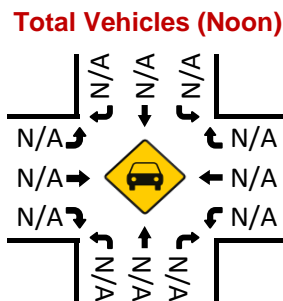
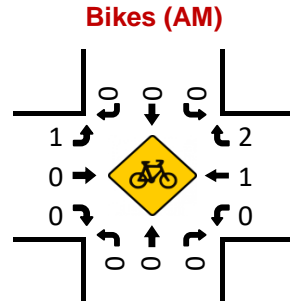
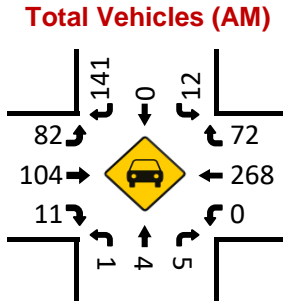
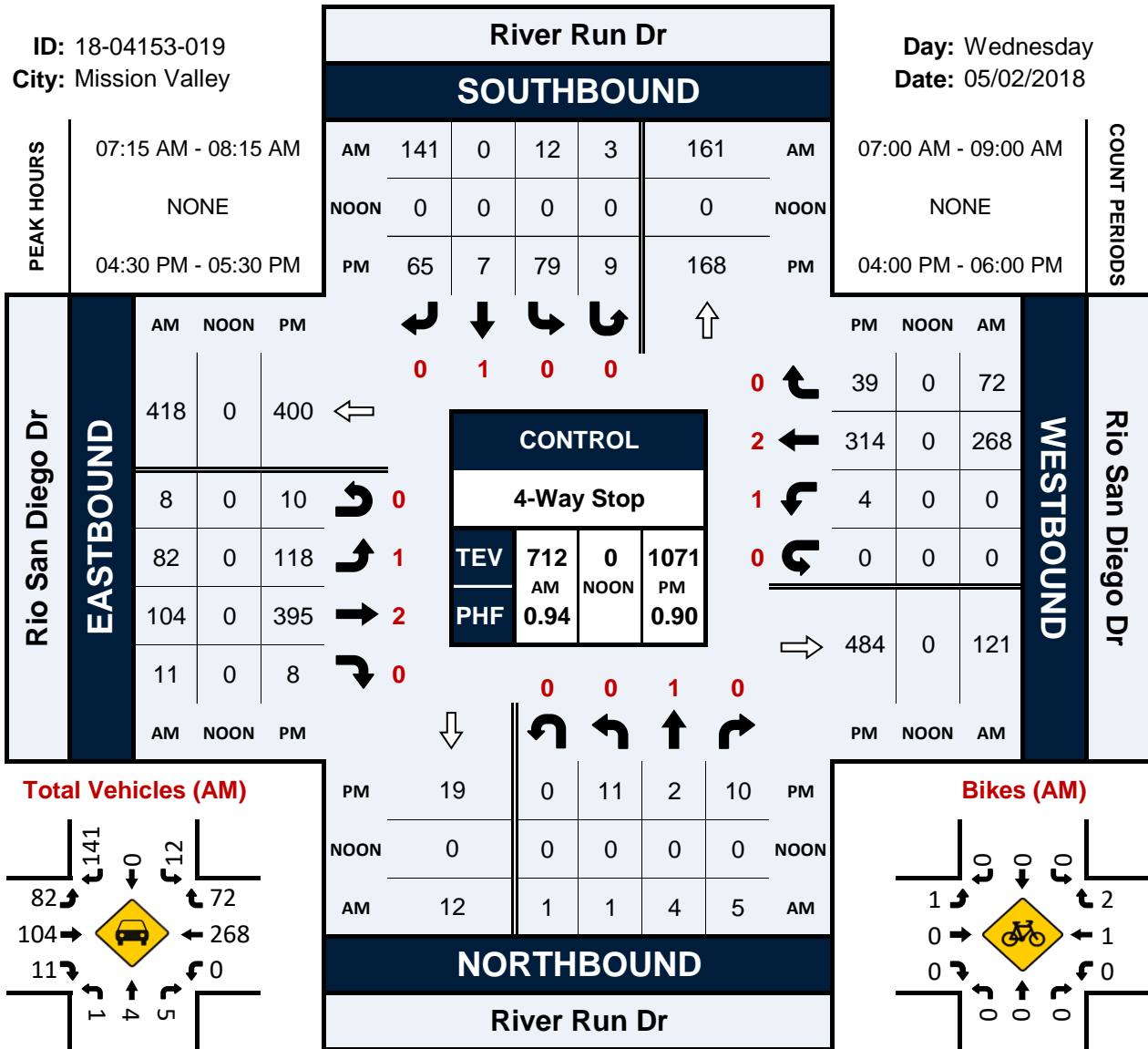


River Run Dr & Rio San Diego Dr

Peak Hour Turning Movement Count

ID: 18-04153-019
City: Mission Valley

Day: Wednesday
Date: 05/02/2018

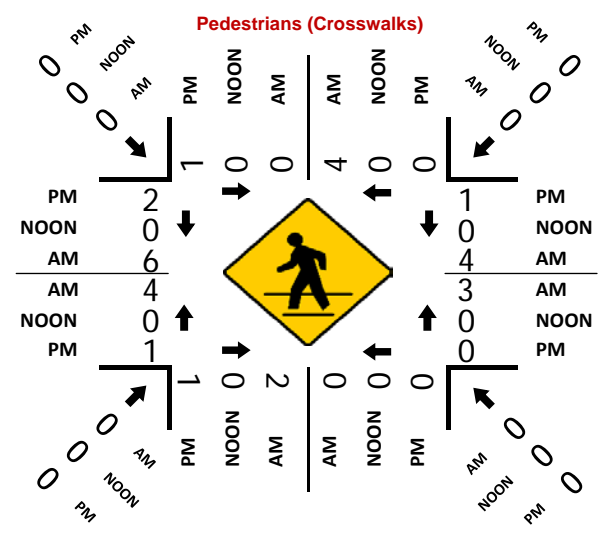
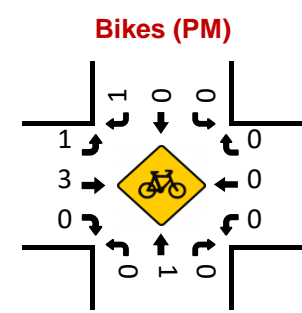
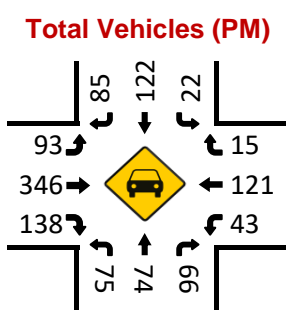
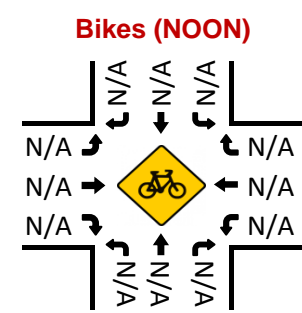
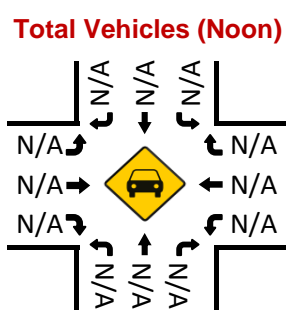
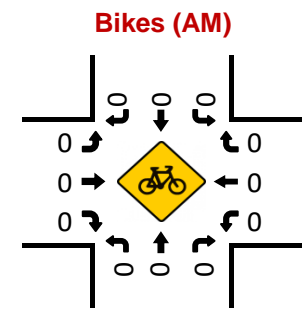
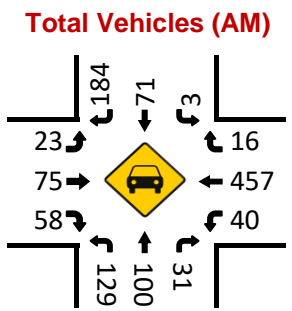
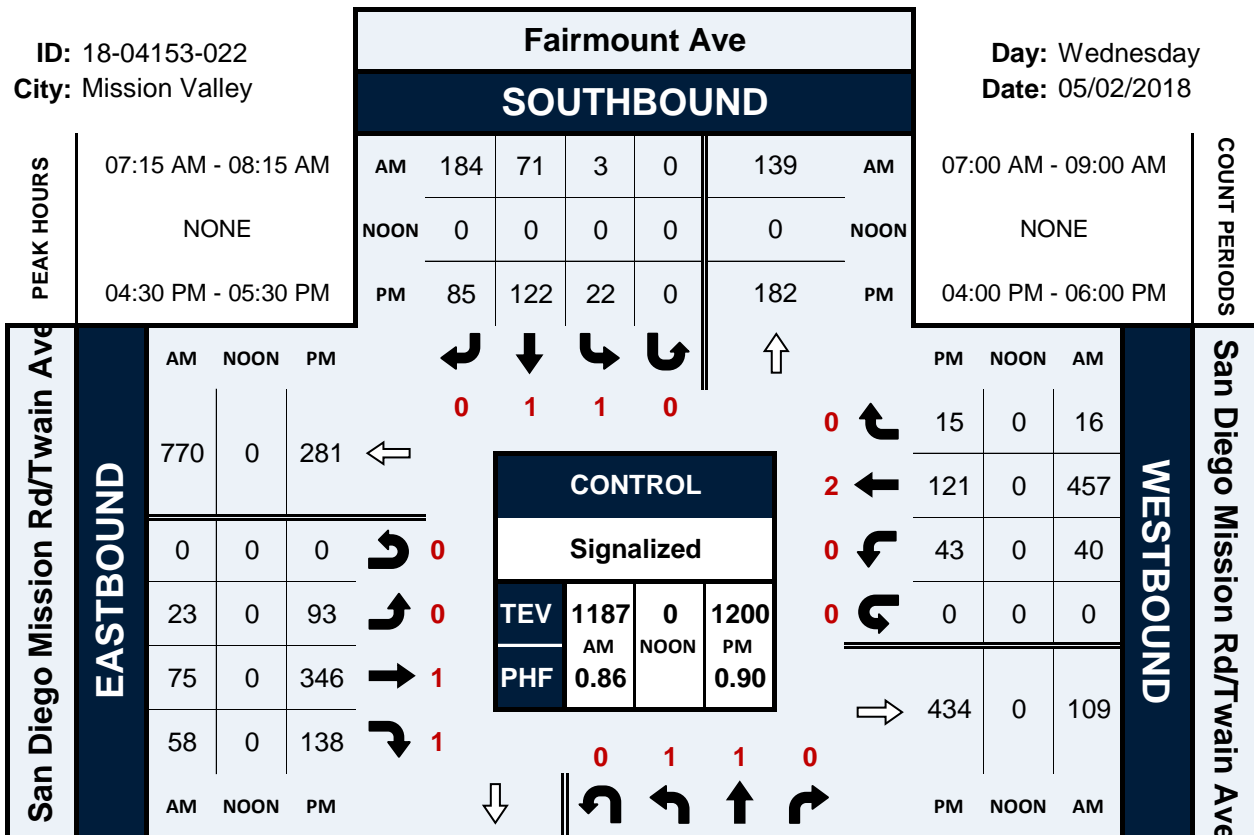


Fairmount Ave & San Diego Mission Rd/Twain Ave

Peak Hour Turning Movement Count

ID: 18-04153-022
City: Mission Valley

Day: Wednesday
Date: 05/02/2018

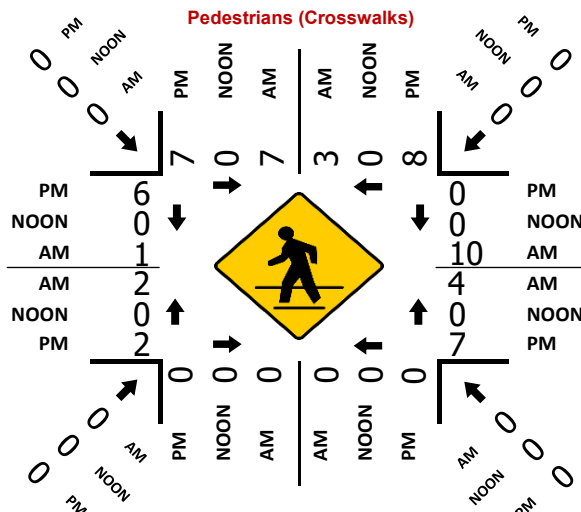
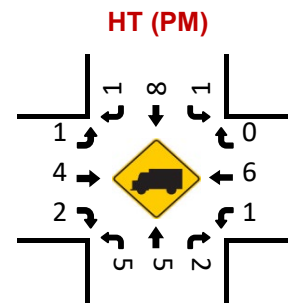
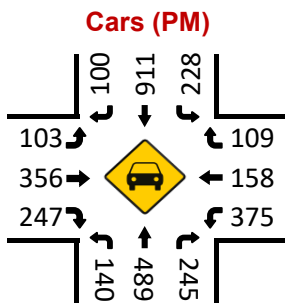
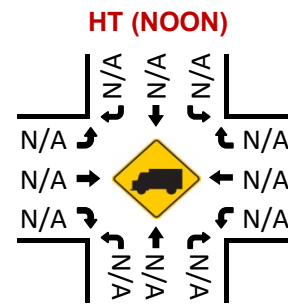
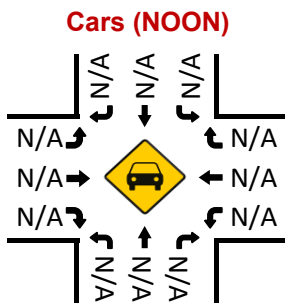
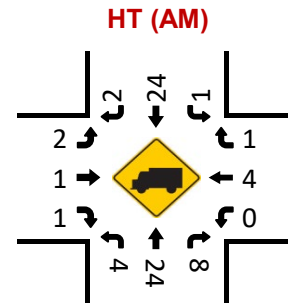
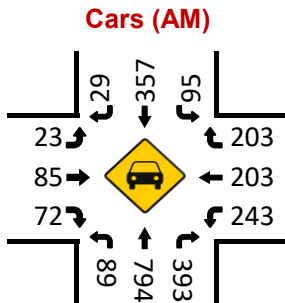
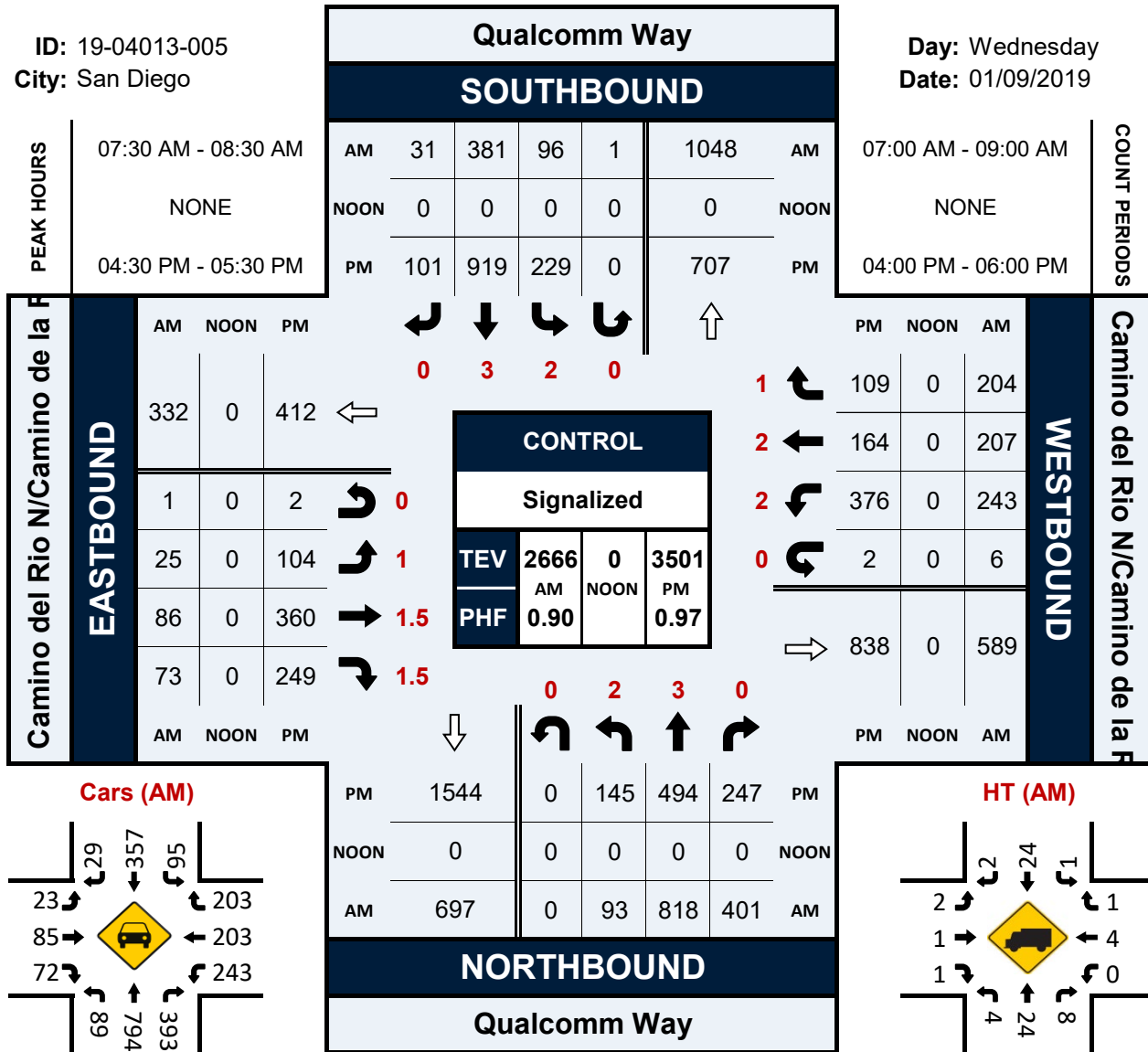


Qualcomm Way & Camino del Rio N/Camino de la Reina

Peak Hour Turning Movement Count

ID: 19-04013-005
City: San Diego

Day: Wednesday
Date: 01/09/2019



National Data & Surveying Services

Intersection Turning Movement Count

Location: Qualcomm Way & Camino del Rio N/Camino de la Reina
City: San Diego
Control: Signalized

Project ID: 19-04013-005
Date: 1/9/2019

Bikes

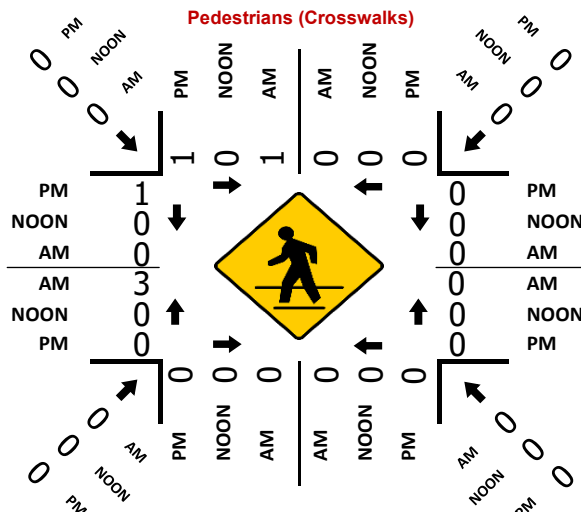
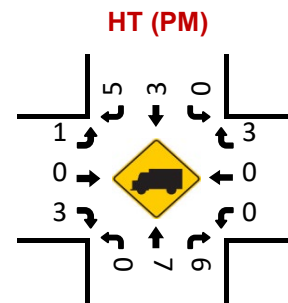
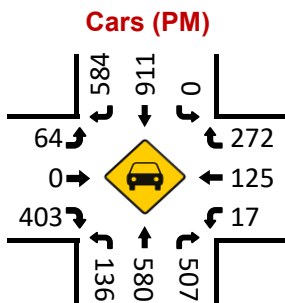
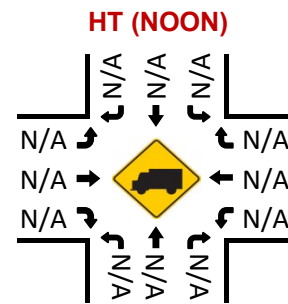
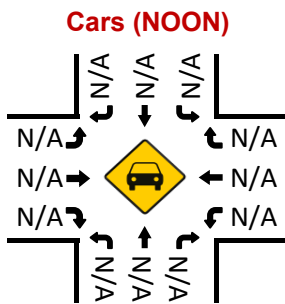
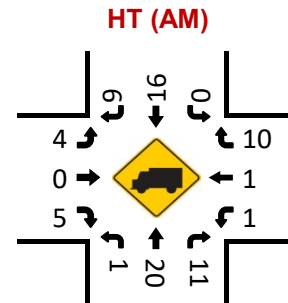
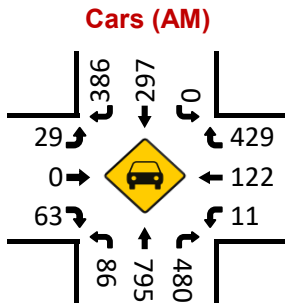
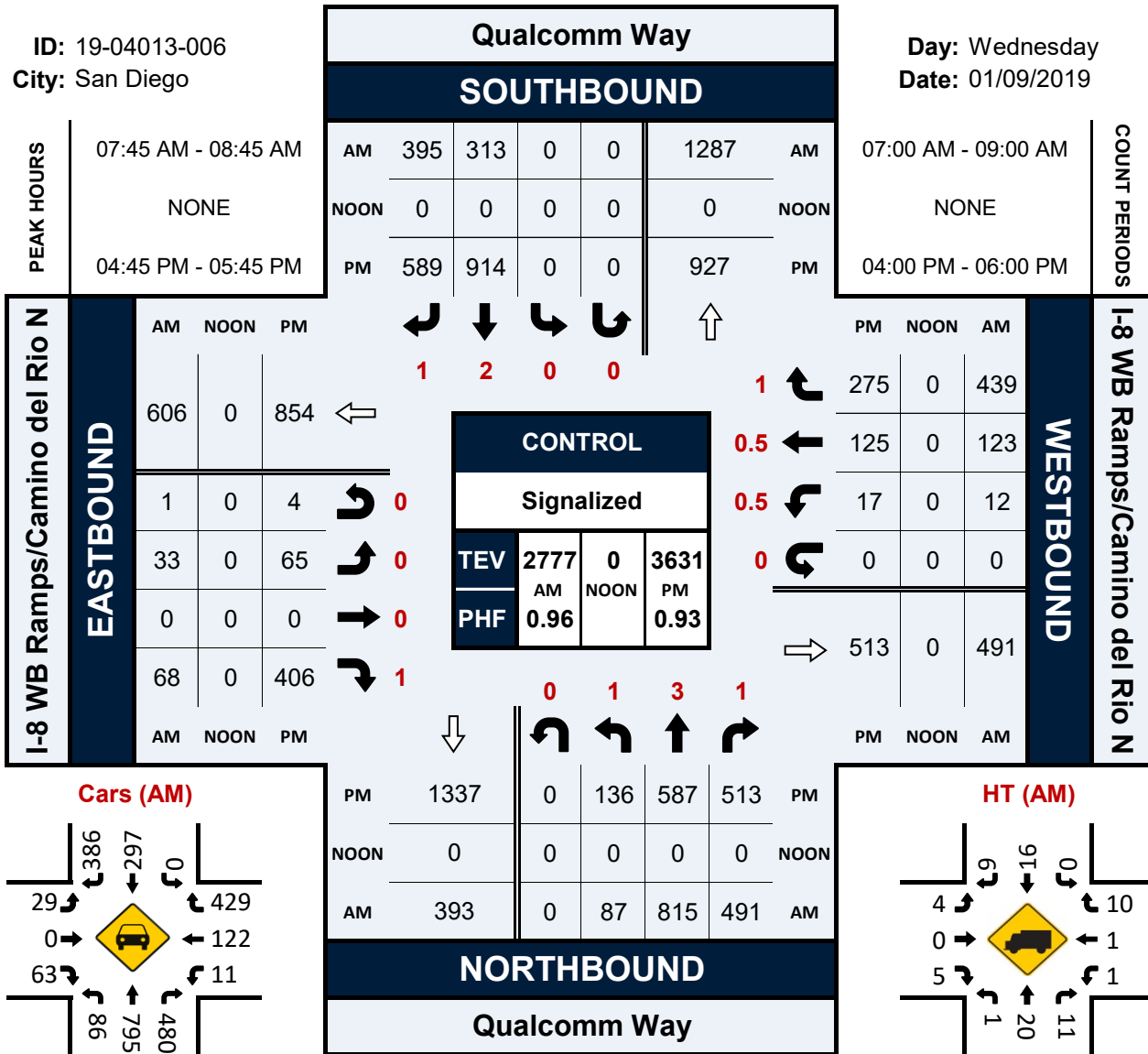
NS/EW Streets:	Qualcomm Way				Qualcomm Way				Camino del Rio N/Camino de la Reina				Camino del Rio N/Camino de la Reina				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	0	0	2	3	0	0	1	1.5	1.5	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	2	1	0	4
7:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
8:00 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	5	0	0	7
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
	0	3	0	0	0	1	0	0	0	4	0	0	1	11	1	0	21
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	7.69%	84.62%	7.69%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	0	1	0	0	0	1	0	0	0	3	0	0	1	6	0	0	12
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.750	0.000	0.000	0.250	0.300	0.000	0.000	0.429
	0.250				0.250				0.750				0.350				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	3	0	0	2	3	0	0	1	1.5	1.5	0	2	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	3
4:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	2
4:30 PM	1	2	0	0	0	1	0	0	1	3	0	0	0	0	0	0	8
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
	1	2	0	0	0	2	0	0	3	9	0	0	0	1	0	0	18
APPROACH %'s :	33.33%	66.67%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	25.00%	75.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	1	2	0	0	0	1	0	0	1	6	0	0	0	0	0	0	11
PEAK HR FACTOR :	0.25	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.344
	0.250				0.250				0.438								

Qualcomm Way & I-8 WB Ramps/Camino del Rio N

Peak Hour Turning Movement Count

ID: 19-04013-006
City: San Diego

Day: Wednesday
Date: 01/09/2019



National Data & Surveying Services

Intersection Turning Movement Count

Location: Qualcomm Way & I-8 WB Ramps/Camino del Rio N
City: San Diego
Control: Signalized

Project ID: 19-04013-006
Date: 1/9/2019

Bikes

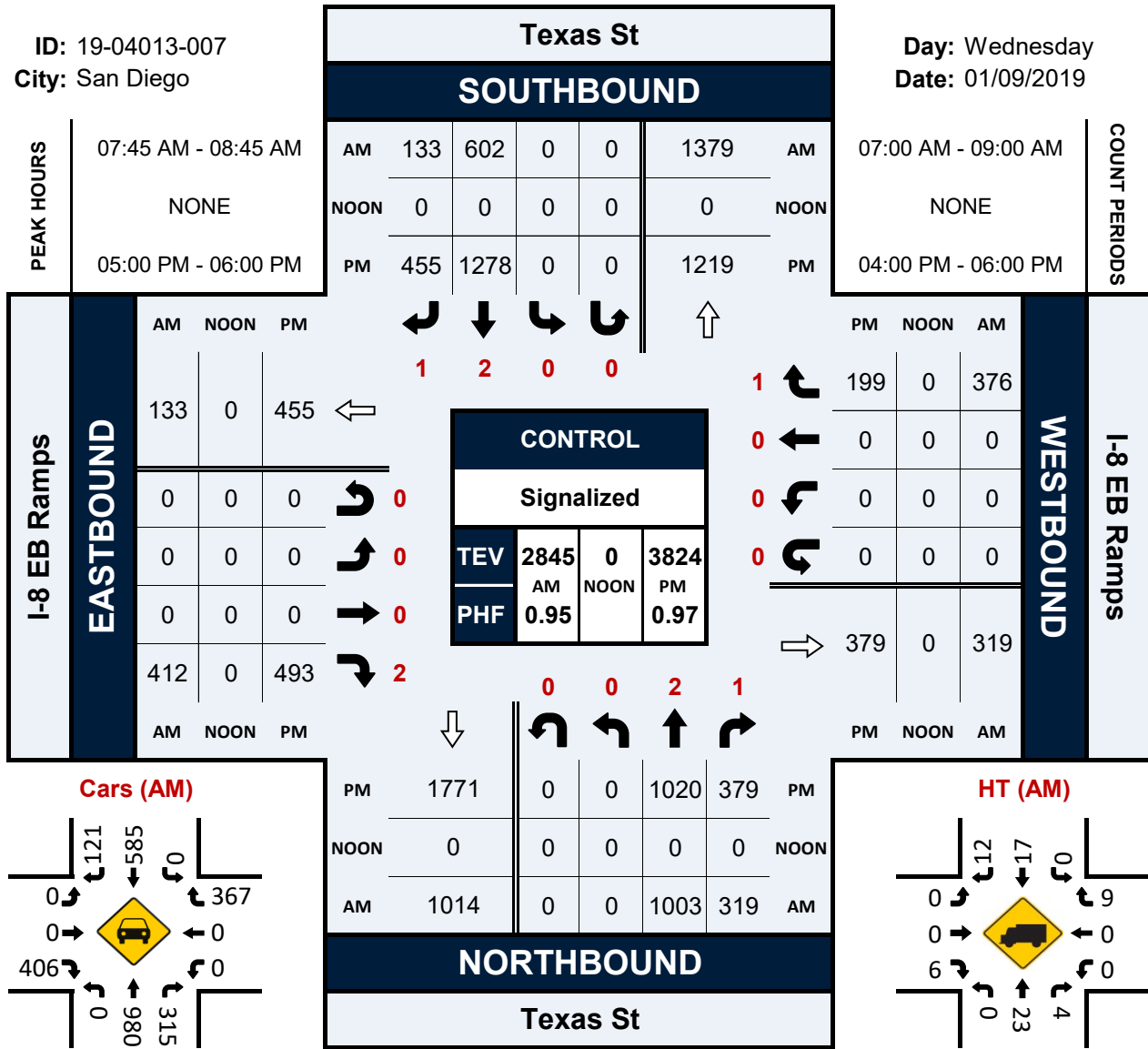
NS/EW Streets:	Qualcomm Way				Qualcomm Way				I-8 WB Ramps/Camino del Rio N					I-8 WB Ramps/Camino del Rio N				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND					WESTBOUND				TOTAL
	1 NL	3 NT	1 NR	0 NU	0 SL	2 ST	1 SR	0 SU	0 EL	0 ET	1 ER	0 EU	0 ER2	0.5 WL	0.5 WT	1 WR	0 WU	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	ER2	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	2	0	0	0	2	0	0	1	0	0	0	0	0	0	0	0	5
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%					
PEAK HR :	07:45 AM - 08:45 AM																	TOTAL
PEAK HR VOL :	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750
	0.250				0.500													
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND					WESTBOUND				TOTAL
1 NL	3 NT	1 NR	0 NU	0 SL	2 ST	1 SR	0 SU	0 EL	0 ET	1 ER	0 EU	0 ER2	0.5 WL	0.5 WT	1 WR	0 WU		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	ER2	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	5
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%					
PEAK HR :	04:45 PM - 05:45 PM																	TOTAL
PEAK HR VOL :	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
PEAK HR FACTOR :	0.00	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
	0.250				0.250													

Texas St & I-8 EB Ramps

Peak Hour Turning Movement Count

ID: 19-04013-007
City: San Diego

Day: Wednesday
Date: 01/09/2019



PEAK HOURS

07:45 AM - 08:45 AM
NONE
05:00 PM - 06:00 PM

COUNT PERIODS

07:00 AM - 09:00 AM
NONE
04:00 PM - 06:00 PM

I-8 EB Ramps EASTBOUND

	AM	NOON	PM
Left	133	0	455
Through	0	0	0
Right	0	0	0
Left	0	0	0
Through	0	0	0
Right	0	0	0
Left	412	0	493
Through			
Right			

I-8 EB Ramps WESTBOUND

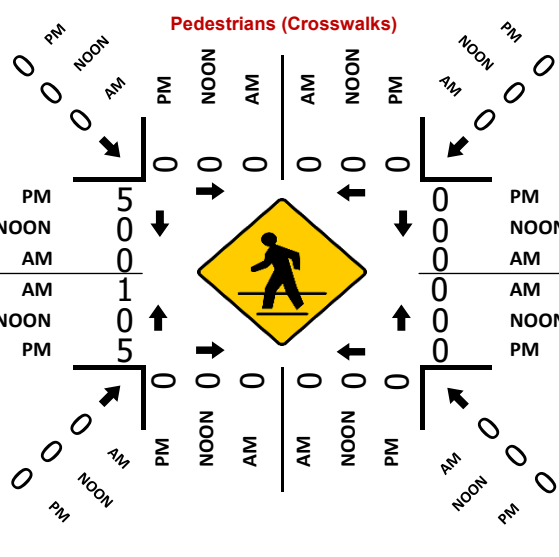
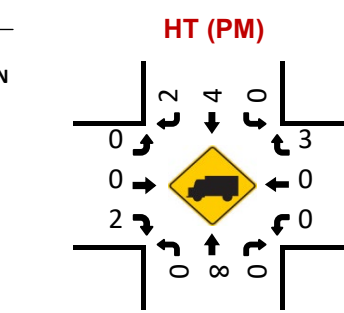
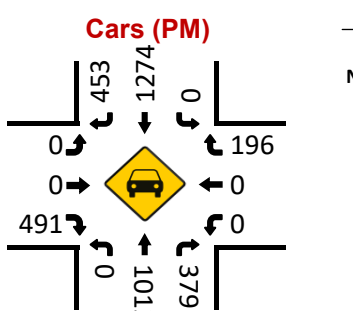
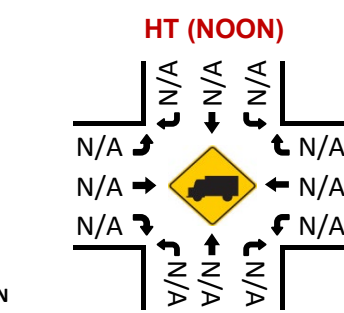
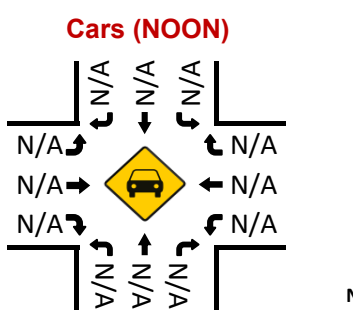
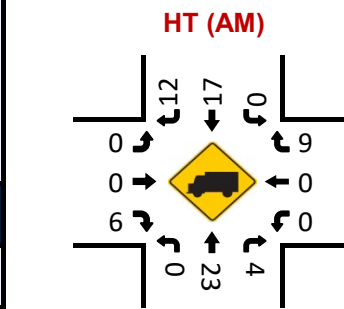
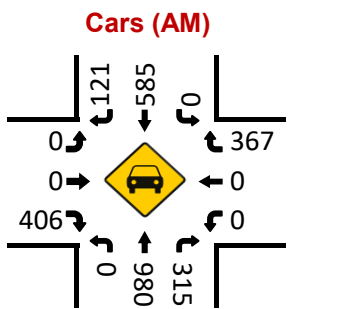
	PM	NOON	AM
Left	199	0	376
Through	0	0	0
Right	0	0	0
Left	0	0	0
Through	0	0	0
Right	0	0	0
Left	379	0	319
Through			
Right			

Texas St SOUTHBOUND

	AM	NOON	PM	AM
Left	133	0	455	1379
Through	602	0	1278	0
Right	0	0	0	0
Left	0	0	0	0
Through	0	0	0	0
Right	0	0	0	0
Left	455	0	493	1219
Through				
Right				

Texas St NORTHBOUND

	PM	NOON	AM	PM
Left	1771	0	1014	379
Through	0	0	0	0
Right	0	0	0	0
Left	0	0	0	0
Through	0	0	0	0
Right	0	0	0	0
Left	1014	0	1003	319
Through				
Right				



National Data & Surveying Services

Intersection Turning Movement Count

Location: Texas St & I-8 EB Ramps
City: San Diego
Control: Signalized

Project ID: 19-04013-007
Date: 1/9/2019

Bikes

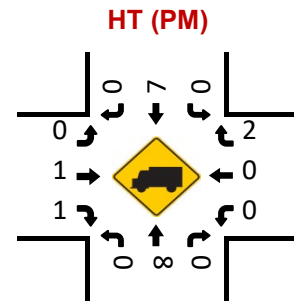
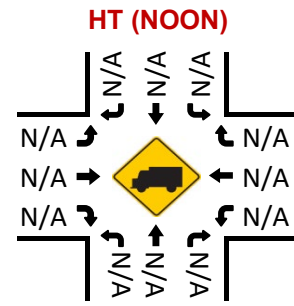
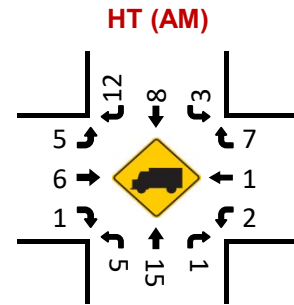
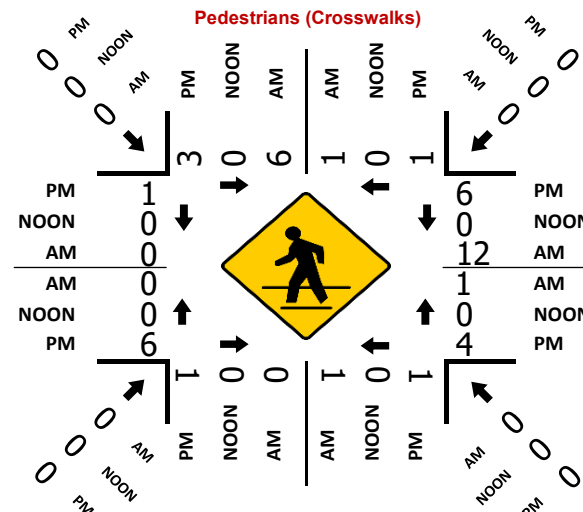
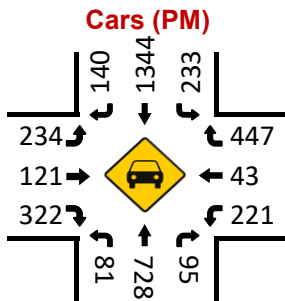
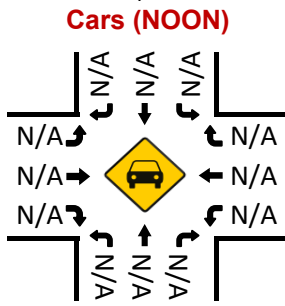
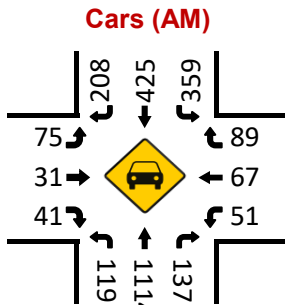
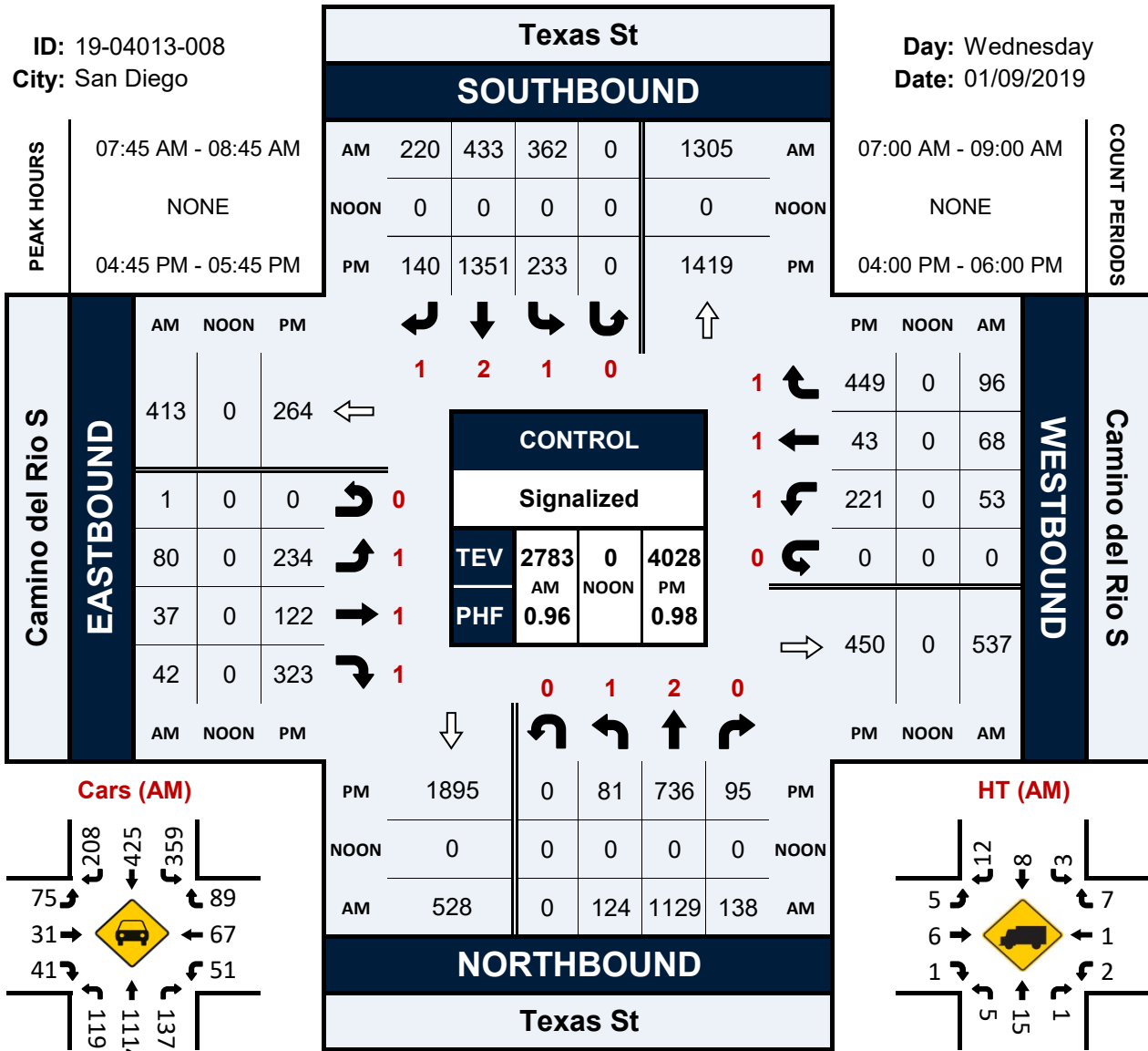
NS/EW Streets:	Texas St				Texas St				I-8 EB Ramps				I-8 EB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	4
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%									
PEAK HR :	07:45 AM - 08:45 AM																TOTAL
PEAK HR VOL :	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750
	0.250				0.500												
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	3
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	1	0	0	0	2	0	0	0	0	0	0	0	0	2	0	5
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%					0.00%	0.00%	100.00%	0.00%	
PEAK HR :	05:00 PM - 06:00 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
	0.250																

Texas St & Camino del Rio S

Peak Hour Turning Movement Count

ID: 19-04013-008
City: San Diego

Day: Wednesday
Date: 01/09/2019



National Data & Surveying Services

Intersection Turning Movement Count

Location: Texas St & Camino del Rio S
City: San Diego
Control: Signalized

Project ID: 19-04013-008
Date: 1/9/2019

Bikes

NS/EW Streets:	Texas St				Texas St				Camino del Rio S				Camino del Rio S				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	1 SR	0 SU	1 EL	1 ET	1 ER	0 EU	1 WL	1 WT	1 WR	0 WU	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	1	1	0	0	0	0	0	0	0	0	0	0	2	0	0	0	4
7:30 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	4
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
TOTAL VOLUMES :	NL 2	NT 2	NR 4	NU 0	SL 0	ST 1	SR 1	SU 0	EL 0	ET 0	ER 0	EU 0	WL 2	WT 1	WR 0	WU 0	TOTAL 13
APPROACH %'s :	25.00%	25.00%	50.00%	0.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	0.00%	0.00%	66.67%	33.33%	0.00%	0.00%	
PEAK HR :	07:45 AM - 08:45 AM																
PEAK HR VOL :	0	1	4	0	0	1	1	0	0	0	0	0	0	0	0	0	TOTAL 7
PEAK HR FACTOR :	0.000	0.250	0.333	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.438
	0.313				0.500												

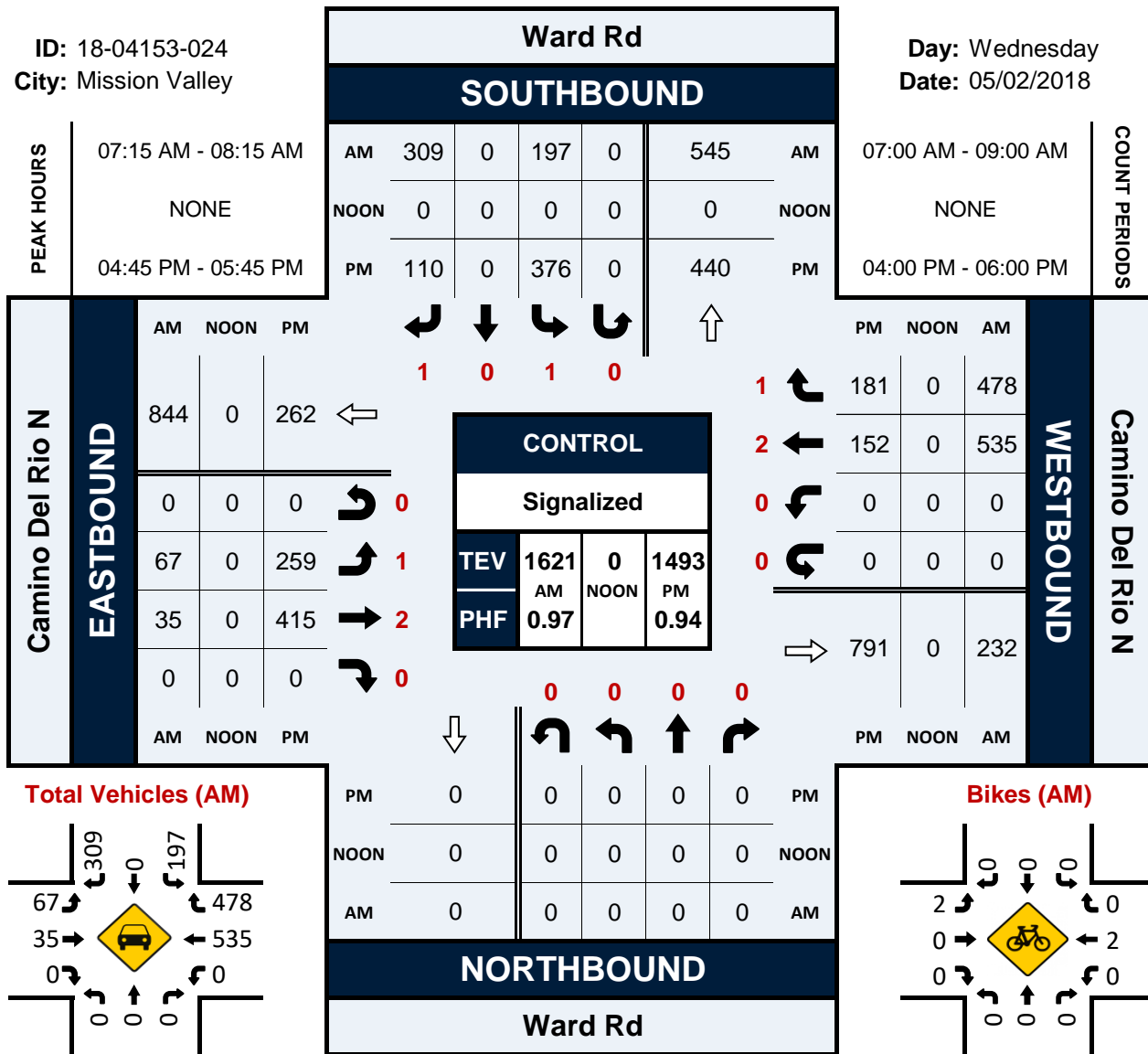
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
1 NL	2 NT	0 NR	0 NU	1 SL	2 ST	1 SR	0 SU	1 EL	1 ET	1 ER	0 EU	1 WL	1 WT	1 WR	0 WU	TOTAL	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2
5:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES :	NL 0	NT 1	NR 1	NU 0	SL 0	ST 2	SR 0	SU 0	EL 0	ET 0	ER 0	EU 0	WL 3	WT 0	WR 0	WU 0	TOTAL 7
APPROACH %'s :	0.00%	50.00%	50.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																
PEAK HR VOL :	0	1	1	0	0	0	0	0	0	0	0	0	2	0	0	0	TOTAL 4
PEAK HR FACTOR :	0.00	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.500
	0.500												0.500				

Ward Rd & Camino Del Rio N

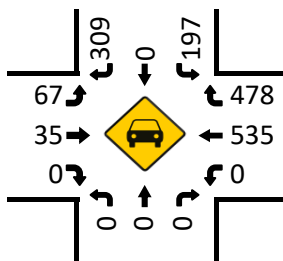
Peak Hour Turning Movement Count

ID: 18-04153-024
City: Mission Valley

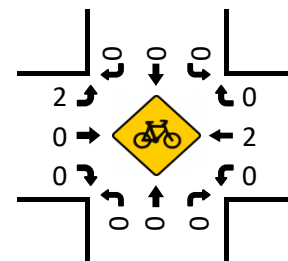
Day: Wednesday
Date: 05/02/2018



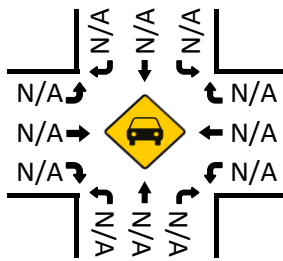
Total Vehicles (AM)



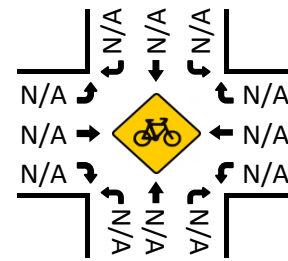
Bikes (AM)



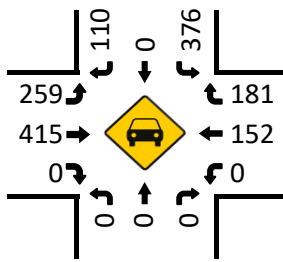
Total Vehicles (Noon)



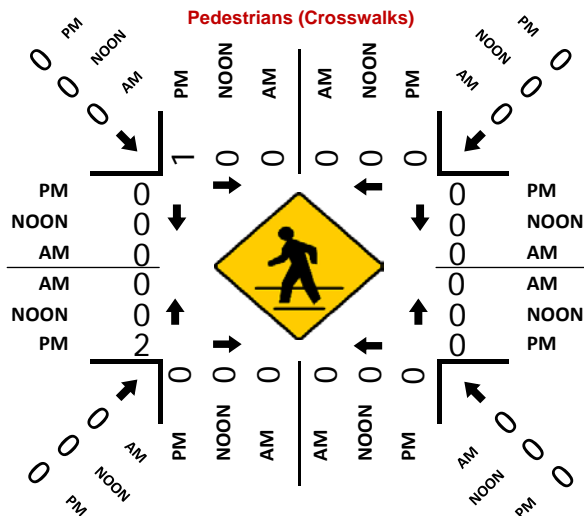
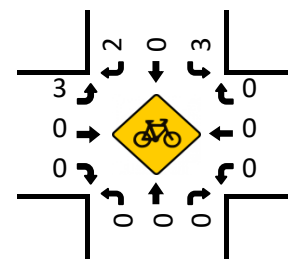
Bikes (NOON)



Total Vehicles (PM)



Bikes (PM)

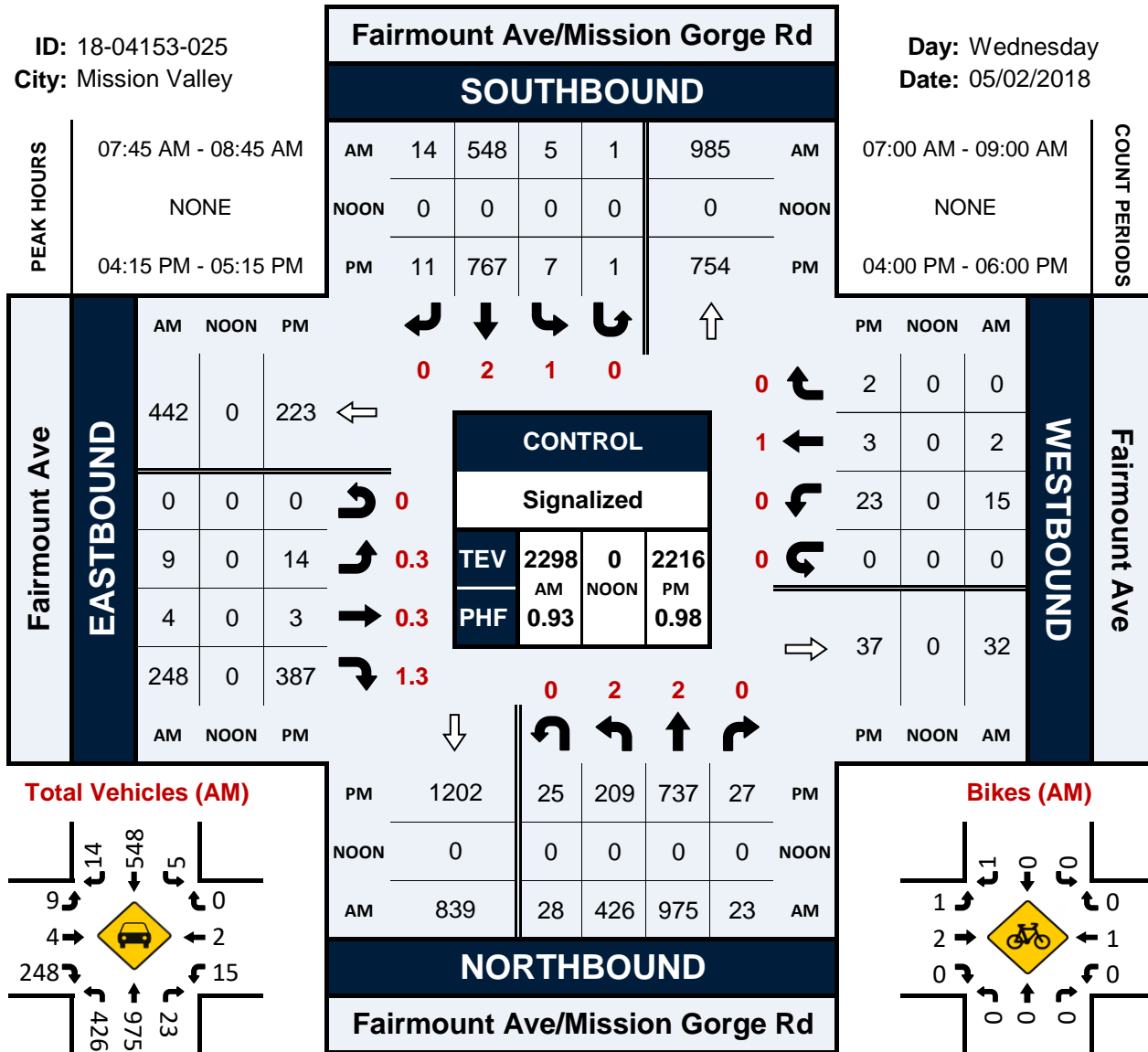


Fairmount Ave/Mission Gorge Rd & Fairmount Ave

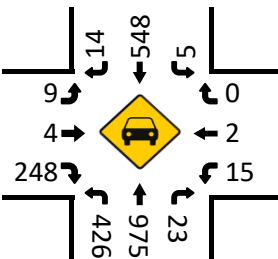
Peak Hour Turning Movement Count

ID: 18-04153-025
City: Mission Valley

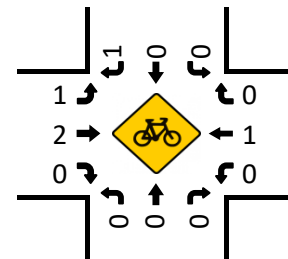
Day: Wednesday
Date: 05/02/2018



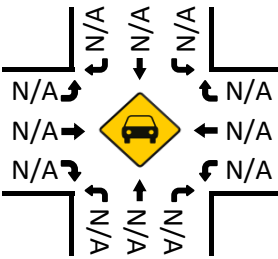
Total Vehicles (AM)



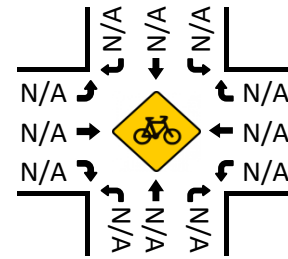
Bikes (AM)



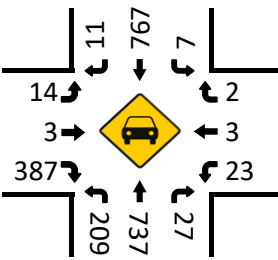
Total Vehicles (Noon)



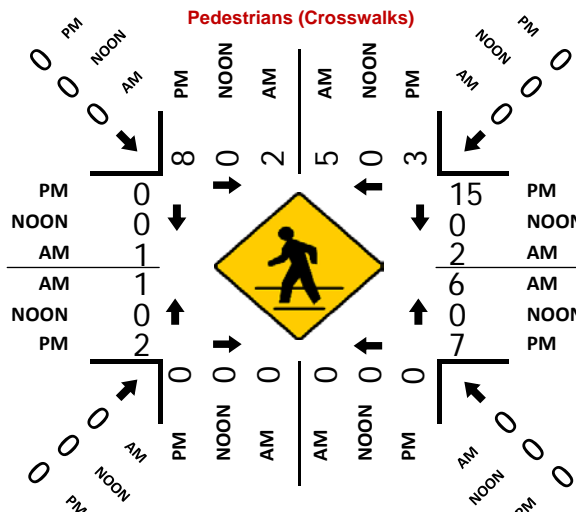
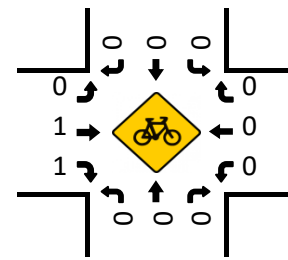
Bikes (NOON)



Total Vehicles (PM)



Bikes (PM)

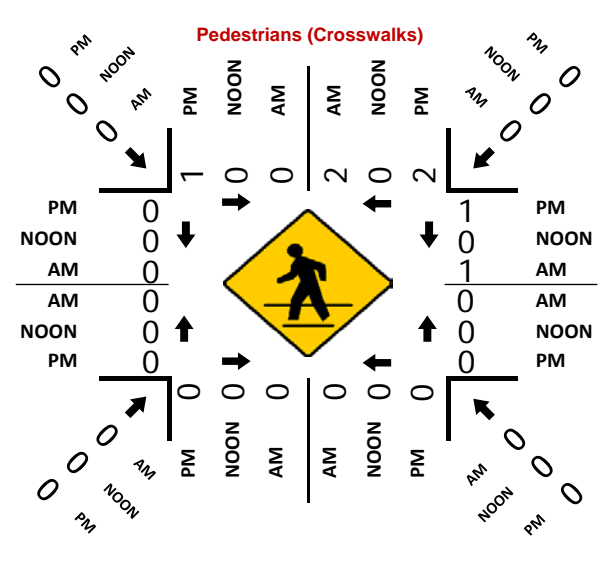
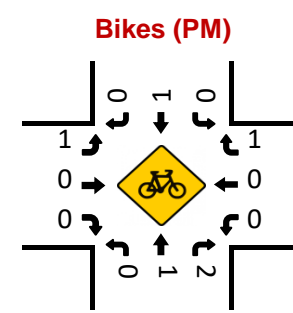
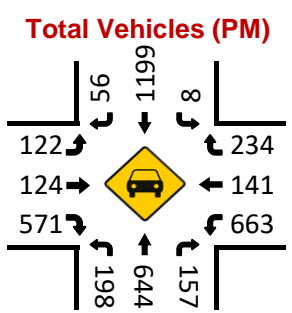
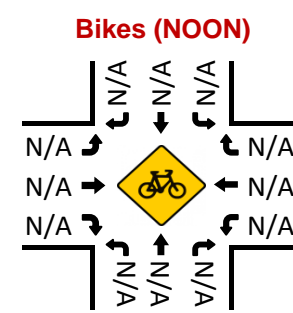
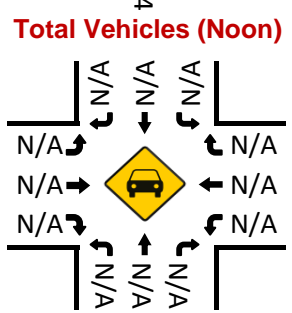
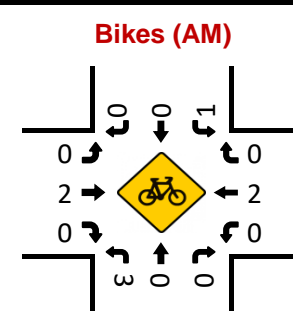
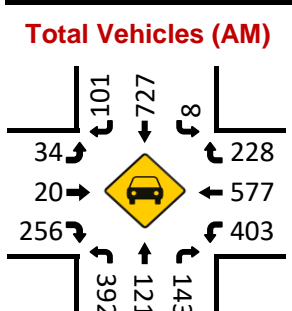
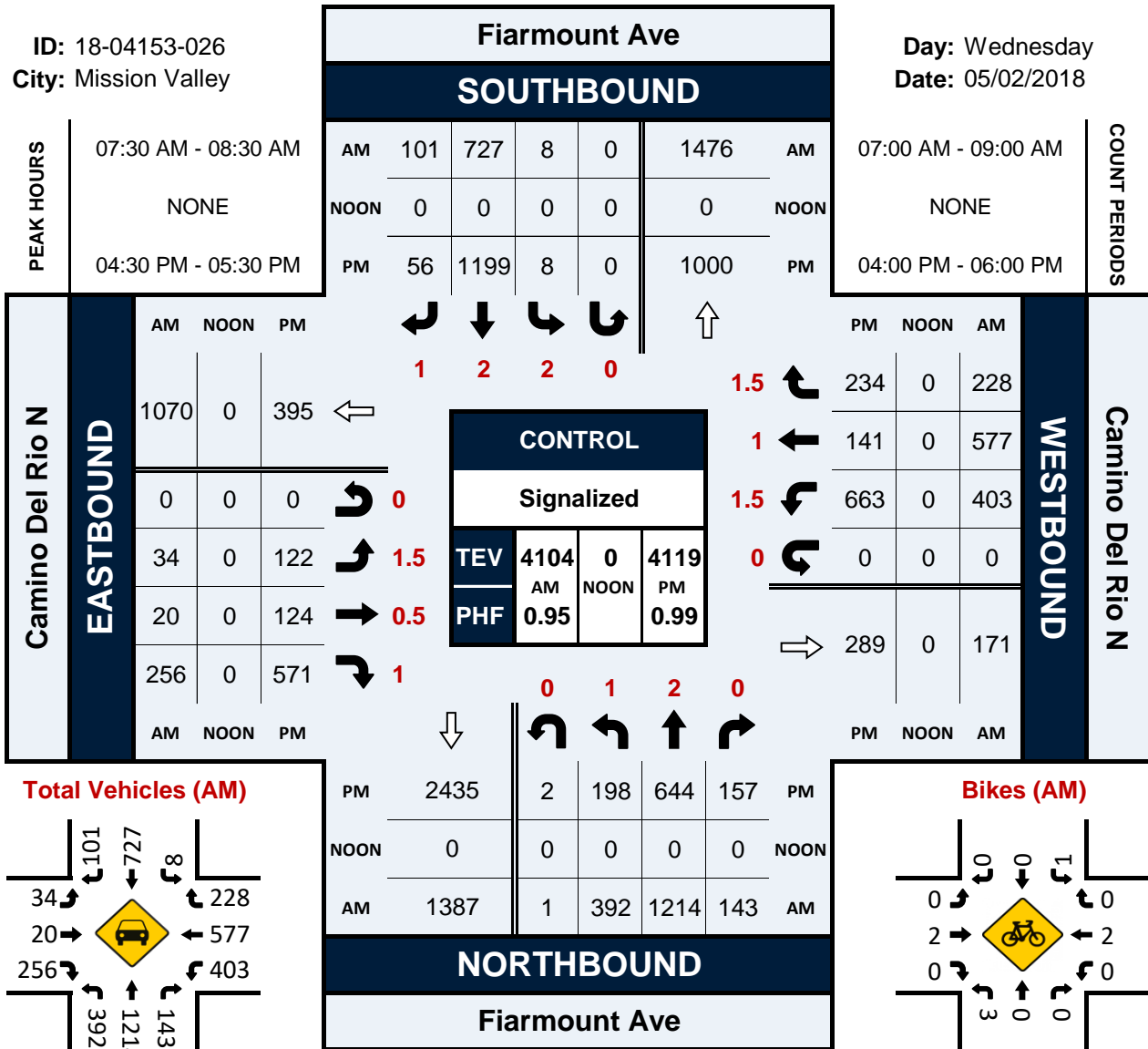


Fiarmount Ave & Camino Del Rio N

Peak Hour Turning Movement Count

ID: 18-04153-026
City: Mission Valley

Day: Wednesday
Date: 05/02/2018



National Data & Surveying Services

Intersection Turning Movement Count

Location: NB Fairmount Ave & I-8 EB Off-ramp
City: San Diego
Control: Signalized

Project ID: 19-04013-010
Date: 1/9/2019

Bikes

NS/EW Streets:	NB Fairmount Ave				NB Fairmount Ave				I-8 EB Off-ramp				I-8 EB Off-ramp				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	0 SL	3 ST	0 SR	0 SU	2 EL	0 ET	3 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4
8:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	3	0	0	0	2	0	0	0	0	0	0	0	0	0	0	5
PEAK HR :	07:00 AM - 08:00 AM																
PEAK HR VOL :	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	4
PEAK HR FACTOR :	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
	0.250				0.250												

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	2 NT	0 NR	0 NU	0 SL	3 ST	0 SR	0 SU	2 EL	0 ET	3 ER	0 EU	0 WL	0 WT	0 WR	0 WU	
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4
PEAK HR :	04:00 PM - 05:00 PM																
PEAK HR VOL :	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750
					0.750												

National Data & Surveying Services

Intersection Turning Movement Count

Location: Collwood Blvd & Montezuma Rd
City: San Diego
Control: Signalized

Project ID: 19-04013-009
Date: 1/9/2019

Bikes

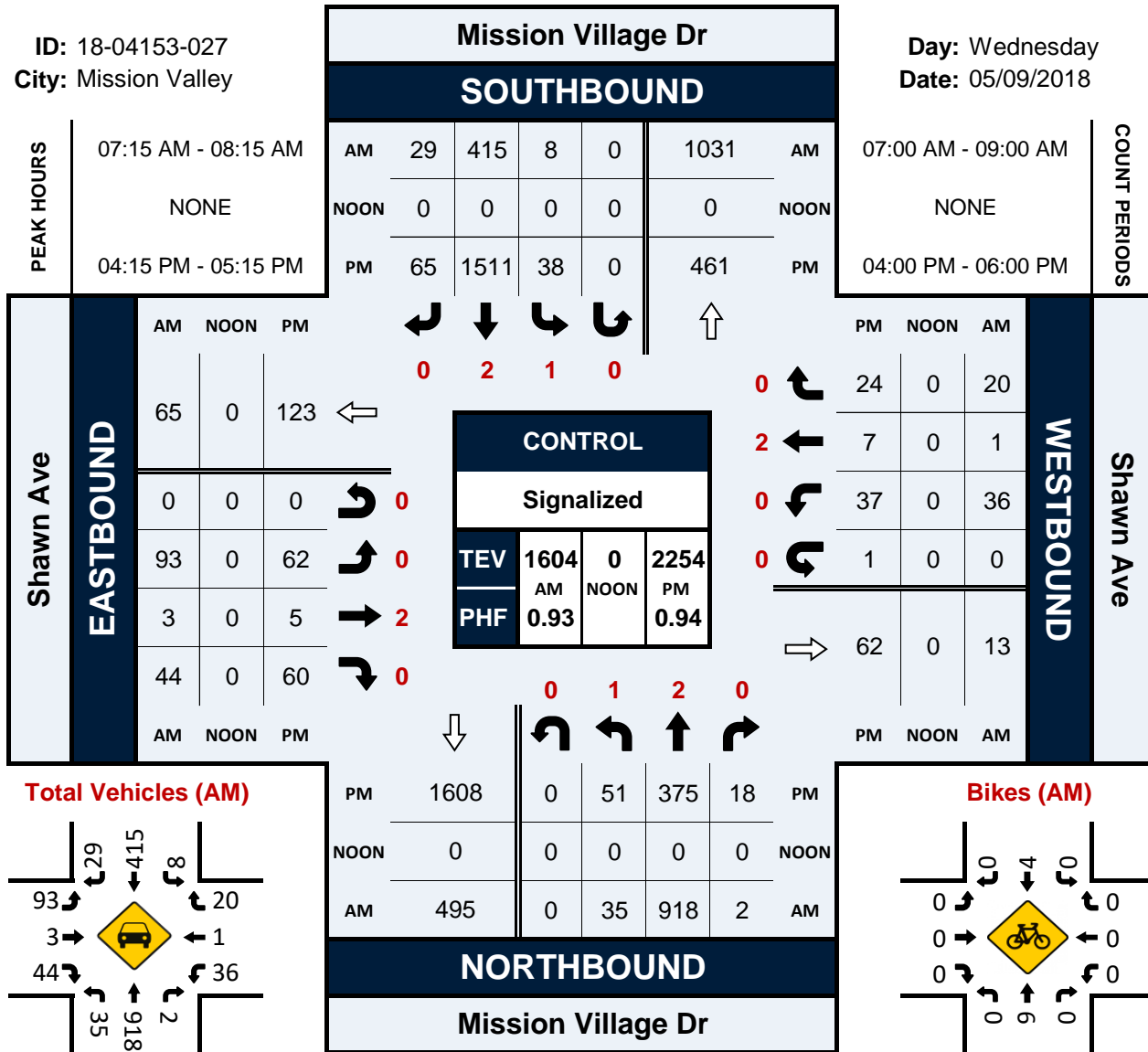
NS/EW Streets:	Collwood Blvd				Collwood Blvd				Montezuma Rd				Montezuma Rd				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:15 AM	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
7:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
8:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0	3
8:15 AM	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	2	0	2	0	0	0	0	0	0	2	1	0	0	10	0	0	17
	50.00%	0.00%	50.00%	0.00%					0.00%	66.67%	33.33%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	1	0	2	0	0	0	0	0	0	1	0	0	0	6	0	0	10
PEAK HR FACTOR :	0.250	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.500	0.000	0.000	0.833
	0.750								0.250				0.500				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2
5:00 PM	0	0	1	0	0	0	0	0	0	1	1	0	1	0	0	0	4
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	3
5:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	1	0	1	0	0	0	0	0	0	5	1	0	2	1	0	0	11
	50.00%	0.00%	50.00%	0.00%					0.00%	83.33%	16.67%	0.00%	66.67%	33.33%	0.00%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	1	0	0	0	0	0	0	2	1	0	1	1	0	0	6
PEAK HR FACTOR :	0.00	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.250	0.000	0.250	0.250	0.000	0.000	0.375
	0.250								0.375				0.500				

Mission Village Dr & Shawn Ave

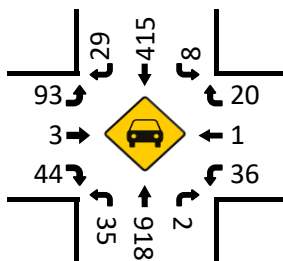
Peak Hour Turning Movement Count

ID: 18-04153-027
City: Mission Valley

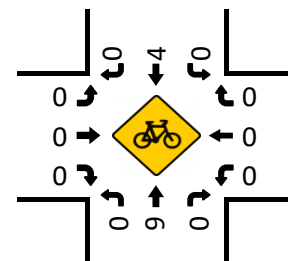
Day: Wednesday
Date: 05/09/2018



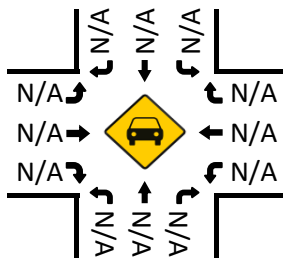
Total Vehicles (AM)



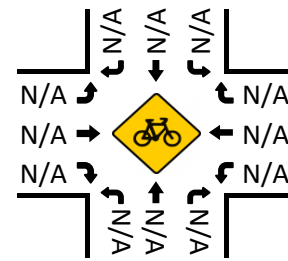
Bikes (AM)



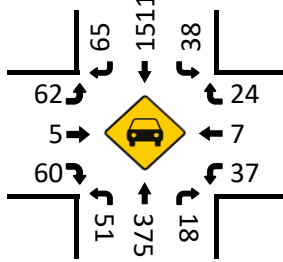
Total Vehicles (Noon)



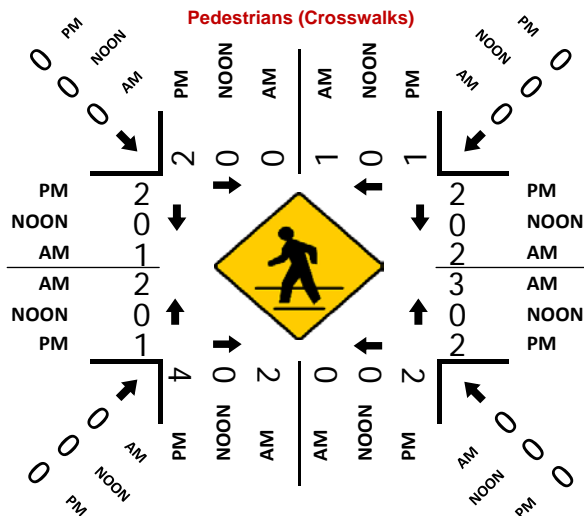
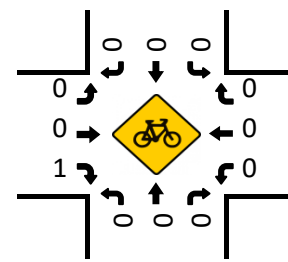
Bikes (NOON)



Total Vehicles (PM)



Bikes (PM)

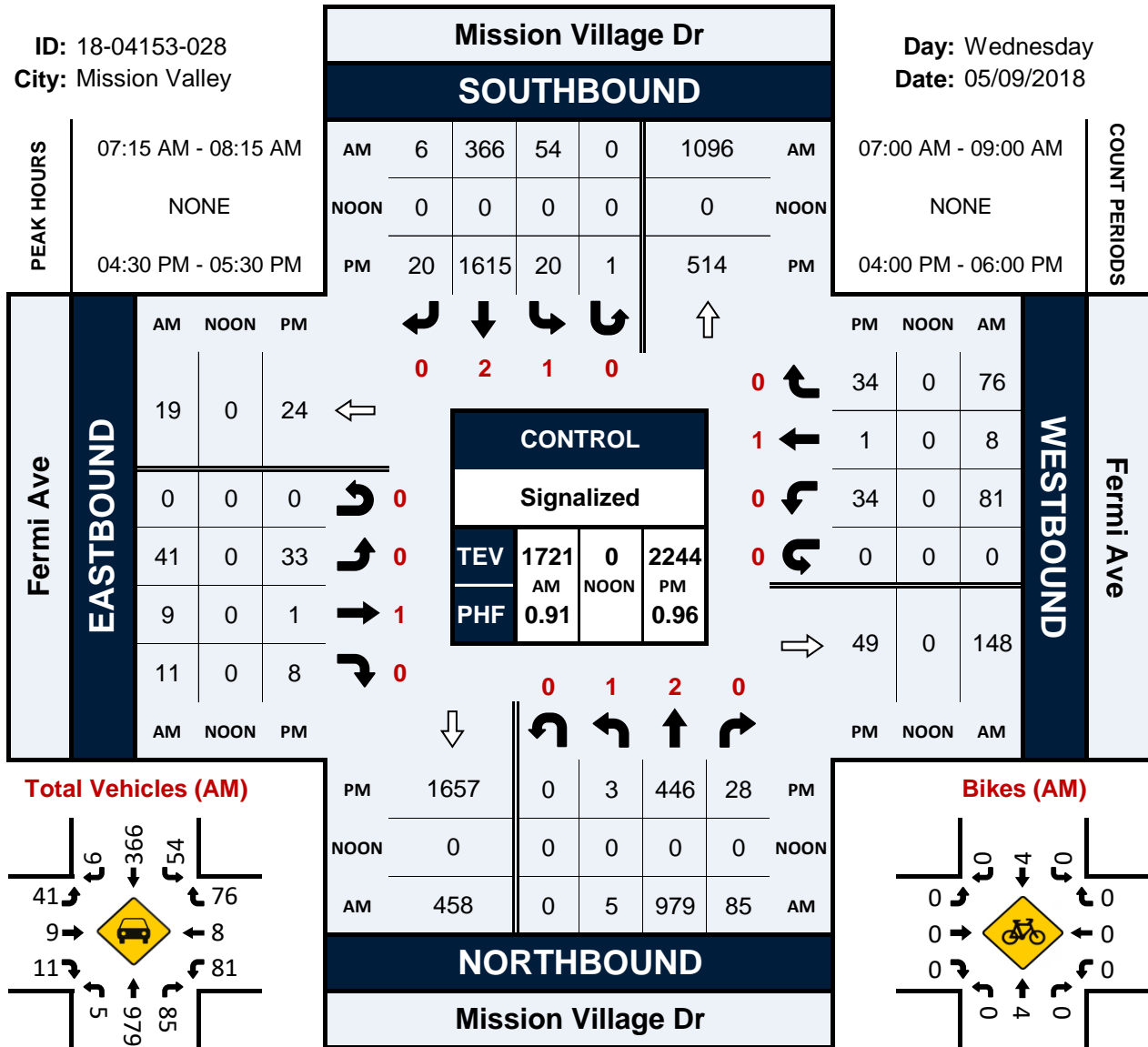


Mission Village Dr & Fermi Ave

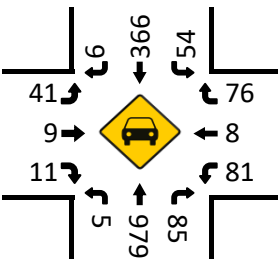
Peak Hour Turning Movement Count

ID: 18-04153-028
City: Mission Valley

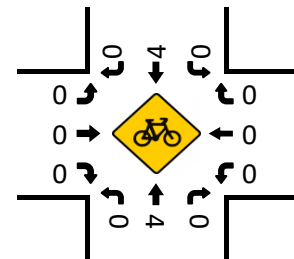
Day: Wednesday
Date: 05/09/2018



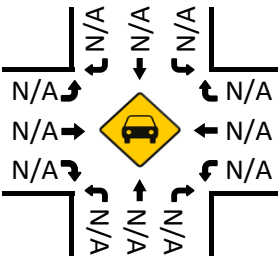
Total Vehicles (AM)



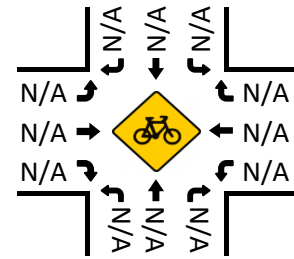
Bikes (AM)



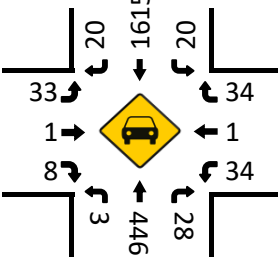
Total Vehicles (Noon)



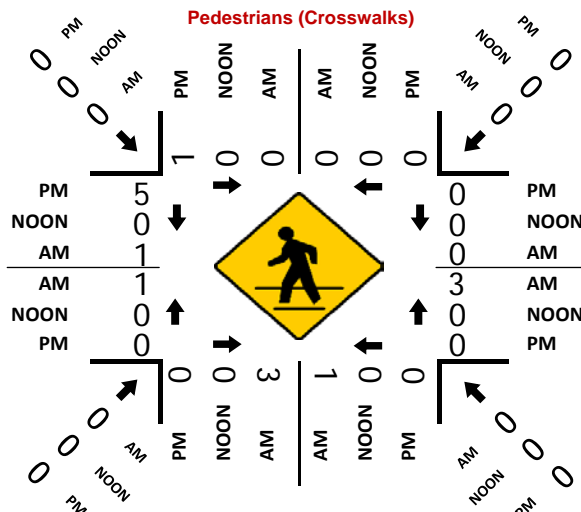
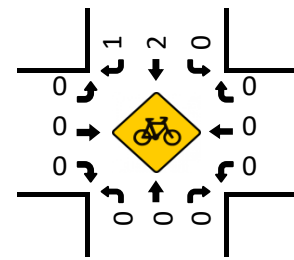
Bikes (NOON)



Total Vehicles (PM)



Bikes (PM)

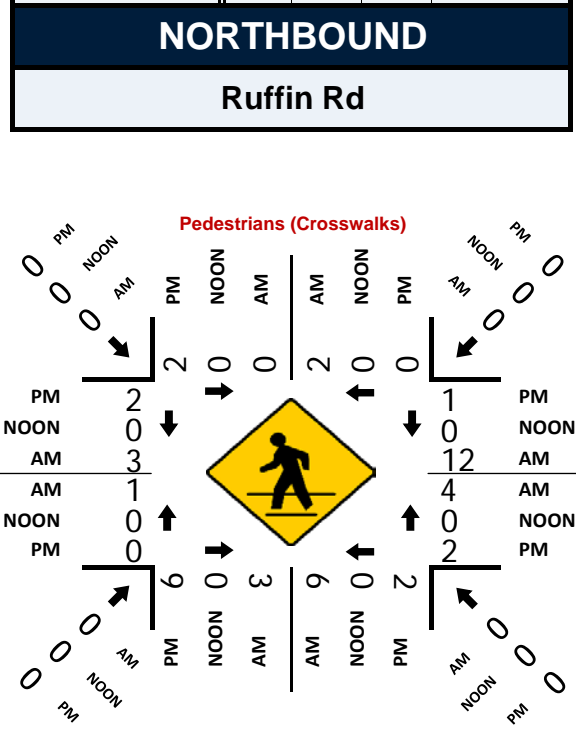
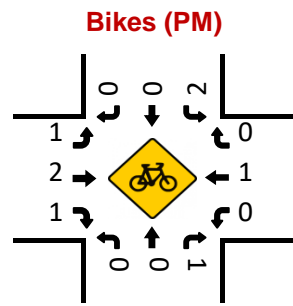
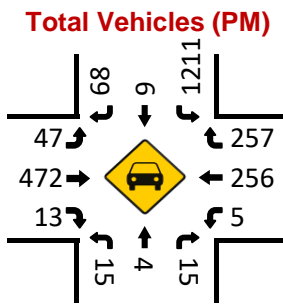
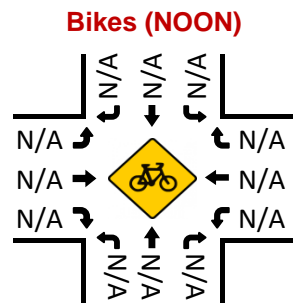
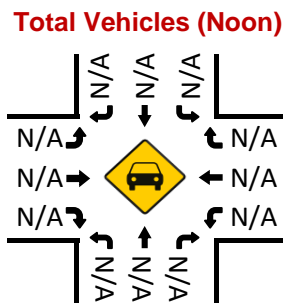
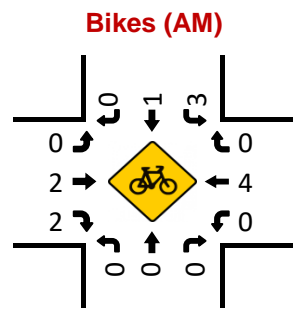
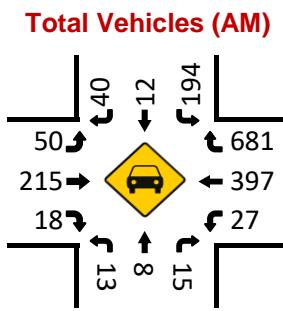
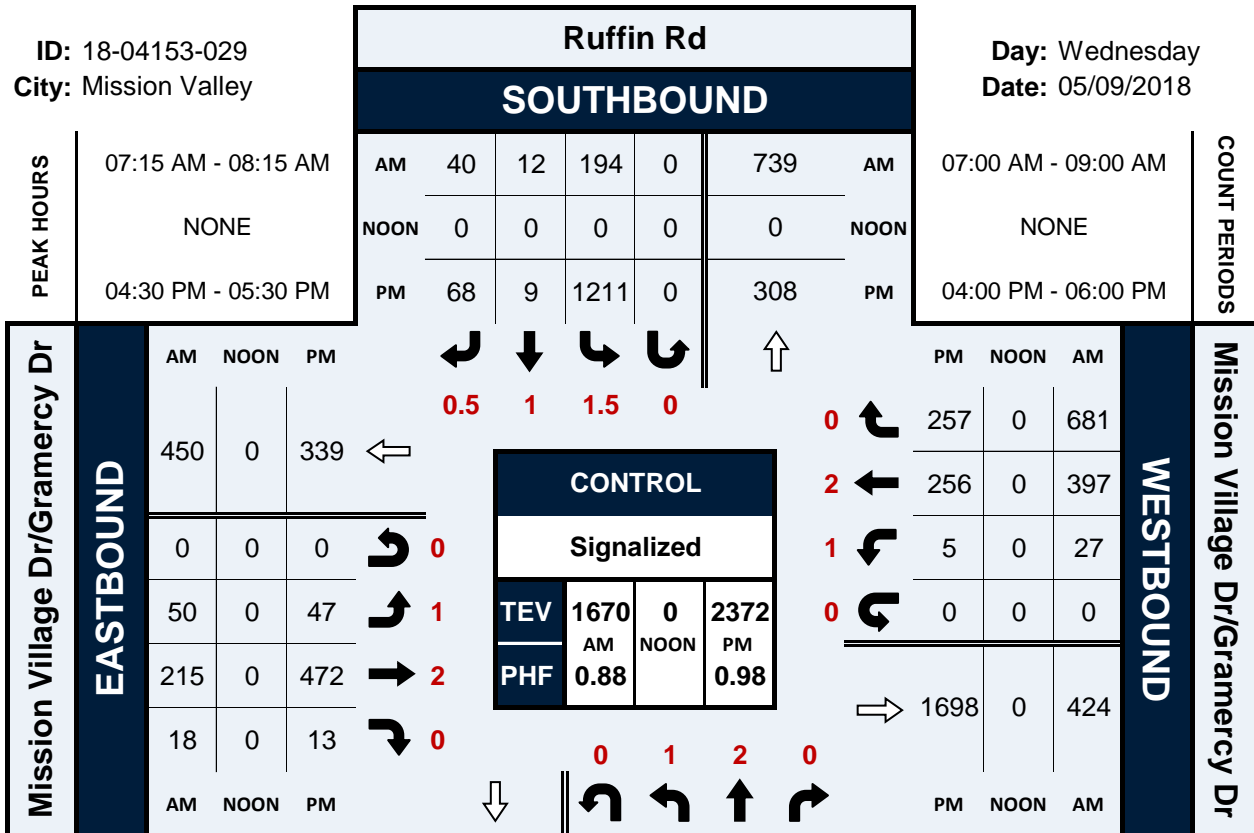


Ruffin Rd & Mission Village Dr/Gramercy Dr

Peak Hour Turning Movement Count

ID: 18-04153-029
City: Mission Valley

Day: Wednesday
Date: 05/09/2018

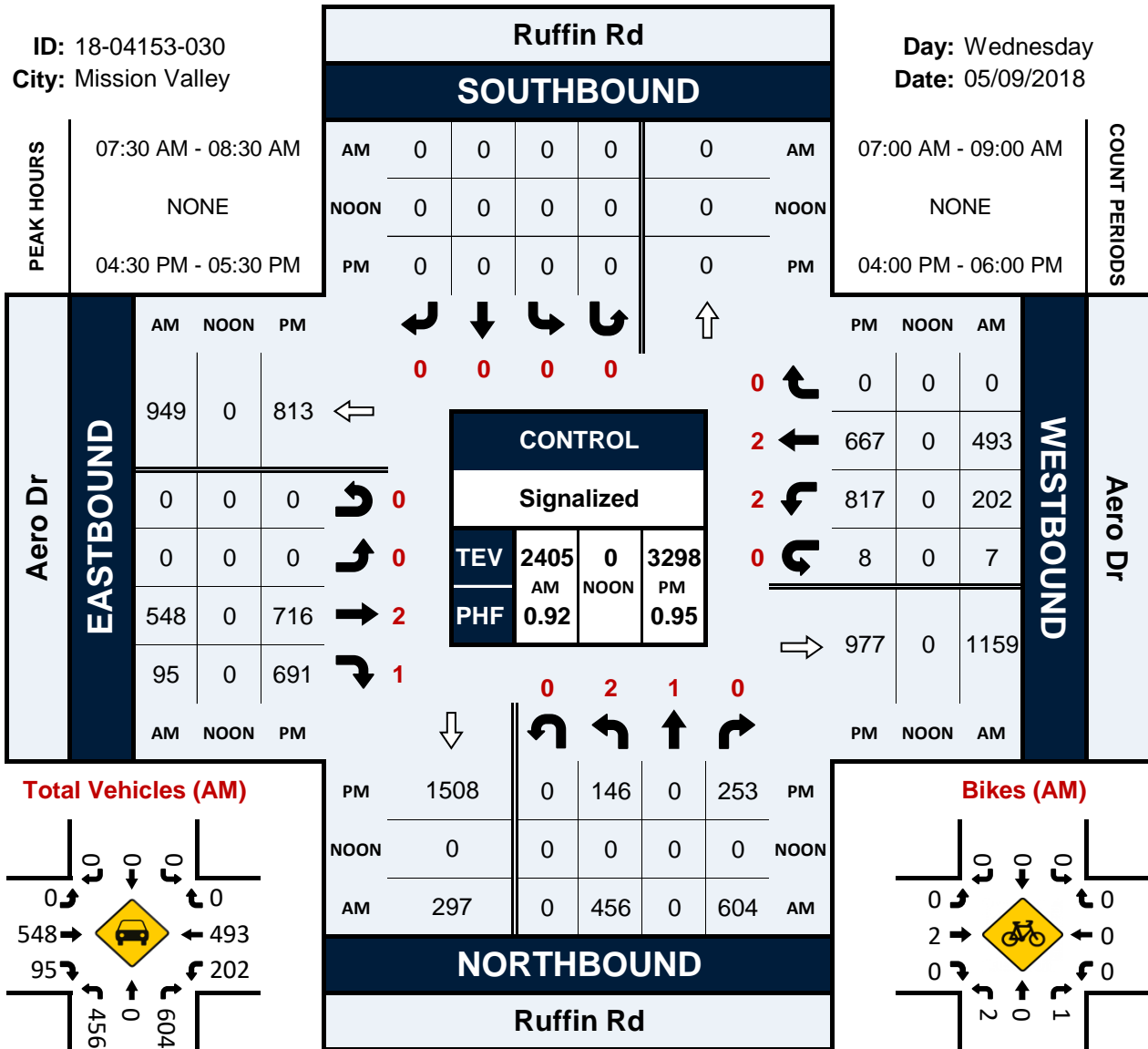


Ruffin Rd & Aero Dr

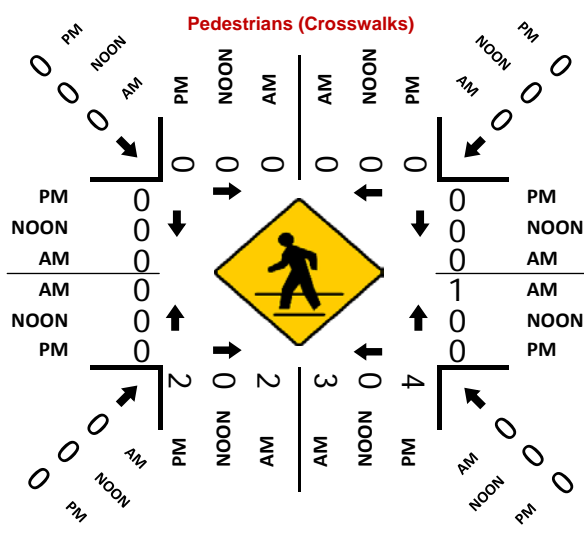
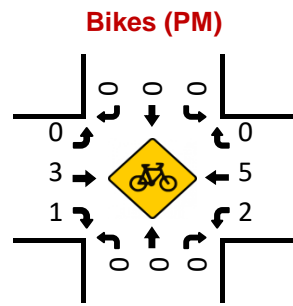
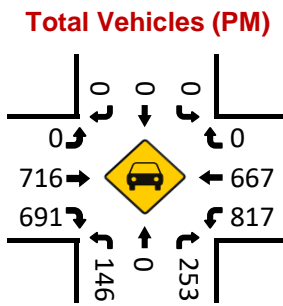
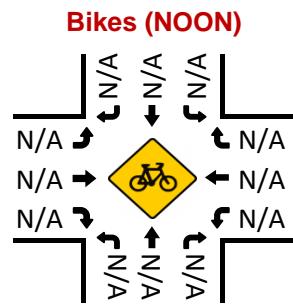
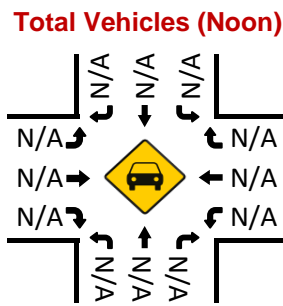
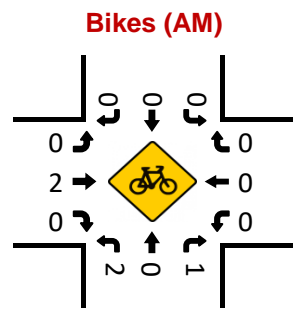
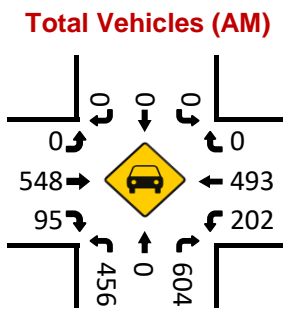
Peak Hour Turning Movement Count

ID: 18-04153-030
City: Mission Valley

Day: Wednesday
Date: 05/09/2018



CONTROL			
Signalized			
TEV	2405	0	3298
	AM	NOON	PM
PHF	0.92		0.95



National Data & Surveying Services

Intersection Turning Movement Count

Location: Mobley St & Gramercy Dr
City: San Diego
Control: Signalized

Project ID: 19-04013-003
Date: 1/9/2019

Bikes

NS/EW Streets:	Mobley St				Mobley St				Gramercy Dr				Gramercy Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	1	0	0	0	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
7:45 AM	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0	0	3
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	3
8:30 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	3
8:45 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	2
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	0	0	1	0	2	8	0	0	0	3	0	0	14
					0.00%	0.00%	100.00%	0.00%	20.00%	80.00%	0.00%	0.00%	0.00%	100.00%	0.00%	0.00%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	1	0	2	1	0	0	0	1	0	0	5
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.417
							0.250				0.375				0.250		

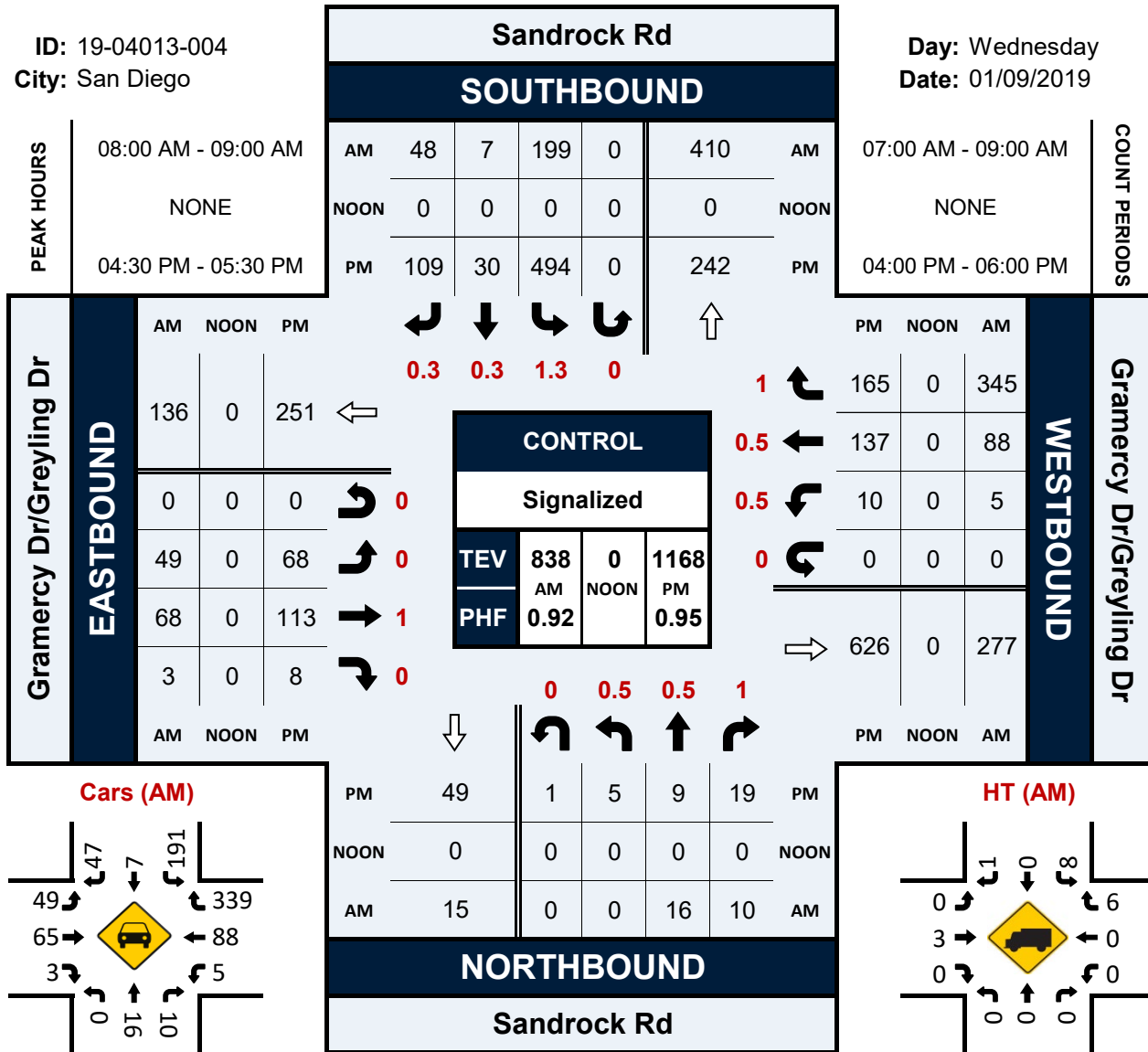
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	1	0	0	0	1	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2
4:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	1	0	0	0	0	1	0	1	1	0	0	1	7	1	0	13
	0.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	50.00%	50.00%	0.00%	0.00%	11.11%	77.78%	11.11%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	0	0	0	0	0	0	1	0	1	0	0	0	0	4	0	0	6
PEAK HR FACTOR :	0.00	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	1.000	0.000	0.000	0.750
							0.250				0.250				1.000		

Sandrock Rd & Gramercy Dr/Greyling Dr

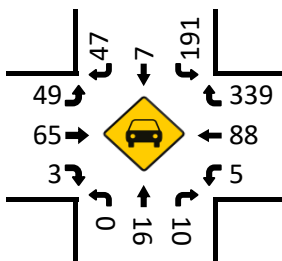
Peak Hour Turning Movement Count

ID: 19-04013-004
City: San Diego

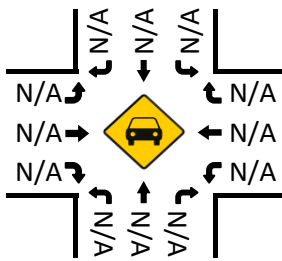
Day: Wednesday
Date: 01/09/2019



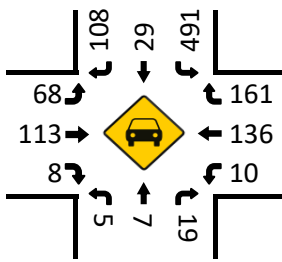
Cars (AM)



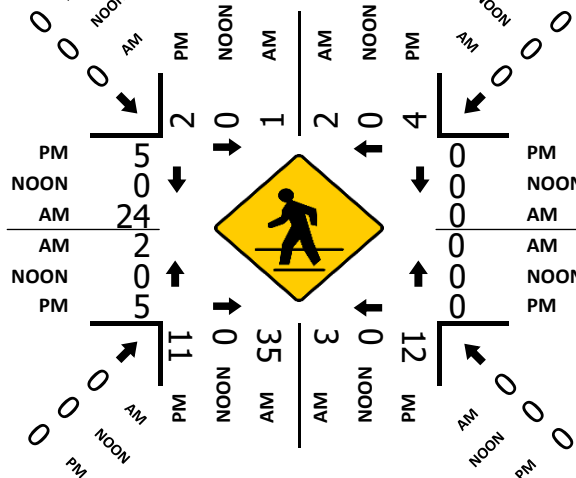
Cars (NOON)



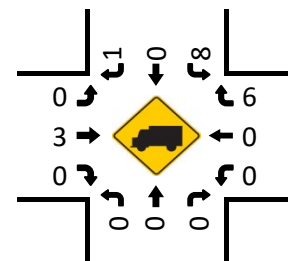
Cars (PM)



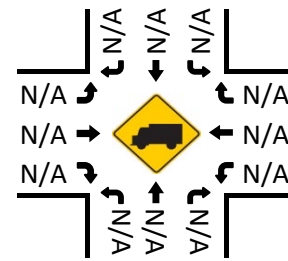
Pedestrians (Crosswalks)



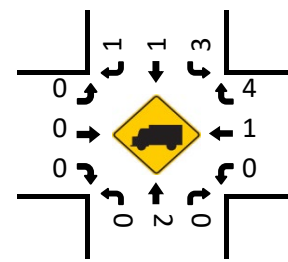
HT (AM)



HT (NOON)



HT (PM)



National Data & Surveying Services

Intersection Turning Movement Count

Location: Sandrock Rd & Gramercy Dr/Greyling Dr
City: San Diego
Control: Signalized

Project ID: 19-04013-004
Date: 1/9/2019

Bikes

NS/EW Streets:	Sandrock Rd				Sandrock Rd				Gramercy Dr/Greyling Dr				Gramercy Dr/Greyling Dr				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0.5 NL	0.5 NT	1 NR	0 NU	1.3 SL	0.3 ST	0.3 SR	0 SU	0 EL	1 ET	0 ER	0 EU	0.5 WL	0.5 WT	1 WR	0 WU	
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
7:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	2
7:45 AM	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
8:15 AM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	3
8:30 AM	0	0	0	0	1	0	0	0	0	2	0	0	0	0	1	0	4
8:45 AM	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	3
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	0	0	0	0	6	0	1	0	1	4	0	0	0	0	5	0	17
					85.71%	0.00%	14.29%	0.00%	20.00%	80.00%	0.00%	0.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR :	08:00 AM - 09:00 AM																TOTAL
PEAK HR VOL :	0	0	0	0	4	0	0	0	0	4	0	0	0	0	3	0	11
PEAK HR FACTOR :	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.750	0.000	0.688
					0.500				0.500				0.750				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0.5 NL	0.5 NT	1 NR	0 NU	1.3 SL	0.3 ST	0.3 SR	0 SU	0 EL	1 ET	0 ER	0 EU	0.5 WL	0.5 WT	1 WR	0 WU	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	2
4:30 PM	0	0	0	0	1	0	0	0	1	1	0	0	0	1	1	0	5
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
5:15 PM	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2
TOTAL VOLUMES :	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
APPROACH %'s :	1	0	0	0	2	1	1	0	1	1	0	0	0	3	6	0	16
	100.00%	0.00%	0.00%	0.00%	50.00%	25.00%	25.00%	0.00%	50.00%	50.00%	0.00%	0.00%	0.00%	33.33%	66.67%	0.00%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	1	0	0	0	1	0	1	0	1	1	0	0	0	1	3	0	9
PEAK HR FACTOR :	0.25	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.250	0.250	0.000	0.000	0.000	0.250	0.375	0.000	0.450
					0.250				0.250				0.500				

VOLUME

Friars Rd Bet. Frazee Rd & Mission Center Rd

Day: Tuesday
Date: 5/1/2018

City: Mission Valley
Project #: CA18_4154_001

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	23,177	20,617	43,794					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			66	212	278	12:00			295	358	653			
00:15			67	224	291	12:15			356	339	695			
00:30			51	171	222	12:30			318	339	657			
00:45			52	236	163	770	12:45		325	1294	356	1392	681	2686
01:00			35	151	186	13:00			381	340	721			
01:15			40	61	101	13:15			342	270	612			
01:30			38	29	67	13:30			375	248	623			
01:45			37	150	24	265	13:45		293	1391	348	1206	641	2597
02:00			25	20	45	14:00			324	272	596			
02:15			33	14	47	14:15			333	343	676			
02:30			22	11	33	14:30			357	363	720			
02:45			7	87	4	49	14:45		325	1339	277	1255	602	2594
03:00			12	8	20	15:00			321	382	703			
03:15			2	4	6	15:15			404	324	728			
03:30			7	9	16	15:30			435	369	804			
03:45			15	36	8	29	15:45		469	1629	356	1431	825	3060
04:00			12	20	32	16:00			422	335	757			
04:15			11	9	20	16:15			591	302	893			
04:30			16	35	51	16:30			457	337	794			
04:45			9	48	41	105	16:45		522	1992	372	1346	894	3338
05:00			18	46	64	17:00			577	316	893			
05:15			32	59	91	17:15			521	300	821			
05:30			40	78	118	17:30			462	341	803			
05:45			66	156	111	294	17:45		495	2055	304	1261	799	3316
06:00			66	108	174	18:00			507	289	796			
06:15			92	140	232	18:15			530	327	857			
06:30			122	209	331	18:30			556	288	844			
06:45			128	408	218	675	18:45		464	2057	247	1151	711	3208
07:00			175	298	473	19:00			506	289	795			
07:15			194	248	442	19:15			452	226	678			
07:30			187	324	511	19:30			535	276	811			
07:45			241	797	319	1189	19:45		396	1889	267	1058	663	2947
08:00			239	366	605	20:00			369	292	661			
08:15			242	276	518	20:15			249	231	480			
08:30			205	264	469	20:30			210	205	415			
08:45			301	987	267	1173	20:45		244	1072	189	917	433	1989
09:00			229	251	480	21:00			269	145	414			
09:15			220	246	466	21:15			251	207	458			
09:30			208	251	459	21:30			266	110	376			
09:45			303	960	204	952	21:45		207	993	96	558	303	1551
10:00			226	299	525	22:00			255	123	378			
10:15			273	218	491	22:15			181	91	272			
10:30			249	275	524	22:30			204	86	290			
10:45			213	961	285	1077	22:45		172	812	160	460	332	1272
11:00			284	267	551	23:00			209	142	351			
11:15			369	262	631	23:15			152	235	387			
11:30			260	361	621	23:30			159	232	391			
11:45			306	1219	311	1201	23:45		89	609	194	803	283	1412
TOTALS			6045	7779	13824	TOTALS			17132	12838	29970			
SPLIT %			43.7%	56.3%	31.6%	SPLIT %			57.2%	42.8%	68.4%			

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	23,177	20,617	43,794

AM Peak Hour			11:45	11:30	11:45	PM Peak Hour			16:15	15:00	16:15
AM Pk Volume			1275	1369	2622	PM Pk Volume			2147	1431	3474
Pk Hr Factor			0.895	0.948	0.943	Pk Hr Factor			0.908	0.937	0.971
7 - 9 Volume	0	0	1784	2362	4146	4 - 6 Volume	0	0	4047	2607	6654
7 - 9 Peak Hour			08:00	07:30	07:30	4 - 6 Peak Hour			16:15	16:00	16:15
7 - 9 Pk Volume	0	0	987	1285	2194	4 - 6 Pk Volume	0	0	2147	1346	3474
Pk Hr Factor	0.000	0.000	0.820	0.878	0.907	Pk Hr Factor	0.000	0.000	0.908	0.905	0.971

VOLUME

Friars Rd Bet. Frazee Rd & Mission Center Rd

Day: Wednesday
Date: 5/2/2018

City: Mission Valley
Project #: CA18_4154_001

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	22,910	20,375	43,285					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			73	212	285	12:00			292	318	610			
00:15			74	201	275	12:15			307	312	619			
00:30			59	181	240	12:30			296	261	557			
00:45			54	260	177	771	12:45		331	1226	343	1234	674	2460
01:00			31	165	196	13:00			333	304	637			
01:15			44	75	119	13:15			364	355	719			
01:30			29	32	61	13:30			374	313	687			
01:45			38	142	25	297	13:45		351	1422	278	1250	629	2672
02:00			30	25	55	14:00			392	288	680			
02:15			30	6	36	14:15			334	344	678			
02:30			19	21	40	14:30			339	275	614			
02:45			8	87	7	59	14:45		354	1419	336	1243	690	2662
03:00			20	8	28	15:00			382	310	692			
03:15			4	6	10	15:15			385	283	668			
03:30			12	4	16	15:30			376	279	655			
03:45			11	47	13	31	15:45		461	1604	383	1255	844	2859
04:00			10	11	21	16:00			478	397	875			
04:15			12	10	22	16:15			585	304	889			
04:30			18	29	47	16:30			490	290	780			
04:45			13	53	42	92	16:45		410	1963	311	1302	721	3265
05:00			17	49	66	17:00			545	320	865			
05:15			41	51	92	17:15			554	344	898			
05:30			50	76	126	17:30			517	336	853			
05:45			58	166	104	280	17:45		448	2064	351	1351	799	3415
06:00			87	97	184	18:00			565	354	919			
06:15			72	118	190	18:15			598	293	891			
06:30			119	194	313	18:30			506	306	812			
06:45			109	387	229	638	18:45		399	2068	266	1219	665	3287
07:00			152	265	417	19:00			495	261	756			
07:15			198	307	505	19:15			443	272	715			
07:30			232	294	526	19:30			416	261	677			
07:45			210	792	386	1252	19:45		326	1680	204	998	530	2678
08:00			230	341	571	20:00			348	280	628			
08:15			218	277	495	20:15			266	171	437			
08:30			218	271	489	20:30			272	205	477			
08:45			305	971	294	1183	20:45		224	1110	196	852	420	1962
09:00			271	296	567	21:00			247	144	391			
09:15			188	298	486	21:15			259	153	412			
09:30			187	241	428	21:30			220	129	349			
09:45			285	931	187	1022	21:45		223	949	102	528	325	1477
10:00			264	219	483	22:00			204	120	324			
10:15			256	244	500	22:15			173	109	282			
10:30			266	259	525	22:30			177	94	271			
10:45			248	1034	243	965	22:45		157	711	158	481	315	1192
11:00			297	274	571	23:00			204	122	326			
11:15			314	248	562	23:15			172	230	402			
11:30			263	360	623	23:30			132	233	365			
11:45			344	1218	353	1235	23:45		98	606	252	837	350	1443
TOTALS			6088	7825	13913	TOTALS			16822	12550	29372			
SPLIT %			43.8%	56.2%	32.1%	SPLIT %			57.3%	42.7%	67.9%			

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	22,910	20,375	43,285

AM Peak Hour			11:45	11:30	11:30	PM Peak Hour			17:30	17:15	17:15
AM Pk Volume			1239	1343	2549	PM Pk Volume			2128	1385	3469
Pk Hr Factor			0.900	0.933	0.914	Pk Hr Factor			0.890	0.978	0.944
7 - 9 Volume	0	0	1763	2435	4198	4 - 6 Volume	0	0	4027	2653	6680
7 - 9 Peak Hour			08:00	07:15	07:15	4 - 6 Peak Hour			17:00	17:00	17:00
7 - 9 Pk Volume	0	0	971	1328	2198	4 - 6 Pk Volume	0	0	2064	1351	3415
Pk Hr Factor	0.000	0.000	0.796	0.860	0.922	Pk Hr Factor	0.000	0.000	0.931	0.962	0.951

VOLUME

Friars Rd Bet. Gill Village Way & Qualcomm Way

Day: Tuesday
Date: 5/1/2018

City: Mission Valley
Project #: CA18_4154_002

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	20,910	19,840	40,750					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			49	209	258	12:00			338	369	707			
00:15			47	233	280	12:15			271	335	606			
00:30			59	189	248	12:30			356	335	691			
00:45			50	205	174	805	12:45		342	1307	331	1370	673	2677
01:00			29	149	178	13:00			334	284	618			
01:15			31	53	84	13:15			344	310	654			
01:30			31	22	53	13:30			274	289	563			
01:45			29	120	21	245	13:45		333	1285	319	1202	652	2487
02:00			32	20	52	14:00			284	251	535			
02:15			20	8	28	14:15			349	288	637			
02:30			4	7	11	14:30			379	304	683			
02:45			9	65	2	37	14:45		423	1435	255	1098	678	2533
03:00			15	6	21	15:00			288	319	607			
03:15			11	7	18	15:15			358	294	652			
03:30			9	9	18	15:30			456	314	770			
03:45			3	38	10	32	15:45		539	1641	356	1283	895	2924
04:00			12	12	24	16:00			489	339	828			
04:15			10	12	22	16:15			538	336	874			
04:30			9	32	41	16:30			445	320	765			
04:45			14	45	34	90	16:45		544	2016	347	1342	891	3358
05:00			14	25	39	17:00			634	382	1016			
05:15			37	40	77	17:15			451	449	900			
05:30			44	62	106	17:30			361	383	744			
05:45			56	151	79	206	17:45		369	1815	346	1560	715	3375
06:00			65	108	173	18:00			349	292	641			
06:15			66	153	219	18:15			326	271	597			
06:30			100	201	301	18:30			313	317	630			
06:45			111	342	220	682	18:45		348	1336	302	1182	650	2518
07:00			151	214	365	19:00			381	212	593			
07:15			158	283	441	19:15			377	228	605			
07:30			205	302	507	19:30			331	205	536			
07:45			185	699	335	1134	19:45		305	1394	250	895	555	2289
08:00			169	326	495	20:00			298	192	490			
08:15			145	246	391	20:15			248	209	457			
08:30			200	268	468	20:30			293	183	476			
08:45			218	732	259	1099	20:45		266	1105	150	734	416	1839
09:00			151	256	407	21:00			258	131	389			
09:15			187	202	389	21:15			241	175	416			
09:30			189	242	431	21:30			241	92	333			
09:45			212	739	225	925	21:45		227	967	99	497	326	1464
10:00			205	235	440	22:00			239	125	364			
10:15			218	244	462	22:15			226	95	321			
10:30			252	282	534	22:30			211	117	328			
10:45			246	921	178	939	22:45		182	858	99	436	281	1294
11:00			245	273	518	23:00			227	143	370			
11:15			257	247	504	23:15			129	282	411			
11:30			326	327	653	23:30			121	218	339			
11:45			314	1142	314	1161	23:45		75	552	243	886	318	1438
TOTALS			5199	7355	12554	TOTALS			15711	12485	28196			
SPLIT %			41.4%	58.6%	30.8%	SPLIT %			55.7%	44.3%	69.2%			

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	20,910	19,840	40,750

AM Peak Hour			11:45	11:45	11:45	PM Peak Hour			16:15	16:45	16:30
AM Pk Volume			1279	1353	2632	PM Pk Volume			2161	1561	3572
Pk Hr Factor			0.898	0.917	0.931	Pk Hr Factor			0.852	0.869	0.879
7 - 9 Volume	0	0	1431	2233	3664	4 - 6 Volume	0	0	3831	2902	6733
7 - 9 Peak Hour			08:00	07:15	07:15	4 - 6 Peak Hour			16:15	16:45	16:30
7 - 9 Pk Volume	0	0	732	1246	1963	4 - 6 Pk Volume	0	0	2161	1561	3572
Pk Hr Factor	0.000	0.000	0.839	0.930	0.944	Pk Hr Factor	0.000	0.000	0.852	0.869	0.879

VOLUME

Friars Rd Bet. Gill Village Way & Qualcomm Way

Day: Wednesday
Date: 5/2/2018

City: Mission Valley
Project #: CA18_4154_002

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	19,922	19,774	39,696					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			61	186	247	12:00			276	300	576			
00:15			48	203	251	12:15			306	358	664			
00:30			46	168	214	12:30			323	292	615			
00:45			56	211	189	746	12:45		334	1239	280	1230	614	2469
01:00			32	171	203	13:00			299	347	646			
01:15			32	51	83	13:15			305	276	581			
01:30			26	17	43	13:30			352	273	625			
01:45			28	118	25	264	13:45		271	1227	286	1182	557	2409
02:00			23	22	45	14:00			313	251	564			
02:15			18	2	20	14:15			298	258	556			
02:30			5	9	14	14:30			325	346	671			
02:45			8	54	1	34	14:45		390	1326	301	1156	691	2482
03:00			11	3	14	15:00			306	308	614			
03:15			8	2	10	15:15			392	360	752			
03:30			2	7	9	15:30			425	348	773			
03:45			3	24	13	25	15:45		429	1552	299	1315	728	2867
04:00			8	7	15	16:00			438	334	772			
04:15			3	9	12	16:15			484	375	859			
04:30			12	21	33	16:30			497	334	831			
04:45			17	40	36	73	16:45		456	1875	379	1422	835	3297
05:00			7	20	27	17:00			513	443	956			
05:15			32	47	79	17:15			386	444	830			
05:30			48	77	125	17:30			336	324	660			
05:45			59	146	89	233	17:45		341	1576	284	1495	625	3071
06:00			58	112	170	18:00			343	312	655			
06:15			76	154	230	18:15			340	240	580			
06:30			88	161	249	18:30			267	378	645			
06:45			106	328	226	653	18:45		333	1283	247	1177	580	2460
07:00			152	197	349	19:00			436	265	701			
07:15			193	284	477	19:15			396	216	612			
07:30			210	283	493	19:30			322	243	565			
07:45			192	747	308	1072	19:45		329	1483	182	906	511	2389
08:00			206	322	528	20:00			253	194	447			
08:15			155	261	416	20:15			265	228	493			
08:30			157	291	448	20:30			282	182	464			
08:45			165	683	234	1108	20:45		245	1045	183	787	428	1832
09:00			168	283	451	21:00			216	139	355			
09:15			161	268	429	21:15			266	166	432			
09:30			206	257	463	21:30			201	123	324			
09:45			233	768	175	983	21:45		207	890	92	520	299	1410
10:00			197	183	380	22:00			216	100	316			
10:15			217	248	465	22:15			193	90	283			
10:30			265	240	505	22:30			229	93	322			
10:45			215	894	199	870	22:45		216	854	124	407	340	1261
11:00			222	291	513	23:00			235	150	385			
11:15			230	250	480	23:15			129	228	357			
11:30			297	293	590	23:30			119	275	394			
11:45			245	994	372	1206	23:45		82	565	257	910	339	1475
TOTALS			5007	7267	12274	TOTALS			14915	12507	27422			
SPLIT %			40.8%	59.2%	30.9%	SPLIT %			54.4%	45.6%	69.1%			

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	19,922	19,774	39,696

AM Peak Hour			11:45	11:30	11:45	PM Peak Hour			16:15	16:30	16:15
AM Pk Volume			1150	1323	2472	PM Pk Volume			1950	1600	3481
Pk Hr Factor			0.890	0.889	0.931	Pk Hr Factor			0.950	0.901	0.910
7 - 9 Volume	0	0	1430	2180	3610	4 - 6 Volume	0	0	3451	2917	6368
7 - 9 Peak Hour			07:15	07:15	07:15	4 - 6 Peak Hour			16:15	16:30	16:15
7 - 9 Pk Volume	0	0	801	1197	1998	4 - 6 Pk Volume	0	0	1950	1600	3481
Pk Hr Factor	0.000	0.000	0.954	0.929	0.946	Pk Hr Factor	0.000	0.000	0.950	0.901	0.910

VOLUME

Friars Rd Bet. Qualcomm Way & Rio Bonito Way

Day: Tuesday
Date: 5/1/2018

City: San Diego
Project #: CA18_4154_003

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	19,093	16,293	35,386					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			33	20	53	12:00			305	263	568			
00:15			25	9	34	12:15			351	288	639			
00:30			23	12	35	12:30			358	290	648			
00:45			20	101	6	47	12:45		363	1377	288	1129	651	2506
01:00			15	10	25	13:00			328	231	559			
01:15			13	5	18	13:15			322	307	629			
01:30			22	6	28	13:30			297	242	539			
01:45			11	61	5	26	13:45		328	1275	265	1045	593	2320
02:00			8	2	10	14:00			304	281	585			
02:15			3	9	12	14:15			357	256	613			
02:30			10	4	14	14:30			397	286	683			
02:45			5	26	2	17	14:45		316	1374	276	1099	592	2473
03:00			7	6	13	15:00			413	248	661			
03:15			3	4	7	15:15			396	277	673			
03:30			8	8	16	15:30			456	268	724			
03:45			5	23	13	31	15:45		404	1669	268	1061	672	2730
04:00			7	10	17	16:00			498	281	779			
04:15			5	16	21	16:15			449	285	734			
04:30			8	25	33	16:30			507	302	809			
04:45			9	29	30	81	16:45		436	1890	296	1164	732	3054
05:00			19	48	67	17:00			541	321	862			
05:15			30	44	74	17:15			508	297	805			
05:30			33	88	121	17:30			435	296	731			
05:45			42	124	110	290	17:45		442	1926	273	1187	715	3113
06:00			62	145	207	18:00			383	237	620			
06:15			74	200	274	18:15			403	240	643			
06:30			120	243	363	18:30			367	227	594			
06:45			117	373	256	844	18:45		315	1468	215	919	530	2387
07:00			138	302	440	19:00			293	182	475			
07:15			172	313	485	19:15			275	159	434			
07:30			188	393	581	19:30			227	205	432			
07:45			197	695	379	1387	19:45		256	1051	180	726	436	1777
08:00			172	374	546	20:00			245	154	399			
08:15			182	370	552	20:15			196	143	339			
08:30			188	336	524	20:30			194	137	331			
08:45			199	741	291	1371	20:45		163	798	116	550	279	1348
09:00			184	233	417	21:00			165	109	274			
09:15			188	216	404	21:15			127	82	209			
09:30			185	203	388	21:30			112	74	186			
09:45			232	789	193	845	21:45		124	528	57	322	181	850
10:00			246	179	425	22:00			87	51	138			
10:15			251	230	481	22:15			95	37	132			
10:30			245	223	468	22:30			62	42	104			
10:45			283	1025	237	869	22:45		47	291	31	161	78	452
11:00			308	235	543	23:00			56	31	87			
11:15			322	273	595	23:15			39	10	49			
11:30			331	252	583	23:30			47	17	64			
11:45			310	1271	279	1039	23:45		46	188	25	83	71	271
TOTALS			5258	6847	12105	TOTALS			13835	9446	23281			
SPLIT %			43.4%	56.6%	34.2%	SPLIT %			59.4%	40.6%	65.8%			

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	19,093	16,293	35,386

AM Peak Hour			11:45	07:30	11:45	PM Peak Hour			16:30	16:30	16:30
AM Pk Volume			1324	1516	2444	PM Pk Volume			1992	1216	3208
Pk Hr Factor			0.925	0.964	0.943	Pk Hr Factor			0.921	0.947	0.930
7 - 9 Volume	0	0	1436	2758	4194	4 - 6 Volume	0	0	3816	2351	6167
7 - 9 Peak Hour			08:00	07:30	07:30	4 - 6 Peak Hour			16:30	16:30	16:30
7 - 9 Pk Volume	0	0	741	1516	2255	4 - 6 Pk Volume	0	0	1992	1216	3208
Pk Hr Factor	0.000	0.000	0.931	0.964	0.970	Pk Hr Factor	0.000	0.000	0.921	0.947	0.930

VOLUME

Friars Rd Bet. Qualcomm Way & Rio Bonito Way

Day: Wednesday
Date: 5/2/2018

City: San Diego
Project #: CA18_4154_003

DAILY TOTALS					NB	SB	EB	WB	Total			
					0	0	18,758	16,229	34,987			
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL	
00:00			47	16	63	12:00			290	264	554	
00:15			44	12	56	12:15			315	242	557	
00:30			32	11	43	12:30			316	287	603	
00:45			27	150	14	53	12:45		326	1247	263	1056
01:00			21	14	35	13:00			314	271	585	
01:15			21	12	33	13:15			287	275	562	
01:30			17	15	32	13:30			335	238	573	
01:45			15	74	10	51	13:45		323	1259	231	1015
02:00			14	12	26	14:00			326	229	555	
02:15			10	13	23	14:15			350	255	605	
02:30			15	9	24	14:30			337	283	620	
02:45			6	45	11	45	14:45		361	1374	250	1017
03:00			4	4	8	15:00			370	265	635	
03:15			6	4	10	15:15			404	257	661	
03:30			6	6	12	15:30			471	271	742	
03:45			8	24	13	27	15:45		421	1666	243	1036
04:00			11	8	19	16:00			487	297	784	
04:15			7	18	25	16:15			431	282	713	
04:30			8	17	25	16:30			538	272	810	
04:45			15	41	32	75	16:45		440	1896	294	1145
05:00			15	42	57	17:00			502	333	835	
05:15			19	55	74	17:15			485	317	802	
05:30			38	71	109	17:30			403	319	722	
05:45			46	118	113	281	17:45		423	1813	254	1223
06:00			53	120	173	18:00			403	264	667	
06:15			69	173	242	18:15			407	250	657	
06:30			90	219	309	18:30			361	196	557	
06:45			111	323	279	791	18:45		298	1469	198	908
07:00			132	316	448	19:00			301	209	510	
07:15			152	332	484	19:15			281	193	474	
07:30			167	372	539	19:30			270	211	481	
07:45			203	654	357	1377	19:45		285	1137	189	802
08:00			196	353	549	20:00			236	156	392	
08:15			172	347	519	20:15			273	145	418	
08:30			179	319	498	20:30			181	144	325	
08:45			189	736	299	1318	20:45		196	886	154	599
09:00			173	253	426	21:00			163	98	261	
09:15			192	222	414	21:15			131	93	224	
09:30			177	204	381	21:30			115	90	205	
09:45			192	734	202	881	21:45		112	521	47	328
10:00			209	183	392	22:00			109	90	199	
10:15			219	205	424	22:15			93	54	147	
10:30			226	208	434	22:30			74	47	121	
10:45			202	856	224	820	22:45		61	337	42	233
11:00			274	236	510	23:00			63	31	94	
11:15			297	265	562	23:15			58	26	84	
11:30			287	251	538	23:30			56	31	87	
11:45			314	1172	283	1035	23:45		49	226	25	113
TOTALS			4927	6754	11681	TOTALS			13831	9475	23306	
SPLIT %			42.2%	57.8%	33.4%	SPLIT %			59.3%	40.7%	66.6%	

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	18,758	16,229	34,987

AM Peak Hour			11:45	07:30	11:45	PM Peak Hour			16:30	16:45	16:30
AM Pk Volume			1235	1429	2311	PM Pk Volume			1965	1263	3181
Pk Hr Factor			0.977	0.960	0.958	Pk Hr Factor			0.913	0.948	0.952
7 - 9 Volume	0	0	1390	2695	4085	4 - 6 Volume	0	0	3709	2368	6077
7 - 9 Peak Hour			07:45	07:30	07:30	4 - 6 Peak Hour			16:30	16:45	16:30
7 - 9 Pk Volume	0	0	750	1429	2167	4 - 6 Pk Volume	0	0	1965	1263	3181
Pk Hr Factor	0.000	0.000	0.924	0.960	0.967	Pk Hr Factor	0.000	0.000	0.913	0.948	0.952

VOLUME

Friars Rd Bet. Fenton Pkwy & Northside Dr

Day: Tuesday
Date: 5/1/2018

City: San Diego
Project #: CA18_4154_004

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	19,926	16,072	35,998					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			39	23	62	12:00			296	256	552			
00:15			18	15	33	12:15			304	267	571			
00:30			19	21	40	12:30			360	252	612			
00:45			23	99	10	69	12:45		374	1334	269	1044	643	2378
01:00			16	15	31	13:00			357	236	593			
01:15			18	14	32	13:15			352	288	640			
01:30			20	11	31	13:30			328	221	549			
01:45			16	70	8	48	13:45		346	1383	254	999	600	2382
02:00			7	7	14	14:00			340	226	566			
02:15			5	6	11	14:15			386	243	629			
02:30			8	4	12	14:30			433	203	636			
02:45			9	29	3	20	14:45		386	1545	227	899	613	2444
03:00			6	7	13	15:00			428	205	633			
03:15			5	3	8	15:15			405	241	646			
03:30			8	7	15	15:30			478	226	704			
03:45			9	28	14	31	15:45		432	1743	267	939	699	2682
04:00			6	10	16	16:00			517	256	773			
04:15			15	21	36	16:15			520	287	807			
04:30			22	10	32	16:30			499	246	745			
04:45			15	58	35	76	16:45		550	2086	294	1083	844	3169
05:00			23	51	74	17:00			572	297	869			
05:15			47	45	92	17:15			575	268	843			
05:30			57	109	166	17:30			456	274	730			
05:45			65	192	139	344	17:45		379	1982	260	1099	639	3081
06:00			84	147	231	18:00			430	244	674			
06:15			112	204	316	18:15			367	215	582			
06:30			141	264	405	18:30			338	209	547			
06:45			131	468	289	904	18:45		318	1453	165	833	483	2286
07:00			153	332	485	19:00			315	179	494			
07:15			202	376	578	19:15			259	173	432			
07:30			226	421	647	19:30			258	178	436			
07:45			225	806	456	1585	19:45		270	1102	160	690	430	1792
08:00			179	439	618	20:00			272	148	420			
08:15			204	429	633	20:15			215	126	341			
08:30			215	364	579	20:30			178	111	289			
08:45			214	812	320	1552	20:45		181	846	112	497	293	1343
09:00			201	252	453	21:00			170	91	261			
09:15			224	211	435	21:15			137	71	208			
09:30			175	232	407	21:30			104	86	190			
09:45			206	806	240	935	21:45		110	521	60	308	170	829
10:00			228	177	405	22:00			94	46	140			
10:15			227	213	440	22:15			96	35	131			
10:30			236	238	474	22:30			59	50	109			
10:45			231	922	253	881	22:45		62	311	40	171	102	482
11:00			268	206	474	23:00			54	35	89			
11:15			285	253	538	23:15			36	16	52			
11:30			313	248	561	23:30			41	22	63			
11:45			293	1159	252	959	23:45		40	171	33	106	73	277
TOTALS			5449	7404	12853	TOTALS			14477	8668	23145			
SPLIT %			42.4%	57.6%	35.7%	SPLIT %			62.5%	37.5%	64.3%			

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	19,926	16,072	35,998

AM Peak Hour			11:45	07:30	07:30	PM Peak Hour			16:30	16:45	16:30
AM Pk Volume			1253	1745	2579	PM Pk Volume			2196	1133	3301
Pk Hr Factor			0.870	0.957	0.947	Pk Hr Factor			0.955	0.954	0.950
7 - 9 Volume	0	0	1618	3137	4755	4 - 6 Volume	0	0	4068	2182	6250
7 - 9 Peak Hour			07:30	07:30	07:30	4 - 6 Peak Hour			16:30	16:45	16:30
7 - 9 Pk Volume	0	0	834	1745	2579	4 - 6 Pk Volume	0	0	2196	1133	3301
Pk Hr Factor	0.000	0.000	0.923	0.957	0.947	Pk Hr Factor	0.000	0.000	0.955	0.954	0.950

VOLUME

Friars Rd Bet. Fenton Pkwy & Northside Dr

Day: Wednesday
Date: 5/2/2018

City: San Diego
Project #: CA18_4154_004

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	20,053	14,023	34,076					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			40	17	57	12:00			329	209	538			
00:15			41	13	54	12:15			330	212	542			
00:30			30	17	47	12:30			365	226	591			
00:45			11	122	13	60	12:45		354	1378	229	876	583	2254
01:00			23	12	35	13:00			362	237	599			
01:15			18	15	33	13:15			355	208	563			
01:30			16	12	28	13:30			362	190	552			
01:45			20	77	9	48	13:45		328	1407	211	846	539	2253
02:00			10	14	24	14:00			367	183	550			
02:15			14	7	21	14:15			385	201	586			
02:30			15	7	22	14:30			402	193	595			
02:45			6	45	10	38	14:45		389	1543	179	756	568	2299
03:00			4	4	8	15:00			415	187	602			
03:15			7	2	9	15:15			384	146	530			
03:30			8	8	16	15:30			500	186	686			
03:45			9	28	12	26	15:45		401	1700	208	727	609	2427
04:00			12	9	21	16:00			541	211	752			
04:15			12	17	29	16:15			550	238	788			
04:30			16	15	31	16:30			572	201	773			
04:45			23	63	26	67	16:45		539	2202	237	887	776	3089
05:00			20	39	59	17:00			560	237	797			
05:15			28	59	87	17:15			495	229	724			
05:30			53	85	138	17:30			452	219	671			
05:45			63	164	146	329	17:45		361	1868	212	897	573	2765
06:00			71	134	205	18:00			440	205	645			
06:15			96	187	283	18:15			390	165	555			
06:30			122	217	339	18:30			326	153	479			
06:45			122	411	281	819	18:45		303	1459	157	680	460	2139
07:00			147	335	482	19:00			294	153	447			
07:15			175	373	548	19:15			280	141	421			
07:30			189	408	597	19:30			292	135	427			
07:45			229	740	418	1534	19:45		298	1164	129	558	427	1722
08:00			214	372	586	20:00			248	95	343			
08:15			207	381	588	20:15			258	108	366			
08:30			198	332	530	20:30			194	99	293			
08:45			226	845	278	1363	20:45		183	883	83	385	266	1268
09:00			188	279	467	21:00			166	72	238			
09:15			207	223	430	21:15			136	78	214			
09:30			168	227	395	21:30			112	75	187			
09:45			176	739	216	945	21:45		123	537	46	271	169	808
10:00			189	195	384	22:00			111	53	164			
10:15			216	206	422	22:15			85	43	128			
10:30			242	202	444	22:30			72	34	106			
10:45			241	888	210	813	22:45		55	323	35	165	90	488
11:00			293	196	489	23:00			63	34	97			
11:15			291	209	500	23:15			59	16	75			
11:30			303	190	493	23:30			66	33	99			
11:45			340	1227	236	831	23:45		52	240	19	102	71	342
TOTALS			5349	6873	12222	TOTALS			14704	7150	21854			
SPLIT %			43.8%	56.2%	35.9%	SPLIT %			67.3%	32.7%	64.1%			

DAILY TOTALS					NB	SB	EB	WB	Total		
					0	0	20,053	14,023	34,076		
AM Peak Hour			11:45	07:30	07:30	PM Peak Hour			16:15	16:45	16:15
AM Pk Volume			1364	1579	2418	PM Pk Volume			2221	922	3134
Pk Hr Factor			0.934	0.944	0.934	Pk Hr Factor			0.971	0.973	0.983
7 - 9 Volume	0	0	1585	2897	4482	4 - 6 Volume	0	0	4070	1784	5854
7 - 9 Peak Hour			07:45	07:30	07:30	4 - 6 Peak Hour			16:15	16:45	16:15
7 - 9 Pk Volume	0	0	848	1579	2418	4 - 6 Pk Volume	0	0	2221	922	3134
Pk Hr Factor	0.000	0.000	0.926	0.944	0.934	Pk Hr Factor	0.000	0.000	0.971	0.973	0.983

VOLUME

Friars Rd Bet. Qualcomm Way Dwy & Mission Village Dr

Day: Tuesday
Date: 5/1/2018

City: San Diego
Project #: CA18_4154_005

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	23,290	21,068	44,358

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			37	26	63	12:00			373	334	707			
00:15			22	17	39	12:15			381	411	792			
00:30			22	24	46	12:30			462	365	827			
00:45			23	104	12	79	12:45		451	1667	344	1454	795	3121
01:00			17	19	36	13:00			435	358	793			
01:15			15	17	32	13:15			415	354	769			
01:30			19	12	31	13:30			419	309	728			
01:45			20	71	26	74	13:45		435	1704	325	1346	760	3050
02:00			8	17	25	14:00			418	342	760			
02:15			6	8	14	14:15			444	310	754			
02:30			13	8	21	14:30			439	308	747			
02:45			12	39	7	40	14:45		475	1776	357	1317	832	3093
03:00			7	11	18	15:00			494	283	777			
03:15			9	8	17	15:15			458	331	789			
03:30			12	9	21	15:30			553	314	867			
03:45			8	36	25	53	15:45		487	1992	324	1252	811	3244
04:00			10	22	32	16:00			593	364	957			
04:15			15	26	41	16:15			572	357	929			
04:30			29	20	49	16:30			523	350	873			
04:45			23	77	72	140	16:45		603	2291	338	1409	941	3700
05:00			28	46	74	17:00			621	381	1002			
05:15			46	71	117	17:15			652	363	1015			
05:30			93	123	216	17:30			528	357	885			
05:45			79	246	182	422	17:45		442	2243	379	1480	821	3723
06:00			115	177	292	18:00			469	373	842			
06:15			119	220	339	18:15			441	327	768			
06:30			161	278	439	18:30			382	304	686			
06:45			161	556	311	986	18:45		393	1685	272	1276	665	2961
07:00			188	354	542	19:00			343	266	609			
07:15			229	396	625	19:15			321	251	572			
07:30			232	466	698	19:30			309	232	541			
07:45			246	895	520	1736	19:45		351	1324	193	942	544	2266
08:00			221	509	730	20:00			319	201	520			
08:15			220	488	708	20:15			268	148	416			
08:30			240	413	653	20:30			269	132	401			
08:45			242	923	396	1806	20:45		237	1093	100	581	337	1674
09:00			240	313	553	21:00			225	110	335			
09:15			222	320	542	21:15			182	106	288			
09:30			221	302	523	21:30			130	75	205			
09:45			199	882	352	1287	21:45		118	655	80	371	198	1026
10:00			261	292	553	22:00			108	53	161			
10:15			261	334	595	22:15			96	56	152			
10:30			297	378	675	22:30			69	39	108			
10:45			305	1124	335	1339	22:45		64	337	42	190	106	527
11:00			305	312	617	23:00			73	36	109			
11:15			354	352	706	23:15			39	31	70			
11:30			383	332	715	23:30			39	29	68			
11:45			339	1381	372	1368	23:45		38	189	24	120	62	309
TOTALS				6334	9330	15664	TOTALS			16956	11738	28694		
SPLIT %				40.4%	59.6%	35.3%	SPLIT %			59.1%	40.9%	64.7%		

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	23,290	21,068	44,358

AM Peak Hour			11:45	07:30	11:45	PM Peak Hour			16:45	17:00	16:45
AM Pk Volume			1555	1983	3037	PM Pk Volume			2404	1480	3843
Pk Hr Factor			0.841	0.953	0.918	Pk Hr Factor			0.922	0.971	0.947
7 - 9 Volume	0	0	1818	3542	5360	4 - 6 Volume	0	0	4534	2889	7423
7 - 9 Peak Hour			07:15	07:30	07:30	4 - 6 Peak Hour			16:45	17:00	16:45
7 - 9 Pk Volume	0	0	928	1983	2902	4 - 6 Pk Volume	0	0	2404	1480	3843
Pk Hr Factor	0.000	0.000	0.943	0.953	0.947	Pk Hr Factor	0.000	0.000	0.922	0.971	0.947

VOLUME

Friars Rd Bet. Qualcomm Way Dwy & Mission Village Dr

Day: Wednesday
Date: 5/2/2018

City: San Diego
Project #: CA18_4154_005

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	24,966	20,828	45,794					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			37	22	59	12:00			384	377	761			
00:15			39	19	58	12:15			418	371	789			
00:30			27	15	42	12:30			414	358	772			
00:45			15	118	9	65	12:45		446	1662	365	1471	811	3133
01:00			27	11	38	13:00			441	342	783			
01:15			19	16	35	13:15			447	381	828			
01:30			14	15	29	13:30			476	350	826			
01:45			18	78	22	64	13:45		447	1811	308	1381	755	3192
02:00			11	9	20	14:00			435	318	753			
02:15			16	12	28	14:15			474	292	766			
02:30			15	8	23	14:30			512	333	845			
02:45			7	49	9	38	14:45		479	1900	349	1292	828	3192
03:00			5	10	15	15:00			528	322	850			
03:15			9	8	17	15:15			459	326	785			
03:30			8	11	19	15:30			604	303	907			
03:45			10	32	27	56	15:45		509	2100	356	1307	865	3407
04:00			13	31	44	16:00			634	335	969			
04:15			15	23	38	16:15			602	341	943			
04:30			19	26	45	16:30			621	315	936			
04:45			25	72	62	142	16:45		687	2544	351	1342	1038	3886
05:00			29	29	58	17:00			712	391	1103			
05:15			49	85	134	17:15			617	357	974			
05:30			68	114	182	17:30			550	335	885			
05:45			85	231	176	404	17:45		512	2391	362	1445	874	3836
06:00			95	180	275	18:00			602	326	928			
06:15			108	236	344	18:15			498	311	809			
06:30			135	269	404	18:30			428	306	734			
06:45			149	487	298	983	18:45		403	1931	272	1215	675	3146
07:00			153	339	492	19:00			357	238	595			
07:15			222	384	606	19:15			405	263	668			
07:30			225	478	703	19:30			365	222	587			
07:45			268	868	558	1759	19:45		372	1499	181	904	553	2403
08:00			268	499	767	20:00			354	189	543			
08:15			257	458	715	20:15			336	135	471			
08:30			245	411	656	20:30			325	121	446			
08:45			240	1010	386	1754	20:45		272	1287	97	542	369	1829
09:00			207	319	526	21:00			251	103	354			
09:15			252	323	575	21:15			165	96	261			
09:30			206	288	494	21:30			138	84	222			
09:45			231	896	354	1284	21:45		143	697	77	360	220	1057
10:00			216	299	515	22:00			115	57	172			
10:15			289	337	626	22:15			90	50	140			
10:30			298	332	630	22:30			79	45	124			
10:45			333	1136	349	1317	22:45		75	359	44	196	119	555
11:00			377	318	695	23:00			71	35	106			
11:15			353	340	693	23:15			65	33	98			
11:30			365	385	750	23:30			64	35	99			
11:45			460	1555	332	1375	23:45		53	253	29	132	82	385
TOTALS			6532	9241	15773	TOTALS			18434	11587	30021			
SPLIT %			41.4%	58.6%	34.4%	SPLIT %			61.4%	38.6%	65.6%			

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	24,966	20,828	45,794

AM Peak Hour	11:45	07:30	11:45	PM Peak Hour	16:30	12:00	16:30				
AM Pk Volume	1676	1993	3114	PM Pk Volume	2637	1471	4051				
Pk Hr Factor	0.911	0.893	0.983	Pk Hr Factor	0.926	0.975	0.918				
7 - 9 Volume	0	0	1878	3513	5391	4 - 6 Volume	0	0	4935	2787	7722
7 - 9 Peak Hour	07:45	07:30	07:30	4 - 6 Peak Hour	16:30	17:00	16:30				
7 - 9 Pk Volume	0	0	1038	1993	3011	4 - 6 Pk Volume	0	0	2637	1445	4051
Pk Hr Factor	0.000	0.000	0.968	0.893	0.911	Pk Hr Factor	0.000	0.000	0.926	0.924	0.918

VOLUME

Qualcomm Way Bet. Rio San Diego Dr & Friars Rd

Day: Tuesday
Date: 5/1/2018

City: San Diego
Project #: CA18_4154_006

DAILY TOTALS					NB	SB	EB	WB	Total		
					7,620	6,868	0	0	14,488		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	11	4			15	12:00	135	107			242
00:15	7	6			13	12:15	148	96			244
00:30	7	3			10	12:30	145	122			267
00:45	6	31	3	16	9	12:45	142	570	139	464	281
					47						1034
01:00	2	3			5	13:00	158	94			252
01:15	7	1			8	13:15	151	108			259
01:30	6	2			8	13:30	133	83			216
01:45	6	21	3	9	9	13:45	147	589	92	377	239
					30						966
02:00	2	1			3	14:00	109	96			205
02:15	4	2			6	14:15	127	109			236
02:30	3	2			5	14:30	155	127			282
02:45	6	15	0	5	6	14:45	111	502	90	422	201
					20						924
03:00	2	2			4	15:00	126	109			235
03:15	4	1			5	15:15	139	114			253
03:30	2	1			3	15:30	122	114			236
03:45	2	10	3	7	5	15:45	150	537	150	487	300
					17						1024
04:00	3	2			5	16:00	136	123			259
04:15	6	2			8	16:15	166	145			311
04:30	13	4			17	16:30	164	174			338
04:45	14	36	5	13	19	16:45	148	614	158	600	306
					49						1214
05:00	9	4			13	17:00	198	175			373
05:15	18	15			33	17:15	159	186			345
05:30	29	23			52	17:30	144	150			294
05:45	35	91	15	57	50	17:45	138	639	136	647	274
					148						1286
06:00	45	28			73	18:00	131	151			282
06:15	79	38			117	18:15	109	131			240
06:30	104	42			146	18:30	105	180			285
06:45	108	336	55	163	163	18:45	103	448	185	647	288
					499						1095
07:00	97	40			137	19:00	91	143			234
07:15	115	61			176	19:15	89	158			247
07:30	157	79			236	19:30	77	99			176
07:45	137	506	79	259	216	19:45	81	338	87	487	168
					765						825
08:00	118	77			195	20:00	67	89			156
08:15	128	91			219	20:15	69	74			143
08:30	117	91			208	20:30	58	66			124
08:45	122	485	93	352	215	20:45	57	251	47	276	104
					837						527
09:00	110	71			181	21:00	51	72			123
09:15	90	69			159	21:15	45	44			89
09:30	98	76			174	21:30	36	38			74
09:45	86	384	72	288	158	21:45	36	168	29	183	65
					672						351
10:00	90	65			155	22:00	36	46			82
10:15	112	74			186	22:15	20	41			61
10:30	104	77			181	22:30	29	39			68
10:45	100	406	88	304	188	22:45	16	101	50	176	66
					710						277
11:00	113	85			198	23:00	17	52			69
11:15	105	107			212	23:15	13	55			68
11:30	138	100			238	23:30	10	67			77
11:45	134	490	105	397	239	23:45	12	52	58	232	70
					887						284
TOTALS	2811	1870			4681	TOTALS	4809	4998			9807
SPLIT %	60.1%	39.9%			32.3%	SPLIT %	49.0%	51.0%			67.7%

DAILY TOTALS					NB	SB	EB	WB	Total		
					7,620	6,868	0	0	14,488		
AM Peak Hour	11:45	11:45			11:45	PM Peak Hour	16:15	16:30	16:30		
AM Pk Volume	562	430			992	PM Pk Volume	676	693	1362		
Pk Hr Factor	0.949	0.881			0.929	Pk Hr Factor	0.854	0.931	0.913		
7 - 9 Volume	991	611	0	0	1602	4 - 6 Volume	1253	1247	0	0	2500
7 - 9 Peak Hour	07:30	08:00			07:30	4 - 6 Peak Hour	16:15	16:30			16:30
7 - 9 Pk Volume	540	352	0	0	866	4 - 6 Pk Volume	676	693	0	0	1362
Pk Hr Factor	0.860	0.946	0.000	0.000	0.917	Pk Hr Factor	0.854	0.931	0.000	0.000	0.913

VOLUME

Qualcomm Way Bet. Rio San Diego Dr & Friars Rd

Day: Wednesday
Date: 5/2/2018

City: San Diego
Project #: CA18_4154_006

DAILY TOTALS					NB	SB	EB	WB	Total		
					7,851	6,892	0	0	14,743		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	11	7			18	12:00	153	114			267
00:15	11	7			18	12:15	146	91			237
00:30	13	4			17	12:30	152	119			271
00:45	5	40	7	25	12	65	142	593	111	435	253
01:00	7	6			13	13:00	145	107			252
01:15	4	5			9	13:15	139	123			262
01:30	5	3			8	13:30	159	101			260
01:45	4	20	2	16	6	36	144	587	85	416	229
02:00	5	3			8	14:00	128	112			240
02:15	2	3			5	14:15	123	96			219
02:30	3	0			3	14:30	171	97			268
02:45	4	14	3	9	7	23	117	539	87	392	204
03:00	0	1			1	15:00	102	109			211
03:15	1	1			2	15:15	132	127			259
03:30	1	0			1	15:30	161	136			297
03:45	5	7	2	4	7	11	128	523	152	524	280
04:00	4	0			4	16:00	157	121			278
04:15	7	4			11	16:15	152	164			316
04:30	6	4			10	16:30	172	157			329
04:45	4	21	6	14	10	35	160	641	172	614	332
05:00	8	4			12	17:00	180	158			338
05:15	19	7			26	17:15	176	170			346
05:30	21	10			31	17:30	143	186			329
05:45	42	90	21	42	63	132	136	635	130	644	266
06:00	47	20			67	18:00	136	148			284
06:15	65	40			105	18:15	117	157			274
06:30	86	36			122	18:30	103	191			294
06:45	104	302	47	143	151	445	112	468	188	684	300
07:00	107	33			140	19:00	95	178			273
07:15	141	49			190	19:15	102	130			232
07:30	133	65			198	19:30	79	106			185
07:45	139	520	80	227	219	747	78	354	91	505	169
08:00	112	74			186	20:00	90	89			179
08:15	140	81			221	20:15	81	92			173
08:30	120	66			186	20:30	63	68			131
08:45	106	478	79	300	185	778	54	288	47	296	101
09:00	122	75			197	21:00	60	65			125
09:15	123	80			203	21:15	46	50			96
09:30	98	67			165	21:30	51	38			89
09:45	90	433	80	302	170	735	30	187	29	182	59
10:00	84	72			156	22:00	34	46			80
10:15	89	76			165	22:15	37	38			75
10:30	99	69			168	22:30	23	40			63
10:45	112	384	87	304	199	688	19	113	38	162	57
11:00	122	85			207	23:00	28	52			80
11:15	120	104			224	23:15	29	73			102
11:30	140	102			242	23:30	11	61			72
11:45	153	535	107	398	260	933	11	79	68	254	79
TOTALS	2844	1784			4628	TOTALS	5007	5108			10115
SPLIT %	61.5%	38.5%			31.4%	SPLIT %	49.5%	50.5%			68.6%

DAILY TOTALS					NB	SB	EB	WB	Total
					7,851	6,892	0	0	14,743

AM Peak Hour	11:45	11:45			11:45	PM Peak Hour	16:30	18:15			16:30
AM Pk Volume	604	431			1035	PM Pk Volume	688	714			1345
Pk Hr Factor	0.987	0.905			0.955	Pk Hr Factor	0.956	0.935			0.972
7 - 9 Volume	998	527	0	0	1525	4 - 6 Volume	1276	1258	0	0	2534
7 - 9 Peak Hour	07:15	07:45			07:30	4 - 6 Peak Hour	16:30	16:45			16:30
7 - 9 Pk Volume	525	301	0	0	824	4 - 6 Pk Volume	688	686	0	0	1345
Pk Hr Factor	0.931	0.929	0.000	0.000	0.932	Pk Hr Factor	0.956	0.922	0.000	0.000	0.972

VOLUME

Rio San Diego Dr Bet. Rio Bonito Way & River Run Dr

Day: Tuesday
Date: 5/1/2018

City: San Diego
Project #: CA18_4154_007

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	5,527	5,900	11,427					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			6	3	9	12:00			147	100	247			
00:15			9	3	12	12:15			111	97	208			
00:30			8	6	14	12:30			126	129	255			
00:45			5	28	8	20	12:45		120	504	134	460	254	964
01:00			1	3	4	13:00			95	128	223			
01:15			2	3	5	13:15			99	122	221			
01:30			4	2	6	13:30			114	124	238			
01:45			9	16	3	11	13:45		109	417	111	485	220	902
02:00			4	0	4	14:00			118	115	233			
02:15			5	3	8	14:15			115	89	204			
02:30			3	0	3	14:30			112	103	215			
02:45			2	14	2	5	14:45		111	456	88	395	199	851
03:00			1	0	1	15:00			97	114	211			
03:15			4	1	5	15:15			118	100	218			
03:30			2	5	7	15:30			106	95	201			
03:45			3	10	2	8	15:45		110	431	101	410	211	841
04:00			4	3	7	16:00			144	109	253			
04:15			1	3	4	16:15			104	115	219			
04:30			8	4	12	16:30			123	94	217			
04:45			4	17	9	19	16:45		135	506	95	413	230	919
05:00			7	15	22	17:00			170	104	274			
05:15			6	17	23	17:15			140	93	233			
05:30			11	29	40	17:30			121	101	222			
05:45			15	39	68	129	17:45		121	552	103	401	224	953
06:00			21	48	69	18:00			102	82	184			
06:15			24	41	65	18:15			124	98	222			
06:30			31	70	101	18:30			91	89	180			
06:45			26	102	80	239	18:45		99	416	79	348	178	764
07:00			37	90	127	19:00			88	80	168			
07:15			56	87	143	19:15			84	77	161			
07:30			40	116	156	19:30			59	93	152			
07:45			62	195	114	407	19:45		65	296	80	330	145	626
08:00			48	109	157	20:00			53	74	127			
08:15			52	105	157	20:15			51	64	115			
08:30			40	89	129	20:30			37	63	100			
08:45			50	190	83	386	20:45		26	167	40	241	66	408
09:00			55	77	132	21:00			37	46	83			
09:15			48	60	108	21:15			18	26	44			
09:30			60	52	112	21:30			21	13	34			
09:45			77	240	56	245	21:45		28	104	12	97	40	201
10:00			71	64	135	22:00			19	17	36			
10:15			81	78	159	22:15			18	14	32			
10:30			82	87	169	22:30			10	14	24			
10:45			92	326	112	341	22:45		8	55	9	54	17	109
11:00			112	99	211	23:00			15	11	26			
11:15			93	92	185	23:15			8	9	17			
11:30			98	123	221	23:30			5	7	12			
11:45			109	412	108	422	23:45		6	34	7	34	13	68
TOTALS			1589	2232	3821	TOTALS			3938	3668	7606			
SPLIT %			41.6%	58.4%	33.4%	SPLIT %			51.8%	48.2%	66.6%			

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	5,527	5,900	11,427

AM Peak Hour	11:45	07:30	11:45	PM Peak Hour	16:30	12:30	12:00				
AM Pk Volume	493	444	927	PM Pk Volume	568	513	964				
Pk Hr Factor	0.838	0.957	0.909	Pk Hr Factor	0.835	0.957	0.945				
7 - 9 Volume	0	0	385	793	1178	4 - 6 Volume	0	0	1058	814	1872
7 - 9 Peak Hour			07:15	07:30	07:30	4 - 6 Peak Hour			16:30	16:00	16:45
7 - 9 Pk Volume	0	0	206	444	646	4 - 6 Pk Volume	0	0	568	413	959
Pk Hr Factor	0.000	0.000	0.831	0.957	0.918	Pk Hr Factor	0.000	0.000	0.835	0.898	0.875

VOLUME

Rio San Diego Dr Bet. Rio Bonito Way & River Run Dr

Day: Wednesday
Date: 5/2/2018

City: San Diego
Project #: CA18_4154_007

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	5,465	5,710	11,175					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			8	3	11	12:00			114	122	236			
00:15			5	3	8	12:15			117	119	236			
00:30			11	5	16	12:30			113	124	237			
00:45			1	25	2	13	12:45		109	453	123	488	232	941
01:00			2	2	4	13:00			124	138	262			
01:15			6	2	8	13:15			133	110	243			
01:30			2	1	3	13:30			105	103	208			
01:45			5	15	1	6	13:45		111	473	106	457	217	930
02:00			4	1	5	14:00			114	115	229			
02:15			4	2	6	14:15			119	114	233			
02:30			4	2	6	14:30			102	108	210			
02:45			2	14	2	7	14:45		104	439	87	424	191	863
03:00			1	0	1	15:00			110	96	206			
03:15			2	3	5	15:15			91	90	181			
03:30			3	2	5	15:30			108	111	219			
03:45			2	8	6	11	15:45		92	401	86	383	178	784
04:00			3	2	5	16:00			112	101	213			
04:15			3	2	5	16:15			116	85	201			
04:30			4	4	8	16:30			133	83	216			
04:45			6	16	8	16	16:45		116	477	108	377	224	854
05:00			11	13	24	17:00			161	102	263			
05:15			9	13	22	17:15			116	113	229			
05:30			12	41	53	17:30			111	115	226			
05:45			20	52	43	110	17:45		92	480	92	422	184	902
06:00			15	42	57	18:00			113	90	203			
06:15			28	58	86	18:15			91	86	177			
06:30			22	56	78	18:30			96	86	182			
06:45			32	97	77	233	18:45		76	376	78	340	154	716
07:00			41	95	136	19:00			74	84	158			
07:15			58	102	160	19:15			69	65	134			
07:30			50	103	153	19:30			73	76	149			
07:45			52	201	120	420	19:45		57	273	70	295	127	568
08:00			56	93	149	20:00			66	71	137			
08:15			56	95	151	20:15			59	54	113			
08:30			50	79	129	20:30			38	56	94			
08:45			50	212	75	342	20:45		37	200	39	220	76	420
09:00			48	81	129	21:00			34	40	74			
09:15			51	54	105	21:15			23	20	43			
09:30			58	46	104	21:30			26	25	51			
09:45			68	225	53	234	21:45		19	102	14	99	33	201
10:00			76	73	149	22:00			17	11	28			
10:15			79	77	156	22:15			26	17	43			
10:30			93	84	177	22:30			15	13	28			
10:45			97	345	85	319	22:45		12	70	10	51	22	121
11:00			99	76	175	23:00			14	12	26			
11:15			125	103	228	23:15			12	14	26			
11:30			113	94	207	23:30			13	13	26			
11:45			122	459	121	394	23:45		13	52	10	49	23	101
TOTALS			1669	2105	3774	TOTALS			3796	3605	7401			
SPLIT %			44.2%	55.8%	33.8%	SPLIT %			51.3%	48.7%	66.2%			

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	5,465	5,710	11,175

AM Peak Hour	11:15	11:45	11:45	PM Peak Hour	16:15	12:15	12:30				
AM Pk Volume	474	486	952	PM Pk Volume	526	504	974				
Pk Hr Factor	0.948	0.980	0.979	Pk Hr Factor	0.817	0.913	0.929				
7 - 9 Volume	0	0	413	762	1175	4 - 6 Volume	0	0	957	799	1756
7 - 9 Peak Hour	07:15	07:00	07:15	4 - 6 Peak Hour	16:15	16:45	16:45				
7 - 9 Pk Volume	0	0	216	420	634	4 - 6 Pk Volume	0	0	526	438	942
Pk Hr Factor	0.000	0.000	0.931	0.875	0.922	Pk Hr Factor	0.000	0.000	0.817	0.952	0.895

VOLUME

Rio San Diego Dr Bet. River Run Dr & Fenton Pkwy

Day: Tuesday
Date: 5/1/2018

City: San Diego
Project #: CA18_4154_008

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	4,712	4,652	9,364					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			5	1	6	12:00			125	84	209			
00:15			3	2	5	12:15			112	86	198			
00:30			7	7	14	12:30			116	116	232			
00:45			2	17	4	14	12:45		99	452	118	404	217	856
01:00			1	6	7	13:00			86	104	190			
01:15			4	4	8	13:15			90	128	218			
01:30			2	2	4	13:30			91	106	197			
01:45			7	14	1	13	13:45		123	390	101	439	224	829
02:00			2	1	3	14:00			105	92	197			
02:15			2	1	3	14:15			87	81	168			
02:30			11	3	14	14:30			89	89	178			
02:45			9	24	7	12	14:45		86	367	71	333	157	700
03:00			3	1	4	15:00			87	97	184			
03:15			7	1	8	15:15			103	84	187			
03:30			4	4	8	15:30			96	67	163			
03:45			2	16	3	9	15:45		82	368	93	341	175	709
04:00			5	3	8	16:00			109	85	194			
04:15			1	0	1	16:15			88	107	195			
04:30			6	1	7	16:30			98	82	180			
04:45			2	14	3	7	16:45		107	402	72	346	179	748
05:00			9	2	11	17:00			128	97	225			
05:15			4	6	10	17:15			113	85	198			
05:30			11	15	26	17:30			90	105	195			
05:45			14	38	38	61	17:45		94	425	77	364	171	789
06:00			20	21	41	18:00			80	70	150			
06:15			28	15	43	18:15			103	84	187			
06:30			31	35	66	18:30			87	75	162			
06:45			28	107	36	107	18:45		82	352	72	301	154	653
07:00			35	46	81	19:00			72	71	143			
07:15			29	56	85	19:15			66	68	134			
07:30			38	83	121	19:30			60	77	137			
07:45			41	143	63	248	19:45		56	254	73	289	129	543
08:00			44	44	88	20:00			42	69	111			
08:15			43	65	108	20:15			41	62	103			
08:30			40	64	104	20:30			25	64	89			
08:45			50	177	45	218	20:45		14	122	34	229	48	351
09:00			51	48	99	21:00			26	39	65			
09:15			47	31	78	21:15			10	24	34			
09:30			57	29	86	21:30			8	12	20			
09:45			78	233	43	151	21:45		13	57	10	85	23	142
10:00			76	49	125	22:00			18	21	39			
10:15			76	60	136	22:15			9	10	19			
10:30			75	65	140	22:30			9	12	21			
10:45			74	301	80	254	22:45		7	43	10	53	17	96
11:00			91	85	176	23:00			9	8	17			
11:15			94	82	176	23:15			4	8	12			
11:30			92	94	186	23:30			10	4	14			
11:45			93	370	88	349	23:45		3	26	5	25	8	51
TOTALS			1454	1443	2897	TOTALS			3258	3209	6467			
SPLIT %			50.2%	49.8%	30.9%	SPLIT %			50.4%	49.6%	69.1%			

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	4,712	4,652	9,364

AM Peak Hour	11:45	11:45	11:45	PM Peak Hour	12:00	12:30	12:30				
AM Pk Volume	446	374	820	PM Pk Volume	452	466	857				
Pk Hr Factor	0.892	0.806	0.884	Pk Hr Factor	0.904	0.910	0.923				
7 - 9 Volume	0	0	320	4 - 6 Volume	0	0	827	710	1537		
7 - 9 Peak Hour			08:00	07:30	07:30	4 - 6 Peak Hour	16:30	17:00	16:45		
7 - 9 Pk Volume	0	0	177	255	421	4 - 6 Pk Volume	0	0	446	364	797
Pk Hr Factor	0.000	0.000	0.885	0.768	0.870	Pk Hr Factor	0.000	0.000	0.871	0.867	0.886

VOLUME

Rio San Diego Dr Bet. River Run Dr & Fenton Pkwy

Day: Wednesday
Date: 5/2/2018

City: San Diego
Project #: CA18_4154_008

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	4,667	4,497	9,164					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			6	2	8	12:00			118	112	230			
00:15			3	5	8	12:15			107	102	209			
00:30			4	4	8	12:30			108	104	212			
00:45			2	15	4	12:45			110	443	107	425	217	868
01:00			3	1	4	13:00			114	106	220			
01:15			6	0	6	13:15			115	104	219			
01:30			2	2	4	13:30			88	94	182			
01:45			5	16	1	13:45			98	415	89	393	187	808
02:00			5	2	7	14:00			103	86	189			
02:15			1	0	1	14:15			114	100	214			
02:30			1	1	2	14:30			91	94	185			
02:45			0	7	0	14:45			82	390	74	354	156	744
03:00			2	0	2	15:00			85	87	172			
03:15			2	2	4	15:15			75	75	150			
03:30			5	1	6	15:30			75	90	165			
03:45			3	12	1	15:45			69	304	74	326	143	630
04:00			4	0	4	16:00			73	81	154			
04:15			3	1	4	16:15			95	72	167			
04:30			4	0	4	16:30			112	68	180			
04:45			5	16	3	16:45			103	383	98	319	201	702
05:00			8	5	13	17:00			131	77	208			
05:15			6	10	16	17:15			83	96	179			
05:30			9	25	34	17:30			98	108	206			
05:45			18	41	20	17:45			80	392	87	368	167	760
06:00			10	19	29	18:00			97	75	172			
06:15			29	25	54	18:15			80	73	153			
06:30			21	23	44	18:30			72	82	154			
06:45			29	89	40	18:45			69	318	58	288	127	606
07:00			33	50	83	19:00			62	73	135			
07:15			38	60	98	19:15			59	58	117			
07:30			40	55	95	19:30			70	62	132			
07:45			38	149	84	19:45			42	233	67	260	109	493
08:00			46	51	97	20:00			44	61	105			
08:15			42	44	86	20:15			62	64	126			
08:30			53	51	104	20:30			25	53	78			
08:45			47	188	54	20:45			25	156	42	220	67	376
09:00			40	46	86	21:00			24	37	61			
09:15			41	36	77	21:15			11	17	28			
09:30			52	33	85	21:30			14	17	31			
09:45			66	199	27	21:45			10	59	19	90	29	149
10:00			77	55	132	22:00			13	11	24			
10:15			82	50	132	22:15			17	18	35			
10:30			71	78	149	22:30			10	15	25			
10:45			94	324	76	22:45			9	49	10	54	19	103
11:00			98	58	156	23:00			7	8	15			
11:15			121	86	207	23:15			6	10	16			
11:30			109	66	175	23:30			11	10	21			
11:45			111	439	110	23:45			6	30	5	33	11	63
TOTALS			1495	1367	2862	TOTALS			3172	3130	6302			
SPLIT %			52.2%	47.8%	31.2%	SPLIT %			50.3%	49.7%	68.8%			

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	4,667	4,497	9,164

AM Peak Hour	11:15	11:45	11:45	PM Peak Hour	12:30	12:00	12:00				
AM Pk Volume	459	428	872	PM Pk Volume	447	425	868				
Pk Hr Factor	0.948	0.955	0.948	Pk Hr Factor	0.972	0.949	0.943				
7 - 9 Volume	0	0	337	4 - 6 Volume	0	0	775	687	1462		
7 - 9 Peak Hour	08:00	07:15	07:15	4 - 6 Peak Hour	16:15	16:45	16:45				
7 - 9 Pk Volume	0	0	188	4 - 6 Pk Volume	0	0	441	379	794		
Pk Hr Factor	0.000	0.000	0.887	0.744	0.844	Pk Hr Factor	0.000	0.000	0.842	0.877	0.954

VOLUME

Fenton Pkwy S/O Rio San Diego Dr & Fenton Marketplace Dwy

Day: Tuesday
Date: 5/1/2018

City: San Diego
Project #: CA18_4154_009

DAILY TOTALS					NB	SB	EB	WB	Total		
					2,625	2,502	0	0	5,127		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	6	5			11	12:00	49	59			108
00:15	3	4			7	12:15	50	69			119
00:30	6	7			13	12:30	61	48			109
00:45	5	20	5	21	10	12:45	68	228	59	235	127
01:00	1	2			3	13:00	51	46			97
01:15	1	4			5	13:15	53	40			93
01:30	1	3			4	13:30	65	30			95
01:45	1	4	6	15	7	13:45	54	223	62	178	116
02:00	1	0			1	14:00	48	53			101
02:15	4	2			6	14:15	57	65			122
02:30	1	5			6	14:30	60	61			121
02:45	5	11	3	10	8	14:45	41	206	54	233	95
03:00	0	2			2	15:00	52	42			94
03:15	4	1			5	15:15	50	42			92
03:30	2	4			6	15:30	45	39			84
03:45	3	9	2	9	5	15:45	50	197	57	180	107
04:00	1	1			2	16:00	56	59			115
04:15	1	4			5	16:15	72	51			123
04:30	3	0			3	16:30	61	36			97
04:45	3	8	0	5	3	16:45	51	240	55	201	106
05:00	3	1			4	17:00	59	53			112
05:15	5	1			6	17:15	50	45			95
05:30	12	4			16	17:30	44	45			89
05:45	10	30	2	8	12	17:45	37	190	48	191	85
06:00	16	9			25	18:00	47	45			92
06:15	16	8			24	18:15	55	49			104
06:30	19	8			27	18:30	45	44			89
06:45	13	64	10	35	23	18:45	39	186	33	171	72
07:00	21	7			28	19:00	42	39			81
07:15	20	15			35	19:15	39	32			71
07:30	27	11			38	19:30	40	41			81
07:45	26	94	13	46	39	19:45	45	166	28	140	73
08:00	17	24			41	20:00	38	30			68
08:15	24	12			36	20:15	27	26			53
08:30	25	24			49	20:30	24	20			44
08:45	22	88	28	88	50	20:45	30	119	16	92	46
09:00	28	28			56	21:00	26	15			41
09:15	17	30			47	21:15	20	11			31
09:30	22	44			66	21:30	10	11			21
09:45	20	87	39	141	59	21:45	8	64	12	49	20
10:00	35	41			76	22:00	12	12			24
10:15	36	34			70	22:15	9	12			21
10:30	38	42			80	22:30	6	7			13
10:45	38	147	47	164	85	22:45	7	34	5	36	12
11:00	34	51			85	23:00	4	4			8
11:15	52	44			96	23:15	2	5			7
11:30	59	64			123	23:30	1	7			8
11:45	55	200	70	229	125	23:45	3	10	9	25	12
TOTALS	762	771			1533	TOTALS	1863	1731			3594
SPLIT %	49.7%	50.3%			29.9%	SPLIT %	51.8%	48.2%			70.1%

DAILY TOTALS					NB	SB	EB	WB	Total		
					2,625	2,502	0	0	5,127		
AM Peak Hour	11:15	11:30			11:30	PM Peak Hour	16:15	13:45	12:00		
AM Pk Volume	215	262			475	PM Pk Volume	243	241	463		
Pk Hr Factor	0.911	0.936			0.950	Pk Hr Factor	0.844	0.927	0.911		
7 - 9 Volume	182	134	0	0	316	4 - 6 Volume	430	392	0	0	822
7 - 9 Peak Hour	07:00	08:00			08:00	4 - 6 Peak Hour	16:15	16:00			16:00
7 - 9 Pk Volume	94	88	0	0	176	4 - 6 Pk Volume	243	201	0	0	441
Pk Hr Factor	0.870	0.786	0.000	0.000	0.880	Pk Hr Factor	0.844	0.852	0.000	0.000	0.896

VOLUME

Fenton Pkwy S/O Rio San Diego Dr & Fenton Marketplace Dwy

Day: Wednesday
Date: 5/2/2018

City: San Diego
Project #: CA18_4154_009

DAILY TOTALS					NB	SB	EB	WB	Total		
					2,647	2,556	0	0	5,203		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	3	6			9	12:00	54	60			114
00:15	2	2			4	12:15	57	66			123
00:30	4	9			13	12:30	57	51			108
00:45	3	12	1	18	4	12:45	60	228	47	224	107
					30						452
01:00	2	1			3	13:00	85	43			128
01:15	0	1			1	13:15	51	72			123
01:30	1	2			3	13:30	54	46			100
01:45	5	8	5	9	10	13:45	49	239	71	232	120
					17						471
02:00	3	6			9	14:00	43	71			114
02:15	4	2			6	14:15	71	69			140
02:30	0	0			0	14:30	50	52			102
02:45	0	7	1	9	1	14:45	47	211	36	228	83
					16						439
03:00	1	2			3	15:00	52	40			92
03:15	3	0			3	15:15	45	37			82
03:30	0	4			4	15:30	55	41			96
03:45	1	5	2	8	3	15:45	40	192	39	157	79
					13						349
04:00	1	2			3	16:00	53	53			106
04:15	2	1			3	16:15	62	59			121
04:30	4	0			4	16:30	44	53			97
04:45	2	9	3	6	5	16:45	58	217	50	215	108
					15						432
05:00	3	4			7	17:00	59	47			106
05:15	4	3			7	17:15	46	51			97
05:30	13	4			17	17:30	52	52			104
05:45	8	28	5	16	13	17:45	43	200	55	205	98
					44						405
06:00	12	10			22	18:00	58	64			122
06:15	13	9			22	18:15	37	48			85
06:30	16	10			26	18:30	49	45			94
06:45	10	51	8	37	18	18:45	41	185	28	185	69
					88						370
07:00	13	12			25	19:00	40	35			75
07:15	25	18			43	19:15	39	38			77
07:30	28	24			52	19:30	42	32			74
07:45	25	91	23	77	48	19:45	66	187	23	128	89
					168						315
08:00	19	26			45	20:00	36	32			68
08:15	23	15			38	20:15	36	30			66
08:30	18	21			39	20:30	38	24			62
08:45	17	77	25	87	42	20:45	27	137	16	102	43
					164						239
09:00	29	23			52	21:00	27	18			45
09:15	22	29			51	21:15	13	15			28
09:30	26	28			54	21:30	12	16			28
09:45	19	96	32	112	51	21:45	15	67	14	63	29
					208						130
10:00	27	41			68	22:00	14	10			24
10:15	32	41			73	22:15	11	14			25
10:30	37	35			72	22:30	7	8			15
10:45	38	134	39	156	77	22:45	8	40	9	41	17
					290						81
11:00	40	36			76	23:00	3	2			5
11:15	48	62			110	23:15	6	2			8
11:30	57	63			120	23:30	5	8			13
11:45	62	207	63	224	125	23:45	5	19	5	17	10
					431						36
TOTALS	725	759			1484	TOTALS	1922	1797			3719
SPLIT %	48.9%	51.1%			28.5%	SPLIT %	51.7%	48.3%			71.5%

DAILY TOTALS					NB	SB	EB	WB	Total
					2,647	2,556	0	0	5,203

AM Peak Hour	11:30	11:30			11:30	PM Peak Hour	12:15	13:45			13:45
AM Pk Volume	230	252			482	PM Pk Volume	259	263			476
Pk Hr Factor	0.927	0.955			0.964	Pk Hr Factor	0.762	0.926			0.850
7 - 9 Volume	168	164	0	0	332	4 - 6 Volume	417	420	0	0	837
7 - 9 Peak Hour	07:15	07:15			07:15	4 - 6 Peak Hour	16:15	16:00			16:00
7 - 9 Pk Volume	97	91	0	0	188	4 - 6 Pk Volume	223	215	0	0	432
Pk Hr Factor	0.866	0.875	0.000	0.000	0.904	Pk Hr Factor	0.899	0.911	0.000	0.000	0.893

VOLUME

San Diego Mission Rd Bet. Friars Rd & Rancho Mission Rd

Day: Tuesday
Date: 5/1/2018

City: San Diego
Project #: CA18_4154_010

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	4,162	3,611	7,773					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			3	7	10	12:00			56	40	96			
00:15			4	2	6	12:15			37	54	91			
00:30			3	6	9	12:30			40	40	80			
00:45			2	12	3	12:45			57	190	48	182	105	372
01:00			2	2	4	13:00			58	42	100			
01:15			5	0	5	13:15			43	52	95			
01:30			1	1	2	13:30			46	44	90			
01:45			2	10	8	13:45			43	190	38	176	81	366
02:00			1	3	4	14:00			51	43	94			
02:15			1	11	12	14:15			38	39	77			
02:30			2	5	7	14:30			63	45	108			
02:45			1	5	8	14:45			47	199	58	185	105	384
03:00			4	5	9	15:00			65	50	115			
03:15			3	8	11	15:15			82	40	122			
03:30			1	8	9	15:30			101	53	154			
03:45			4	12	2	15:45			138	386	46	189	184	575
04:00			3	4	7	16:00			168	40	208			
04:15			1	3	4	16:15			226	46	272			
04:30			1	6	7	16:30			192	44	236			
04:45			3	8	14	16:45			216	802	44	174	260	976
05:00			4	19	23	17:00			203	58	261			
05:15			7	12	19	17:15			252	34	286			
05:30			9	17	26	17:30			232	50	282			
05:45			10	30	22	17:45			154	841	35	177	189	1018
06:00			12	33	45	18:00			109	40	149			
06:15			16	52	68	18:15			85	26	111			
06:30			15	107	122	18:30			71	29	100			
06:45			20	63	122	18:45			52	317	32	127	84	444
07:00			16	177	193	19:00			32	40	72			
07:15			27	210	237	19:15			37	24	61			
07:30			36	211	247	19:30			31	30	61			
07:45			61	140	211	19:45			31	131	22	116	53	247
08:00			40	156	196	20:00			37	21	58			
08:15			30	106	136	20:15			24	20	44			
08:30			29	83	112	20:30			27	14	41			
08:45			39	138	76	20:45			34	122	17	72	51	194
09:00			41	39	80	21:00			23	11	34			
09:15			35	27	62	21:15			15	11	26			
09:30			23	25	48	21:30			15	18	33			
09:45			28	127	29	21:45			11	64	9	49	20	113
10:00			38	39	77	22:00			11	8	19			
10:15			29	22	51	22:15			16	5	21			
10:30			32	39	71	22:30			8	4	12			
10:45			33	132	34	22:45			9	44	6	23	15	67
11:00			39	37	76	23:00			5	2	7			
11:15			35	43	78	23:15			10	7	17			
11:30			51	35	86	23:30			10	5	15			
11:45			44	169	35	23:45			5	30	3	17	8	47
TOTALS			846	2124	2970	TOTALS			3316	1487	4803			
SPLIT %			28.5%	71.5%	38.2%	SPLIT %			69.0%	31.0%	61.8%			

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	4,162	3,611	7,773

AM Peak Hour	11:30	07:00	07:15	PM Peak Hour	16:45	14:45	16:45				
AM Pk Volume	188	809	952	PM Pk Volume	903	201	1089				
Pk Hr Factor	0.839	0.959	0.875	Pk Hr Factor	0.896	0.866	0.952				
7 - 9 Volume	0	0	278	1230	1508	4 - 6 Volume	0	0	1643	351	1994
7 - 9 Peak Hour	07:30	07:00	07:15	4 - 6 Peak Hour	16:45	16:15	16:45				
7 - 9 Pk Volume	0	0	167	809	952	4 - 6 Pk Volume	0	0	903	192	1089
Pk Hr Factor	0.000	0.000	0.684	0.959	0.875	Pk Hr Factor	0.000	0.000	0.896	0.828	0.952

VOLUME

San Diego Mission Rd Bet. Friars Rd & Rancho Mission Rd

Day: Wednesday
Date: 5/2/2018

City: San Diego
Project #: CA18_4154_010

DAILY TOTALS					NB	SB	EB	WB	Total					
					0	0	3,975	3,571	7,546					
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL			
00:00			3	8	11	12:00			49	50	99			
00:15			4	7	11	12:15			53	39	92			
00:30			8	2	10	12:30			52	43	95			
00:45			5	20	4	21	12:45		41	195	44	176	85	371
01:00			5	4	9	13:00			46	52	98			
01:15			3	3	6	13:15			32	38	70			
01:30			2	4	6	13:30			40	49	89			
01:45			3	13	7	18	13:45		43	161	41	180	84	341
02:00			7	3	10	14:00			50	36	86			
02:15			0	2	2	14:15			51	44	95			
02:30			1	9	10	14:30			56	38	94			
02:45			0	8	6	20	14:45		48	205	44	162	92	367
03:00			0	5	5	15:00			75	39	114			
03:15			1	6	7	15:15			67	41	108			
03:30			1	9	10	15:30			121	54	175			
03:45			2	4	7	27	15:45		103	366	38	172	141	538
04:00			3	7	10	16:00			146	42	188			
04:15			3	3	6	16:15			192	37	229			
04:30			6	7	13	16:30			172	45	217			
04:45			4	16	11	28	16:45		233	743	41	165	274	908
05:00			3	7	10	17:00			187	55	242			
05:15			8	23	31	17:15			242	45	287			
05:30			5	20	25	17:30			212	56	268			
05:45			13	29	43	93	17:45		155	796	38	194	193	990
06:00			15	27	42	18:00			114	34	148			
06:15			10	44	54	18:15			81	38	119			
06:30			11	86	97	18:30			62	27	89			
06:45			24	60	124	281	18:45		36	293	20	119	56	412
07:00			24	141	165	19:00			32	29	61			
07:15			17	210	227	19:15			29	31	60			
07:30			38	223	261	19:30			40	30	70			
07:45			39	118	182	756	19:45		28	129	32	122	60	251
08:00			39	151	190	20:00			33	30	63			
08:15			34	106	140	20:15			26	13	39			
08:30			30	83	113	20:30			30	16	46			
08:45			36	139	81	421	20:45		21	110	16	75	37	185
09:00			32	39	71	21:00			30	17	47			
09:15			38	41	79	21:15			27	18	45			
09:30			31	29	60	21:30			18	16	34			
09:45			29	130	40	149	21:45		14	89	14	65	28	154
10:00			41	31	72	22:00			13	11	24			
10:15			20	32	52	22:15			9	8	17			
10:30			39	34	73	22:30			7	4	11			
10:45			28	128	37	134	22:45		7	36	7	30	14	66
11:00			26	29	55	23:00			11	6	17			
11:15			34	39	73	23:15			13	5	18			
11:30			39	38	77	23:30			7	3	10			
11:45			52	151	41	147	23:45		5	36	2	16	7	52
TOTALS			816	2095	2911	TOTALS			3159	1476	4635			
SPLIT %			28.0%	72.0%	38.6%	SPLIT %			68.2%	31.8%	61.4%			

DAILY TOTALS					NB	SB	EB	WB	Total
					0	0	3,975	3,571	7,546

AM Peak Hour			11:45	07:15	07:15	PM Peak Hour			16:45	16:45	16:45
AM Pk Volume			206	766	899	PM Pk Volume			874	197	1071
Pk Hr Factor			0.972	0.859	0.861	Pk Hr Factor			0.903	0.879	0.933
7 - 9 Volume	0	0	257	1177	1434	4 - 6 Volume	0	0	1539	359	1898
7 - 9 Peak Hour			07:30	07:15	07:15	4 - 6 Peak Hour			16:45	16:45	16:45
7 - 9 Pk Volume	0	0	150	766	899	4 - 6 Pk Volume	0	0	874	197	1071
Pk Hr Factor	0.000	0.000	0.962	0.859	0.861	Pk Hr Factor	0.000	0.000	0.903	0.879	0.933

VOLUME

Ward Rd Bet. Camino Del Rio N & Rancho Mission Rd

Day: Tuesday
Date: 5/1/2018

City: San Diego
Project #: CA18_4154_011

DAILY TOTALS					NB	SB	EB	WB	Total		
					4,756	5,346	0	0	10,102		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	10	7			17	12:00	73	74			147
00:15	6	5			11	12:15	64	64			128
00:30	5	8			13	12:30	48	73			121
00:45	6	27	11	31	17	12:45	74	259	80	291	154
					58						550
01:00	5	4			9	13:00	82	84			166
01:15	1	6			7	13:15	67	70			137
01:30	5	2			7	13:30	48	65			113
01:45	8	19	4	16	12	13:45	61	258	73	292	134
					35						550
02:00	4	5			9	14:00	56	60			116
02:15	5	6			11	14:15	78	76			154
02:30	4	3			7	14:30	51	84			135
02:45	3	16	2	16	5	14:45	70	255	97	317	167
					32						572
03:00	2	4			6	15:00	75	85			160
03:15	4	7			11	15:15	67	93			160
03:30	1	8			9	15:30	74	92			166
03:45	6	13	5	24	11	15:45	73	289	105	375	178
					37						664
04:00	3	9			12	16:00	105	139			244
04:15	2	9			11	16:15	91	147			238
04:30	8	10			18	16:30	93	130			223
04:45	5	18	9	37	14	16:45	86	375	132	548	218
					55						923
05:00	14	12			26	17:00	106	136			242
05:15	8	16			24	17:15	142	121			263
05:30	13	27			40	17:30	111	122			233
05:45	22	57	29	84	51	17:45	102	461	109	488	211
					141						949
06:00	31	28			59	18:00	84	89			173
06:15	68	47			115	18:15	64	79			143
06:30	112	49			161	18:30	77	80			157
06:45	105	316	64	188	169	18:45	61	286	63	311	124
					504						597
07:00	135	77			212	19:00	60	60			120
07:15	127	107			234	19:15	45	50			95
07:30	132	111			243	19:30	53	49			102
07:45	128	522	156	451	284	19:45	55	213	43	202	98
					973						415
08:00	113	158			271	20:00	47	49			96
08:15	83	119			202	20:15	47	32			79
08:30	58	111			169	20:30	39	37			76
08:45	80	334	99	487	179	20:45	46	179	40	158	86
					821						337
09:00	48	85			133	21:00	36	32			68
09:15	44	82			126	21:15	33	29			62
09:30	46	62			108	21:30	39	36			75
09:45	58	196	66	295	124	21:45	23	131	18	115	41
					491						246
10:00	44	60			104	22:00	26	20			46
10:15	60	64			124	22:15	15	16			31
10:30	50	53			103	22:30	15	16			31
10:45	50	204	64	241	114	22:45	21	77	13	65	34
					445						142
11:00	45	65			110	23:00	15	12			27
11:15	47	60			107	23:15	17	8			25
11:30	40	77			117	23:30	14	11			25
11:45	63	195	74	276	137	23:45	10	56	7	38	17
					471						94
TOTALS	1917	2146			4063	TOTALS	2839	3200			6039
SPLIT %	47.2%	52.8%			40.2%	SPLIT %	47.0%	53.0%			59.8%

DAILY TOTALS					NB	SB	EB	WB	Total
					4,756	5,346	0	0	10,102

AM Peak Hour	07:00	07:30		07:15	PM Peak Hour	17:00	16:00		16:45		
AM Pk Volume	522	544		1032	PM Pk Volume	461	548		956		
Pk Hr Factor	0.967	0.861		0.908	Pk Hr Factor	0.812	0.932		0.909		
7 - 9 Volume	856	938	0	0	1794	4 - 6 Volume	836	1036	0	0	1872
7 - 9 Peak Hour	07:00	07:30		07:15	4 - 6 Peak Hour	17:00	16:00			16:45	
7 - 9 Pk Volume	522	544	0	0	1032	4 - 6 Pk Volume	461	548	0	0	956
Pk Hr Factor	0.967	0.861	0.000	0.000	0.908	Pk Hr Factor	0.812	0.932	0.000	0.000	0.909

VOLUME

Ward Rd Bet. Camino Del Rio N & Rancho Mission Rd

Day: Wednesday
Date: 5/2/2018

City: San Diego
Project #: CA18_4154_011

DAILY TOTALS					NB	SB	EB	WB	Total		
					4,805	5,037	0	0	9,842		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	12	4			16	12:00	62	74			136
00:15	7	8			15	12:15	60	65			125
00:30	14	9			23	12:30	75	77			152
00:45	6	39	11	32	17	12:45	64	261	83	299	147
01:00	6	4			10	13:00	51	61			112
01:15	4	3			7	13:15	79	69			148
01:30	8	2			10	13:30	61	73			134
01:45	4	22	6	15	10	13:45	70	261	68	271	138
02:00	5	7			12	14:00	53	80			133
02:15	5	5			10	14:15	56	64			120
02:30	3	5			8	14:30	69	75			144
02:45	4	17	1	18	5	14:45	85	263	95	314	180
03:00	3	2			5	15:00	63	89			152
03:15	2	4			6	15:15	78	74			152
03:30	1	4			5	15:30	64	109			173
03:45	1	7	9	19	10	15:45	77	282	80	352	157
04:00	2	9			11	16:00	90	117			207
04:15	5	6			11	16:15	94	125			219
04:30	5	15			20	16:30	82	117			199
04:45	3	15	11	41	14	16:45	80	346	132	491	212
05:00	13	9			22	17:00	120	108			228
05:15	15	20			35	17:15	103	129			232
05:30	27	21			48	17:30	119	112			231
05:45	25	80	26	76	51	17:45	83	425	113	462	196
06:00	33	37			70	18:00	93	100			193
06:15	49	36			85	18:15	70	84			154
06:30	89	44			133	18:30	76	72			148
06:45	109	280	58	175	167	18:45	57	296	60	316	117
07:00	117	64			181	19:00	48	60			108
07:15	151	109			260	19:15	51	40			91
07:30	147	125			272	19:30	52	50			102
07:45	132	547	126	424	258	19:45	46	197	35	185	81
08:00	119	136			255	20:00	52	35			87
08:15	96	122			218	20:15	40	37			77
08:30	84	96			180	20:30	41	41			82
08:45	86	385	107	461	193	20:45	40	173	30	143	70
09:00	50	66			116	21:00	42	33			75
09:15	63	61			124	21:15	34	29			63
09:30	54	84			138	21:30	29	27			56
09:45	45	212	53	264	98	21:45	39	144	17	106	56
10:00	48	47			95	22:00	20	18			38
10:15	44	62			106	22:15	31	14			45
10:30	50	59			109	22:30	19	18			37
10:45	39	181	49	217	88	22:45	22	92	11	61	33
11:00	50	61			111	23:00	20	14			34
11:15	39	45			84	23:15	14	15			29
11:30	68	70			138	23:30	17	11			28
11:45	60	217	70	246	130	23:45	12	63	9	49	21
TOTALS	2002	1988			3990	TOTALS	2803	3049			5852
SPLIT %	50.2%	49.8%			40.5%	SPLIT %	47.9%	52.1%			59.5%

DAILY TOTALS					NB	SB	EB	WB	Total
					4,805	5,037	0	0	9,842

AM Peak Hour	07:15	07:30			07:15	PM Peak Hour	17:00	16:00			16:45
AM Pk Volume	549	509			1045	PM Pk Volume	425	491			903
Pk Hr Factor	0.909	0.936			0.960	Pk Hr Factor	0.885	0.930			0.973
7 - 9 Volume	932	885	0	0	1817	4 - 6 Volume	771	953	0	0	1724
7 - 9 Peak Hour	07:15	07:30			07:15	4 - 6 Peak Hour	17:00	16:00			16:45
7 - 9 Pk Volume	549	509	0	0	1045	4 - 6 Pk Volume	425	491	0	0	903
Pk Hr Factor	0.909	0.936	0.000	0.000	0.960	Pk Hr Factor	0.885	0.930	0.000	0.000	0.973

VOLUME

Mission Village Dr Bet. Irvington Ave & Fullerton Ave

Day: Tuesday
Date: 5/1/2018

City: San Diego
Project #: CA18_4154_012

DAILY TOTALS					NB	SB	EB	WB	Total		
					7,014	8,260	0	0	15,274		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	16	14			30	12:00	84	94			178
00:15	9	5			14	12:15	99	90			189
00:30	10	5			15	12:30	76	99			175
00:45	2	37	4	28	6	65	77	336	79	362	156
01:00	8	6			14	13:00	82	78			160
01:15	4	5			9	13:15	83	71			154
01:30	5	1			6	13:30	81	74			155
01:45	1	18	4	16	5	34	87	333	79	302	166
02:00	9	2			11	14:00	82	95			177
02:15	5	3			8	14:15	91	88			179
02:30	5	1			6	14:30	83	92			175
02:45	2	21	5	11	7	32	95	351	129	404	224
03:00	1	2			3	15:00	108	134			242
03:15	2	5			7	15:15	101	145			246
03:30	5	2			7	15:30	103	222			325
03:45	7	15	8	17	15	32	142	454	271	772	413
04:00	4	3			7	16:00	96	335			431
04:15	4	7			11	16:15	121	378			499
04:30	9	5			14	16:30	115	400			515
04:45	6	23	16	31	22	54	110	442	386	1499	496
05:00	17	17			34	17:00	146	377			523
05:15	22	10			32	17:15	154	388			542
05:30	29	21			50	17:30	127	362			489
05:45	35	103	28	76	63	179	93	520	292	1419	385
06:00	52	28			80	18:00	98	243			341
06:15	78	42			120	18:15	87	158			245
06:30	145	47			192	18:30	82	138			220
06:45	218	493	58	175	276	668	81	348	95	634	176
07:00	239	67			306	19:00	89	95			184
07:15	283	97			380	19:15	58	79			137
07:30	313	118			431	19:30	63	61			124
07:45	281	1116	109	391	390	1507	70	280	44	279	114
08:00	214	119			333	20:00	54	70			124
08:15	188	88			276	20:15	50	59			109
08:30	159	90			249	20:30	44	46			90
08:45	141	702	123	420	264	1122	64	212	61	236	125
09:00	106	101			207	21:00	53	50			103
09:15	76	64			140	21:15	47	40			87
09:30	81	77			158	21:30	30	35			65
09:45	68	331	68	310	136	641	33	163	37	162	70
10:00	66	71			137	22:00	28	19			47
10:15	74	60			134	22:15	28	23			51
10:30	69	67			136	22:30	20	16			36
10:45	54	263	52	250	106	513	14	90	23	81	37
11:00	77	77			154	23:00	11	14			25
11:15	73	98			171	23:15	22	16			38
11:30	81	87			168	23:30	9	10			19
11:45	75	306	74	336	149	642	15	57	9	49	24
TOTALS	3428	2061			5489	TOTALS	3586	6199			9785
SPLIT %	62.5%	37.5%			35.9%	SPLIT %	36.6%	63.4%			64.1%

DAILY TOTALS					NB	SB	EB	WB	Total
					7,014	8,260	0	0	15,274
AM Peak Hour	07:00	07:15			07:15	PM Peak Hour	16:45	16:30	16:30
AM Pk Volume	1116	443			1534	PM Pk Volume	537	1551	2076
Pk Hr Factor	0.891	0.931			0.890	Pk Hr Factor	0.872	0.969	0.958
7 - 9 Volume	1818	811	0	0	2629	4 - 6 Volume	962	2918	0
7 - 9 Peak Hour	07:00	07:15			07:15	4 - 6 Peak Hour	16:45	16:30	16:30
7 - 9 Pk Volume	1116	443	0	0	1534	4 - 6 Pk Volume	537	1551	0
Pk Hr Factor	0.891	0.931	0.000	0.000	0.890	Pk Hr Factor	0.872	0.969	0.000

VOLUME

Mission Village Dr Bet. Irvington Ave & Fullerton Ave

Day: Wednesday
Date: 5/2/2018

City: San Diego
Project #: CA18_4154_012

DAILY TOTALS					NB	SB	EB	WB	Total
					7,081	8,013	0	0	15,094

AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	8	10			18	12:00	89	85			174
00:15	12	7			19	12:15	94	76			170
00:30	7	4			11	12:30	68	130			198
00:45	10	37	8	29	18 66	12:45	84	335	90	381	174 716
01:00	8	4			12	13:00	106	91			197
01:15	4	6			10	13:15	102	86			188
01:30	6	3			9	13:30	91	64			155
01:45	7	25	1	14	8 39	13:45	76	375	88	329	164 704
02:00	3	3			6	14:00	90	92			182
02:15	6	3			9	14:15	85	94			179
02:30	6	0			6	14:30	93	96			189
02:45	7	22	5	11	12 33	14:45	105	373	118	400	223 773
03:00	2	1			3	15:00	95	145			240
03:15	3	6			9	15:15	94	168			262
03:30	2	2			4	15:30	110	195			305
03:45	6	13	5	14	11 27	15:45	97	396	268	776	365 1172
04:00	4	4			8	16:00	108	317			425
04:15	8	4			12	16:15	112	336			448
04:30	10	9			19	16:30	95	377			472
04:45	10	32	9	26	19 58	16:45	114	429	344	1374	458 1803
05:00	7	11			18	17:00	139	365			504
05:15	21	17			38	17:15	120	339			459
05:30	32	17			49	17:30	123	350			473
05:45	45	105	36	81	81 186	17:45	107	489	297	1351	404 1840
06:00	48	19			67	18:00	97	228			325
06:15	66	35			101	18:15	110	159			269
06:30	130	38			168	18:30	77	129			206
06:45	203	447	44	136	247 583	18:45	75	359	84	600	159 959
07:00	223	65			288	19:00	65	89			154
07:15	289	89			378	19:15	58	76			134
07:30	305	117			422	19:30	69	70			139
07:45	281	1098	113	384	394 1482	19:45	66	258	63	298	129 556
08:00	236	106			342	20:00	62	56			118
08:15	202	82			284	20:15	69	57			126
08:30	163	93			256	20:30	55	50			105
08:45	155	756	129	410	284 1166	20:45	53	239	50	213	103 452
09:00	97	91			188	21:00	57	42			99
09:15	98	74			172	21:15	47	47			94
09:30	87	77			164	21:30	30	34			64
09:45	72	354	66	308	138 662	21:45	49	183	28	151	77 334
10:00	77	79			156	22:00	34	28			62
10:15	66	66			132	22:15	28	22			50
10:30	75	58			133	22:30	22	27			49
10:45	70	288	57	260	127 548	22:45	21	105	25	102	46 207
11:00	53	73			126	23:00	14	14			28
11:15	75	69			144	23:15	19	14			33
11:30	100	82			182	23:30	6	9			15
11:45	82	310	98	322	180 632	23:45	14	53	6	43	20 96
TOTALS	3487	1995			5482	TOTALS	3594	6018			9612
SPLIT %	63.6%	36.4%			36.3%	SPLIT %	37.4%	62.6%			63.7%

DAILY TOTALS					NB	SB	EB	WB	Total
					7,081	8,013	0	0	15,094

AM Peak Hour	07:15	07:15		07:15	PM Peak Hour	16:45	16:30		16:45		
AM Pk Volume	1111	425		1536	PM Pk Volume	496	1425		1894		
Pk Hr Factor	0.911	0.908		0.910	Pk Hr Factor	0.892	0.945		0.939		
7 - 9 Volume	1854	794	0	0	2648	4 - 6 Volume	918	2725	0	0	3643
7 - 9 Peak Hour	07:15	07:15		07:15	4 - 6 Peak Hour	16:45	16:30		16:45		
7 - 9 Pk Volume	1111	425	0	0	1536	4 - 6 Pk Volume	496	1425	0	0	1894
Pk Hr Factor	0.911	0.908	0.000	0.000	0.910	Pk Hr Factor	0.892	0.945	0.000	0.000	0.939

24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136



Location: 1. Rancho Mission Road, west of Ward Road

Orientation: East-West

Date of Count: Tuesday, January 10, 2017

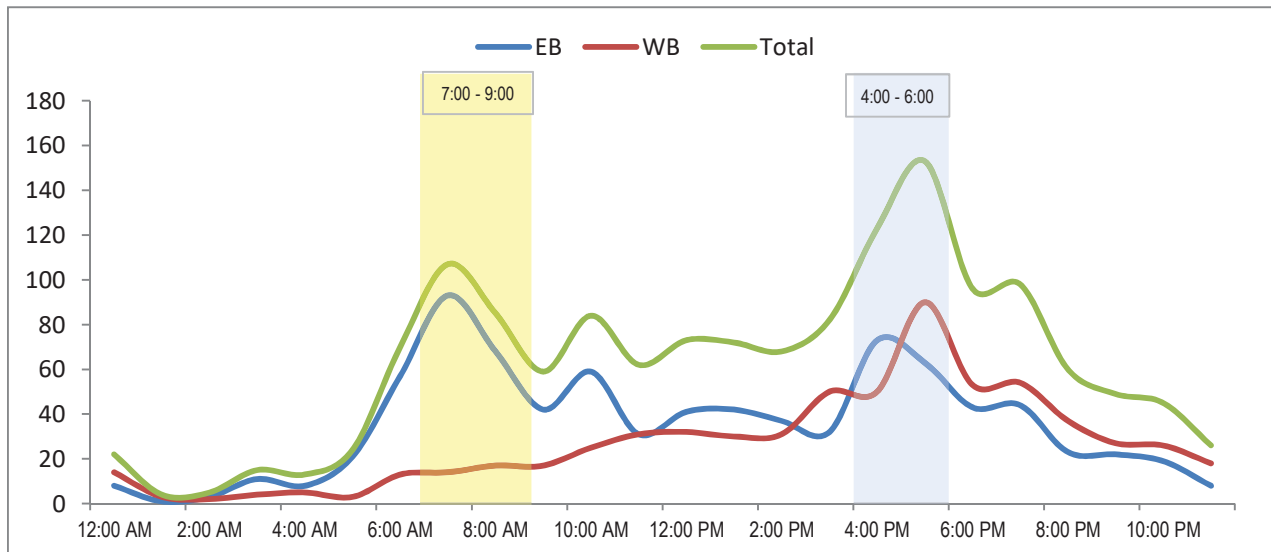
Analysts: DASH

Weather: Sunny

AVC Proj. No: 17-0612

24 Hour Segment Volume					1,495				
Time	Hourly Volume			Time	Hourly Volume				
	EB	WB	Total		EB	WB	Total		
12:00 AM - 1:00 AM	8	14	22	12:00 PM - 1:00 PM	41	32	73		
1:00 AM - 2:00 AM	1	3	4	1:00 PM - 2:00 PM	42	30	72		
2:00 AM - 3:00 AM	3	2	5	2:00 PM - 3:00 PM	37	31	68		
3:00 AM - 4:00 AM	11	4	15	3:00 PM - 4:00 PM	32	50	82		
4:00 AM - 5:00 AM	8	5	13	4:00 PM - 5:00 PM	73	50	123		
5:00 AM - 6:00 AM	21	3	24	5:00 PM - 6:00 PM	63	90	153		
6:00 AM - 7:00 AM	57	13	70	6:00 PM - 7:00 PM	43	53	96		
7:00 AM - 8:00 AM	93	14	107	7:00 PM - 8:00 PM	44	54	98		
8:00 AM - 9:00 AM	68	17	85	8:00 PM - 9:00 PM	23	37	60		
9:00 AM - 10:00 AM	42	17	59	9:00 PM - 10:00 PM	22	27	49		
10:00 AM - 11:00 AM	59	25	84	10:00 PM - 11:00 PM	19	26	45		
11:00 AM - 12:00 PM	31	31	62	11:00 PM - 12:00 AM	8	18	26		
Total	402	148	550	Total	447	498	945		

24-Hour EB Volume 849 **24-Hour WB Volume 646**






























APPENDIX B: EXISTING (2018) CONDITIONS

Technical Analysis



HCM 6th Signalized Intersection Summary
 1: SR-163 SB Ramps/Ulric St & Friars Rd

Existing Conditions
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	51	503	219	0	737	580	250	43	690	336	0	76
Future Volume (veh/h)	51	503	219	0	737	580	250	43	690	336	0	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	524	0	0	768	463	292	0	0	350	0	12
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	113	2407		0	1755	545	426	0		520	0	230
Arrive On Green	0.06	0.47	0.00	0.00	0.34	0.34	0.12	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	1781	5106	1585	0	5274	1585	3563	0	1585	3563	0	1579
Grp Volume(v), veh/h	53	524	0	0	768	463	292	0	0	350	0	12
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	0	1702	1585	1781	0	1585	1781	0	1579
Q Serve(g_s), s	2.1	4.4	0.0	0.0	8.5	19.8	5.7	0.0	0.0	6.8	0.0	0.5
Cycle Q Clear(g_c), s	2.1	4.4	0.0	0.0	8.5	19.8	5.7	0.0	0.0	6.8	0.0	0.5
Prop In Lane	1.00		1.00	0.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	113	2407		0	1755	545	426	0		520	0	230
V/C Ratio(X)	0.47	0.22		0.00	0.44	0.85	0.69	0.00		0.67	0.00	0.05
Avail Cap(c_a), veh/h	415	2450		0	2310	717	2442	0		2442	0	1082
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.0	11.4	0.0	0.0	18.5	22.2	30.8	0.0	0.0	29.5	0.0	26.8
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.0	0.1	6.0	2.0	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.4	0.0	0.0	2.9	7.3	2.4	0.0	0.0	2.7	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.1	11.4	0.0	0.0	18.6	28.2	32.8	0.0	0.0	30.1	0.0	26.8
LnGrp LOS	C	B		A	B	C	C	A		C	A	C
Approach Vol, veh/h		577	A		1231			292	A		362	
Approach Delay, s/veh		13.5			22.2			32.8			30.0	
Approach LOS		B			C			C			C	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		41.4		16.7	9.3	32.1		14.8				
Change Period (Y+Rc), s		7.0		6.1	* 4.7	7.0		6.1				
Max Green Setting (Gmax), s		35.0		50.0	* 17	33.0		50.0				
Max Q Clear Time (g_c+I1), s		6.4		8.8	4.1	21.8		7.7				
Green Ext Time (p_c), s		2.2		0.6	0.0	3.3		1.0				
Intersection Summary												
HCM 6th Ctrl Delay				22.5								
HCM 6th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary
 2: SR-163 NB Ramps & Friars Rd

Existing Conditions
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘				↗↗							
Traffic Volume (veh/h)	408	1106	0	0	1127	671	0	0	961	0	0	660
Future Volume (veh/h)	408	1106	0	0	1127	671	0	0	961	0	0	660
Initial Q (Qb), veh	0	0	0	0	0	0						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	425	1152	0	0	1174	0						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	506	0	0	0	1611							
Arrive On Green	0.28	0.88	0.00	0.00	0.45	0.00						
Sat Flow, veh/h	1781	0	0	0	3741	0						
Grp Volume(v), veh/h	425	0	0	0	1174	0						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1777	0						
Q Serve(g_s), s	9.4	0.0	0.0	0.0	11.3	0.0						
Cycle Q Clear(g_c), s	9.4	0.0	0.0	0.0	11.3	0.0						
Prop In Lane	1.00		0.00	0.00		0.00						
Lane Grp Cap(c), veh/h	506	0	0	0	1611							
V/C Ratio(X)	0.84	0.00	0.00	0.00	0.73							
Avail Cap(c_a), veh/h	1915	0	0	0	3566							
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	1.00	0.00						
Uniform Delay (d), s/veh	14.1	0.0	0.0	0.0	9.3	0.0						
Incr Delay (d2), s/veh	1.5	0.0	0.0	0.0	0.2	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	2.9	0.0	0.0	0.0	2.5	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.6	0.0	0.0	0.0	9.6	0.0						
LnGrp LOS	B	A	A	A	A							
Approach Vol, veh/h		425			1174			A				
Approach Delay, s/veh		15.6			9.6							
Approach LOS		B			A							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		41.9			16.9	25.0						
Change Period (Y+Rc), s		5.0			5.0	6.0						
Max Green Setting (Gmax), s		45.0			45.0	42.0						
Max Q Clear Time (g_c+I1), s		0.0			11.4	13.3						
Green Ext Time (p_c), s		0.0			0.6	5.7						

Intersection Summary

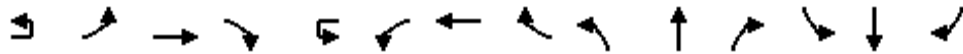
HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
3: Frazee Rd & Friars Rd

Existing Conditions
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↔↔↔	↔			↔↔↔	↔	↔↔	↔↔		↔↔	↔	↔
Traffic Volume (veh/h)	12	643	965	424	1	37	1505	113	114	56	31	23	16	170
Future Volume (veh/h)	12	643	965	424	1	37	1505	113	114	56	31	23	16	170
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		1.00	1.00		0.92	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		670	1005	245		39	1568	60	119	58	7	24	24	22
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h		747	3181	965		50	2220	689	179	465	55	99	230	195
Arrive On Green		0.22	0.62	0.62		0.03	0.43	0.43	0.05	0.15	0.15	0.03	0.12	0.12
Sat Flow, veh/h		3456	5106	1549		1781	5106	1585	3456	3172	373	3563	1870	1585
Grp Volume(v), veh/h		670	1005	245		39	1568	60	119	32	33	24	24	22
Grp Sat Flow(s),veh/h/ln		1728	1702	1549		1781	1702	1585	1728	1777	1767	1781	1870	1585
Q Serve(g_s), s		21.8	10.7	8.2		2.5	29.0	2.6	3.9	1.8	1.9	0.8	1.3	1.4
Cycle Q Clear(g_c), s		21.8	10.7	8.2		2.5	29.0	2.6	3.9	1.8	1.9	0.8	1.3	1.4
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.21	1.00		1.00
Lane Grp Cap(c), veh/h		747	3181	965		50	2220	689	179	261	259	99	230	195
V/C Ratio(X)		0.90	0.32	0.25		0.78	0.71	0.09	0.67	0.12	0.13	0.24	0.10	0.11
Avail Cap(c_a), veh/h		1343	3181	965		461	2645	821	895	460	458	923	484	411
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		44.1	10.3	9.8		55.9	26.7	19.2	53.9	42.9	43.0	55.1	45.1	45.2
Incr Delay (d2), s/veh		1.6	0.1	0.2		9.3	0.9	0.1	2.3	0.1	0.1	0.7	0.1	0.2
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		9.2	3.6	2.6		1.2	11.2	0.9	1.7	0.8	0.8	0.3	0.6	0.6
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		45.7	10.3	10.0		65.3	27.6	19.3	56.2	43.0	43.1	55.8	45.3	45.3
LnGrp LOS		D	B	A		E	C	B	E	D	D	E	D	D
Approach Vol, veh/h			1920				1667			184			70	
Approach Delay, s/veh			22.6				28.2			51.6			48.9	
Approach LOS			C				C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	7.7	78.6	10.4	19.1	29.5	56.8	7.6	21.9						
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9						
Max Green Setting (Gmax), s	30.0	* 50	30.0	30.0	45.0	60.0	30.0	30.0						
Max Q Clear Time (g_c+1/5), s	14.5	12.7	5.9	3.4	23.8	31.0	2.8	3.9						
Green Ext Time (p_c), s	0.0	12.9	0.2	0.1	1.2	19.3	0.0	0.2						

Intersection Summary

HCM 6th Ctrl Delay	26.9
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 4: Mission Center Rd & Friars Rd WB

Existing Conditions
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↘	↙	↘	↘↙	↘↙			↙↘	↘
Traffic Volume (veh/h)	0	0	0	146	1	305	86	440	0	0	362	266
Future Volume (veh/h)	0	0	0	146	1	305	86	440	0	0	362	266
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No	No	No	No	No	No	No	No	No
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				156	0	29	91	468	0	0	385	168
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				247	0	110	150	2866	0	0	2537	1104
Arrive On Green				0.14	0.00	0.14	0.09	1.00	0.00	0.00	0.71	0.71
Sat Flow, veh/h				3563	0	1585	3456	3647	0	0	3647	1547
Grp Volume(v), veh/h				156	0	29	91	468	0	0	385	168
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1728	1777	0	0	1777	1547
Q Serve(g_s), s				3.7	0.0	1.5	2.3	0.0	0.0	0.0	3.1	3.1
Cycle Q Clear(g_c), s				3.7	0.0	1.5	2.3	0.0	0.0	0.0	3.1	3.1
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				247	0	110	150	2866	0	0	2537	1104
V/C Ratio(X)				0.63	0.00	0.26	0.60	0.16	0.00	0.00	0.15	0.15
Avail Cap(c_a), veh/h				1215	0	541	580	2866	0	0	2537	1104
HCM Platoon Ratio				2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.98	0.98	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				37.7	0.0	36.7	40.3	0.0	0.0	0.0	4.1	4.1
Incr Delay (d2), s/veh				2.7	0.0	1.3	1.4	0.1	0.0	0.0	0.1	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.6	0.0	0.6	0.9	0.0	0.0	0.0	0.9	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				40.4	0.0	38.0	41.8	0.1	0.0	0.0	4.3	4.4
LnGrp LOS				D	A	D	D	A	A	A	A	A
Approach Vol, veh/h						185		559			553	
Approach Delay, s/veh						40.0		6.9			4.3	
Approach LOS						D		A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		78.9			8.3	70.6		11.1				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 49			15.1	28.6		30.7				
Max Q Clear Time (g_c+I1), s		2.0			4.3	5.1		5.7				
Green Ext Time (p_c), s		2.7			0.1	5.3		0.6				

Intersection Summary

HCM 6th Ctrl Delay	10.5
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Mission Center Rd & Friars Rd EB

Existing Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	172	1	165	0	0	0	0	359	78	115	396	0
Future Volume (veh/h)	172	1	165	0	0	0	0	359	78	115	396	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No					No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	188	0	9				0	390	71	125	430	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	393	0	175				0	1166	210	1112	2739	0
Arrive On Green	0.11	0.00	0.11				0.00	0.39	0.39	0.43	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	3083	539	3456	3647	0
Grp Volume(v), veh/h	188	0	9				0	230	231	125	430	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1751	1728	1777	0
Q Serve(g_s), s	4.5	0.0	0.5				0.0	8.2	8.3	2.0	0.0	0.0
Cycle Q Clear(g_c), s	4.5	0.0	0.5				0.0	8.2	8.3	2.0	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.31	1.00		0.00
Lane Grp Cap(c), veh/h	393	0	175				0	693	683	1112	2739	0
V/C Ratio(X)	0.48	0.00	0.05				0.00	0.33	0.34	0.11	0.16	0.00
Avail Cap(c_a), veh/h	1013	0	451				0	693	683	1112	2739	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.33	1.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.99	0.99	0.00
Uniform Delay (d), s/veh	37.6	0.0	35.8				0.0	19.2	19.3	18.0	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.1				0.0	1.3	1.3	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9	0.0	0.2				0.0	3.4	3.4	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	0.0	35.9				0.0	20.5	20.6	18.0	0.0	0.0
LnGrp LOS	D	A	D				A	C	C	B	A	A
Approach Vol, veh/h		197						461			555	
Approach Delay, s/veh		38.4						20.6			4.1	
Approach LOS		D						C			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	34.8	40.4	14.8	75.2								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	14.7	* 35	25.6	53.7								
Max Q Clear Time (g_c+I), s	14.0	10.3	6.5	2.0								
Green Ext Time (p_c), s	0.1	3.8	0.6	3.6								

Intersection Summary

HCM 6th Ctrl Delay	15.9
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
6: Qualcomm Way & Friars Rd WB

Existing Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↔		↖	↗			↗	↖
Traffic Volume (veh/h)	0	0	0	149	0	34	346	84	0	0	59	22
Future Volume (veh/h)	0	0	0	149	0	34	346	84	0	0	59	22
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				174	0	0	389	94	0	0	66	5
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				262	138	0	647	1499	0	0	1263	95
Arrive On Green				0.12	0.00	0.00	0.61	1.00	0.00	0.00	0.38	0.38
Sat Flow, veh/h				3563	1870	0	1781	1870	0	0	3444	251
Grp Volume(v), veh/h				174	0	0	389	94	0	0	35	36
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1870	0	0	1777	1825
Q Serve(g_s), s				3.7	0.0	0.0	10.8	0.0	0.0	0.0	1.0	1.0
Cycle Q Clear(g_c), s				3.7	0.0	0.0	10.8	0.0	0.0	0.0	1.0	1.0
Prop In Lane				1.00		0.00	1.00		0.00	0.00		0.14
Lane Grp Cap(c), veh/h				262	138	0	647	1499	0	0	670	688
V/C Ratio(X)				0.66	0.00	0.00	0.60	0.06	0.00	0.00	0.05	0.05
Avail Cap(c_a), veh/h				1251	657	0	647	1499	0	0	670	688
HCM Platoon Ratio				1.67	1.67	1.67	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.99	0.99	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				34.1	0.0	0.0	12.1	0.0	0.0	0.0	15.8	15.8
Incr Delay (d2), s/veh				1.1	0.0	0.0	1.7	0.1	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.5	0.0	0.0	3.4	0.0	0.0	0.0	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				35.2	0.0	0.0	13.8	0.1	0.0	0.0	15.9	15.9
LnGrp LOS				D	A	A	B	A	A	A	B	B
Approach Vol, veh/h					174			483			71	
Approach Delay, s/veh					35.2			11.1			15.9	
Approach LOS					D			B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		69.2			34.2	35.1		10.8				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+I1), s		2.0			12.8	3.0		5.7				
Green Ext Time (p_c), s		0.6			1.0	0.2		0.3				

Intersection Summary

HCM 6th Ctrl Delay	17.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
7: Qualcomm Way & Friars Rd EB

Existing Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↕↕	↗	↘	↕↕	
Traffic Volume (veh/h)	45	0	88	0	0	0	0	373	193	27	203	0
Future Volume (veh/h)	45	0	88	0	0	0	0	373	193	27	203	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No					No		No			
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	51	0	1				0	424	132	31	231	0
Peak Hour Factor	0.88	0.88	0.88				0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	82	0	72				0	2661	1161	44	2945	0
Arrive On Green	0.05	0.00	0.05				0.00	0.75	0.75	0.05	1.00	0.00
Sat Flow, veh/h	1781	0	1566				0	3647	1551	1781	3647	0
Grp Volume(v), veh/h	51	0	1				0	424	132	31	231	0
Grp Sat Flow(s),veh/h/ln	1781	0	1566				0	1777	1551	1781	1777	0
Q Serve(g_s), s	2.2	0.0	0.0				0.0	2.7	1.9	1.4	0.0	0.0
Cycle Q Clear(g_c), s	2.2	0.0	0.0				0.0	2.7	1.9	1.4	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	82	0	72				0	2661	1161	44	2945	0
V/C Ratio(X)	0.62	0.00	0.01				0.00	0.16	0.11	0.70	0.08	0.00
Avail Cap(c_a), veh/h	759	0	668				0	2661	1161	225	2945	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.97	0.97	0.96	0.96	0.00
Uniform Delay (d), s/veh	37.5	0.0	36.4				0.0	2.9	2.8	37.7	0.0	0.0
Incr Delay (d2), s/veh	2.8	0.0	0.0				0.0	0.1	0.2	6.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0				0.0	0.6	0.4	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.3	0.0	36.4				0.0	3.0	2.9	44.6	0.0	0.0
LnGrp LOS	D	A	D				A	A	A	D	A	A
Approach Vol, veh/h		52						556			262	
Approach Delay, s/veh		40.2						3.0			5.3	
Approach LOS		D						A			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	6.4	65.0	8.6	71.4								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.1	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	13.4	4.7	4.2	2.0								
Green Ext Time (p_c), s	0.0	3.3	0.1	1.0								

Intersection Summary

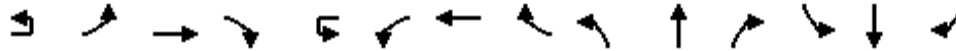
HCM 6th Ctrl Delay	5.9
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

Existing Conditions
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↖ ↗ ↘ ↙	↖ ↗ ↘ ↙	↖		↖ ↗ ↘ ↙	↖ ↗ ↘ ↙			↖ ↗	↖ ↗		↖ ↗		
Traffic Volume (veh/h)	4	85	649	28	2	135	1470	148	104	42	49	9	4	7	
Future Volume (veh/h)	4	85	649	28	2	135	1470	148	104	42	49	9	4	7	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	0.98		0.97	0.98		0.97	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		89	683	13		142	1547	149	109	44	8	9	4	1	
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2	
Cap, veh/h		115	2775	861		175	2728	263	261	95	304	159	63	12	
Arrive On Green		0.06	0.54	0.54		0.10	0.58	0.58	0.20	0.20	0.20	0.20	0.20	0.20	
Sat Flow, veh/h		1781	5106	1585		1781	4726	455	996	481	1539	493	319	62	
Grp Volume(v), veh/h		89	683	13		142	1114	582	153	0	8	14	0	0	
Grp Sat Flow(s),veh/h/ln		1781	1702	1585		1781	1702	1777	1478	0	1539	875	0	0	
Q Serve(g_s), s		4.7	6.8	0.4		7.5	19.8	19.9	0.0	0.0	0.4	0.1	0.0	0.0	
Cycle Q Clear(g_c), s		4.7	6.8	0.4		7.5	19.8	19.9	9.0	0.0	0.4	9.1	0.0	0.0	
Prop In Lane		1.00		1.00		1.00		0.26	0.71		1.00	0.64		0.07	
Lane Grp Cap(c), veh/h		115	2775	861		175	1965	1026	356	0	304	234	0	0	
V/C Ratio(X)		0.78	0.25	0.02		0.81	0.57	0.57	0.43	0.00	0.03	0.06	0.00	0.00	
Avail Cap(c_a), veh/h		739	3177	986		554	2118	1106	525	0	479	552	0	0	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	
Uniform Delay (d), s/veh		44.4	11.6	10.1		42.6	12.8	12.8	34.6	0.0	31.2	31.6	0.0	0.0	
Incr Delay (d2), s/veh		4.2	0.2	0.0		3.4	1.2	2.3	0.6	0.0	0.0	0.1	0.0	0.0	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		2.1	2.3	0.1		3.3	6.7	7.4	3.3	0.0	0.2	0.3	0.0	0.0	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		48.6	11.8	10.2		46.0	14.0	15.1	35.2	0.0	31.2	31.7	0.0	0.0	
LnGrp LOS		D	B	B		D	B	B	D	A	C	C	A	A	
Approach Vol, veh/h		785				1838				161			14		
Approach Delay, s/veh		16.0				16.8				35.0			31.7		
Approach LOS		B				B				C			C		
Timer - Assigned Phs	1	2	4		5	6	8								
Phs Duration (G+Y+Rc), s	13.9	58.6	23.9		10.6	61.9	23.9								
Change Period (Y+Rc), s	4.4	6.2	4.9		4.4	6.2	4.9								
Max Green Setting (Gmax), s	30.0	60.0	40.0		40.0	60.0	30.0								
Max Q Clear Time (g_c+1), s	19.5	8.8	11.1		6.7	21.9	11.0								
Green Ext Time (p_c), s	0.2	17.7	0.0		0.1	33.8	0.7								

Intersection Summary

HCM 6th Ctrl Delay	17.7
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 9: Fenton Pkwy & Friars Rd

Existing Conditions
 AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗	↑ ↑ ↑	↗		↖ ↗	↑ ↑ ↑	↗	↖ ↗	↑	↗	↖ ↗	↗	↗
Traffic Volume (veh/h)	37	636	45	8	172	1545	19	76	6	147	67	11	149
Future Volume (veh/h)	37	636	45	8	172	1545	19	76	6	147	67	11	149
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	691	28		187	1679	21	83	7	10	73	12	11
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	89	3257	1110		253	3500	1141	217	135	114	123	75	103
Arrive On Green	0.03	0.64	0.64		0.02	0.23	0.23	0.06	0.07	0.07	0.03	0.04	0.04
Sat Flow, veh/h	3456	5106	1585		3456	5106	1585	3456	1870	1578	3563	1870	1570
Grp Volume(v), veh/h	40	691	28		187	1679	21	83	7	10	73	12	11
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1585	1728	1870	1578	1781	1870	1570
Q Serve(g_s), s	1.3	6.2	0.2		5.9	31.4	1.0	2.5	0.4	0.7	2.2	0.7	0.6
Cycle Q Clear(g_c), s	1.3	6.2	0.2		5.9	31.4	1.0	2.5	0.4	0.7	2.2	0.7	0.6
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	89	3257	1110		253	3500	1141	217	135	114	123	75	103
V/C Ratio(X)	0.45	0.21	0.03		0.74	0.48	0.02	0.38	0.05	0.09	0.59	0.16	0.11
Avail Cap(c_a), veh/h	286	3257	1110		459	3500	1141	349	537	453	347	531	486
HCM Platoon Ratio	1.00	1.00	1.00		0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.97		0.85	0.85	0.85	0.99	0.99	0.99	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.8	8.3	1.1		52.6	25.5	10.9	49.5	47.5	47.6	52.3	51.0	31.2
Incr Delay (d2), s/veh	1.3	0.1	0.0		1.4	0.4	0.0	0.4	0.7	1.5	1.7	4.6	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.0	0.1		2.6	14.2	0.3	1.1	0.2	0.3	1.0	0.4	0.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	54.1	8.5	1.2		54.0	25.9	11.0	49.9	48.2	49.1	54.0	55.6	33.3
LnGrp LOS	D	A	A		D	C	B	D	D	D	D	E	C
Approach Vol, veh/h		759				1887			100			96	
Approach Delay, s/veh		10.6				28.5			49.7			51.8	
Approach LOS		B				C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	12.5	76.5	11.8	9.3	7.2	81.7	8.2	12.9					
Change Period (Y+Rc), s	4.4	6.3	4.9	* 4.9	4.4	* 6.3	4.4	4.9					
Max Green Setting (Gmax), s	14.6	33.1	11.1	* 31	9.1	* 39	10.7	31.6					
Max Q Clear Time (g_c+1), s	17.9	8.2	4.5	2.7	3.3	33.4	4.2	2.7					
Green Ext Time (p_c), s	0.2	10.3	0.1	0.2	0.0	5.1	0.0	0.1					

Intersection Summary

HCM 6th Ctrl Delay	25.3
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 10: Northside Dr & Friars Rd

Existing Conditions
 AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↔↔↔	↔	↔↔	↔↔↔	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	2	31	580	222	470	1475	56	98	8	204	165	26	155
Future Volume (veh/h)	2	31	580	222	470	1475	56	98	8	204	165	26	155
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		33	611	234	495	1553	41	103	8	140	174	27	20
Peak Hour Factor		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		80	2453	760	555	3155	1076	159	204	425	238	247	209
Arrive On Green		0.01	0.16	0.16	0.16	0.62	0.62	0.05	0.11	0.11	0.07	0.13	0.13
Sat Flow, veh/h		3456	5106	1582	3456	5106	1565	3456	1870	1563	3456	1870	1585
Grp Volume(v), veh/h		33	611	234	495	1553	41	103	8	140	174	27	20
Grp Sat Flow(s),veh/h/ln		1728	1702	1582	1728	1702	1565	1728	1870	1563	1728	1870	1585
Q Serve(g_s), s		1.0	11.5	14.4	15.4	18.4	0.9	3.2	0.4	7.9	5.4	1.4	1.2
Cycle Q Clear(g_c), s		1.0	11.5	14.4	15.4	18.4	0.9	3.2	0.4	7.9	5.4	1.4	1.2
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		80	2453	760	555	3155	1076	159	204	425	238	247	209
V/C Ratio(X)		0.41	0.25	0.31	0.89	0.49	0.04	0.65	0.04	0.33	0.73	0.11	0.10
Avail Cap(c_a), veh/h		254	2453	760	600	3155	1076	346	452	632	471	520	441
HCM Platoon Ratio		0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.97	0.97	0.97	0.91	0.91	0.91	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		53.8	28.9	30.1	45.2	11.5	5.5	51.6	43.8	32.2	50.2	42.0	42.0
Incr Delay (d2), s/veh		1.2	0.2	1.0	13.1	0.5	0.1	1.6	0.2	1.3	1.6	0.9	0.9
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.5	5.1	6.3	7.4	6.2	0.3	1.4	0.2	3.2	2.4	0.7	0.5
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		55.1	29.1	31.1	58.3	12.0	5.6	53.2	44.1	33.5	51.8	42.9	42.9
LnGrp LOS		E	C	C	E	B	A	D	D	C	D	D	D
Approach Vol, veh/h			878			2089			251			221	
Approach Delay, s/veh			30.6			22.9			41.9			49.9	
Approach LOS			C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	22.1	59.1	9.5	19.4	6.9	74.2	12.0	16.9					
Change Period (Y+Rc), s	4.4	* 6.2	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	19.5	* 30	11.0	30.6	8.1	40.4	15.0	26.6					
Max Q Clear Time (g_c+1/7), s	17.4	16.4	5.2	3.4	3.0	20.4	7.4	9.9					
Green Ext Time (p_c), s	0.2	6.9	0.1	0.6	0.0	16.8	0.2	1.1					

Intersection Summary

HCM 6th Ctrl Delay	28.0
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 12: Mission Village Dr & Friars Rd WB

Existing Conditions
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕	↕	↕↕			↕↕	↕
Traffic Volume (veh/h)	0	0	0	71	0	445	222	679	0	0	431	224
Future Volume (veh/h)	0	0	0	71	0	445	222	679	0	0	431	224
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				76	0	478	239	730	0	0	463	112
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				600	0	533	292	1677	0	0	792	353
Arrive On Green				0.34	0.00	0.34	0.16	0.47	0.00	0.00	0.22	0.22
Sat Flow, veh/h				1781	0	1584	1781	3647	0	0	3647	1585
Grp Volume(v), veh/h				76	0	478	239	730	0	0	463	112
Grp Sat Flow(s),veh/h/ln				1781	0	1584	1781	1777	0	0	1777	1585
Q Serve(g_s), s				1.8	0.0	17.8	8.1	8.5	0.0	0.0	7.2	3.7
Cycle Q Clear(g_c), s				1.8	0.0	17.8	8.1	8.5	0.0	0.0	7.2	3.7
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				600	0	533	292	1677	0	0	792	353
V/C Ratio(X)				0.13	0.00	0.90	0.82	0.44	0.00	0.00	0.58	0.32
Avail Cap(c_a), veh/h				1145	0	1018	1717	7297	0	0	3426	1528
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				14.3	0.0	19.6	25.1	10.9	0.0	0.0	21.6	20.2
Incr Delay (d2), s/veh				0.0	0.0	2.2	2.2	0.2	0.0	0.0	0.9	0.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.6	0.0	5.7	3.2	2.6	0.0	0.0	2.7	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				14.3	0.0	21.8	27.3	11.1	0.0	0.0	22.5	20.9
LnGrp LOS				B	A	C	C	B	A	A	C	C
Approach Vol, veh/h					554			969			575	
Approach Delay, s/veh					20.8			15.1			22.2	
Approach LOS					C			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		36.4			15.5	20.9		25.9				
Change Period (Y+Rc), s		* 7			5.3	7.0		4.9				
Max Green Setting (Gmax), s* 1.3E2					60.0	60.0		40.0				
Max Q Clear Time (g_c+I1), s		10.5			10.1	9.2		19.8				
Green Ext Time (p_c), s		5.3			0.3	4.6		1.0				

Intersection Summary

HCM 6th Ctrl Delay	18.5
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
 13: Mission Village Dr & Friars Rd EB & San Diego Mission Rd

Existing Conditions
 AM Peak Hour



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	173	0	60	9	7	0	712	111	7	16	3	318
Future Volume (vph)	173	0	60	9	7	0	712	111	7	16	3	318
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.2	5.2			5.4	5.4		4.9			
Lane Util. Factor		1.00	1.00			0.95	0.95		0.95			
Frbp, ped/bikes		1.00	1.00			1.00	1.00		0.99			
Flpb, ped/bikes		1.00	1.00			1.00	1.00		1.00			
Frt		1.00	0.98			0.85	0.85		0.89			
Flt Protected		0.95	1.00			1.00	1.00		1.00			
Satd. Flow (prot)		1770	1822			1507	1504		3120			
Flt Permitted		0.95	1.00			1.00	1.00		1.00			
Satd. Flow (perm)		1770	1822			1507	1504		3120			
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	194	0	67	10	8	0	800	125	8	18	3	357
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	3	0	0	0
Lane Group Flow (vph)	0	194	77	0	0	464	469	0	26	0	0	0
Confl. Peds. (#/hr)				2	2					1	1	
Confl. Bikes (#/hr)				1								
Turn Type	Split	Split	NA		Split	NA	Perm		NA			Split
Protected Phases	4	4	4		3	3			2			1
Permitted Phases							3					
Actuated Green, G (s)		21.2	21.2			41.9	41.9		6.1			
Effective Green, g (s)		21.2	21.2			41.9	41.9		6.1			
Actuated g/C Ratio		0.16	0.16			0.33	0.33		0.05			
Clearance Time (s)		5.2	5.2			5.4	5.4		4.9			
Vehicle Extension (s)		3.0	3.0			3.0	3.0		3.0			
Lane Grp Cap (vph)		292	300			491	490		148			
v/s Ratio Prot		c0.11	0.04			0.31			c0.01			
v/s Ratio Perm							c0.31					
v/c Ratio		0.66	0.26			0.95	0.96		0.18			
Uniform Delay, d1		50.3	46.8			42.2	42.4		58.8			
Progression Factor		1.00	1.00			1.00	1.00		1.00			
Incremental Delay, d2		5.6	0.5			27.2	29.7		0.6			
Delay (s)		55.9	47.2			69.3	72.1		59.4			
Level of Service		E	D			E	E		E			
Approach Delay (s)			53.4			70.7			59.4			
Approach LOS			D			E			E			
Intersection Summary												
HCM 2000 Control Delay			59.9			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			128.5			Sum of lost time (s)			21.7			
Intersection Capacity Utilization			76.2%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 13: Mission Village Dr & Friars Rd EB & San Diego Mission Rd

Existing Conditions
 AM Peak Hour



Movement	SBL	SBT
Lane Configurations		
Traffic Volume (vph)	113	60
Future Volume (vph)	113	60
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.2	6.2
Lane Util. Factor	0.91	0.91
Frbp, ped/bikes	1.00	1.00
Flpb, ped/bikes	1.00	1.00
Frt	1.00	1.00
Flt Protected	0.95	0.97
Satd. Flow (prot)	1610	3287
Flt Permitted	0.95	0.97
Satd. Flow (perm)	1610	3287
Peak-hour factor, PHF	0.89	0.89
Adj. Flow (vph)	127	67
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	370	181
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Turn Type	Split	NA
Protected Phases	1	1
Permitted Phases		
Actuated Green, G (s)	37.6	37.6
Effective Green, g (s)	37.6	37.6
Actuated g/C Ratio	0.29	0.29
Clearance Time (s)	6.2	6.2
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	471	961
v/s Ratio Prot	c0.23	0.06
v/s Ratio Perm		
v/c Ratio	0.79	0.19
Uniform Delay, d1	41.7	34.0
Progression Factor	1.00	1.00
Incremental Delay, d2	8.4	0.1
Delay (s)	50.1	34.1
Level of Service	D	C
Approach Delay (s)		44.9
Approach LOS		D
Intersection Summary		

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

Existing Conditions
 AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	250	607	285	42	274	1429	427	0	0	0	640	2	674
Future Volume (veh/h)	250	607	285	42	274	1429	427	0	0	0	640	2	674
Initial Q (Qb), veh	0	0	0		0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	266	646	105		291	1520	0				682	0	711
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	519	2314	718		327	1634					767	0	1605
Arrive On Green	0.29	0.45	0.45		0.06	0.11	0.00				0.22	0.00	0.22
Sat Flow, veh/h	1781	5106	1585		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	266	646	105		291	1520	0				682	0	711
Grp Sat Flow(s),veh/h/ln	1781	1702	1585		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	13.7	8.7	4.3		17.8	32.5	0.0				20.4	0.0	0.0
Cycle Q Clear(g_c), s	13.7	8.7	4.3		17.8	32.5	0.0				20.4	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	519	2314	718		327	1634					767	0	1605
V/C Ratio(X)	0.51	0.28	0.15		0.89	0.93					0.89	0.00	0.44
Avail Cap(c_a), veh/h	519	2314	718		534	1634					1069	0	1874
HCM Platoon Ratio	1.00	1.00	1.00		0.33	0.33	0.33				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.22	0.22	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	32.5	18.8	17.6		50.6	48.0	0.0				41.9	0.0	17.3
Incr Delay (d2), s/veh	0.4	0.3	0.4		1.6	3.0	0.0				5.7	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	3.3	1.6		8.6	15.1	0.0				9.6	0.0	10.9
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	32.9	19.1	18.0		52.1	50.9	0.0				47.5	0.0	17.3
LnGrp LOS	C	B	B		D	D					D	A	B
Approach Vol, veh/h		1017				1811	A					1393	
Approach Delay, s/veh		22.6				51.1						32.1	
Approach LOS		C				D						C	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	24.4	56.9		28.8	39.0	42.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	33	27.7		33.0	25.0	* 35							
Max Q Clear Time (g_c+119), s	119.8	10.7		22.4	15.7	34.5							
Green Ext Time (p_c), s	0.3	2.6		1.2	0.3	0.5							

Intersection Summary

HCM 6th Ctrl Delay	38.0
HCM 6th LOS	D

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

Existing Conditions
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖				↑↑↑	↗						
Traffic Volume (veh/h)	429	883	0	0	1802	1440	0	0	242	0	0	346
Future Volume (veh/h)	429	883	0	0	1802	1440	0	0	242	0	0	346
Initial Q (Qb), veh	20	0	0	0	0	20						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	452	929	0	0	1897	1516						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	567	0	0	0	2125	1801						
Arrive On Green	0.32	0.95	0.00	0.00	0.57	0.57						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	452	0	0	0	1897	1516						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	25.5	0.0	0.0	0.0	48.9	43.5						
Cycle Q Clear(g_c), s	25.5	0.0	0.0	0.0	48.9	43.5						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	567	0	0	0	2125	1801						
V/C Ratio(X)	0.80	0.00	0.00	0.00	0.89	0.84						
Avail Cap(c_a), veh/h	567	0	0	0	2125	1801						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.85	0.00	0.00	0.00	0.66	0.66						
Uniform Delay (d), s/veh	36.5	0.0	0.0	0.0	20.8	20.8						
Incr Delay (d2), s/veh	6.2	0.0	0.0	0.0	4.3	3.3						
Initial Q Delay(d3),s/veh	44.3	0.0	0.0	0.0	0.0	5.6						
%ile BackOfQ(50%),veh/ln	11.1	0.0	0.0	0.0	19.8	17.9						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.0	0.0	0.0	0.0	25.1	29.8						
LnGrp LOS	F	A	A	A	C	C						
Approach Vol, veh/h		452			3413							
Approach Delay, s/veh		87.0			27.2							
Approach LOS		F			C							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		110.0			40.5	69.5						
Change Period (Y+Rc), s		5.5			5.5	7.0						
Max Green Setting (Gmax), s		104.5			35.0	62.5						
Max Q Clear Time (g_c+I1), s		0.0			27.5	50.9						
Green Ext Time (p_c), s		0.0			0.5	9.5						

Intersection Summary

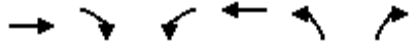
HCM 6th Ctrl Delay	34.2
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

Existing Conditions
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↘	↗
Traffic Volume (veh/h)	870	262	80	2584	649	75
Future Volume (veh/h)	870	262	80	2584	649	75
Initial Q (Qb), veh	0	0	0	20	20	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	926	202	85	2749	690	21
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1945	972	416	4318	842	368
Arrive On Green	0.38	0.38	0.25	0.68	0.22	0.22
Sat Flow, veh/h	5274	1585	1781	6696	3563	1585
Grp Volume(v), veh/h	926	202	85	2749	690	21
Grp Sat Flow(s),veh/h/ln	1702	1585	1781	1609	1781	1585
Q Serve(g_s), s	15.1	6.4	4.1	26.1	20.7	1.2
Cycle Q Clear(g_c), s	15.1	6.4	4.1	26.1	20.7	1.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1945	972	416	4318	842	368
V/C Ratio(X)	0.48	0.21	0.20	0.64	0.82	0.06
Avail Cap(c_a), veh/h	1945	949	441	4384	1185	527
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.76	0.76	0.90	0.90
Uniform Delay (d), s/veh	25.7	9.5	34.0	11.0	40.9	32.9
Incr Delay (d2), s/veh	0.8	0.5	0.1	0.3	2.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.4	22.5	0.0
%ile BackOfQ(50%),veh/ln	5.9	3.7	1.8	8.8	12.8	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	26.6	10.0	34.1	11.8	65.4	33.0
LnGrp LOS	C	B	C	B	E	C
Approach Vol, veh/h	1128			2834	711	
Approach Delay, s/veh	23.6			12.4	64.5	
Approach LOS	C			B	E	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	33.2	47.7			80.9	29.1
Change Period (Y+Rc), s	6.0	* 5.8			6.0	5.1
Max Green Setting (Gmax), s	16.2	* 42			62.3	36.6
Max Q Clear Time (g_c+10), s	16.1	17.1			28.1	22.7
Green Ext Time (p_c), s	0.1	10.4			33.1	1.3

Intersection Summary

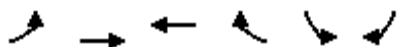
HCM 6th Ctrl Delay	23.1
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: Friars Rd & Santo Rd

Existing Conditions
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑↑		↔↔	↔
Traffic Volume (veh/h)	105	826	2327	52	63	305
Future Volume (veh/h)	105	826	2327	52	63	305
Initial Q (Qb), veh	0	0	80	0	50	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1811	1826	1826	1870	1870
Adj Flow Rate, veh/h	106	834	2351	52	64	308
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	6	5	5	2	2
Cap, veh/h	160	3372	3805	71	767	433
Arrive On Green	0.05	0.71	0.62	0.62	0.20	0.20
Sat Flow, veh/h	3456	5107	6626	141	3456	1585
Grp Volume(v), veh/h	106	834	1738	665	64	308
Grp Sat Flow(s),veh/h/ln	1728	1648	1570	1800	1728	1585
Q Serve(g_s), s	3.6	7.1	26.4	26.4	1.8	21.7
Cycle Q Clear(g_c), s	3.6	7.1	26.4	26.4	1.8	21.7
Prop In Lane	1.00			0.08	1.00	1.00
Lane Grp Cap(c), veh/h	160	3372	2800	1080	767	433
V/C Ratio(X)	0.66	0.25	0.62	0.62	0.08	0.71
Avail Cap(c_a), veh/h	449	3494	2939	1123	1022	542
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.95	0.95	0.57	0.57	1.00	1.00
Uniform Delay (d), s/veh	56.3	7.4	18.1	17.4	39.6	39.4
Incr Delay (d2), s/veh	1.7	0.2	0.6	1.5	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	8.7	6.4	33.4	0.0
%ile BackOfQ(50%),veh/ln	1.6	2.4	14.8	16.0	7.2	18.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	58.0	7.6	27.4	25.3	73.0	41.5
LnGrp LOS	E	A	C	C	E	D
Approach Vol, veh/h		940	2403		372	
Approach Delay, s/veh		13.3	26.8		46.9	
Approach LOS		B	C		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		91.3		28.7	10.0	81.4
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		73.6		35.5	15.6	* 54
Max Q Clear Time (g_c+I1), s		9.1		23.7	5.6	28.4
Green Ext Time (p_c), s		7.5		0.5	0.1	20.3

Intersection Summary

HCM 6th Ctrl Delay	25.4
HCM 6th LOS	C

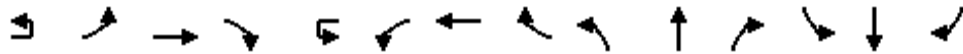
Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
21: Riverdale St & Friars Rd

Existing Conditions
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔ ↑↑↑	↔ ↑↑↑	↔ ↑		↔ ↑↑↑	↔ ↑↑↑	↔ ↑	↔ ↑	↔ ↑		↔ ↑	↔ ↑	
Traffic Volume (veh/h)	2	51	561	207	11	106	2191	24	104	23	18	13	112	137
Future Volume (veh/h)	2	51	561	207	11	106	2191	24	104	23	18	13	112	137
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		0.99	0.99		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No			No		
Adj Sat Flow, veh/h/ln		1870	1781	1826		1826	1841	1841	1781	1870	1870	1781	1870	1870
Adj Flow Rate, veh/h		53	584	120		110	2282	15	108	24	2	14	117	96
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		2	8	5		5	4	4	8	2	2	8	2	2
Cap, veh/h		68	2692	856		136	2981	924	200	392	33	352	218	179
Arrive On Green		0.04	0.55	0.55		0.08	0.59	0.59	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h		1781	4863	1546		1739	5025	1557	1108	1702	142	1309	947	777
Grp Volume(v), veh/h		53	584	120		110	2282	15	108	0	26	14	0	213
Grp Sat Flow(s),veh/h/ln		1781	1621	1546		1739	1675	1557	1108	0	1844	1309	0	1723
Q Serve(g_s), s		3.2	6.7	4.1		6.8	37.2	0.4	10.4	0.0	1.2	0.9	0.0	11.9
Cycle Q Clear(g_c), s		3.2	6.7	4.1		6.8	37.2	0.4	22.4	0.0	1.2	2.1	0.0	11.9
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.08	1.00		0.45
Lane Grp Cap(c), veh/h		68	2692	856		136	2981	924	200	0	424	352	0	397
V/C Ratio(X)		0.77	0.22	0.14		0.81	0.77	0.02	0.54	0.00	0.06	0.04	0.00	0.54
Avail Cap(c_a), veh/h		228	2692	856		223	2981	924	240	0	491	400	0	459
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.99	0.99	0.99		0.88	0.88	0.88	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		52.4	12.5	11.9		49.9	16.7	9.2	47.0	0.0	33.1	33.9	0.0	37.2
Incr Delay (d2), s/veh		6.7	0.2	0.3		3.8	1.7	0.0	0.8	0.0	0.0	0.0	0.0	0.4
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.5	2.3	1.4		3.0	12.8	0.1	2.9	0.0	0.5	0.3	0.0	5.1
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		59.2	12.6	12.2		53.7	18.4	9.2	47.9	0.0	33.1	33.9	0.0	37.6
LnGrp LOS		E	B	B		D	B	A	D	A	C	C	A	D
Approach Vol, veh/h			757			2407			134		227			
Approach Delay, s/veh			15.8			19.9			45.0		37.4			
Approach LOS			B			B			D		D			
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	30.0	66.8	30.2	8.6	71.2	30.2								
Change Period (Y+Rc), s	4.4	* 5.9	4.9	4.4	5.9	4.9								
Max Green Setting (Gmax), s	14.1	* 52	29.3	14.1	51.4	29.3								
Max Q Clear Time (g_c+1), s	10.8	8.7	13.9	5.2	39.2	24.4								
Green Ext Time (p_c), s	0.0	6.0	0.7	0.0	10.3	0.1								

Intersection Summary

HCM 6th Ctrl Delay	21.1
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 22: Mission Gorge Rd & Friars Rd

Existing Conditions
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↖↗	↑↑↑		↘↙	↑↑
Traffic Volume (veh/h)	452	137	460	2220	17	139	219
Future Volume (veh/h)	452	137	460	2220	17	139	219
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	466	0	474	2289		151	46
Peak Hour Factor	0.97	0.97	0.97	0.97		0.92	0.92
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2962		681	0		181	832
Arrive On Green	0.58	0.00	0.20	0.00		0.10	0.10
Sat Flow, veh/h	5443	0	3456	474		1781	2790
Grp Volume(v), veh/h	466	0	474	47.5		151	46
Grp Sat Flow(s),veh/h/ln1702		0	1728	D		1781	1395
Q Serve(g_s), s	5.1	0.0	15.3			10.0	0.0
Cycle Q Clear(g_c), s	5.1	0.0	15.3			10.0	0.0
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2962		681			181	832
V/C Ratio(X)	0.16		0.70			0.84	0.06
Avail Cap(c_a), veh/h	2962		681			306	1028
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.99	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	11.6	0.0	44.8			52.9	30.0
Incr Delay (d2), s/veh	0.1	0.0	2.6			3.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh/ln1.8		0.0	6.6			4.7	0.5
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	11.8	0.0	47.5			56.8	30.0
LnGrp LOS	B		D			E	C
Approach Vol, veh/h	466	A				197	
Approach Delay, s/veh	11.8					50.6	
Approach LOS	B					D	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	28.0	75.4					16.6
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	69.6					20.6
Max Q Clear Time (g_c+117), s	11.3	7.1					12.0
Green Ext Time (p_c), s	0.0	3.6					0.2

Intersection Summary

HCM 6th Ctrl Delay		33.4	
HCM 6th LOS		C	

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 23: Qualcomm Way & Rio San Diego Dr

Existing Conditions
 AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗		↖↗	↑↑	↗	↖↗	↑↑↑	↗	↖↗	↑↑↑	↗
Traffic Volume (veh/h)	85	31	115	12	231	34	45	69	453	636	54	174	34
Future Volume (veh/h)	85	31	115	12	231	34	45	69	453	636	54	174	34
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		0.97	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	92	34	18		251	37	8	75	492	268	59	189	23
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	208	123	188		404	436	189	185	1805	549	159	1601	189
Arrive On Green	0.06	0.07	0.07		0.12	0.12	0.12	0.05	0.35	0.35	0.05	0.35	0.35
Sat Flow, veh/h	3456	1870	1558		3456	3554	1542	3456	5106	1554	3456	4627	547
Grp Volume(v), veh/h	92	34	18		251	37	8	75	492	268	59	138	74
Grp Sat Flow(s),veh/h/ln	1728	1870	1558		1728	1777	1542	1728	1702	1554	1728	1702	1770
Q Serve(g_s), s	1.2	0.8	0.5		3.2	0.4	0.2	1.0	3.2	6.2	0.8	1.3	1.3
Cycle Q Clear(g_c), s	1.2	0.8	0.5		3.2	0.4	0.2	1.0	3.2	6.2	0.8	1.3	1.3
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h	208	123	188		404	436	189	185	1805	549	159	1178	612
V/C Ratio(X)	0.44	0.28	0.10		0.62	0.08	0.04	0.40	0.27	0.49	0.37	0.12	0.12
Avail Cap(c_a), veh/h	2254	1627	1440		2254	3091	1342	4509	6662	2027	2254	4441	2309
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.9	20.4	18.0		19.3	17.9	17.8	21.1	10.6	11.6	21.3	10.3	10.3
Incr Delay (d2), s/veh	0.6	1.2	0.2		0.6	0.1	0.1	0.5	0.1	1.0	0.5	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.3	0.2		1.1	0.2	0.1	0.4	1.0	1.7	0.3	0.4	0.4
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	21.4	21.6	18.3		19.9	18.0	17.9	21.6	10.7	12.6	21.8	10.3	10.4
LnGrp LOS	C	C	B		B	B	B	C	B	B	C	B	B
Approach Vol, veh/h		144				296			835			271	
Approach Delay, s/veh		21.1				19.6			12.3			12.9	
Approach LOS		C				B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	6.5	21.4	9.8	8.3	6.9	21.0	7.2	10.9					
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3					
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0					
Max Q Clear Time (g_c+1), s	12.8	8.2	5.2	2.8	3.0	3.3	3.2	2.4					
Green Ext Time (p_c), s	0.1	7.3	0.4	0.2	0.1	2.3	0.1	0.2					

Intersection Summary

HCM 6th Ctrl Delay	14.6
HCM 6th LOS	B

Notes

- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection															
Intersection Delay, s/veh	9.5														
Intersection LOS	A														

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↗	↕		↗	↕				↕				↕	
Traffic Vol, veh/h	8	82	104	11	0	268	72	1	1	4	5	3	12	0	141
Future Vol, veh/h	8	82	104	11	0	268	72	1	1	4	5	3	12	0	141
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	87	111	12	0	285	77	1	1	4	5	3	13	0	150
Number of Lanes	0	1	2	0	1	2	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	9.1	9.6	8.7	9.7
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	10%	100%	0%	0%	0%	0%	0%	8%
Vol Thru, %	40%	0%	100%	76%	100%	100%	55%	0%
Vol Right, %	50%	0%	0%	24%	0%	0%	45%	92%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	11	90	69	46	0	179	161	156
LT Vol	1	90	0	0	0	0	0	12
Through Vol	4	0	69	35	0	179	89	0
RT Vol	6	0	0	11	0	0	72	144
Lane Flow Rate	12	96	74	49	0	190	172	166
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.019	0.156	0.11	0.07	0	0.277	0.235	0.242
Departure Headway (Hd)	5.787	5.867	5.363	5.193	5.239	5.239	4.924	5.259
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	613	608	664	685	0	682	724	679
Service Time	3.578	3.638	3.133	2.963	3	3	2.685	3.025
HCM Lane V/C Ratio	0.02	0.158	0.111	0.072	0	0.279	0.238	0.244
HCM Control Delay	8.7	9.7	8.8	8.4	8	10	9.2	9.7
HCM Lane LOS	A	A	A	A	N	A	A	A
HCM 95th-tile Q	0.1	0.5	0.4	0.2	0	1.1	0.9	0.9

HCM 6th Signalized Intersection Summary
 25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy

Existing Conditions
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	69	61	31	4	92	78	26	64	2	21	65	53	126
Future Volume (veh/h)	69	61	31	4	92	78	26	64	2	21	65	53	126
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00		1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	74	76	2	5	106	3	30	74	1		75	61	30
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87		0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	168	176	149	15	327	10	51	721	10		202	545	250
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.03	0.20	0.20		0.06	0.23	0.23
Sat Flow, veh/h	1781	1870	1576	156	3455	102	1781	3590	48		3456	2361	1084
Grp Volume(v), veh/h	74	76	2	60	0	54	30	37	38		75	45	46
Grp Sat Flow(s),veh/h/ln	1781	1870	1576	1863	0	1850	1781	1777	1861		1728	1777	1669
Q Serve(g_s), s	1.4	1.4	0.0	1.1	0.0	1.0	0.6	0.6	0.6		0.8	0.7	0.8
Cycle Q Clear(g_c), s	1.4	1.4	0.0	1.1	0.0	1.0	0.6	0.6	0.6		0.8	0.7	0.8
Prop In Lane	1.00		1.00	0.08		0.06	1.00		0.03		1.00		0.65
Lane Grp Cap(c), veh/h	168	176	149	176	0	175	51	357	374		202	410	385
V/C Ratio(X)	0.44	0.43	0.01	0.34	0.00	0.31	0.58	0.10	0.10		0.37	0.11	0.12
Avail Cap(c_a), veh/h	1975	2074	1748	2066	0	2052	1482	2956	3096		2874	2956	2776
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	15.4	15.4	14.8	15.3	0.0	15.2	17.3	11.8	11.8		16.3	11.0	11.0
Incr Delay (d2), s/veh	1.1	1.0	0.0	0.4	0.0	0.4	3.9	0.6	0.6		0.4	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.5	0.0	0.4	0.0	0.4	0.3	0.3	0.3		0.3	0.3	0.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	16.5	16.4	14.8	15.7	0.0	15.6	21.2	12.3	12.3		16.8	11.5	11.6
LnGrp LOS	B	B	B	B	A	B	C	B	B		B	B	B
Approach Vol, veh/h		152			114			105				166	
Approach Delay, s/veh		16.5			15.7			14.9				13.9	
Approach LOS		B			B			B				B	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	6.5	12.6		8.6	5.4	13.7		8.3					
Change Period (Y+Rc), s	4.4	* 5.4		5.2	4.4	5.4		4.9					
Max Green Setting (Gmax), s	30.0	* 60		40.0	30.0	60.0		40.0					
Max Q Clear Time (g_c+1), s	12.8	2.6		3.4	2.6	2.8		3.1					
Green Ext Time (p_c), s	0.1	1.5		0.4	0.0	1.9		0.4					

Intersection Summary

HCM 6th Ctrl Delay	15.2
HCM 6th LOS	B

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 26: Rancho Mission Rd & San Diego Mission Rd

Existing Conditions
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖	↖↗	↖	↖	↖↗
Traffic Volume (veh/h)	40	55	84	124	374	186	255	264	41	80	117	61
Future Volume (veh/h)	40	55	84	124	374	186	255	264	41	80	117	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	45	62	10	139	420	172	287	297	12	90	131	69
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	64	718	113	181	737	298	346	510	430	117	270	222
Arrive On Green	0.04	0.23	0.23	0.10	0.30	0.30	0.19	0.27	0.27	0.07	0.14	0.14
Sat Flow, veh/h	1781	3066	482	1781	2456	994	1781	1870	1576	1781	1870	1539
Grp Volume(v), veh/h	45	35	37	139	302	290	287	297	12	90	131	69
Grp Sat Flow(s),veh/h/ln	1781	1777	1771	1781	1777	1674	1781	1870	1576	1781	1870	1539
Q Serve(g_s), s	1.4	0.9	0.9	4.3	8.2	8.4	8.8	7.8	0.3	2.8	3.7	2.3
Cycle Q Clear(g_c), s	1.4	0.9	0.9	4.3	8.2	8.4	8.8	7.8	0.3	2.8	3.7	2.3
Prop In Lane	1.00		0.27	1.00		0.59	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	64	416	415	181	533	502	346	510	430	117	270	222
V/C Ratio(X)	0.71	0.08	0.09	0.77	0.57	0.58	0.83	0.58	0.03	0.77	0.49	0.31
Avail Cap(c_a), veh/h	1092	1556	1551	1092	1712	1613	936	1638	1381	936	1638	1348
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.2	17.1	17.1	25.0	16.9	16.9	22.1	17.9	15.2	26.2	22.5	21.9
Incr Delay (d2), s/veh	5.3	0.1	0.1	2.6	1.6	1.7	2.0	0.4	0.0	3.9	0.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.3	0.3	1.8	3.1	3.0	3.5	3.0	0.1	1.2	1.5	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.5	17.2	17.2	27.6	18.4	18.6	24.1	18.3	15.2	30.2	23.0	22.2
LnGrp LOS	C	B	B	C	B	B	C	B	B	C	C	C
Approach Vol, veh/h		117		731		596		290				
Approach Delay, s/veh		23.1		20.3		21.0		25.0				
Approach LOS		C		C		C		C				
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.8	18.9	15.1	13.3	6.0	22.6	7.8	20.7				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	*5.5	4.0	*5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	*55	30.0	*50				
Max Q Clear Time (g_c+1), s	10.3	2.9	10.8	5.7	3.4	10.4	4.8	9.8				
Green Ext Time (p_c), s	0.2	0.6	0.4	0.6	0.0	6.7	0.1	1.1				

Intersection Summary

HCM 6th Ctrl Delay	21.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave

Existing Conditions
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↕	↗		↕	↗	
Traffic Volume (veh/h)	23	75	58	40	457	16	129	100	31	3	71	184
Future Volume (veh/h)	23	75	58	40	457	16	129	100	31	3	71	184
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	27	87	30	47	531	18	150	116	28	3	83	151
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	167	429	728	146	971	33	272	221	53	369	122	222
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.15	0.15	0.15	0.21	0.21	0.21
Sat Flow, veh/h	188	1390	1575	142	3147	106	1781	1448	350	1781	588	1071
Grp Volume(v), veh/h	114	0	30	311	0	285	150	0	144	3	0	234
Grp Sat Flow(s),veh/h/ln	1578	0	1575	1714	0	1682	1781	0	1798	1781	0	1659
Q Serve(g_s), s	0.0	0.0	0.4	0.6	0.0	5.7	3.2	0.0	3.0	0.1	0.0	5.3
Cycle Q Clear(g_c), s	5.8	0.0	0.4	6.4	0.0	5.7	3.2	0.0	3.0	0.1	0.0	5.3
Prop In Lane	0.24		1.00	0.15		0.06	1.00		0.19	1.00		0.65
Lane Grp Cap(c), veh/h	596	0	728	631	0	519	272	0	275	369	0	344
V/C Ratio(X)	0.19	0.00	0.04	0.49	0.00	0.55	0.55	0.00	0.52	0.01	0.00	0.68
Avail Cap(c_a), veh/h	2548	0	2832	2834	0	2642	2055	0	2074	1924	0	1792
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.4	0.0	6.0	11.7	0.0	11.7	16.0	0.0	15.9	12.8	0.0	14.9
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.5	0.0	0.8	0.6	0.0	0.6	0.0	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.1	2.0	0.0	1.9	1.1	0.0	1.1	0.0	0.0	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.5	0.0	6.0	12.3	0.0	12.5	16.6	0.0	16.5	12.8	0.0	15.8
LnGrp LOS	B	A	A	B	A	B	B	A	B	B	A	B
Approach Vol, veh/h		144		596		294		237				
Approach Delay, s/veh		9.6		12.4		16.5		15.8				
Approach LOS		A		B		B		B				
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.1		12.9		17.1		10.7				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		67.0		44.0		64.0		47.0				
Max Q Clear Time (g_c+I1), s		7.8		7.3		8.4		5.2				
Green Ext Time (p_c), s		0.8		1.0		4.1		0.7				

Intersection Summary

HCM 6th Ctrl Delay	13.7
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
 28: Qualcomm Way & Camino de la Reina/Camino del Rio N

Existing Conditions
 AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↖ ↗	↖ ↗	↖		↖ ↗	↖ ↗	↖	↖ ↗	↖ ↗ ↘	↖		↖ ↗	↖ ↗	
Traffic Volume (veh/h)	1	25	86	73	6	243	207	204	93	818	401	1	96	381	31
Future Volume (veh/h)	1	25	86	73	6	243	207	204	93	818	401	1	96	381	31
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.97	1.00		0.98		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No			No			No				No		
Adj Sat Flow, veh/h/ln		1781	1870	1870		1870	1870	1870	1841	1856	1870		1870	1811	1811
Adj Flow Rate, veh/h		28	96	18		270	230	35	103	909	376		107	423	28
Peak Hour Factor		0.90	0.90	0.90		0.90	0.90	0.90	0.90	0.90	0.90		0.90	0.90	0.90
Percent Heavy Veh, %		8	2	2		2	2	2	4	3	2		2	6	6
Cap, veh/h		42	367	239		394	666	287	184	1953	597		190	1830	120
Arrive On Green		0.02	0.10	0.10		0.11	0.19	0.19	0.05	0.39	0.39		0.05	0.39	0.39
Sat Flow, veh/h		1697	3741	1557		3456	3554	1530	3401	5066	1548		3456	4736	310
Grp Volume(v), veh/h		28	96	18		270	230	35	103	909	376		107	293	158
Grp Sat Flow(s),veh/h/ln		1697	1870	1557		1728	1777	1530	1700	1689	1548		1728	1648	1750
Q Serve(g_s), s		1.0	1.4	0.6		4.6	3.4	1.2	1.8	8.2	12.0		1.8	3.7	3.7
Cycle Q Clear(g_c), s		1.0	1.4	0.6		4.6	3.4	1.2	1.8	8.2	12.0		1.8	3.7	3.7
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.18
Lane Grp Cap(c), veh/h		42	367	239		394	666	287	184	1953	597		190	1273	676
V/C Ratio(X)		0.67	0.26	0.08		0.69	0.35	0.12	0.56	0.47	0.63		0.56	0.23	0.23
Avail Cap(c_a), veh/h		834	1839	851		1699	1747	752	1672	4151	1269		1699	2701	1434
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		29.5	25.5	22.2		26.0	21.5	20.6	28.1	14.0	15.2		28.1	12.6	12.6
Incr Delay (d2), s/veh		6.6	0.3	0.1		0.8	0.1	0.1	1.0	0.2	1.0		1.0	0.2	0.5
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.5	0.6	0.2		1.7	1.3	0.4	0.7	2.7	3.6		0.7	1.2	1.4
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		36.1	25.7	22.3		26.8	21.7	20.7	29.1	14.2	16.2		29.1	12.8	13.1
LnGrp LOS		D	C	C		C	C	C	C	B	B		C	B	B
Approach Vol, veh/h			142				535			1388				558	
Approach Delay, s/veh			27.3				24.2			15.9				16.0	
Approach LOS			C				C			B				B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8							
Phs Duration (G+Y+Rc), s	7.8	30.2	11.4	11.7	7.7	30.3	5.9	17.1							
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7							
Max Green Setting (Gmax), s	30.0	50.0	30.0	* 30	30.0	* 50	30.0	30.0							
Max Q Clear Time (g_c+1), s	13.8	14.0	6.6	3.4	3.8	5.7	3.0	5.4							
Green Ext Time (p_c), s	0.2	8.5	0.4	0.5	0.2	6.8	0.0	0.9							

Intersection Summary

HCM 6th Ctrl Delay	18.2
HCM 6th LOS	B

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

Existing Conditions
 AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔	↑↑↑			↑↑	↔
Traffic Volume (veh/h)	1	33	0	68	12	123	439	87	815	0	0	313	395
Future Volume (veh/h)	1	33	0	68	12	123	439	87	815	0	0	313	395
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1722	0	1796	1870	1870	1870	1870	1870	0	0	1826	1870
Adj Flow Rate, veh/h		35	0	15	13	132	183	94	876	0	0	337	82
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		12	0	7	2	2	2	2	2	0	0	5	2
Cap, veh/h		0	0	0	28	284	265	370	2970	0	0	959	426
Arrive On Green		0.00	0.00	0.00	0.17	0.17	0.17	0.21	0.58	0.00	0.00	0.28	0.28
Sat Flow, veh/h			0		167	1695	1582	1781	5274	0	0	3561	1541
Grp Volume(v), veh/h			0.0		145	0	183	94	876	0	0	337	82
Grp Sat Flow(s),veh/h/ln					1862	0	1582	1781	1702	0	0	1735	1541
Q Serve(g_s), s					3.4	0.0	5.3	2.1	4.2	0.0	0.0	3.8	2.0
Cycle Q Clear(g_c), s					3.4	0.0	5.3	2.1	4.2	0.0	0.0	3.8	2.0
Prop In Lane					0.09		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					312	0	265	370	2970	0	0	959	426
V/C Ratio(X)					0.46	0.00	0.69	0.25	0.29	0.00	0.00	0.35	0.19
Avail Cap(c_a), veh/h					1736	0	1475	1255	6029	0	0	4168	1851
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)					1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh					18.1	0.0	18.9	16.0	5.1	0.0	0.0	14.0	13.3
Incr Delay (d2), s/veh					0.4	0.0	1.2	0.1	0.0	0.0	0.0	0.5	0.5
Initial Q Delay(d3),s/veh					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln					1.2	0.0	1.7	0.8	0.9	0.0	0.0	1.3	0.6
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					18.5	0.0	20.1	16.1	5.1	0.0	0.0	14.5	13.8
LnGrp LOS					B	A	C	B	A	A	A	B	B
Approach Vol, veh/h						328			970			419	
Approach Delay, s/veh						19.4			6.2			14.3	
Approach LOS						B			A			B	
Timer - Assigned Phs		2			5	6			8				
Phs Duration (G+Y+Rc), s		35.1			14.7	20.3			13.2				
Change Period (Y+Rc), s		7.0			* 4.7	7.0			5.1				
Max Green Setting (Gmax), s		57.0			* 34	58.0			45.0				
Max Q Clear Time (g_c+I1), s		6.2			4.1	5.8			7.3				
Green Ext Time (p_c), s		4.5			0.0	5.4			0.7				

Intersection Summary

HCM 6th Ctrl Delay	10.7
HCM 6th LOS	B

Notes

- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Existing Conditions
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	412	0	1003	602	0
Future Volume (veh/h)	0	412	0	1003	602	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1856	0
Adj Flow Rate, veh/h	0	241	0	1034	621	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	2	0	2	3	0
Cap, veh/h	0	0	0	2600	2580	0
Arrive On Green	0.00	0.00	0.00	0.73	0.73	0.00
Sat Flow, veh/h	0		0	3741	3711	0
Grp Volume(v), veh/h	0.0		0	1034	621	0
Grp Sat Flow(s),veh/h/ln			0	1777	1763	0
Q Serve(g_s), s			0.0	2.3	1.2	0.0
Cycle Q Clear(g_c), s			0.0	2.3	1.2	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2600	2580	0
V/C Ratio(X)			0.00	0.40	0.24	0.00
Avail Cap(c_a), veh/h			0	3120	6019	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	1.0	0.9	0.0
Incr Delay (d2), s/veh			0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	1.1	0.9	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1034	621	
Approach Delay, s/veh				1.1	0.9	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		20.5				20.5
Change Period (Y+Rc), s		* 5.5				5.5
Max Green Setting (Gmax), s		* 18				35.0
Max Q Clear Time (g_c+I1), s		4.3				3.2
Green Ext Time (p_c), s		6.0				2.9
Intersection Summary						
HCM 6th Ctrl Delay			1.1			
HCM 6th LOS			A			
Notes						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

HCM 6th Signalized Intersection Summary
 31: Texas St & Camino del Rio S

Existing Conditions
 AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↘	↗	↗	↘	↗	↗	↘	↗	↗	↘	↗	↗
Traffic Volume (veh/h)	1	80	37	42	53	68	96	124	1129	138	362	433	220
Future Volume (veh/h)	1	80	37	42	53	68	96	124	1129	138	362	433	220
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.98	1.00		0.96	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1811	1663	1870	1841	1870	1796	1841	1870	1870	1870	1870	1826
Adj Flow Rate, veh/h		83	39	8	55	71	33	129	1176	140	377	451	109
Peak Hour Factor		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		6	16	2	4	2	7	4	2	2	2	2	5
Cap, veh/h		123	119	257	155	166	484	159	1262	150	412	1908	814
Arrive On Green		0.07	0.07	0.07	0.09	0.09	0.09	0.09	0.40	0.40	0.23	0.54	0.54
Sat Flow, veh/h		1725	1663	1578	1753	1870	1486	1753	3184	378	1781	3554	1515
Grp Volume(v), veh/h		83	39	8	55	71	33	129	655	661	377	451	109
Grp Sat Flow(s),veh/h/ln		1725	1663	1578	1753	1870	1486	1753	1777	1785	1781	1777	1515
Q Serve(g_s), s		4.8	2.3	0.4	3.0	3.6	1.6	7.3	35.7	36.0	20.9	6.8	3.6
Cycle Q Clear(g_c), s		4.8	2.3	0.4	3.0	3.6	1.6	7.3	35.7	36.0	20.9	6.8	3.6
Prop In Lane		1.00		1.00	1.00		1.00	1.00		0.21	1.00		1.00
Lane Grp Cap(c), veh/h		123	119	257	155	166	484	159	704	707	412	1908	814
V/C Ratio(X)		0.67	0.33	0.03	0.35	0.43	0.07	0.81	0.93	0.94	0.91	0.24	0.13
Avail Cap(c_a), veh/h		511	492	611	488	521	766	433	733	737	1277	3157	1346
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		45.9	44.7	35.7	43.4	43.7	24.0	45.2	29.2	29.3	38.0	12.4	11.7
Incr Delay (d2), s/veh		6.2	1.6	0.0	3.8	4.8	0.2	3.7	17.5	18.3	3.4	0.1	0.2
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.2	1.0	0.2	1.4	1.9	0.6	3.3	17.8	18.2	9.3	2.6	1.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		52.1	46.3	35.8	47.2	48.5	24.1	48.9	46.7	47.6	41.4	12.6	11.9
LnGrp LOS		D	D	D	D	D	C	D	D	D	D	B	B
Approach Vol, veh/h			130			159			1445			937	
Approach Delay, s/veh			49.3			43.0			47.3			24.1	
Approach LOS			D			D			D			C	
Timer - Assigned Phs	1	2	4	5	6	8							
Phs Duration (G+Y+Rc), s	27.8	45.3	12.2	13.6	59.6	16.0							
Change Period (Y+Rc), s	4.4	5.2	4.9	4.4	* 5.2	7.0							
Max Green Setting (Gmax), s	72.6	41.8	30.0	25.0	* 90	28.2							
Max Q Clear Time (g_c+Q), s	20.9	38.0	6.8	9.3	8.8	5.6							
Green Ext Time (p_c), s	0.5	2.1	0.4	0.1	7.8	1.4							

Intersection Summary

HCM 6th Ctrl Delay	39.0
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	32	58	22	524	435	14
Future Vol, veh/h	32	58	22	524	435	14
Conflicting Peds, #/hr	32	33	33	0	0	32
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	65	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	60	23	546	453	15

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	845	300	501	0	-	0
Stage 1	494	-	-	-	-	-
Stage 2	351	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	302	696	1059	-	-	-
Stage 1	579	-	-	-	-	-
Stage 2	684	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	275	653	1026	-	-	-
Mov Cap-2 Maneuver	275	-	-	-	-	-
Stage 1	543	-	-	-	-	-
Stage 2	663	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.2	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1026	-	275	653	-	-
HCM Lane V/C Ratio	0.022	-	0.121	0.093	-	-
HCM Control Delay (s)	8.6	0.1	19.9	11.1	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	0.3	-	-

HCM 6th Signalized Intersection Summary
33: Camino del Rio N & Ward Rd

Existing Conditions
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↷	↷	↶	↷
Traffic Volume (veh/h)	67	35	535	478	197	309
Future Volume (veh/h)	67	35	535	478	197	309
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	69	36	552	307	203	204
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	94	2000	1436	627	313	362
Arrive On Green	0.05	0.56	0.40	0.40	0.18	0.18
Sat Flow, veh/h	1781	3647	3647	1550	1781	1585
Grp Volume(v), veh/h	69	36	552	307	203	204
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1550	1781	1585
Q Serve(g_s), s	1.6	0.2	4.6	6.1	4.4	4.7
Cycle Q Clear(g_c), s	1.6	0.2	4.6	6.1	4.4	4.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	94	2000	1436	627	313	362
V/C Ratio(X)	0.73	0.02	0.38	0.49	0.65	0.56
Avail Cap(c_a), veh/h	1883	5977	5977	2608	1883	1759
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.4	4.0	8.7	9.2	16.0	14.2
Incr Delay (d2), s/veh	4.1	0.0	0.3	0.9	0.9	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	1.1	1.4	1.5	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.5	4.0	9.0	10.1	16.8	14.7
LnGrp LOS	C	A	A	B	B	B
Approach Vol, veh/h		105	859		407	
Approach Delay, s/veh		16.8	9.4		15.8	
Approach LOS		B	A		B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		29.4		12.2	6.6	22.8
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		2.2		6.7	3.6	8.1
Green Ext Time (p_c), s		0.3		0.6	0.1	8.7

Intersection Summary

HCM 6th Ctrl Delay	11.9
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 34: Fairmount Ave & Mission Gorge Rd

Existing Conditions
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↖	↕			↖	↕	
Traffic Volume (veh/h)	9	4	248	15	2	0	28	426	975	23	1	5	548	14
Future Volume (veh/h)	9	4	248	15	2	0	28	426	975	23	1	5	548	14
Initial Q (Qb), veh	0	0	15	0	15	0	0	0	0	0	0	0	15	0
Ped-Bike Adj(A_pbT)	1.00		0.94	0.99		1.00	1.00		0.99		1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	280	16	2	0	458	1048	24		5	589	13	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	228	384	143	54	0	998	2662	61		9	1643	35	
Arrive On Green	0.00	0.00	0.11	0.11	0.11	0.00	0.60	1.00	1.00		0.01	0.46	0.46	
Sat Flow, veh/h	0	1870	2990	992	160	0	3456	3551	81		1781	3554	78	
Grp Volume(v), veh/h	0	0	280	18	0	0	458	524	548		5	294	308	
Grp Sat Flow(s),veh/h/ln	0	1870	1495	1153	0	0	1728	1777	1855		1781	1777	1856	
Q Serve(g_s), s	0.0	0.0	10.5	1.2	0.0	0.0	8.4	0.0	0.0		0.3	12.3	12.3	
Cycle Q Clear(g_c), s	0.0	0.0	10.5	1.5	0.0	0.0	8.4	0.0	0.0		0.3	12.3	12.3	
Prop In Lane	0.00		1.00	0.89		0.00	1.00		0.04		1.00		0.04	
Lane Grp Cap(c), veh/h	0	228	384	215	0	0	998	1332	1391		9	820	857	
V/C Ratio(X)	0.00	0.00	0.73	0.08	0.00	0.00	0.46	0.39	0.39		0.55	0.36	0.36	
Avail Cap(c_a), veh/h	0	335	536	265	0	0	1028	1348	1407		156	820	857	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00		1.00	1.00	1.00	
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.48	0.48	0.48		1.00	1.00	1.00	
Uniform Delay (d), s/veh	0.0	0.0	49.3	46.2	0.0	0.0	19.2	0.0	0.0		57.1	20.6	20.6	
Incr Delay (d2), s/veh	0.0	0.0	1.5	0.2	0.0	0.0	0.1	0.4	0.4		17.5	1.2	1.2	
Initial Q Delay(d3),s/veh	0.0	0.0	40.4	38.3	0.0	0.0	0.0	0.0	0.0		0.0	0.9	0.9	
%ile BackOfQ(50%),veh/ln	0.0	0.0	7.0	4.5	0.0	0.0	2.9	0.2	0.2		0.2	6.5	6.7	
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	91.2	84.6	0.0	0.0	19.3	0.4	0.4		74.6	22.8	22.6	
LnGrp LOS	A	A	F	F	A	A	B	A	A		E	C	C	
Approach Vol, veh/h		280			18			1530					607	
Approach Delay, s/veh		91.2			84.6			6.1					23.1	
Approach LOS		F			F			A					C	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	5.0	92.1		17.9	39.1	58.0		17.9						
Change Period (Y+Rc), s	4.4	4.9		4.9	4.9	* 4.9		4.9						
Max Green Setting (Gmax), s	10.1	70.1		20.6	27.1	* 53		20.6						
Max Q Clear Time (g_c+1/3), s	12.3	2.0		12.5	10.4	14.3		3.5						
Green Ext Time (p_c), s	0.0	22.4		0.4	0.8	8.6		0.0						

Intersection Summary

HCM 6th Ctrl Delay	20.7
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis
 35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

Existing Conditions
 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	20	256	403	577	228	392	1214	143	8	727	101
Future Volume (vph)	34	20	256	403	577	228	392	1214	143	8	727	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	0.99	1.00	0.95	0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1746	1578	1610	3168	1424	1770	3478		3433	3539	1583
Flt Permitted	0.95	0.99	1.00	0.95	0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1746	1578	1610	3168	1424	1770	3478		3433	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	36	21	269	424	607	240	413	1278	151	8	765	106
RTOR Reduction (vph)	0	0	85	0	0	0	0	8	0	0	0	75
Lane Group Flow (vph)	28	29	184	343	712	216	413	1421	0	8	765	31
Confl. Peds. (#/hr)							2		1			
Confl. Bikes (#/hr)			2			2						
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	7	5	8	8	1	5	2		1	6	
Permitted Phases			7			8						6
Actuated Green, G (s)	8.0	8.0	35.0	25.0	25.0	33.0	27.0	53.0		8.0	34.0	34.0
Effective Green, g (s)	8.0	8.0	35.0	25.0	25.0	33.0	27.0	53.0		8.0	34.0	34.0
Actuated g/C Ratio	0.07	0.07	0.30	0.22	0.22	0.29	0.23	0.46		0.07	0.30	0.30
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	116	121	544	350	688	408	415	1602		238	1046	468
v/s Ratio Prot	0.02	0.02	c0.08	0.21	c0.22	0.04	c0.23	c0.41		0.00	c0.22	
v/s Ratio Perm			0.04			0.11						0.02
v/c Ratio	0.24	0.24	0.34	0.98	1.03	0.53	1.00	0.89		0.03	0.73	0.07
Uniform Delay, d1	50.6	50.6	31.0	44.8	45.0	34.5	43.9	28.3		49.9	36.4	29.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.67	0.81	2.37
Incremental Delay, d2	0.4	0.4	0.1	42.0	43.6	0.6	42.6	7.7		0.0	4.2	0.3
Delay (s)	51.0	51.0	31.2	86.8	88.6	35.0	86.5	36.0		33.4	33.6	69.2
Level of Service	D	D	C	F	F	D	F	D		C	C	E
Approach Delay (s)		34.6			79.0			47.3			37.9	
Approach LOS		C			E			D			D	
Intersection Summary												
HCM 2000 Control Delay			53.8									D
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			115.0							21.0		
Intersection Capacity Utilization			87.1%									E
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 36: Fairmount Ave & I-8 EB Off-Ramp

Existing Conditions
 AM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	683	715	248	0	889	550	0
Future Volume (veh/h)	683	715	248	0	889	550	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1826	1870		0	1856	1856	0
Adj Flow Rate, veh/h	841	842		0	1071	663	0
Peak Hour Factor	0.83	0.83		0.83	0.83	0.83	0.83
Percent Heavy Veh, %	5	2		0	3	3	0
Cap, veh/h	1247	1137		0	1481	2129	0
Arrive On Green	0.36	0.36		0.00	0.42	0.42	0.00
Sat Flow, veh/h	3478	3170		0	3711	5400	0
Grp Volume(v), veh/h	841	842		0	1071	663	0
Grp Sat Flow(s),veh/h/ln	1739	1585		0	1763	1689	0
Q Serve(g_s), s	10.3	11.6		0.0	12.7	4.4	0.0
Cycle Q Clear(g_c), s	10.3	11.6		0.0	12.7	4.4	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	1247	1137		0	1481	2129	0
V/C Ratio(X)	0.67	0.74		0.00	0.72	0.31	0.00
Avail Cap(c_a), veh/h	3051	2781		0	5391	5251	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	13.6	14.1		0.0	12.1	9.7	0.0
Incr Delay (d2), s/veh	0.2	0.4		0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	3.5		0.0	4.0	1.3	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	13.9	14.4		0.0	12.4	9.7	0.0
LnGrp LOS	B	B		A	B	A	A
Approach Vol, veh/h	1683				1071	663	
Approach Delay, s/veh	14.1				12.4	9.7	
Approach LOS	B				B	A	
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				27.1		23.1	27.1
Change Period (Y+Rc), s				6.0		5.1	6.0
Max Green Setting (Gmax), s				52.0		44.0	76.7
Max Q Clear Time (g_c+1), s				6.4		13.6	14.7
Green Ext Time (p_c), s				3.4		4.3	6.4

Intersection Summary

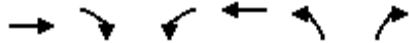
HCM 6th Ctrl Delay	12.7
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 37: Collwood Blvd & Montezuma Rd

Existing Conditions
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	386	387	51	1011	960	43
Future Volume (veh/h)	386	387	51	1011	960	43
Initial Q (Qb), veh	0	0	0	30	30	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1663	1870	1870	1618
Adj Flow Rate, veh/h	411	333	54	1076	1021	26
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	16	2	2	19
Cap, veh/h	1765	1298	67	2081	1188	461
Arrive On Green	0.52	0.52	0.04	0.60	0.32	0.32
Sat Flow, veh/h	3618	1538	1584	3647	3456	1372
Grp Volume(v), veh/h	411	333	54	1076	1021	26
Grp Sat Flow(s),veh/h/ln	1763	1538	1584	1777	1728	1372
Q Serve(g_s), s	8.0	5.7	4.3	22.1	36.1	1.7
Cycle Q Clear(g_c), s	8.0	5.7	4.3	22.1	36.1	1.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1765	1298	67	2081	1188	461
V/C Ratio(X)	0.23	0.26	0.81	0.52	0.86	0.06
Avail Cap(c_a), veh/h	1830	1297	158	2120	1341	532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.9	2.2	59.8	17.0	40.5	28.4
Incr Delay (d2), s/veh	0.3	0.5	8.2	0.9	4.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	3.1	32.7	0.0
%ile BackOfQ(50%),veh/ln	3.4	1.2	1.8	12.2	22.9	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.2	2.6	68.0	21.0	78.1	28.4
LnGrp LOS	B	A	E	C	E	C
Approach Vol, veh/h	744			1130	1047	
Approach Delay, s/veh	11.2			23.3	76.9	
Approach LOS	B			C	E	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	9.7	71.9		81.7	44.3	
Change Period (Y+Rc), s	4.4	* 6.5		6.5	4.4	
Max Green Setting (Gmax), s	12.6	* 50		66.2	48.9	
Max Q Clear Time (g_c+1), s	10.3	10.0		24.1	38.1	
Green Ext Time (p_c), s	0.0	7.1		17.4	1.9	

Intersection Summary

HCM 6th Ctrl Delay	39.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
38: Mission Village Dr & Shawn Ave

Existing Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔		↖	↕↕	↗	↖	↕↕	
Traffic Volume (veh/h)	93	3	44	36	1	20	35	918	2	8	415	29
Future Volume (veh/h)	93	3	44	36	1	20	35	918	2	8	415	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	100	3	8	39	1	4	38	987	1	9	446	26
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	389	50	135	383	37	146	679	2007	880	446	1926	112
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.56	0.56	0.56	0.56	0.56	0.56
Sat Flow, veh/h	1371	409	1091	1324	296	1185	920	3554	1558	569	3410	198
Grp Volume(v), veh/h	100	0	11	39	0	5	38	987	1	9	232	240
Grp Sat Flow(s),veh/h/ln	1371	0	1499	1324	0	1482	920	1777	1558	569	1777	1831
Q Serve(g_s), s	2.2	0.0	0.2	0.8	0.0	0.1	0.7	5.5	0.0	0.3	2.1	2.1
Cycle Q Clear(g_c), s	2.3	0.0	0.2	1.0	0.0	0.1	2.9	5.5	0.0	5.8	2.1	2.1
Prop In Lane	1.00		0.73	1.00		0.80	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	389	0	185	383	0	183	679	2007	880	446	1004	1034
V/C Ratio(X)	0.26	0.00	0.06	0.10	0.00	0.03	0.06	0.49	0.00	0.02	0.23	0.23
Avail Cap(c_a), veh/h	1933	0	1833	1919	0	1811	1847	6516	2857	1169	3258	3357
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.6	0.0	12.7	13.1	0.0	12.6	4.3	4.3	3.1	6.0	3.6	3.6
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.1	0.2	0.0	0.0	0.1	0.5	0.0	0.0	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.8	0.0	12.7	13.2	0.0	12.6	4.3	4.5	3.1	6.1	3.7	3.7
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		111			44			1026			481	
Approach Delay, s/veh		13.7			13.1			4.5			3.8	
Approach LOS		B			B			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		23.8		8.9		23.8		8.9				
Change Period (Y+Rc), s		5.3		4.9		5.3		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		7.5		4.3		7.8		3.0				
Green Ext Time (p_c), s		10.8		0.4		3.8		0.1				

Intersection Summary

HCM 6th Ctrl Delay	5.1
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
 39: Mission Village Dr & Fermi Ave

Existing Conditions
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (veh/h)	41	9	11	81	8	76	5	979	85	54	366	6
Future Volume (veh/h)	41	9	11	81	8	76	5	979	85	54	366	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	45	10	5	89	9	58	5	1076	89	59	402	7
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	270	55	20	212	31	87	10	1855	153	75	2129	37
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.01	0.56	0.56	0.04	0.60	0.60
Sat Flow, veh/h	1070	362	130	762	203	571	1781	3315	274	1781	3572	62
Grp Volume(v), veh/h	60	0	0	156	0	0	5	576	589	59	200	209
Grp Sat Flow(s),veh/h/ln	1562	0	0	1535	0	0	1781	1777	1813	1781	1777	1857
Q Serve(g_s), s	0.0	0.0	0.0	3.7	0.0	0.0	0.2	12.5	12.5	1.9	3.0	3.0
Cycle Q Clear(g_c), s	1.8	0.0	0.0	5.5	0.0	0.0	0.2	12.5	12.5	1.9	3.0	3.0
Prop In Lane	0.75		0.08	0.57		0.37	1.00		0.15	1.00		0.03
Lane Grp Cap(c), veh/h	346	0	0	331	0	0	10	994	1014	75	1059	1107
V/C Ratio(X)	0.17	0.00	0.00	0.47	0.00	0.00	0.53	0.58	0.58	0.79	0.19	0.19
Avail Cap(c_a), veh/h	1088	0	0	854	0	0	905	1806	1842	905	1806	1888
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.9	0.0	0.0	23.4	0.0	0.0	29.3	8.5	8.5	28.0	5.4	5.4
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.4	0.0	0.0	15.7	1.0	1.0	6.7	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	2.0	0.0	0.0	0.1	3.6	3.7	0.9	0.8	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.0	0.0	0.0	23.8	0.0	0.0	45.0	9.5	9.5	34.7	5.6	5.6
LnGrp LOS	C	A	A	C	A	A	D	A	A	C	A	A
Approach Vol, veh/h		60			156			1170			468	
Approach Delay, s/veh		22.0			23.8			9.6			9.3	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	38.2		13.9	4.7	40.4		13.9				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	5.2		4.9				
Max Green Setting (Gmax), s	30.0	60.0		40.0	30.0	60.0		30.0				
Max Q Clear Time (g_c+1), s	13.9	14.5		3.8	2.2	5.0		7.5				
Green Ext Time (p_c), s	0.1	18.5		0.2	0.0	4.8		0.6				
Intersection Summary												
HCM 6th Ctrl Delay				11.1								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary
40: Gramercy Dr/Mission Village Dr & Ruffin Rd

Existing Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖↗	
Traffic Volume (veh/h)	50	215	18	27	397	681	13	8	15	194	12	40
Future Volume (veh/h)	50	215	18	27	397	681	13	8	15	194	12	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	57	244	18	31	451	644	15	9	0	220	14	17
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	221	1831	134	673	970	850	160	319	0	526	110	134
Arrive On Green	0.55	0.55	0.55	0.55	0.55	0.55	0.09	0.09	0.00	0.15	0.15	0.15
Sat Flow, veh/h	515	3352	245	1114	1777	1556	1781	3647	0	3563	748	908
Grp Volume(v), veh/h	57	128	134	31	451	644	15	9	0	220	0	31
Grp Sat Flow(s),veh/h/ln	515	1777	1821	1114	1777	1556	1781	1777	0	1781	0	1656
Q Serve(g_s), s	6.6	2.4	2.5	1.0	10.6	22.0	0.5	0.2	0.0	3.9	0.0	1.1
Cycle Q Clear(g_c), s	28.7	2.4	2.5	3.4	10.6	22.0	0.5	0.2	0.0	3.9	0.0	1.1
Prop In Lane	1.00		0.13	1.00		1.00	1.00		0.00	1.00		0.55
Lane Grp Cap(c), veh/h	221	970	994	673	970	850	160	319	0	526	0	244
V/C Ratio(X)	0.26	0.13	0.13	0.05	0.46	0.76	0.09	0.03	0.00	0.42	0.00	0.13
Avail Cap(c_a), veh/h	389	1551	1589	1037	1551	1358	1036	2068	0	2073	0	963
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.2	7.6	7.6	8.5	9.5	12.1	28.7	28.6	0.0	26.6	0.0	25.5
Incr Delay (d2), s/veh	0.8	0.1	0.1	0.0	0.4	1.8	0.1	0.0	0.0	0.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.9	0.9	0.2	3.7	7.0	0.2	0.1	0.0	1.5	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.0	7.7	7.7	8.5	9.9	13.8	28.8	28.6	0.0	26.8	0.0	25.5
LnGrp LOS	C	A	A	A	A	B	C	C	A	C	A	C
Approach Vol, veh/h		319			1126			24			251	
Approach Delay, s/veh		10.6			12.1			28.7			26.7	
Approach LOS		B			B			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		42.6		15.0		42.6		11.1				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		30.7		5.9		24.0		2.5				
Green Ext Time (p_c), s		3.0		0.5		13.5		0.0				

Intersection Summary

HCM 6th Ctrl Delay	14.2
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

Existing Conditions
AM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	548	95	7	202	493	456	604
Future Volume (veh/h)	548	95	7	202	493	456	604
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	596	85		220	536	496	414
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1847	1250		274	2248	977	448
Arrive On Green	0.52	0.52		0.08	0.63	0.28	0.28
Sat Flow, veh/h	3647	1544		3456	3647	3456	1585
Grp Volume(v), veh/h	596	85		220	536	496	414
Grp Sat Flow(s),veh/h/ln	1777	1544		1728	1777	1728	1585
Q Serve(g_s), s	12.6	1.5		8.1	8.5	15.6	33.0
Cycle Q Clear(g_c), s	12.6	1.5		8.1	8.5	15.6	33.0
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1847	1250		274	2248	977	448
V/C Ratio(X)	0.32	0.07		0.80	0.24	0.51	0.92
Avail Cap(c_a), veh/h	1847	1250		391	2248	1614	740
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.99	0.99
Uniform Delay (d), s/veh	18.0	2.7		58.9	10.3	39.0	45.3
Incr Delay (d2), s/veh	0.5	0.1		5.0	0.3	0.2	7.5
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	1.3		3.7	3.1	6.7	13.8
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	18.5	2.8		63.9	10.6	39.2	52.8
LnGrp LOS	B	A		E	B	D	D
Approach Vol, veh/h	681			756	910		
Approach Delay, s/veh	16.5			26.1	45.4		
Approach LOS	B			C	D		
Timer - Assigned Phs	1	2		6	8		
Phs Duration (G+Y+Rc), s	4.7	73.3		87.9	42.1		
Change Period (Y+Rc), s	4.4	* 5.7		5.7	5.3		
Max Green Setting (Gmax), s	4.7	* 40		58.3	60.7		
Max Q Clear Time (g_c+I), s	14.6			10.5	35.0		
Green Ext Time (p_c), s	0.2	7.6		5.2	1.8		

Intersection Summary

HCM 6th Ctrl Delay	30.8
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mobley St & Gramercy Dr

Existing Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	155	23	18	383	76	70	29	43	65	8	11
Future Volume (veh/h)	15	155	23	18	383	76	70	29	43	65	8	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1826	1841	1737	1870	1870	1870	1870	1870	1707	1707	1707
Adj Flow Rate, veh/h	16	163	10	19	403	62	74	31	26	68	8	6
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	5	4	11	2	2	2	2	2	13	13	13
Cap, veh/h	570	1443	624	700	1278	195	354	119	65	465	50	21
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	920	3469	1500	1110	3072	468	682	569	310	1041	236	101
Grp Volume(v), veh/h	16	163	10	19	232	233	131	0	0	82	0	0
Grp Sat Flow(s),veh/h/ln	920	1735	1500	1110	1777	1764	1562	0	0	1378	0	0
Q Serve(g_s), s	0.3	0.8	0.1	0.3	2.3	2.4	0.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.7	0.8	0.1	1.1	2.3	2.4	1.8	0.0	0.0	1.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.27	0.56		0.20	0.83		0.07
Lane Grp Cap(c), veh/h	570	1443	624	700	739	734	538	0	0	535	0	0
V/C Ratio(X)	0.03	0.11	0.02	0.03	0.31	0.32	0.24	0.00	0.00	0.15	0.00	0.00
Avail Cap(c_a), veh/h	2255	7797	3371	2732	3993	3964	2476	0	0	2158	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.2	4.8	4.6	5.1	5.2	5.2	9.0	0.0	0.0	8.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.4	0.5	0.1	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.0	0.0	0.4	0.4	0.5	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.2	4.8	4.6	5.1	5.7	5.7	9.1	0.0	0.0	8.8	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		189			484			131			82	
Approach Delay, s/veh		4.9			5.7			9.1			8.8	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.2		10.5		16.2		10.5				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		4.7		3.1		4.4		3.8				
Green Ext Time (p_c), s		2.4		0.3		5.9		0.5				

Intersection Summary

HCM 6th Ctrl Delay	6.3
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary

43: Sandrock Rd & Greyling Dr/Gramercy Dr

Existing Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕	↕	↕	↕
Traffic Volume (veh/h)	49	68	3	5	88	345	0	16	10	199	7	48
Future Volume (veh/h)	49	68	3	5	88	345	0	16	10	199	7	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.92	0.95		0.94	1.00		1.00	1.00		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1663	1870	1870	1870	1841	1870	1870
Adj Flow Rate, veh/h	53	74	2	5	96	147	0	17	0	222	0	13
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	2	2	16	2	2	2	4	2	2
Cap, veh/h	301	349	8	127	598	671	0	33	28	592	0	247
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.00	0.02	0.00	0.17	0.00	0.17
Sat Flow, veh/h	432	1070	24	26	1832	1327	0	1870	1585	3506	0	1463
Grp Volume(v), veh/h	129	0	0	101	0	147	0	17	0	222	0	13
Grp Sat Flow(s),veh/h/ln	1526	0	0	1858	0	1327	0	1870	1585	1753	0	1463
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.3	0.0	1.8	0.0	0.2
Cycle Q Clear(g_c), s	1.6	0.0	0.0	1.2	0.0	2.0	0.0	0.3	0.0	1.8	0.0	0.2
Prop In Lane	0.41		0.02	0.05		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	658	0	0	725	0	671	0	33	28	592	0	247
V/C Ratio(X)	0.20	0.00	0.00	0.14	0.00	0.22	0.00	0.52	0.00	0.38	0.00	0.05
Avail Cap(c_a), veh/h	1310	0	0	1565	0	1281	0	1176	997	3307	0	1380
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.8	0.0	0.0	7.6	0.0	4.6	0.0	15.5	0.0	11.7	0.0	11.1
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.1	0.0	4.6	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.3	0.0	0.5	0.0	0.1	0.0	0.5	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.8	0.0	0.0	7.7	0.0	4.6	0.0	20.1	0.0	11.9	0.0	11.1
LnGrp LOS	A	A	A	A	A	A	A	C	A	B	A	B
Approach Vol, veh/h		129			248			17			235	
Approach Delay, s/veh		7.8			5.9			20.1			11.8	
Approach LOS		A			A			C			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		15.7		10.7		15.7		5.5				
Change Period (Y+Rc), s		5.3		5.3		5.3		4.9				
Max Green Setting (Gmax), s		25.0		30.0		25.0		20.0				
Max Q Clear Time (g_c+1), s		3.6		3.8		4.0		2.3				
Green Ext Time (p_c), s		0.5		0.4		0.6		0.0				

Intersection Summary

HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

Arterial Level of Service: EB Friars Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
I-15 SB Ramps	II	45	46.1	26.7	72.8	0.58	28.5	B
I-15 NB Ramps	II	45	23.9	0.0	23.9	0.22	33.1	B
Rancho Mission Rd	II	45	19.6	19.0	38.6	0.18	16.8	E
Santo Rd	II	45	24.1	1.5	25.6	0.22	31.1	B
Riverdale St	II	45	31.8	13.0	44.8	0.32	25.8	C
Mission Gorge Rd	II	45	11.2	8.4	19.6	0.10	18.8	D
Total	II		156.7	68.6	225.3	1.62	25.9	C

Arterial Level of Service: WB Friars Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Riverdale St	II	45	11.2	18.9	30.1	0.10	12.3	F
Santo Rd	II	45	31.8	9.3	41.1	0.32	28.2	B
Rancho Mission Rd	II	45	24.1	13.4	37.5	0.22	21.3	D
I-15 NB Ramps	II	45	19.6	31.5	51.1	0.18	12.7	F
I-15 SB Ramps	II	45	23.9	27.8	51.7	0.22	15.3	E
Total	II		110.6	100.9	211.5	1.04	17.8	D

Arterial Level of Service: NB Rancho Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
San Diego Mission Rd	III	35	41.0	28.4	69.4	0.34	17.7	D
Friars Rd	III	35	48.3	46.9	95.2	0.40	15.2	D
Total	III		89.3	75.3	164.6	0.74	16.3	D

Arterial Level of Service: SB Rancho Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
San Diego Mission Rd	III	35	48.3	44.4	92.7	0.40	15.6	D
Total	III		48.3	44.4	92.7	0.40	15.6	D

Arterial Level of Service: EB San Diego Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rancho Mission Rd	II	40	54.6	15.7	70.3	0.61	31.1	B
Fairmount Ave	II	40	50.6	19.0	69.6	0.56	29.1	B
Total	II		105.2	34.7	139.9	1.17	30.1	B

Arterial Level of Service: WB San Diego Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rancho Mission Rd	II	40	50.6	31.5	82.1	0.56	24.7	C
Friars Rd EB	II	40	54.6	0.0	54.6	0.61	40.0	A
Total	II		105.2	31.5	136.7	1.17	30.8	B

Arterial Level of Service: SB Ward Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Camino del Rio N	III	35	41.0	23.2	64.2	0.34	19.1	C
Total	III		41.0	23.2	64.2	0.34	19.1	C

Arterial Level of Service: EB Camino del Rio S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Texas St	IV	35	20.6	56.5	77.1	0.12	5.8	F
Total	IV		20.6	56.5	77.1	0.12	5.8	F

Arterial Level of Service: WB Camino del Rio S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Texas St	III	35	19.7	57.7	77.4	0.15	7.2	F
Total	III		19.7	57.7	77.4	0.15	7.2	F



Major Street Ward Rd
 Minor Street Rancho Mission Rd

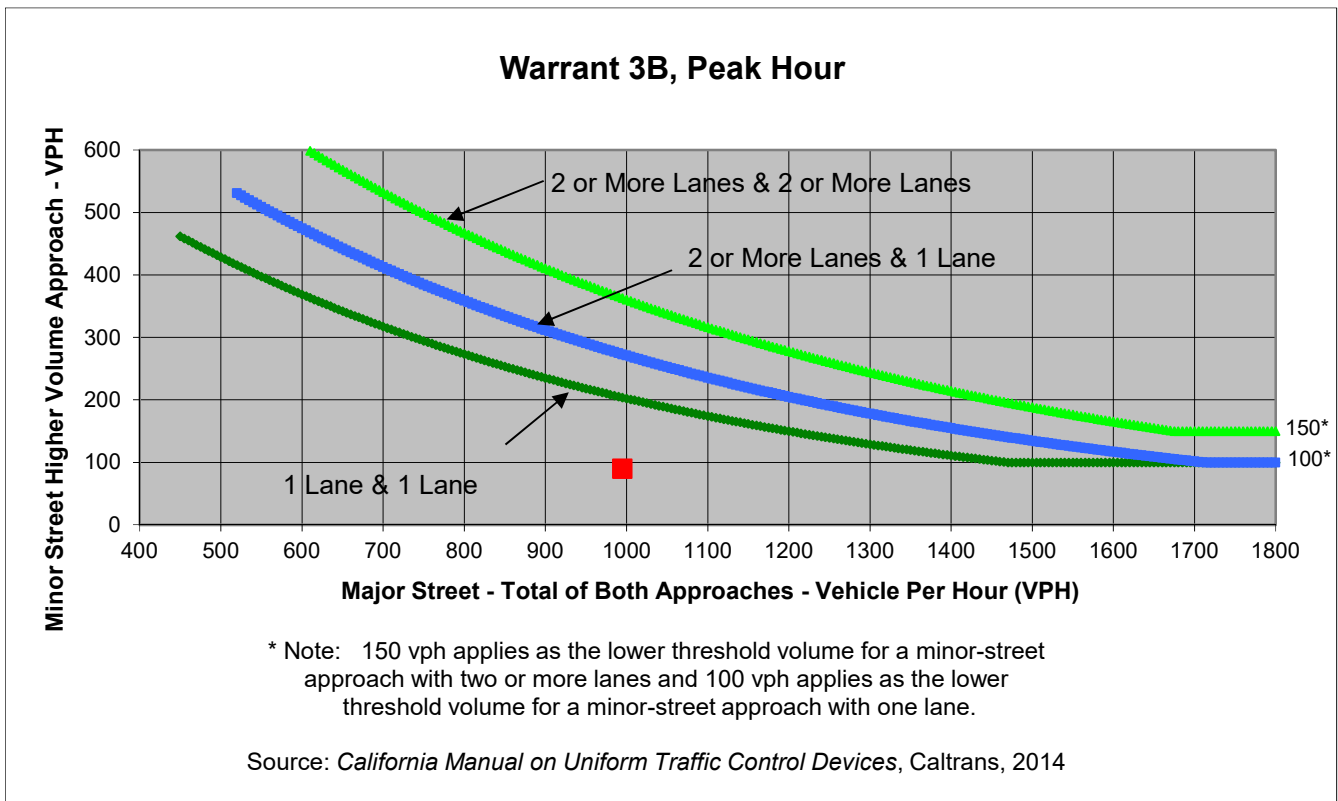
Project SDSU Mission Valley
 Scenario Existing
 Peak Hour AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	22	0	32	0
Through	524	435	0	0
Right	0	14	58	0
Total	546	449	90	0

Major Street Direction

x	North/South
	East/West



	Major Street	Minor Street	Warrant Met
	Ward Rd	Rancho Mission Rd	
Number of Approach Lanes	2	1	NO
Traffic Volume (VPH) *	995	90	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
 Traffic Volume for Minor Street is the Volume of High Volume Approach.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

Project SDSU Mission Valley
 Scenario Existing
 Peak Hour AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	22	0	32	0
Through	524	435	0	0
Right	0	14	58	0
Total	546	449	90	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	20
Approach with Worst Case Delay	EB
Total Vehicles on Approach	90

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Existing	0.5	90	1,085
Limiting Value	4	100	650
Condition Satisfied?	Not Met	Not Met	Met
Warrant Met	<u>NO</u>		

Queues

Existing Conditions

1: SR-163 SB Ramps/Ulric St & Friars Rd

AM Peak Hour



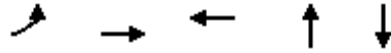
Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	53	524	228	768	604	151	154	719	175	175	79
v/c Ratio	0.35	0.22	0.15	0.43	0.87	0.60	0.60	0.45	0.57	0.57	0.22
Control Delay	54.4	18.2	0.2	28.3	36.1	51.9	51.8	0.9	44.0	44.0	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.4	18.2	0.2	28.3	36.1	51.9	51.8	0.9	44.0	44.0	6.6
Queue Length 50th (ft)	30	62	0	124	226	88	90	0	103	103	0
Queue Length 95th (ft)	89	147	0	264	#685	204	207	0	191	191	29
Internal Link Dist (ft)		1296		18			834			622	
Turn Bay Length (ft)	120		100		70	300		215			200
Base Capacity (vph)	323	2990	1563	1803	696	903	918	1583	903	903	881
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.18	0.15	0.43	0.87	0.17	0.17	0.45	0.19	0.19	0.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues
2: SR-163 NB Ramps & Friars Rd

Existing Conditions
AM Peak Hour



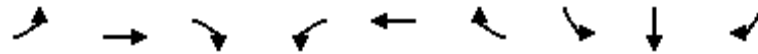
Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	425	1152	1873	1001	688
v/c Ratio	0.82	no cap	0.97	11.25	7.73
Control Delay	38.1		32.5	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0
Total Delay	38.1	Error	32.5	0.0	0.0
Queue Length 50th (ft)	183	0	382	0	0
Queue Length 95th (ft)	282	0	#715	0	0
Internal Link Dist (ft)		962	635	815	521
Turn Bay Length (ft)	250				
Base Capacity (vph)	1062	1	1925	89	89
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.40	1152.00	0.97	11.25	7.73

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
17: I-15 SB Ramps & Friars Rd

Existing Conditions
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	266	646	303	336	1520	454	340	343	717
v/c Ratio	0.66	0.33	0.38	0.83	0.78	0.52	0.86	0.86	0.50
Control Delay	47.7	26.7	5.2	46.8	27.8	5.2	60.3	60.9	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.7	26.7	5.2	46.8	27.8	5.2	60.3	60.9	18.2
Queue Length 50th (ft)	172	117	0	199	250	52	240	243	176
Queue Length 95th (ft)	263	183	67	m145	m283	m49	331	333	201
Internal Link Dist (ft)		844			1079			723	
Turn Bay Length (ft)	380		200	350			520		520
Base Capacity (vph)	402	1965	797	531	1952	874	504	505	1426
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.33	0.38	0.63	0.78	0.52	0.67	0.68	0.50

Intersection Summary

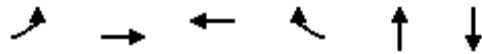
m Volume for 95th percentile queue is metered by upstream signal.

Queues

18: I-15 NB Ramps & Friars Rd

Existing Conditions

AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	452	929	2625	788	255	364
v/c Ratio	0.90	no cap	0.95	0.96	2.71	3.87
Control Delay	66.1		31.5	45.4	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	66.1	Error	31.5	45.4	0.0	0.0
Queue Length 50th (ft)	333	0	713	641	0	0
Queue Length 95th (ft)	#469	0	#858	#972	0	0
Internal Link Dist (ft)		1079	869		797	677
Turn Bay Length (ft)	515					
Base Capacity (vph)	563	1	2774	820	94	94
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.80	929.00	0.95	0.96	2.71	3.87

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

Existing Conditions

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

AM Peak Hour



Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	36	73	145	472	94	876	337	425
v/c Ratio	0.15	0.14	0.40	0.82	0.26	0.33	0.39	0.61
Control Delay	37.6	7.1	30.7	21.9	34.2	13.0	26.8	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.6	7.1	30.7	21.9	34.2	13.0	26.8	7.3
Queue Length 50th (ft)	16	0	63	60	39	94	73	0
Queue Length 95th (ft)	53	32	125	191	106	167	134	77
Internal Link Dist (ft)			656			1041	147	
Turn Bay Length (ft)				150	110			
Base Capacity (vph)	938	932	1205	1135	873	5049	2761	1314
Starvation Cap Reductn	0	0	0	0	0	0	338	100
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.08	0.12	0.42	0.11	0.17	0.14	0.35

Intersection Summary

Queues
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Existing Conditions
 AM Peak Hour



Lane Group	EBR	NBT	SBT
Lane Group Flow (vph)	425	1034	621
v/c Ratio	0.55	0.58	0.37
Control Delay	8.6	7.9	6.8
Queue Delay	0.0	0.0	0.0
Total Delay	8.6	7.9	6.8
Queue Length 50th (ft)	17	56	31
Queue Length 95th (ft)	44	116	67
Internal Link Dist (ft)		285	1041
Turn Bay Length (ft)			
Base Capacity (vph)	2787	3500	3432
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.15	0.30	0.18
Intersection Summary			

Queues

Existing Conditions

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	28	29	269	343	712	216	413	1429	8	765	106
v/c Ratio	0.19	0.19	0.47	0.98	1.03	0.51	1.00	0.87	0.03	0.71	0.19
Control Delay	52.2	52.1	17.7	88.9	87.9	34.6	87.6	35.2	33.6	33.4	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0
Total Delay	52.2	52.1	17.7	88.9	87.9	34.6	87.6	35.2	33.6	35.0	9.5
Queue Length 50th (ft)	21	21	76	279	~329	135	307	508	3	294	20
Queue Length 95th (ft)	51	53	149	#486	#464	216	#512	#666	m6	364	m69
Internal Link Dist (ft)		2741			1304			835		254	
Turn Bay Length (ft)	105					200	215		65		140
Base Capacity (vph)	146	151	569	350	688	425	415	1641	238	1077	569
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	155	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.19	0.47	0.98	1.03	0.51	1.00	0.87	0.03	0.83	0.19

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues

36: Fairmount Ave & I-8 EB Off-Ramp

Existing Conditions

AM Peak Hour



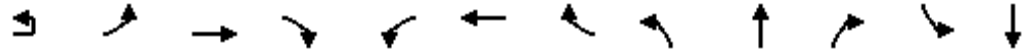
Lane Group	EBL	EBR	NBU	NBT	SBT
Lane Group Flow (vph)	909	775	299	1071	663
v/c Ratio	0.76	0.82	0.71	0.60	0.62
Control Delay	28.8	33.2	43.1	17.6	33.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.8	33.2	43.1	17.6	33.8
Queue Length 50th (ft)	213	212	143	196	115
Queue Length 95th (ft)	276	283	#302	305	166
Internal Link Dist (ft)	970			972	835
Turn Bay Length (ft)	550		350		
Base Capacity (vph)	2807	2279	423	3148	3132
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	0.34	0.71	0.34	0.21

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
 1: SR-163 SB Ramps/Ulrir St & Friars Rd

Existing Conditions
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↘	↗↗↗	↗		↗↗↗	↗	↘	↗	↗	↘	↗
Traffic Volume (veh/h)	1	133	1428	573	0	942	652	258	20	618	550	0
Future Volume (veh/h)	1	133	1428	573	0	942	652	258	20	618	550	0
Initial Q (Qb), veh		0	10	10	0	10	0	0	0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No			No			No	
Adj Sat Flow, veh/h/ln		1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		136	1457	0	0	961	549	277	0	0	561	0
Peak Hour Factor		0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %		2	2	2	0	2	2	2	2	2	2	2
Cap, veh/h		166	2473	0	1725	397	372	0	728	0	0	0
Arrive On Green		0.09	0.49	0.00	0.00	0.35	0.35	0.11	0.00	0.00	0.19	0.00
Sat Flow, veh/h		1781	5106	1585	0	5274	1585	3563	0	1585	3563	0
Grp Volume(v), veh/h		136	1457	0	0	961	549	277	0	0	561	0
Grp Sat Flow(s),veh/h/ln		1781	1702	1585	0	1702	1585	1781	0	1585	1781	0
Q Serve(g_s), s		7.1	19.0	0.0	0.0	14.2	32.4	7.1	0.0	0.0	14.2	0.0
Cycle Q Clear(g_c), s		7.1	19.0	0.0	0.0	14.2	32.4	7.1	0.0	0.0	14.2	0.0
Prop In Lane		1.00		1.00	0.00		1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h		166	2473	0	1725	397	372	0	728	0	0	0
V/C Ratio(X)		0.82	0.59	0.00	0.56	1.38	0.74	0.00	0.77	0.00	0.00	0.00
Avail Cap(c_a), veh/h		322	2525	0	1789	555	2648	0	1891	0	0	0
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)		1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh		46.4	18.9	0.0	0.0	27.6	49.4	45.4	0.0	0.0	36.5	0.0
Incr Delay (d2), s/veh		3.8	0.2	0.0	0.0	0.2	187.1	3.0	0.0	0.0	0.7	0.0
Initial Q Delay(d3),s/veh		0.0	0.3	0.0	0.0	0.5	0.0	0.0	0.0	0.0	5.9	0.0
%ile BackOfQ(50%),veh/ln		3.5	7.8	0.0	0.0	6.5	33.3	3.5	0.0	0.0	7.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		50.2	19.4	0.0	0.0	28.4	236.5	48.4	0.0	0.0	43.1	0.0
LnGrp LOS		D	B		A	C	F	D	A		D	A
Approach Vol, veh/h			1593	A		1510			277	A		666
Approach Delay, s/veh			22.1			104.0			48.4			43.1
Approach LOS			C			F			D			D
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		53.6		24.5	13.6	40.0		16.1				
Change Period (Y+Rc), s		7.0		6.1	* 4.7	7.0		6.1				
Max Green Setting (Gmax), s		45.0		50.0	* 17	33.0		70.0				
Max Q Clear Time (g_c+I1), s		21.0		16.2	9.1	34.4		9.1				
Green Ext Time (p_c), s		7.2		1.2	0.1	0.0		1.0				

Intersection Summary

HCM 6th Ctrl Delay	57.9
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 1: SR-163 SB Ramps/Ulric St & Friars Rd

Existing Conditions
 PM Peak Hour

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	166
Future Volume (veh/h)	166
Initial Q (Qb), veh	10
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1870
Adj Flow Rate, veh/h	105
Peak Hour Factor	0.98
Percent Heavy Veh, %	2
Cap, veh/h	331
Arrive On Green	0.19
Sat Flow, veh/h	1578
Grp Volume(v), veh/h	105
Grp Sat Flow(s),veh/h/ln	1578
Q Serve(g_s), s	5.4
Cycle Q Clear(g_c), s	5.4
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	331
V/C Ratio(X)	0.32
Avail Cap(c_a), veh/h	838
HCM Platoon Ratio	1.00
Upstream Filter(l)	1.00
Uniform Delay (d), s/veh	33.4
Incr Delay (d2), s/veh	0.2
Initial Q Delay(d3),s/veh	9.6
%ile BackOfQ(50%),veh/ln	4.2
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	43.2
LnGrp LOS	D
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.	

HCM 6th Signalized Intersection Summary
2: SR-163 NB Ramps & Friars Rd

Existing Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘				↗	↗						
Traffic Volume (veh/h)	528	1973	0	0	1243	838	0	0	928	0	0	831
Future Volume (veh/h)	528	1973	0	0	1243	838	0	0	928	0	0	831
Initial Q (Qb), veh	20	0	0	0	10	0						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	550	2055	0	0	1295	0						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	674	0	0	0	1321							
Arrive On Green	0.34	0.00	0.00	0.00	0.48	0.00						
Sat Flow, veh/h	1781	550		0	3741	0						
Grp Volume(v), veh/h	550	56.1		0	1295	0						
Grp Sat Flow(s),veh/h/ln	1781	E		0	1777	0						
Q Serve(g_s), s	18.1			0.0	18.3	0.0						
Cycle Q Clear(g_c), s	18.1			0.0	18.3	0.0						
Prop In Lane	1.00			0.00		0.00						
Lane Grp Cap(c), veh/h	674			0	1321							
V/C Ratio(X)	0.82			0.00	0.98							
Avail Cap(c_a), veh/h	1738			0	2427							
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	0.00						
Uniform Delay (d), s/veh	20.8			0.0	35.5	0.0						
Incr Delay (d2), s/veh	0.9			0.0	9.1	0.0						
Initial Q Delay(d3),s/veh	34.3			0.0	18.5	0.0						
%ile BackOfQ(50%),veh/ln	6.0			0.0	22.0	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.1			0.0	63.0	0.0						
LnGrp LOS	E			A	E							
Approach Vol, veh/h					1295	A						
Approach Delay, s/veh					63.0							
Approach LOS					E							
Timer - Assigned Phs					5	6						
Phs Duration (G+Y+Rc), s					25.9	35.6						
Change Period (Y+Rc), s					5.0	6.0						
Max Green Setting (Gmax), s					60.0	42.0						
Max Q Clear Time (g_c+I1), s					20.1	20.3						
Green Ext Time (p_c), s					0.8	9.3						

Intersection Summary

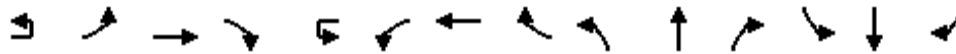
HCM 6th Ctrl Delay		60.9										
HCM 6th LOS			E									

Notes

Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
3: Frazee Rd & Friars Rd

Existing Conditions
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↕↕↕	↔		↔	↕↕↕	↔	↔↔	↕↔		↔↔	↔	↔
Traffic Volume (veh/h)	17	274	2028	547	3	67	1330	77	271	56	102	104	62	311
Future Volume (veh/h)	17	274	2028	547	3	67	1330	77	271	56	102	104	62	311
Initial Q (Qb), veh		0	0	0		0	20	0	10	0	0	0	0	10
Ped-Bike Adj(A_pbT)		1.00		0.96		1.00		0.99	1.00		0.92	1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		308	2279	450		75	1494	27	304	63	19	117	109	96
Peak Hour Factor		0.89	0.89	0.89		0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h		377	2219	737		96	2258	675	415	627	178	191	273	208
Arrive On Green		0.11	0.51	0.51		0.05	0.45	0.45	0.11	0.17	0.17	0.06	0.12	0.12
Sat Flow, veh/h		3456	5106	1525		1781	5106	1577	3456	2680	758	3563	1870	1563
Grp Volume(v), veh/h		308	2279	450		75	1494	27	304	40	42	117	109	96
Grp Sat Flow(s),veh/h/ln		1728	1702	1525		1781	1702	1577	1728	1777	1661	1781	1870	1563
Q Serve(g_s), s		8.6	39.0	20.3		4.1	22.4	0.9	8.5	1.9	2.1	3.2	5.4	5.7
Cycle Q Clear(g_c), s		8.6	39.0	20.3		4.1	22.4	0.9	8.5	1.9	2.1	3.2	5.4	5.7
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.46	1.00		1.00
Lane Grp Cap(c), veh/h		377	2219	737		96	2258	675	415	414	391	191	273	208
V/C Ratio(X)		0.82	1.03	0.61		0.78	0.66	0.04	0.73	0.10	0.11	0.61	0.40	0.46
Avail Cap(c_a), veh/h		1567	2616	781		538	3087	953	1044	537	502	1077	565	472
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		52.6	44.2	23.7		56.3	25.6	20.7	45.3	35.0	35.0	55.9	45.9	45.4
Incr Delay (d2), s/veh		1.7	24.6	1.5		5.1	0.6	0.0	0.9	0.0	0.0	1.7	0.6	1.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	1.7	0.0	15.7	0.0	0.0	0.0	0.0	30.9
%ile BackOfQ(50%),veh/ln		4.5	32.5	9.4		2.3	11.4	0.4	5.5	0.9	0.9	1.8	2.9	5.9
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		54.2	68.8	25.2		61.4	27.8	20.7	61.9	35.0	35.1	57.6	46.4	77.3
LnGrp LOS		D	F	C		E	C	C	E	C	D	E	D	E
Approach Vol, veh/h			3037			1596			386		322			
Approach Delay, s/veh			60.9			29.3			56.2		59.7			
Approach LOS			E			C			E		E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	9.8	57.3	15.4	16.7	15.6	51.6	10.2	21.9						
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9						
Max Green Setting (Gmax), s	30.0	* 50	30.0	30.0	45.0	60.0	30.0	30.0						
Max Q Clear Time (g_c+10), s	10.0	41.0	10.5	7.7	10.6	24.4	5.2	4.1						
Green Ext Time (p_c), s	0.1	8.6	0.5	0.5	0.5	20.7	0.2	0.2						

Intersection Summary

HCM 6th Ctrl Delay	51.0
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
4: Mission Center Rd & Friars Rd WB

Existing Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↵	↶	↷		↵	↶	↷		↶	↷
Traffic Volume (veh/h)	0	0	0	145	3	225	3	187	728	0	0	990	274
Future Volume (veh/h)	0	0	0	145	3	225	3	187	728	0	0	990	274
Initial Q (Qb), veh				0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00		1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No			No
Adj Sat Flow, veh/h/ln				1870	1870	1870		1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				153	0	43		195	758	0	0	1031	229
Peak Hour Factor				0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2		2	2	0	0	2	2
Cap, veh/h				231	0	103		258	2955	0	0	2545	1098
Arrive On Green				0.13	0.00	0.13		0.15	1.00	0.00	0.00	0.72	0.72
Sat Flow, veh/h				3563	0	1585		3456	3647	0	0	3647	1533
Grp Volume(v), veh/h				153	0	43		195	758	0	0	1031	229
Grp Sat Flow(s),veh/h/ln				1781	0	1585		1728	1777	0	0	1777	1533
Q Serve(g_s), s				4.4	0.0	2.7		5.8	0.0	0.0	0.0	12.5	5.4
Cycle Q Clear(g_c), s				4.4	0.0	2.7		5.8	0.0	0.0	0.0	12.5	5.4
Prop In Lane				1.00		1.00		1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				231	0	103		258	2955	0	0	2545	1098
V/C Ratio(X)				0.66	0.00	0.42		0.76	0.26	0.00	0.00	0.41	0.21
Avail Cap(c_a), veh/h				1013	0	451		579	2955	0	0	2545	1098
HCM Platoon Ratio				2.00	2.00	2.00		2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00		0.80	0.80	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				45.9	0.0	45.1		45.0	0.0	0.0	0.0	6.1	5.1
Incr Delay (d2), s/veh				3.2	0.0	2.7		1.4	0.2	0.0	0.0	0.5	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.9	0.0	1.1		2.4	0.1	0.0	0.0	3.9	1.5
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh				49.1	0.0	47.8		46.4	0.2	0.0	0.0	6.6	5.5
LnGrp LOS				D	A	D		D	A	A	A	A	A
Approach Vol, veh/h					196				953			1260	
Approach Delay, s/veh					48.8				9.6			6.4	
Approach LOS					D				A			A	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		96.1			12.5	83.6		11.9					
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9					
Max Green Setting (Gmax), s		* 67			18.1	43.6		30.7					
Max Q Clear Time (g_c+I1), s		2.0			7.8	14.5		6.4					
Green Ext Time (p_c), s		4.8			0.2	15.6		0.6					

Intersection Summary

HCM 6th Ctrl Delay	11.1
HCM 6th LOS	B

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Mission Center Rd & Friars Rd EB

Existing Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	312	5	250	0	0	0	0	596	349	448	679	0
Future Volume (veh/h)	312	5	250	0	0	0	0	596	349	448	679	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	332	0	58				0	627	308	472	715	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	428	0	191				0	782	384	1341	2774	0
Arrive On Green	0.12	0.00	0.12				0.00	0.34	0.34	0.78	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2369	1118	3456	3647	0
Grp Volume(v), veh/h	332	0	58				0	489	446	472	715	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1617	1728	1777	0
Q Serve(g_s), s	9.8	0.0	3.6				0.0	27.0	27.0	4.5	0.0	0.0
Cycle Q Clear(g_c), s	9.8	0.0	3.6				0.0	27.0	27.0	4.5	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.69	1.00		0.00
Lane Grp Cap(c), veh/h	428	0	191				0	610	555	1341	2774	0
V/C Ratio(X)	0.77	0.00	0.30				0.00	0.80	0.80	0.35	0.26	0.00
Avail Cap(c_a), veh/h	976	0	434				0	610	555	1341	2774	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.85	0.85	0.00
Uniform Delay (d), s/veh	46.1	0.0	43.4				0.0	32.1	32.1	7.9	0.0	0.0
Incr Delay (d2), s/veh	3.0	0.0	0.9				0.0	10.7	11.6	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	1.4				0.0	12.8	11.8	1.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.1	0.0	44.3				0.0	42.8	43.7	8.0	0.0	0.0
LnGrp LOS	D	A	D				A	D	D	A	A	A
Approach Vol, veh/h		390						935			1187	
Approach Delay, s/veh		48.4						43.2			3.2	
Approach LOS		D						D			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	47.7	42.4	17.9	90.1								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	26.7	* 37	29.6	67.7								
Max Q Clear Time (g_c+I), s	10.5	29.0	11.8	2.0								
Green Ext Time (p_c), s	0.8	4.5	1.2	6.7								

Intersection Summary

HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
6: Qualcomm Way & Friars Rd WB

Existing Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↔		↖	↗			↗	↖
Traffic Volume (veh/h)	0	0	0	370	8	38	427	68	0	0	133	8
Future Volume (veh/h)	0	0	0	370	8	38	427	68	0	0	133	8
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				415	0	0	445	71	0	0	139	2
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				512	269	0	611	1368	0	0	1172	17
Arrive On Green				0.24	0.00	0.00	0.57	1.00	0.00	0.00	0.33	0.33
Sat Flow, veh/h				3563	1870	0	1781	1870	0	0	3678	51
Grp Volume(v), veh/h				415	0	0	445	71	0	0	69	72
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1870	0	0	1777	1859
Q Serve(g_s), s				8.8	0.0	0.0	14.7	0.0	0.0	0.0	2.2	2.2
Cycle Q Clear(g_c), s				8.8	0.0	0.0	14.7	0.0	0.0	0.0	2.2	2.2
Prop In Lane				1.00		0.00	1.00		0.00	0.00		0.03
Lane Grp Cap(c), veh/h				512	269	0	611	1368	0	0	581	608
V/C Ratio(X)				0.81	0.00	0.00	0.73	0.05	0.00	0.00	0.12	0.12
Avail Cap(c_a), veh/h				1251	657	0	611	1368	0	0	581	608
HCM Platoon Ratio				1.67	1.67	1.67	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.98	0.98	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				29.4	0.0	0.0	14.4	0.0	0.0	0.0	18.8	18.8
Incr Delay (d2), s/veh				1.2	0.0	0.0	4.4	0.1	0.0	0.0	0.1	0.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.3	0.0	0.0	4.7	0.0	0.0	0.0	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				30.6	0.0	0.0	18.8	0.1	0.0	0.0	18.9	18.9
LnGrp LOS				C	A	A	B	A	A	A	B	B
Approach Vol, veh/h					415			516			141	
Approach Delay, s/veh					30.6			16.2			18.9	
Approach LOS					C			B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		63.6			32.5	31.1		16.4				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+I1), s		2.0			16.7	4.2		10.8				
Green Ext Time (p_c), s		0.4			0.8	0.5		0.7				

Intersection Summary

HCM 6th Ctrl Delay	22.1
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
7: Qualcomm Way & Friars Rd EB

Existing Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↕	↗	↘	↕	
Traffic Volume (veh/h)	56	5	332	0	0	0	0	435	257	52	454	0
Future Volume (veh/h)	56	5	332	0	0	0	0	435	257	52	454	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	62	6	145				0	483	150	58	504	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	193	19	187				0	2347	1046	74	2690	0
Arrive On Green	0.12	0.12	0.12				0.00	0.66	0.66	0.08	1.00	0.00
Sat Flow, veh/h	1631	158	1585				0	3647	1584	1781	3647	0
Grp Volume(v), veh/h	68	0	145				0	483	150	58	504	0
Grp Sat Flow(s),veh/h/ln	1789	0	1585				0	1777	1584	1781	1777	0
Q Serve(g_s), s	2.8	0.0	7.1				0.0	4.3	2.8	2.6	0.0	0.0
Cycle Q Clear(g_c), s	2.8	0.0	7.1				0.0	4.3	2.8	2.6	0.0	0.0
Prop In Lane	0.91		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	211	0	187				0	2347	1046	74	2690	0
V/C Ratio(X)	0.32	0.00	0.77				0.00	0.21	0.14	0.79	0.19	0.00
Avail Cap(c_a), veh/h	762	0	676				0	2347	1046	225	2690	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.93	0.93	0.85	0.85	0.00
Uniform Delay (d), s/veh	32.3	0.0	34.2				0.0	5.3	5.1	36.3	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	2.6				0.0	0.2	0.3	5.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	2.7				0.0	1.3	0.8	1.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.7	0.0	36.8				0.0	5.5	5.4	42.1	0.1	0.0
LnGrp LOS	C	A	D				A	A	A	D	A	A
Approach Vol, veh/h		213						633			562	
Approach Delay, s/veh		35.5						5.5			4.5	
Approach LOS		D						A			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	7.7	57.9	14.3	65.7								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.1	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	14.6	6.3	9.1	2.0								
Green Ext Time (p_c), s	0.0	3.7	0.4	2.3								

Intersection Summary

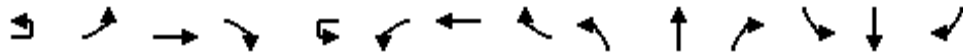
HCM 6th Ctrl Delay	9.6
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

Existing Conditions
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↖ ↗ ↘ ↙	↖ ↗ ↘ ↙	↖ ↗ ↘ ↙		↖ ↗ ↘ ↙	↖ ↗ ↘ ↙		↖ ↗ ↘ ↙	↖ ↗ ↘ ↙	↖ ↗ ↘ ↙		↖ ↗ ↘ ↙	↖ ↗ ↘ ↙	
Traffic Volume (veh/h)	10	9	1956	125	1	55	1121	11	59	8	110	178	12	73	
Future Volume (veh/h)	10	9	1956	125	1	55	1121	11	59	8	110	178	12	73	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	1.00		0.97	0.97		0.97	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		9	2016	106		57	1156	11	61	8	24	184	12	64	
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2	
Cap, veh/h		346	2273	703		346	2321	22	345	42	378	251	13	71	
Arrive On Green		0.19	0.45	0.45		0.19	0.45	0.45	0.25	0.25	0.25	0.25	0.25	0.25	
Sat Flow, veh/h		1781	5106	1580		1781	5215	50	1200	172	1537	834	54	290	
Grp Volume(v), veh/h		9	2016	106		57	755	412	69	0	24	260	0	0	
Grp Sat Flow(s),veh/h/ln		1781	1702	1580		1781	1702	1860	1372	0	1537	1179	0	0	
Q Serve(g_s), s		0.6	48.9	5.4		3.6	21.3	21.3	0.0	0.0	1.6	24.4	0.0	0.0	
Cycle Q Clear(g_c), s		0.6	48.9	5.4		3.6	21.3	21.3	5.3	0.0	1.6	29.7	0.0	0.0	
Prop In Lane		1.00		1.00		1.00		0.03	0.88		1.00	0.71		0.25	
Lane Grp Cap(c), veh/h		346	2273	703		346	1515	828	388	0	378	335	0	0	
V/C Ratio(X)		0.03	0.89	0.15		0.16	0.50	0.50	0.18	0.00	0.06	0.78	0.00	0.00	
Avail Cap(c_a), veh/h		346	2273	703		346	1515	828	513	0	519	464	0	0	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		0.94	0.94	0.94	1.00	0.00	1.00	1.00	0.00	0.00	
Uniform Delay (d), s/veh		44.1	34.3	22.3		45.3	26.7	26.7	40.4	0.0	39.0	52.2	0.0	0.0	
Incr Delay (d2), s/veh		0.0	5.6	0.5		0.1	1.1	2.0	0.2	0.0	0.1	6.1	0.0	0.0	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		0.2	20.3	2.0		1.6	8.6	9.6	1.9	0.0	0.6	9.1	0.0	0.0	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		44.1	39.9	22.7		45.4	27.8	28.7	40.5	0.0	39.1	58.3	0.0	0.0	
LnGrp LOS		D	D	C		D	C	C	D	A	D	E	A	A	
Approach Vol, veh/h		2131				1224				93			260		
Approach Delay, s/veh		39.1				28.9				40.1			58.3		
Approach LOS		D				C				D			E		
Timer - Assigned Phs	1	2	4		5	6	8								
Phs Duration (G+Y+Rc), s	30.6	66.3	38.1		30.6	66.3	38.1								
Change Period (Y+Rc), s	4.4	6.2	4.9		4.4	6.2	4.9								
Max Green Setting (Gmax), s	13.8	60.1	45.6		13.8	60.1	45.6								
Max Q Clear Time (g_c+1), s	15.6	50.9	31.7		2.6	23.3	7.3								
Green Ext Time (p_c), s	0.0	9.1	1.5		0.0	25.0	0.4								

Intersection Summary

HCM 6th Ctrl Delay	37.1
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 9: Fenton Pkwy & Friars Rd

Existing Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗		↔↔	↑↑↑	↗	↔↔	↑	↗	↔↔	↘	↗
Traffic Volume (veh/h)	110	1842	281	6	201	864	62	259	38	340	32	11	51
Future Volume (veh/h)	110	1842	281	6	201	864	62	259	38	340	32	11	51
Initial Q (Qb), veh	15	25	15		0	0	0	0	0	15	15	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.99	1.00		0.99	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	113	1899	208		207	891	39	267	39	119	33	11	6
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	211	2936	1173		254	3121	1008	505	288	236	125	69	153
Arrive On Green	0.05	0.64	0.64		0.15	1.00	1.00	0.10	0.12	0.12	0.02	0.04	0.04
Sat Flow, veh/h	3456	5106	1585		3456	5106	1565	3456	1870	1577	3563	1870	1557
Grp Volume(v), veh/h	113	1899	208		207	891	39	267	39	119	33	11	6
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1565	1728	1870	1577	1781	1870	1557
Q Serve(g_s), s	4.4	29.1	2.2		7.9	0.0	0.0	10.3	2.6	9.8	1.2	0.8	0.4
Cycle Q Clear(g_c), s	4.4	29.1	2.2		7.9	0.0	0.0	10.3	2.6	9.8	1.2	0.8	0.4
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	211	2936	1173		254	3121	1008	505	288	236	125	69	153
V/C Ratio(X)	0.53	0.65	0.18		0.81	0.29	0.04	0.53	0.14	0.50	0.26	0.16	0.04
Avail Cap(c_a), veh/h	384	3263	1171		333	3398	1075	409	545	459	280	470	466
HCM Platoon Ratio	1.00	1.00	1.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.72	0.72	0.72		0.94	0.94	0.94	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.1	21.7	1.5		57.1	1.9	1.3	54.4	50.0	55.5	65.0	63.4	33.2
Incr Delay (d2), s/veh	0.6	0.8	0.2		8.1	0.2	0.1	0.1	0.1	0.7	0.4	4.8	0.5
Initial Q Delay(d3),s/veh	77.9	1.5	1.4		0.0	0.0	0.0	0.0	0.0	58.5	142.1	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	14.9	1.9		3.5	0.5	0.1	4.3	1.2	9.9	4.1	0.5	0.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	141.6	24.0	3.2		65.2	2.1	1.4	54.5	50.1	114.7	207.5	68.2	33.6
LnGrp LOS	F	C	A		E	A	A	D	D	F	F	E	C
Approach Vol, veh/h		2220				1137			425			50	
Approach Delay, s/veh		28.0				13.6			71.0			156.0	
Approach LOS		C				B			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	14.4	93.2	18.4	10.0	10.8	96.8	7.3	21.1					
Change Period (Y+Rc), s	4.4	6.3	4.9	*4.9	4.4	*6.3	4.4	4.9					
Max Green Setting (Gmax), s	13.1	52.6	16.1	*34	15.1	*51	10.7	39.6					
Max Q Clear Time (g_c+1/9), s	19.9	31.1	12.3	2.8	6.4	2.0	3.2	11.8					
Green Ext Time (p_c), s	0.1	20.2	0.2	0.1	0.1	22.1	0.0	2.2					

Intersection Summary

HCM 6th Ctrl Delay	30.2
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
10: Northside Dr & Friars Rd

Existing Conditions
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↔↔↔	↔	↔↔	↔↔↔	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	4	126	1894	206	433	876	167	167	28	654	78	19	79
Future Volume (veh/h)	4	126	1894	206	433	876	167	167	28	654	78	19	79
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		135	2037	222	466	942	120	180	30	587	84	20	4
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		183	2450	749	409	2785	914	233	407	529	130	351	298
Arrive On Green		0.11	0.96	0.96	0.12	0.55	0.55	0.07	0.22	0.22	0.04	0.19	0.19
Sat Flow, veh/h		3456	5106	1561	3456	5106	1565	3456	1870	1568	3456	1870	1585
Grp Volume(v), veh/h		135	2037	222	466	942	120	180	30	587	84	20	4
Grp Sat Flow(s),veh/h/ln		1728	1702	1561	1728	1702	1565	1728	1870	1568	1728	1870	1585
Q Serve(g_s), s		5.2	10.8	1.1	16.1	14.0	4.7	7.0	1.7	29.6	3.3	1.2	0.3
Cycle Q Clear(g_c), s		5.2	10.8	1.1	16.1	14.0	4.7	7.0	1.7	29.6	3.3	1.2	0.3
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		183	2450	749	409	2785	914	233	407	529	130	351	298
V/C Ratio(X)		0.74	0.83	0.30	1.14	0.34	0.13	0.77	0.07	1.11	0.64	0.06	0.01
Avail Cap(c_a), veh/h		307	2450	749	409	2785	914	483	407	529	483	407	345
HCM Platoon Ratio		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.71	0.71	0.71	0.96	0.96	0.96	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		59.9	1.6	1.4	60.0	17.2	12.8	62.4	42.3	45.2	64.5	45.3	45.0
Incr Delay (d2), s/veh		1.6	2.5	0.7	87.4	0.3	0.3	2.0	0.2	72.8	2.0	0.3	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.2	1.4	0.4	11.9	5.3	1.8	3.2	0.8	28.5	1.5	0.6	0.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		61.5	4.1	2.2	147.3	17.5	13.1	64.4	42.5	118.1	66.5	45.6	45.0
LnGrp LOS		E	A	A	F	B	B	E	D	F	E	D	D
Approach Vol, veh/h			2394			1528			797			108	
Approach Delay, s/veh			7.2			56.8			103.1			61.9	
Approach LOS			A			E			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	20.5	71.5	13.6	30.4	11.6	80.4	9.5	34.5					
Change Period (Y+Rc), s	4.4	* 6.2	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	10.5	* 52	19.0	29.6	12.1	55.4	19.0	29.6					
Max Q Clear Time (g_c+11g), s	11.9	12.8	9.0	3.2	7.2	16.0	5.3	31.6					
Green Ext Time (p_c), s	0.0	35.0	0.2	0.2	0.1	18.5	0.1	0.0					

Intersection Summary

HCM 6th Ctrl Delay	39.9
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 12: Mission Village Dr & Friars Rd WB

Existing Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations						↕	↕	↕	↕		↕	↕
Traffic Volume (veh/h)	0	0	0	40	0	313	78	351	0	0	1088	450
Future Volume (veh/h)	0	0	0	40	0	313	78	351	0	0	1088	450
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				42	0	0	81	366	0	0	1133	377
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				73	0		104	1714	0	0	1318	572
Arrive On Green				0.04	0.00	0.00	0.06	0.48	0.00	0.00	0.37	0.37
Sat Flow, veh/h				1781	0	1585	1781	3647	0	0	3647	1542
Grp Volume(v), veh/h				42	0	0	81	366	0	0	1133	377
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	1777	0	0	1777	1542
Q Serve(g_s), s				2.3	0.0	0.0	4.5	5.9	0.0	0.0	29.4	20.4
Cycle Q Clear(g_c), s				2.3	0.0	0.0	4.5	5.9	0.0	0.0	29.4	20.4
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				73	0		104	1714	0	0	1318	572
V/C Ratio(X)				0.57	0.00		0.78	0.21	0.00	0.00	0.86	0.66
Avail Cap(c_a), veh/h				588	0		226	1958	0	0	1318	572
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.94	0.94	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				47.1	0.0	0.0	46.4	14.9	0.0	0.0	29.0	26.2
Incr Delay (d2), s/veh				2.6	0.0	0.0	4.4	0.1	0.0	0.0	7.5	5.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.0	0.0	0.0	2.0	2.2	0.0	0.0	12.9	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				49.7	0.0	0.0	50.9	15.0	0.0	0.0	36.5	32.0
LnGrp LOS				D	A		D	B	A	A	D	C
Approach Vol, veh/h				42	A		447				1510	
Approach Delay, s/veh				49.7			21.5				35.4	
Approach LOS				D			C				D	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		55.2			11.1	44.1		9.0				
Change Period (Y+Rc), s		7.0			5.3	7.0		4.9				
Max Green Setting (Gmax), s		55.1			12.7	37.1		33.0				
Max Q Clear Time (g_c+I1), s		7.9			6.5	31.4		4.3				
Green Ext Time (p_c), s		3.1			0.0	4.3		0.1				

Intersection Summary

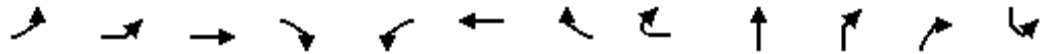
HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis
 13: Mission Village Dr & Friars Rd EB & San Diego Mission Rd

Existing Conditions
 PM Peak Hour



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	255	1	253	7	2	0	151	32	28	15	16	444
Future Volume (vph)	255	1	253	7	2	0	151	32	28	15	16	444
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.2	5.2			5.4	5.4		4.9			
Lane Util. Factor		1.00	1.00			0.95	0.95		0.95			
Frbp, ped/bikes		1.00	1.00			1.00	1.00		0.99			
Flpb, ped/bikes		1.00	1.00			1.00	1.00		1.00			
Frt		1.00	1.00			0.85	0.85		0.92			
Flt Protected		0.95	1.00			1.00	1.00		1.00			
Satd. Flow (prot)		1770	1855			1508	1504		3220			
Flt Permitted		0.95	1.00			1.00	1.00		1.00			
Satd. Flow (perm)		1770	1855			1508	1504		3220			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	268	1	266	7	2	0	159	34	29	16	17	467
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	16	0	0	0
Lane Group Flow (vph)	0	269	273	0	0	97	98	0	46	0	0	0
Confl. Peds. (#/hr)				1	1					4	3	
Confl. Bikes (#/hr)				1								
Turn Type	Split	Split	NA		Split	NA	Perm		NA			Split
Protected Phases	4	4	4		3	3			2			1
Permitted Phases							3					
Actuated Green, G (s)		14.1	14.1			13.4	13.4		8.7			
Effective Green, g (s)		14.1	14.1			13.4	13.4		8.7			
Actuated g/C Ratio		0.14	0.14			0.13	0.13		0.09			
Clearance Time (s)		5.2	5.2			5.4	5.4		4.9			
Vehicle Extension (s)		3.0	3.0			3.0	3.0		3.0			
Lane Grp Cap (vph)		249	261			202	201		280			
v/s Ratio Prot		c0.15	0.15			0.06			c0.01			
v/s Ratio Perm							c0.07					
v/c Ratio		1.08	1.05			0.48	0.49		0.17			
Uniform Delay, d1		43.0	43.0			40.1	40.1		42.3			
Progression Factor		1.00	1.00			1.00	1.00		1.00			
Incremental Delay, d2		80.0	68.3			1.8	1.9		0.3			
Delay (s)		123.0	111.2			41.9	42.0		42.6			
Level of Service		F	F			D	D		D			
Approach Delay (s)			117.1			41.9			42.6			
Approach LOS			F			D			D			
Intersection Summary												
HCM 2000 Control Delay			54.2			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			21.7			
Intersection Capacity Utilization			69.7%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 13: Mission Village Dr & Friars Rd EB & San Diego Mission Rd

Existing Conditions
 PM Peak Hour



Movement	SBL	SBT
Lane Configurations		
Traffic Volume (vph)	656	27
Future Volume (vph)	656	27
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.2	6.2
Lane Util. Factor	0.91	0.91
Frbp, ped/bikes	1.00	1.00
Flpb, ped/bikes	1.00	1.00
Frt	1.00	1.00
Flt Protected	0.95	0.95
Satd. Flow (prot)	1610	3236
Flt Permitted	0.95	0.95
Satd. Flow (perm)	1610	3236
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	691	28
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	578	608
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Turn Type	Split	NA
Protected Phases	1	1
Permitted Phases		
Actuated Green, G (s)	42.1	42.1
Effective Green, g (s)	42.1	42.1
Actuated g/C Ratio	0.42	0.42
Clearance Time (s)	6.2	6.2
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	677	1362
v/s Ratio Prot	c0.36	0.19
v/s Ratio Perm		
v/c Ratio	0.85	0.45
Uniform Delay, d1	26.2	20.6
Progression Factor	0.87	1.00
Incremental Delay, d2	12.0	1.0
Delay (s)	34.9	21.6
Level of Service	C	C
Approach Delay (s)		28.1
Approach LOS		C
Intersection Summary		

HCM 6th Signalized Intersection Summary
17: I-15 SB Ramps & Friars Rd

Existing Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↗		↖	↑↑↑	↗				↖	↗	↖↗
Traffic Volume (veh/h)	314	1604	656	3	246	1099	296	0	0	0	936	0	272
Future Volume (veh/h)	314	1604	656	3	246	1099	296	0	0	0	936	0	272
Initial Q (Qb), veh	20	0	20		20	0	20				0	0	20
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	327	1671	432		256	1145	0				975	0	279
Peak Hour Factor	0.96	0.96	0.96		0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	645	2673	733		346	1246					1053	0	1993
Arrive On Green	0.33	0.43	0.43		0.16	0.24	0.00				0.29	0.00	0.29
Sat Flow, veh/h	1781	5106	1552		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	327	1671	432		256	1145	0				975	0	279
Grp Sat Flow(s),veh/h/ln	1781	1702	1552		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	20.6	37.5	29.7		19.2	29.7	0.0				36.4	0.0	0.0
Cycle Q Clear(g_c), s	20.6	37.5	29.7		19.2	29.7	0.0				36.4	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	645	2673	733		346	1246					1053	0	1993
V/C Ratio(X)	0.51	0.63	0.59		0.74	0.92					0.93	0.00	0.14
Avail Cap(c_a), veh/h	582	2213	673		393	1246					1153	0	2061
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.92	0.92	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	35.9	26.5	28.3		54.4	50.1	0.0				46.5	0.0	10.8
Incr Delay (d2), s/veh	0.6	1.1	3.5		4.7	11.4	0.0				11.4	0.0	0.0
Initial Q Delay(d3),s/veh	14.1	0.0	13.0		92.0	0.0	0.0				0.0	0.0	0.8
%ile BackOfQ(50%),veh/ln	1.9	12.3	13.2		20.4	13.6	0.0				17.8	0.0	6.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	50.5	27.6	44.8		151.0	61.5	0.0				57.9	0.0	11.7
LnGrp LOS	D	C	D		F	E					E	A	B
Approach Vol, veh/h		2430				1401	A					1254	
Approach Delay, s/veh		33.7				77.9						47.6	
Approach LOS		C				E						D	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	25.7	65.9		44.4	51.4	40.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	30	45.7		44.0	42.0	* 33							
Max Q Clear Time (g_c+R1), s	21.2	39.5		38.4	22.6	31.7							
Green Ext Time (p_c), s	0.2	4.2		0.9	0.4	0.8							

Intersection Summary

HCM 6th Ctrl Delay	49.3
HCM 6th LOS	D

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

Existing Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖				↑↑↑	↗						
Traffic Volume (veh/h)	467	2089	0	0	956	775	0	0	1042	0	0	653
Future Volume (veh/h)	467	2089	0	0	956	775	0	0	1042	0	0	653
Initial Q (Qb), veh	40	0	0	0	20	40						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	492	2199	0	0	1006	816						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	655	0	0	0	1600	1392						
Arrive On Green	0.32	0.85	0.00	0.00	0.42	0.42						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	492	0	0	0	1006	816						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	12.3	0.0	0.0	0.0	10.1	9.5						
Cycle Q Clear(g_c), s	12.3	0.0	0.0	0.0	10.1	9.5						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	655	0	0	0	1600	1392						
V/C Ratio(X)	0.75	0.00	0.00	0.00	0.63	0.59						
Avail Cap(c_a), veh/h	1695	0	0	0	5062	4290						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	1.00	1.00						
Uniform Delay (d), s/veh	37.2	0.0	0.0	0.0	12.4	14.1						
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.0	0.2	0.1						
Initial Q Delay(d3),s/veh	107.6	0.0	0.0	0.0	3.0	14.4						
%ile BackOfQ(50%),veh/ln	17.5	0.0	0.0	0.0	5.4	8.7						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	145.5	0.0	0.0	0.0	15.6	28.7						
LnGrp LOS	F	A	A	A	B	C						
Approach Vol, veh/h		492			1822							
Approach Delay, s/veh		145.5			21.4							
Approach LOS		F			C							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		47.3			20.5	26.8						
Change Period (Y+Rc), s		* 7			5.5	7.0						
Max Green Setting (Gmax), s		* 18			45.0	64.0						
Max Q Clear Time (g_c+I1), s		0.0			14.3	12.1						
Green Ext Time (p_c), s		0.0			0.7	7.7						

Intersection Summary

HCM 6th Ctrl Delay	47.8
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

Existing Conditions
 PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↵	↑↑↑	↵↵	↑
Traffic Volume (veh/h)	2732	398	2	87	1374	350	177
Future Volume (veh/h)	2732	398	2	87	1374	350	177
Initial Q (Qb), veh	0	0		0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	2846	321		91	1431	365	35
Peak Hour Factor	0.96	0.96		0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	3554	1302		113	3451	463	201
Arrive On Green	0.70	0.70		0.06	0.80	0.12	0.12
Sat Flow, veh/h	5274	1583		1781	5125	3563	1585
Grp Volume(v), veh/h	2846	321		91	1431	365	35
Grp Sat Flow(s),veh/h/ln	1702	1583		1781	1085	1781	1585
Q Serve(g_s), s	50.9	6.1		6.9	13.5	13.7	2.7
Cycle Q Clear(g_c), s	50.9	6.1		6.9	13.5	13.7	2.7
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3554	1302		113	3451	463	201
V/C Ratio(X)	0.80	0.25		0.81	0.41	0.79	0.17
Avail Cap(c_a), veh/h	3587	1302		208	3464	843	375
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.94	0.94	0.78	0.78
Uniform Delay (d), s/veh	14.3	2.7		62.9	4.6	58.1	53.1
Incr Delay (d2), s/veh	2.0	0.5		4.7	0.3	0.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.1	15.9	0.0
%ile BackOfQ(50%),veh/ln	17.6	3.4		3.2	2.7	7.9	1.1
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	16.3	3.1		67.6	5.0	74.9	53.2
LnGrp LOS	B	A		E	A	E	D
Approach Vol, veh/h	3167			1522	400		
Approach Delay, s/veh	15.0			8.8	73.0		
Approach LOS	B			A	E		
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+Rc), s	13.0	101.5			114.6		21.4
Change Period (Y+Rc), s	4.4	* 6			6.0		5.1
Max Green Setting (Gmax), s	15.9	* 73			92.7		32.2
Max Q Clear Time (g_c+10), s	19.9	52.9			15.5		15.7
Green Ext Time (p_c), s	0.0	19.2			32.9		0.7

Intersection Summary

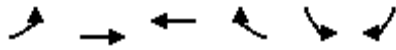
HCM 6th Ctrl Delay		17.7	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 20: Friars Rd & Santo Rd

Existing Conditions
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑↑		↔↔	↔
Traffic Volume (veh/h)	342	2667	1220	91	71	210
Future Volume (veh/h)	342	2667	1220	91	71	210
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1856	1870	1870
Adj Flow Rate, veh/h	356	2778	1271	90	74	199
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	3	3	2	2
Cap, veh/h	421	3992	3822	270	440	395
Arrive On Green	0.12	0.78	0.62	0.62	0.13	0.13
Sat Flow, veh/h	3456	5274	6392	433	3456	1585
Grp Volume(v), veh/h	356	2778	991	370	74	199
Grp Sat Flow(s),veh/h/ln	1728	1702	1596	1778	1728	1585
Q Serve(g_s), s	12.1	31.3	11.8	11.9	2.3	12.9
Cycle Q Clear(g_c), s	12.1	31.3	11.8	11.9	2.3	12.9
Prop In Lane	1.00			0.24	1.00	1.00
Lane Grp Cap(c), veh/h	421	3992	2984	1108	440	395
V/C Ratio(X)	0.85	0.70	0.33	0.33	0.17	0.50
Avail Cap(c_a), veh/h	737	3992	2984	1108	734	530
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.34	0.34	0.88	0.88	1.00	1.00
Uniform Delay (d), s/veh	51.6	6.3	10.7	10.7	46.7	38.7
Incr Delay (d2), s/veh	0.6	0.4	0.3	0.7	0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	7.7	3.8	4.4	1.0	11.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	52.2	6.6	11.0	11.5	46.8	39.0
LnGrp LOS	D	A	B	B	D	D
Approach Vol, veh/h		3134	1361		273	
Approach Delay, s/veh		11.8	11.1		41.1	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		100.3		19.7	19.0	81.3
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		83.6		25.5	25.6	* 54
Max Q Clear Time (g_c+I1), s		33.3		14.9	14.1	13.9
Green Ext Time (p_c), s		42.1		0.4	0.5	13.1

Intersection Summary

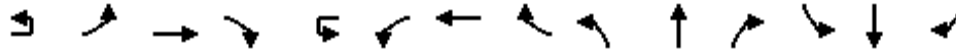
HCM 6th Ctrl Delay	13.3
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 21: Riverdale St & Friars Rd

Existing Conditions
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑	↗	↖	↑	↖	↖	↖	↖
Traffic Volume (veh/h)	19	191	2342	194	4	38	949	46	183	85	114	48	45	115
Future Volume (veh/h)	19	191	2342	194	4	38	949	46	183	85	114	48	45	115
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1856		1737	1856	1870	1870	1870	1870	1811	1870	1870
Adj Flow Rate, veh/h		197	2414	123		39	978	22	189	88	60	49	46	22
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	3		11	3	2	2	2	2	6	2	2
Cap, veh/h		228	3113	956		48	2586	809	314	224	152	240	258	123
Arrive On Green		0.13	0.61	0.61		0.03	0.51	0.51	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h		1781	5106	1569		1654	5066	1585	1324	1033	704	1194	1192	570
Grp Volume(v), veh/h		197	2414	123		39	978	22	189	0	148	49	0	68
Grp Sat Flow(s),veh/h/ln		1781	1702	1569		1654	1689	1585	1324	0	1737	1194	0	1762
Q Serve(g_s), s		11.4	36.7	3.5		2.5	12.3	0.7	14.3	0.0	7.7	3.8	0.0	3.3
Cycle Q Clear(g_c), s		11.4	36.7	3.5		2.5	12.3	0.7	17.6	0.0	7.7	11.5	0.0	3.3
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.41	1.00		0.32
Lane Grp Cap(c), veh/h		228	3113	956		48	2586	809	314	0	376	240	0	382
V/C Ratio(X)		0.86	0.78	0.13		0.81	0.38	0.03	0.60	0.00	0.39	0.20	0.00	0.18
Avail Cap(c_a), veh/h		324	3113	956		206	2586	809	497	0	617	405	0	626
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.75	0.75	0.75		0.94	0.94	0.94	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		44.9	15.2	8.7		50.7	15.6	12.8	40.7	0.0	35.2	40.2	0.0	33.5
Incr Delay (d2), s/veh		9.0	1.5	0.2		11.0	0.4	0.1	0.7	0.0	0.2	0.2	0.0	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		5.4	12.4	1.1		1.1	4.4	0.3	4.7	0.0	3.3	1.1	0.0	1.4
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		53.9	16.6	8.9		61.7	16.0	12.8	41.4	0.0	35.5	40.3	0.0	33.6
LnGrp LOS		D	B	A		E	B	B	D	A	D	D	A	C
Approach Vol, veh/h			2734				1039			337			117	
Approach Delay, s/veh			19.0				17.6			38.8			36.4	
Approach LOS			B				B			D			D	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	7.4	69.9		27.6	17.9	59.5		27.6						
Change Period (Y+Rc), s	4.4	* 5.9		4.9	4.4	5.9		4.9						
Max Green Setting (Gmax), s	13.5	* 40		37.3	19.1	33.4		37.3						
Max Q Clear Time (g_c+14), s	14.5	38.7		13.5	13.4	14.3		19.6						
Green Ext Time (p_c), s	0.0	0.8		0.3	0.1	6.2		0.8						

Intersection Summary

HCM 6th Ctrl Delay	20.7
HCM 6th LOS	C

Notes

- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 22: Mission Gorge Rd & Friars Rd

Existing Conditions
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↖ ↗	↑↑↑		↘ ↙	↖ ↗
Traffic Volume (veh/h)	2091	222	225	788	8	289	493
Future Volume (veh/h)	2091	222	225	788	8	289	493
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	2224	0	239	838		307	521
Peak Hour Factor	0.94	0.94	0.94	0.94		0.94	0.94
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2621		590	0		346	1018
Arrive On Green	0.51	0.00	0.17	0.00		0.19	0.19
Sat Flow, veh/h	5443	0	3456	239		1781	2790
Grp Volume(v), veh/h	2224	0	239	44.5		307	521
Grp Sat Flow(s),veh/h/ln	1702	0	1728	D		1781	1395
Q Serve(g_s), s	45.1	0.0	7.4			20.1	0.0
Cycle Q Clear(g_c), s	45.1	0.0	7.4			20.1	0.0
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2621		590			346	1018
V/C Ratio(X)	0.85		0.40			0.89	0.51
Avail Cap(c_a), veh/h	2621		590			425	1141
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.56	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	25.2	0.0	44.3			47.1	29.7
Incr Delay (d2), s/veh	2.1	0.0	0.2			15.4	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	0.0	3.1			10.4	5.9
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	27.3	0.0	44.5			62.5	29.9
LnGrp LOS	C		D			E	C
Approach Vol, veh/h	2224	A				828	
Approach Delay, s/veh	27.3					42.0	
Approach LOS	C					D	
Timer - Assigned Phs	1	2				8	
Phs Duration (G+Y+Rc), s	24.9	67.4				27.7	
Change Period (Y+Rc), s	4.4	5.8				4.4	
Max Green Setting (Gmax), s	15.2	61.6				28.6	
Max Q Clear Time (g_c+1), s	19.4	47.1				22.1	
Green Ext Time (p_c), s	0.2	12.2				1.2	

Intersection Summary

HCM 6th Ctrl Delay	32.2
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 23: Qualcomm Way & Rio San Diego Dr

Existing Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗		↖↗	↑↑	↗	↖↗	↑↑↑	↗		↖↗	↑↑↑	
Traffic Volume (veh/h)	200	134	217	10	548	238	238	47	253	114	3	40	546	193
Future Volume (veh/h)	200	134	217	10	548	238	238	47	253	114	3	40	546	193
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		0.99	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	211	141	187		577	251	83	49	266	18		42	575	170
Peak Hour Factor	0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2		2	2	2
Cap, veh/h	318	316	319		707	1001	443	123	1577	488		112	1197	345
Arrive On Green	0.09	0.17	0.17		0.20	0.28	0.28	0.04	0.31	0.31		0.03	0.31	0.31
Sat Flow, veh/h	3456	1870	1554		3456	3554	1575	3456	5106	1579		3456	3919	1129
Grp Volume(v), veh/h	211	141	187		577	251	83	49	266	18		42	498	247
Grp Sat Flow(s),veh/h/ln	1728	1870	1554		1728	1777	1575	1728	1702	1579		1728	1702	1644
Q Serve(g_s), s	4.0	4.6	7.3		10.7	3.7	2.7	0.9	2.6	0.5		0.8	8.0	8.3
Cycle Q Clear(g_c), s	4.0	4.6	7.3		10.7	3.7	2.7	0.9	2.6	0.5		0.8	8.0	8.3
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.69
Lane Grp Cap(c), veh/h	318	316	319		707	1001	443	123	1577	488		112	1040	502
V/C Ratio(X)	0.66	0.45	0.59		0.82	0.25	0.19	0.40	0.17	0.04		0.38	0.48	0.49
Avail Cap(c_a), veh/h	1540	1111	980		1540	2111	936	3080	4550	1407		1540	3034	1465
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	29.6	25.1	24.2		25.6	18.7	18.3	31.8	17.0	16.3		31.9	19.0	19.1
Incr Delay (d2), s/veh	0.9	1.0	1.7		0.9	0.1	0.2	0.8	0.1	0.0		0.8	0.6	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	1.9	2.6		4.1	1.4	0.9	0.4	0.9	0.2		0.3	3.0	3.1
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	30.4	26.1	25.9		26.5	18.8	18.5	32.5	17.0	16.3		32.7	19.6	20.4
LnGrp LOS	C	C	C		C	B	B	C	B	B		C	B	C
Approach Vol, veh/h		539			911			333				787		
Approach Delay, s/veh		27.7			23.6			19.3				20.6		
Approach LOS		C			C			B				C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	6.6	25.9	18.2	16.7	6.8	25.7	10.6	24.3						
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3						
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0						
Max Q Clear Time (g_c+1), s	12.8	4.6	12.7	9.3	2.9	10.3	6.0	5.7						
Green Ext Time (p_c), s	0.1	2.8	1.0	1.4	0.1	9.9	0.3	1.8						

Intersection Summary

HCM 6th Ctrl Delay	23.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection															
Intersection Delay, s/veh	12.1														
Intersection LOS	B														

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↗	↕		↗	↕			↕				↕	
Traffic Vol, veh/h	10	118	395	8	4	314	39	11	2	10	9	79	7	65
Future Vol, veh/h	10	118	395	8	4	314	39	11	2	10	9	79	7	65
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	131	439	9	4	349	43	12	2	11	10	88	8	72
Number of Lanes	0	1	2	0	1	2	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	12.2	11.8	10.3	12.9
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	48%	100%	0%	0%	100%	0%	0%	52%
Vol Thru, %	9%	0%	100%	94%	0%	100%	73%	5%
Vol Right, %	43%	0%	0%	6%	0%	0%	27%	43%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	23	128	263	140	4	209	144	160
LT Vol	11	128	0	0	4	0	0	84
Through Vol	2	0	263	132	0	209	105	7
RT Vol	10	0	0	8	0	0	39	69
Lane Flow Rate	26	142	293	155	4	233	160	178
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.051	0.249	0.471	0.248	0.008	0.389	0.259	0.334
Departure Headway (Hd)	7.149	6.297	5.79	5.749	6.534	6.027	5.834	6.773
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	500	570	623	624	547	595	615	530
Service Time	4.91	4.034	3.527	3.486	4.277	3.77	3.577	4.52
HCM Lane V/C Ratio	0.052	0.249	0.47	0.248	0.007	0.392	0.26	0.336
HCM Control Delay	10.3	11.1	13.6	10.4	9.3	12.6	10.6	12.9
HCM Lane LOS	B	B	B	B	A	B	B	B
HCM 95th-tile Q	0.2	1	2.5	1	0	1.8	1	1.5

HCM 6th Signalized Intersection Summary
 25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy

Existing Conditions
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	1	133	193	85	5	218	184	90	131	0	21	304	106	61
Future Volume (veh/h)	1	133	193	85	5	218	184	90	131	0	21	304	106	61
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99	1.00		0.98	1.00		1.00		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No		No			No				No		
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h		137	199	31	5	225	104	93	135	0		313	109	10
Peak Hour Factor		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97		0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h		321	337	281	9	429	205	121	483	0		460	662	60
Arrive On Green		0.18	0.18	0.18	0.18	0.18	0.18	0.07	0.14	0.00		0.13	0.20	0.20
Sat Flow, veh/h		1781	1870	1561	52	2343	1118	1781	3647	0		3456	3293	298
Grp Volume(v), veh/h		137	199	31	181	0	153	93	135	0		313	58	61
Grp Sat Flow(s),veh/h/ln		1781	1870	1561	1868	0	1645	1781	1777	0		1728	1777	1814
Q Serve(g_s), s		3.7	5.3	0.9	4.7	0.0	4.5	2.8	1.8	0.0		4.7	1.5	1.5
Cycle Q Clear(g_c), s		3.7	5.3	0.9	4.7	0.0	4.5	2.8	1.8	0.0		4.7	1.5	1.5
Prop In Lane		1.00		1.00	0.03		0.68	1.00		0.00		1.00		0.16
Lane Grp Cap(c), veh/h		321	337	281	342	0	301	121	483	0		460	357	365
V/C Ratio(X)		0.43	0.59	0.11	0.53	0.00	0.51	0.77	0.28	0.00		0.68	0.16	0.17
Avail Cap(c_a), veh/h		1316	1382	1154	1380	0	1216	987	3939	0		1915	1970	2011
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		19.7	20.4	18.6	20.0	0.0	19.9	24.8	21.0	0.0		22.4	17.9	17.9
Incr Delay (d2), s/veh		0.6	1.0	0.1	0.5	0.0	0.5	3.8	1.4	0.0		0.7	1.0	1.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.4	2.1	0.3	2.0	0.0	1.7	1.2	0.8	0.0		1.8	0.7	0.7
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		20.3	21.4	18.7	20.5	0.0	20.4	28.6	22.4	0.0		23.0	18.8	18.9
LnGrp LOS		C	C	B	C	A	C	C	C	A		C	B	B
Approach Vol, veh/h			367			334			228				432	
Approach Delay, s/veh			20.7			20.4			24.9				21.9	
Approach LOS			C			C			C				C	
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	1.6	12.8	14.9	8.1	16.3	14.8								
Change Period (Y+Rc), s	4.4	* 5.4	5.2	4.4	5.4	4.9								
Max Green Setting (Gmax), s	30.0	* 60	40.0	30.0	60.0	40.0								
Max Q Clear Time (g_c+1), s	10.75	3.8	7.3	4.8	3.5	6.7								
Green Ext Time (p_c), s	0.6	3.1	1.0	0.1	2.5	1.5								

Intersection Summary

HCM 6th Ctrl Delay	21.7
HCM 6th LOS	C

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 26: Rancho Mission Rd & San Diego Mission Rd

Existing Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗	↗	↖	↗	↗
Traffic Volume (veh/h)	143	463	318	92	105	110	76	232	131	101	174	49
Future Volume (veh/h)	143	463	318	92	105	110	76	232	131	101	174	49
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	151	487	270	97	111	30	80	244	24	106	183	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	194	797	439	127	908	237	104	347	287	138	384	318
Arrive On Green	0.11	0.36	0.36	0.07	0.33	0.33	0.06	0.19	0.19	0.08	0.21	0.21
Sat Flow, veh/h	1781	2188	1207	1781	2785	727	1781	1870	1547	1781	1870	1548
Grp Volume(v), veh/h	151	395	362	97	69	72	80	244	24	106	183	10
Grp Sat Flow(s),veh/h/ln	1781	1777	1618	1781	1777	1735	1781	1870	1547	1781	1870	1548
Q Serve(g_s), s	5.1	11.2	11.3	3.3	1.7	1.8	2.7	7.5	0.8	3.6	5.3	0.3
Cycle Q Clear(g_c), s	5.1	11.2	11.3	3.3	1.7	1.8	2.7	7.5	0.8	3.6	5.3	0.3
Prop In Lane	1.00		0.75	1.00		0.42	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	194	647	589	127	579	566	104	347	287	138	384	318
V/C Ratio(X)	0.78	0.61	0.61	0.77	0.12	0.13	0.77	0.70	0.08	0.77	0.48	0.03
Avail Cap(c_a), veh/h	1010	1439	1311	1010	1583	1546	866	1515	1253	866	1515	1254
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.8	16.0	16.1	28.2	14.6	14.6	28.7	23.5	20.8	27.9	21.6	19.6
Incr Delay (d2), s/veh	2.5	1.4	1.6	3.6	0.2	0.2	4.5	1.0	0.0	3.3	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	4.1	3.8	1.4	0.6	0.6	1.2	3.1	0.3	1.6	2.2	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.3	17.5	17.7	31.8	14.7	14.8	33.1	24.5	20.8	31.2	22.0	19.6
LnGrp LOS	C	B	B	C	B	B	C	C	C	C	C	B
Approach Vol, veh/h		908			238			348			299	
Approach Delay, s/veh		19.5			21.7			26.2			25.2	
Approach LOS		B			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.4	28.0	7.6	17.8	10.7	25.6	8.8	16.6				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	*5.5	4.0	*5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	*55	30.0	*50				
Max Q Clear Time (g_c+I), s	15.3	13.3	4.7	7.3	7.1	3.8	5.6	9.5				
Green Ext Time (p_c), s	0.1	8.3	0.1	0.7	0.2	1.3	0.1	0.9				

Intersection Summary

HCM 6th Ctrl Delay	22.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave

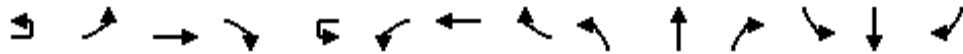
Existing Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↕	↗		↕	↗	
Traffic Volume (veh/h)	93	346	138	43	121	15	75	74	66	22	122	85
Future Volume (veh/h)	93	346	138	43	121	15	75	74	66	22	122	85
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	384	82	48	134	13	83	82	47	24	136	75
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	207	541	769	227	675	71	220	137	78	313	199	110
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	0.12	0.12	0.12	0.18	0.18	0.18
Sat Flow, veh/h	271	1461	1547	237	1823	193	1781	1103	632	1781	1131	624
Grp Volume(v), veh/h	487	0	82	83	0	112	83	0	129	24	0	211
Grp Sat Flow(s),veh/h/ln	1732	0	1547	586	0	1667	1781	0	1736	1781	0	1754
Q Serve(g_s), s	6.2	0.0	1.2	0.6	0.0	1.9	1.8	0.0	2.9	0.5	0.0	4.6
Cycle Q Clear(g_c), s	9.9	0.0	1.2	10.5	0.0	1.9	1.8	0.0	2.9	0.5	0.0	4.6
Prop In Lane	0.21		1.00	0.58		0.12	1.00		0.36	1.00		0.36
Lane Grp Cap(c), veh/h	748	0	769	356	0	618	220	0	215	313	0	308
V/C Ratio(X)	0.65	0.00	0.11	0.23	0.00	0.18	0.38	0.00	0.60	0.08	0.00	0.68
Avail Cap(c_a), veh/h	2600	0	2465	1644	0	2445	1742	0	1697	1742	0	1715
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.1	0.0	5.5	9.4	0.0	8.7	16.5	0.0	17.0	14.1	0.0	15.8
Incr Delay (d2), s/veh	0.9	0.0	0.1	0.3	0.0	0.1	0.4	0.0	1.0	0.0	0.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	0.3	0.4	0.0	0.6	0.6	0.0	1.0	0.2	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.0	0.0	5.6	9.7	0.0	8.8	16.9	0.0	18.0	14.1	0.0	16.8
LnGrp LOS	B	A	A	A	A	A	B	A	B	B	A	B
Approach Vol, veh/h		569			195			212			235	
Approach Delay, s/veh		11.1			9.2			17.5			16.5	
Approach LOS		B			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		19.7		11.7		19.7		9.6				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		11.9		6.6		12.5		4.9				
Green Ext Time (p_c), s		3.2		0.9		1.3		0.6				
Intersection Summary												
HCM 6th Ctrl Delay					13.0							
HCM 6th LOS					B							

HCM 6th Signalized Intersection Summary
 28: Qualcomm Way & Camino de la Reina/Camino del Rio N

Existing Conditions
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↕	↔		↔	↕	↔	↔	↕	↔	↔	↕	↔
Traffic Volume (veh/h)	2	104	360	249	2	376	164	109	145	494	247	229	919	101
Future Volume (veh/h)	2	104	360	249	2	376	164	109	145	494	247	229	919	101
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.96	1.00		0.98	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No			No		
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1841	1870	1856	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		107	371	181		388	169	17	149	509	202	236	947	98
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2		2	4	2	3	2	2	2	2	2
Cap, veh/h		124	459	276		425	616	267	185	2911	889	270	2789	288
Arrive On Green		0.07	0.12	0.12		0.12	0.18	0.18	0.02	0.19	0.19	0.08	0.59	0.59
Sat Flow, veh/h		1781	3741	1549		3456	3497	1518	3428	5106	1559	3456	4694	484
Grp Volume(v), veh/h		107	371	181		388	169	17	149	509	202	236	686	359
Grp Sat Flow(s),veh/h/ln		1781	1870	1549		1728	1749	1518	1714	1702	1559	1728	1702	1774
Q Serve(g_s), s		11.9	19.3	21.8		22.2	8.4	1.9	8.7	16.7	22.0	13.5	20.5	20.6
Cycle Q Clear(g_c), s		11.9	19.3	21.8		22.2	8.4	1.9	8.7	16.7	22.0	13.5	20.5	20.6
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.27
Lane Grp Cap(c), veh/h		124	459	276		425	616	267	185	2911	889	270	2023	1054
V/C Ratio(X)		0.86	0.81	0.66		0.91	0.27	0.06	0.81	0.17	0.23	0.87	0.34	0.34
Avail Cap(c_a), veh/h		190	498	292		524	623	270	314	2911	889	316	2023	1054
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	0.94	0.94	0.94	0.79	0.79	0.79
Uniform Delay (d), s/veh		92.1	85.4	76.8		86.6	71.3	68.7	97.2	41.7	43.8	91.2	20.6	20.6
Incr Delay (d2), s/veh		14.6	8.6	4.4		16.4	0.1	0.0	2.9	0.1	0.6	15.3	0.4	0.7
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		6.1	10.0	9.0		10.8	3.8	0.7	4.1	7.8	9.4	6.7	8.4	8.9
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		106.7	94.1	81.2		103.0	71.4	68.7	100.1	41.8	44.4	106.5	21.0	21.3
LnGrp LOS		F	F	F		F	E	E	F	D	D	F	C	C
Approach Vol, veh/h			659				574			860			1281	
Approach Delay, s/veh			92.6				92.7			52.5			36.8	
Approach LOS			F				F			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	20.0	120.7	29.0	30.2	15.2	125.6	18.3	40.9						
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7						
Max Green Setting (Gmax), s	10.3	103.6	30.3	* 27	18.3	* 1.1E2	21.3	35.6						
Max Q Clear Time (g_c+11g), s	11.5	24.0	24.2	23.8	10.7	22.6	13.9	10.4						
Green Ext Time (p_c), s	0.1	4.2	0.4	0.7	0.1	23.2	0.1	0.6						

Intersection Summary

HCM 6th Ctrl Delay	61.2
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

Existing Conditions
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔	↑↑↑			↑↑	↔
Traffic Volume (veh/h)	4	65	0	406	17	125	275	136	587	0	0	914	589
Future Volume (veh/h)	4	65	0	406	17	125	275	136	587	0	0	914	589
Initial Q (Qb), veh		0	0	20	0	20	20	20	20	0	0	20	20
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No			No			No		
Adj Sat Flow, veh/h/ln		1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h		69	0	120	18	133	13	145	624	0	0	972	463
Peak Hour Factor		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h		0	0	0	15	223	194	178	4298	0	0	2569	1104
Arrive On Green		0.00	0.00	0.00	0.09	0.09	0.09	0.09	0.84	0.00	0.00	1.00	1.00
Sat Flow, veh/h			0		222	1638	1580	1781	5274	0	0	3647	1551
Grp Volume(v), veh/h			0.0		151	0	13	145	624	0	0	972	463
Grp Sat Flow(s),veh/h/ln					1859	0	1580	1781	1702	0	0	1777	1551
Q Serve(g_s), s					16.0	0.0	1.5	16.1	4.3	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s					16.0	0.0	1.5	16.1	4.3	0.0	0.0	0.0	0.0
Prop In Lane					0.12		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					247	0	194	178	4298	0	0	2569	1104
V/C Ratio(X)					0.61	0.00	0.07	0.81	0.15	0.00	0.00	0.38	0.42
Avail Cap(c_a), veh/h					372	0	316	178	4312	0	0	2596	1133
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)					1.00	0.00	1.00	0.77	0.77	0.00	0.00	0.86	0.86
Uniform Delay (d), s/veh					85.9	0.0	81.9	90.0	3.3	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh					0.9	0.0	0.1	18.4	0.1	0.0	0.0	0.4	1.0
Initial Q Delay(d3),s/veh					120.7	0.0	82.0	320.5	0.2	0.0	0.0	0.7	4.1
%ile BackOfQ(50%),veh/ln					20.1	0.0	9.1	26.0	2.8	0.0	0.0	0.4	1.6
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					207.5	0.0	164.0	428.9	3.6	0.0	0.0	1.1	5.1
LnGrp LOS					F	A	F	F	A	A	A	A	A
Approach Vol, veh/h						164			769			1435	
Approach Delay, s/veh						204.0			83.8			2.4	
Approach LOS						F			F			A	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		175.9			22.8	153.1		24.1					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		107.8			* 20	83.1		40.0					
Max Q Clear Time (g_c+11), s		6.3			18.1	2.0		18.0					
Green Ext Time (p_c), s		3.0			0.0	30.6		0.4					

Intersection Summary

HCM 6th Ctrl Delay	42.8
HCM 6th LOS	D

Notes

- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Existing Conditions
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	493	0	1020	1278	0
Future Volume (veh/h)	0	493	0	1020	1278	0
Initial Q (Qb), veh	0	10	0	0	50	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1870	0
Adj Flow Rate, veh/h	0	477	0	1041	1304	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	2	2	0
Cap, veh/h	0	0	0	2661	2661	0
Arrive On Green	0.00	0.00	0.00	0.73	0.73	0.00
Sat Flow, veh/h	0		0	3741	3741	0
Grp Volume(v), veh/h	0.0		0	1041	1304	0
Grp Sat Flow(s),veh/h/ln			0	1777	1777	0
Q Serve(g_s), s			0.0	2.3	3.2	0.0
Cycle Q Clear(g_c), s			0.0	2.3	3.2	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2661	2661	0
V/C Ratio(X)			0.00	0.39	0.49	0.00
Avail Cap(c_a), veh/h			0	7801	7801	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	1.0	1.3	0.0
Incr Delay (d2), s/veh			0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	5.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	1.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	1.0	6.4	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1041	1304	
Approach Delay, s/veh				1.0	6.4	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		20.5				20.5
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		45.0				45.0
Max Q Clear Time (g_c+I1), s		4.3				5.2
Green Ext Time (p_c), s		5.6				7.8
Intersection Summary						
HCM 6th Ctrl Delay			4.0			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
 31: Texas St & Camino del Rio S

Existing Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	234	122	323	221	43	449	81	736	95	233	1351	140
Future Volume (veh/h)	234	122	323	221	43	449	81	736	95	233	1351	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	239	124	276	226	44	391	83	751	93	238	1379	107
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	324	340	377	281	295	478	101	1253	155	258	1719	761
Arrive On Green	0.18	0.18	0.18	0.16	0.16	0.16	0.06	0.40	0.40	0.14	0.48	0.48
Sat Flow, veh/h	1781	1870	1580	1781	1870	1573	1781	3168	392	1781	3554	1574
Grp Volume(v), veh/h	239	124	276	226	44	391	83	421	423	238	1379	107
Grp Sat Flow(s),veh/h/ln	1781	1870	1580	1781	1870	1573	1781	1777	1784	1781	1777	1574
Q Serve(g_s), s	22.7	10.4	28.8	21.9	3.6	28.2	8.3	33.6	33.6	23.6	58.6	6.7
Cycle Q Clear(g_c), s	22.7	10.4	28.8	21.9	3.6	28.2	8.3	33.6	33.6	23.6	58.6	6.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.22	1.00		1.00
Lane Grp Cap(c), veh/h	324	340	377	281	295	478	101	703	705	258	1719	761
V/C Ratio(X)	0.74	0.36	0.73	0.81	0.15	0.82	0.82	0.60	0.60	0.92	0.80	0.14
Avail Cap(c_a), veh/h	398	418	443	281	295	478	249	703	705	723	1986	879
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	69.2	64.1	62.8	72.7	65.0	57.9	83.5	42.9	42.9	75.5	39.0	25.6
Incr Delay (d2), s/veh	5.6	0.7	5.1	18.5	0.6	12.6	6.1	1.0	1.0	5.7	2.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.9	5.1	12.1	11.5	1.8	18.1	4.0	15.1	15.1	11.2	26.1	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.7	64.8	67.9	91.2	65.7	70.5	89.6	43.9	43.9	81.2	41.8	25.8
LnGrp LOS	E	E	E	F	E	E	F	D	D	F	D	C
Approach Vol, veh/h		639			661			927			1724	
Approach Delay, s/veh		69.9			77.3			48.0			46.2	
Approach LOS		E			E			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	30.3	76.0		37.5	14.6	91.7		35.2				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0				
Max Green Setting (Gmax), s	72.6	51.8		40.0	25.0	* 1E2		28.2				
Max Q Clear Time (g_c+2p_c), s	25.6	35.6		30.8	10.3	60.6		30.2				
Green Ext Time (p_c), s	0.3	3.1		1.7	0.1	25.9		0.0				

Intersection Summary

HCM 6th Ctrl Delay	55.6
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection									
Int Delay, s/veh	1.4								
Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations		↖	↗			↕		↕	
Traffic Vol, veh/h	1	30	28	2	38	390	1	438	55
Future Vol, veh/h	1	30	28	2	38	390	1	438	55
Conflicting Peds, #/hr	21	24	24	3	24	0	3	0	24
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	0	65	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	0	-
Grade, %	-	0	-	-	-	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	32	29	2	40	411	1	461	58

Major/Minor	Minor2	Major1			Major2				
Conflicting Flow All	0	830	308	519	543	0	411	-	0
Stage 1	0	516	-	-	-	-	-	-	-
Stage 2	0	314	-	-	-	-	-	-	-
Critical Hdwy	-	6.84	6.94	6.44	4.14	-	6.44	-	-
Critical Hdwy Stg 1	-	5.84	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.84	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.52	3.32	2.52	2.22	-	2.52	-	-
Pot Cap-1 Maneuver	0	308	688	673	1022	-	788	-	-
Stage 1	0	564	-	-	-	-	-	-	-
Stage 2	0	714	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	0	277	657	972	972	-	788	-	-
Mov Cap-2 Maneuver	0	277	-	-	-	-	-	-	-
Stage 1	0	520	-	-	-	-	-	-	-
Stage 2	0	696	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.4	1.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	972	-	277	657	-	-
HCM Lane V/C Ratio	0.041	-	0.114	0.045	-	-
HCM Control Delay (s)	8.9	0.4	19.7	10.7	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.4	0.1	-	-

HCM 6th Signalized Intersection Summary
 33: Camino del Rio N & Ward Rd

Existing Conditions
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑	↑↑	↑	↙	↘
Traffic Volume (veh/h)	259	415	152	181	376	110
Future Volume (veh/h)	259	415	152	181	376	110
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	276	441	162	26	400	67
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	343	1778	761	339	478	731
Arrive On Green	0.19	0.50	0.21	0.21	0.27	0.27
Sat Flow, veh/h	1781	3647	3647	1581	1781	1585
Grp Volume(v), veh/h	276	441	162	26	400	67
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1581	1781	1585
Q Serve(g_s), s	7.0	3.3	1.8	0.6	10.0	1.1
Cycle Q Clear(g_c), s	7.0	3.3	1.8	0.6	10.0	1.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	343	1778	761	339	478	731
V/C Ratio(X)	0.80	0.25	0.21	0.08	0.84	0.09
Avail Cap(c_a), veh/h	1663	5280	5280	2349	1663	1786
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.2	6.7	15.2	14.8	16.3	7.1
Incr Delay (d2), s/veh	1.7	0.1	0.2	0.1	1.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.8	0.6	0.2	3.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	19.9	6.8	15.5	14.9	17.8	7.2
LnGrp LOS	B	A	B	B	B	A
Approach Vol, veh/h		717	188		467	
Approach Delay, s/veh		11.8	15.4		16.3	
Approach LOS		B	B		B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		29.6		17.5	13.5	16.1
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		5.3		12.0	9.0	3.8
Green Ext Time (p_c), s		4.6		0.7	0.4	1.7

Intersection Summary

HCM 6th Ctrl Delay	13.8
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 34: Fairmount Ave & Mission Gorge Rd

Existing Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↖	↕			↖	↕	
Traffic Volume (veh/h)	14	3	387	23	3	2	25	209	737	27	1	7	767	11
Future Volume (veh/h)	14	3	387	23	3	2	25	209	737	27	1	7	767	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	0.99		1.00		1.00		0.98		1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	0	0	412	23	3	0		213	752	27		7	783	10
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		0.98	0.98	0.98		0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2	2	2
Cap, veh/h	0	288	461	189	22	0		988	2552	92		12	1605	21
Arrive On Green	0.00	0.00	0.15	0.15	0.15	0.00		0.57	1.00	1.00		0.01	0.45	0.45
Sat Flow, veh/h	0	1870	2989	890	140	0		3456	3497	126		1781	3592	46
Grp Volume(v), veh/h	0	0	412	26	0	0		213	382	397		7	387	406
Grp Sat Flow(s),veh/h/ln	0	1870	1494	1030	0	0		1728	1777	1846		1781	1777	1861
Q Serve(g_s), s	0.0	0.0	17.6	2.4	0.0	0.0		3.9	0.0	0.0		0.5	20.0	20.0
Cycle Q Clear(g_c), s	0.0	0.0	17.6	2.7	0.0	0.0		3.9	0.0	0.0		0.5	20.0	20.0
Prop In Lane	0.00		1.00	0.88		0.00		1.00		0.07		1.00		0.02
Lane Grp Cap(c), veh/h	0	288	461	211	0	0		988	1297	1347		12	794	832
V/C Ratio(X)	0.00	0.00	0.89	0.12	0.00	0.00		0.22	0.29	0.29		0.57	0.49	0.49
Avail Cap(c_a), veh/h	0	340	543	239	0	0		988	1297	1347		179	794	832
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		2.00	2.00	2.00		1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00		0.84	0.84	0.84		1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	53.9	47.5	0.0	0.0		20.7	0.0	0.0		64.4	25.4	25.4
Incr Delay (d2), s/veh	0.0	0.0	14.2	0.3	0.0	0.0		0.0	0.5	0.5		14.6	2.1	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	7.5	0.8	0.0	0.0		1.5	0.2	0.2		0.3	8.9	9.3
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	68.1	47.8	0.0	0.0		20.8	0.5	0.5		79.0	27.6	27.5
LnGrp LOS	A	A	E	D	A	A		C	A	A		E	C	C
Approach Vol, veh/h		412			26				992				800	
Approach Delay, s/veh		68.1			47.8				4.8				28.0	
Approach LOS		E			D				A				C	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	5.3	99.8		24.9	42.1	63.0		24.9						
Change Period (Y+Rc), s	4.4	4.9		4.9	4.9	* 4.9		4.9						
Max Green Setting (Gmax), s	13.5	79.1		23.6	34.1	* 58		23.6						
Max Q Clear Time (g_c+1), s	12.5	2.0		19.6	5.9	22.0		4.7						
Green Ext Time (p_c), s	0.0	13.6		0.5	0.4	11.9		0.1						

Intersection Summary

HCM 6th Ctrl Delay	25.3
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis
 35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

Existing Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↔	↖	↖	↕		↖	↕	↖
Traffic Volume (vph)	122	124	571	663	141	234	198	644	157	8	1199	56
Future Volume (vph)	122	124	571	663	141	234	198	644	157	8	1199	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1762	1583	1610	3076	1425	1770	3426		3433	3539	1563
Flt Permitted	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1762	1583	1610	3076	1425	1770	3426		3433	3539	1563
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	123	125	577	670	142	236	200	651	159	8	1211	57
RTOR Reduction (vph)	0	0	78	0	0	0	0	16	0	0	0	36
Lane Group Flow (vph)	111	137	499	335	501	212	200	794	0	8	1211	21
Confl. Peds. (#/hr)						3			1			
Confl. Bikes (#/hr)									1			1
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	7	5	8	8	1	5	2		1	6	
Permitted Phases			7			8						6
Actuated Green, G (s)	15.6	15.6	35.6	25.0	25.0	35.0	20.0	58.4		10.0	48.4	48.4
Effective Green, g (s)	15.6	15.6	35.6	25.0	25.0	35.0	20.0	58.4		10.0	48.4	48.4
Actuated g/C Ratio	0.12	0.12	0.27	0.19	0.19	0.27	0.15	0.45		0.08	0.37	0.37
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	201	211	490	309	591	383	272	1539		264	1317	581
v/s Ratio Prot	0.07	0.08	c0.16	c0.21	0.16	0.04	0.11	0.23		0.00	c0.34	
v/s Ratio Perm			0.16			0.11						0.01
v/c Ratio	0.55	0.65	1.02	1.08	1.08dl	0.55	0.74	0.52		0.03	0.92	0.04
Uniform Delay, d1	53.9	54.6	47.2	52.5	50.7	40.8	52.5	25.7		55.5	38.9	26.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.69	1.18	1.00
Incremental Delay, d2	1.9	5.1	45.1	75.5	10.5	1.0	8.6	1.2		0.0	10.3	0.1
Delay (s)	55.8	59.7	92.3	128.0	61.1	41.8	61.0	26.9		38.6	56.1	26.1
Level of Service	E	E	F	F	E	D	E	C		D	E	C
Approach Delay (s)		82.0			78.6			33.7			54.6	
Approach LOS		F			E			C			D	

Intersection Summary		
HCM 2000 Control Delay	61.0	HCM 2000 Level of Service E
HCM 2000 Volume to Capacity ratio	1.03	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 21.0
Intersection Capacity Utilization	101.2%	ICU Level of Service G
Analysis Period (min)	15	
dl Defacto Left Lane. Recode with 1 though lane as a left lane.		
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
 36: Fairmount Ave & I-8 EB Off-Ramp

Existing Conditions
 PM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations	YY	YY	U		↑↑	↑↑↑	
Traffic Volume (veh/h)	594	2312	43	0	418	1186	0
Future Volume (veh/h)	594	2312	43	0	418	1186	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		0	1870	1870	0
Adj Flow Rate, veh/h	606	2359		0	427	1210	0
Peak Hour Factor	0.98	0.98		0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2		0	2	2	0
Cap, veh/h	1016	2711		0	1104	1586	0
Arrive On Green	0.57	0.57		0.00	0.31	0.31	0.00
Sat Flow, veh/h	1781	4755		0	3741	5443	0
Grp Volume(v), veh/h	606	2359		0	427	1210	0
Grp Sat Flow(s),veh/h/ln	1781	1585		0	1777	1702	0
Q Serve(g_s), s	20.6	39.4		0.0	8.8	19.9	0.0
Cycle Q Clear(g_c), s	20.6	39.4		0.0	8.8	19.9	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	1016	2711		0	1104	1586	0
V/C Ratio(X)	0.60	0.87		0.00	0.39	0.76	0.00
Avail Cap(c_a), veh/h	1356	3620		0	2927	2851	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	13.0	17.1		0.0	25.2	29.0	0.0
Incr Delay (d2), s/veh	0.2	1.6		0.0	0.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	13.3		0.0	3.6	7.9	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	13.2	18.6		0.0	25.2	29.3	0.0
LnGrp LOS	B	B		A	C	C	A
Approach Vol, veh/h	2965				427	1210	
Approach Delay, s/veh	17.5				25.2	29.3	
Approach LOS	B				C	C	
Timer - Assigned Phs				4	6	8	
Phs Duration (G+Y+Rc), s				34.9	58.2	34.9	
Change Period (Y+Rc), s				6.0	5.1	6.0	
Max Green Setting (Gmax), s				52.0	70.9	76.7	
Max Q Clear Time (g_c+1), s				21.9	41.4	10.8	
Green Ext Time (p_c), s				7.0	11.7	2.0	

Intersection Summary

HCM 6th Ctrl Delay	21.3
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
37: Collwood Blvd & Montezuma Rd

Existing Conditions
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↓	↑↑	↑↑	↑
Traffic Volume (veh/h)	1224	1141	6	74	682	582	36
Future Volume (veh/h)	1224	1141	6	74	682	582	36
Initial Q (Qb), veh	20	20		0	0	0	0
Ped-Bike Adj(A_pbT)		0.98		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1737	1870	1870	1648
Adj Flow Rate, veh/h	1262	1042		76	703	600	12
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		11	2	2	17
Cap, veh/h	2264	1289		95	2585	661	267
Arrive On Green	0.64	0.64		0.06	0.73	0.19	0.19
Sat Flow, veh/h	3647	1547		1654	3647	3456	1397
Grp Volume(v), veh/h	1262	1042		76	703	600	12
Grp Sat Flow(s),veh/h/ln	1777	1547		1654	1777	1728	1397
Q Serve(g_s), s	26.8	47.4		6.1	9.0	22.8	0.9
Cycle Q Clear(g_c), s	26.8	47.4		6.1	9.0	22.8	0.9
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2264	1289		95	2585	661	267
V/C Ratio(X)	0.56	0.81		0.80	0.27	0.91	0.04
Avail Cap(c_a), veh/h	2264	1289		328	2585	848	343
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.5	7.9		62.4	6.2	53.0	44.2
Incr Delay (d2), s/veh	1.0	5.5		5.8	0.3	9.9	0.0
Initial Q Delay(d3),s/veh	1.3	9.1		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.4	19.4		2.7	3.1	10.6	0.3
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	16.8	22.5		68.2	6.5	62.9	44.2
LnGrp LOS	B	C		E	A	E	D
Approach Vol, veh/h	2304				779	612	
Approach Delay, s/veh	19.4				12.5	62.6	
Approach LOS	B				B	E	
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	12.1	91.9			104.0	30.0	
Change Period (Y+Rc), s	4.4	* 6.5			6.5	4.4	
Max Green Setting (Gmax), s	20.6	* 60			90.2	32.9	
Max Q Clear Time (g_c+10), s	19.1	49.4			11.0	24.8	
Green Ext Time (p_c), s	0.1	9.4			10.7	0.9	

Intersection Summary

HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
38: Mission Village Dr & Shawn Ave

Existing Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔				↔		↔	↑↑	↔	↔	↔	
Traffic Volume (veh/h)	62	5	60	1	37	7	24	51	375	18	38	1511	65
Future Volume (veh/h)	62	5	60	1	37	7	24	51	375	18	38	1511	65
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99		0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	5	47		39	7	3	54	399	13	40	1607	67
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	280	17	180		255	143	61	253	2471	1100	765	2418	100
Arrive On Green	0.13	0.13	0.13		0.13	0.13	0.13	0.70	0.70	0.70	0.70	0.70	0.70
Sat Flow, veh/h	1255	134	1422		1022	1125	482	296	3554	1582	973	3477	144
Grp Volume(v), veh/h	71	0	47		39	0	10	54	399	13	40	818	856
Grp Sat Flow(s),veh/h/ln1389	0	1422			1022	0	1607	296	1777	1582	973	1777	1844
Q Serve(g_s), s	2.5	0.0	1.7		1.6	0.0	0.3	7.3	2.2	0.1	0.8	14.9	15.1
Cycle Q Clear(g_c), s	2.8	0.0	1.7		3.3	0.0	0.3	22.4	2.2	0.1	3.1	14.9	15.1
Prop In Lane	0.93		1.00		1.00		0.30	1.00		1.00	1.00		0.08
Lane Grp Cap(c), veh/h	297	0	180		255	0	204	253	2471	1100	765	1236	1282
V/C Ratio(X)	0.24	0.00	0.26		0.15	0.00	0.05	0.21	0.16	0.01	0.05	0.66	0.67
Avail Cap(c_a), veh/h	1102	0	991		1017	0	1120	357	3715	1654	1105	1858	1928
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00		1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	0.0	22.6		24.1	0.0	22.0	11.3	3.0	2.7	3.5	4.9	5.0
Incr Delay (d2), s/veh	0.2	0.0	0.3		0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln0.9	0.0	0.0	0.6		0.5	0.0	0.1	0.4	0.4	0.0	0.1	2.6	2.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	23.3	0.0	22.9		24.2	0.0	22.1	11.8	3.0	2.7	3.6	5.7	5.7
LnGrp LOS	C	A	C		C	A	C	B	A	A	A	A	A
Approach Vol, veh/h		118				49			466			1714	
Approach Delay, s/veh		23.1				23.8			4.0			5.7	
Approach LOS		C				C			A			A	
Timer - Assigned Phs		2			4		6		8				
Phs Duration (G+Y+Rc), s		45.2			12.2		45.2		12.2				
Change Period (Y+Rc), s		5.3			4.9		5.3		4.9				
Max Green Setting (Gmax), s		60.0			40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		24.4			4.8		17.1		5.3				
Green Ext Time (p_c), s		5.0			0.5		22.8		0.2				

Intersection Summary

HCM 6th Ctrl Delay	6.6
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 39: Mission Village Dr & Fermi Ave

Existing Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	↕	
Traffic Volume (veh/h)	33	1	8	34	1	34	3	446	28	1	20	1615	20
Future Volume (veh/h)	33	1	8	34	1	34	3	446	28	1	20	1615	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	34	1	1	35	1	5	3	465	27		21	1682	21
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	216	6	4	195	11	15	6	2361	137		34	2542	32
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.08	0.00	0.69	0.69		0.02	0.71	0.71
Sat Flow, veh/h	1397	77	42	1206	128	185	1781	3414	198		1781	3593	45
Grp Volume(v), veh/h	36	0	0	41	0	0	3	241	251		21	831	872
Grp Sat Flow(s),veh/h/ln1517	0	0	0	1520	0	0	1781	1777	1835		1781	1777	1861
Q Serve(g_s), s	0.0	0.0	0.0	0.2	0.0	0.0	0.1	3.4	3.4		0.8	18.1	18.2
Cycle Q Clear(g_c), s	1.3	0.0	0.0	1.5	0.0	0.0	0.1	3.4	3.4		0.8	18.1	18.2
Prop In Lane	0.94		0.03	0.85		0.12	1.00		0.11		1.00		0.02
Lane Grp Cap(c), veh/h	226	0	0	221	0	0	6	1229	1269		34	1257	1316
V/C Ratio(X)	0.16	0.00	0.00	0.19	0.00	0.00	0.52	0.20	0.20		0.62	0.66	0.66
Avail Cap(c_a), veh/h	915	0	0	715	0	0	760	1516	1565		760	1516	1588
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	30.2	0.0	0.0	30.2	0.0	0.0	35.0	3.9	3.9		34.2	5.7	5.7
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.0	24.4	0.1	0.1		6.5	1.3	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.6	0.0	0.0	0.1	0.8	0.8		0.4	4.5	4.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	30.3	0.0	0.0	30.4	0.0	0.0	59.4	4.0	4.0		40.8	6.9	6.9
LnGrp LOS	C	A	A	C	A	A	E	A	A		D	A	A
Approach Vol, veh/h		36			41			495				1724	
Approach Delay, s/veh		30.3			30.4			4.4				7.3	
Approach LOS		C			C			A				A	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	5.7	53.8		10.8	4.6	55.0		10.8					
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	5.2		4.9					
Max Green Setting (Gmax), s	30.0	60.0		40.0	30.0	60.0		30.0					
Max Q Clear Time (g_c+1), s	12.8	5.4		3.3	2.1	20.2		3.5					
Green Ext Time (p_c), s	0.0	5.8		0.1	0.0	29.6		0.1					

Intersection Summary

HCM 6th Ctrl Delay	7.5
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 40: Gramercy Dr/Mission Village Dr & Ruffin Rd

Existing Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖↗	
Traffic Volume (veh/h)	47	472	13	5	256	257	15	4	15	1211	9	68
Future Volume (veh/h)	47	472	13	5	256	257	15	4	15	1211	9	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.98	1.00		0.98	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	482	11	5	261	109	15	4	0	1236	9	66
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	337	1045	24	294	721	292	57	114	0	1452	79	578
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.03	0.03	0.00	0.41	0.41	0.41
Sat Flow, veh/h	1006	3549	81	900	2449	991	1781	3647	0	3563	193	1418
Grp Volume(v), veh/h	48	241	252	5	187	183	15	4	0	1236	0	75
Grp Sat Flow(s),veh/h/ln	1006	1777	1853	900	1777	1664	1781	1777	0	1781	0	1611
Q Serve(g_s), s	2.2	6.2	6.2	0.3	4.7	4.9	0.5	0.1	0.0	17.6	0.0	1.6
Cycle Q Clear(g_c), s	7.1	6.2	6.2	6.5	4.7	4.9	0.5	0.1	0.0	17.6	0.0	1.6
Prop In Lane	1.00		0.04	1.00		0.60	1.00		0.00	1.00		0.88
Lane Grp Cap(c), veh/h	337	523	546	294	523	490	57	114	0	1452	0	657
V/C Ratio(X)	0.14	0.46	0.46	0.02	0.36	0.37	0.26	0.04	0.00	0.85	0.00	0.11
Avail Cap(c_a), veh/h	1118	1902	1984	992	1902	1780	1271	2536	0	2542	0	1150
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.5	16.1	16.1	18.8	15.6	15.7	26.5	26.3	0.0	15.1	0.0	10.3
Incr Delay (d2), s/veh	0.2	0.8	0.8	0.0	0.5	0.6	0.9	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	2.4	2.5	0.1	1.8	1.8	0.2	0.0	0.0	5.7	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.7	16.9	16.9	18.8	16.1	16.3	27.4	26.3	0.0	15.6	0.0	10.3
LnGrp LOS	B	B	B	B	B	B	C	C	A	B	A	B
Approach Vol, veh/h		541			375			19			1311	
Approach Delay, s/veh		17.1			16.2			27.2			15.3	
Approach LOS		B			B			C			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		21.6		27.7		21.6		6.7				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		9.1		19.6		8.5		2.5				
Green Ext Time (p_c), s		4.8		3.0		3.4		0.0				

Intersection Summary

HCM 6th Ctrl Delay	16.0
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

Existing Conditions
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	716	691	8	817	667	146	253
Future Volume (veh/h)	716	691	8	817	667	146	253
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	754	723		860	702	154	55
Peak Hour Factor	0.95	0.95		0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1991	962		896	3033	214	98
Arrive On Green	0.56	0.56		0.26	0.85	0.06	0.06
Sat Flow, veh/h	3647	1542		3456	3647	3456	1585
Grp Volume(v), veh/h	754	723		860	702	154	55
Grp Sat Flow(s),veh/h/ln1777		1542		1728	1777	1728	1585
Q Serve(g_s), s	15.4	43.3		31.9	4.7	5.7	4.4
Cycle Q Clear(g_c), s	15.4	43.3		31.9	4.7	5.7	4.4
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1991	962		896	3033	214	98
V/C Ratio(X)	0.38	0.75		0.96	0.23	0.72	0.56
Avail Cap(c_a), veh/h	1991	962		896	3033	1135	521
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.96	0.96
Uniform Delay (d), s/veh	15.9	17.5		47.5	1.7	59.9	59.2
Incr Delay (d2), s/veh	0.5	5.4		20.8	0.2	1.6	1.8
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	18.2		15.9	0.8	2.5	1.8
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	16.5	22.9		68.2	1.9	61.5	61.0
LnGrp LOS	B	C		E	A	E	E
Approach Vol, veh/h	1477			1562	209		
Approach Delay, s/veh	19.6			38.4	61.4		
Approach LOS	B			D	E		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	38.1	78.5			116.6	13.4	
Change Period (Y+Rc), s	4.4	* 5.7			5.7	5.3	
Max Green Setting (Gmax), s	33.7	* 39			76.3	42.7	
Max Q Clear Time (g_c+Rc), s	33.9	45.3			6.7	7.7	
Green Ext Time (p_c), s	0.0	0.0			7.4	0.4	

Intersection Summary

HCM 6th Ctrl Delay	31.3
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mobley St & Gramercy Dr

Existing Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	504	75	45	242	41	38	20	28	62	10	16
Future Volume (veh/h)	13	504	75	45	242	41	38	20	28	62	10	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		0.96	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1826	1826	1826	1752	1752	1752
Adj Flow Rate, veh/h	13	520	56	46	249	30	39	21	6	64	10	6
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	10	10	10
Cap, veh/h	731	1701	748	582	1523	181	316	121	23	391	53	17
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1091	3554	1564	833	3184	379	682	740	142	975	322	105
Grp Volume(v), veh/h	13	520	56	46	138	141	66	0	0	80	0	0
Grp Sat Flow(s),veh/h/ln	1091	1777	1564	833	1777	1785	1564	0	0	1402	0	0
Q Serve(g_s), s	0.2	2.5	0.5	1.0	1.2	1.3	0.0	0.0	0.0	0.3	0.0	0.0
Cycle Q Clear(g_c), s	1.4	2.5	0.5	3.5	1.2	1.3	0.9	0.0	0.0	1.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.21	0.59		0.09	0.80		0.07
Lane Grp Cap(c), veh/h	731	1701	748	582	850	854	461	0	0	461	0	0
V/C Ratio(X)	0.02	0.31	0.07	0.08	0.16	0.17	0.14	0.00	0.00	0.17	0.00	0.00
Avail Cap(c_a), veh/h	2550	7631	3357	1971	3815	3834	2339	0	0	2149	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.5	4.5	3.9	5.5	4.1	4.1	10.1	0.0	0.0	10.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.5	0.1	0.1	0.2	0.2	0.3	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.6	4.6	4.0	5.6	4.3	4.3	10.2	0.0	0.0	10.3	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		589			325			66			80	
Approach Delay, s/veh		4.6			4.5			10.2			10.3	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		18.5		9.5		18.5		9.5				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		4.5		3.2		5.5		2.9				
Green Ext Time (p_c), s		8.4		0.3		3.8		0.2				

Intersection Summary

HCM 6th Ctrl Delay	5.3
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
43: Sandrock Rd & Greyling Dr/Gramercy Dr

Existing Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕			↕	↕	↕	↕	↕
Traffic Volume (veh/h)	68	113	8	10	137	165	1	5	9	19	494	30	109
Future Volume (veh/h)	68	113	8	10	137	165	1	5	9	19	494	30	109
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.94	0.97		0.94		1.00		1.00	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1574	1574	1870	1870	1856	1870
Adj Flow Rate, veh/h	72	119	6	11	144	96		5	9	0	543	0	49
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2		22	22	2	2	3	2
Cap, veh/h	253	327	14	128	504	803		8	14	23	868	0	370
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28		0.01	0.01	0.00	0.24	0.00	0.24
Sat Flow, veh/h	381	1168	49	47	1798	1488		552	994	1585	3563	0	1519
Grp Volume(v), veh/h	197	0	0	155	0	96		14	0	0	543	0	49
Grp Sat Flow(s),veh/h/ln1597		0	0	1846	0	1488		1546	0	1585	1781	0	1519
Q Serve(g_s), s	0.1	0.0	0.0	0.0	0.0	1.1		0.3	0.0	0.0	4.6	0.0	0.8
Cycle Q Clear(g_c), s	2.9	0.0	0.0	2.2	0.0	1.1		0.3	0.0	0.0	4.6	0.0	0.8
Prop In Lane	0.37		0.03	0.07		1.00		0.36		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	594	0	0	632	0	803		23	0	23	868	0	370
V/C Ratio(X)	0.33	0.00	0.00	0.25	0.00	0.12		0.62	0.00	0.00	0.63	0.00	0.13
Avail Cap(c_a), veh/h	1285	0	0	1470	0	1494		921	0	944	3184	0	1358
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00		1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.7	0.0	0.0	9.5	0.0	4.1		16.4	0.0	0.0	11.3	0.0	9.9
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.0		9.9	0.0	0.0	0.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln0.9	0.0	0.0	0.6	0.0	0.4			0.2	0.0	0.0	1.3	0.0	0.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	9.9	0.0	0.0	9.6	0.0	4.1		26.4	0.0	0.0	11.6	0.0	10.0
LnGrp LOS	A	A	A	A	A	A		C	A	A	B	A	A
Approach Vol, veh/h		197			251				14			592	
Approach Delay, s/veh		9.9			7.5				26.4			11.5	
Approach LOS		A			A				C			B	
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		14.7		13.5		14.7		5.4					
Change Period (Y+Rc), s		5.3		5.3		5.3		4.9					
Max Green Setting (Gmax), s		25.0		30.0		25.0		20.0					
Max Q Clear Time (g_c+11), s		4.9		6.6		4.2		2.3					
Green Ext Time (p_c), s		0.8		1.1		0.7		0.0					

Intersection Summary

HCM 6th Ctrl Delay	10.4
HCM 6th LOS	B

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

Arterial Level of Service: EB Friars Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
I-15 SB Ramps	II	45	46.1	42.0	88.1	0.58	23.6	C
I-15 NB Ramps	II	45	23.9	0.0	23.9	0.22	33.1	B
Rancho Mission Rd	II	45	19.6	29.1	48.7	0.18	13.3	E
Santo Rd	II	45	24.1	3.4	27.5	0.22	29.0	B
Riverdale St	II	45	31.8	20.3	52.1	0.32	22.2	C
Mission Gorge Rd	II	45	11.1	30.3	41.4	0.10	8.9	F
Total	II		156.6	125.1	281.7	1.62	20.7	D

Arterial Level of Service: WB Friars Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Riverdale St	II	45	11.1	19.3	30.4	0.10	12.1	F
Santo Rd	II	45	31.8	8.0	39.8	0.32	29.1	B
Rancho Mission Rd	II	45	24.1	6.8	30.9	0.22	25.8	C
I-15 NB Ramps	II	45	19.6	14.2	33.8	0.18	19.1	D
I-15 SB Ramps	II	45	23.9	56.1	80.0	0.22	9.9	F
Total	II		110.5	104.4	214.9	1.04	17.5	D

Arterial Level of Service: NB Rancho Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
San Diego Mission Rd	III	35	41.0	42.6	83.6	0.34	14.7	D
Friars Rd	III	35	48.3	61.2	109.5	0.40	13.2	E
Total	III		89.3	103.8	193.1	0.74	13.9	E

Arterial Level of Service: SB Rancho Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
San Diego Mission Rd	III	35	48.3	36.1	84.4	0.40	17.2	D
Total	III		48.3	36.1	84.4	0.40	17.2	D

Arterial Level of Service: EB San Diego Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rancho Mission Rd	II	40	54.6	29.0	83.6	0.61	26.1	C
Fairmount Ave	II	40	50.6	26.9	77.5	0.56	26.1	C
Total	II		105.2	55.9	161.1	1.17	26.1	C

Arterial Level of Service: WB San Diego Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rancho Mission Rd	II	40	50.6	14.0	64.6	0.56	31.3	B
Friars Rd EB	II	40	54.6	0.0	54.6	0.61	40.0	A
Total	II		105.2	14.0	119.2	1.17	35.3	A

Arterial Level of Service: SB Ward Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Camino del Rio N	III	35	41.0	27.1	68.1	0.34	18.0	C
Total	III		41.0	27.1	68.1	0.34	18.0	C

Arterial Level of Service: EB Camino del Rio S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Texas St	IV	35	20.5	74.8	95.3	0.12	4.7	F
Total	IV		20.5	74.8	95.3	0.12	4.7	F

Arterial Level of Service: WB Camino del Rio S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Texas St	III	35	20.1	76.4	96.5	0.16	5.9	F
Total	III		20.1	76.4	96.5	0.16	5.9	F



Major Street Ward Rd
 Minor Street Rancho Mission Rd

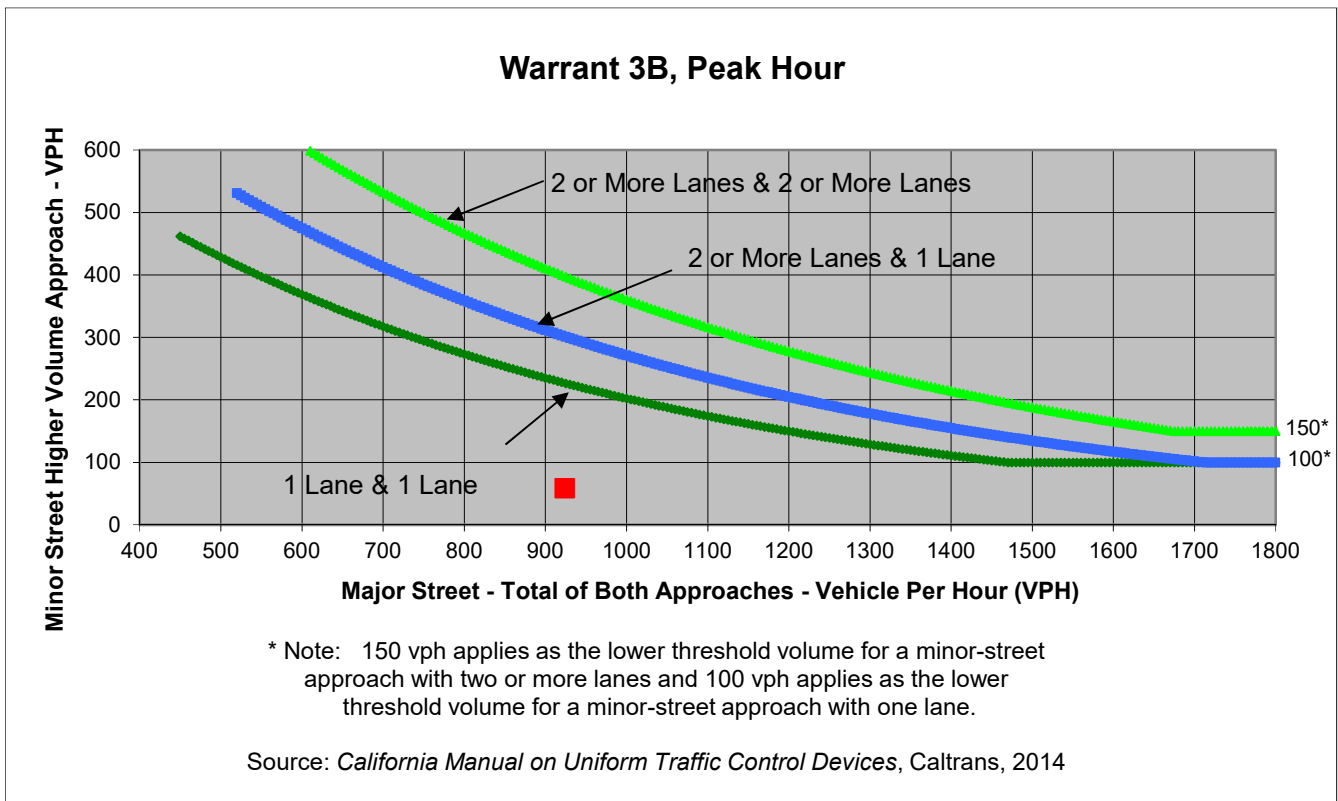
Project SDSU Mission Valley
 Scenario Existing
 Peak Hour PM

Turn Movement Volumes

	NB	SB	EB	WB
Left/U-turns	40	1	31	0
Through	390	438	0	0
Right	0	55	28	0
Total	430	494	59	0

Major Street Direction

x	North/South
	East/West



	Major Street	Minor Street	Warrant Met
	Ward Rd	Rancho Mission Rd	
Number of Approach Lanes	2	1	<u>NO</u>
Traffic Volume (VPH) *	924	59	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
 Traffic Volume for Minor Street is the Volume of High Volume Approach.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

Project SDSU Mission Valley
 Scenario Existing
 Peak Hour PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	40	1	31	0
Through	390	438	0	0
Right	0	55	28	0
Total	430	494	59	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	18.7
Approach with Worst Case Delay	EB
Total Vehicles on Approach	59

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Existing	0.3	59	983
Limiting Value	4	100	650
Condition Satisfied?	Not Met	Not Met	Met
Warrant Met	<u>NO</u>		

Queues
1: SR-163 SB Ramps/Ulric St & Friars Rd

Existing Conditions
PM Peak Hour



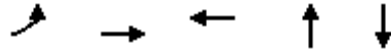
Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	137	1457	585	961	665	142	141	631	280	281	169
v/c Ratio	2.14	0.60	0.37	0.66	1.16	0.62	0.61	0.40	0.77	0.77	0.38
Control Delay	584.3	25.4	0.7	40.5	121.7	60.9	60.2	0.8	56.9	57.1	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	584.3	25.4	0.7	40.5	121.7	60.9	60.2	0.8	56.9	57.1	12.5
Queue Length 50th (ft)	~160	275	0	225	~489	104	103	0	205	206	20
Queue Length 95th (ft)	#348	464	0	356	#909	201	198	0	324	325	80
Internal Link Dist (ft)		1296		18			834			622	
Turn Bay Length (ft)	120		100		70	300		215			200
Base Capacity (vph)	64	2430	1561	1466	571	1028	1038	1583	734	734	756
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.14	0.60	0.37	0.66	1.16	0.14	0.14	0.40	0.38	0.38	0.22

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
2: SR-163 NB Ramps & Friars Rd

Existing Conditions
PM Peak Hour



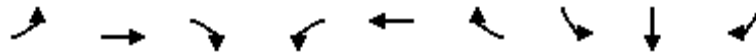
Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	550	2055	2168	967	866
v/c Ratio	0.87	no cap	1.22	12.56	11.25
Control Delay	39.9		126.7	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0
Total Delay	39.9	Error	126.7	0.0	0.0
Queue Length 50th (ft)	260	0	~716	0	0
Queue Length 95th (ft)	385	0	#1047	0	0
Internal Link Dist (ft)		962	635	815	521
Turn Bay Length (ft)	250				
Base Capacity (vph)	1287	1	1774	77	77
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.43	2055.00	1.22	12.56	11.25

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
17: I-15 SB Ramps & Friars Rd

Existing Conditions
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	327	1671	683	259	1145	308	487	488	283
v/c Ratio	0.60	0.82	0.80	0.84	0.86	0.50	0.95	0.95	0.16
Control Delay	45.3	42.0	23.3	76.8	56.1	9.4	74.2	74.6	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.3	42.0	23.3	76.8	56.1	9.4	74.2	74.6	8.7
Queue Length 50th (ft)	245	497	246	223	364	17	431	432	46
Queue Length 95th (ft)	349	#645	#522	309	#448	100	#647	#648	65
Internal Link Dist (ft)		844			1079			723	
Turn Bay Length (ft)	380		200	350			520		520
Base Capacity (vph)	546	2027	858	390	1327	622	543	543	1823
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.82	0.80	0.66	0.86	0.50	0.90	0.90	0.16

Intersection Summary

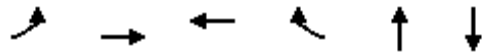
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

18: I-15 NB Ramps & Friars Rd

Existing Conditions

PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	492	2199	1088	734	1097	687
v/c Ratio	0.90	no cap	0.40	0.93	12.91	8.08
Control Delay	57.5		14.2	43.5	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	57.5	Error	14.2	43.5	0.0	0.0
Queue Length 50th (ft)	334	0	156	532	0	0
Queue Length 95th (ft)	470	0	234	#987	0	0
Internal Link Dist (ft)		1079	869		797	677
Turn Bay Length (ft)	515					
Base Capacity (vph)	720	1	2751	788	85	85
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	2199.00	0.40	0.93	12.91	8.08

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

Existing Conditions

PM Peak Hour



Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	73	432	151	293	145	624	972	627
v/c Ratio	0.63	0.75	0.79	0.69	0.90	0.16	0.44	0.56
Control Delay	113.7	23.8	113.9	16.1	135.2	8.1	13.2	4.6
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	4.2	1.9
Total Delay	113.7	23.8	113.9	16.2	135.2	8.1	17.4	6.6
Queue Length 50th (ft)	96	106	198	0	191	80	232	36
Queue Length 95th (ft)	157	245	277	102	#320	121	m383	m152
Internal Link Dist (ft)			657			1041	147	
Turn Bay Length (ft)				150	110			
Base Capacity (vph)	309	584	370	546	177	3785	2226	1125
Starvation Cap Reductn	0	0	0	0	0	0	1153	334
Spillback Cap Reductn	0	0	0	13	0	241	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.74	0.41	0.55	0.82	0.18	0.91	0.79

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Existing Conditions
 PM Peak Hour



Lane Group	EBR	NBT	SBT
Lane Group Flow (vph)	503	1041	1304
v/c Ratio	0.59	0.57	0.75
Control Delay	19.1	10.4	14.0
Queue Delay	0.0	0.0	0.0
Total Delay	19.1	10.5	14.0
Queue Length 50th (ft)	67	104	154
Queue Length 95th (ft)	147	187	269
Internal Link Dist (ft)		285	1041
Turn Bay Length (ft)			
Base Capacity (vph)	2374	3043	3007
Starvation Cap Reductn	0	313	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.21	0.38	0.43
Intersection Summary			

Queues

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

Existing Conditions

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	111	137	577	335	501	212	200	810	8	1211	57
v/c Ratio	0.55	0.65	1.01	1.08	1.08dl	0.53	0.74	0.52	0.03	0.92	0.09
Control Delay	64.3	69.0	77.0	124.4	65.0	41.6	69.3	26.5	38.9	56.2	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	47.3	0.0
Total Delay	64.3	69.0	77.0	124.4	65.0	41.6	69.3	26.5	38.9	103.6	6.8
Queue Length 50th (ft)	94	118	~456	~346	238	157	163	240	3	568	5
Queue Length 95th (ft)	156	187	#644	#556	#336	243	#269	320	m7	#710	m25
Internal Link Dist (ft)		2741			1304			820		254	
Turn Bay Length (ft)	105					200	215		65		140
Base Capacity (vph)	245	257	570	309	591	399	272	1555	264	1317	652
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	521	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.53	1.01	1.08	0.85	0.53	0.74	0.52	0.03	1.52	0.09

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.
- dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Queues

36: Fairmount Ave & I-8 EB Off-Ramp

Existing Conditions

PM Peak Hour



Lane Group	EBL	EBR	NBU	NBT	SBT
Lane Group Flow (vph)	1384	1581	44	427	1210
v/c Ratio	0.90dr	1.08	0.47	0.33	0.81
Control Delay	29.7	77.7	79.1	29.6	47.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	29.7	77.7	79.1	29.6	47.7
Queue Length 50th (ft)	478	~890	37	134	354
Queue Length 95th (ft)	714	#1229	84	175	425
Internal Link Dist (ft)	892			990	820
Turn Bay Length (ft)	550		350		
Base Capacity (vph)	1771	1469	265	2092	2038
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.78	1.08	0.17	0.20	0.59

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.




























95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

HCM 6th Signalized Intersection Summary
 1: SR-163 SB Ramps/Ulric St & Friars Rd

Existing Plus Project Without Event Conditions
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  			  							
Traffic Volume (veh/h)	51	559	219	0	775	596	250	43	708	360	0	76
Future Volume (veh/h)	51	559	219	0	775	596	250	43	708	360	0	76
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	53	582	0	0	807	484	292	0	0	375	0	12
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	111	2449		0	1809	562	422	0		518	0	230
Arrive On Green	0.06	0.48	0.00	0.00	0.35	0.35	0.12	0.00	0.00	0.15	0.00	0.15
Sat Flow, veh/h	1781	5106	1585	0	5274	1585	3563	0	1585	3563	0	1579
Grp Volume(v), veh/h	53	582	0	0	807	484	292	0	0	375	0	12
Grp Sat Flow(s),veh/h/ln	1781	1702	1585	0	1702	1585	1781	0	1585	1781	0	1579
Q Serve(g_s), s	2.2	5.0	0.0	0.0	9.1	21.2	5.9	0.0	0.0	7.5	0.0	0.5
Cycle Q Clear(g_c), s	2.2	5.0	0.0	0.0	9.1	21.2	5.9	0.0	0.0	7.5	0.0	0.5
Prop In Lane	1.00		1.00	0.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	111	2449		0	1809	562	422	0		518	0	230
V/C Ratio(X)	0.48	0.24		0.00	0.45	0.86	0.69	0.00		0.72	0.00	0.05
Avail Cap(c_a), veh/h	405	2449		0	2251	699	2379	0		2379	0	1054
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.9	11.4	0.0	0.0	18.5	22.5	31.7	0.0	0.0	30.6	0.0	27.5
Incr Delay (d2), s/veh	1.2	0.0	0.0	0.0	0.1	7.7	2.0	0.0	0.0	0.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.6	0.0	0.0	3.2	8.1	2.5	0.0	0.0	3.1	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.1	11.5	0.0	0.0	18.6	30.2	33.7	0.0	0.0	31.3	0.0	27.6
LnGrp LOS	D	B		A	B	C	C	A		C	A	C
Approach Vol, veh/h		635	A		1291			292	A		387	
Approach Delay, s/veh		13.4			22.9			33.7			31.2	
Approach LOS		B			C			C			C	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		42.9		17.0	9.4	33.5		15.0				
Change Period (Y+Rc), s		7.0		6.1	* 4.7	7.0		6.1				
Max Green Setting (Gmax), s		35.0		50.0	* 17	33.0		50.0				
Max Q Clear Time (g_c+I1), s		7.0		9.5	4.2	23.2		7.9				
Green Ext Time (p_c), s		2.4		0.7	0.0	3.3		1.0				
Intersection Summary												
HCM 6th Ctrl Delay				23.1								
HCM 6th LOS				C								
Notes												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary
2: SR-163 NB Ramps & Friars Rd

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘				↗↗							
Traffic Volume (veh/h)	408	1204	0	0	1217	684	0	0	1086	0	0	660
Future Volume (veh/h)	408	1204	0	0	1217	684	0	0	1086	0	0	660
Initial Q (Qb), veh	0	0	0	0	0	0						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	425	1254	0	0	1268	0						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	501	0	0	0	1687							
Arrive On Green	0.28	0.89	0.00	0.00	0.47	0.00						
Sat Flow, veh/h	1781	0	0	0	3741	0						
Grp Volume(v), veh/h	425	0	0	0	1268	0						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1777	0						
Q Serve(g_s), s	10.1	0.0	0.0	0.0	13.1	0.0						
Cycle Q Clear(g_c), s	10.1	0.0	0.0	0.0	13.1	0.0						
Prop In Lane	1.00		0.00	0.00		0.00						
Lane Grp Cap(c), veh/h	501	0	0	0	1687							
V/C Ratio(X)	0.85	0.00	0.00	0.00	0.75							
Avail Cap(c_a), veh/h	1779	0	0	0	3313							
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	1.00	0.00						
Uniform Delay (d), s/veh	15.3	0.0	0.0	0.0	9.7	0.0						
Incr Delay (d2), s/veh	1.6	0.0	0.0	0.0	0.3	0.0						
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0						
%ile BackOfQ(50%),veh/ln	3.2	0.0	0.0	0.0	3.0	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.9	0.0	0.0	0.0	9.9	0.0						
LnGrp LOS	B	A	A	A	A							
Approach Vol, veh/h		425			1268		A					
Approach Delay, s/veh		16.9			9.9							
Approach LOS		B			A							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		45.1			17.7	27.4						
Change Period (Y+Rc), s		* 5			5.0	6.0						
Max Green Setting (Gmax), s		* 46			45.0	42.0						
Max Q Clear Time (g_c+I1), s		0.0			12.1	15.1						
Green Ext Time (p_c), s		0.0			0.6	6.3						

Intersection Summary

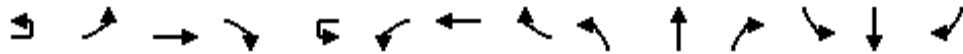
HCM 6th Ctrl Delay	11.7
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
3: Frazee Rd & Friars Rd

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↑↑↑	↔		↔	↑↑↑	↔	↔↔	↑↑		↔↔	↔	↔
Traffic Volume (veh/h)	12	643	1188	424	1	56	1608	117	114	56	56	30	16	170
Future Volume (veh/h)	12	643	1188	424	1	56	1608	117	114	56	56	30	16	170
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		1.00	1.00		0.92	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		670	1238	285		58	1675	67	119	58	11	31	24	22
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h		744	3138	952		75	2255	700	177	426	78	114	234	198
Arrive On Green		0.22	0.61	0.61		0.04	0.44	0.44	0.05	0.14	0.14	0.03	0.13	0.13
Sat Flow, veh/h		3456	5106	1549		1781	5106	1585	3456	2959	538	3563	1870	1585
Grp Volume(v), veh/h		670	1238	285		58	1675	67	119	34	35	31	24	22
Grp Sat Flow(s),veh/h/ln		1728	1702	1549		1781	1702	1585	1728	1777	1721	1781	1870	1585
Q Serve(g_s), s		22.8	14.9	10.5		3.9	33.0	3.0	4.1	2.0	2.2	1.0	1.4	1.5
Cycle Q Clear(g_c), s		22.8	14.9	10.5		3.9	33.0	3.0	4.1	2.0	2.2	1.0	1.4	1.5
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h		744	3138	952		75	2255	700	177	256	248	114	234	198
V/C Ratio(X)		0.90	0.39	0.30		0.77	0.74	0.10	0.67	0.13	0.14	0.27	0.10	0.11
Avail Cap(c_a), veh/h		1285	3138	952		442	2532	786	857	441	427	883	464	393
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		46.2	11.9	11.0		57.4	28.1	19.7	56.4	45.2	45.2	57.2	46.9	47.0
Incr Delay (d2), s/veh		2.5	0.1	0.2		6.1	1.3	0.1	2.4	0.1	0.1	0.7	0.1	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		9.7	5.2	3.4		1.8	12.9	1.1	1.8	0.9	0.9	0.5	0.6	0.6
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		48.7	12.0	11.3		63.5	29.4	19.8	58.8	45.3	45.3	57.9	47.0	47.1
LnGrp LOS		D	B	B		E	C	B	E	D	D	E	D	D
Approach Vol, veh/h			2193			1800			188			77		
Approach Delay, s/veh			23.1			30.1			53.9			51.4		
Approach LOS			C			C			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	9.5	80.9	10.6	20.0	30.5	59.9	8.3	22.3						
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9						
Max Green Setting (Gmax), s	30.0	* 50	30.0	30.0	45.0	60.0	30.0	30.0						
Max Q Clear Time (g_c+1/3), s	15.0	16.9	6.1	3.5	24.8	35.0	3.0	4.2						
Green Ext Time (p_c), s	0.1	16.0	0.2	0.1	1.2	18.4	0.0	0.2						

Intersection Summary

HCM 6th Ctrl Delay	27.9
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
4: Mission Center Rd & Friars Rd WB

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↘	↙	↘	↘↙	↘↙			↘↙	↘
Traffic Volume (veh/h)	0	0	0	186	1	315	86	440	0	0	376	266
Future Volume (veh/h)	0	0	0	186	1	315	86	440	0	0	376	266
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				No
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				199	0	34	91	468	0	0	400	164
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				294	0	131	150	2818	0	0	2489	1083
Arrive On Green				0.17	0.00	0.17	0.09	1.00	0.00	0.00	0.70	0.70
Sat Flow, veh/h				3563	0	1585	3456	3647	0	0	3647	1546
Grp Volume(v), veh/h				199	0	34	91	468	0	0	400	164
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1728	1777	0	0	1777	1546
Q Serve(g_s), s				4.7	0.0	1.7	2.3	0.0	0.0	0.0	3.4	3.2
Cycle Q Clear(g_c), s				4.7	0.0	1.7	2.3	0.0	0.0	0.0	3.4	3.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				294	0	131	150	2818	0	0	2489	1083
V/C Ratio(X)				0.68	0.00	0.26	0.60	0.17	0.00	0.00	0.16	0.15
Avail Cap(c_a), veh/h				1215	0	541	580	2818	0	0	2489	1083
HCM Platoon Ratio				2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.97	0.97	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				36.4	0.0	35.2	40.3	0.0	0.0	0.0	4.5	4.5
Incr Delay (d2), s/veh				2.7	0.0	1.0	1.4	0.1	0.0	0.0	0.1	0.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.0	0.0	0.7	0.9	0.0	0.0	0.0	1.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				39.1	0.0	36.2	41.7	0.1	0.0	0.0	4.7	4.8
LnGrp LOS				D	A	D	D	A	A	A	A	A
Approach Vol, veh/h					233			559			564	
Approach Delay, s/veh					38.7			6.9			4.7	
Approach LOS					D			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		77.7			8.3	69.3		12.3				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 49			15.1	28.6		30.7				
Max Q Clear Time (g_c+I1), s		2.0			4.3	5.4		6.7				
Green Ext Time (p_c), s		2.7			0.1	5.4		0.7				

Intersection Summary

HCM 6th Ctrl Delay	11.5
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Mission Center Rd & Friars Rd EB

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	172	1	165	0	0	0	0	359	125	128	436	0
Future Volume (veh/h)	172	1	165	0	0	0	0	359	125	128	436	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	188	0	9				0	390	110	139	474	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	393	0	175				0	1062	295	1112	2739	0
Arrive On Green	0.11	0.00	0.11				0.00	0.39	0.39	0.43	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2816	757	3456	3647	0
Grp Volume(v), veh/h	188	0	9				0	253	247	139	474	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1703	1728	1777	0
Q Serve(g_s), s	4.5	0.0	0.5				0.0	9.1	9.3	2.2	0.0	0.0
Cycle Q Clear(g_c), s	4.5	0.0	0.5				0.0	9.1	9.3	2.2	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.44	1.00		0.00
Lane Grp Cap(c), veh/h	393	0	175				0	693	664	1112	2739	0
V/C Ratio(X)	0.48	0.00	0.05				0.00	0.36	0.37	0.12	0.17	0.00
Avail Cap(c_a), veh/h	1013	0	451				0	693	664	1112	2739	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.33	1.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.98	0.98	0.00
Uniform Delay (d), s/veh	37.6	0.0	35.8				0.0	19.5	19.6	18.1	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	0.1				0.0	1.5	1.6	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.2				0.0	3.8	3.7	0.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	0.0	35.9				0.0	21.0	21.2	18.1	0.0	0.0
LnGrp LOS	D	A	D				A	C	C	B	A	A
Approach Vol, veh/h		197						500			613	
Approach Delay, s/veh		38.4						21.1			4.1	
Approach LOS		D						C			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	34.8	40.4	14.8	75.2								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	14.7	* 35	25.6	53.7								
Max Q Clear Time (g_c+I), s	14.2	11.3	6.5	2.0								
Green Ext Time (p_c), s	0.2	4.1	0.6	4.0								

Intersection Summary

HCM 6th Ctrl Delay	15.8
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
6: Qualcomm Way & Friars Rd WB

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↔		↖	↑			↗	
Traffic Volume (veh/h)	0	0	0	214	0	49	346	84	0	0	92	22
Future Volume (veh/h)	0	0	0	214	0	49	346	84	0	0	92	22
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				250	0	0	389	94	0	0	103	5
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				344	180	0	621	1456	0	0	1271	61
Arrive On Green				0.16	0.00	0.00	0.58	1.00	0.00	0.00	0.37	0.37
Sat Flow, veh/h				3563	1870	0	1781	1870	0	0	3544	166
Grp Volume(v), veh/h				250	0	0	389	94	0	0	53	55
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1870	0	0	1777	1840
Q Serve(g_s), s				5.3	0.0	0.0	11.5	0.0	0.0	0.0	1.5	1.6
Cycle Q Clear(g_c), s				5.3	0.0	0.0	11.5	0.0	0.0	0.0	1.5	1.6
Prop In Lane				1.00		0.00	1.00		0.00	0.00		0.09
Lane Grp Cap(c), veh/h				344	180	0	621	1456	0	0	655	678
V/C Ratio(X)				0.73	0.00	0.00	0.63	0.06	0.00	0.00	0.08	0.08
Avail Cap(c_a), veh/h				1251	657	0	621	1456	0	0	655	678
HCM Platoon Ratio				1.67	1.67	1.67	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.99	0.99	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				32.6	0.0	0.0	13.3	0.0	0.0	0.0	16.4	16.4
Incr Delay (d2), s/veh				1.1	0.0	0.0	2.1	0.1	0.0	0.0	0.1	0.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.1	0.0	0.0	3.7	0.0	0.0	0.0	0.6	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				33.7	0.0	0.0	15.4	0.1	0.0	0.0	16.5	16.5
LnGrp LOS				C	A	A	B	A	A	A	B	B
Approach Vol, veh/h					250			483			108	
Approach Delay, s/veh					33.7			12.4			16.5	
Approach LOS					C			B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		67.4			33.0	34.4		12.6				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+I1), s		2.0			13.5	3.6		7.3				
Green Ext Time (p_c), s		0.6			0.9	0.3		0.4				

Intersection Summary

HCM 6th Ctrl Delay	19.2
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
7: Qualcomm Way & Friars Rd EB

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↕↕	↗	↖	↕↕	
Traffic Volume (veh/h)	45	0	88	0	0	0	0	373	226	60	268	0
Future Volume (veh/h)	45	0	88	0	0	0	0	373	226	60	268	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No					No		No			
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	51	0	1				0	424	141	68	305	0
Peak Hour Factor	0.88	0.88	0.88				0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	82	0	72				0	2577	1124	87	2945	0
Arrive On Green	0.05	0.00	0.05				0.00	0.73	0.73	0.10	1.00	0.00
Sat Flow, veh/h	1781	0	1553				0	3647	1551	1781	3647	0
Grp Volume(v), veh/h	51	0	1				0	424	141	68	305	0
Grp Sat Flow(s),veh/h/ln	1781	0	1553				0	1777	1551	1781	1777	0
Q Serve(g_s), s	2.2	0.0	0.0				0.0	3.0	2.2	3.0	0.0	0.0
Cycle Q Clear(g_c), s	2.2	0.0	0.0				0.0	3.0	2.2	3.0	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	82	0	72				0	2577	1124	87	2945	0
V/C Ratio(X)	0.62	0.00	0.01				0.00	0.16	0.13	0.78	0.10	0.00
Avail Cap(c_a), veh/h	759	0	662				0	2577	1124	225	2945	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.97	0.97	0.92	0.92	0.00
Uniform Delay (d), s/veh	37.5	0.0	36.4				0.0	3.4	3.3	35.7	0.0	0.0
Incr Delay (d2), s/veh	2.8	0.0	0.0				0.0	0.1	0.2	5.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0				0.0	0.8	0.5	1.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.3	0.0	36.4				0.0	3.6	3.5	40.9	0.1	0.0
LnGrp LOS	D	A	D				A	A	A	D	A	A
Approach Vol, veh/h		52						565			373	
Approach Delay, s/veh		40.2						3.6			7.5	
Approach LOS		D						A			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	8.3	63.1	8.6	71.4								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.1	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	15.0	5.0	4.2	2.0								
Green Ext Time (p_c), s	0.0	3.3	0.1	1.3								

Intersection Summary

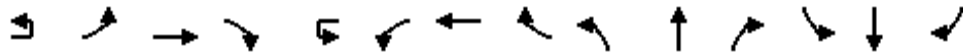
HCM 6th Ctrl Delay		7.0	
HCM 6th LOS		A	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↖ ↗ ↘ ↙	↖ ↗ ↘ ↙	↖ ↗		↖ ↗ ↘ ↙	↖ ↗ ↘ ↙			↖ ↗	↖ ↗		↖ ↗		
Traffic Volume (veh/h)	4	85	1030	28	2	144	1727	152	104	42	51	17	4	7	
Future Volume (veh/h)	4	85	1030	28	2	144	1727	152	104	42	51	17	4	7	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	0.98		0.97	0.98		0.97	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		89	1084	15		152	1818	155	109	44	7	18	4	1	
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2	
Cap, veh/h		115	2799	869		185	2812	239	263	95	295	181	36	7	
Arrive On Green		0.06	0.55	0.55		0.10	0.59	0.59	0.19	0.19	0.19	0.19	0.19	0.19	
Sat Flow, veh/h		1781	5106	1585		1781	4785	406	1046	494	1538	607	187	36	
Grp Volume(v), veh/h		89	1084	15		152	1291	682	153	0	7	23	0	0	
Grp Sat Flow(s),veh/h/ln		1781	1702	1585		1781	1702	1787	1540	0	1538	829	0	0	
Q Serve(g_s), s		4.9	12.1	0.4		8.3	25.0	25.2	0.0	0.0	0.4	0.7	0.0	0.0	
Cycle Q Clear(g_c), s		4.9	12.1	0.4		8.3	25.0	25.2	8.5	0.0	0.4	9.3	0.0	0.0	
Prop In Lane		1.00		1.00		1.00		0.23	0.71		1.00	0.78		0.04	
Lane Grp Cap(c), veh/h		115	2799	869		185	2001	1050	357	0	295	224	0	0	
V/C Ratio(X)		0.78	0.39	0.02		0.82	0.65	0.65	0.43	0.00	0.02	0.10	0.00	0.00	
Avail Cap(c_a), veh/h		718	3088	959		539	2059	1081	523	0	465	521	0	0	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	
Uniform Delay (d), s/veh		45.7	12.9	10.2		43.6	13.6	13.6	35.8	0.0	32.6	36.1	0.0	0.0	
Incr Delay (d2), s/veh		4.2	0.4	0.0		3.4	1.6	3.1	0.6	0.0	0.0	0.2	0.0	0.0	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		2.2	4.2	0.1		3.7	8.5	9.5	3.4	0.0	0.1	0.5	0.0	0.0	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		49.9	13.3	10.3		47.0	15.2	16.7	36.4	0.0	32.6	36.4	0.0	0.0	
LnGrp LOS		D	B	B		D	B	B	D	A	C	D	A	A	
Approach Vol, veh/h		1188				2125				160			23		
Approach Delay, s/veh		16.0				18.0				36.2			36.4		
Approach LOS		B				B				D			D		
Timer - Assigned Phs	1	2	4		5	6	8								
Phs Duration (G+Y+Rc), s	14.7	60.6	23.9		10.8	64.5	23.9								
Change Period (Y+Rc), s	4.4	6.2	4.9		4.4	6.2	4.9								
Max Green Setting (Gmax), s	30.0	60.0	40.0		40.0	60.0	30.0								
Max Q Clear Time (g_c+10), s	11.0	14.1	11.3		6.9	27.2	10.5								
Green Ext Time (p_c), s	0.2	28.5	0.1		0.1	31.1	0.7								

Intersection Summary

HCM 6th Ctrl Delay	18.2
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
9: Fenton Pkwy & Friars Rd

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗		↔↔	↑↑↑	↗	↔↔	↑	↗	↔↔	↗	↗
Traffic Volume (veh/h)	37	1025	47	8	172	1815	19	76	9	147	67	15	149
Future Volume (veh/h)	37	1025	47	8	172	1815	19	76	9	147	67	15	149
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	40	1114	29		187	1973	12	83	10	10	73	16	11
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	89	3256	1105		253	3499	1141	205	136	115	123	81	109
Arrive On Green	0.03	0.64	0.64		0.02	0.23	0.23	0.06	0.07	0.07	0.03	0.04	0.04
Sat Flow, veh/h	3456	5106	1585		3456	5106	1585	3456	1870	1579	3563	1870	1570
Grp Volume(v), veh/h	40	1114	29		187	1973	12	83	10	10	73	16	11
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1585	1728	1870	1579	1781	1870	1570
Q Serve(g_s), s	1.3	11.1	0.2		5.9	37.7	0.6	2.5	0.5	0.7	2.2	0.9	0.6
Cycle Q Clear(g_c), s	1.3	11.1	0.2		5.9	37.7	0.6	2.5	0.5	0.7	2.2	0.9	0.6
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	89	3256	1105		253	3499	1141	205	136	115	123	81	109
V/C Ratio(X)	0.45	0.34	0.03		0.74	0.56	0.01	0.40	0.07	0.09	0.59	0.20	0.10
Avail Cap(c_a), veh/h	286	3256	1105		459	3499	1141	349	537	453	347	531	486
HCM Platoon Ratio	1.00	1.00	1.00		0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.93	0.93	0.93		0.78	0.78	0.78	0.99	0.99	0.99	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.8	9.2	1.2		52.6	28.0	10.8	49.9	47.5	47.6	52.3	50.8	31.1
Incr Delay (d2), s/veh	1.2	0.3	0.0		1.2	0.5	0.0	0.5	1.0	1.5	1.7	5.4	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.6	0.1		2.6	17.1	0.2	1.1	0.3	0.3	1.0	0.5	0.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	54.1	9.5	1.2		53.9	28.5	10.8	50.3	48.6	49.1	54.0	56.1	33.0
LnGrp LOS	D	A	A		D	C	B	D	D	D	D	E	C
Approach Vol, veh/h		1183				2172			103			100	
Approach Delay, s/veh		10.8				30.6			50.0			52.0	
Approach LOS		B				C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	12.5	76.4	11.4	9.7	7.2	81.7	8.2	12.9					
Change Period (Y+Rc), s	4.4	6.3	4.9	* 4.9	4.4	* 6.3	4.4	4.9					
Max Green Setting (Gmax), s	14.6	33.1	11.1	* 31	9.1	* 39	10.7	31.6					
Max Q Clear Time (g_c+1), s	17.9	13.1	4.5	2.9	3.3	39.7	4.2	2.7					
Green Ext Time (p_c), s	0.2	13.7	0.1	0.2	0.0	0.0	0.0	0.1					

Intersection Summary

HCM 6th Ctrl Delay	25.2
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
10: Northside Dr & Friars Rd

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↔↔↔	↔	↔↔	↔↔↔	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	2	31	969	222	478	1745	60	98	8	216	177	26	155
Future Volume (veh/h)	2	31	969	222	478	1745	60	98	8	216	177	26	155
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		33	1020	234	503	1837	44	103	8	167	186	27	20
Peak Hour Factor		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		80	2363	732	553	3062	1054	159	232	447	250	281	238
Arrive On Green		0.01	0.15	0.15	0.32	1.00	1.00	0.05	0.12	0.12	0.07	0.15	0.15
Sat Flow, veh/h		3456	5106	1582	3456	5106	1565	3456	1870	1566	3456	1870	1585
Grp Volume(v), veh/h		33	1020	234	503	1837	44	103	8	167	186	27	20
Grp Sat Flow(s),veh/h/ln		1728	1702	1582	1728	1702	1565	1728	1870	1566	1728	1870	1585
Q Serve(g_s), s		1.0	19.9	14.5	15.4	0.0	0.0	3.2	0.4	9.4	5.8	1.4	1.2
Cycle Q Clear(g_c), s		1.0	19.9	14.5	15.4	0.0	0.0	3.2	0.4	9.4	5.8	1.4	1.2
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		80	2363	732	553	3062	1054	159	232	447	250	281	238
V/C Ratio(X)		0.41	0.43	0.32	0.91	0.60	0.04	0.65	0.03	0.37	0.74	0.10	0.08
Avail Cap(c_a), veh/h		254	2363	732	600	3062	1054	346	452	632	471	520	441
HCM Platoon Ratio		0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.92	0.92	0.92	0.83	0.83	0.83	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		53.8	33.5	31.2	36.6	0.0	0.0	51.6	42.4	31.6	50.0	40.3	40.2
Incr Delay (d2), s/veh		1.2	0.5	1.1	14.2	0.7	0.1	1.6	0.2	1.5	1.6	0.7	0.7
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.5	9.1	6.4	6.2	0.2	0.0	1.4	0.2	3.8	2.6	0.7	0.5
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		55.0	34.0	32.2	50.9	0.7	0.1	53.2	42.6	33.1	51.7	41.0	40.9
LnGrp LOS		E	C	C	D	A	A	D	D	C	D	D	D
Approach Vol, veh/h			1287			2384			278			233	
Approach Delay, s/veh			34.2			11.3			40.8			49.5	
Approach LOS			C			B			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	22.0	57.1	9.5	21.4	6.9	72.2	12.4	18.5					
Change Period (Y+Rc), s	4.4	* 6.2	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	19.5	* 30	11.0	30.6	8.1	40.4	15.0	26.6					
Max Q Clear Time (g_c+1/17), s	11.4	21.9	5.2	3.4	3.0	2.0	7.8	11.4					
Green Ext Time (p_c), s	0.2	6.0	0.1	0.6	0.0	32.6	0.2	1.2					

Intersection Summary

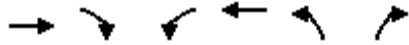
HCM 6th Ctrl Delay	22.4
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 11: Stadium Way (Street A) & Friars Rd

Existing Plus Project Without Event Conditions
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↔	↑↑↑	↔	↔
Traffic Volume (veh/h)	1112	256	710	2181	134	72
Future Volume (veh/h)	1112	256	710	2181	134	72
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1158	130	740	2272	140	75
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2837	879	853	4329	212	171
Arrive On Green	1.00	1.00	0.25	0.85	0.06	0.06
Sat Flow, veh/h	5274	1582	3456	5274	3456	2790
Grp Volume(v), veh/h	1158	130	740	2272	140	75
Grp Sat Flow(s),veh/h/ln	1702	1582	1728	1702	1728	1395
Q Serve(g_s), s	0.0	0.0	22.6	13.4	4.4	2.9
Cycle Q Clear(g_c), s	0.0	0.0	22.6	13.4	4.4	2.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2837	879	853	4329	212	171
V/C Ratio(X)	0.41	0.15	0.87	0.52	0.66	0.44
Avail Cap(c_a), veh/h	2837	879	1319	4329	408	330
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	39.7	2.3	50.5	49.8
Incr Delay (d2), s/veh	0.4	0.3	4.0	0.5	3.5	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	9.6	1.7	2.0	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.4	0.3	43.8	2.8	54.0	51.6
LnGrp LOS	A	A	D	A	D	D
Approach Vol, veh/h	1288			3012	215	
Approach Delay, s/veh	0.4			12.8	53.2	
Approach LOS	A			B	D	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	32.1	66.1		98.3	11.7	
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	
Max Green Setting (Gmax), s	42.0	40.0		87.0	13.0	
Max Q Clear Time (g_c+Y), s	24.6	2.0		15.4	6.4	
Green Ext Time (p_c), s	2.6	10.0		34.9	0.4	

Intersection Summary

HCM 6th Ctrl Delay		11.2	
HCM 6th LOS		B	

HCM 6th Signalized Intersection Summary
 12: Mission Village Dr & Friars Rd WB

Existing Plus Project Without Event Conditions
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↶	↶	↶			↶	↶
Traffic Volume (veh/h)	0	0	0	549	0	415	375	835	0	0	648	242
Future Volume (veh/h)	0	0	0	549	0	415	375	835	0	0	648	242
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				590	0	338	403	898	0	0	697	132
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				829	0	369	1105	2397	0	0	1034	461
Arrive On Green				0.47	0.00	0.47	0.21	0.45	0.00	0.00	0.29	0.29
Sat Flow, veh/h				3563	0	1583	3456	3647	0	0	3647	1585
Grp Volume(v), veh/h				590	0	338	403	898	0	0	697	132
Grp Sat Flow(s),veh/h/ln				1781	0	1583	1728	1777	0	0	1777	1585
Q Serve(g_s), s				14.6	0.0	21.9	10.9	18.3	0.0	0.0	19.0	7.1
Cycle Q Clear(g_c), s				14.6	0.0	21.9	10.9	18.3	0.0	0.0	19.0	7.1
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				829	0	369	1105	2397	0	0	1034	461
V/C Ratio(X)				0.71	0.00	0.92	0.36	0.37	0.00	0.00	0.67	0.29
Avail Cap(c_a), veh/h				1234	0	548	1105	2397	0	0	1034	461
HCM Platoon Ratio				2.00	2.00	2.00	0.67	0.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.91	0.91	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				26.4	0.0	28.4	33.7	14.8	0.0	0.0	34.4	30.2
Incr Delay (d2), s/veh				0.4	0.0	12.0	0.1	0.4	0.0	0.0	3.5	1.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.7	0.0	6.7	4.6	7.9	0.0	0.0	8.4	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				26.9	0.0	40.4	33.8	15.2	0.0	0.0	37.9	31.7
LnGrp LOS				C	A	D	C	B	A	A	D	C
Approach Vol, veh/h					928			1301			829	
Approach Delay, s/veh					31.8			21.0			36.9	
Approach LOS					C			C			D	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		79.5			40.5	39.0		30.5				
Change Period (Y+Rc), s		* 5.3			5.3	7.0		4.9				
Max Green Setting (Gmax), s		* 63			22.7	32.0		38.1				
Max Q Clear Time (g_c+I1), s		20.3			12.9	21.0		23.9				
Green Ext Time (p_c), s		6.8			0.6	4.4		1.6				

Intersection Summary

HCM 6th Ctrl Delay	28.6
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis Existing Plus Project Without Event Conditions
 13: Mission Village Dr/Street D & Friars Rd EB

AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕	↗↘					↕↕↕	↗↘	↗↘	↕↕		
Traffic Volume (vph)	168	0	291	0	0	0	0	1025	743	297	889	0	
Future Volume (vph)	168	0	291	0	0	0	0	1025	743	297	889	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		5.2	5.2					4.9	4.9	6.2	6.2		
Lane Util. Factor		1.00	0.88					0.91	0.88	0.97	0.95		
Frbp, ped/bikes		1.00	0.98					1.00	0.98	1.00	1.00		
Flpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00		
Frt		1.00	0.85					1.00	0.85	1.00	1.00		
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)		1770	2740					5085	2721	3433	3539		
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)		1770	2740					5085	2721	3433	3539		
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	
Adj. Flow (vph)	189	0	327	0	0	0	0	1152	835	334	999	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	189	327	0	0	0	0	1152	835	334	999	0	
Confl. Peds. (#/hr)			2						1				
Confl. Bikes (#/hr)			1										
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA		
Protected Phases	4	4						2		1	6		
Permitted Phases			4						2				
Actuated Green, G (s)		18.2	18.2					60.3	60.3	15.2	80.4		
Effective Green, g (s)		18.2	18.2					60.3	60.3	15.2	80.4		
Actuated g/C Ratio		0.17	0.17					0.55	0.55	0.14	0.73		
Clearance Time (s)		5.2	5.2					4.9	4.9	6.2	6.2		
Vehicle Extension (s)		3.0	3.0					3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)		292	453					2787	1491	474	2586		
v/s Ratio Prot		0.11						0.23		c0.10	0.28		
v/s Ratio Perm			c0.12						c0.31				
v/c Ratio		0.65	0.72					0.41	0.56	0.70	0.39		
Uniform Delay, d1		42.9	43.5					14.5	16.2	45.3	5.5		
Progression Factor		1.00	1.00					0.42	0.43	0.98	0.09		
Incremental Delay, d2		4.9	5.6					0.3	1.1	4.2	0.4		
Delay (s)		47.8	49.1					6.5	8.0	48.4	0.9		
Level of Service		D	D					A	A	D	A		
Approach Delay (s)		48.6			0.0			7.1			12.8		
Approach LOS		D			A			A			B		
Intersection Summary													
HCM 2000 Control Delay			14.7									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.61										
Actuated Cycle Length (s)			110.0									Sum of lost time (s)	16.3
Intersection Capacity Utilization			58.6%									ICU Level of Service	B
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
14: Street D & Street 4

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	4	4	246	11	885	8	814	22	192	942	47
Future Volume (veh/h)	32	4	4	246	11	885	8	814	22	192	942	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	35	4	0	267	12	962	9	885	22	209	1024	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	53	8	0	528	515	1640	19	1073	27	1081	1817	810
Arrive On Green	0.03	0.00	0.00	0.30	0.28	0.28	0.01	0.21	0.21	0.63	1.00	1.00
Sat Flow, veh/h	1781	1870	0	1781	1870	2790	1781	5124	127	3456	3554	1585
Grp Volume(v), veh/h	35	4	0	267	12	962	9	588	319	209	1024	28
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1781	1870	1395	1781	1702	1847	1728	1777	1585
Q Serve(g_s), s	2.1	0.2	0.0	13.6	0.5	23.9	0.6	18.1	18.2	2.8	0.0	0.0
Cycle Q Clear(g_c), s	2.1	0.2	0.0	13.6	0.5	23.9	0.6	18.1	18.2	2.8	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	53	8	0	528	515	1640	19	713	387	1081	1817	810
V/C Ratio(X)	0.66	0.51	0.00	0.51	0.02	0.59	0.46	0.82	0.83	0.19	0.56	0.03
Avail Cap(c_a), veh/h	100	595	0	528	774	2027	81	826	448	1081	1817	810
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.88	0.88	0.88
Uniform Delay (d), s/veh	52.8	54.7	0.0	32.0	29.1	14.2	54.1	41.6	41.6	14.7	0.0	0.0
Incr Delay (d2), s/veh	13.0	43.4	0.0	0.8	0.0	0.3	16.1	6.0	10.7	0.1	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.2	0.0	6.0	0.2	7.2	0.3	7.9	9.1	1.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.8	98.1	0.0	32.8	29.1	14.6	70.2	47.6	52.2	14.8	0.4	0.0
LnGrp LOS	E	F	A	C	C	B	E	D	D	B	A	A
Approach Vol, veh/h		39			1241			916			1261	
Approach Delay, s/veh		69.1			18.6			49.4			2.7	
Approach LOS		E			B			D			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	38.9	28.0	37.6	5.5	5.7	61.2	7.8	35.3				
Change Period (Y+Rc), s	4.5	5.0	5.0	* 5	4.5	5.0	4.5	5.0				
Max Green Setting (Gmax), s	12.6	26.7	16.7	* 35	5.0	34.3	6.2	45.5				
Max Q Clear Time (g_c+14), s	14.8	20.2	15.6	2.2	2.6	2.0	4.1	25.9				
Green Ext Time (p_c), s	0.4	2.9	0.1	0.0	0.0	7.9	0.0	4.4				

Intersection Summary

HCM 6th Ctrl Delay	21.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis Existing Plus Project Without Event Conditions
 15: Street F & Street 4

AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↗		↖	↗		↖	↗		↖	↗	↔↔
Traffic Volume (vph)	197	9	15	4	39	15	54	179	9	38	94	1047
Future Volume (vph)	197	9	15	4	39	15	54	179	9	38	94	1047
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	2.1	4.5
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.88
Frt	1.00	0.91		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1691		1770	1786		1770	1849		1770	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	1691		1770	1786		1770	1849		1770	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	214	10	16	4	42	16	59	195	10	41	102	1138
RTOR Reduction (vph)	0	6	0	0	14	0	0	2	0	0	0	0
Lane Group Flow (vph)	214	20	0	4	44	0	59	203	0	41	102	1138
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	7	4		3	8		5	2		1	6	9
Permitted Phases												
Actuated Green, G (s)	54.1	65.8		1.0	12.7		4.0	20.1		5.1	21.2	66.7
Effective Green, g (s)	54.1	65.8		1.0	12.7		4.0	20.1		5.1	21.2	66.7
Actuated g/C Ratio	0.49	0.60		0.01	0.12		0.04	0.18		0.05	0.19	0.61
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)	1688	1011		16	206		64	337		82	359	1689
v/s Ratio Prot	0.06	0.01		0.00	c0.02		c0.03	c0.11		0.02	0.05	c0.41
v/s Ratio Perm												
v/c Ratio	0.13	0.02		0.25	0.21		0.92	0.60		0.50	0.28	0.67
Uniform Delay, d1	15.1	9.0		54.1	44.1		52.8	41.3		51.2	37.9	14.4
Progression Factor	1.28	0.27		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0		8.1	0.5		84.8	3.0		4.7	0.2	1.1
Delay (s)	19.6	2.4		62.2	44.6		137.7	44.3		55.9	38.1	15.5
Level of Service	B	A		E	D		F	D		E	D	B
Approach Delay (s)		17.7			45.8			65.2			18.6	
Approach LOS		B			D			E			B	

Intersection Summary

HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	20.1
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Intersection					
Intersection Delay, s/veh 7.0					
Intersection LOS A					
Approach	EB		WB		NB
Entry Lanes	2		2		1
Conflicting Circle Lanes	2		2		2
Adj Approach Flow, veh/h	426		1275		113
Demand Flow Rate, veh/h	435		1300		115
Vehicles Circulating, veh/h	68		75		355
Vehicles Exiting, veh/h	1307		395		148
Ped Vol Crossing Leg, #/h	0		0		0
Ped Cap Adj	1.000		1.000		1.000
Approach Delay, s/veh	4.2		8.2		4.5
Approach LOS	A		A		A
Lane	Left	Right	Left	Right	Left
Designated Moves	LT	TR	LT	TR	LR
Assumed Moves	LT	TR	LT	TR	LR
RT Channelized					
Lane Util	0.469	0.531	0.470	0.530	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328
Entry Flow, veh/h	204	231	611	689	115
Cap Entry Lane, veh/h	1268	1340	1260	1332	1050
Entry HV Adj Factor	0.982	0.977	0.981	0.981	0.983
Flow Entry, veh/h	200	226	599	676	113
Cap Entry, veh/h	1245	1310	1235	1307	1032
V/C Ratio	0.161	0.172	0.485	0.517	0.110
Control Delay, s/veh	4.3	4.2	8.1	8.3	4.5
LOS	A	A	A	A	A
95th %tile Queue, veh	1	1	3	3	0

HCM 6th Signalized Intersection Summary
17: I-15 SB Ramps & Friars Rd

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	364	946	488	42	274	2069	427	0	0	0	664	2	1085
Future Volume (veh/h)	364	946	488	42	274	2069	427	0	0	0	664	2	1085
Initial Q (Qb), veh	0	0	0		0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	387	1006	178		291	2201	0				707	0	1148
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	499	2288	710		316	1634					806	0	1605
Arrive On Green	0.28	0.45	0.45		0.36	0.64	0.00				0.23	0.00	0.23
Sat Flow, veh/h	1781	5106	1585		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	387	1006	178		291	2201	0				707	0	1148
Grp Sat Flow(s),veh/h/ln	1781	1702	1585		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	22.0	14.9	7.7		17.2	35.2	0.0				21.1	0.0	0.0
Cycle Q Clear(g_c), s	22.0	14.9	7.7		17.2	35.2	0.0				21.1	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	499	2288	710		316	1634					806	0	1605
V/C Ratio(X)	0.78	0.44	0.25		0.92	1.35					0.88	0.00	0.72
Avail Cap(c_a), veh/h	499	2288	710		534	1634					1069	0	1839
HCM Platoon Ratio	1.00	1.00	1.00		2.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00		0.09	0.09	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	36.4	20.9	18.9		34.7	19.8	0.0				41.1	0.0	21.0
Incr Delay (d2), s/veh	6.8	0.6	0.8		0.9	156.6	0.0				5.5	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	5.7	2.8		5.7	29.7	0.0				9.9	0.0	17.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	43.2	21.5	19.7		35.6	176.4	0.0				46.6	0.0	21.9
LnGrp LOS	D	C	B		D	F					D	A	C
Approach Vol, veh/h		1571				2492	A					1855	
Approach Delay, s/veh		26.6				159.9						31.3	
Approach LOS		C				F						C	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	33.7	56.3		30.0	37.8	42.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	33	27.7		33.0	25.0	* 35							
Max Q Clear Time (g_c+119), s	119.2	16.9		23.1	24.0	37.2							
Green Ext Time (p_c), s	0.3	3.6		1.8	0.1	0.0							

Intersection Summary

HCM 6th Ctrl Delay	84.2
HCM 6th LOS	F

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

Existing Plus Project Without Event Conditions
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖				↑↑↑	↗						
Traffic Volume (veh/h)	698	977	0	0	2023	1443	0	0	322	0	0	765
Future Volume (veh/h)	698	977	0	0	2023	1443	0	0	322	0	0	765
Initial Q (Qb), veh	20	0	0	0	0	20						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	735	1028	0	0	2026	1587						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	567	0	0	0	2125	1801						
Arrive On Green	0.32	0.95	0.00	0.00	0.57	0.57						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	735	0	0	0	2026	1587						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	35.0	0.0	0.0	0.0	56.1	47.6						
Cycle Q Clear(g_c), s	35.0	0.0	0.0	0.0	56.1	47.6						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	567	0	0	0	2125	1801						
V/C Ratio(X)	1.30	0.00	0.00	0.00	0.95	0.88						
Avail Cap(c_a), veh/h	567	0	0	0	2125	1801						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.76	0.00	0.00	0.00	0.57	0.57						
Uniform Delay (d), s/veh	37.5	0.0	0.0	0.0	22.4	21.7						
Incr Delay (d2), s/veh	143.4	0.0	0.0	0.0	7.3	3.9						
Initial Q Delay(d3),s/veh	127.0	0.0	0.0	0.0	0.0	7.5						
%ile BackOfQ(50%),veh/ln	56.9	0.0	0.0	0.0	23.5	19.9						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	307.9	0.0	0.0	0.0	29.7	33.1						
LnGrp LOS	F	A	A	A	C	C						
Approach Vol, veh/h		735			3613							
Approach Delay, s/veh		307.9			31.2							
Approach LOS		F			C							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		110.0			40.5	69.5						
Change Period (Y+Rc), s		5.5			5.5	7.0						
Max Green Setting (Gmax), s		104.5			35.0	62.5						
Max Q Clear Time (g_c+I1), s		0.0			37.0	58.1						
Green Ext Time (p_c), s		0.0			0.0	4.0						

Intersection Summary

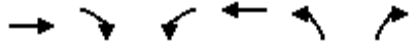
HCM 6th Ctrl Delay	78.0
HCM 6th LOS	E

Notes

User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

Existing Plus Project Without Event Conditions
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑↑	↑↑	↑
Traffic Volume (veh/h)	941	365	88	2687	771	84
Future Volume (veh/h)	941	365	88	2687	771	84
Initial Q (Qb), veh	0	0	0	20	20	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1001	282	94	2859	820	27
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1945	1027	354	4098	967	423
Arrive On Green	0.13	0.13	0.21	0.64	0.25	0.25
Sat Flow, veh/h	5274	1585	1781	6696	3563	1585
Grp Volume(v), veh/h	1001	282	94	2859	820	27
Grp Sat Flow(s),veh/h/ln	1702	1585	1781	1609	1781	1585
Q Serve(g_s), s	20.2	10.7	4.8	31.2	24.5	1.4
Cycle Q Clear(g_c), s	20.2	10.7	4.8	31.2	24.5	1.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1945	1027	354	4098	967	423
V/C Ratio(X)	0.51	0.27	0.27	0.70	0.85	0.06
Avail Cap(c_a), veh/h	1945	1007	376	4149	1185	527
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.72	0.72	0.75	0.75
Uniform Delay (d), s/veh	38.6	12.3	37.3	13.6	39.1	30.1
Incr Delay (d2), s/veh	1.0	0.7	0.1	0.5	3.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.6	20.3	0.0
%ile BackOfQ(50%),veh/ln	9.3	7.8	2.1	10.8	14.7	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	39.6	13.0	37.4	14.7	62.6	30.1
LnGrp LOS	D	B	D	B	E	C
Approach Vol, veh/h	1283			2953	847	
Approach Delay, s/veh	33.7			15.4	61.5	
Approach LOS	C			B	E	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	29.2	47.7		76.9	33.1	
Change Period (Y+Rc), s	6.0	* 5.8		6.0	5.1	
Max Green Setting (Gmax), s	16.2	* 42		62.3	36.6	
Max Q Clear Time (g_c+1/8), s	16.8	22.2		33.2	26.5	
Green Ext Time (p_c), s	0.1	10.4		28.5	1.4	

Intersection Summary

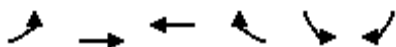
HCM 6th Ctrl Delay	27.7
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: Friars Rd & Santo Rd

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑↑		↔↔	↔
Traffic Volume (veh/h)	128	883	2409	52	63	333
Future Volume (veh/h)	128	883	2409	52	63	333
Initial Q (Qb), veh	0	0	80	0	50	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1811	1826	1826	1870	1870
Adj Flow Rate, veh/h	129	892	2433	52	64	335
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	6	5	5	2	2
Cap, veh/h	185	3309	3677	64	806	465
Arrive On Green	0.05	0.69	0.60	0.60	0.22	0.22
Sat Flow, veh/h	3456	5107	6631	136	3456	1585
Grp Volume(v), veh/h	129	892	1797	688	64	335
Grp Sat Flow(s),veh/h/ln	1728	1648	1570	1801	1728	1585
Q Serve(g_s), s	4.4	8.1	29.5	29.5	1.8	23.5
Cycle Q Clear(g_c), s	4.4	8.1	29.5	29.5	1.8	23.5
Prop In Lane	1.00			0.08	1.00	1.00
Lane Grp Cap(c), veh/h	185	3309	2702	1044	806	465
V/C Ratio(X)	0.70	0.27	0.67	0.66	0.08	0.72
Avail Cap(c_a), veh/h	449	3423	2836	1084	1022	554
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.53	0.53	1.00	1.00
Uniform Delay (d), s/veh	55.8	8.1	20.1	19.4	38.5	38.1
Incr Delay (d2), s/veh	1.6	0.2	0.7	1.7	0.0	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	10.6	7.8	30.1	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.8	16.5	17.7	7.0	19.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	57.4	8.3	31.4	28.9	68.6	40.7
LnGrp LOS	E	A	C	C	E	D
Approach Vol, veh/h		1021	2485		399	
Approach Delay, s/veh		14.5	30.7		45.2	
Approach LOS		B	C		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		89.6		30.4	10.8	78.7
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		73.6		35.5	15.6	* 54
Max Q Clear Time (g_c+I1), s		10.1		25.5	6.4	31.5
Green Ext Time (p_c), s		8.2		0.6	0.1	18.8

Intersection Summary

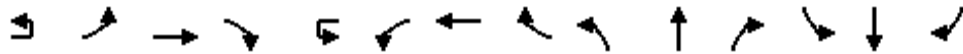
HCM 6th Ctrl Delay	28.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
21: Riverdale St & Friars Rd

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔ ↑↑↑	↔ ↑↑↑	↔ ↑		↔ ↑↑↑	↔ ↑↑↑	↔ ↑	↔ ↑	↔ ↑		↔ ↑	↔ ↑	
Traffic Volume (veh/h)	2	54	613	210	11	106	2268	24	107	23	18	13	112	140
Future Volume (veh/h)	2	54	613	210	11	106	2268	24	107	23	18	13	112	140
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		0.99	0.99		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1781	1826		1826	1841	1841	1781	1870	1870	1781	1870	1870
Adj Flow Rate, veh/h		56	639	121		110	2362	15	111	24	3	14	117	98
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		2	8	5		5	4	4	8	2	2	8	2	2
Cap, veh/h		72	2677	851		136	2955	916	202	380	47	355	219	183
Arrive On Green		0.04	0.55	0.55		0.08	0.59	0.59	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h		1781	4863	1546		1739	5025	1557	1106	1628	204	1308	937	785
Grp Volume(v), veh/h		56	639	121		110	2362	15	111	0	27	14	0	215
Grp Sat Flow(s),veh/h/ln		1781	1621	1546		1739	1675	1557	1106	0	1832	1308	0	1722
Q Serve(g_s), s		3.4	7.5	4.2		6.8	40.2	0.4	10.8	0.0	1.3	0.9	0.0	12.0
Cycle Q Clear(g_c), s		3.4	7.5	4.2		6.8	40.2	0.4	22.8	0.0	1.3	2.2	0.0	12.0
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.11	1.00		0.46
Lane Grp Cap(c), veh/h		72	2677	851		136	2955	916	202	0	427	355	0	402
V/C Ratio(X)		0.77	0.24	0.14		0.81	0.80	0.02	0.55	0.00	0.06	0.04	0.00	0.54
Avail Cap(c_a), veh/h		228	2677	851		223	2955	916	239	0	488	399	0	459
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.99	0.99	0.99		0.87	0.87	0.87	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		52.3	12.8	12.1		49.9	17.6	9.4	46.9	0.0	32.8	33.7	0.0	37.0
Incr Delay (d2), s/veh		6.4	0.2	0.3		3.8	2.1	0.0	0.9	0.0	0.0	0.0	0.0	0.4
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.6	2.5	1.4		3.0	14.0	0.1	3.0	0.0	0.6	0.3	0.0	5.1
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		58.6	13.0	12.4		53.7	19.7	9.5	47.8	0.0	32.8	33.7	0.0	37.4
LnGrp LOS		E	B	B		D	B	A	D	A	C	C	A	D
Approach Vol, veh/h			816			2487			138		229			
Approach Delay, s/veh			16.0			21.1			44.9		37.1			
Approach LOS			B			C			D		D			
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	3.0	66.5	30.6	8.9	70.6	30.6								
Change Period (Y+Rc), s	4.4	* 5.9	4.9	4.4	5.9	4.9								
Max Green Setting (Gmax), s	14.1	* 52	29.3	14.1	51.4	29.3								
Max Q Clear Time (g_c+10), s	10.8	9.5	14.0	5.4	42.2	24.8								
Green Ext Time (p_c), s	0.0	6.6	0.7	0.0	8.1	0.1								

Intersection Summary

HCM 6th Ctrl Delay	21.9
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 22: Mission Gorge Rd & Friars Rd

Existing Plus Project Without Event Conditions
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↵↵	↑↑↑		↵	↵↵
Traffic Volume (veh/h)	497	145	460	2288	17	148	219
Future Volume (veh/h)	497	145	460	2288	17	148	219
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	512	0	474	2359		161	47
Peak Hour Factor	0.97	0.97	0.97	0.97		0.92	0.92
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2962		661	0		191	832
Arrive On Green	0.58	0.00	0.19	0.00		0.11	0.11
Sat Flow, veh/h	5443	0	3456	474		1781	2790
Grp Volume(v), veh/h	512	0	474	48.7		161	47
Grp Sat Flow(s),veh/h/ln	1702	0	1728	D		1781	1395
Q Serve(g_s), s	5.6	0.0	15.4			10.6	0.0
Cycle Q Clear(g_c), s	5.6	0.0	15.4			10.6	0.0
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2962		661			191	832
V/C Ratio(X)	0.17		0.72			0.85	0.06
Avail Cap(c_a), veh/h	2962		661			306	1013
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.98	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	11.8	0.0	45.5			52.6	30.0
Incr Delay (d2), s/veh	0.1	0.0	3.2			6.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	6.7			5.1	0.5
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	11.9	0.0	48.7			58.7	30.1
LnGrp LOS	B		D			E	C
Approach Vol, veh/h	512	A				208	
Approach Delay, s/veh	11.9					52.2	
Approach LOS	B					D	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	27.4	75.4					17.2
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	69.6					20.6
Max Q Clear Time (g_c+11), s	17.4	7.6					12.6
Green Ext Time (p_c), s	0.0	4.0					0.2

Intersection Summary

HCM 6th Ctrl Delay	33.5
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
23: Qualcomm Way & Rio San Diego Dr

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↗		↔	↑↑	↗	↔	↑↑↑	↗	↔	↑↑↑	
Traffic Volume (veh/h)	98	65	115	12	234	37	45	69	473	676	54	222	51
Future Volume (veh/h)	98	65	115	12	234	37	45	69	473	676	54	222	51
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	107	71	22		254	40	6	75	514	319	59	241	37
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	213	157	213		398	488	213	178	1914	582	154	1650	245
Arrive On Green	0.06	0.08	0.08		0.12	0.14	0.14	0.05	0.37	0.37	0.04	0.37	0.37
Sat Flow, veh/h	3456	1870	1557		3456	3554	1547	3456	5106	1554	3456	4486	666
Grp Volume(v), veh/h	107	71	22		254	40	6	75	514	319	59	181	97
Grp Sat Flow(s),veh/h/ln	1728	1870	1557		1728	1777	1547	1728	1702	1554	1728	1702	1748
Q Serve(g_s), s	1.5	1.8	0.6		3.5	0.5	0.2	1.1	3.5	8.1	0.8	1.8	1.9
Cycle Q Clear(g_c), s	1.5	1.8	0.6		3.5	0.5	0.2	1.1	3.5	8.1	0.8	1.8	1.9
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	213	157	213		398	488	213	178	1914	582	154	1252	643
V/C Ratio(X)	0.50	0.45	0.10		0.64	0.08	0.03	0.42	0.27	0.55	0.38	0.14	0.15
Avail Cap(c_a), veh/h	2060	1487	1319		2060	2825	1230	4120	6088	1853	2060	4059	2084
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.9	21.9	19.1		21.3	18.9	18.8	23.1	10.9	12.4	23.4	10.6	10.6
Incr Delay (d2), s/veh	0.7	2.0	0.2		0.6	0.1	0.1	0.6	0.1	1.1	0.6	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.8	0.2		1.3	0.2	0.1	0.4	1.1	2.3	0.3	0.6	0.6
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	23.5	24.0	19.3		21.9	19.0	18.8	23.7	11.0	13.5	23.9	10.7	10.8
LnGrp LOS	C	C	B		C	B	B	C	B	B	C	B	B
Approach Vol, veh/h		200				300			908			337	
Approach Delay, s/veh		23.2				21.5			13.0			13.1	
Approach LOS		C				C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	6.6	24.0	10.2	9.5	7.0	23.6	7.5	12.2					
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3					
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0					
Max Q Clear Time (g_c+1), s	12.8	10.1	5.5	3.8	3.1	3.9	3.5	2.5					
Green Ext Time (p_c), s	0.1	8.0	0.4	0.4	0.1	3.1	0.2	0.2					

Intersection Summary

HCM 6th Ctrl Delay	15.6
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↖	↕		↖	↕				↕				↕	
Traffic Vol, veh/h	8	82	178	11	1	275	72	1	1	6	14	3	12	9	141
Future Vol, veh/h	8	82	178	11	1	275	72	1	1	6	14	3	12	9	141
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	9	87	189	12	1	293	77	1	1	6	15	3	13	10	150
Number of Lanes	0	1	2	0	1	2	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	9.5	10	8.9	10.2
HCM LOS	A	A	A	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	5%	100%	0%	0%	100%	0%	0%	7%
Vol Thru, %	29%	0%	100%	84%	0%	100%	56%	6%
Vol Right, %	67%	0%	0%	16%	0%	0%	44%	87%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	22	90	119	70	1	183	164	165
LT Vol	1	90	0	0	1	0	0	12
Through Vol	6	0	119	59	0	183	92	9
RT Vol	15	0	0	11	0	0	72	144
Lane Flow Rate	23	96	126	75	1	195	174	176
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.039	0.159	0.191	0.111	0.002	0.293	0.246	0.266
Departure Headway (Hd)	5.944	5.964	5.459	5.349	5.908	5.404	5.093	5.456
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	606	596	650	663	600	659	698	651
Service Time	3.644	3.758	3.252	3.142	3.696	3.19	2.879	3.246
HCM Lane V/C Ratio	0.038	0.161	0.194	0.113	0.002	0.296	0.249	0.27
HCM Control Delay	8.9	9.9	9.6	8.8	8.7	10.4	9.6	10.2
HCM Lane LOS	A	A	A	A	A	B	A	B
HCM 95th-tile Q	0.1	0.6	0.7	0.4	0	1.2	1	1.1

HCM 6th Signalized Intersection Summary

Existing Plus Project Without Event Conditions

25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy

AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	69	61	114	16	92	78	34	67	10	21	65	59	126
Future Volume (veh/h)	69	61	114	16	92	78	34	67	10	21	65	59	126
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00		1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	74	76	6	18	106	3	39	77	3		75	68	30
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87		0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	169	178	150	49	306	9	64	696	27		202	543	225
Arrive On Green	0.09	0.09	0.09	0.10	0.10	0.10	0.04	0.20	0.20		0.06	0.22	0.22
Sat Flow, veh/h	1781	1870	1576	500	3106	92	1781	3487	135		3456	2444	1014
Grp Volume(v), veh/h	74	76	6	66	0	61	39	39	41		75	48	50
Grp Sat Flow(s),veh/h/ln	1781	1870	1576	1845	0	1852	1781	1777	1845		1728	1777	1681
Q Serve(g_s), s	1.4	1.4	0.1	1.2	0.0	1.1	0.8	0.7	0.7		0.8	0.8	0.9
Cycle Q Clear(g_c), s	1.4	1.4	0.1	1.2	0.0	1.1	0.8	0.7	0.7		0.8	0.8	0.9
Prop In Lane	1.00		1.00	0.27		0.05	1.00		0.07		1.00		0.60
Lane Grp Cap(c), veh/h	169	178	150	182	0	183	64	355	368		202	395	374
V/C Ratio(X)	0.44	0.43	0.04	0.37	0.00	0.33	0.61	0.11	0.11		0.37	0.12	0.13
Avail Cap(c_a), veh/h	1964	2062	1738	2034	0	2042	1473	2938	3051		2857	2938	2780
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	15.5	15.5	14.9	15.3	0.0	15.2	17.2	11.9	11.9		16.4	11.3	11.3
Incr Delay (d2), s/veh	1.1	1.0	0.1	0.5	0.0	0.4	3.5	0.6	0.6		0.4	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.5	0.0	0.5	0.0	0.4	0.3	0.3	0.3		0.3	0.3	0.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	16.6	16.5	15.0	15.8	0.0	15.6	20.7	12.5	12.5		16.9	11.9	12.0
LnGrp LOS	B	B	B	B	A	B	C	B	B		B	B	B
Approach Vol, veh/h		156			127			119				173	
Approach Delay, s/veh		16.5			15.7			15.2				14.1	
Approach LOS		B			B			B				B	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	6.5	12.6		8.6	5.7	13.5		8.5					
Change Period (Y+Rc), s	4.4	* 5.4		5.2	4.4	5.4		4.9					
Max Green Setting (Gmax), s	30.0	* 60		40.0	30.0	60.0		40.0					
Max Q Clear Time (g_c+I), s	12.8	2.7		3.4	2.8	2.9		3.2					
Green Ext Time (p_c), s	0.1	1.6		0.4	0.0	2.1		0.5					

Intersection Summary

HCM 6th Ctrl Delay	15.3
HCM 6th LOS	B

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 26: Rancho Mission Rd & San Diego Mission Rd

Existing Plus Project Without Event Conditions
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	56	193	110	139	555	244	303	339	51	92	122	174
Future Volume (veh/h)	56	193	110	139	555	244	303	339	51	92	122	174
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	217	73	156	624	247	340	381	13	103	137	7
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	82	805	263	195	919	363	384	509	429	133	246	202
Arrive On Green	0.05	0.31	0.31	0.11	0.37	0.37	0.22	0.27	0.27	0.07	0.13	0.13
Sat Flow, veh/h	1781	2620	854	1781	2475	979	1781	1870	1576	1781	1870	1534
Grp Volume(v), veh/h	63	145	145	156	448	423	340	381	13	103	137	7
Grp Sat Flow(s),veh/h/ln	1781	1777	1697	1781	1777	1678	1781	1870	1576	1781	1870	1534
Q Serve(g_s), s	2.8	4.9	5.1	6.7	16.7	16.7	14.6	14.7	0.5	4.5	5.4	0.3
Cycle Q Clear(g_c), s	2.8	4.9	5.1	6.7	16.7	16.7	14.6	14.7	0.5	4.5	5.4	0.3
Prop In Lane	1.00		0.50	1.00		0.58	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	82	546	522	195	660	623	384	509	429	133	246	202
V/C Ratio(X)	0.77	0.27	0.28	0.80	0.68	0.68	0.89	0.75	0.03	0.77	0.56	0.03
Avail Cap(c_a), veh/h	791	1126	1076	791	1239	1170	678	1186	999	678	1186	973
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.2	20.6	20.7	34.3	20.8	20.9	30.0	26.2	21.1	35.8	32.1	29.9
Incr Delay (d2), s/veh	5.7	0.4	0.4	2.9	2.0	2.2	2.9	0.8	0.0	3.6	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.9	1.9	2.9	6.6	6.3	6.2	6.3	0.2	2.0	2.4	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.9	21.0	21.1	37.1	22.9	23.0	32.8	27.1	21.1	39.4	32.8	29.9
LnGrp LOS	D	C	C	D	C	C	C	C	C	D	C	C
Approach Vol, veh/h		353			1027			734			247	
Approach Delay, s/veh		25.0			25.1			29.6			35.5	
Approach LOS		C			C			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.6	29.7	21.0	15.5	7.6	34.8	9.9	26.6				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	* 5.5	4.0	* 5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	* 55	30.0	* 50				
Max Q Clear Time (g_c+1), s	19.7	7.1	16.6	7.4	4.8	18.7	6.5	16.7				
Green Ext Time (p_c), s	0.2	2.7	0.4	0.5	0.1	10.5	0.1	1.5				

Intersection Summary

HCM 6th Ctrl Delay	27.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Without Event Conditions
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↖	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (veh/h)	38	97	176	40	510	16	295	100	31	3	71	207
Future Volume (veh/h)	38	97	176	40	510	16	295	100	31	3	71	207
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	113	110	47	593	18	343	116	29	3	83	169
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	143	320	888	108	973	31	425	344	86	366	112	227
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.24	0.24	0.24	0.21	0.21	0.21
Sat Flow, veh/h	196	991	1575	115	3011	95	1781	1439	360	1781	544	1108
Grp Volume(v), veh/h	157	0	110	339	0	319	343	0	145	3	0	252
Grp Sat Flow(s),veh/h/ln	187	0	1575	1537	0	1684	1781	0	1799	1781	0	1652
Q Serve(g_s), s	0.6	0.0	1.9	2.4	0.0	9.2	10.5	0.0	3.9	0.1	0.0	8.3
Cycle Q Clear(g_c), s	9.7	0.0	1.9	12.1	0.0	9.2	10.5	0.0	3.9	0.1	0.0	8.3
Prop In Lane	0.28		1.00	0.14		0.06	1.00		0.20	1.00		0.67
Lane Grp Cap(c), veh/h	463	0	888	567	0	544	425	0	430	366	0	339
V/C Ratio(X)	0.34	0.00	0.12	0.60	0.00	0.59	0.81	0.00	0.34	0.01	0.00	0.74
Avail Cap(c_a), veh/h	1600	0	2197	1910	0	1857	1442	0	1457	1350	0	1252
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.7	0.0	6.0	16.7	0.0	16.4	20.8	0.0	18.3	18.4	0.0	21.6
Incr Delay (d2), s/veh	0.4	0.0	0.1	0.9	0.0	0.9	1.4	0.0	0.2	0.0	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.9	3.6	0.0	3.4	4.1	0.0	1.5	0.0	0.0	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.1	0.0	6.0	17.6	0.0	17.3	22.2	0.0	18.5	18.4	0.0	22.8
LnGrp LOS	B	A	A	B	A	B	C	A	B	B	A	C
Approach Vol, veh/h		267		658		488		255				
Approach Delay, s/veh		11.4		17.5		21.1		22.8				
Approach LOS		B		B		C		C				
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		23.3		16.4		23.3		18.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		67.0		44.0		64.0		47.0				
Max Q Clear Time (g_c+1), s		11.7		10.3		14.1		12.5				
Green Ext Time (p_c), s		1.3		1.1		4.6		1.0				

Intersection Summary

HCM 6th Ctrl Delay	18.4
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary Existing Plus Project Without Event Conditions
 28: Qualcomm Way & Camino de la Reina/Camino del Rio N AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↖	↕	↗		↖	↕	↗	↖	↕	↗		↖	↕	↗
Traffic Volume (veh/h)	1	47	92	75	6	247	209	213	95	846	410	1	102	416	41
Future Volume (veh/h)	1	47	92	75	6	247	209	213	95	846	410	1	102	416	41
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.94	1.00		0.98		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No			No			No				No		
Adj Sat Flow, veh/h/ln		1781	1870	1870		1870	1870	1870	1841	1900	1870		1870	1811	1811
Adj Flow Rate, veh/h		52	102	17		274	232	25	106	940	388		113	462	38
Peak Hour Factor		0.90	0.90	0.90		0.90	0.90	0.90	0.90	0.90	0.90		0.90	0.90	0.90
Percent Heavy Veh, %		8	2	2		2	2	2	4	0	2		2	6	6
Cap, veh/h		65	366	239		396	619	260	186	2029	606		198	1833	149
Arrive On Green		0.04	0.10	0.10		0.11	0.17	0.17	0.05	0.39	0.39		0.06	0.39	0.39
Sat Flow, veh/h		1697	3741	1557		3456	3554	1489	3401	5187	1548		3456	4655	378
Grp Volume(v), veh/h		52	102	17		274	232	25	106	940	388		113	325	175
Grp Sat Flow(s),veh/h/ln		1697	1870	1557		1728	1777	1489	1700	1729	1548		1728	1648	1736
Q Serve(g_s), s		1.9	1.6	0.6		4.8	3.6	0.9	1.9	8.4	12.7		2.0	4.2	4.2
Cycle Q Clear(g_c), s		1.9	1.6	0.6		4.8	3.6	0.9	1.9	8.4	12.7		2.0	4.2	4.2
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.22
Lane Grp Cap(c), veh/h		65	366	239		396	619	260	186	2029	606		198	1298	684
V/C Ratio(X)		0.81	0.28	0.07		0.69	0.37	0.10	0.57	0.46	0.64		0.57	0.25	0.26
Avail Cap(c_a), veh/h		814	1795	834		1659	1706	715	1632	4149	1239		1659	2637	1389
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		29.8	26.2	22.7		26.6	22.8	21.7	28.8	14.1	15.5		28.7	12.7	12.8
Incr Delay (d2), s/veh		8.4	0.3	0.1		0.8	0.1	0.1	1.0	0.1	1.0		1.0	0.3	0.5
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.9	0.7	0.2		1.8	1.3	0.3	0.8	2.9	3.8		0.8	1.4	1.5
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		38.3	26.5	22.8		27.4	22.9	21.7	29.8	14.3	16.5		29.7	13.0	13.3
LnGrp LOS		D	C	C		C	C	C	C	B	B		C	B	B
Approach Vol, veh/h			171			531			1434				613		
Approach Delay, s/veh			29.7			25.2			16.0				16.2		
Approach LOS			C			C			B				B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8							
Phs Duration (G+Y+Rc), s	8.0	31.2	11.6	11.8	7.8	31.3	6.8	16.6							
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7							
Max Green Setting (Gmax), s	30.0	50.0	30.0	* 30	30.0	* 50	30.0	30.0							
Max Q Clear Time (g_c+14), s	14.0	14.7	6.8	3.6	3.9	6.2	3.9	5.6							
Green Ext Time (p_c), s	0.2	8.9	0.5	0.5	0.2	7.7	0.1	0.9							

Intersection Summary

HCM 6th Ctrl Delay	18.7
HCM 6th LOS	B

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Existing Plus Project Without Event Conditions
 29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↘		↗		↖	↗	↘	↑↑↑			↑↑	↗
Traffic Volume (veh/h)	1	52	0	70	14	127	439	91	835	0	0	335	414
Future Volume (veh/h)	1	52	0	70	14	127	439	91	835	0	0	335	414
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1722	0	1796	1870	1870	1870	1870	1870	0	0	1826	1870
Adj Flow Rate, veh/h		56	0	17	15	137	221	98	898	0	0	360	83
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		12	0	7	2	2	2	2	2	0	0	5	2
Cap, veh/h		0	0	0	35	320	302	370	2900	0	0	924	410
Arrive On Green		0.00	0.00	0.00	0.19	0.19	0.19	0.21	0.57	0.00	0.00	0.27	0.27
Sat Flow, veh/h			0		184	1678	1583	1781	5274	0	0	3561	1540
Grp Volume(v), veh/h			0.0		152	0	221	98	898	0	0	360	83
Grp Sat Flow(s),veh/h/ln					1861	0	1583	1781	1702	0	0	1735	1540
Q Serve(g_s), s					3.6	0.0	6.6	2.3	4.6	0.0	0.0	4.3	2.1
Cycle Q Clear(g_c), s					3.6	0.0	6.6	2.3	4.6	0.0	0.0	4.3	2.1
Prop In Lane					0.10		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					355	0	302	370	2900	0	0	924	410
V/C Ratio(X)					0.43	0.00	0.73	0.26	0.31	0.00	0.00	0.39	0.20
Avail Cap(c_a), veh/h					1670	0	1420	1208	5804	0	0	4013	1781
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)					1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh					17.9	0.0	19.1	16.6	5.7	0.0	0.0	15.1	14.3
Incr Delay (d2), s/veh					0.3	0.0	1.3	0.1	0.0	0.0	0.0	0.6	0.5
Initial Q Delay(d3),s/veh					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln					1.3	0.0	2.1	0.8	1.1	0.0	0.0	1.5	0.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					18.2	0.0	20.4	16.8	5.7	0.0	0.0	15.6	14.8
LnGrp LOS					B	A	C	B	A	A	A	B	B
Approach Vol, veh/h						373			996			443	
Approach Delay, s/veh						19.5			6.8			15.5	
Approach LOS						B			A			B	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		35.5			15.1	20.4		14.7					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		57.0			* 34	58.0		45.0					
Max Q Clear Time (g_c+I1), s		6.6			4.3	6.3		8.6					
Green Ext Time (p_c), s		4.6			0.0	5.8		0.8					

Intersection Summary

HCM 6th Ctrl Delay	11.5
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Existing Plus Project Without Event Conditions
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	412	0	1020	628	0
Future Volume (veh/h)	0	412	0	1020	628	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1856	0
Adj Flow Rate, veh/h	0	260	0	1052	647	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	2	0	2	3	0
Cap, veh/h	0	0	0	2600	2580	0
Arrive On Green	0.00	0.00	0.00	0.73	0.73	0.00
Sat Flow, veh/h	0		0	3741	3711	0
Grp Volume(v), veh/h	0.0		0	1052	647	0
Grp Sat Flow(s),veh/h/ln			0	1777	1763	0
Q Serve(g_s), s			0.0	2.3	1.2	0.0
Cycle Q Clear(g_c), s			0.0	2.3	1.2	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2600	2580	0
V/C Ratio(X)			0.00	0.40	0.25	0.00
Avail Cap(c_a), veh/h			0	6067	6019	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	1.0	0.9	0.0
Incr Delay (d2), s/veh			0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	1.1	0.9	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1052	647	
Approach Delay, s/veh				1.1	0.9	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		20.5				20.5
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		35.0				35.0
Max Q Clear Time (g_c+I1), s		4.3				3.2
Green Ext Time (p_c), s		5.5				3.0
Intersection Summary						
HCM 6th Ctrl Delay			1.0			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
31: Texas St & Camino del Rio S

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↖	↖	↖	↖	↖	↖	↖	↖	↖
Traffic Volume (veh/h)	1	83	40	42	57	70	96	124	1156	147	362	455	223
Future Volume (veh/h)	1	83	40	42	57	70	96	124	1156	147	362	455	223
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.98	1.00		0.96	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1811	1663	1870	1841	1870	1796	1841	1870	1870	1870	1870	1826
Adj Flow Rate, veh/h		86	42	9	59	73	33	129	1204	149	377	474	114
Peak Hour Factor		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		6	16	2	4	2	7	4	2	2	2	2	5
Cap, veh/h		127	122	259	156	167	484	159	1264	156	411	1916	817
Arrive On Green		0.07	0.07	0.07	0.09	0.09	0.09	0.09	0.40	0.40	0.23	0.54	0.54
Sat Flow, veh/h		1725	1663	1579	1753	1870	1486	1753	3169	391	1781	3554	1515
Grp Volume(v), veh/h		86	42	9	59	73	33	129	673	680	377	474	114
Grp Sat Flow(s),veh/h/ln		1725	1663	1579	1753	1870	1486	1753	1777	1782	1781	1777	1515
Q Serve(g_s), s		5.0	2.5	0.5	3.3	3.8	1.6	7.5	38.0	38.4	21.4	7.3	3.9
Cycle Q Clear(g_c), s		5.0	2.5	0.5	3.3	3.8	1.6	7.5	38.0	38.4	21.4	7.3	3.9
Prop In Lane		1.00		1.00	1.00		1.00	1.00		0.22	1.00		1.00
Lane Grp Cap(c), veh/h		127	122	259	156	167	484	159	709	711	411	1916	817
V/C Ratio(X)		0.68	0.34	0.03	0.38	0.44	0.07	0.81	0.95	0.96	0.92	0.25	0.14
Avail Cap(c_a), veh/h		500	482	601	477	509	756	423	717	719	1249	3088	1317
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		46.8	45.6	36.4	44.5	44.7	24.5	46.2	30.1	30.3	38.8	12.7	11.9
Incr Delay (d2), s/veh		6.2	1.7	0.1	4.1	4.9	0.2	3.8	21.7	23.0	3.5	0.1	0.2
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.4	1.1	0.2	1.6	2.0	0.6	3.4	19.6	20.1	9.5	2.8	1.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		53.0	47.3	36.5	48.6	49.6	24.6	50.0	51.8	53.3	42.4	12.8	12.1
LnGrp LOS		D	D	D	D	D	C	D	D	D	D	B	B
Approach Vol, veh/h			137			165			1482			965	
Approach Delay, s/veh			50.2			44.2			52.4			24.3	
Approach LOS			D			D			D			C	
Timer - Assigned Phs	1	2	4	5	6	8							
Phs Duration (G+Y+Rc), s	28.3	46.5	12.5	13.8	61.0	16.2							
Change Period (Y+Rc), s	4.4	5.2	4.9	4.4	* 5.2	7.0							
Max Green Setting (Gmax), s	72.6	41.8	30.0	25.0	* 90	28.2							
Max Q Clear Time (g_c+2.0), s	23.4	40.4	7.0	9.5	9.3	5.8							
Green Ext Time (p_c), s	0.5	0.9	0.4	0.1	8.3	1.4							

Intersection Summary

HCM 6th Ctrl Delay	41.9
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	5.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	42	223	182	622	449	28
Future Vol, veh/h	42	223	182	622	449	28
Conflicting Peds, #/hr	32	33	33	0	0	32
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	65	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	44	232	190	648	468	29

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1252	315	530	0	-	0
Stage 1	516	-	-	-	-	-
Stage 2	736	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	164	681	1033	-	-	-
Stage 1	564	-	-	-	-	-
Stage 2	435	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	108	639	1001	-	-	-
Mov Cap-2 Maneuver	108	-	-	-	-	-
Stage 1	384	-	-	-	-	-
Stage 2	422	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21	2.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1001	-	108	639	-	-
HCM Lane V/C Ratio	0.189	-	0.405	0.364	-	-
HCM Control Delay (s)	9.4	0.9	59.4	13.8	-	-
HCM Lane LOS	A	A	F	B	-	-
HCM 95th %tile Q(veh)	0.7	-	1.7	1.7	-	-

HCM 6th Signalized Intersection Summary
33: Camino del Rio N & Ward Rd

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	115	35	535	688	346	339
Future Volume (veh/h)	115	35	535	688	346	339
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	119	36	552	465	357	243
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	155	2104	1550	677	422	514
Arrive On Green	0.09	0.59	0.44	0.44	0.24	0.24
Sat Flow, veh/h	1781	3647	3647	1551	1781	1585
Grp Volume(v), veh/h	119	36	552	465	357	243
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1551	1781	1585
Q Serve(g_s), s	4.2	0.3	6.6	15.4	12.2	7.8
Cycle Q Clear(g_c), s	4.2	0.3	6.6	15.4	12.2	7.8
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	155	2104	1550	677	422	514
V/C Ratio(X)	0.77	0.02	0.36	0.69	0.85	0.47
Avail Cap(c_a), veh/h	1227	3896	3896	1700	1227	1230
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.5	5.4	12.0	14.5	23.2	17.2
Incr Delay (d2), s/veh	3.0	0.0	0.2	1.9	1.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.1	2.1	4.6	4.9	7.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.5	5.4	12.2	16.4	25.1	17.5
LnGrp LOS	C	A	B	B	C	B
Approach Vol, veh/h		155	1017		600	
Approach Delay, s/veh		25.4	14.1		22.0	
Approach LOS		C	B		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		43.8		20.0	10.0	33.9
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		2.3		14.2	6.2	17.4
Green Ext Time (p_c), s		0.3		0.9	0.1	10.4

Intersection Summary

HCM 6th Ctrl Delay	17.8
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
34: Fairmount Ave & Mission Gorge Rd

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↗	↕			↗	↕	
Traffic Volume (veh/h)	28	7	331	15	8	0	28	554	979	23	1	5	548	31
Future Volume (veh/h)	28	7	331	15	8	0	28	554	979	23	1	5	548	31
Initial Q (Qb), veh	0	0	15	0	15	0	0	0	0	0	0	0	15	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		1.00	1.00		0.99		1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	393	16	9	0	596	1053	24		5	589	29	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	288	486	131	115	0	886	2548	58		9	1596	75	
Arrive On Green	0.00	0.00	0.15	0.15	0.15	0.00	0.52	1.00	1.00		0.01	0.46	0.46	
Sat Flow, veh/h	0	1870	3018	709	522	0	3456	3551	81		1781	3446	169	
Grp Volume(v), veh/h	0	0	393	25	0	0	596	527	550		5	303	315	
Grp Sat Flow(s),veh/h/ln	0	1870	1509	1231	0	0	1728	1777	1855		1781	1777	1839	
Q Serve(g_s), s	0.0	0.0	14.7	0.3	0.0	0.0	14.4	0.0	0.0		0.3	12.7	12.8	
Cycle Q Clear(g_c), s	0.0	0.0	14.7	1.4	0.0	0.0	14.4	0.0	0.0		0.3	12.7	12.8	
Prop In Lane	0.00		1.00	0.64		0.00	1.00		0.04		1.00		0.09	
Lane Grp Cap(c), veh/h	0	288	486	251	0	0	886	1275	1331		9	820	850	
V/C Ratio(X)	0.00	0.00	0.81	0.10	0.00	0.00	0.67	0.41	0.41		0.55	0.37	0.37	
Avail Cap(c_a), veh/h	0	335	541	270	0	0	905	1284	1341		156	820	849	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00		1.00	1.00	1.00	
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.41	0.41	0.41		1.00	1.00	1.00	
Uniform Delay (d), s/veh	0.0	0.0	47.6	43.3	0.0	0.0	24.4	0.0	0.0		57.1	20.7	20.7	
Incr Delay (d2), s/veh	0.0	0.0	7.2	0.2	0.0	0.0	0.6	0.4	0.4		17.5	1.3	1.2	
Initial Q Delay(d3),s/veh	0.0	0.0	35.8	28.5	0.0	0.0	0.0	0.0	0.0		0.0	1.0	0.9	
%ile BackOfQ(50%),veh/ln	0.0	0.0	9.3	4.4	0.0	0.0	4.7	0.1	0.1		0.2	6.7	6.9	
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	90.6	72.0	0.0	0.0	25.1	0.4	0.4		74.6	23.0	22.8	
LnGrp LOS	A	A	F	E	A	A	C	A	A		E	C	C	
Approach Vol, veh/h		393			25			1673					623	
Approach Delay, s/veh		90.6			72.0			9.2					23.3	
Approach LOS		F			E			A					C	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	5.0	88.0		22.0	35.0	58.0		22.0						
Change Period (Y+Rc), s	4.4	4.9		4.9	4.9	* 4.9		4.9						
Max Green Setting (Gmax), s	10.0	70.1		20.6	27.1	* 53		20.6						
Max Q Clear Time (g_c+1/3), s	12.0	2.0		16.7	16.4	14.8		3.4						
Green Ext Time (p_c), s	0.0	22.6		0.4	1.0	8.9		0.1						

Intersection Summary

HCM 6th Ctrl Delay	24.8
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis Existing Plus Project Without Event Conditions
 35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	23	402	403	684	343	495	1232	143	11	807	101
Future Volume (vph)	34	23	402	403	684	343	495	1232	143	11	807	101
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1752	1578	1610	3172	1424	1770	3479		3433	3539	1583
Flt Permitted	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1752	1578	1610	3172	1424	1770	3479		3433	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	36	24	423	424	720	361	521	1297	151	12	849	106
RTOR Reduction (vph)	0	0	85	0	0	0	0	8	0	0	0	75
Lane Group Flow (vph)	30	30	338	382	798	325	521	1440	0	12	849	31
Confl. Peds. (#/hr)						2			1			
Confl. Bikes (#/hr)			2			2						
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8	1	5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	8.0	8.0	35.0	25.0	25.0	33.0	27.0	53.0		8.0	34.0	34.0
Effective Green, g (s)	8.0	8.0	35.0	25.0	25.0	33.0	27.0	53.0		8.0	34.0	34.0
Actuated g/C Ratio	0.07	0.07	0.30	0.22	0.22	0.29	0.23	0.46		0.07	0.30	0.30
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	116	121	544	350	689	408	415	1603		238	1046	468
v/s Ratio Prot	0.02	0.02	c0.15	0.24	c0.25	0.06	c0.29	c0.41		0.00	c0.24	
v/s Ratio Perm			0.07			0.17						0.02
v/c Ratio	0.26	0.25	0.62	1.09	1.16	0.80	1.26	0.90		0.05	0.81	0.07
Uniform Delay, d1	50.7	50.7	34.3	45.0	45.0	37.9	44.0	28.5		50.0	37.5	29.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.65	0.80	2.37
Incremental Delay, d2	0.4	0.4	1.6	74.9	86.9	9.7	133.3	8.4		0.0	6.0	0.2
Delay (s)	51.1	51.0	35.9	119.9	131.9	47.6	177.3	36.9		32.4	36.2	69.3
Level of Service	D	D	D	F	F	D	F	D		C	D	E
Approach Delay (s)		37.8			110.6			74.1			39.7	
Approach LOS		D			F			E			D	

Intersection Summary		
HCM 2000 Control Delay	74.9	HCM 2000 Level of Service E
HCM 2000 Volume to Capacity ratio	1.05	
Actuated Cycle Length (s)	115.0	Sum of lost time (s) 21.0
Intersection Capacity Utilization	90.4%	ICU Level of Service E
Analysis Period (min)	15	

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 36: Fairmount Ave & I-8 EB Off-Ramp

Existing Plus Project Without Event Conditions
 AM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations	YY	YY	U		↑↑	↑↑↑	
Traffic Volume (veh/h)	696	718	248	0	997	626	0
Future Volume (veh/h)	696	718	248	0	997	626	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1826	1870		0	1856	1856	0
Adj Flow Rate, veh/h	851	852		0	1201	754	0
Peak Hour Factor	0.83	0.83		0.83	0.83	0.83	0.83
Percent Heavy Veh, %	5	2		0	3	3	0
Cap, veh/h	1222	1114		0	1595	2292	0
Arrive On Green	0.35	0.35		0.00	0.45	0.45	0.00
Sat Flow, veh/h	3478	3170		0	3711	5400	0
Grp Volume(v), veh/h	851	852		0	1201	754	0
Grp Sat Flow(s),veh/h/ln	1739	1585		0	1763	1689	0
Q Serve(g_s), s	11.9	13.5		0.0	16.0	5.4	0.0
Cycle Q Clear(g_c), s	11.9	13.5		0.0	16.0	5.4	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	1222	1114		0	1595	2292	0
V/C Ratio(X)	0.70	0.76		0.00	0.75	0.33	0.00
Avail Cap(c_a), veh/h	2703	2464		0	4777	4654	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.8	16.3		0.0	12.9	10.0	0.0
Incr Delay (d2), s/veh	0.3	0.4		0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	4.3		0.0	5.3	1.7	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	16.0	16.7		0.0	13.1	10.0	0.0
LnGrp LOS	B	B		A	B	B	A
Approach Vol, veh/h	1703				1201	754	
Approach Delay, s/veh	16.4				13.1	10.0	
Approach LOS	B				B	B	
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				31.6		25.0	31.6
Change Period (Y+Rc), s				6.0		5.1	6.0
Max Green Setting (Gmax), s				52.0		44.0	76.7
Max Q Clear Time (g_c+1), s				7.4		15.5	18.0
Green Ext Time (p_c), s				4.0		4.4	7.6

Intersection Summary

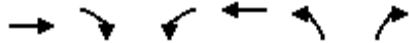
HCM 6th Ctrl Delay	14.0
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
37: Collwood Blvd & Montezuma Rd

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑↑	↵↵	↵
Traffic Volume (veh/h)	413	408	51	1056	994	43
Future Volume (veh/h)	413	408	51	1056	994	43
Initial Q (Qb), veh	0	0	0	30	30	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1663	1870	1870	1618
Adj Flow Rate, veh/h	439	351	54	1123	1057	27
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	16	2	2	19
Cap, veh/h	1741	1298	67	2970	1219	470
Arrive On Green	0.51	0.51	0.04	0.59	0.33	0.33
Sat Flow, veh/h	3618	1538	1584	5274	3456	1372
Grp Volume(v), veh/h	439	351	54	1123	1057	27
Grp Sat Flow(s),veh/h/ln	1763	1538	1584	1702	1728	1372
Q Serve(g_s), s	8.8	6.1	4.3	14.7	37.4	1.7
Cycle Q Clear(g_c), s	8.8	6.1	4.3	14.7	37.4	1.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1741	1298	67	2970	1219	470
V/C Ratio(X)	0.25	0.27	0.81	0.38	0.87	0.06
Avail Cap(c_a), veh/h	1795	1298	158	2994	1341	532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.5	2.2	59.8	15.1	40.0	27.8
Incr Delay (d2), s/veh	0.3	0.5	8.2	0.4	5.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	1.2	32.7	0.0
%ile BackOfQ(50%),veh/ln	3.7	1.3	1.8	7.3	23.7	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	18.8	2.7	68.0	16.6	78.1	27.9
LnGrp LOS	B	A	E	B	E	C
Approach Vol, veh/h	790			1177	1084	
Approach Delay, s/veh	11.7			19.0	76.9	
Approach LOS	B			B	E	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	9.7	70.6		80.4	45.6	
Change Period (Y+Rc), s	4.4	* 6.5		6.5	4.4	
Max Green Setting (Gmax), s	12.6	* 50		66.2	48.9	
Max Q Clear Time (g_c+1), s	10.3	10.8		16.7	39.4	
Green Ext Time (p_c), s	0.0	7.6		18.8	1.9	

Intersection Summary

HCM 6th Ctrl Delay	37.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
38: Mission Village Dr & Shawn Ave

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↖	↗	↖	↗	↔	
Traffic Volume (veh/h)	93	3	50	42	1	20	38	1058	5	8	638	29
Future Volume (veh/h)	93	3	50	42	1	20	38	1058	5	8	638	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	100	3	9	45	1	4	41	1138	3	9	686	28
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	362	46	139	355	37	147	565	2147	942	398	2101	86
Arrive On Green	0.12	0.12	0.12	0.12	0.12	0.12	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	1371	373	1120	1316	296	1185	736	3554	1559	493	3477	142
Grp Volume(v), veh/h	100	0	12	45	0	5	41	1138	3	9	350	364
Grp Sat Flow(s),veh/h/ln	1371	0	1494	1316	0	1482	736	1777	1559	493	1777	1842
Q Serve(g_s), s	2.5	0.0	0.3	1.1	0.0	0.1	1.1	7.0	0.0	0.4	3.6	3.7
Cycle Q Clear(g_c), s	2.6	0.0	0.3	1.4	0.0	0.1	4.7	7.0	0.0	7.4	3.6	3.7
Prop In Lane	1.00		0.75	1.00		0.80	1.00		1.00	1.00		0.08
Lane Grp Cap(c), veh/h	362	0	185	355	0	184	565	2147	942	398	1074	1113
V/C Ratio(X)	0.28	0.00	0.06	0.13	0.00	0.03	0.07	0.53	0.00	0.02	0.33	0.33
Avail Cap(c_a), veh/h	1685	0	1593	1670	0	1580	1297	5682	2492	888	2841	2946
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.6	0.0	14.5	15.1	0.0	14.4	4.8	4.3	2.9	6.5	3.7	3.7
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.1	0.0	0.0	0.1	0.2	0.0	0.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.1	0.3	0.0	0.0	0.1	0.7	0.0	0.0	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.8	0.0	14.6	15.2	0.0	14.5	4.9	4.6	2.9	6.5	3.9	3.9
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		112			50			1182			723	
Approach Delay, s/veh		15.6			15.1			4.6			3.9	
Approach LOS		B			B			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		28.0		9.6		28.0		9.6				
Change Period (Y+Rc), s		5.3		4.9		5.3		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		9.0		4.6		9.4		3.4				
Green Ext Time (p_c), s		13.5		0.4		6.3		0.2				

Intersection Summary

HCM 6th Ctrl Delay	5.2
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
39: Mission Village Dr & Fermi Ave

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕		↙	↕	
Traffic Volume (veh/h)	41	9	17	87	8	76	8	1112	88	54	576	6
Future Volume (veh/h)	41	9	17	87	8	76	8	1112	88	54	576	6
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	45	10	8	96	9	60	9	1222	94	59	633	7
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	243	53	30	208	28	86	16	1961	151	75	2234	25
Arrive On Green	0.15	0.15	0.15	0.15	0.15	0.15	0.01	0.59	0.59	0.04	0.62	0.62
Sat Flow, veh/h	982	341	192	797	182	560	1781	3337	256	1781	3599	40
Grp Volume(v), veh/h	63	0	0	165	0	0	9	650	666	59	312	328
Grp Sat Flow(s),veh/h/ln	1515	0	0	1539	0	0	1781	1777	1816	1781	1777	1862
Q Serve(g_s), s	0.0	0.0	0.0	4.4	0.0	0.0	0.3	16.0	16.1	2.2	5.4	5.4
Cycle Q Clear(g_c), s	2.3	0.0	0.0	6.6	0.0	0.0	0.3	16.0	16.1	2.2	5.4	5.4
Prop In Lane	0.71		0.13	0.58		0.36	1.00		0.14	1.00		0.02
Lane Grp Cap(c), veh/h	326	0	0	322	0	0	16	1044	1067	75	1103	1156
V/C Ratio(X)	0.19	0.00	0.00	0.51	0.00	0.00	0.55	0.62	0.62	0.78	0.28	0.28
Avail Cap(c_a), veh/h	952	0	0	752	0	0	796	1587	1623	796	1587	1663
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.9	0.0	0.0	26.7	0.0	0.0	33.1	9.0	9.0	31.9	5.9	5.9
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.5	0.0	0.0	10.2	1.1	1.1	6.4	0.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	2.5	0.0	0.0	0.2	4.8	4.9	1.0	1.6	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.1	0.0	0.0	27.2	0.0	0.0	43.3	10.1	10.1	38.3	6.1	6.1
LnGrp LOS	C	A	A	C	A	A	D	B	B	D	A	A
Approach Vol, veh/h		63			165			1325			699	
Approach Delay, s/veh		25.1			27.2			10.4			8.8	
Approach LOS		C			C			B			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	44.7		15.3	5.0	46.9		15.3				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	5.2		4.9				
Max Green Setting (Gmax), s	30.0	60.0		40.0	30.0	60.0		30.0				
Max Q Clear Time (g_c+1), s	14.2	18.1		4.3	2.3	7.4		8.6				
Green Ext Time (p_c), s	0.1	21.4		0.2	0.0	8.3		0.6				

Intersection Summary

HCM 6th Ctrl Delay	11.5
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
40: Gramercy Dr/Mission Village Dr & Ruffin Rd

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	285	18	29	442	767	13	8	18	331	12	40
Future Volume (veh/h)	50	285	18	29	442	767	13	8	18	331	12	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.95	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	57	324	18	33	502	728	15	9	4	376	14	31
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	1924	106	619	1000	875	158	215	87	624	88	195
Arrive On Green	0.56	0.56	0.56	0.56	0.56	0.56	0.09	0.09	0.09	0.18	0.18	0.18
Sat Flow, veh/h	453	3420	189	1036	1777	1556	1781	2426	979	3563	503	1113
Grp Volume(v), veh/h	57	168	174	33	502	728	15	6	7	376	0	45
Grp Sat Flow(s),veh/h/ln	453	1777	1832	1036	1777	1556	1781	1777	1628	1781	0	1615
Q Serve(g_s), s	10.2	3.9	4.0	1.4	14.8	33.0	0.7	0.3	0.3	8.4	0.0	2.0
Cycle Q Clear(g_c), s	43.2	3.9	4.0	5.3	14.8	33.0	0.7	0.3	0.3	8.4	0.0	2.0
Prop In Lane	1.00		0.10	1.00		1.00	1.00		0.60	1.00		0.69
Lane Grp Cap(c), veh/h	164	1000	1031	619	1000	875	158	158	144	624	0	283
V/C Ratio(X)	0.35	0.17	0.17	0.05	0.50	0.83	0.09	0.04	0.05	0.60	0.00	0.16
Avail Cap(c_a), veh/h	226	1242	1280	760	1242	1087	830	828	758	1660	0	752
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.2	9.1	9.1	10.4	11.5	15.4	36.0	35.8	35.8	32.7	0.0	30.0
Incr Delay (d2), s/veh	1.6	0.1	0.1	0.0	0.5	4.9	0.1	0.0	0.0	0.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.5	1.5	0.3	5.6	11.8	0.3	0.1	0.1	3.5	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.7	9.2	9.2	10.4	11.9	20.4	36.1	35.8	35.8	33.0	0.0	30.1
LnGrp LOS	C	A	A	B	B	C	D	D	D	C	A	C
Approach Vol, veh/h		399			1263			28			421	
Approach Delay, s/veh		12.8			16.8			36.0			32.7	
Approach LOS		B			B			D			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		53.4		19.9		53.4		12.5				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		45.2		10.4		35.0		2.7				
Green Ext Time (p_c), s		2.9		0.8		13.3		0.0				

Intersection Summary

HCM 6th Ctrl Delay	19.5
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	548	166	7	261	493	499	640
Future Volume (veh/h)	548	166	7	261	493	499	640
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	596	171		284	536	542	463
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1672	1223		336	2138	1085	497
Arrive On Green	0.47	0.47		0.10	0.60	0.31	0.31
Sat Flow, veh/h	3647	1543		3456	3647	3456	1585
Grp Volume(v), veh/h	596	171		284	536	542	463
Grp Sat Flow(s),veh/h/ln	1777	1543		1728	1777	1728	1585
Q Serve(g_s), s	13.9	3.5		10.5	9.2	16.6	36.8
Cycle Q Clear(g_c), s	13.9	3.5		10.5	9.2	16.6	36.8
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1672	1223		336	2138	1085	497
V/C Ratio(X)	0.36	0.14		0.85	0.25	0.50	0.93
Avail Cap(c_a), veh/h	1672	1223		391	2138	1614	740
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.97	0.97
Uniform Delay (d), s/veh	21.9	3.4		57.7	12.2	36.3	43.2
Incr Delay (d2), s/veh	0.6	0.2		12.4	0.3	0.1	10.9
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.7	3.1		5.1	3.5	7.1	15.8
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	22.5	3.6		70.1	12.4	36.4	54.1
LnGrp LOS	C	A		E	B	D	D
Approach Vol, veh/h	767			820	1005		
Approach Delay, s/veh	18.3			32.4	44.6		
Approach LOS	B			C	D		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	7.0	66.9			83.9	46.1	
Change Period (Y+Rc), s	4.4	* 5.7			5.7	5.3	
Max Green Setting (Gmax), s	4.7	* 40			58.3	60.7	
Max Q Clear Time (g_c+1/2), s	12.5	15.9			11.2	38.8	
Green Ext Time (p_c), s	0.1	8.1			5.2	2.0	

Intersection Summary

HCM 6th Ctrl Delay	32.9
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mobley St & Gramercy Dr

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	216	23	20	422	80	70	29	46	71	8	11
Future Volume (veh/h)	15	216	23	20	422	80	70	29	46	71	8	11
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1826	1841	1737	1870	1870	1870	1870	1870	1707	1707	1707
Adj Flow Rate, veh/h	16	227	10	21	444	66	74	31	29	75	8	7
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	5	4	11	2	2	2	2	2	13	13	13
Cap, veh/h	553	1496	647	668	1332	197	340	119	72	458	46	23
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	883	3469	1501	1049	3088	456	661	566	339	1051	217	107
Grp Volume(v), veh/h	16	227	10	21	254	256	134	0	0	90	0	0
Grp Sat Flow(s),veh/h/ln	883	1735	1501	1049	1777	1767	1567	0	0	1375	0	0
Q Serve(g_s), s	0.3	1.1	0.1	0.3	2.7	2.7	0.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.0	1.1	0.1	1.5	2.7	2.7	1.9	0.0	0.0	1.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.26	0.55		0.22	0.83		0.08
Lane Grp Cap(c), veh/h	553	1496	647	668	766	762	531	0	0	526	0	0
V/C Ratio(X)	0.03	0.15	0.02	0.03	0.33	0.34	0.25	0.00	0.00	0.17	0.00	0.00
Avail Cap(c_a), veh/h	2068	7448	3222	2468	3815	3794	2366	0	0	2056	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	6.3	4.8	4.6	5.3	5.3	5.3	9.4	0.0	0.0	9.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.5	0.5	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.0	0.0	0.5	0.5	0.5	0.0	0.0	0.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.3	4.9	4.6	5.3	5.7	5.8	9.5	0.0	0.0	9.3	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		253			531			134				90
Approach Delay, s/veh		5.0			5.7			9.5				9.3
Approach LOS		A			A			A				A
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.2		10.8		17.2		10.8				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		5.0		3.3		4.7		3.9				
Green Ext Time (p_c), s		3.1		0.4		6.6		0.5				

Intersection Summary

HCM 6th Ctrl Delay	6.4
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
43: Sandrock Rd & Greyling Dr/Gramercy Dr

Existing Plus Project Without Event Conditions
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕	↕	↕	↕
Traffic Volume (veh/h)	49	75	3	8	92	373	0	16	13	246	7	48
Future Volume (veh/h)	49	75	3	8	92	373	0	16	13	246	7	48
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.92	0.95		0.94	1.00		1.00	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1663	1870	1870	1870	1841	1870	1870
Adj Flow Rate, veh/h	53	82	2	9	100	173	0	17	0	273	0	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	2	2	16	2	2	2	4	2	2
Cap, veh/h	283	366	7	133	595	701	0	33	28	651	0	274
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.00	0.02	0.00	0.19	0.00	0.19
Sat Flow, veh/h	402	1107	22	47	1799	1328	0	1870	1585	3506	0	1474
Grp Volume(v), veh/h	137	0	0	109	0	173	0	17	0	273	0	15
Grp Sat Flow(s),veh/h/ln	1531	0	0	1847	0	1328	0	1870	1585	1753	0	1474
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	2.4	0.0	0.3	0.0	2.3	0.0	0.3
Cycle Q Clear(g_c), s	1.8	0.0	0.0	1.4	0.0	2.4	0.0	0.3	0.0	2.3	0.0	0.3
Prop In Lane	0.39		0.01	0.08		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	656	0	0	728	0	701	0	33	28	651	0	274
V/C Ratio(X)	0.21	0.00	0.00	0.15	0.00	0.25	0.00	0.52	0.00	0.42	0.00	0.05
Avail Cap(c_a), veh/h	1255	0	0	1485	0	1261	0	1125	954	3165	0	1330
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.0	0.0	0.0	7.9	0.0	4.5	0.0	16.2	0.0	12.0	0.0	11.1
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.1	0.0	4.7	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	0.4	0.0	0.6	0.0	0.1	0.0	0.7	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.1	0.0	0.0	7.9	0.0	4.5	0.0	20.9	0.0	12.1	0.0	11.2
LnGrp LOS	A	A	A	A	A	A	A	C	A	B	A	B
Approach Vol, veh/h		137			282			17			288	
Approach Delay, s/veh		8.1			5.9			20.9			12.1	
Approach LOS		A			A			C			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		16.3		11.5		16.3		5.5				
Change Period (Y+Rc), s		5.3		5.3		5.3		4.9				
Max Green Setting (Gmax), s		25.0		30.0		25.0		20.0				
Max Q Clear Time (g_c+I1), s		3.8		4.3		4.4		2.3				
Green Ext Time (p_c), s		0.5		0.5		0.7		0.0				

Intersection Summary

HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

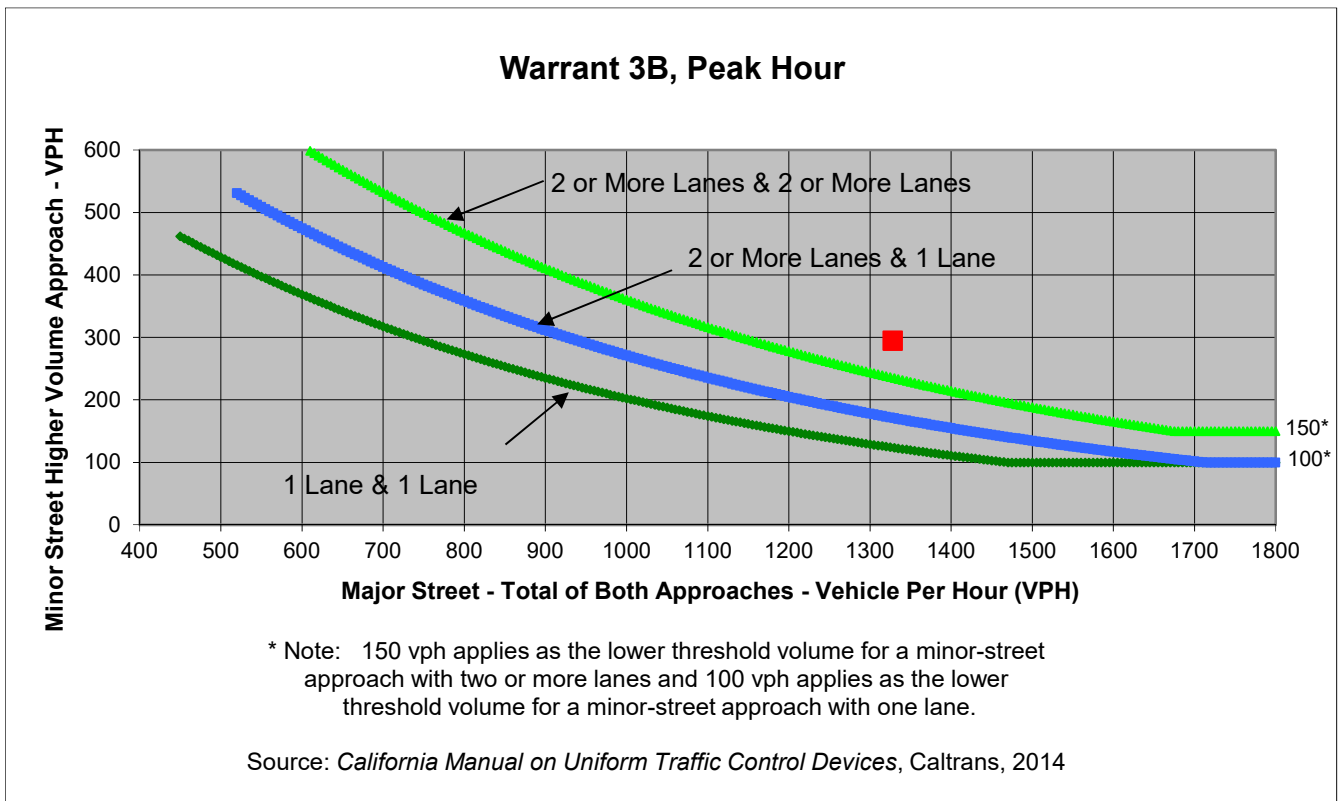
Project SDSU Mission Valley
 Scenario Existing + Project
 Peak Hour AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	209	0	44	0
Through	638	451	0	0
Right	0	30	251	0
Total	847	481	295	0

Major Street Direction

x	North/South
	East/West



	Major Street	Minor Street	Warrant Met
	Ward Rd	Rancho Mission Rd	
Number of Approach Lanes	2	1	<u>YES</u>
Traffic Volume (VPH) *	1,328	295	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
 Traffic Volume for Minor Street is the Volume of High Volume Approach.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

Project SDSU Mission Valley
 Scenario Existing + Project
 Peak Hour AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	209	0	44	0
Through	638	451	0	0
Right	0	30	251	0
Total	847	481	295	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	79.3
Approach with Worst Case Delay	EB
Total Vehicles on Approach	295

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Existing + Project	6.5	295	1,623
Limiting Value	4	100	650
Condition Satisfied?	Met	Met	Met
Warrant Met	<u>YES</u>		

Queues

Existing Plus Project Without Event Conditions

1: SR-163 SB Ramps/Ulric St & Friars Rd

AM Peak Hour



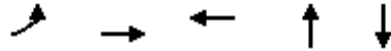
Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	53	582	228	807	621	151	154	738	187	188	79
v/c Ratio	0.35	0.25	0.15	0.45	0.90	0.60	0.60	0.47	0.59	0.59	0.21
Control Delay	54.8	18.7	0.2	28.9	40.6	52.1	52.0	1.0	44.6	44.8	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.8	18.7	0.2	28.9	40.6	52.1	52.0	1.0	44.6	44.8	6.5
Queue Length 50th (ft)	31	71	0	134	249	89	91	0	111	112	0
Queue Length 95th (ft)	89	163	0	279	#724	204	207	0	204	205	29
Internal Link Dist (ft)		1296		18			834			622	
Turn Bay Length (ft)	120		100		70	300		215			200
Base Capacity (vph)	321	2969	1563	1791	689	897	912	1583	897	897	876
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.20	0.15	0.45	0.90	0.17	0.17	0.47	0.21	0.21	0.09

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues
2: SR-163 NB Ramps & Friars Rd

Existing Plus Project Without Event Conditions
AM Peak Hour



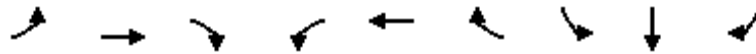
Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	425	1254	1981	1131	688
v/c Ratio	0.82	no cap	1.03	12.71	7.73
Control Delay	38.1		47.4	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0
Total Delay	38.1	Error	47.4	0.0	0.0
Queue Length 50th (ft)	183	0	~513	0	0
Queue Length 95th (ft)	282	0	#785	0	0
Internal Link Dist (ft)		962	635	815	521
Turn Bay Length (ft)	250				
Base Capacity (vph)	1062	1	1922	89	89
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.40	1254.00	1.03	12.71	7.73

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
17: I-15 SB Ramps & Friars Rd

Existing Plus Project Without Event Conditions
AM Peak Hour



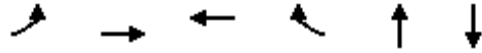
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	387	1006	519	336	2201	454	353	355	1154
v/c Ratio	0.96	0.52	0.56	0.83	1.14	0.58	0.87	0.87	0.80
Control Delay	79.5	29.8	5.6	47.7	96.8	11.2	61.3	61.6	26.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.5	29.8	5.6	47.7	96.8	11.2	61.3	61.6	26.2
Queue Length 50th (ft)	272	202	0	202	~672	81	249	251	355
Queue Length 95th (ft)	#462	296	91	m108	m358	m37	346	347	405
Internal Link Dist (ft)		844			1079			723	
Turn Bay Length (ft)	380		200	350			520		520
Base Capacity (vph)	402	1938	924	531	1925	784	504	505	1440
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.52	0.56	0.63	1.14	0.58	0.70	0.70	0.80

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
18: I-15 NB Ramps & Friars Rd

Existing Plus Project Without Event Conditions
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	735	1028	2813	835	339	805
v/c Ratio	1.31	no cap	1.07	1.08	3.61	8.56
Control Delay	183.3		63.7	78.0	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	183.3	Error	63.7	78.0	0.0	0.0
Queue Length 50th (ft)	~693	0	~859	~770	0	0
Queue Length 95th (ft)	#931	0	#962	#1058	0	0
Internal Link Dist (ft)		1079	869		797	677
Turn Bay Length (ft)	515					
Base Capacity (vph)	563	1	2632	773	94	94
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.31	1028.00	1.07	1.08	3.61	8.56

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

Existing Plus Project Without Event Conditions

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

AM Peak Hour



Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	57	75	152	472	98	898	360	445
v/c Ratio	0.26	0.14	0.38	0.83	0.30	0.36	0.44	0.63
Control Delay	42.1	7.3	31.5	25.3	39.0	15.9	30.4	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	42.1	7.3	31.5	25.3	39.0	15.9	30.4	7.8
Queue Length 50th (ft)	27	0	68	85	44	105	83	0
Queue Length 95th (ft)	78	34	135	230	118	194	156	85
Internal Link Dist (ft)			657			1041	147	
Turn Bay Length (ft)				150	110			
Base Capacity (vph)	838	912	1076	1035	781	4964	2510	1238
Starvation Cap Reductn	0	0	0	0	0	0	359	107
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.08	0.14	0.46	0.13	0.18	0.17	0.39

Intersection Summary

Queues
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Existing Plus Project Without Event Conditions

AM Peak Hour



Lane Group	EBR	NBT	SBT
Lane Group Flow (vph)	425	1052	647
v/c Ratio	0.52	0.62	0.38
Control Delay	8.9	9.1	7.0
Queue Delay	0.0	0.0	0.0
Total Delay	8.9	9.1	7.0
Queue Length 50th (ft)	18	67	36
Queue Length 95th (ft)	56	137	75
Internal Link Dist (ft)		285	1041
Turn Bay Length (ft)			
Base Capacity (vph)	2782	3299	3267
Starvation Cap Reductn	0	14	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.15	0.32	0.20

Intersection Summary

Queues

Existing Plus Project Without Event Conditions

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	30	30	423	382	798	325	521	1448	12	849	106
v/c Ratio	0.21	0.20	0.74	1.09	1.16	0.76	1.26	0.88	0.05	0.79	0.19
Control Delay	52.5	52.2	31.1	117.7	127.6	46.2	171.0	36.1	32.8	35.9	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	3.2	0.0
Total Delay	52.5	52.2	31.1	117.7	127.6	46.2	171.0	37.9	32.8	39.1	9.5
Queue Length 50th (ft)	22	22	184	~350	~406	224	~483	520	4	335	21
Queue Length 95th (ft)	54	54	298	#561	#544	#359	#694	#682	m8	#422	m59
Internal Link Dist (ft)		2741			1304			808		254	
Turn Bay Length (ft)	105					200	215		65		140
Base Capacity (vph)	146	152	569	350	689	425	415	1641	238	1077	569
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	141	0
Spillback Cap Reductn	0	0	0	0	0	0	0	88	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.20	0.74	1.09	1.16	0.76	1.26	0.93	0.05	0.91	0.19

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
36: Fairmount Ave & I-8 EB Off-Ramp

Existing Plus Project Without Event Conditions
AM Peak Hour



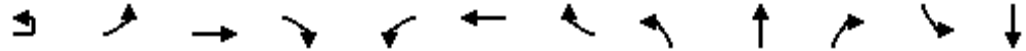
Lane Group	EBL	EBR	NBU	NBT	SBT
Lane Group Flow (vph)	926	778	299	1201	754
v/c Ratio	0.77	0.81	0.75	0.67	0.64
Control Delay	30.3	34.0	49.6	20.1	34.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	30.3	34.0	49.6	20.1	34.9
Queue Length 50th (ft)	228	222	155	248	139
Queue Length 95th (ft)	313	314	#354	390	200
Internal Link Dist (ft)	721			683	808
Turn Bay Length (ft)	550		350		
Base Capacity (vph)	2643	2140	397	2989	2940
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.36	0.75	0.40	0.26

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM 6th Signalized Intersection Summary
1: SR-163 SB Ramps/Ulrir St & Friars Rd

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↘	↗↗↗	↗		↗↗↗	↗	↘	↗	↗	↘	↗
Traffic Volume (veh/h)	1	133	1478	573	0	1010	679	258	20	637	570	0
Future Volume (veh/h)	1	133	1478	573	0	1010	679	258	20	637	570	0
Initial Q (Qb), veh		0	10	10	0	10	0	0	0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No			No				No
Adj Sat Flow, veh/h/ln		1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		136	1508	0	0	1031	581	277	0	0	582	0
Peak Hour Factor		0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %		2	2	2	0	2	2	2	2	2	2	2
Cap, veh/h		166	2452		0	1695	397	371	0		746	0
Arrive On Green		0.09	0.49	0.00	0.00	0.35	0.35	0.11	0.00	0.00	0.20	0.00
Sat Flow, veh/h		1781	5106	1585	0	5274	1585	3563	0	1585	3563	0
Grp Volume(v), veh/h		136	1508	0	0	1031	581	277	0	0	582	0
Grp Sat Flow(s),veh/h/ln		1781	1702	1585	0	1702	1585	1781	0	1585	1781	0
Q Serve(g_s), s		7.1	20.2	0.0	0.0	15.7	33.0	7.2	0.0	0.0	14.8	0.0
Cycle Q Clear(g_c), s		7.1	20.2	0.0	0.0	15.7	33.0	7.2	0.0	0.0	14.8	0.0
Prop In Lane		1.00		1.00	0.00		1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h		166	2452		0	1695	397	371	0		746	0
V/C Ratio(X)		0.82	0.61		0.00	0.61	1.46	0.75	0.00		0.78	0.00
Avail Cap(c_a), veh/h		319	2509		0	1775	551	2627	0		1877	0
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh		46.8	19.7	0.0	0.0	29.2	49.4	45.8	0.0	0.0	36.5	0.0
Incr Delay (d2), s/veh		3.8	0.3	0.0	0.0	0.4	222.1	3.0	0.0	0.0	0.7	0.0
Initial Q Delay(d3),s/veh		0.0	0.3	0.0	0.0	0.6	0.0	0.0	0.0	0.0	5.9	0.0
%ile BackOfQ(50%),veh/ln		3.5	8.4	0.0	0.0	7.3	37.1	3.5	0.0	0.0	7.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		50.6	20.3	0.0	0.0	30.2	271.4	48.8	0.0	0.0	43.1	0.0
LnGrp LOS		D	C		A	C	F	D	A		D	A
Approach Vol, veh/h			1644	A		1612			277	A		648
Approach Delay, s/veh			22.8			117.2			48.8			42.9
Approach LOS			C			F			D			D
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		53.6		25.1	13.6	40.0		16.2				
Change Period (Y+Rc), s		7.0		6.1	* 4.7	7.0		6.1				
Max Green Setting (Gmax), s		45.0		50.0	* 17	33.0		70.0				
Max Q Clear Time (g_c+I1), s		22.2		16.8	9.1	35.0		9.2				
Green Ext Time (p_c), s		7.4		1.2	0.1	0.0		1.0				

Intersection Summary

HCM 6th Ctrl Delay	64.0
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	166
Future Volume (veh/h)	166
Initial Q (Qb), veh	10
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1870
Adj Flow Rate, veh/h	66
Peak Hour Factor	0.98
Percent Heavy Veh, %	2
Cap, veh/h	337
Arrive On Green	0.20
Sat Flow, veh/h	1578
Grp Volume(v), veh/h	66
Grp Sat Flow(s),veh/h/ln	1578
Q Serve(g_s), s	3.3
Cycle Q Clear(g_c), s	3.3
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	337
V/C Ratio(X)	0.20
Avail Cap(c_a), veh/h	831
HCM Platoon Ratio	1.00
Upstream Filter(l)	1.00
Uniform Delay (d), s/veh	32.4
Incr Delay (d2), s/veh	0.1
Initial Q Delay(d3),s/veh	7.9
%ile BackOfQ(50%),veh/ln	3.3
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	40.4
LnGrp LOS	D
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.	

HCM 6th Signalized Intersection Summary
2: SR-163 NB Ramps & Friars Rd

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘				↗	↗						
Traffic Volume (veh/h)	528	2061	0	0	1412	856	0	0	1008	0	0	831
Future Volume (veh/h)	528	2061	0	0	1412	856	0	0	1008	0	0	831
Initial Q (Qb), veh	20	0	0	0	10	0						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	550	2147	0	0	1471	0						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	669	0	0	0	1321							
Arrive On Green	0.34	0.00	0.00	0.00	0.51	0.00						
Sat Flow, veh/h	1781	550		0	3741	0						
Grp Volume(v), veh/h	550	60.2		0	1471	0						
Grp Sat Flow(s),veh/h/ln	1781	E		0	1777	0						
Q Serve(g_s), s	20.7			0.0	24.3	0.0						
Cycle Q Clear(g_c), s	20.7			0.0	24.3	0.0						
Prop In Lane	1.00			0.00		0.00						
Lane Grp Cap(c), veh/h	669			0	1321							
V/C Ratio(X)	0.82			0.00	1.11							
Avail Cap(c_a), veh/h	1533			0	2140							
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	0.00						
Uniform Delay (d), s/veh	23.1			0.0	35.5	0.0						
Incr Delay (d2), s/veh	1.0			0.0	57.2	0.0						
Initial Q Delay(d3),s/veh	36.1			0.0	27.3	0.0						
%ile BackOfQ(50%),veh/ln	7.3			0.0	32.5	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.2			0.0	120.0	0.0						
LnGrp LOS	E			A	F							
Approach Vol, veh/h					1471	A						
Approach Delay, s/veh					120.0							
Approach LOS					F							
Timer - Assigned Phs					5	6						
Phs Duration (G+Y+Rc), s					28.5	41.3						
Change Period (Y+Rc), s					5.0	6.0						
Max Green Setting (Gmax), s					60.0	42.0						
Max Q Clear Time (g_c+I1), s					22.7	26.3						
Green Ext Time (p_c), s					0.8	8.9						

Intersection Summary

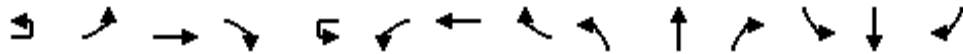
HCM 6th Ctrl Delay	103.7
HCM 6th LOS	F

Notes

Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
3: Frazee Rd & Friars Rd

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔↔	↑↑↑	↔		↔	↑↑↑	↔	↔↔	↑↑		↔↔	↔	↔	
Traffic Volume (veh/h)	17	274	2197	547	3	98	1517	85	271	56	126	111	62	311	
Future Volume (veh/h)	17	274	2197	547	3	98	1517	85	271	56	126	111	62	311	
Initial Q (Qb), veh		0	0	0		0	20	0	10	0	0	0	0	10	
Ped-Bike Adj(A_pbT)		1.00		0.96		1.00		0.99	1.00		0.92	1.00		0.99	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		308	2469	466		110	1704	39	304	63	22	125	107	95	
Peak Hour Factor		0.89	0.89	0.89		0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2	
Cap, veh/h		373	2112	719		135	2294	695	410	607	198	186	269	198	
Arrive On Green		0.11	0.51	0.51		0.08	0.48	0.48	0.11	0.17	0.17	0.05	0.11	0.11	
Sat Flow, veh/h		3456	5106	1525		1781	5106	1577	3456	2578	836	3563	1870	1563	
Grp Volume(v), veh/h		308	2469	466		110	1704	39	304	42	43	125	107	95	
Grp Sat Flow(s),veh/h/ln		1728	1702	1525		1781	1702	1577	1728	1777	1637	1781	1870	1563	
Q Serve(g_s), s		9.3	48.7	22.9		6.5	27.8	1.4	9.2	2.2	2.4	3.7	5.8	6.1	
Cycle Q Clear(g_c), s		9.3	48.7	22.9		6.5	27.8	1.4	9.2	2.2	2.4	3.7	5.8	6.1	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.51	1.00		1.00	
Lane Grp Cap(c), veh/h		373	2112	719		135	2294	695	410	416	389	186	269	198	
V/C Ratio(X)		0.83	1.17	0.65		0.81	0.74	0.06	0.74	0.10	0.11	0.67	0.40	0.48	
Avail Cap(c_a), veh/h		1456	2618	782		500	2869	886	971	499	460	1001	525	439	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh		55.5	45.9	26.6		57.8	30.1	21.2	48.3	37.0	37.1	59.1	48.6	48.5	
Incr Delay (d2), s/veh		1.8	81.2	2.0		4.4	1.1	0.1	1.0	0.0	0.0	2.3	0.6	1.1	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	2.1	0.0	16.6	0.0	0.0	0.0	0.0	35.0	
%ile BackOfQ(50%),veh/ln		4.8	42.2	10.9		3.6	15.4	0.7	5.9	1.0	1.0	2.0	3.1	6.2	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		57.3	127.1	28.6		62.2	33.2	21.2	66.0	37.0	37.1	61.4	49.2	84.6	
LnGrp LOS		E	F	C		E	C	C	E	D	D	E	D	F	
Approach Vol, veh/h		3243				1853				389			327		
Approach Delay, s/veh		106.3				34.7				59.6			64.1		
Approach LOS		F				C				E			E		
Timer - Assigned Phs	1	2	3	4	5	6	7	8							
Phs Duration (G+Y+Rc), s	12.7	61.3	16.1	16.8	16.2	57.7	10.3	22.6							
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9							
Max Green Setting (Gmax), s	30.0	* 50	30.0	30.0	45.0	60.0	30.0	30.0							
Max Q Clear Time (g_c+1), s	10.5	50.7	11.2	8.1	11.3	29.8	5.7	4.4							
Green Ext Time (p_c), s	0.1	0.0	0.5	0.5	0.5	21.4	0.2	0.2							

Intersection Summary

HCM 6th Ctrl Delay	78.0
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
4: Mission Center Rd & Friars Rd WB

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↶		↶	↷			↶	↷
Traffic Volume (veh/h)	0	0	0	204	3	240	3	187	728	0	0	1002	274
Future Volume (veh/h)	0	0	0	204	3	240	3	187	728	0	0	1002	274
Initial Q (Qb), veh				0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00		1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No			No
Adj Sat Flow, veh/h/ln				1870	1870	1870		1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				214	0	62		195	758	0	0	1044	228
Peak Hour Factor				0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2		2	2	0	0	2	2
Cap, veh/h				297	0	132		258	2889	0	0	2479	1069
Arrive On Green				0.17	0.00	0.17		0.15	1.00	0.00	0.00	0.70	0.70
Sat Flow, veh/h				3563	0	1585		3456	3647	0	0	3647	1532
Grp Volume(v), veh/h				214	0	62		195	758	0	0	1044	228
Grp Sat Flow(s),veh/h/ln				1781	0	1585		1728	1777	0	0	1777	1532
Q Serve(g_s), s				6.1	0.0	3.8		5.8	0.0	0.0	0.0	13.6	5.7
Cycle Q Clear(g_c), s				6.1	0.0	3.8		5.8	0.0	0.0	0.0	13.6	5.7
Prop In Lane				1.00		1.00		1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				297	0	132		258	2889	0	0	2479	1069
V/C Ratio(X)				0.72	0.00	0.47		0.76	0.26	0.00	0.00	0.42	0.21
Avail Cap(c_a), veh/h				1013	0	451		579	2889	0	0	2479	1069
HCM Platoon Ratio				2.00	2.00	2.00		2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00		0.78	0.78	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				43.8	0.0	42.8		45.0	0.0	0.0	0.0	7.0	5.8
Incr Delay (d2), s/veh				3.3	0.0	2.6		1.3	0.2	0.0	0.0	0.5	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.6	0.0	1.5		2.4	0.1	0.0	0.0	4.4	1.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh				47.1	0.0	45.4		46.3	0.2	0.0	0.0	7.5	6.3
LnGrp LOS				D	A	D		D	A	A	A	A	A
Approach Vol, veh/h						276				953			1272
Approach Delay, s/veh						46.7				9.6			7.3
Approach LOS						D				A			A
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		94.1			12.5	81.6		13.9					
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9					
Max Green Setting (Gmax), s		* 67			18.1	43.6		30.7					
Max Q Clear Time (g_c+I1), s		2.0			7.8	15.6		8.1					
Green Ext Time (p_c), s		4.8			0.2	15.4		0.9					

Intersection Summary

HCM 6th Ctrl Delay	12.5
HCM 6th LOS	B

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Mission Center Rd & Friars Rd EB

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	312	5	250	0	0	0	0	596	390	460	738	0
Future Volume (veh/h)	312	5	250	0	0	0	0	596	390	460	738	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	332	0	83				0	627	333	484	777	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	431	0	192				0	759	403	1339	2772	0
Arrive On Green	0.12	0.00	0.12				0.00	0.34	0.34	0.77	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2302	1173	3456	3647	0
Grp Volume(v), veh/h	332	0	83				0	504	456	484	777	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1604	1728	1777	0
Q Serve(g_s), s	9.8	0.0	5.2				0.0	28.1	28.1	4.7	0.0	0.0
Cycle Q Clear(g_c), s	9.8	0.0	5.2				0.0	28.1	28.1	4.7	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.73	1.00		0.00
Lane Grp Cap(c), veh/h	431	0	192				0	610	551	1339	2772	0
V/C Ratio(X)	0.77	0.00	0.43				0.00	0.83	0.83	0.36	0.28	0.00
Avail Cap(c_a), veh/h	976	0	434				0	610	551	1339	2772	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.83	0.83	0.00
Uniform Delay (d), s/veh	46.0	0.0	44.0				0.0	32.5	32.5	8.0	0.0	0.0
Incr Delay (d2), s/veh	2.9	0.0	1.5				0.0	12.2	13.3	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	2.1				0.0	13.6	12.4	1.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.0	0.0	45.6				0.0	44.7	45.8	8.0	0.1	0.0
LnGrp LOS	D	A	D				A	D	D	A	A	A
Approach Vol, veh/h		415						960			1261	
Approach Delay, s/veh		48.3						45.2			3.1	
Approach LOS		D						D			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	47.6	42.4	18.0	90.0								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	26.7	* 37	29.6	67.7								
Max Q Clear Time (g_c+I), s	10.7	30.1	11.8	2.0								
Green Ext Time (p_c), s	0.9	4.1	1.3	7.5								

Intersection Summary

HCM 6th Ctrl Delay	25.6
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
6: Qualcomm Way & Friars Rd WB

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖ ↗	↖ ↗		↖ ↗	↖ ↗			↖ ↗	
Traffic Volume (veh/h)	0	0	0	452	8	68	427	68	0	0	160	8
Future Volume (veh/h)	0	0	0	452	8	68	427	68	0	0	160	8
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No				No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				525	0	0	445	71	0	0	167	4
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				622	327	0	606	1310	0	0	1059	25
Arrive On Green				0.29	0.00	0.00	0.57	1.00	0.00	0.00	0.30	0.30
Sat Flow, veh/h				3563	1870	0	1781	1870	0	0	3638	85
Grp Volume(v), veh/h				525	0	0	445	71	0	0	83	88
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1870	0	0	1777	1852
Q Serve(g_s), s				11.1	0.0	0.0	14.8	0.0	0.0	0.0	2.8	2.8
Cycle Q Clear(g_c), s				11.1	0.0	0.0	14.8	0.0	0.0	0.0	2.8	2.8
Prop In Lane				1.00		0.00	1.00		0.00	0.00		0.05
Lane Grp Cap(c), veh/h				622	327	0	606	1310	0	0	531	553
V/C Ratio(X)				0.84	0.00	0.00	0.73	0.05	0.00	0.00	0.16	0.16
Avail Cap(c_a), veh/h				1251	657	0	606	1310	0	0	531	553
HCM Platoon Ratio				1.67	1.67	1.67	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.98	0.98	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				27.3	0.0	0.0	14.6	0.0	0.0	0.0	20.6	20.6
Incr Delay (d2), s/veh				1.2	0.0	0.0	4.7	0.1	0.0	0.0	0.1	0.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.0	0.0	0.0	4.8	0.0	0.0	0.0	1.1	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				28.5	0.0	0.0	19.2	0.1	0.0	0.0	20.8	20.8
LnGrp LOS				C	A	A	B	A	A	A	C	C
Approach Vol, veh/h					525			516			171	
Approach Delay, s/veh					28.5			16.6			20.8	
Approach LOS					C			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		61.1			32.3	28.8		18.9				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+I1), s		2.0			16.8	4.8		13.1				
Green Ext Time (p_c), s		0.4			0.7	0.6		0.9				

Intersection Summary

HCM 6th Ctrl Delay	22.4
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
7: Qualcomm Way & Friars Rd EB

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↕	↗	↘	↕	
Traffic Volume (veh/h)	56	5	332	0	0	0	0	435	317	85	531	0
Future Volume (veh/h)	56	5	332	0	0	0	0	435	317	85	531	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	62	6	200				0	483	164	94	590	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	250	24	243				0	2131	950	119	2565	0
Arrive On Green	0.15	0.15	0.15				0.00	0.60	0.60	0.13	1.00	0.00
Sat Flow, veh/h	1631	158	1585				0	3647	1584	1781	3647	0
Grp Volume(v), veh/h	68	0	200				0	483	164	94	590	0
Grp Sat Flow(s),veh/h/ln	1789	0	1585				0	1777	1584	1781	1777	0
Q Serve(g_s), s	2.7	0.0	9.8				0.0	5.0	3.7	4.1	0.0	0.0
Cycle Q Clear(g_c), s	2.7	0.0	9.8				0.0	5.0	3.7	4.1	0.0	0.0
Prop In Lane	0.91		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	274	0	243				0	2131	950	119	2565	0
V/C Ratio(X)	0.25	0.00	0.82				0.00	0.23	0.17	0.79	0.23	0.00
Avail Cap(c_a), veh/h	762	0	676				0	2131	950	225	2565	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.92	0.92	0.78	0.78	0.00
Uniform Delay (d), s/veh	29.8	0.0	32.8				0.0	7.4	7.2	34.1	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	2.7				0.0	0.2	0.4	3.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	3.7				0.0	1.7	1.2	1.7	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.0	0.0	35.5				0.0	7.6	7.5	37.5	0.2	0.0
LnGrp LOS	C	A	D				A	A	A	D	A	A
Approach Vol, veh/h		268						647			684	
Approach Delay, s/veh		34.1						7.6			5.3	
Approach LOS		C						A			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	9.8	53.1	17.2	62.8								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.0	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	10.0	7.0	11.8	2.0								
Green Ext Time (p_c), s	0.0	3.6	0.5	2.7								

Intersection Summary

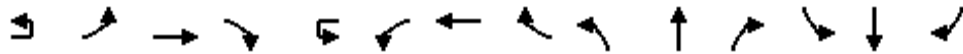
HCM 6th Ctrl Delay	11.1
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↖ ↗ ↘ ↙	↖ ↗ ↘ ↙	↖ ↗		↖ ↗ ↘ ↙	↖ ↗ ↘ ↙		↖ ↗ ↘ ↙	↖ ↗	↖ ↗		↖ ↗		
Traffic Volume (veh/h)	10	9	2301	125	1	63	1532	19	59	8	122	183	12	73	
Future Volume (veh/h)	10	9	2301	125	1	63	1532	19	59	8	122	183	12	73	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	1.00		0.97	0.97		0.97	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No			No		
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		9	2372	106		65	1579	19	61	8	28	189	12	64	
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2	
Cap, veh/h		340	2273	703		340	2315	28	352	43	383	256	13	71	
Arrive On Green		0.19	0.45	0.45		0.19	0.45	0.45	0.25	0.25	0.25	0.25	0.25	0.25	
Sat Flow, veh/h		1781	5106	1580		1781	5199	63	1209	173	1537	843	54	285	
Grp Volume(v), veh/h		9	2372	106		65	1034	564	69	0	28	265	0	0	
Grp Sat Flow(s),veh/h/ln		1781	1702	1580		1781	1702	1858	1383	0	1537	1182	0	0	
Q Serve(g_s), s		0.6	60.1	5.4		4.1	32.7	32.7	0.0	0.0	1.9	24.9	0.0	0.0	
Cycle Q Clear(g_c), s		0.6	60.1	5.4		4.1	32.7	32.7	5.2	0.0	1.9	30.1	0.0	0.0	
Prop In Lane		1.00		1.00		1.00		0.03	0.88		1.00	0.71		0.24	
Lane Grp Cap(c), veh/h		340	2273	703		340	1515	827	395	0	383	340	0	0	
V/C Ratio(X)		0.03	1.04	0.15		0.19	0.68	0.68	0.17	0.00	0.07	0.78	0.00	0.00	
Avail Cap(c_a), veh/h		340	2273	703		340	1515	827	516	0	519	464	0	0	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		0.88	0.88	0.88	1.00	0.00	1.00	1.00	0.00	0.00	
Uniform Delay (d), s/veh		44.4	37.5	22.3		45.9	29.8	29.8	40.0	0.0	38.7	51.9	0.0	0.0	
Incr Delay (d2), s/veh		0.0	31.4	0.5		0.1	2.2	4.0	0.2	0.0	0.1	6.4	0.0	0.0	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		0.2	30.2	2.0		1.8	13.3	14.9	1.9	0.0	0.7	9.3	0.0	0.0	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		44.5	68.9	22.7		46.0	32.1	33.8	40.1	0.0	38.8	58.3	0.0	0.0	
LnGrp LOS		D	F	C		D	C	C	D	A	D	E	A	A	
Approach Vol, veh/h		2487				1663				97			265		
Approach Delay, s/veh		66.8				33.2				39.7			58.3		
Approach LOS		E				C				D			E		
Timer - Assigned Phs	1	2	4		5	6	8								
Phs Duration (G+Y+Rc), s	30.1	66.3	38.6		30.1	66.3	38.6								
Change Period (Y+Rc), s	4.4	6.2	4.9		4.4	6.2	4.9								
Max Green Setting (Gmax), s	13.8	60.1	45.6		13.8	60.1	45.6								
Max Q Clear Time (g_c+10), s	10.1	62.1	32.1		2.6	34.7	7.2								
Green Ext Time (p_c), s	0.0	0.0	1.5		0.0	22.7	0.4								

Intersection Summary

HCM 6th Ctrl Delay	53.3
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
9: Fenton Pkwy & Friars Rd

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑↑	↗		↖↗	↑↑↑	↗	↖↗	↑	↗	↖↗	↗	↗
Traffic Volume (veh/h)	110	2202	283	6	201	1290	62	259	44	340	32	13	51
Future Volume (veh/h)	110	2202	283	6	201	1290	62	259	44	340	32	13	51
Initial Q (Qb), veh	15	25	15		0	0	0	0	0	15	15	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	113	2270	222		207	1330	39	267	45	120	33	13	6
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	211	2219	1170		254	2927	961	611	334	238	125	73	170
Arrive On Green	0.05	0.64	0.64		0.15	1.00	1.00	0.10	0.12	0.12	0.02	0.04	0.04
Sat Flow, veh/h	3456	5106	1585		3456	5106	1565	3456	1870	1577	3563	1870	1557
Grp Volume(v), veh/h	113	2270	222		207	1330	39	267	45	120	33	13	6
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1565	1728	1870	1577	1781	1870	1557
Q Serve(g_s), s	4.4	39.4	2.3		7.9	0.0	0.0	10.3	2.9	9.8	1.2	0.9	0.4
Cycle Q Clear(g_c), s	4.4	39.4	2.3		7.9	0.0	0.0	10.3	2.9	9.8	1.2	0.9	0.4
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	211	2219	1170		254	2927	961	611	334	238	125	73	170
V/C Ratio(X)	0.53	1.02	0.19		0.81	0.45	0.04	0.44	0.13	0.50	0.26	0.18	0.04
Avail Cap(c_a), veh/h	384	3256	1168		333	3392	1073	409	545	459	280	470	466
HCM Platoon Ratio	1.00	1.00	1.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.55	0.55	0.55		0.88	0.88	0.88	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.1	38.5	1.5		57.1	3.4	2.2	50.8	47.4	55.4	65.0	63.2	31.2
Incr Delay (d2), s/veh	0.4	20.4	0.2		7.6	0.4	0.1	0.1	0.1	0.7	0.4	5.3	0.4
Initial Q Delay(d3),s/veh	77.9	40.6	1.5		0.0	0.0	0.0	0.0	0.0	57.6	142.1	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	35.8	1.9		3.4	1.2	0.1	4.1	1.3	9.9	4.1	0.5	0.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	141.4	99.4	3.2		64.7	3.9	2.3	50.9	47.5	113.7	207.5	68.5	31.6
LnGrp LOS	F	F	A		E	A	A	D	D	F	F	E	C
Approach Vol, veh/h		2605				1576			432			52	
Approach Delay, s/veh		93.1				11.8			68.0			152.5	
Approach LOS		F				B			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	14.4	93.0	18.4	10.2	10.8	96.6	7.3	21.3					
Change Period (Y+Rc), s	4.4	6.3	4.9	*4.9	4.4	*6.3	4.4	4.9					
Max Green Setting (Gmax), s	13.1	52.6	16.1	*34	15.1	*51	10.7	39.6					
Max Q Clear Time (g_c+19.5), s	19.5	41.4	12.3	2.9	6.4	2.0	3.2	11.8					
Green Ext Time (p_c), s	0.1	11.0	0.2	0.2	0.1	34.3	0.0	2.3					

Intersection Summary

HCM 6th Ctrl Delay	63.9
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
10: Northside Dr & Friars Rd

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↑↑↑	↔	↔↔	↑↑↑	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	4	126	2254	206	448	1302	182	167	28	665	89	19	79
Future Volume (veh/h)	4	126	2254	206	448	1302	182	167	28	665	89	19	79
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		135	2424	222	482	1400	131	180	30	612	96	20	4
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		183	2430	743	409	2764	914	233	407	529	144	359	304
Arrive On Green		0.11	0.95	0.95	0.24	1.00	1.00	0.07	0.22	0.22	0.04	0.19	0.19
Sat Flow, veh/h		3456	5106	1561	3456	5106	1565	3456	1870	1568	3456	1870	1585
Grp Volume(v), veh/h		135	2424	222	482	1400	131	180	30	612	96	20	4
Grp Sat Flow(s),veh/h/ln		1728	1702	1561	1728	1702	1565	1728	1870	1568	1728	1870	1585
Q Serve(g_s), s		5.2	61.6	1.3	16.1	0.0	0.0	7.0	1.7	29.6	3.7	1.2	0.3
Cycle Q Clear(g_c), s		5.2	61.6	1.3	16.1	0.0	0.0	7.0	1.7	29.6	3.7	1.2	0.3
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		183	2430	743	409	2764	914	233	407	529	144	359	304
V/C Ratio(X)		0.74	1.00	0.30	1.18	0.51	0.14	0.77	0.07	1.16	0.67	0.06	0.01
Avail Cap(c_a), veh/h		307	2430	743	409	2764	914	483	407	529	483	407	345
HCM Platoon Ratio		2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.56	0.56	0.56	0.87	0.87	0.87	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		59.9	3.2	1.8	51.9	0.0	0.0	62.4	42.3	45.2	64.2	44.9	44.5
Incr Delay (d2), s/veh		1.2	13.1	0.6	100.4	0.6	0.3	2.0	0.2	90.4	2.0	0.3	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.2	4.2	0.5	11.6	0.1	0.1	3.2	0.8	31.1	1.7	0.6	0.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		61.1	16.3	2.3	152.3	0.6	0.3	64.4	42.5	135.6	66.2	45.2	44.6
LnGrp LOS		E	B	A	F	A	A	E	D	F	E	D	D
Approach Vol, veh/h			2781		2013			822		120			
Approach Delay, s/veh			17.4		36.9			116.6		62.0			
Approach LOS			B		D			F		E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	20.5	70.9	13.6	31.0	11.6	79.8	10.1	34.5					
Change Period (Y+Rc), s	4.4	* 6.2	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	10.5	* 52	19.0	29.6	12.1	55.4	19.0	29.6					
Max Q Clear Time (g_c+11g), s	11.0	63.6	9.0	3.2	7.2	2.0	5.7	31.6					
Green Ext Time (p_c), s	0.0	0.0	0.2	0.2	0.1	34.2	0.1	0.0					

Intersection Summary

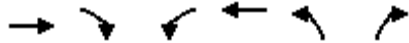
HCM 6th Ctrl Delay	39.4
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 11: Street A & Friars Rd

Existing Plus Project Without Event Conditions
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖↗	↑↑↑	↖↗	↖↗
Traffic Volume (veh/h)	2803	194	193	1681	266	614
Future Volume (veh/h)	2803	194	193	1681	266	614
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2951	146	203	1769	280	646
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	3710	1126	259	4280	305	455
Arrive On Green	1.00	1.00	0.07	0.84	0.09	0.09
Sat Flow, veh/h	5274	1550	3456	5274	3456	2790
Grp Volume(v), veh/h	2951	146	203	1769	280	646
Grp Sat Flow(s),veh/h/ln	1702	1550	1728	1702	1728	1395
Q Serve(g_s), s	0.0	0.0	7.9	11.7	10.9	12.0
Cycle Q Clear(g_c), s	0.0	0.0	7.9	11.7	10.9	12.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3710	1126	259	4280	305	455
V/C Ratio(X)	0.80	0.13	0.78	0.41	0.92	1.42
Avail Cap(c_a), veh/h	3710	1126	432	4280	305	455
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	61.8	2.7	61.5	56.9
Incr Delay (d2), s/veh	0.2	0.0	5.2	0.3	31.3	201.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	3.6	2.4	6.2	20.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.2	0.0	67.0	3.0	92.8	258.0
LnGrp LOS	A	A	E	A	F	F
Approach Vol, veh/h	3097			1972	926	
Approach Delay, s/veh	0.2			9.6	208.1	
Approach LOS	A			A	F	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	103.8			119.0	17.0	
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	
Max Green Setting (Gmax), s	92.0			114.0	12.0	
Max Q Clear Time (g_c+1.9), s	2.0			13.7	14.0	
Green Ext Time (p_c), s	0.3	67.1		21.8	0.0	

Intersection Summary

HCM 6th Ctrl Delay		35.4				
HCM 6th LOS			D			

HCM 6th Signalized Intersection Summary
12: Mission Village Dr & Friars Rd WB

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↶	↶	↶			↶	↶
Traffic Volume (veh/h)	0	0	0	606	0	297	398	652	0	0	1279	463
Future Volume (veh/h)	0	0	0	606	0	297	398	652	0	0	1279	463
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				631	0	161	415	679	0	0	1332	383
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				691	0	306	658	2606	0	0	1751	769
Arrive On Green				0.39	0.00	0.39	0.38	1.00	0.00	0.00	0.49	0.49
Sat Flow, veh/h				3563	0	1578	3456	3647	0	0	3647	1561
Grp Volume(v), veh/h				631	0	161	415	679	0	0	1332	383
Grp Sat Flow(s),veh/h/ln				1781	0	1578	1728	1777	0	0	1777	1561
Q Serve(g_s), s				23.5	0.0	11.0	13.7	0.0	0.0	0.0	42.6	23.1
Cycle Q Clear(g_c), s				23.5	0.0	11.0	13.7	0.0	0.0	0.0	42.6	23.1
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				691	0	306	658	2606	0	0	1751	769
V/C Ratio(X)				0.91	0.00	0.53	0.63	0.26	0.00	0.00	0.76	0.50
Avail Cap(c_a), veh/h				893	0	396	658	2606	0	0	1751	769
HCM Platoon Ratio				2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.95	0.95	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				41.8	0.0	37.9	39.3	0.0	0.0	0.0	28.8	23.9
Incr Delay (d2), s/veh				10.1	0.0	0.5	1.4	0.2	0.0	0.0	3.2	2.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				9.1	0.0	3.7	5.0	0.1	0.0	0.0	18.0	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				51.8	0.0	38.4	40.7	0.2	0.0	0.0	32.0	26.2
LnGrp LOS				D	A	D	D	A	A	A	C	C
Approach Vol, veh/h						792		1094			1715	
Approach Delay, s/veh						49.1		15.6			30.7	
Approach LOS						D		B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		108.0			32.0	76.0		32.0				
Change Period (Y+Rc), s		5.3			5.3	7.0		4.9				
Max Green Setting (Gmax), s		94.7			18.7	69.0		35.1				
Max Q Clear Time (g_c+I1), s		2.0			15.7	44.6		25.5				
Green Ext Time (p_c), s		2.9			0.3	14.8		1.2				

Intersection Summary

HCM 6th Ctrl Delay	30.1
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM Signalized Intersection Capacity Analysis Existing Plus Project Without Event Conditions
 13: Mission Village Dr/Street D & Friars Rd EB

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↖	↗					↑↑↑	↗	↖	↑↑		
Traffic Volume (vph)	284	1	582	0	0	0	0	783	1027	422	1462	0	
Future Volume (vph)	284	1	582	0	0	0	0	783	1027	422	1462	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		5.2	5.2					4.9	4.9	6.2	6.2		
Lane Util. Factor		1.00	0.88					0.91	0.88	0.97	0.95		
Frbp, ped/bikes		1.00	0.99					1.00	0.96	1.00	1.00		
Flpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00		
Frt		1.00	0.85					1.00	0.85	1.00	1.00		
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)		1774	2748					5085	2680	3433	3539		
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)		1774	2748					5085	2680	3433	3539		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	299	1	613	0	0	0	0	824	1081	444	1539	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	300	613	0	0	0	0	824	1081	444	1539	0	
Confl. Peds. (#/hr)			1						4			4	
Confl. Bikes (#/hr)			1										
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA		
Protected Phases	4	4						2		1	6		
Permitted Phases			4						2				
Actuated Green, G (s)		35.9	35.9					65.9	65.9	21.9	92.7		
Effective Green, g (s)		35.9	35.9					65.9	65.9	21.9	92.7		
Actuated g/C Ratio		0.26	0.26					0.47	0.47	0.16	0.66		
Clearance Time (s)		5.2	5.2					4.9	4.9	6.2	6.2		
Vehicle Extension (s)		3.0	3.0					3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)		454	704					2393	1261	537	2343		
v/s Ratio Prot		0.17						0.16		c0.13	0.43		
v/s Ratio Perm			c0.22						c0.40				
v/c Ratio		0.66	0.87					0.34	0.86	0.83	0.66		
Uniform Delay, d1		46.6	49.8					23.4	32.9	57.2	14.1		
Progression Factor		1.00	1.00					0.59	0.46	1.18	0.29		
Incremental Delay, d2		3.6	11.4					0.2	3.7	7.1	1.0		
Delay (s)		50.2	61.2					13.9	18.8	74.6	5.1		
Level of Service		D	E					B	B	E	A		
Approach Delay (s)		57.6			0.0			16.7			20.7		
Approach LOS		E			A			B			C		
Intersection Summary													
HCM 2000 Control Delay			26.1									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.86										
Actuated Cycle Length (s)			140.0									Sum of lost time (s)	16.3
Intersection Capacity Utilization			78.9%									ICU Level of Service	D
Analysis Period (min)			15										

c Critical Lane Group

HCM 6th Signalized Intersection Summary
14: Street D & Street 4

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↑	↗	↖	↑↑↑		↖	↑↑	↗
Traffic Volume (veh/h)	44	4	4	68	8	212	8	1562	189	910	1068	66
Future Volume (veh/h)	44	4	4	68	8	212	8	1562	189	910	1068	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.94	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	4	0	72	8	223	8	1644	188	958	1124	47
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	130	0	64	134	1253	14	1717	196	1319	2645	1147
Arrive On Green	0.03	0.07	0.00	0.04	0.07	0.07	0.01	0.37	0.37	0.76	1.00	1.00
Sat Flow, veh/h	1781	1870	0	1781	1870	2618	1781	4637	529	3456	3554	1541
Grp Volume(v), veh/h	46	4	0	72	8	223	8	1206	626	958	1124	47
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1781	1870	1309	1781	1702	1761	1728	1777	1541
Q Serve(g_s), s	3.6	0.3	0.0	5.0	0.6	7.1	0.6	48.4	48.6	20.6	0.0	0.0
Cycle Q Clear(g_c), s	3.6	0.3	0.0	5.0	0.6	7.1	0.6	48.4	48.6	20.6	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	59	130	0	64	134	1253	14	1261	652	1319	2645	1147
V/C Ratio(X)	0.77	0.03	0.00	1.13	0.06	0.18	0.59	0.96	0.96	0.73	0.42	0.04
Avail Cap(c_a), veh/h	115	468	0	64	414	1644	89	1264	654	1319	2645	1147
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.63	0.63	0.63
Uniform Delay (d), s/veh	67.1	60.7	0.0	67.5	60.6	22.9	69.2	43.0	43.1	12.7	0.0	0.0
Incr Delay (d2), s/veh	18.9	0.1	0.0	153.3	0.2	0.1	34.4	16.0	25.6	1.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.1	0.0	5.0	0.3	2.3	0.4	23.0	25.6	4.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.1	60.8	0.0	220.8	60.7	22.9	103.6	59.0	68.6	14.0	0.1	0.0
LnGrp LOS	F	E	A	F	E	C	F	E	E	B	A	A
Approach Vol, veh/h		50			303			1840			2129	
Approach Delay, s/veh		84.1			70.9			62.5			6.3	
Approach LOS		F			E			E			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	58.4	56.8	10.0	14.7	6.1	109.2	9.7	15.1				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	20.0	52.0	5.0	35.0	7.0	73.0	9.0	31.0				
Max Q Clear Time (g_c+Q), s	20.6	50.6	7.0	2.3	2.6	2.0	5.6	9.1				
Green Ext Time (p_c), s	2.0	1.2	0.0	0.0	0.0	11.9	0.0	0.9				

Intersection Summary

HCM 6th Ctrl Delay	35.7
HCM 6th LOS	D

HCM Signalized Intersection Capacity Analysis Existing Plus Project Without Event Conditions
 15: Street F & Street 4

PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1017	21	4	5	8	21	8	222	4	82	356	252
Future Volume (vph)	1017	21	4	5	8	21	8	222	4	82	356	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	2.1	4.5
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.88
Frbp, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.89		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1807		1770	1622		1770	1856		1770	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	1807		1770	1622		1770	1856		1770	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1105	23	4	5	9	23	9	241	4	89	387	274
RTOR Reduction (vph)	0	2	0	0	20	0	0	1	0	0	0	0
Lane Group Flow (vph)	1105	25	0	5	12	0	9	244	0	89	387	274
Confl. Peds. (#/hr)			10			10			10			
Confl. Bikes (#/hr)			3			3			3			3
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	7	4		3	8		5	2		1	6 9	7 9
Permitted Phases												
Actuated Green, G (s)	69.6	84.1		1.0	15.5		1.0	26.6		10.3	35.9	82.4
Effective Green, g (s)	69.6	84.1		1.0	15.5		1.0	26.6		10.3	35.9	82.4
Actuated g/C Ratio	0.50	0.60		0.01	0.11		0.01	0.19		0.07	0.26	0.59
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)	1706	1085		12	179		12	352		130	477	1640
v/s Ratio Prot	c0.32	0.01		0.00	c0.01		0.01	0.13		c0.05	c0.21	0.10
v/s Ratio Perm												
v/c Ratio	0.65	0.02		0.42	0.06		0.75	0.69		0.68	0.81	0.17
Uniform Delay, d1	26.1	11.3		69.2	55.8		69.4	52.9		63.3	48.9	13.1
Progression Factor	0.75	0.29		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.2	0.0		21.8	0.2		128.3	5.8		13.9	9.6	0.0
Delay (s)	20.7	3.3		91.0	55.9		197.6	58.7		77.2	58.5	13.2
Level of Service	C	A		F	E		F	E		E	E	B
Approach Delay (s)		20.3			60.6			63.6			44.1	
Approach LOS		C			E			E			D	
Intersection Summary												
HCM 2000 Control Delay			34.3									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			140.0									Sum of lost time (s) 20.1
Intersection Capacity Utilization			69.4%									ICU Level of Service C
Analysis Period (min)			15									

c Critical Lane Group

Intersection					
Intersection Delay, s/veh	7.8				
Intersection LOS	A				
Approach	EB		WB		NB
Entry Lanes	2		2		1
Conflicting Circle Lanes	2		2		2
Adj Approach Flow, veh/h	1370		699		149
Demand Flow Rate, veh/h	1397		713		152
Vehicles Circulating, veh/h	52		104		1297
Vehicles Exiting, veh/h	765		1345		152
Ped Vol Crossing Leg, #/h	0		0		0
Ped Cap Adj	1.000		1.000		1.000
Approach Delay, s/veh	8.5		5.5		13.1
Approach LOS	A		A		B
Lane	Left	Right	Left	Right	Left
Designated Moves	LT	TR	LT	TR	LR
Assumed Moves	LT	TR	LT	TR	LR
RT Channelized					
Lane Util	0.470	0.530	0.470	0.530	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328
Entry Flow, veh/h	657	740	335	378	152
Cap Entry Lane, veh/h	1287	1359	1227	1300	471
Entry HV Adj Factor	0.980	0.981	0.981	0.980	0.980
Flow Entry, veh/h	644	726	329	370	149
Cap Entry, veh/h	1261	1333	1203	1274	462
V/C Ratio	0.511	0.545	0.273	0.291	0.322
Control Delay, s/veh	8.3	8.6	5.5	5.4	13.1
LOS	A	A	A	A	B
95th %tile Queue, veh	3	3	1	1	1

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

Existing Plus Project Without Event Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	473	2350	1037	3	255	1459	326	0	0	0	1001	0	581
Future Volume (veh/h)	473	2350	1037	3	255	1459	326	0	0	0	1001	0	581
Initial Q (Qb), veh	20	0	20		20	0	20				0	0	20
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	493	2448	783		266	1520	0				1043	0	601
Peak Hour Factor	0.96	0.96	0.96		0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	624	3041	734		355	1246					1117	0	1997
Arrive On Green	0.31	0.41	0.41		0.16	0.24	0.00				0.31	0.00	0.31
Sat Flow, veh/h	1781	5106	1552		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	493	2448	783		266	1520	0				1043	0	601
Grp Sat Flow(s),veh/h/ln	1781	1702	1552		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	36.0	55.7	55.7		20.0	33.2	0.0				39.0	0.0	0.0
Cycle Q Clear(g_c), s	36.0	55.7	55.7		20.0	33.2	0.0				39.0	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	624	3041	734		355	1246					1117	0	1997
V/C Ratio(X)	0.79	0.80	1.07		0.75	1.22					0.93	0.00	0.30
Avail Cap(c_a), veh/h	550	2089	635		393	1246					1153	0	2001
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.56	0.56	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	42.3	25.6	35.8		54.1	51.4	0.0				45.3	0.0	12.1
Incr Delay (d2), s/veh	8.1	2.4	52.6		3.3	103.0	0.0				13.0	0.0	0.0
Initial Q Delay(d3),s/veh	35.2	0.0	98.1		90.9	0.0	0.0				0.0	0.0	1.0
%ile BackOfQ(50%),veh	23.1	14.6	48.3		20.8	25.6	0.0				19.2	0.0	12.8
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	85.6	28.0	186.5		148.3	154.4	0.0				58.4	0.0	13.2
LnGrp LOS	F	C	F		F	F					E	A	B
Approach Vol, veh/h		3724				1786	A					1644	
Approach Delay, s/veh		69.0				153.5						41.8	
Approach LOS		E				F						D	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	36.4	62.7		46.9	48.9	40.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	36	45.7		44.0	42.0	* 33							
Max Q Clear Time (g_c+20), s	22.0	57.7		41.0	38.0	35.2							
Green Ext Time (p_c), s	0.2	0.0		0.9	0.4	0.0							

Intersection Summary

HCM 6th Ctrl Delay	83.8
HCM 6th LOS	F

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

Existing Plus Project Without Event Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘				↑↑↑	↗						
Traffic Volume (veh/h)	952	2415	0	0	1074	796	0	0	1211	0	0	934
Future Volume (veh/h)	952	2415	0	0	1074	796	0	0	1211	0	0	934
Initial Q (Qb), veh	40	0	0	0	20	40						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	1002	2542	0	0	1100	859						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	660	0	0	0	1455	1284						
Arrive On Green	0.49	0.92	0.00	0.00	0.38	0.38						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	1002	0	0	0	1100	859						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	45.0	0.0	0.0	0.0	24.0	21.4						
Cycle Q Clear(g_c), s	45.0	0.0	0.0	0.0	24.0	21.4						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	660	0	0	0	1455	1284						
V/C Ratio(X)	1.52	0.00	0.00	0.00	0.76	0.67						
Avail Cap(c_a), veh/h	871	0	0	0	2602	2205						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	1.00	1.00						
Uniform Delay (d), s/veh	38.3	0.0	0.0	0.0	25.8	25.5						
Incr Delay (d2), s/veh	241.2	0.0	0.0	0.0	0.3	0.2						
Initial Q Delay(d3),s/veh	218.3	0.0	0.0	0.0	5.6	21.1						
%ile BackOfQ(50%),veh	102.7	0.0	0.0	0.0	12.3	14.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	497.7	0.0	0.0	0.0	31.6	46.8						
LnGrp LOS	F	A	A	A	C	D						
Approach Vol, veh/h		1002			1959							
Approach Delay, s/veh		497.7			38.3							
Approach LOS		F			D							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		92.0			50.5	41.5						
Change Period (Y+Rc), s		* 7			5.5	7.0						
Max Green Setting (Gmax), s		* 18			45.0	64.0						
Max Q Clear Time (g_c+I1), s		0.0			47.0	26.0						
Green Ext Time (p_c), s		0.0			0.0	8.5						

Intersection Summary

HCM 6th Ctrl Delay	193.8
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

Existing Plus Project Without Event Conditions
 PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↵	↑↑↑	↵↵	↑
Traffic Volume (veh/h)	2840	786	2	108	1460	403	220
Future Volume (veh/h)	2840	786	2	108	1460	403	220
Initial Q (Qb), veh	0	0		0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	2958	746		112	1521	420	59
Peak Hour Factor	0.96	0.96		0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	2927	1282		135	5024	519	275
Arrive On Green	0.67	0.67		0.08	0.78	0.14	0.14
Sat Flow, veh/h	5274	1583		1781	6696	3563	1585
Grp Volume(v), veh/h	2958	746		112	1521	420	59
Grp Sat Flow(s),veh/h/ln	1702	1583		1781	1609	1781	1585
Q Serve(g_s), s	61.1	23.0		8.4	9.2	15.7	4.5
Cycle Q Clear(g_c), s	61.1	23.0		8.4	9.2	15.7	4.5
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2927	1282		135	5024	519	275
V/C Ratio(X)	1.01	0.58		0.83	0.30	0.81	0.21
Avail Cap(c_a), veh/h	3441	1282		208	5033	843	375
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.93	0.93	0.57	0.57
Uniform Delay (d), s/veh	29.0	4.6		62.0	4.5	57.0	48.4
Incr Delay (d2), s/veh	19.2	1.9		8.1	0.1	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	14.1	0.0
%ile BackOfQ(50%),veh	14.0	15.0		4.0	2.8	8.8	1.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	48.3	6.6		70.0	4.6	71.7	48.5
LnGrp LOS	F	A		E	A	E	D
Approach Vol, veh/h	3704			1633	479		
Approach Delay, s/veh	39.9			9.1	68.9		
Approach LOS	D			A	E		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	4.7	97.7			112.4	23.6	
Change Period (Y+Rc), s	4.4	* 6			6.0	5.1	
Max Green Setting (Gmax), s	15.9	* 73			92.7	32.2	
Max Q Clear Time (g_c+110), s	110.4	63.1			11.2	17.7	
Green Ext Time (p_c), s	0.1	9.5			37.2	0.8	

Intersection Summary

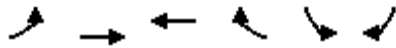
HCM 6th Ctrl Delay	33.6
HCM 6th LOS	C

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: Friars Rd & Santo Rd

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑↑		↔↔	↔
Traffic Volume (veh/h)	385	2775	1296	91	71	241
Future Volume (veh/h)	385	2775	1296	91	71	241
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1856	1870	1870
Adj Flow Rate, veh/h	401	2891	1350	90	74	235
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	3	3	2	2
Cap, veh/h	466	3901	3649	243	501	444
Arrive On Green	0.13	0.76	0.59	0.59	0.15	0.15
Sat Flow, veh/h	3456	5274	6419	410	3456	1585
Grp Volume(v), veh/h	401	2891	1049	391	74	235
Grp Sat Flow(s),veh/h/ln	1728	1702	1596	1782	1728	1585
Q Serve(g_s), s	13.6	37.0	13.7	13.8	2.2	15.0
Cycle Q Clear(g_c), s	13.6	37.0	13.7	13.8	2.2	15.0
Prop In Lane	1.00			0.23	1.00	1.00
Lane Grp Cap(c), veh/h	466	3901	2836	1056	501	444
V/C Ratio(X)	0.86	0.74	0.37	0.37	0.15	0.53
Avail Cap(c_a), veh/h	737	3901	2836	1056	734	551
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.22	0.22	0.86	0.86	1.00	1.00
Uniform Delay (d), s/veh	50.8	7.7	12.8	12.8	44.8	36.5
Incr Delay (d2), s/veh	0.8	0.3	0.3	0.9	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	9.7	4.6	5.3	1.0	13.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	51.6	8.0	13.1	13.6	44.9	36.9
LnGrp LOS	D	A	B	B	D	D
Approach Vol, veh/h		3292	1440		309	
Approach Delay, s/veh		13.3	13.2		38.8	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		98.2		21.8	20.6	77.6
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		83.6		25.5	25.6	* 54
Max Q Clear Time (g_c+I1), s		39.0		17.0	15.6	15.8
Green Ext Time (p_c), s		39.2		0.4	0.6	14.0

Intersection Summary

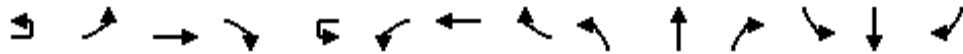
HCM 6th Ctrl Delay	14.8
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
21: Riverdale St & Friars Rd

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		3	3	3		3	3	3	3	3		3	3	
Traffic Volume (veh/h)	19	195	2441	198	4	38	1020	46	186	85	114	48	45	118
Future Volume (veh/h)	19	195	2441	198	4	38	1020	46	186	85	114	48	45	118
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1856		1737	1856	1870	1870	1870	1870	1811	1870	1870
Adj Flow Rate, veh/h		201	2516	128		39	1052	22	192	88	60	49	46	23
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	3		11	3	2	2	2	2	6	2	2
Cap, veh/h		232	3130	961		54	2608	816	304	217	148	231	246	123
Arrive On Green		0.13	0.61	0.61		0.03	0.51	0.51	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h		1781	5106	1569		1654	5066	1585	1322	1032	704	1193	1173	586
Grp Volume(v), veh/h		201	2516	128		39	1052	22	192	0	148	49	0	69
Grp Sat Flow(s),veh/h/ln		1781	1702	1569		1654	1689	1585	1322	0	1736	1193	0	1759
Q Serve(g_s), s		11.6	39.5	3.6		2.5	13.4	0.7	14.7	0.0	7.7	3.9	0.0	3.4
Cycle Q Clear(g_c), s		11.6	39.5	3.6		2.5	13.4	0.7	18.1	0.0	7.7	11.6	0.0	3.4
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.41	1.00		0.33
Lane Grp Cap(c), veh/h		232	3130	961		54	2608	816	304	0	365	231	0	369
V/C Ratio(X)		0.86	0.80	0.13		0.73	0.40	0.03	0.63	0.00	0.41	0.21	0.00	0.19
Avail Cap(c_a), veh/h		324	3130	961		206	2608	816	496	0	617	405	0	625
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.72	0.72	0.72		0.94	0.94	0.94	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		44.7	15.5	8.6		50.3	15.6	12.5	41.5	0.0	35.8	40.8	0.0	34.1
Incr Delay (d2), s/veh		9.3	1.7	0.2		6.5	0.4	0.1	0.8	0.0	0.3	0.2	0.0	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		5.5	13.3	1.1		1.1	4.8	0.2	4.8	0.0	3.3	1.2	0.0	1.5
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		54.1	17.2	8.8		56.8	16.0	12.6	42.3	0.0	36.1	41.0	0.0	34.2
LnGrp LOS		D	B	A		E	B	B	D	A	D	D	A	C
Approach Vol, veh/h			2845				1113			340			118	
Approach Delay, s/veh			19.4				17.4			39.6			37.0	
Approach LOS			B				B			D			D	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	7.8			26.9	18.1	60.0		26.9						
Change Period (Y+Rc), s	4.4	* 5.9		4.9	4.4	5.9		4.9						
Max Green Setting (Gmax), s	40	* 40		37.3	19.1	33.4		37.3						
Max Q Clear Time (g_c+1/5), s	41.5			13.6	13.6	15.4		20.1						
Green Ext Time (p_c), s	0.0	0.0		0.3	0.1	6.6		0.8						

Intersection Summary

HCM 6th Ctrl Delay	20.9
HCM 6th LOS	C

Notes

- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 22: Mission Gorge Rd & Friars Rd

Existing Plus Project Without Event Conditions
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↔	↑↑↑		↔	↑↑
Traffic Volume (veh/h)	2172	240	225	849	8	299	493
Future Volume (veh/h)	2172	240	225	849	8	299	493
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	2311	0	239	903		318	522
Peak Hour Factor	0.94	0.94	0.94	0.94		0.94	0.94
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2621		571	0		356	1018
Arrive On Green	0.51	0.00	0.17	0.00		0.20	0.20
Sat Flow, veh/h	5443	0	3456	239		1781	2790
Grp Volume(v), veh/h	2311	0	239	45.1		318	522
Grp Sat Flow(s),veh/h/ln	1702	0	1728	D		1781	1395
Q Serve(g_s), s	48.3	0.0	7.4			20.9	0.0
Cycle Q Clear(g_c), s	48.3	0.0	7.4			20.9	0.0
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2621		571			356	1018
V/C Ratio(X)	0.88		0.42			0.89	0.51
Avail Cap(c_a), veh/h	2621		571			425	1126
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.50	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	26.0	0.0	44.9			46.8	29.8
Incr Delay (d2), s/veh	2.4	0.0	0.2			16.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh/ln	18.4	0.0	3.1			10.9	5.9
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	28.4	0.0	45.1			63.7	29.9
LnGrp LOS	C		D			E	C
Approach Vol, veh/h	2311	A				840	
Approach Delay, s/veh	28.4					42.7	
Approach LOS	C					D	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	24.2	67.4					28.4
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	61.6					28.6
Max Q Clear Time (g_c+1), s	19.4	50.3					22.9
Green Ext Time (p_c), s	0.2	10.0					1.1

Intersection Summary

HCM 6th Ctrl Delay	33.1
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
23: Qualcomm Way & Rio San Diego Dr

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗		↖↗	↑↑	↗	↖↗	↑↑↑	↗		↖↗	↑↑↑	
Traffic Volume (veh/h)	226	149	217	10	581	259	238	47	287	115	3	40	593	223
Future Volume (veh/h)	226	149	217	10	581	259	238	47	287	115	3	40	593	223
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		0.99	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	238	157	196		612	273	79	49	302	19		42	624	200
Peak Hour Factor	0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2		2	2	2
Cap, veh/h	341	322	322		731	1013	449	119	1652	511		108	1228	385
Arrive On Green	0.10	0.17	0.17		0.21	0.29	0.29	0.03	0.32	0.32		0.03	0.32	0.32
Sat Flow, veh/h	3456	1870	1554		3456	3554	1575	3456	5106	1579		3456	3832	1202
Grp Volume(v), veh/h	238	157	196		612	273	79	49	302	19		42	553	271
Grp Sat Flow(s),veh/h/ln	1728	1870	1554		1728	1777	1575	1728	1702	1579		1728	1702	1630
Q Serve(g_s), s	4.9	5.6	8.4		12.5	4.4	2.8	1.0	3.1	0.6		0.9	9.7	10.0
Cycle Q Clear(g_c), s	4.9	5.6	8.4		12.5	4.4	2.8	1.0	3.1	0.6		0.9	9.7	10.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.74
Lane Grp Cap(c), veh/h	341	322	322		731	1013	449	119	1652	511		108	1091	522
V/C Ratio(X)	0.70	0.49	0.61		0.84	0.27	0.18	0.41	0.18	0.04		0.39	0.51	0.52
Avail Cap(c_a), veh/h	1411	1018	901		1411	1935	858	2822	4170	1290		1411	2780	1331
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	27.5	26.5		27.7	20.3	19.8	34.7	17.9	17.0		34.9	20.2	20.3
Incr Delay (d2), s/veh	1.0	1.1	1.9		1.0	0.1	0.2	0.8	0.1	0.0		0.8	0.6	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	2.4	3.0		4.9	1.7	1.0	0.4	1.2	0.2		0.4	3.6	3.7
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	33.0	28.6	28.3		28.7	20.5	19.9	35.6	17.9	17.1		35.7	20.9	21.7
LnGrp LOS	C	C	C		C	C	B	D	B	B		D	C	C
Approach Vol, veh/h		591			964			370				866		
Approach Delay, s/veh		30.3			25.7			20.2				21.9		
Approach LOS		C			C			C				C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	6.7	28.9	19.9	17.9	6.9	28.6	11.6	26.3						
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3						
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0						
Max Q Clear Time (g_c+1), s	12.5	5.1	14.5	10.4	3.0	12.0	6.9	6.4						
Green Ext Time (p_c), s	0.1	3.2	1.1	1.5	0.1	11.3	0.4	2.0						

Intersection Summary

HCM 6th Ctrl Delay	24.8
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection														
Intersection Delay, s/veh	13.1													
Intersection LOS	B													

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↗	↕		↗	↕			↕				↕	
Traffic Vol, veh/h	10	118	411	8	9	368	39	11	14	10	9	79	15	65
Future Vol, veh/h	10	118	411	8	9	368	39	11	14	10	9	79	15	65
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	131	457	9	10	409	43	12	16	11	10	88	17	72
Number of Lanes	0	1	2	0	1	2	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	13	13.1	10.9	13.8
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	31%	100%	0%	0%	100%	0%	0%	50%
Vol Thru, %	40%	0%	100%	94%	0%	100%	76%	9%
Vol Right, %	29%	0%	0%	6%	0%	0%	24%	41%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	35	128	274	145	9	245	162	168
LT Vol	11	128	0	0	9	0	0	83
Through Vol	14	0	274	137	0	245	123	16
RT Vol	10	0	0	8	0	0	39	69
Lane Flow Rate	39	142	304	161	10	273	180	187
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.08	0.258	0.508	0.267	0.019	0.469	0.301	0.364
Departure Headway (Hd)	7.429	6.52	6.012	5.973	6.704	6.195	6.024	7.013
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	480	549	597	599	532	581	595	511
Service Time	5.213	4.276	3.768	3.729	4.464	3.955	3.783	4.777
HCM Lane V/C Ratio	0.081	0.259	0.509	0.269	0.019	0.47	0.303	0.366
HCM Control Delay	10.9	11.5	14.9	10.9	9.6	14.4	11.4	13.8
HCM Lane LOS	B	B	B	B	A	B	B	B
HCM 95th-tile Q	0.3	1	2.9	1.1	0.1	2.5	1.3	1.6

HCM 6th Signalized Intersection Summary

Existing Plus Project Without Event Conditions

25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	1	133	193	101	15	218	184	149	137	13	21	304	109	61
Future Volume (veh/h)	1	133	193	101	15	218	184	149	137	13	21	304	109	61
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		0.98	1.00		0.98		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No		No		No		No			No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h		137	199	37	15	225	108	154	141	9		313	112	10
Peak Hour Factor		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97		0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h		320	336	280	28	420	209	200	474	30		457	528	47
Arrive On Green		0.18	0.18	0.18	0.19	0.19	0.19	0.11	0.14	0.14		0.13	0.16	0.16
Sat Flow, veh/h		1781	1870	1561	148	2245	1116	1781	3389	214		3456	3300	291
Grp Volume(v), veh/h		137	199	37	189	0	159	154	73	77		313	60	62
Grp Sat Flow(s),veh/h/ln		1781	1870	1561	1863	0	1646	1781	1777	1827		1728	1777	1815
Q Serve(g_s), s		3.8	5.4	1.1	5.0	0.0	4.8	4.6	2.0	2.1		4.8	1.6	1.6
Cycle Q Clear(g_c), s		3.8	5.4	1.1	5.0	0.0	4.8	4.6	2.0	2.1		4.8	1.6	1.6
Prop In Lane		1.00		1.00	0.08		0.68	1.00		0.12		1.00		0.16
Lane Grp Cap(c), veh/h		320	336	280	348	0	308	200	248	255		457	284	290
V/C Ratio(X)		0.43	0.59	0.13	0.54	0.00	0.52	0.77	0.30	0.30		0.68	0.21	0.21
Avail Cap(c_a), veh/h		1294	1359	1134	1354	0	1196	971	1936	1991		1883	1936	1978
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		20.1	20.7	19.0	20.2	0.0	20.1	23.7	21.2	21.3		22.8	20.1	20.1
Incr Delay (d2), s/veh		0.6	1.0	0.1	0.5	0.0	0.5	2.4	3.0	3.0		0.7	1.7	1.7
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.4	2.1	0.4	2.1	0.0	1.8	2.0	1.0	1.1		1.9	0.8	0.8
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		20.6	21.8	19.1	20.7	0.0	20.7	26.1	24.2	24.3		23.5	21.8	21.8
LnGrp LOS		C	C	B	C	A	C	C	C	C		C	C	C
Approach Vol, veh/h			373			348			304				435	
Approach Delay, s/veh			21.1			20.7			25.2				23.0	
Approach LOS			C			C			C				C	
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	1.7	13.1	15.1	10.6	14.2	15.2								
Change Period (Y+Rc), s	4.4	* 5.4	5.2	4.4	5.4	4.9								
Max Green Setting (Gmax), s	30.0	* 60	40.0	30.0	60.0	40.0								
Max Q Clear Time (g_c+1), s	10.8	4.1	7.4	6.6	3.6	7.0								
Green Ext Time (p_c), s	0.6	3.3	1.1	0.2	2.6	1.5								

Intersection Summary

HCM 6th Ctrl Delay	22.4
HCM 6th LOS	C

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 26: Rancho Mission Rd & San Diego Mission Rd

Existing Plus Project Without Event Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷		↶	↷	↷	↶	↷	↷
Traffic Volume (veh/h)	189	660	363	110	252	173	115	235	143	209	219	320
Future Volume (veh/h)	189	660	363	110	252	173	115	235	143	209	219	320
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	199	695	347	116	265	120	121	247	19	220	231	165
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	236	911	454	147	839	369	153	320	265	258	430	357
Arrive On Green	0.13	0.40	0.40	0.08	0.35	0.35	0.09	0.17	0.17	0.14	0.23	0.23
Sat Flow, veh/h	1781	2276	1136	1781	2397	1055	1781	1870	1545	1781	1870	1552
Grp Volume(v), veh/h	199	543	499	116	194	191	121	247	19	220	231	165
Grp Sat Flow(s),veh/h/ln	1781	1777	1635	1781	1777	1675	1781	1870	1545	1781	1870	1552
Q Serve(g_s), s	10.1	24.4	24.4	5.9	7.4	7.7	6.2	11.6	1.0	11.1	10.0	8.5
Cycle Q Clear(g_c), s	10.1	24.4	24.4	5.9	7.4	7.7	6.2	11.6	1.0	11.1	10.0	8.5
Prop In Lane	1.00		0.69	1.00		0.63	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	236	711	654	147	622	587	153	320	265	258	430	357
V/C Ratio(X)	0.84	0.76	0.76	0.79	0.31	0.32	0.79	0.77	0.07	0.85	0.54	0.46
Avail Cap(c_a), veh/h	675	962	885	675	1058	998	579	1013	836	579	1013	840
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.1	23.9	23.9	41.6	21.9	22.0	41.4	36.5	32.1	38.6	31.2	30.6
Incr Delay (d2), s/veh	3.1	3.3	3.6	3.5	0.5	0.5	3.5	1.5	0.0	3.1	0.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	10.0	9.3	2.6	3.0	3.0	2.8	5.3	0.4	5.0	4.4	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.2	27.2	27.5	45.1	22.4	22.5	44.9	38.0	32.2	41.7	31.6	31.0
LnGrp LOS	D	C	C	D	C	C	D	D	C	D	C	C
Approach Vol, veh/h		1241			501			387			616	
Approach Delay, s/veh		29.7			27.7			39.9			35.0	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.6	42.5	11.9	26.3	16.2	37.8	17.4	20.9				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	* 5.5	4.0	* 5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	* 55	30.0	* 50				
Max Q Clear Time (g_c+1), s	17.5	26.4	8.2	12.0	12.1	9.7	13.1	13.6				
Green Ext Time (p_c), s	0.1	10.6	0.1	1.1	0.2	4.0	0.3	0.9				

Intersection Summary

HCM 6th Ctrl Delay	32.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave

Existing Plus Project Without Event Conditions
 PM Peak Hour

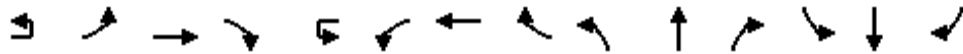


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↖	↗	↖	↖	↗	↖	↗	↖
Traffic Volume (veh/h)	120	396	366	43	169	15	220	74	66	22	122	106
Future Volume (veh/h)	120	396	366	43	169	15	220	74	66	22	122	106
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	133	440	269	48	188	14	244	82	49	24	136	92
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	212	557	931	152	758	63	318	194	116	312	182	123
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	328	1332	1547	144	1813	151	1781	1085	649	1781	1038	702
Grp Volume(v), veh/h	573	0	269	95	0	155	244	0	131	24	0	228
Grp Sat Flow(s),veh/h/ln1660	0	1547	434	0	1675	1781	0	1734	1781	0	1740	
Q Serve(g_s), s	14.6	0.0	5.0	1.6	0.0	3.5	7.7	0.0	4.0	0.7	0.0	7.4
Cycle Q Clear(g_c), s	18.1	0.0	5.0	19.7	0.0	3.5	7.7	0.0	4.0	0.7	0.0	7.4
Prop In Lane	0.23		1.00	0.50		0.09	1.00		0.37	1.00		0.40
Lane Grp Cap(c), veh/h	769	0	931	273	0	700	318	0	310	312	0	305
V/C Ratio(X)	0.74	0.00	0.29	0.35	0.00	0.22	0.77	0.00	0.42	0.08	0.00	0.75
Avail Cap(c_a), veh/h	1745	0	1848	899	0	1693	1201	0	1169	1201	0	1173
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.2	0.0	5.8	13.0	0.0	11.1	23.2	0.0	21.6	20.4	0.0	23.2
Incr Delay (d2), s/veh	1.3	0.0	0.2	0.7	0.0	0.1	1.5	0.0	0.3	0.0	0.0	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln5.7	0.0	2.1	0.7	0.0	1.2	3.1	0.0	1.5	0.3	0.0	0.0	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.5	0.0	6.0	13.7	0.0	11.2	24.6	0.0	22.0	20.5	0.0	24.6
LnGrp LOS	B	A	A	B	A	B	C	A	C	C	A	C
Approach Vol, veh/h		842			250			375				252
Approach Delay, s/veh		13.2			12.1			23.7				24.2
Approach LOS		B			B			C				C
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		29.3		14.9		29.3		15.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		20.1		9.4		21.7		9.7				
Green Ext Time (p_c), s		4.7		0.9		1.8		0.8				

Intersection Summary

HCM 6th Ctrl Delay	16.9
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary Existing Plus Project Without Event Conditions
 28: Qualcomm Way & Camino de la Reina/Camino del Rio N PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	2	112	367	249	2	391	166	111	148	520	258	242	967	120
Future Volume (veh/h)	2	112	367	249	2	391	166	111	148	520	258	242	967	120
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1841	1870	1856	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		115	379	189		403	171	18	153	536	213	249	997	117
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2		2	4	2	3	2	2	2	2	2
Cap, veh/h		132	473	283		440	628	277	189	2852	871	283	2707	317
Arrive On Green		0.07	0.13	0.13		0.13	0.18	0.18	0.02	0.18	0.18	0.08	0.59	0.59
Sat Flow, veh/h		1781	3741	1549		3456	3497	1545	3428	5106	1559	3456	4625	541
Grp Volume(v), veh/h		115	379	189		403	171	18	153	536	213	249	733	381
Grp Sat Flow(s),veh/h/ln		1781	1870	1549		1728	1749	1545	1714	1702	1559	1728	1702	1762
Q Serve(g_s), s		12.8	19.7	22.7		23.0	8.4	1.9	8.9	17.7	23.3	14.3	22.8	22.9
Cycle Q Clear(g_c), s		12.8	19.7	22.7		23.0	8.4	1.9	8.9	17.7	23.3	14.3	22.8	22.9
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h		132	473	283		440	628	277	189	2852	871	283	1992	1031
V/C Ratio(X)		0.87	0.80	0.67		0.92	0.27	0.06	0.81	0.19	0.24	0.88	0.37	0.37
Avail Cap(c_a), veh/h		190	498	293		524	628	277	314	2852	871	316	1992	1031
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	0.94	0.94	0.94	0.09	0.09	0.09
Uniform Delay (d), s/veh		91.6	84.9	76.3		86.2	70.8	68.1	97.1	43.2	45.5	90.9	21.9	21.9
Incr Delay (d2), s/veh		19.1	8.4	5.0		17.6	0.1	0.0	2.9	0.1	0.6	2.5	0.0	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		6.7	10.2	9.4		11.3	3.8	0.8	4.2	8.2	10.0	6.5	9.3	9.7
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		110.7	93.4	81.2		103.9	70.9	68.2	100.1	43.4	46.2	93.3	22.0	22.0
LnGrp LOS		F	F	F		F	E	E	F	D	D	F	C	C
Approach Vol, veh/h			683				592			902			1363	
Approach Delay, s/veh			92.9				93.3			53.6			35.0	
Approach LOS			F				F			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	20.8	118.4	29.8	31.0	15.4	123.7	19.2	41.6						
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7						
Max Green Setting (Gmax), s	10.3	103.6	30.3	* 27	18.3	* 1.1E2	21.3	35.6						
Max Q Clear Time (g_c+10), s	10.3	25.3	25.0	24.7	10.9	24.9	14.8	10.4						
Green Ext Time (p_c), s	0.1	4.4	0.4	0.5	0.1	25.7	0.1	0.6						

Intersection Summary

HCM 6th Ctrl Delay	60.7
HCM 6th LOS	E

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Without Event Conditions
 29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔	↑↑↑			↑↑	↔
Traffic Volume (veh/h)	4	78	0	408	19	132	275	139	614	0	0	926	640
Future Volume (veh/h)	4	78	0	408	19	132	275	139	614	0	0	926	640
Initial Q (Qb), veh		0	0	20	0	20	20	20	20	0	0	20	20
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No			No			No		
Adj Sat Flow, veh/h/ln		1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h		83	0	130	20	140	20	148	653	0	0	985	500
Peak Hour Factor		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h		0	0	0	16	228	201	178	4274	0	0	2547	1094
Arrive On Green		0.00	0.00	0.00	0.10	0.10	0.10	0.09	0.84	0.00	0.00	1.00	1.00
Sat Flow, veh/h			0		232	1626	1580	1781	5274	0	0	3647	1551
Grp Volume(v), veh/h			0.0		160	0	20	148	653	0	0	985	500
Grp Sat Flow(s),veh/h/ln					1859	0	1580	1781	1702	0	0	1777	1551
Q Serve(g_s), s					17.0	0.0	2.3	16.5	4.7	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s					17.0	0.0	2.3	16.5	4.7	0.0	0.0	0.0	0.0
Prop In Lane					0.12		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					256	0	201	178	4274	0	0	2547	1094
V/C Ratio(X)					0.63	0.00	0.10	0.83	0.15	0.00	0.00	0.39	0.46
Avail Cap(c_a), veh/h					372	0	316	178	4287	0	0	2572	1123
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)					1.00	0.00	1.00	0.77	0.77	0.00	0.00	0.84	0.84
Uniform Delay (d), s/veh					85.4	0.0	81.5	90.0	3.5	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh					0.9	0.0	0.1	20.7	0.1	0.0	0.0	0.4	1.2
Initial Q Delay(d3),s/veh					117.2	0.0	79.5	328.1	0.2	0.0	0.0	0.7	4.4
%ile BackOfQ(50%),veh/ln					20.6	0.0	9.5	26.5	2.9	0.0	0.0	0.4	1.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					203.5	0.0	161.1	438.8	3.8	0.0	0.0	1.1	5.6
LnGrp LOS					F	A	F	F	A	A	A	A	A
Approach Vol, veh/h						180			801			1485	
Approach Delay, s/veh						198.8			84.2			2.6	
Approach LOS						F			F			A	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		174.9			23.2	151.8		25.1					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		107.8			* 20	83.1		40.0					
Max Q Clear Time (g_c+I1), s		6.7			18.5	2.0		19.0					
Green Ext Time (p_c), s		3.2			0.0	32.3		0.5					

Intersection Summary

HCM 6th Ctrl Delay	43.4
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Existing Plus Project Without Event Conditions
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	493	0	1041	1302	0
Future Volume (veh/h)	0	493	0	1041	1302	0
Initial Q (Qb), veh	0	10	0	0	50	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1870	0
Adj Flow Rate, veh/h	0	480	0	1062	1329	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	2	2	0
Cap, veh/h	0	0	0	2662	2662	0
Arrive On Green	0.00	0.00	0.00	0.73	0.73	0.00
Sat Flow, veh/h	0		0	3741	3741	0
Grp Volume(v), veh/h	0.0		0	1062	1329	0
Grp Sat Flow(s),veh/h/ln			0	1777	1777	0
Q Serve(g_s), s			0.0	2.3	3.3	0.0
Cycle Q Clear(g_c), s			0.0	2.3	3.3	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2662	2662	0
V/C Ratio(X)			0.00	0.40	0.50	0.00
Avail Cap(c_a), veh/h			0	7801	7801	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	1.0	1.3	0.0
Incr Delay (d2), s/veh			0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	5.1	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	1.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	1.0	6.5	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1062	1329	
Approach Delay, s/veh				1.0	6.5	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		20.5				20.5
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		45.0				45.0
Max Q Clear Time (g_c+I1), s		4.3				5.3
Green Ext Time (p_c), s		5.8				8.1
Intersection Summary						
HCM 6th Ctrl Delay			4.1			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
31: Texas St & Camino del Rio S

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↗	↖	↑	↗	↖	↑↑		↖	↑↑	↗
Traffic Volume (veh/h)	236	127	323	236	46	449	81	755	104	233	1368	147
Future Volume (veh/h)	236	127	323	236	46	449	81	755	104	233	1368	147
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	257	138	294	257	50	426	88	821	109	253	1487	123
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	336	353	393	264	277	476	105	1254	166	272	1745	778
Arrive On Green	0.19	0.19	0.19	0.15	0.15	0.15	0.06	0.40	0.40	0.15	0.49	0.49
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3153	419	1781	3554	1585
Grp Volume(v), veh/h	257	138	294	257	50	426	88	463	467	253	1487	123
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1795	1781	1777	1585
Q Serve(g_s), s	26.1	12.3	32.6	27.4	4.5	28.2	9.3	40.4	40.4	26.7	69.8	8.2
Cycle Q Clear(g_c), s	26.1	12.3	32.6	27.4	4.5	28.2	9.3	40.4	40.4	26.7	69.8	8.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	336	353	393	264	277	476	105	707	714	272	1745	778
V/C Ratio(X)	0.76	0.39	0.75	0.97	0.18	0.89	0.83	0.65	0.65	0.93	0.85	0.16
Avail Cap(c_a), veh/h	374	393	427	264	277	476	234	707	714	679	1865	832
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	73.3	67.7	66.1	80.8	71.1	63.7	88.7	46.7	46.7	79.7	42.4	26.7
Incr Delay (d2), s/veh	8.2	0.7	6.6	48.8	0.9	20.4	6.4	1.7	1.7	6.0	4.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.7	6.0	14.0	16.2	2.2	22.4	4.5	18.3	18.5	12.8	31.5	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.4	68.4	72.7	129.6	71.9	84.1	95.1	48.5	48.5	85.7	46.8	26.9
LnGrp LOS	F	E	E	F	E	F	F	D	D	F	D	C
Approach Vol, veh/h		689			733			1018			1863	
Approach Delay, s/veh		75.1			99.2			52.5			50.8	
Approach LOS		E			F			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	33.5	81.0		40.9	15.7	98.8		35.2				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0				
Max Green Setting (Gmax), s	72.6	51.8		40.0	25.0	* 1E2		28.2				
Max Q Clear Time (g_c+20), s	20.7	42.4		34.6	11.3	71.8		30.2				
Green Ext Time (p_c), s	0.3	2.8		1.4	0.1	21.8		0.0				

Intersection Summary

HCM 6th Ctrl Delay	63.3
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection									
Int Delay, s/veh	7.7								
Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations		↖	↗			↕		↕	
Traffic Vol, veh/h	1	45	293	2	236	403	1	505	73
Future Vol, veh/h	1	45	293	2	236	403	1	505	73
Conflicting Peds, #/hr	21	24	24	3	24	0	3	0	24
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	0	65	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	0	-
Grade, %	-	0	-	-	-	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	47	308	2	248	424	1	532	77

Major/Minor	Minor2	Major1			Major2				
Conflicting Flow All	0	1333	353	608	633	0	424	-	0
Stage 1	0	597	-	-	-	-	-	-	-
Stage 2	0	736	-	-	-	-	-	-	-
Critical Hdwy	-	6.84	6.94	6.44	4.14	-	6.44	-	-
Critical Hdwy Stg 1	-	5.84	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.84	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.52	3.32	2.52	2.22	-	2.52	-	-
Pot Cap-1 Maneuver	0	145	643	591	946	-	773	-	-
Stage 1	0	513	-	-	-	-	-	-	-
Stage 2	0	435	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	0	88	614	909	909	-	773	-	-
Mov Cap-2 Maneuver	0	88	-	-	-	-	-	-	-
Stage 1	0	320	-	-	-	-	-	-	-
Stage 2	0	424	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	25.8	5	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	909	-	88	614	-	-
HCM Lane V/C Ratio	0.273	-	0.538	0.502	-	-
HCM Control Delay (s)	10.5	1.7	85.9	16.6	-	-
HCM Lane LOS	B	A	F	C	-	-
HCM 95th %tile Q(veh)	1.1	-	2.4	2.8	-	-

HCM 6th Signalized Intersection Summary
33: Camino del Rio N & Ward Rd

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑	↗↗	↖	↙	↘
Traffic Volume (veh/h)	298	415	152	352	651	167
Future Volume (veh/h)	298	415	152	352	651	167
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	317	441	162	33	693	140
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	368	1495	530	236	746	992
Arrive On Green	0.21	0.42	0.15	0.15	0.42	0.42
Sat Flow, veh/h	1781	3647	3647	1580	1781	1585
Grp Volume(v), veh/h	317	441	162	33	693	140
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1580	1781	1585
Q Serve(g_s), s	11.7	5.6	2.8	1.2	25.1	2.5
Cycle Q Clear(g_c), s	11.7	5.6	2.8	1.2	25.1	2.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	368	1495	530	236	746	992
V/C Ratio(X)	0.86	0.30	0.31	0.14	0.93	0.14
Avail Cap(c_a), veh/h	1153	3661	3661	1627	1153	1354
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.0	13.0	25.8	25.1	18.8	5.2
Incr Delay (d2), s/veh	2.3	0.2	0.5	0.4	6.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	1.9	1.1	0.4	10.3	3.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	28.3	13.2	26.3	25.5	25.6	5.2
LnGrp LOS	C	B	C	C	C	A
Approach Vol, veh/h		758	195		833	
Approach Delay, s/veh		19.5	26.1		22.2	
Approach LOS		B	C		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		34.6		33.4	18.4	16.1
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		7.6		27.1	13.7	4.8
Green Ext Time (p_c), s		4.6		1.3	0.4	1.8

Intersection Summary

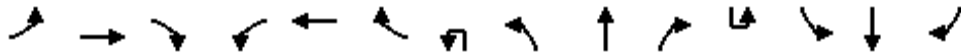
HCM 6th Ctrl Delay	21.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
34: Fairmount Ave & Mission Gorge Rd

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↗	↕			↗	↕	
Traffic Volume (veh/h)	61	10	538	23	7	2	25	319	741	27	1	7	767	29
Future Volume (veh/h)	61	10	538	23	7	2	25	319	741	27	1	7	767	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		1.00		1.00		0.98		1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	0	0	622	23	7	0		326	756	26		7	783	28
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		0.98	0.98	0.98		0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2	2	2
Cap, veh/h	0	340	546	174	47	0		893	2460	85		12	1563	56
Arrive On Green	0.00	0.00	0.18	0.18	0.18	0.00		0.52	1.00	1.00		0.01	0.45	0.45
Sat Flow, veh/h	0	1870	3006	687	257	0		3456	3503	120		1781	3497	125
Grp Volume(v), veh/h	0	0	622	30	0	0		326	383	399		7	398	413
Grp Sat Flow(s),veh/h/ln	0	1870	1503	944	0	0		1728	1777	1846		1781	1777	1846
Q Serve(g_s), s	0.0	0.0	23.6	2.3	0.0	0.0		7.3	0.0	0.0		0.5	20.7	20.7
Cycle Q Clear(g_c), s	0.0	0.0	23.6	2.9	0.0	0.0		7.3	0.0	0.0		0.5	20.7	20.7
Prop In Lane	0.00		1.00	0.77		0.00		1.00		0.07		1.00		0.07
Lane Grp Cap(c), veh/h	0	340	546	220	0	0		893	1248	1297		12	794	825
V/C Ratio(X)	0.00	0.00	1.14	0.14	0.00	0.00		0.36	0.31	0.31		0.57	0.50	0.50
Avail Cap(c_a), veh/h	0	340	546	220	0	0		906	1248	1297		179	794	825
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		2.00	2.00	2.00		1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00		0.79	0.79	0.79		1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	53.2	44.6	0.0	0.0		25.0	0.0	0.0		64.4	25.6	25.6
Incr Delay (d2), s/veh	0.0	0.0	83.2	0.3	0.0	0.0		0.1	0.5	0.5		14.6	2.3	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	15.2	0.8	0.0	0.0		2.7	0.2	0.2		0.3	9.2	9.6
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	136.4	44.9	0.0	0.0		25.1	0.5	0.5		79.0	27.9	27.8
LnGrp LOS	A	A	F	D	A	A		C	A	A		E	C	C
Approach Vol, veh/h		622			30				1108				818	
Approach Delay, s/veh		136.4			44.9				7.7				28.3	
Approach LOS		F			D				A				C	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	5.3	96.2		28.5	38.5	63.0		28.5						
Change Period (Y+Rc), s	4.4	4.9		4.9	4.9	* 4.9		4.9						
Max Green Setting (Gmax), s	13.5	79.1		23.6	34.1	* 58		23.6						
Max Q Clear Time (g_c+1/5), s	12.5	2.0		25.6	9.3	22.7		4.9						
Green Ext Time (p_c), s	0.0	13.7		0.0	0.6	12.2		0.1						

Intersection Summary

HCM 6th Ctrl Delay	45.7
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis Existing Plus Project Without Event Conditions
 35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	127	842	663	244	328	266	664	157	11	1348	56
Future Volume (vph)	122	127	842	663	244	328	266	664	157	11	1348	56
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1762	1583	1610	3080	1425	1770	3429		3433	3539	1563
Flt Permitted	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1762	1583	1610	3080	1425	1770	3429		3433	3539	1563
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	123	128	851	670	246	331	269	671	159	11	1362	57
RTOR Reduction (vph)	0	0	79	0	0	0	0	15	0	0	0	36
Lane Group Flow (vph)	111	140	772	335	631	281	269	815	0	11	1362	21
Confl. Peds. (#/hr)						3				1		
Confl. Bikes (#/hr)										1		1
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8	1	5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	15.4	15.4	35.4	25.0	25.0	35.0	20.0	58.6		10.0	48.6	48.6
Effective Green, g (s)	15.4	15.4	35.4	25.0	25.0	35.0	20.0	58.6		10.0	48.6	48.6
Actuated g/C Ratio	0.12	0.12	0.27	0.19	0.19	0.27	0.15	0.45		0.08	0.37	0.37
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	1.0	1.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	199	208	488	309	592	383	272	1545		264	1323	584
v/s Ratio Prot	0.07	0.08	c0.24	c0.21	0.20	0.06	0.15	0.24		0.00	c0.38	
v/s Ratio Perm			0.24			0.14						0.01
v/c Ratio	0.56	0.67	1.58	1.08	1.07	0.73	0.99	0.53		0.04	1.03	0.04
Uniform Delay, d1	54.1	54.9	47.3	52.5	52.5	43.3	54.9	25.7		55.6	40.7	25.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.71	1.20	1.00
Incremental Delay, d2	1.9	6.6	271.9	75.5	55.8	6.2	50.9	1.3		0.0	27.9	0.1
Delay (s)	56.0	61.5	319.2	128.0	108.3	49.4	105.7	27.0		39.7	76.7	25.9
Level of Service	E	E	F	F	F	D	F	C		D	E	C
Approach Delay (s)		260.0			100.3			46.3			74.4	
Approach LOS		F			F			D			E	

Intersection Summary		
HCM 2000 Control Delay	116.6	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.29	F
Actuated Cycle Length (s)	130.0	Sum of lost time (s)
Intersection Capacity Utilization	123.3%	21.0
Analysis Period (min)	15	ICU Level of Service
		H

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 36: Fairmount Ave & I-8 EB Off-Ramp

Existing Plus Project Without Event Conditions
 PM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations	YY	YY	U		↑↑	↑↑↑	
Traffic Volume (veh/h)	605	2321	43	0	495	1323	0
Future Volume (veh/h)	605	2321	43	0	495	1323	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		0	1870	1870	0
Adj Flow Rate, veh/h	617	2368		0	505	1350	0
Peak Hour Factor	0.98	0.98		0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2		0	2	2	0
Cap, veh/h	998	2663		0	1184	1701	0
Arrive On Green	0.56	0.56		0.00	0.33	0.33	0.00
Sat Flow, veh/h	1781	4755		0	3741	5443	0
Grp Volume(v), veh/h	617	2368		0	505	1350	0
Grp Sat Flow(s),veh/h/ln	1781	1585		0	1777	1702	0
Q Serve(g_s), s	24.2	45.4		0.0	11.5	24.9	0.0
Cycle Q Clear(g_c), s	24.2	45.4		0.0	11.5	24.9	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	998	2663		0	1184	1701	0
V/C Ratio(X)	0.62	0.89		0.00	0.43	0.79	0.00
Avail Cap(c_a), veh/h	1215	3244		0	2623	2555	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.4	20.0		0.0	26.9	31.4	0.0
Incr Delay (d2), s/veh	0.3	2.6		0.0	0.1	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	16.1		0.0	4.8	10.1	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	15.7	22.6		0.0	27.0	31.9	0.0
LnGrp LOS	B	C		A	C	C	A
Approach Vol, veh/h	2985				505	1350	
Approach Delay, s/veh	21.2				27.0	31.9	
Approach LOS	C				C	C	
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				40.6		63.3	40.6
Change Period (Y+Rc), s				6.0		5.1	6.0
Max Green Setting (Gmax), s				52.0		70.9	76.7
Max Q Clear Time (g_c+I1), s				26.9		47.4	13.5
Green Ext Time (p_c), s				7.7		10.8	2.5

Intersection Summary

HCM 6th Ctrl Delay	24.8
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
37: Collwood Blvd & Montezuma Rd

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↵	↑↑	↵↵	↑
Traffic Volume (veh/h)	1274	1180	6	74	720	610	36
Future Volume (veh/h)	1274	1180	6	74	720	610	36
Initial Q (Qb), veh	20	20		0	0	0	0
Ped-Bike Adj(A_pbT)		0.98		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1737	1870	1870	1648
Adj Flow Rate, veh/h	1313	1082		76	742	629	14
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		11	2	2	17
Cap, veh/h	2235	1289		95	2556	690	279
Arrive On Green	0.63	0.63		0.06	0.72	0.20	0.20
Sat Flow, veh/h	3647	1547		1654	3647	3456	1397
Grp Volume(v), veh/h	1313	1082		76	742	629	14
Grp Sat Flow(s),veh/h/ln	1777	1547		1654	1777	1728	1397
Q Serve(g_s), s	29.1	53.5		6.1	9.9	23.9	1.1
Cycle Q Clear(g_c), s	29.1	53.5		6.1	9.9	23.9	1.1
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2235	1289		95	2556	690	279
V/C Ratio(X)	0.59	0.84		0.80	0.29	0.91	0.05
Avail Cap(c_a), veh/h	2235	1289		328	2556	848	343
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.5	8.6		62.4	6.7	52.5	43.4
Incr Delay (d2), s/veh	1.1	6.7		5.8	0.3	11.1	0.0
Initial Q Delay(d3),s/veh	1.4	10.8		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.5	22.1		2.7	3.4	11.2	0.4
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	18.0	26.0		68.2	7.0	63.6	43.4
LnGrp LOS	B	C		E	A	E	D
Approach Vol, veh/h	2395				818	643	
Approach Delay, s/veh	21.6				12.7	63.1	
Approach LOS	C				B	E	
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	12.1	90.8			102.9	31.1	
Change Period (Y+Rc), s	4.4	* 6.5			6.5	4.4	
Max Green Setting (Gmax), s	26.6	* 60			90.2	32.9	
Max Q Clear Time (g_c+10), s	19.1	55.5			11.9	25.9	
Green Ext Time (p_c), s	0.1	3.9			11.5	0.9	

Intersection Summary

HCM 6th Ctrl Delay	26.7
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
38: Mission Village Dr & Shawn Ave

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔				↔		↗	↕	↖	↗	↕	↖
Traffic Volume (veh/h)	62	5	64	1	41	7	24	57	631	24	38	1705	65
Future Volume (veh/h)	62	5	64	1	41	7	24	57	631	24	38	1705	65
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99		0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	5	58		44	7	3	61	671	19	40	1814	68
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	271	17	189		235	150	64	205	2540	1131	595	2497	93
Arrive On Green	0.13	0.13	0.13		0.13	0.13	0.13	0.71	0.71	0.71	0.71	0.71	0.71
Sat Flow, veh/h	1259	127	1423		958	1125	482	242	3554	1582	753	3493	130
Grp Volume(v), veh/h	71	0	58		44	0	10	61	671	19	40	918	964
Grp Sat Flow(s),veh/h/ln	1386	0	1423		958	0	1607	242	1777	1582	753	1777	1847
Q Serve(g_s), s	2.9	0.0	2.5		2.1	0.0	0.4	13.5	4.5	0.2	1.3	20.4	20.9
Cycle Q Clear(g_c), s	3.3	0.0	2.5		4.6	0.0	0.4	34.4	4.5	0.2	5.8	20.4	20.9
Prop In Lane	0.93		1.00		1.00		0.30	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	288	0	189		235	0	214	205	2540	1131	595	1270	1320
V/C Ratio(X)	0.25	0.00	0.31		0.19	0.00	0.05	0.30	0.26	0.02	0.07	0.72	0.73
Avail Cap(c_a), veh/h	942	0	848		848	0	958	248	3177	1415	730	1589	1651
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00		1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.7	0.0	26.3		28.3	0.0	25.4	16.0	3.4	2.8	4.4	5.6	5.7
Incr Delay (d2), s/veh	0.2	0.0	0.3		0.1	0.0	0.0	1.0	0.1	0.0	0.1	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.8		0.7	0.0	0.1	0.7	0.8	0.0	0.1	4.2	4.5
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	26.9	0.0	26.6		28.5	0.0	25.4	17.0	3.4	2.8	4.4	7.0	7.1
LnGrp LOS	C	A	C		C	A	C	B	A	A	A	A	A
Approach Vol, veh/h		129				54			751			1922	
Approach Delay, s/veh		26.7				27.9			4.5			7.0	
Approach LOS		C				C			A			A	
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		53.3		13.8		53.3		13.8					
Change Period (Y+Rc), s		5.3		4.9		5.3		4.9					
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0					
Max Q Clear Time (g_c+1), s		36.4		5.3		22.9		6.6					
Green Ext Time (p_c), s		7.6		0.5		25.1		0.2					

Intersection Summary

HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
39: Mission Village Dr & Fermi Ave

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	↕	
Traffic Volume (veh/h)	33	1	12	38	1	34	9	688	34	1	20	1800	20
Future Volume (veh/h)	33	1	12	38	1	34	9	688	34	1	20	1800	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	34	1	0	40	1	8	9	717	34		21	1875	21
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	214	5	0	179	11	20	16	2447	116		34	2585	29
Arrive On Green	0.08	0.08	0.00	0.08	0.08	0.08	0.01	0.71	0.71		0.02	0.72	0.72
Sat Flow, veh/h	1475	61	0	1138	137	249	1781	3454	164		1781	3599	40
Grp Volume(v), veh/h	35	0	0	49	0	0	9	369	382		21	924	972
Grp Sat Flow(s),veh/h/ln	1536	0	0	1524	0	0	1781	1777	1841		1781	1777	1862
Q Serve(g_s), s	0.0	0.0	0.0	0.7	0.0	0.0	0.4	5.8	5.8		0.9	23.2	23.4
Cycle Q Clear(g_c), s	1.4	0.0	0.0	2.1	0.0	0.0	0.4	5.8	5.8		0.9	23.2	23.4
Prop In Lane	0.97		0.00	0.82		0.16	1.00		0.09		1.00		0.02
Lane Grp Cap(c), veh/h	219	0	0	211	0	0	16	1259	1304		34	1276	1337
V/C Ratio(X)	0.16	0.00	0.00	0.23	0.00	0.00	0.55	0.29	0.29		0.63	0.72	0.73
Avail Cap(c_a), veh/h	846	0	0	662	0	0	702	1401	1452		702	1401	1468
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	32.7	0.0	0.0	33.0	0.0	0.0	37.5	4.1	4.1		37.1	6.3	6.3
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.0	10.5	0.2	0.2		6.9	2.2	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0	0.9	0.0	0.0	0.2	1.4	1.4		0.4	6.3	6.6
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	32.8	0.0	0.0	33.2	0.0	0.0	48.1	4.3	4.3		44.0	8.4	8.4
LnGrp LOS	C	A	A	C	A	A	D	A	A		D	A	A
Approach Vol, veh/h		35			49			760				1917	
Approach Delay, s/veh		32.8			33.2			4.8				8.8	
Approach LOS		C			C			A				A	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	5.8	59.1		11.1	5.1	59.8		11.1					
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	5.2		4.9					
Max Green Setting (Gmax), s	30.0	60.0		40.0	30.0	60.0		30.0					
Max Q Clear Time (g_c+1/3), s	12.5	7.8		3.4	2.4	25.4		4.1					
Green Ext Time (p_c), s	0.0	10.0		0.1	0.0	29.2		0.1					

Intersection Summary

HCM 6th Ctrl Delay	8.5
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
40: Gramercy Dr/Mission Village Dr & Ruffin Rd

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖↗	
Traffic Volume (veh/h)	47	534	13	8	336	414	15	4	17	1331	9	68
Future Volume (veh/h)	47	534	13	8	336	414	15	4	17	1331	9	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	545	12	8	343	242	15	4	3	1358	9	66
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	263	1179	26	285	660	456	36	41	27	1524	83	607
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.02	0.02	0.02	0.43	0.43	0.43
Sat Flow, veh/h	827	3553	78	849	1989	1373	1781	2039	1343	3563	193	1418
Grp Volume(v), veh/h	48	272	285	8	306	279	15	3	4	1358	0	75
Grp Sat Flow(s),veh/h/ln	827	1777	1854	849	1777	1586	1781	1777	1604	1781	0	1612
Q Serve(g_s), s	3.4	8.2	8.2	0.5	9.4	9.7	0.6	0.1	0.1	23.8	0.0	1.9
Cycle Q Clear(g_c), s	13.0	8.2	8.2	8.7	9.4	9.7	0.6	0.1	0.1	23.8	0.0	1.9
Prop In Lane	1.00		0.04	1.00		0.87	1.00		0.84	1.00		0.88
Lane Grp Cap(c), veh/h	263	589	615	285	589	526	36	36	32	1524	0	690
V/C Ratio(X)	0.18	0.46	0.46	0.03	0.52	0.53	0.42	0.10	0.11	0.89	0.00	0.11
Avail Cap(c_a), veh/h	722	1577	1645	757	1577	1407	1054	1051	949	2107	0	953
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.6	17.8	17.8	21.3	18.2	18.3	32.7	32.5	32.5	17.9	0.0	11.6
Incr Delay (d2), s/veh	0.4	0.7	0.7	0.0	0.9	1.0	2.9	0.4	0.6	3.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.3	3.4	0.1	3.8	3.5	0.3	0.1	0.1	8.8	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.0	18.5	18.5	21.3	19.1	19.4	35.7	33.0	33.1	21.0	0.0	11.6
LnGrp LOS	C	B	B	C	B	B	D	C	C	C	A	B
Approach Vol, veh/h		605			593			22			1433	
Approach Delay, s/veh		19.0			19.3			34.8			20.5	
Approach LOS		B			B			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		27.5		33.8		27.5		6.3				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		15.0		25.8		11.7		2.6				
Green Ext Time (p_c), s		5.6		3.1		5.9		0.0				

Intersection Summary

HCM 6th Ctrl Delay	20.0
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	716	751	8	869	667	226	321
Future Volume (veh/h)	716	751	8	869	667	226	321
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	754	788		915	702	238	82
Peak Hour Factor	0.95	0.95		0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1901	963		896	2943	302	138
Arrive On Green	0.53	0.53		0.26	0.83	0.09	0.09
Sat Flow, veh/h	3647	1541		3456	3647	3456	1585
Grp Volume(v), veh/h	754	788		915	702	238	82
Grp Sat Flow(s),veh/h/ln1777	1541			1728	1777	1728	1585
Q Serve(g_s), s	16.3	51.4		33.7	5.5	8.8	6.5
Cycle Q Clear(g_c), s	16.3	51.4		33.7	5.5	8.8	6.5
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1901	963		896	2943	302	138
V/C Ratio(X)	0.40	0.82		1.02	0.24	0.79	0.59
Avail Cap(c_a), veh/h	1901	963		896	2943	1135	521
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.94	0.94
Uniform Delay (d), s/veh	17.8	19.0		48.2	2.4	58.1	57.1
Incr Delay (d2), s/veh	0.6	7.7		35.6	0.2	1.6	1.4
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	23.4		18.4	1.2	3.9	2.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	18.5	26.7		83.7	2.6	59.8	58.5
LnGrp LOS	B	C		F	A	E	E
Approach Vol, veh/h	1542			1617	320		
Approach Delay, s/veh	22.7			48.5	59.5		
Approach LOS	C			D	E		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	38.1	75.2			113.3	16.7	
Change Period (Y+Rc), s	4.4	* 5.7			5.7	5.3	
Max Green Setting (Gmax), s	33.7	* 39			76.3	42.7	
Max Q Clear Time (g_c+Rc), s	33.7	53.4			7.5	10.8	
Green Ext Time (p_c), s	0.0	0.0			7.4	0.6	

Intersection Summary

HCM 6th Ctrl Delay	38.1
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mobley St & Gramercy Dr

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	558	75	48	312	48	38	20	31	68	10	16
Future Volume (veh/h)	13	558	75	48	312	48	38	20	31	68	10	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.96	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1826	1826	1826	1752	1752	1752
Adj Flow Rate, veh/h	13	575	58	49	322	38	39	21	8	70	10	7
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	10	10	10
Cap, veh/h	686	1733	763	557	1556	182	305	120	30	388	49	19
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1014	3554	1564	790	3191	373	655	730	185	987	300	113
Grp Volume(v), veh/h	13	575	58	49	178	182	68	0	0	87	0	0
Grp Sat Flow(s),veh/h/ln	1014	1777	1564	790	1777	1787	1570	0	0	1400	0	0
Q Serve(g_s), s	0.2	2.8	0.6	1.2	1.6	1.7	0.0	0.0	0.0	0.5	0.0	0.0
Cycle Q Clear(g_c), s	1.9	2.8	0.6	4.0	1.6	1.7	1.0	0.0	0.0	1.4	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.21	0.57		0.12	0.80		0.08
Lane Grp Cap(c), veh/h	686	1733	763	557	867	871	456	0	0	456	0	0
V/C Ratio(X)	0.02	0.33	0.08	0.09	0.21	0.21	0.15	0.00	0.00	0.19	0.00	0.00
Avail Cap(c_a), veh/h	2305	7410	3261	1820	3705	3726	2272	0	0	2082	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.7	4.5	3.9	5.7	4.2	4.2	10.4	0.0	0.0	10.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.4	0.1	0.1	0.2	0.3	0.3	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.8	4.7	4.0	5.9	4.4	4.4	10.5	0.0	0.0	10.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		646			409			68			87	
Approach Delay, s/veh		4.7			4.6			10.5			10.7	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		19.1		9.6		19.1		9.6				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		4.8		3.4		6.0		3.0				
Green Ext Time (p_c), s		8.7		0.3		4.9		0.2				

Intersection Summary

HCM 6th Ctrl Delay	5.4
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
43: Sandrock Rd & Greyling Dr/Gramercy Dr

Existing Plus Project Without Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕			↕	↕	↕	↕	↕
Traffic Volume (veh/h)	68	119	8	14	144	219	1	5	9	22	534	30	109
Future Volume (veh/h)	68	119	8	14	144	219	1	5	9	22	534	30	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.97		0.94	1.00		1.00	1.00			0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1574	1574	1870	1870	1856	1870	
Adj Flow Rate, veh/h	72	125	6	15	152	127	5	9	0	585	0	50	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	22	22	2	2	3	2	
Cap, veh/h	245	331	13	133	500	819	8	14	23	897	0	383	
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.01	0.01	0.00	0.25	0.00	0.25	
Sat Flow, veh/h	365	1175	47	65	1771	1488	552	994	1585	3563	0	1520	
Grp Volume(v), veh/h	203	0	0	167	0	127	14	0	0	585	0	50	
Grp Sat Flow(s),veh/h/ln	1587	0	0	1836	0	1488	1546	0	1585	1781	0	1520	
Q Serve(g_s), s	0.2	0.0	0.0	0.0	0.0	1.5	0.3	0.0	0.0	5.0	0.0	0.9	
Cycle Q Clear(g_c), s	3.1	0.0	0.0	2.4	0.0	1.5	0.3	0.0	0.0	5.0	0.0	0.9	
Prop In Lane	0.35		0.03	0.09		1.00	0.36		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	590	0	0	632	0	819	23	0	23	897	0	383	
V/C Ratio(X)	0.34	0.00	0.00	0.26	0.00	0.16	0.62	0.00	0.00	0.65	0.00	0.13	
Avail Cap(c_a), veh/h	1247	0	0	1429	0	1483	901	0	924	2076	0	886	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh	9.9	0.0	0.0	9.7	0.0	4.1	16.8	0.0	0.0	11.5	0.0	9.9	
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.0	10.0	0.0	0.0	0.3	0.0	0.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.7	0.0	0.5	0.2	0.0	0.0	1.4	0.0	0.2	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	10.1	0.0	0.0	9.8	0.0	4.1	26.8	0.0	0.0	11.8	0.0	10.0	
LnGrp LOS	B	A	A	A	A	A	C	A	A	B	A	A	
Approach Vol, veh/h		203			294			14				635	
Approach Delay, s/veh		10.1			7.3			26.8				11.7	
Approach LOS		B			A			C				B	
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		15.0		13.9		15.0		5.4					
Change Period (Y+Rc), s		5.3		5.3		5.3		4.9					
Max Green Setting (Gmax), s		25.0		20.0		25.0		20.0					
Max Q Clear Time (g_c+I1), s		5.1		7.0		4.4		2.3					
Green Ext Time (p_c), s		0.8		1.1		0.8		0.0					

Intersection Summary

HCM 6th Ctrl Delay	10.4
HCM 6th LOS	B

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

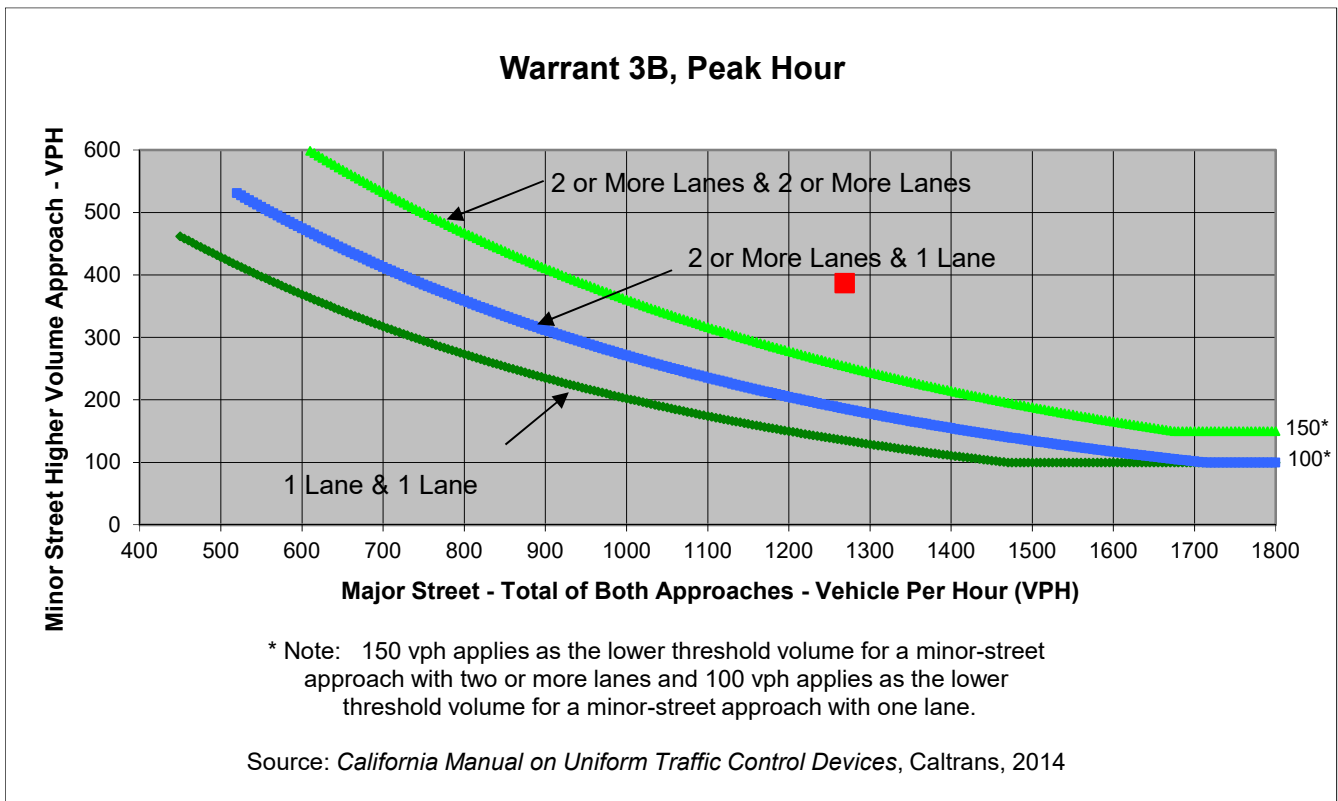
Project SDSU Mission Valley
 Scenario Existing + Project
 Peak Hour PM

Turn Movement Volumes

	NB	SB	EB	WB
Left/ U-turn	271	1	49	0
Through	405	516	0	0
Right	0	76	338	0
Total	676	593	387	0

Major Street Direction

x	North/South
	East/West



	Major Street	Minor Street	Warrant Met
	Ward Rd	Rancho Mission Rd	
Number of Approach Lanes	2	1	<u>YES</u>
Traffic Volume (VPH) *	1,269	387	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
 Traffic Volume for Minor Street is the Volume of High Volume Approach.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

Project SDSU Mission Valley
 Scenario Existing + Project
 Peak Hour PM

Turn Movement Volumes

	NB	SB	EB	WB
Left/ U-turn	271	1	49	0
Through	405	516	0	0
Right	0	76	338	0
Total	676	593	387	0

Major Street Direction

x North/South
 East/West

Intersection Geometry

Number of Approach Lanes for Minor Street 1
 Total Approaches 3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle) 133.8
 Approach with Worst Case Delay EB
 Total Vehicles on Approach 387

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Existing + Project	14.4	387	1,656
Limiting Value	4	100	650
Condition Satisfied?	Met	Met	Met
Warrant Met	<u>YES</u>		

Queues

Existing Plus Project Without Event Conditions

1: SR-163 SB Ramps/Ulric St & Friars Rd

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	137	1508	585	1031	693	142	141	650	291	291	169
v/c Ratio	0.60	0.64	0.37	0.69	1.21	0.61	0.60	0.41	0.77	0.77	0.37
Control Delay	61.5	26.6	0.7	40.9	137.4	59.9	59.3	0.8	56.1	56.1	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.5	26.6	0.7	40.9	137.4	59.9	59.3	0.8	56.1	56.1	12.9
Queue Length 50th (ft)	95	294	0	246	~539	104	103	0	212	212	22
Queue Length 95th (ft)	194	487	0	387	#974	201	198	0	340	340	83
Internal Link Dist (ft)		1296		18			834			622	
Turn Bay Length (ft)	120		100		70	300		215			200
Base Capacity (vph)	267	2476	1561	1493	575	1047	1057	1583	748	748	766
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.61	0.37	0.69	1.21	0.14	0.13	0.41	0.39	0.39	0.22

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

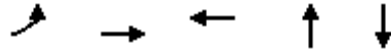
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues
2: SR-163 NB Ramps & Friars Rd

Existing Plus Project Without Event Conditions
PM Peak Hour



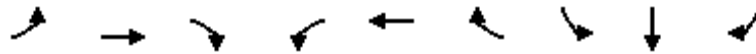
Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	550	2147	2363	1050	866
v/c Ratio	0.87	no cap	1.34	13.64	11.25
Control Delay	39.9		179.5	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0
Total Delay	39.9	Error	179.5	0.0	0.0
Queue Length 50th (ft)	260	0	~841	0	0
Queue Length 95th (ft)	385	0	#1194	0	0
Internal Link Dist (ft)		962	635	815	521
Turn Bay Length (ft)	250				
Base Capacity (vph)	1287	1	1761	77	77
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.43	2147.00	1.34	13.64	11.25

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
17: I-15 SB Ramps & Friars Rd

Existing Plus Project Without Event Conditions
PM Peak Hour



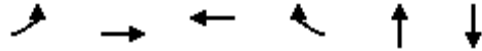
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	493	2448	1080	269	1520	340	521	522	605
v/c Ratio	0.90	1.41	1.33	4.98	1.20	0.60	0.98	0.98	0.33
Control Delay	66.3	223.3	179.3	1844.2	141.1	18.7	79.0	79.4	10.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.3	223.3	179.3	1844.2	141.1	18.7	79.0	79.4	10.1
Queue Length 50th (ft)	418	~1070	~977	~404	~604	77	474	475	116
Queue Length 95th (ft)	#623	#1159	#1241	#587	#701	184	#716	#717	150
Internal Link Dist (ft)		844			1079			723	
Turn Bay Length (ft)	380		200	350			520		520
Base Capacity (vph)	546	1735	813	54	1268	571	543	543	1855
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	1.41	1.33	4.98	1.20	0.60	0.96	0.96	0.33

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
18: I-15 NB Ramps & Friars Rd

Existing Plus Project Without Event Conditions
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	1002	2542	1516	453	1275	983
v/c Ratio	1.27	no cap	0.76	0.77	15.00	11.56
Control Delay	159.2		26.9	34.1	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	159.2	Error	26.9	34.1	0.0	0.0
Queue Length 50th (ft)	~804	0	312	282	0	0
Queue Length 95th (ft)	#1354	0	365	420	0	0
Internal Link Dist (ft)		1079	869		797	677
Turn Bay Length (ft)	515					
Base Capacity (vph)	789	1	2932	863	85	85
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.27	2542.00	0.52	0.52	15.00	11.56

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

Existing Plus Project Without Event Conditions

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

PM Peak Hour



Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	87	434	160	293	148	653	985	681
v/c Ratio	0.68	0.75	0.80	0.69	0.91	0.18	0.45	0.61
Control Delay	115.0	24.2	113.3	16.6	137.3	9.0	14.5	6.9
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	6.4	2.4
Total Delay	115.0	24.2	113.3	16.7	137.3	9.0	20.9	9.3
Queue Length 50th (ft)	114	115	210	6	195	89	277	49
Queue Length 95th (ft)	180	253	290	109	#331	134	m396	m88
Internal Link Dist (ft)			653			1043	147	
Turn Bay Length (ft)				150	110			
Base Capacity (vph)	309	588	370	542	177	3725	2182	1123
Starvation Cap Reductn	0	0	0	0	0	0	1135	305
Spillback Cap Reductn	0	0	0	16	0	296	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.74	0.43	0.56	0.84	0.19	0.94	0.83

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Existing Plus Project Without Event Conditions

PM Peak Hour



Lane Group	EBR	NBT	SBT
Lane Group Flow (vph)	503	1062	1329
v/c Ratio	0.57	0.60	0.75
Control Delay	18.8	11.5	14.2
Queue Delay	0.0	0.0	0.0
Total Delay	18.8	11.5	14.2
Queue Length 50th (ft)	68	116	163
Queue Length 95th (ft)	149	201	279
Internal Link Dist (ft)		283	1043
Turn Bay Length (ft)			
Base Capacity (vph)	2351	2948	2948
Starvation Cap Reductn	0	307	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.21	0.40	0.45
Intersection Summary			

Queues

Existing Plus Project Without Event Conditions

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	111	140	851	335	631	281	269	830	11	1362	57
v/c Ratio	0.56	0.67	1.50	1.08	1.07	0.70	0.99	0.53	0.04	1.03	0.09
Control Delay	64.9	70.9	263.7	124.4	105.3	49.2	106.6	26.7	40.0	75.2	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	29.4	0.0
Total Delay	64.9	70.9	263.7	124.4	105.3	49.2	106.6	26.7	40.0	104.5	8.0
Queue Length 50th (ft)	95	122	~947	~346	~340	220	229	247	4	~647	3
Queue Length 95th (ft)	156	190	#1154	#556	#475	329	#409	331	m8	m#726	m18
Internal Link Dist (ft)		2741			1304			830		254	
Turn Bay Length (ft)	105					200	215		65		140
Base Capacity (vph)	245	257	567	309	592	399	272	1559	264	1322	654
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	526	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.54	1.50	1.08	1.07	0.70	0.99	0.53	0.04	1.71	0.09

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
36: Fairmount Ave & I-8 EB Off-Ramp

Existing Plus Project Without Event Conditions
PM Peak Hour



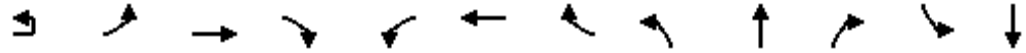
Lane Group	EBL	EBR	NBU	NBT	SBT
Lane Group Flow (vph)	1398	1587	44	505	1350
v/c Ratio	0.96dr	1.15	0.48	0.35	0.83
Control Delay	35.7	108.2	83.2	28.9	49.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	35.7	108.2	83.2	28.9	49.0
Queue Length 50th (ft)	539	~971	39	163	410
Queue Length 95th (ft)	754	#1269	86	207	487
Internal Link Dist (ft)	749			557	830
Turn Bay Length (ft)	550		350		
Base Capacity (vph)	1664	1382	248	1968	1917
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.84	1.15	0.18	0.26	0.70

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- dr Defacto Right Lane. Recode with 1 though lane as a right lane.

HCM 6th Signalized Intersection Summary
1: SR-163 SB Ramps/Ulrir St & Friars Rd

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↵	↶↶↶	↷		↶↶↶	↷	↵	↶	↷	↵	↶
Traffic Volume (veh/h)	1	133	1483	573	0	1011	680	258	20	764	575	0
Future Volume (veh/h)	1	133	1483	573	0	1011	680	258	20	764	575	0
Initial Q (Qb), veh		0	10	10	0	10	0	0	0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No			No				No
Adj Sat Flow, veh/h/ln		1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		136	1513	0	0	1032	582	277	0	0	587	0
Peak Hour Factor		0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %		2	2	2	0	2	2	2	2	2	2	2
Cap, veh/h		166	2448		0	1692	397	371	0		750	0
Arrive On Green		0.09	0.49	0.00	0.00	0.35	0.35	0.11	0.00	0.00	0.20	0.00
Sat Flow, veh/h		1781	5106	1585	0	5274	1585	3563	0	1585	3563	0
Grp Volume(v), veh/h		136	1513	0	0	1032	582	277	0	0	587	0
Grp Sat Flow(s),veh/h/ln		1781	1702	1585	0	1702	1585	1781	0	1585	1781	0
Q Serve(g_s), s		7.1	20.4	0.0	0.0	15.7	33.0	7.2	0.0	0.0	15.0	0.0
Cycle Q Clear(g_c), s		7.1	20.4	0.0	0.0	15.7	33.0	7.2	0.0	0.0	15.0	0.0
Prop In Lane		1.00		1.00	0.00		1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h		166	2448		0	1692	397	371	0		750	0
V/C Ratio(X)		0.82	0.62		0.00	0.61	1.47	0.75	0.00		0.78	0.00
Avail Cap(c_a), veh/h		318	2505		0	1771	550	2622	0		1873	0
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh		46.9	19.8	0.0	0.0	29.3	49.4	45.9	0.0	0.0	36.6	0.0
Incr Delay (d2), s/veh		3.8	0.3	0.0	0.0	0.4	223.1	3.0	0.0	0.0	0.7	0.0
Initial Q Delay(d3),s/veh		0.0	0.3	0.0	0.0	0.6	0.0	0.0	0.0	0.0	5.9	0.0
%ile BackOfQ(50%),veh/ln		3.6	8.5	0.0	0.0	7.3	37.2	3.6	0.0	0.0	7.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		50.7	20.5	0.0	0.0	30.3	272.5	48.9	0.0	0.0	43.1	0.0
LnGrp LOS		D	C		A	C	F	D	A		D	A
Approach Vol, veh/h			1649	A		1614			277	A		654
Approach Delay, s/veh			23.0			117.7			48.9			42.8
Approach LOS			C			F			D			D
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		53.7		25.2	13.7	40.0		16.2				
Change Period (Y+Rc), s		7.0		6.1	* 4.7	7.0		6.1				
Max Green Setting (Gmax), s		45.0		50.0	* 17	33.0		70.0				
Max Q Clear Time (g_c+I1), s		22.4		17.0	9.1	35.0		9.2				
Green Ext Time (p_c), s		7.4		1.2	0.1	0.0		1.0				

Intersection Summary

HCM 6th Ctrl Delay	64.2
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	SBR
Lane Configurations	7
Traffic Volume (veh/h)	166
Future Volume (veh/h)	166
Initial Q (Qb), veh	10
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1870
Adj Flow Rate, veh/h	67
Peak Hour Factor	0.98
Percent Heavy Veh, %	2
Cap, veh/h	339
Arrive On Green	0.20
Sat Flow, veh/h	1578
Grp Volume(v), veh/h	67
Grp Sat Flow(s),veh/h/ln	1578
Q Serve(g_s), s	3.4
Cycle Q Clear(g_c), s	3.4
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	339
V/C Ratio(X)	0.20
Avail Cap(c_a), veh/h	829
HCM Platoon Ratio	1.00
Upstream Filter(l)	1.00
Uniform Delay (d), s/veh	32.4
Incr Delay (d2), s/veh	0.1
Initial Q Delay(d3),s/veh	7.8
%ile BackOfQ(50%),veh/ln	3.3
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	40.3
LnGrp LOS	D
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.	

HCM 6th Signalized Intersection Summary
2: SR-163 NB Ramps & Friars Rd

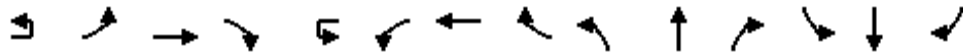
Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘				↗	↗						
Traffic Volume (veh/h)	528	2198	0	0	1430	870	0	0	1277	0	0	831
Future Volume (veh/h)	528	2198	0	0	1430	870	0	0	1277	0	0	831
Initial Q (Qb), veh	20	0	0	0	10	0						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	550	2290	0	0	1490	0						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	669	0	0	0	1321							
Arrive On Green	0.34	0.00	0.00	0.00	0.51	0.00						
Sat Flow, veh/h	1781	550		0	3741	0						
Grp Volume(v), veh/h	550	60.5		0	1490	0						
Grp Sat Flow(s),veh/h/ln	1781	E		0	1777	0						
Q Serve(g_s), s	20.9			0.0	25.1	0.0						
Cycle Q Clear(g_c), s	20.9			0.0	25.1	0.0						
Prop In Lane	1.00			0.00		0.00						
Lane Grp Cap(c), veh/h	669			0	1321							
V/C Ratio(X)	0.82			0.00	1.13							
Avail Cap(c_a), veh/h	1515			0	2115							
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	0.00						
Uniform Delay (d), s/veh	23.3			0.0	35.5	0.0						
Incr Delay (d2), s/veh	1.0			0.0	63.5	0.0						
Initial Q Delay(d3),s/veh	36.3			0.0	27.3	0.0						
%ile BackOfQ(50%),veh/ln	7.5			0.0	33.6	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.5			0.0	126.2	0.0						
LnGrp LOS	E			A	F							
Approach Vol, veh/h					1490	A						
Approach Delay, s/veh					126.2							
Approach LOS					F							
Timer - Assigned Phs					5	6						
Phs Duration (G+Y+Rc), s					28.7	41.8						
Change Period (Y+Rc), s					5.0	6.0						
Max Green Setting (Gmax), s					60.0	42.0						
Max Q Clear Time (g_c+I1), s					22.9	27.1						
Green Ext Time (p_c), s					0.8	8.8						
Intersection Summary												
HCM 6th Ctrl Delay					108.5							
HCM 6th LOS					F							
Notes												
Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.												

HCM 6th Signalized Intersection Summary
3: Frazee Rd & Friars Rd

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↑↑↑	↔		↔	↑↑↑	↔	↔↔	↑↑		↔↔	↔	↔
Traffic Volume (veh/h)	17	274	2603	547	3	99	1549	85	271	56	131	112	62	311
Future Volume (veh/h)	17	274	2603	547	3	99	1549	85	271	56	131	112	62	311
Initial Q (Qb), veh		0	0	0		0	20	0	10	0	0	0	0	10
Ped-Bike Adj(A_pbT)		1.00		0.96		1.00		1.00	1.00		0.92	1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No				No				No			No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		308	2925	489		111	1740	39	304	63	22	126	107	95
Peak Hour Factor		0.89	0.89	0.89		0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h		372	2109	719		136	2280	696	409	611	200	185	270	197
Arrive On Green		0.11	0.52	0.52		0.08	0.48	0.48	0.11	0.16	0.16	0.05	0.11	0.11
Sat Flow, veh/h		3456	5106	1525		1781	5106	1577	3456	2578	835	3563	1870	1563
Grp Volume(v), veh/h		308	2925	489		111	1740	39	304	42	43	126	107	95
Grp Sat Flow(s),veh/h/ln		1728	1702	1525		1781	1702	1577	1728	1777	1636	1781	1870	1563
Q Serve(g_s), s		9.4	55.6	24.7		6.6	28.8	1.4	9.3	2.2	2.4	3.7	5.8	6.2
Cycle Q Clear(g_c), s		9.4	55.6	24.7		6.6	28.8	1.4	9.3	2.2	2.4	3.7	5.8	6.2
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.51	1.00		1.00
Lane Grp Cap(c), veh/h		372	2109	719		136	2280	696	409	419	392	185	270	197
V/C Ratio(X)		0.83	1.39	0.68		0.81	0.76	0.06	0.74	0.10	0.11	0.68	0.40	0.48
Avail Cap(c_a), veh/h		1442	2631	786		496	2841	877	961	494	455	991	520	435
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		56.1	45.9	27.5		58.3	31.5	21.4	48.7	37.2	37.3	59.8	49.0	48.9
Incr Delay (d2), s/veh		1.8	177.2	2.4		4.4	1.3	0.1	1.0	0.0	0.0	2.3	0.6	1.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	2.3	0.0	16.8	0.0	0.0	0.0	0.0	35.7
%ile BackOfQ(50%),veh/ln		4.9	60.9	11.9		3.6	16.4	0.7	5.9	1.0	1.0	2.0	3.1	6.2
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		57.9	223.1	29.9		62.8	35.1	21.4	66.5	37.3	37.4	62.1	49.6	85.8
LnGrp LOS		E	F	C		E	D	C	E	D	D	E	D	F
Approach Vol, veh/h		3722				1890				389			328	
Approach Delay, s/veh		184.1				36.5				60.1			64.9	
Approach LOS		F				D				E			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	12.8	62.1	16.2	16.8	16.3	58.6	10.3	22.7						
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9						
Max Green Setting (Gmax), s	30.0	* 50	30.0	30.0	45.0	60.0	30.0	30.0						
Max Q Clear Time (g_c+1), s	10.6	57.6	11.3	8.2	11.4	30.8	5.7	4.4						
Green Ext Time (p_c), s	0.1	0.0	0.5	0.5	0.5	21.2	0.2	0.2						

Intersection Summary

HCM 6th Ctrl Delay	126.2
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
4: Mission Center Rd & Friars Rd WB

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↶		↶	↷			↷	↶
Traffic Volume (veh/h)	0	0	0	205	3	240	3	187	728	0	0	1004	274
Future Volume (veh/h)	0	0	0	205	3	240	3	187	728	0	0	1004	274
Initial Q (Qb), veh				0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00		1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No	
Adj Sat Flow, veh/h/ln				1870	1870	1870		1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				216	0	62		195	758	0	0	1046	228
Peak Hour Factor				0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2		2	2	0	0	2	2
Cap, veh/h				299	0	133		258	2887	0	0	2477	1068
Arrive On Green				0.17	0.00	0.17		0.15	1.00	0.00	0.00	0.70	0.70
Sat Flow, veh/h				3563	0	1585		3456	3647	0	0	3647	1532
Grp Volume(v), veh/h				216	0	62		195	758	0	0	1046	228
Grp Sat Flow(s),veh/h/ln				1781	0	1585		1728	1777	0	0	1777	1532
Q Serve(g_s), s				6.2	0.0	3.8		5.8	0.0	0.0	0.0	13.7	5.7
Cycle Q Clear(g_c), s				6.2	0.0	3.8		5.8	0.0	0.0	0.0	13.7	5.7
Prop In Lane				1.00		1.00		1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				299	0	133		258	2887	0	0	2477	1068
V/C Ratio(X)				0.72	0.00	0.47		0.76	0.26	0.00	0.00	0.42	0.21
Avail Cap(c_a), veh/h				1013	0	451		579	2887	0	0	2477	1068
HCM Platoon Ratio				2.00	2.00	2.00		2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00		0.78	0.78	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				43.7	0.0	42.7		45.0	0.0	0.0	0.0	7.0	5.8
Incr Delay (d2), s/veh				3.3	0.0	2.5		1.3	0.2	0.0	0.0	0.5	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.6	0.0	1.5		2.4	0.1	0.0	0.0	4.4	1.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh				47.0	0.0	45.3		46.3	0.2	0.0	0.0	7.6	6.3
LnGrp LOS				D	A	D		D	A	A	A	A	A
Approach Vol, veh/h					278				953			1274	
Approach Delay, s/veh					46.6				9.6			7.3	
Approach LOS					D				A			A	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		94.0			12.5	81.6		14.0					
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9					
Max Green Setting (Gmax), s		* 67			18.1	43.6		30.7					
Max Q Clear Time (g_c+I1), s		2.0			7.8	15.7		8.2					
Green Ext Time (p_c), s		4.8			0.2	15.4		0.9					

Intersection Summary

HCM 6th Ctrl Delay	12.6
HCM 6th LOS	B

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Mission Center Rd & Friars Rd EB

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	312	5	250	0	0	0	0	596	396	462	739	0
Future Volume (veh/h)	312	5	250	0	0	0	0	596	396	462	739	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	332	0	83				0	627	337	486	778	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	431	0	192				0	755	406	1339	2772	0
Arrive On Green	0.12	0.00	0.12				0.00	0.34	0.34	0.77	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2291	1181	3456	3647	0
Grp Volume(v), veh/h	332	0	83				0	507	457	486	778	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1602	1728	1777	0
Q Serve(g_s), s	9.8	0.0	5.2				0.0	28.3	28.3	4.8	0.0	0.0
Cycle Q Clear(g_c), s	9.8	0.0	5.2				0.0	28.3	28.3	4.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.74	1.00		0.00
Lane Grp Cap(c), veh/h	431	0	192				0	610	550	1339	2772	0
V/C Ratio(X)	0.77	0.00	0.43				0.00	0.83	0.83	0.36	0.28	0.00
Avail Cap(c_a), veh/h	976	0	434				0	610	550	1339	2772	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.83	0.83	0.00
Uniform Delay (d), s/veh	46.0	0.0	44.0				0.0	32.6	32.6	8.0	0.0	0.0
Incr Delay (d2), s/veh	2.9	0.0	1.5				0.0	12.4	13.6	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	2.1				0.0	13.7	12.5	1.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.0	0.0	45.6				0.0	45.0	46.2	8.0	0.1	0.0
LnGrp LOS	D	A	D				A	D	D	A	A	A
Approach Vol, veh/h		415						964			1264	
Approach Delay, s/veh		48.3						45.5			3.1	
Approach LOS		D						D			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	47.6	42.4	18.0	90.0								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	26.7	* 37	29.6	67.7								
Max Q Clear Time (g_c+I), s	10.8	30.3	11.8	2.0								
Green Ext Time (p_c), s	0.9	4.0	1.3	7.5								

Intersection Summary

HCM 6th Ctrl Delay	25.7
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
6: Qualcomm Way & Friars Rd WB

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↔		↖	↑			↗	↘
Traffic Volume (veh/h)	0	0	0	458	8	68	427	68	0	0	160	8
Future Volume (veh/h)	0	0	0	458	8	68	427	68	0	0	160	8
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				531	0	0	445	71	0	0	167	4
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				628	330	0	606	1307	0	0	1053	25
Arrive On Green				0.29	0.00	0.00	0.57	1.00	0.00	0.00	0.30	0.30
Sat Flow, veh/h				3563	1870	0	1781	1870	0	0	3638	85
Grp Volume(v), veh/h				531	0	0	445	71	0	0	83	88
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1870	0	0	1777	1852
Q Serve(g_s), s				11.2	0.0	0.0	14.8	0.0	0.0	0.0	2.8	2.8
Cycle Q Clear(g_c), s				11.2	0.0	0.0	14.8	0.0	0.0	0.0	2.8	2.8
Prop In Lane				1.00		0.00	1.00		0.00	0.00		0.05
Lane Grp Cap(c), veh/h				628	330	0	606	1307	0	0	528	550
V/C Ratio(X)				0.85	0.00	0.00	0.73	0.05	0.00	0.00	0.16	0.16
Avail Cap(c_a), veh/h				1251	657	0	606	1307	0	0	528	550
HCM Platoon Ratio				1.67	1.67	1.67	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.98	0.98	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				27.2	0.0	0.0	14.6	0.0	0.0	0.0	20.7	20.7
Incr Delay (d2), s/veh				1.2	0.0	0.0	4.7	0.1	0.0	0.0	0.1	0.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.0	0.0	0.0	4.8	0.0	0.0	0.0	1.1	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				28.4	0.0	0.0	19.2	0.1	0.0	0.0	20.9	20.9
LnGrp LOS				C	A	A	B	A	A	A	C	C
Approach Vol, veh/h					531			516			171	
Approach Delay, s/veh					28.4			16.6			20.9	
Approach LOS					C			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		61.0			32.3	28.7		19.0				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+11), s		2.0			16.8	4.8		13.2				
Green Ext Time (p_c), s		0.4			0.7	0.6		0.9				

Intersection Summary

HCM 6th Ctrl Delay	22.4
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
7: Qualcomm Way & Friars Rd EB

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↕	↗	↘	↕	
Traffic Volume (veh/h)	56	5	332	0	0	0	0	435	327	85	537	0
Future Volume (veh/h)	56	5	332	0	0	0	0	435	327	85	537	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	62	6	205				0	483	169	94	597	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	255	25	248				0	2120	945	119	2553	0
Arrive On Green	0.16	0.16	0.16				0.00	0.60	0.60	0.13	1.00	0.00
Sat Flow, veh/h	1631	158	1585				0	3647	1584	1781	3647	0
Grp Volume(v), veh/h	68	0	205				0	483	169	94	597	0
Grp Sat Flow(s),veh/h/ln	1789	0	1585				0	1777	1584	1781	1777	0
Q Serve(g_s), s	2.7	0.0	10.0				0.0	5.1	3.9	4.1	0.0	0.0
Cycle Q Clear(g_c), s	2.7	0.0	10.0				0.0	5.1	3.9	4.1	0.0	0.0
Prop In Lane	0.91		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	280	0	248				0	2120	945	119	2553	0
V/C Ratio(X)	0.24	0.00	0.83				0.00	0.23	0.18	0.79	0.23	0.00
Avail Cap(c_a), veh/h	762	0	676				0	2120	945	225	2553	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.92	0.92	0.78	0.78	0.00
Uniform Delay (d), s/veh	29.6	0.0	32.7				0.0	7.5	7.3	34.1	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	2.7				0.0	0.2	0.4	3.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	3.8				0.0	1.7	1.2	1.7	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.8	0.0	35.4				0.0	7.8	7.7	37.5	0.2	0.0
LnGrp LOS	C	A	D				A	A	A	D	A	A
Approach Vol, veh/h		273						652			691	
Approach Delay, s/veh		34.0						7.7			5.2	
Approach LOS		C						A			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	9.8	52.8	17.4	62.6								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.0	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	10.0	7.1	12.0	2.0								
Green Ext Time (p_c), s	0.0	3.6	0.5	2.7								

Intersection Summary

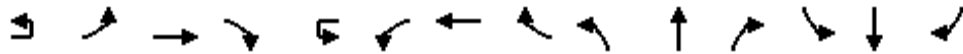
HCM 6th Ctrl Delay	11.1
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↖ ↗ ↘ ↙	↖ ↗ ↘ ↙	↖ ↗		↖ ↗ ↘ ↙	↖ ↗ ↘ ↙		↖ ↗ ↘ ↙	↖ ↗	↖ ↗		↖ ↗		
Traffic Volume (veh/h)	10	9	2731	125	1	63	1572	19	59	8	122	183	12	73	
Future Volume (veh/h)	10	9	2731	125	1	63	1572	19	59	8	122	183	12	73	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	1.00		0.97	0.97		0.97	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		9	2815	106		65	1621	19	61	8	28	189	12	64	
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2	
Cap, veh/h		340	2273	703		340	2315	27	352	43	383	256	13	71	
Arrive On Green		0.19	0.45	0.45		0.19	0.45	0.45	0.25	0.25	0.25	0.25	0.25	0.25	
Sat Flow, veh/h		1781	5106	1580		1781	5201	61	1209	173	1537	843	54	285	
Grp Volume(v), veh/h		9	2815	106		65	1061	579	69	0	28	265	0	0	
Grp Sat Flow(s),veh/h/ln		1781	1702	1580		1781	1702	1858	1383	0	1537	1182	0	0	
Q Serve(g_s), s		0.6	60.1	5.4		4.1	33.9	33.9	0.0	0.0	1.9	24.9	0.0	0.0	
Cycle Q Clear(g_c), s		0.6	60.1	5.4		4.1	33.9	33.9	5.2	0.0	1.9	30.1	0.0	0.0	
Prop In Lane		1.00		1.00		1.00		0.03	0.88		1.00	0.71		0.24	
Lane Grp Cap(c), veh/h		340	2273	703		340	1515	827	395	0	383	340	0	0	
V/C Ratio(X)		0.03	1.24	0.15		0.19	0.70	0.70	0.17	0.00	0.07	0.78	0.00	0.00	
Avail Cap(c_a), veh/h		340	2273	703		340	1515	827	516	0	519	464	0	0	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		0.88	0.88	0.88	1.00	0.00	1.00	1.00	0.00	0.00	
Uniform Delay (d), s/veh		44.4	37.5	22.3		45.9	30.2	30.2	40.0	0.0	38.7	51.9	0.0	0.0	
Incr Delay (d2), s/veh		0.0	111.2	0.5		0.1	2.4	4.3	0.2	0.0	0.1	6.4	0.0	0.0	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		0.2	47.0	2.0		1.8	13.8	15.5	1.9	0.0	0.7	9.3	0.0	0.0	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		44.5	148.7	22.7		46.0	32.6	34.5	40.1	0.0	38.8	58.3	0.0	0.0	
LnGrp LOS		D	F	C		D	C	C	D	A	D	E	A	A	
Approach Vol, veh/h		2930				1705				97			265		
Approach Delay, s/veh		143.8				33.8				39.7			58.3		
Approach LOS		F				C				D			E		
Timer - Assigned Phs	1	2	4		5	6	8								
Phs Duration (G+Y+Rc), s	30.1	66.3	38.6		30.1	66.3	38.6								
Change Period (Y+Rc), s	4.4	6.2	4.9		4.4	6.2	4.9								
Max Green Setting (Gmax), s	13.8	60.1	45.6		13.8	60.1	45.6								
Max Q Clear Time (g_c+10), s	10.1	62.1	32.1		2.6	35.9	7.2								
Green Ext Time (p_c), s	0.0	0.0	1.5		0.0	21.9	0.4								

Intersection Summary

HCM 6th Ctrl Delay	99.7
HCM 6th LOS	F

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
9: Fenton Pkwy & Friars Rd

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗		↔↔	↑↑↑	↗	↔↔	↑	↗	↔↔	↗	↗
Traffic Volume (veh/h)	110	2621	294	6	201	1330	62	259	44	340	32	14	51
Future Volume (veh/h)	110	2621	294	6	201	1330	62	259	44	340	32	14	51
Initial Q (Qb), veh	15	25	15		0	0	0	0	0	15	15	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	113	2702	242		207	1371	39	267	45	120	33	14	6
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	211	2219	1169		254	2927	961	608	334	238	125	75	171
Arrive On Green	0.05	0.64	0.64		0.15	1.00	1.00	0.10	0.12	0.12	0.02	0.04	0.04
Sat Flow, veh/h	3456	5106	1585		3456	5106	1565	3456	1870	1577	3563	1870	1557
Grp Volume(v), veh/h	113	2702	242		207	1371	39	267	45	120	33	14	6
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1565	1728	1870	1577	1781	1870	1557
Q Serve(g_s), s	4.4	55.4	2.6		7.9	0.0	0.0	10.3	2.9	9.8	1.2	1.0	0.4
Cycle Q Clear(g_c), s	4.4	55.4	2.6		7.9	0.0	0.0	10.3	2.9	9.8	1.2	1.0	0.4
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	211	2219	1169		254	2927	961	608	334	238	125	75	171
V/C Ratio(X)	0.53	1.22	0.21		0.81	0.47	0.04	0.44	0.13	0.50	0.26	0.19	0.04
Avail Cap(c_a), veh/h	384	3256	1166		333	3392	1073	409	545	459	280	470	466
HCM Platoon Ratio	1.00	1.00	1.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.28	0.28	0.28		0.87	0.87	0.87	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.1	38.5	1.6		57.1	3.4	2.2	50.9	47.4	55.4	65.0	63.2	31.2
Incr Delay (d2), s/veh	0.2	99.2	0.1		7.6	0.5	0.1	0.1	0.1	0.7	0.4	5.5	0.4
Initial Q Delay(d3),s/veh	77.9	40.6	1.5		0.0	0.0	0.0	0.0	0.0	57.6	142.1	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	52.0	2.0		3.4	1.3	0.1	4.1	1.3	9.9	4.1	0.6	0.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	141.2	178.2	3.2		64.7	3.9	2.3	51.0	47.5	113.7	207.5	68.6	31.5
LnGrp LOS	F	F	A		E	A	A	D	D	F	F	E	C
Approach Vol, veh/h		3057				1617			432			53	
Approach Delay, s/veh		163.0				11.7			68.0			150.9	
Approach LOS		F				B			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	14.4	93.0	18.3	10.3	10.8	96.6	7.3	21.3					
Change Period (Y+Rc), s	4.4	6.3	4.9	*4.9	4.4	*6.3	4.4	4.9					
Max Green Setting (Gmax), s	13.1	52.6	16.1	*34	15.1	*51	10.7	39.6					
Max Q Clear Time (g_c+1/9), s	19.9	57.4	12.3	3.0	6.4	2.0	3.2	11.8					
Green Ext Time (p_c), s	0.1	0.0	0.2	0.2	0.1	35.2	0.0	2.3					

Intersection Summary

HCM 6th Ctrl Delay	107.5
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
10: Northside Dr & Friars Rd

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↑↑↑	↔	↔↔	↑↑↑	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	4	126	2673	206	448	1342	182	167	28	666	90	19	79
Future Volume (veh/h)	4	126	2673	206	448	1342	182	167	28	666	90	19	79
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		135	2874	222	482	1443	131	180	30	614	97	20	4
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		183	2428	742	409	2763	914	233	407	529	145	360	305
Arrive On Green		0.11	0.95	0.95	0.24	1.00	1.00	0.07	0.22	0.22	0.04	0.19	0.19
Sat Flow, veh/h		3456	5106	1561	3456	5106	1565	3456	1870	1568	3456	1870	1585
Grp Volume(v), veh/h		135	2874	222	482	1443	131	180	30	614	97	20	4
Grp Sat Flow(s),veh/h/ln		1728	1702	1561	1728	1702	1565	1728	1870	1568	1728	1870	1585
Q Serve(g_s), s		5.2	64.7	1.3	16.1	0.0	0.0	7.0	1.7	29.6	3.8	1.2	0.3
Cycle Q Clear(g_c), s		5.2	64.7	1.3	16.1	0.0	0.0	7.0	1.7	29.6	3.8	1.2	0.3
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		183	2428	742	409	2763	914	233	407	529	145	360	305
V/C Ratio(X)		0.74	1.18	0.30	1.18	0.52	0.14	0.77	0.07	1.16	0.67	0.06	0.01
Avail Cap(c_a), veh/h		307	2428	742	409	2763	914	483	407	529	483	407	345
HCM Platoon Ratio		2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.33	0.33	0.33	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		59.9	3.3	1.8	51.9	0.0	0.0	62.4	42.3	45.2	64.2	44.9	44.5
Incr Delay (d2), s/veh		0.7	84.2	0.3	100.0	0.6	0.3	2.0	0.2	91.8	2.0	0.3	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.2	20.2	0.4	11.6	0.2	0.1	3.2	0.8	31.3	1.7	0.6	0.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		60.6	87.5	2.1	151.9	0.6	0.3	64.4	42.5	137.1	66.2	45.1	44.6
LnGrp LOS		E	F	A	F	A	A	E	D	F	E	D	D
Approach Vol, veh/h			3231			2056			824			121	
Approach Delay, s/veh			80.5			36.1			117.7			62.0	
Approach LOS			F			D			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	20.5	70.9	13.6	31.0	11.6	79.8	10.1	34.5					
Change Period (Y+Rc), s	4.4	* 6.2	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	10.5	* 52	19.0	29.6	12.1	55.4	19.0	29.6					
Max Q Clear Time (g_c+11g), s	11.0	66.7	9.0	3.2	7.2	2.0	5.8	31.6					
Green Ext Time (p_c), s	0.0	0.0	0.2	0.2	0.1	35.3	0.1	0.0					

Intersection Summary

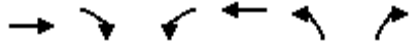
HCM 6th Ctrl Delay	70.4
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 11: Street A & Friars Rd

Existing Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖↗	↑↑↑	↖↗	↖↗
Traffic Volume (veh/h)	2823	595	1097	1698	289	614
Future Volume (veh/h)	2823	595	1097	1698	289	614
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2972	472	1155	1787	304	646
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	3454	1048	432	4280	305	595
Arrive On Green	1.00	1.00	0.13	0.84	0.09	0.09
Sat Flow, veh/h	5274	1549	3456	5274	3456	2790
Grp Volume(v), veh/h	2972	472	1155	1787	304	646
Grp Sat Flow(s),veh/h/ln	1702	1549	1728	1702	1728	1395
Q Serve(g_s), s	0.0	0.0	17.0	11.8	12.0	12.0
Cycle Q Clear(g_c), s	0.0	0.0	17.0	11.8	12.0	12.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3454	1048	432	4280	305	595
V/C Ratio(X)	0.86	0.45	2.67	0.42	1.00	1.09
Avail Cap(c_a), veh/h	3454	1048	432	4280	305	595
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	59.5	2.7	62.0	53.5
Incr Delay (d2), s/veh	0.3	0.1	759.8	0.3	50.7	62.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	52.9	2.4	7.4	15.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.3	0.1	819.3	3.0	112.7	115.9
LnGrp LOS	A	A	F	A	F	F
Approach Vol, veh/h	3444			2942	950	
Approach Delay, s/veh	0.3			323.5	114.9	
Approach LOS	A			F	F	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	22.0	97.0		119.0	17.0	
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	
Max Green Setting (Gmax), s	92.0			114.0	12.0	
Max Q Clear Time (g_c+119), s		2.0		13.8	14.0	
Green Ext Time (p_c), s	0.0	71.9		22.3	0.0	
Intersection Summary						
HCM 6th Ctrl Delay			144.7			
HCM 6th LOS			F			

HCM 6th Signalized Intersection Summary
12: Mission Village Dr & Friars Rd WB

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↶	↶	↶			↶	↶
Traffic Volume (veh/h)	0	0	0	683	0	297	417	661	0	0	1341	475
Future Volume (veh/h)	0	0	0	683	0	297	417	661	0	0	1341	475
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				711	0	180	434	689	0	0	1397	394
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				763	0	338	588	2533	0	0	1751	769
Arrive On Green				0.43	0.00	0.43	0.34	1.00	0.00	0.00	0.49	0.49
Sat Flow, veh/h				3563	0	1578	3456	3647	0	0	3647	1561
Grp Volume(v), veh/h				711	0	180	434	689	0	0	1397	394
Grp Sat Flow(s),veh/h/ln				1781	0	1578	1728	1777	0	0	1777	1561
Q Serve(g_s), s				26.6	0.0	11.8	15.5	0.0	0.0	0.0	46.0	24.0
Cycle Q Clear(g_c), s				26.6	0.0	11.8	15.5	0.0	0.0	0.0	46.0	24.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				763	0	338	588	2533	0	0	1751	769
V/C Ratio(X)				0.93	0.00	0.53	0.74	0.27	0.00	0.00	0.80	0.51
Avail Cap(c_a), veh/h				893	0	396	588	2533	0	0	1751	769
HCM Platoon Ratio				2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.94	0.94	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				39.0	0.0	34.8	43.4	0.0	0.0	0.0	29.7	24.1
Incr Delay (d2), s/veh				13.8	0.0	0.5	4.1	0.2	0.0	0.0	3.9	2.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				10.4	0.0	3.9	5.8	0.1	0.0	0.0	19.5	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				52.9	0.0	35.3	47.5	0.2	0.0	0.0	33.6	26.5
LnGrp LOS				D	A	D	D	A	A	A	C	C
Approach Vol, veh/h					891			1123			1791	
Approach Delay, s/veh					49.3			18.5			32.0	
Approach LOS					D			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		105.1			29.1	76.0		34.9				
Change Period (Y+Rc), s		5.3			5.3	7.0		4.9				
Max Green Setting (Gmax), s		94.7			18.7	69.0		35.1				
Max Q Clear Time (g_c+11), s		2.0			17.5	48.0		28.6				
Green Ext Time (p_c), s		2.9			0.1	14.0		1.2				

Intersection Summary

HCM 6th Ctrl Delay	32.1
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM Signalized Intersection Capacity Analysis
 13: Mission Village Dr/Street D & Friars Rd EB

Existing Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↑↑↑	↗	↖	↑↑	
Traffic Volume (vph)	289	1	593	0	0	0	0	806	1086	422	1601	0
Future Volume (vph)	289	1	593	0	0	0	0	806	1086	422	1601	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.2	5.2					4.9	4.9	6.2	6.2	
Lane Util. Factor		1.00	0.88					0.91	0.88	0.97	0.95	
Frbp, ped/bikes		1.00	0.99					1.00	0.96	1.00	1.00	
Flpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1774	2748					5085	2680	3433	3539	
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1774	2748					5085	2680	3433	3539	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	304	1	624	0	0	0	0	848	1143	444	1685	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	305	624	0	0	0	0	848	1143	444	1685	0
Confl. Peds. (#/hr)			1						4			4
Confl. Bikes (#/hr)			1									
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		36.4	36.4					65.4	65.4	21.9	92.2	
Effective Green, g (s)		36.4	36.4					65.4	65.4	21.9	92.2	
Actuated g/C Ratio		0.26	0.26					0.47	0.47	0.16	0.66	
Clearance Time (s)		5.2	5.2					4.9	4.9	6.2	6.2	
Vehicle Extension (s)		3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		461	714					2375	1251	537	2330	
v/s Ratio Prot		0.17						0.17		0.13	c0.48	
v/s Ratio Perm			c0.23						c0.43			
v/c Ratio		0.66	0.87					0.36	0.91	0.83	0.72	
Uniform Delay, d1		46.3	49.6					23.9	34.7	57.2	15.6	
Progression Factor		1.00	1.00					0.69	0.54	1.16	0.30	
Incremental Delay, d2		3.6	11.5					0.2	5.3	6.2	1.2	
Delay (s)		49.8	61.1					16.6	23.9	72.9	5.9	
Level of Service		D	E					B	C	E	A	
Approach Delay (s)		57.4			0.0			20.8			19.8	
Approach LOS		E			A			C			B	
Intersection Summary												
HCM 2000 Control Delay			27.1		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			140.0		Sum of lost time (s)				16.3			
Intersection Capacity Utilization			83.1%		ICU Level of Service				E			
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
14: Street D & Street 4

Existing Plus Project Plus Event Conditions
PM Peak Hour

































Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↑	↗↖	↖	↑↑↑		↗↖	↑↑	↗
Traffic Volume (veh/h)	126	27	4	491	46	212	8	1562	189	910	1151	133
Future Volume (veh/h)	126	27	4	491	46	212	8	1562	189	910	1151	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.94	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	133	28	1	517	48	223	8	1644	188	958	1212	107
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	115	187	7	64	142	1166	14	1717	196	1198	2521	1092
Arrive On Green	0.06	0.10	0.10	0.01	0.03	0.03	0.01	0.37	0.37	0.69	1.00	1.00
Sat Flow, veh/h	1781	1791	64	1781	1870	2625	1781	4637	529	3456	3554	1540
Grp Volume(v), veh/h	133	0	29	517	48	223	8	1206	626	958	1212	107
Grp Sat Flow(s),veh/h/ln	1781	0	1855	1781	1870	1313	1781	1702	1761	1728	1777	1540
Q Serve(g_s), s	9.0	0.0	2.0	5.0	3.5	7.5	0.6	48.4	48.6	26.7	0.0	0.0
Cycle Q Clear(g_c), s	9.0	0.0	2.0	5.0	3.5	7.5	0.6	48.4	48.6	26.7	0.0	0.0
Prop In Lane	1.00		0.03	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	115	0	194	64	142	1166	14	1261	652	1198	2521	1092
V/C Ratio(X)	1.16	0.00	0.15	8.13	0.34	0.19	0.59	0.96	0.96	0.80	0.48	0.10
Avail Cap(c_a), veh/h	115	0	464	64	414	1548	89	1264	654	1198	2521	1092
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.56	0.56	0.56
Uniform Delay (d), s/veh	65.5	0.0	57.0	69.2	64.8	26.9	69.2	43.0	43.1	18.1	0.0	0.0
Incr Delay (d2), s/veh	134.0	0.0	0.4	3238.9	1.4	0.1	34.4	16.0	25.6	2.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	0.0	1.0	59.6	1.8	2.6	0.4	23.0	25.6	7.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	199.5	0.0	57.4	3308.1	66.2	27.0	103.6	59.0	68.6	20.4	0.1	0.0
LnGrp LOS	F	A	E	F	E	C	F	E	E	C	A	A
Approach Vol, veh/h		162			788			1840			2277	
Approach Delay, s/veh		174.0			2182.1			62.5			8.6	
Approach LOS		F			F			E			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	53.5	56.8	10.0	19.6	6.1	104.3	14.0	15.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	28.0	52.0	5.0	35.0	7.0	73.0	9.0	31.0				
Max Q Clear Time (g_c+20), s	20.7	50.6	7.0	4.0	2.6	2.0	11.0	9.5				
Green Ext Time (p_c), s	0.0	1.2	0.0	0.1	0.0	13.9	0.0	1.2				

Intersection Summary

HCM 6th Ctrl Delay	371.5
HCM 6th LOS	F

HCM Signalized Intersection Capacity Analysis
15: Street F & Street 4

Existing Plus Project Plus Event Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 			 	 		 	 		 	 	  
Traffic Volume (vph)	1040	21	4	5	8	21	8	222	4	82	356	713
Future Volume (vph)	1040	21	4	5	8	21	8	222	4	82	356	713
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	2.1	4.5
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.88
Frbp, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.89		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1807		1770	1622		1770	1856		1770	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	1807		1770	1622		1770	1856		1770	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1130	23	4	5	9	23	9	241	4	89	387	775
RTOR Reduction (vph)	0	2	0	0	20	0	0	1	0	0	0	0
Lane Group Flow (vph)	1130	25	0	5	12	0	9	244	0	89	387	775
Confl. Peds. (#/hr)			10			10			10			
Confl. Bikes (#/hr)			3			3			3			3
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	7	4		3	8		5	2		1	6 9	7 9
Permitted Phases												
Actuated Green, G (s)	69.6	84.1		1.0	15.5		1.0	26.6		10.3	35.9	82.4
Effective Green, g (s)	69.6	84.1		1.0	15.5		1.0	26.6		10.3	35.9	82.4
Actuated g/C Ratio	0.50	0.60		0.01	0.11		0.01	0.19		0.07	0.26	0.59
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)	1706	1085		12	179		12	352		130	477	1640
v/s Ratio Prot	c0.33	0.01		0.00	c0.01		0.01	0.13		c0.05	c0.21	c0.28
v/s Ratio Perm												
v/c Ratio	0.66	0.02		0.42	0.06		0.75	0.69		0.68	0.81	0.47
Uniform Delay, d1	26.4	11.3		69.2	55.8		69.4	52.9		63.3	48.9	16.4
Progression Factor	0.72	0.32		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.1	0.0		21.8	0.2		128.3	5.8		13.9	9.6	0.2
Delay (s)	20.2	3.7		91.0	55.9		197.6	58.7		77.2	58.5	16.6
Level of Service	C	A		F	E		F	E		E	E	B
Approach Delay (s)		19.8			60.6			63.6			33.9	
Approach LOS		B			E			E			C	
Intersection Summary												
HCM 2000 Control Delay			31.0									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			140.0									Sum of lost time (s) 20.1
Intersection Capacity Utilization			70.1%									ICU Level of Service C
Analysis Period (min)			15									

c Critical Lane Group

Intersection					
Intersection Delay, s/veh 10.6					
Intersection LOS B					
Approach	EB		WB		NB
Entry Lanes	2		2		1
Conflicting Circle Lanes	2		2		2
Adj Approach Flow, veh/h	1395		1048		301
Demand Flow Rate, veh/h	1423		1069		307
Vehicles Circulating, veh/h	52		259		1323
Vehicles Exiting, veh/h	1276		1371		152
Ped Vol Crossing Leg, #/h	0		0		0
Ped Cap Adj	1.000		1.000		1.000
Approach Delay, s/veh	8.7		8.9		25.8
Approach LOS	A		A		D
Lane	Left	Right	Left	Right	Left
Designated Moves	LT	TR	LT	TR	LR
Assumed Moves	LT	TR	LT	TR	LR
RT Channelized					
Lane Util	0.470	0.530	0.470	0.530	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328
Entry Flow, veh/h	669	754	502	567	307
Cap Entry Lane, veh/h	1287	1359	1064	1139	461
Entry HV Adj Factor	0.980	0.981	0.981	0.980	0.980
Flow Entry, veh/h	656	739	493	555	301
Cap Entry, veh/h	1261	1332	1044	1116	452
V/C Ratio	0.520	0.555	0.472	0.498	0.666
Control Delay, s/veh	8.5	8.8	8.9	8.9	25.8
LOS	A	A	A	A	D
95th %tile Queue, veh	3	4	3	3	5

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

Existing Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	501	2433	1052	3	257	1913	329	0	0	0	1001	0	1094
Future Volume (veh/h)	501	2433	1052	3	257	1913	329	0	0	0	1001	0	1094
Initial Q (Qb), veh	20	0	20		20	0	20				0	0	20
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	522	2534	805		268	1993	0				1043	0	1136
Peak Hour Factor	0.96	0.96	0.96		0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	623	3043	733		357	1246					1122	0	2006
Arrive On Green	0.31	0.41	0.41		0.16	0.24	0.00				0.31	0.00	0.31
Sat Flow, veh/h	1781	5106	1552		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	522	2534	805		268	1993	0				1043	0	1136
Grp Sat Flow(s),veh/h/ln	1781	1702	1552		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	39.1	55.2	55.2		20.1	33.2	0.0				38.9	0.0	0.0
Cycle Q Clear(g_c), s	39.1	55.2	55.2		20.1	33.2	0.0				38.9	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	623	3043	733		357	1246					1122	0	2006
V/C Ratio(X)	0.84	0.83	1.10		0.75	1.60					0.93	0.00	0.57
Avail Cap(c_a), veh/h	550	2074	630		393	1246					1153	0	1995
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.53	0.53	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	43.4	25.6	35.9		54.0	51.4	0.0				45.1	0.0	15.3
Incr Delay (d2), s/veh	11.7	2.8	63.2		3.2	271.5	0.0				12.6	0.0	0.2
Initial Q Delay(d3),s/veh	45.7	0.0	98.2		90.7	0.0	0.0				0.0	0.0	1.6
%ile BackOfQ(50%),veh	26.7	14.5	50.3		20.8	45.1	0.0				19.1	0.0	23.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	100.8	28.4	197.2		148.0	322.9	0.0				57.7	0.0	17.1
LnGrp LOS	F	C	F		F	F					E	A	B
Approach Vol, veh/h		3861				2261	A					2179	
Approach Delay, s/veh		73.4				302.2						36.6	
Approach LOS		E				F						D	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	36.6	62.2		47.2	48.6	40.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	36	45.7		44.0	42.0	* 33							
Max Q Clear Time (g_c+20), s	20	57.2		40.9	41.1	35.2							
Green Ext Time (p_c), s	0.2	0.0		1.2	0.1	0.0							

Intersection Summary

HCM 6th Ctrl Delay	126.1
HCM 6th LOS	F

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

Existing Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖				↑↑↑	↗						
Traffic Volume (veh/h)	998	2452	0	0	1203	805	0	0	1324	0	0	1264
Future Volume (veh/h)	998	2452	0	0	1203	805	0	0	1324	0	0	1264
Initial Q (Qb), veh	40	0	0	0	20	40						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	1051	2581	0	0	1163	916						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	660	0	0	0	1521	1337						
Arrive On Green	0.47	0.93	0.00	0.00	0.39	0.39						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	1051	0	0	0	1163	916						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	45.0	0.0	0.0	0.0	25.9	23.4						
Cycle Q Clear(g_c), s	45.0	0.0	0.0	0.0	25.9	23.4						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	660	0	0	0	1521	1337						
V/C Ratio(X)	1.59	0.00	0.00	0.00	0.76	0.69						
Avail Cap(c_a), veh/h	846	0	0	0	2526	2140						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	1.00	1.00						
Uniform Delay (d), s/veh	38.3	0.0	0.0	0.0	25.6	25.4						
Incr Delay (d2), s/veh	274.0	0.0	0.0	0.0	0.3	0.2						
Initial Q Delay(d3),s/veh	218.3	0.0	0.0	0.0	5.3	20.5						
%ile BackOfQ(50%),veh	108.7	0.0	0.0	0.0	13.2	14.8						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	530.5	0.0	0.0	0.0	31.2	46.1						
LnGrp LOS	F	A	A	A	C	D						
Approach Vol, veh/h		1051			2079							
Approach Delay, s/veh		530.5			37.8							
Approach LOS		F			D							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		94.8			50.5	44.3						
Change Period (Y+Rc), s		* 7			5.5	7.0						
Max Green Setting (Gmax), s		* 18			45.0	64.0						
Max Q Clear Time (g_c+I1), s		0.0			47.0	27.9						
Green Ext Time (p_c), s		0.0			0.0	9.3						

Intersection Summary

HCM 6th Ctrl Delay	203.3
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

Existing Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↵	↑↑↑	↵↵	↑
Traffic Volume (veh/h)	2850	926	2	145	1568	433	225
Future Volume (veh/h)	2850	926	2	145	1568	433	225
Initial Q (Qb), veh	0	0		0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	2969	918		151	1633	451	66
Peak Hour Factor	0.96	0.96		0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	2814	1247		175	4968	550	284
Arrive On Green	0.64	0.64		0.10	0.77	0.14	0.14
Sat Flow, veh/h	5274	1583		1781	6696	3563	1585
Grp Volume(v), veh/h	2969	918		151	1633	451	66
Grp Sat Flow(s),veh/h/ln	1702	1583		1781	1609	1781	1585
Q Serve(g_s), s	67.5	39.9		11.4	10.5	16.9	5.1
Cycle Q Clear(g_c), s	67.5	39.9		11.4	10.5	16.9	5.1
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2814	1247		175	4968	550	284
V/C Ratio(X)	1.06	0.74		0.86	0.33	0.82	0.23
Avail Cap(c_a), veh/h	3282	1247		208	4976	843	375
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.92	0.92	0.59	0.59
Uniform Delay (d), s/veh	30.5	7.3		60.4	4.9	56.4	48.0
Incr Delay (d2), s/veh	33.8	3.9		21.8	0.2	1.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	13.3	0.0
%ile BackOfQ(50%),veh	16.8	25.9		6.1	3.2	9.3	1.9
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	64.4	11.2		82.2	5.1	70.9	48.0
LnGrp LOS	F	B		F	A	E	D
Approach Vol, veh/h	3887			1784	517		
Approach Delay, s/veh	51.8			11.7	68.0		
Approach LOS	D			B	E		
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+Rc), s	17.8	93.4			111.2		24.8
Change Period (Y+Rc), s	4.4	* 6			6.0		5.1
Max Green Setting (Gmax), s	15.9	* 73			92.7		32.2
Max Q Clear Time (g_c+11), s	11.4	69.5			12.5		18.9
Green Ext Time (p_c), s	0.0	3.1			41.7		0.9

Intersection Summary

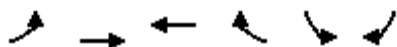
HCM 6th Ctrl Delay	41.6
HCM 6th LOS	D

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: Friars Rd & Santo Rd

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑↑↑	↑↑↑		↖↗	↘
Traffic Volume (veh/h)	385	2790	1439	91	71	243
Future Volume (veh/h)	385	2790	1439	91	71	243
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1856	1870	1870
Adj Flow Rate, veh/h	401	2906	1499	90	74	243
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	3	3	2	2
Cap, veh/h	466	3880	3649	219	516	451
Arrive On Green	0.13	0.76	0.59	0.59	0.15	0.15
Sat Flow, veh/h	3456	5274	6464	372	3456	1585
Grp Volume(v), veh/h	401	2906	1156	433	74	243
Grp Sat Flow(s),veh/h/ln	1728	1702	1596	1789	1728	1585
Q Serve(g_s), s	13.6	38.1	15.7	15.8	2.2	15.6
Cycle Q Clear(g_c), s	13.6	38.1	15.7	15.8	2.2	15.6
Prop In Lane	1.00			0.21	1.00	1.00
Lane Grp Cap(c), veh/h	466	3880	2816	1052	516	451
V/C Ratio(X)	0.86	0.75	0.41	0.41	0.14	0.54
Avail Cap(c_a), veh/h	737	3880	2816	1052	734	551
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.19	0.19	0.82	0.82	1.00	1.00
Uniform Delay (d), s/veh	50.8	8.0	13.4	13.4	44.4	36.3
Incr Delay (d2), s/veh	0.7	0.3	0.4	1.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	10.1	5.3	6.1	1.0	13.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	51.5	8.3	13.8	14.4	44.4	36.7
LnGrp LOS	D	A	B	B	D	D
Approach Vol, veh/h		3307	1589		317	
Approach Delay, s/veh		13.5	13.9		38.5	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		97.7		22.3	20.6	77.1
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		83.6		25.5	25.6	* 54
Max Q Clear Time (g_c+I1), s		40.1		17.6	15.6	17.8
Green Ext Time (p_c), s		38.5		0.4	0.6	15.8

Intersection Summary

HCM 6th Ctrl Delay	15.2
HCM 6th LOS	B

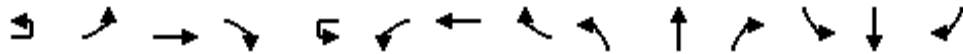
Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
21: Riverdale St & Friars Rd

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑	↗	↖	↑	↖	↖	↖	↖
Traffic Volume (veh/h)	19	195	2456	198	4	38	1163	46	186	85	114	48	45	118
Future Volume (veh/h)	19	195	2456	198	4	38	1163	46	186	85	114	48	45	118
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No			No		
Adj Sat Flow, veh/h/ln		1870	1870	1856		1737	1856	1870	1870	1870	1870	1811	1870	1870
Adj Flow Rate, veh/h		201	2532	128		39	1199	22	192	88	60	49	46	23
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	3		11	3	2	2	2	2	6	2	2
Cap, veh/h		232	3130	961		54	2608	816	304	217	148	231	246	123
Arrive On Green		0.13	0.61	0.61		0.03	0.51	0.51	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h		1781	5106	1569		1654	5066	1585	1322	1032	704	1193	1173	586
Grp Volume(v), veh/h		201	2532	128		39	1199	22	192	0	148	49	0	69
Grp Sat Flow(s),veh/h/ln		1781	1702	1569		1654	1689	1585	1322	0	1736	1193	0	1759
Q Serve(g_s), s		11.6	40.0	3.6		2.5	15.8	0.7	14.7	0.0	7.7	3.9	0.0	3.4
Cycle Q Clear(g_c), s		11.6	40.0	3.6		2.5	15.8	0.7	18.1	0.0	7.7	11.6	0.0	3.4
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.41	1.00		0.33
Lane Grp Cap(c), veh/h		232	3130	961		54	2608	816	304	0	365	231	0	369
V/C Ratio(X)		0.86	0.81	0.13		0.73	0.46	0.03	0.63	0.00	0.41	0.21	0.00	0.19
Avail Cap(c_a), veh/h		324	3130	961		206	2608	816	496	0	617	405	0	625
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.72	0.72	0.72		0.94	0.94	0.94	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		44.7	15.6	8.6		50.3	16.2	12.5	41.5	0.0	35.8	40.8	0.0	34.1
Incr Delay (d2), s/veh		9.3	1.7	0.2		6.5	0.6	0.1	0.8	0.0	0.3	0.2	0.0	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		5.5	13.5	1.1		1.1	5.7	0.2	4.8	0.0	3.3	1.2	0.0	1.5
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		54.1	17.3	8.8		56.8	16.7	12.6	42.3	0.0	36.1	41.0	0.0	34.2
LnGrp LOS		D	B	A		E	B	B	D	A	D	D	A	C
Approach Vol, veh/h			2861				1260			340			118	
Approach Delay, s/veh			19.5				17.9			39.6			37.0	
Approach LOS			B				B			D			D	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	7.8	70.3		26.9	18.1	60.0		26.9						
Change Period (Y+Rc), s	4.4	* 5.9		4.9	4.4	5.9		4.9						
Max Green Setting (Gmax), s	13.5	* 40		37.3	19.1	33.4		37.3						
Max Q Clear Time (g_c+1/5), s	14.5	42.0		13.6	13.6	17.8		20.1						
Green Ext Time (p_c), s	0.0	0.0		0.3	0.1	7.0		0.8						

Intersection Summary

HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 22: Mission Gorge Rd & Friars Rd

Existing Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↵↵	↑↑↑		↵	↵↵
Traffic Volume (veh/h)	2187	240	225	992	8	299	493
Future Volume (veh/h)	2187	240	225	992	8	299	493
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	2327	0	239	1055		318	522
Peak Hour Factor	0.94	0.94	0.94	0.94		0.94	0.94
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2621		571	0		356	1018
Arrive On Green	0.51	0.00	0.17	0.00		0.20	0.20
Sat Flow, veh/h	5443	0	3456	239		1781	2790
Grp Volume(v), veh/h	2327	0	239	45.1		318	522
Grp Sat Flow(s),veh/h/ln	1702	0	1728	D		1781	1395
Q Serve(g_s), s	48.9	0.0	7.4			20.9	0.0
Cycle Q Clear(g_c), s	48.9	0.0	7.4			20.9	0.0
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2621		571			356	1018
V/C Ratio(X)	0.89		0.42			0.89	0.51
Avail Cap(c_a), veh/h	2621		571			425	1126
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.49	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	26.1	0.0	44.9			46.8	29.8
Incr Delay (d2), s/veh	2.5	0.0	0.2			16.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh/ln	18.6	0.0	3.1			10.9	5.9
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	28.6	0.0	45.1			63.7	29.9
LnGrp LOS	C		D			E	C
Approach Vol, veh/h	2327	A				840	
Approach Delay, s/veh	28.6					42.7	
Approach LOS	C					D	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	24.2	67.4					28.4
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	61.6					28.6
Max Q Clear Time (g_c+1), s	19.4	50.9					22.9
Green Ext Time (p_c), s	0.2	9.5					1.1

Intersection Summary

HCM 6th Ctrl Delay	33.3
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
23: Qualcomm Way & Rio San Diego Dr

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations	↔↔	↑	↗		↔↔	↑↑	↗	↔↔	↑↑↑	↗		↔↔	↑↑↑	
Traffic Volume (veh/h)	231	154	217	10	585	260	238	47	292	128	3	40	599	223
Future Volume (veh/h)	231	154	217	10	585	260	238	47	292	128	3	40	599	223
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		0.99	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	243	162	197		616	274	79	49	307	21		42	631	200
Peak Hour Factor	0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2		2	2	2
Cap, veh/h	345	323	323		734	1014	449	118	1657	512		108	1235	383
Arrive On Green	0.10	0.17	0.17		0.21	0.29	0.29	0.03	0.32	0.32		0.03	0.32	0.32
Sat Flow, veh/h	3456	1870	1554		3456	3554	1575	3456	5106	1579		3456	3843	1193
Grp Volume(v), veh/h	243	162	197		616	274	79	49	307	21		42	557	274
Grp Sat Flow(s),veh/h/ln	1728	1870	1554		1728	1777	1575	1728	1702	1579		1728	1702	1632
Q Serve(g_s), s	5.0	5.8	8.5		12.7	4.4	2.8	1.0	3.2	0.7		0.9	9.8	10.1
Cycle Q Clear(g_c), s	5.0	5.8	8.5		12.7	4.4	2.8	1.0	3.2	0.7		0.9	9.8	10.1
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.73
Lane Grp Cap(c), veh/h	345	323	323		734	1014	449	118	1657	512		108	1094	525
V/C Ratio(X)	0.70	0.50	0.61		0.84	0.27	0.18	0.41	0.19	0.04		0.39	0.51	0.52
Avail Cap(c_a), veh/h	1399	1010	893		1399	1918	850	2798	4134	1279		1399	2756	1321
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	27.8	26.7		28.0	20.5	19.9	35.1	18.0	17.1		35.2	20.4	20.5
Incr Delay (d2), s/veh	1.0	1.2	1.9		1.0	0.1	0.2	0.9	0.1	0.0		0.8	0.6	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	2.5	3.1		4.9	1.7	1.0	0.4	1.2	0.2		0.4	3.7	3.8
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	33.3	29.0	28.6		29.0	20.7	20.1	35.9	18.1	17.2		36.1	21.0	21.9
LnGrp LOS	C	C	C		C	C	C	D	B	B		D	C	C
Approach Vol, veh/h		602			969			377				873		
Approach Delay, s/veh		30.6			25.9			20.3				22.0		
Approach LOS		C			C			C				C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	6.7	29.1	20.1	18.1	6.9	28.9	11.8	26.4						
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3						
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0						
Max Q Clear Time (g_c+1), s	12.5	5.2	14.7	10.5	3.0	12.1	7.0	6.4						
Green Ext Time (p_c), s	0.1	3.3	1.1	1.5	0.1	11.4	0.4	2.0						

Intersection Summary

HCM 6th Ctrl Delay	25.0
HCM 6th LOS	C

Notes

- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection														
Intersection Delay, s/veh	13.4													
Intersection LOS	B													

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↖	↕		↖	↕			↕				↕	
Traffic Vol, veh/h	10	118	429	8	9	373	39	11	14	10	9	79	15	65
Future Vol, veh/h	10	118	429	8	9	373	39	11	14	10	9	79	15	65
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	131	477	9	10	414	43	12	16	11	10	88	17	72
Number of Lanes	0	1	2	0	1	2	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	13.4	13.3	10.9	13.9
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	31%	100%	0%	0%	100%	0%	0%	50%
Vol Thru, %	40%	0%	100%	95%	0%	100%	76%	9%
Vol Right, %	29%	0%	0%	5%	0%	0%	24%	41%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	35	128	286	151	9	249	163	168
LT Vol	11	128	0	0	9	0	0	83
Through Vol	14	0	286	143	0	249	124	16
RT Vol	10	0	0	8	0	0	39	69
Lane Flow Rate	39	142	318	168	10	276	181	187
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.081	0.258	0.532	0.279	0.019	0.478	0.306	0.366
Departure Headway (Hd)	7.487	6.539	6.031	5.994	6.741	6.232	6.062	7.063
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	476	548	597	597	530	577	592	508
Service Time	5.271	4.295	3.787	3.749	4.499	3.99	3.82	4.829
HCM Lane V/C Ratio	0.082	0.259	0.533	0.281	0.019	0.478	0.306	0.368
HCM Control Delay	10.9	11.6	15.5	11.1	9.6	14.6	11.5	13.9
HCM Lane LOS	B	B	C	B	A	B	B	B
HCM 95th-tile Q	0.3	1	3.1	1.1	0.1	2.6	1.3	1.7

HCM 6th Signalized Intersection Summary

Existing Plus Project Plus Event Conditions

25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	1	133	193	119	15	218	184	154	137	13	21	304	121	61
Future Volume (veh/h)	1	133	193	119	15	218	184	154	137	13	21	304	121	61
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		0.98	1.00		0.98		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No		No		No		No			No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h		137	199	44	15	225	108	159	141	9		313	125	21
Peak Hour Factor		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97		0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h		320	336	280	28	420	209	206	474	30		457	477	78
Arrive On Green		0.18	0.18	0.18	0.19	0.19	0.19	0.12	0.14	0.14		0.13	0.16	0.16
Sat Flow, veh/h		1781	1870	1561	148	2245	1116	1781	3389	214		3456	3050	501
Grp Volume(v), veh/h		137	199	44	189	0	159	159	73	77		313	72	74
Grp Sat Flow(s),veh/h/ln		1781	1870	1561	1863	0	1646	1781	1777	1827		1728	1777	1774
Q Serve(g_s), s		3.8	5.4	1.3	5.0	0.0	4.8	4.8	2.0	2.1		4.8	2.0	2.0
Cycle Q Clear(g_c), s		3.8	5.4	1.3	5.0	0.0	4.8	4.8	2.0	2.1		4.8	2.0	2.0
Prop In Lane		1.00		1.00	0.08		0.68	1.00		0.12		1.00		0.28
Lane Grp Cap(c), veh/h		320	336	280	348	0	308	206	248	255		457	278	278
V/C Ratio(X)		0.43	0.59	0.16	0.54	0.00	0.52	0.77	0.30	0.30		0.68	0.26	0.27
Avail Cap(c_a), veh/h		1294	1358	1134	1353	0	1195	970	1936	1990		1882	1936	1933
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		20.1	20.7	19.1	20.3	0.0	20.2	23.6	21.3	21.3		22.8	20.4	20.5
Incr Delay (d2), s/veh		0.6	1.0	0.2	0.5	0.0	0.5	2.3	3.0	3.0		0.7	2.2	2.4
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.4	2.1	0.5	2.1	0.0	1.8	2.0	1.0	1.1		1.9	0.9	1.0
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		20.6	21.8	19.2	20.7	0.0	20.7	26.0	24.3	24.3		23.5	22.7	22.8
LnGrp LOS		C	C	B	C	A	C	C	C	C		C	C	C
Approach Vol, veh/h			380			348			309				459	
Approach Delay, s/veh			21.1			20.7			25.1				23.2	
Approach LOS			C			C			C				C	
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	1.7	13.1	15.1	10.8	14.0	15.2								
Change Period (Y+Rc), s	4.4	* 5.4	5.2	4.4	5.4	4.9								
Max Green Setting (Gmax), s	30.0	* 60	40.0	30.0	60.0	40.0								
Max Q Clear Time (g_c+1), s	10.8	4.1	7.4	6.8	4.0	7.0								
Green Ext Time (p_c), s	0.6	3.3	1.1	0.2	3.2	1.5								

Intersection Summary

HCM 6th Ctrl Delay	22.5
HCM 6th LOS	C

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 26: Rancho Mission Rd & San Diego Mission Rd

Existing Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	204	663	368	110	402	192	141	235	143	225	236	465
Future Volume (veh/h)	204	663	368	110	402	192	141	235	143	225	236	465
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	215	698	351	116	423	173	148	247	22	237	248	257
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	252	904	454	147	836	338	182	318	263	274	415	344
Arrive On Green	0.14	0.40	0.40	0.08	0.34	0.34	0.10	0.17	0.17	0.15	0.22	0.22
Sat Flow, veh/h	1781	2270	1141	1781	2465	997	1781	1870	1545	1781	1870	1551
Grp Volume(v), veh/h	215	546	503	116	304	292	148	247	22	237	248	257
Grp Sat Flow(s),veh/h/ln	1781	1777	1634	1781	1777	1686	1781	1870	1545	1781	1870	1551
Q Serve(g_s), s	11.2	25.4	25.4	6.1	12.9	13.2	7.7	12.0	1.1	12.3	11.3	14.7
Cycle Q Clear(g_c), s	11.2	25.4	25.4	6.1	12.9	13.2	7.7	12.0	1.1	12.3	11.3	14.7
Prop In Lane	1.00		0.70	1.00		0.59	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	252	707	650	147	603	572	182	318	263	274	415	344
V/C Ratio(X)	0.85	0.77	0.77	0.79	0.50	0.51	0.81	0.78	0.08	0.87	0.60	0.75
Avail Cap(c_a), veh/h	656	934	859	656	1028	975	562	984	812	562	984	816
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.9	24.9	24.9	42.8	25.0	25.1	41.8	37.7	33.2	39.3	33.2	34.5
Incr Delay (d2), s/veh	3.2	3.7	4.0	3.6	1.1	1.2	3.3	1.5	0.1	3.2	0.5	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	10.6	9.9	2.7	5.3	5.2	3.5	5.5	0.4	5.5	5.0	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.1	28.6	28.9	46.4	26.1	26.3	45.1	39.3	33.3	42.5	33.7	35.7
LnGrp LOS	D	C	C	D	C	C	D	D	C	D	C	D
Approach Vol, veh/h		1264			712			417			742	
Approach Delay, s/veh		31.2			29.5			41.0			37.2	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	1.8	43.4	13.7	26.2	17.4	37.8	18.6	21.3				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	* 5.5	4.0	* 5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	* 55	30.0	* 50				
Max Q Clear Time (g_c+1), s	19.1	27.4	9.7	16.7	13.2	15.2	14.3	14.0				
Green Ext Time (p_c), s	0.1	10.4	0.2	1.3	0.3	6.6	0.3	0.9				

Intersection Summary

HCM 6th Ctrl Delay	33.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave

Existing Plus Project Plus Event Conditions
 PM Peak Hour



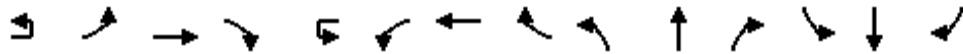
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↕	↗		↕	↗	
Traffic Volume (veh/h)	120	397	384	43	195	15	360	74	66	22	122	108
Future Volume (veh/h)	120	397	384	43	195	15	360	74	66	22	122	108
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	133	441	297	48	217	14	400	82	50	24	136	94
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	190	528	1079	104	775	58	446	270	164	288	166	115
Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44	0.25	0.25	0.25	0.16	0.16	0.16
Sat Flow, veh/h	321	1197	1548	104	1757	131	1781	1077	657	1781	1028	710
Grp Volume(v), veh/h	574	0	297	99	0	180	400	0	132	24	0	230
Grp Sat Flow(s),veh/h/ln	1518	0	1548	314	0	1678	1781	0	1734	1781	0	1738
Q Serve(g_s), s	26.1	0.0	6.7	4.5	0.0	6.2	19.9	0.0	5.7	1.1	0.0	11.7
Cycle Q Clear(g_c), s	32.2	0.0	6.7	36.7	0.0	6.2	19.9	0.0	5.7	1.1	0.0	11.7
Prop In Lane	0.23		1.00	0.48		0.08	1.00		0.38	1.00		0.41
Lane Grp Cap(c), veh/h	717	0	1079	197	0	740	446	0	434	288	0	281
V/C Ratio(X)	0.80	0.00	0.28	0.51	0.00	0.24	0.90	0.00	0.30	0.08	0.00	0.82
Avail Cap(c_a), veh/h	1064	0	1408	421	0	1096	776	0	755	776	0	757
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.4	0.0	5.4	25.4	0.0	16.1	33.3	0.0	27.9	32.7	0.0	37.2
Incr Delay (d2), s/veh	2.5	0.0	0.1	1.8	0.0	0.2	3.6	0.0	0.1	0.0	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	4.0	2.2	0.0	2.4	8.8	0.0	2.3	0.5	0.0	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.9	0.0	5.5	27.3	0.0	16.2	36.8	0.0	28.1	32.7	0.0	39.4
LnGrp LOS	C	A	A	C	A	B	D	A	C	C	A	D
Approach Vol, veh/h		871			279			532			254	
Approach Delay, s/veh		19.6			20.2			34.7			38.8	
Approach LOS		B			C			C			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		45.0		19.4		45.0		27.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		34.2		13.7		38.7		21.9				
Green Ext Time (p_c), s		4.6		0.9		1.7		1.0				
Intersection Summary												
HCM 6th Ctrl Delay												26.3
HCM 6th LOS												C

HCM 6th Signalized Intersection Summary

Existing Plus Project Plus Event Conditions

28: Qualcomm Way & Camino de la Reina/Camino del Rio N

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↕	↔		↔	↕	↔	↔	↕	↔	↔	↕	↔
Traffic Volume (veh/h)	2	117	368	249	2	391	166	111	148	533	263	243	975	121
Future Volume (veh/h)	2	117	368	249	2	391	166	111	148	533	263	243	975	121
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No			No		
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1841	1870	1856	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		121	381	190		403	171	17	153	549	218	251	1005	118
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2		2	4	2	3	2	2	2	2	2
Cap, veh/h		138	475	284		440	618	273	189	2847	869	285	2704	317
Arrive On Green		0.08	0.13	0.13		0.13	0.18	0.18	0.02	0.18	0.18	0.08	0.58	0.58
Sat Flow, veh/h		1781	3741	1549		3456	3497	1545	3428	5106	1559	3456	4624	542
Grp Volume(v), veh/h		121	381	190		403	171	17	153	549	218	251	739	384
Grp Sat Flow(s),veh/h/ln		1781	1870	1549		1728	1749	1545	1714	1702	1559	1728	1702	1762
Q Serve(g_s), s		13.4	19.8	22.9		23.0	8.5	1.8	8.9	18.2	23.9	14.4	23.0	23.1
Cycle Q Clear(g_c), s		13.4	19.8	22.9		23.0	8.5	1.8	8.9	18.2	23.9	14.4	23.0	23.1
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h		138	475	284		440	618	273	189	2847	869	285	1990	1030
V/C Ratio(X)		0.88	0.80	0.67		0.92	0.28	0.06	0.81	0.19	0.25	0.88	0.37	0.37
Avail Cap(c_a), veh/h		190	498	294		524	623	275	314	2847	869	316	1990	1030
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	0.94	0.94	0.94	0.09	0.09	0.09
Uniform Delay (d), s/veh		91.3	84.9	76.3		86.2	71.3	68.6	97.1	43.5	45.9	90.8	22.0	22.0
Incr Delay (d2), s/veh		22.1	8.5	5.1		17.6	0.1	0.0	2.9	0.1	0.7	2.5	0.0	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		7.1	10.2	9.5		11.3	3.8	0.7	4.2	8.4	10.2	6.6	9.4	9.8
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		113.4	93.4	81.3		103.9	71.4	68.6	100.1	43.7	46.5	93.3	22.1	22.1
LnGrp LOS		F	F	F		F	E	E	F	D	D	F	C	C
Approach Vol, veh/h			692				591			920			1374	
Approach Delay, s/veh			93.6				93.5			53.7			35.1	
Approach LOS			F				F			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	20.9	118.2	29.8	31.1	15.4	123.6	19.9	41.0						
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7						
Max Green Setting (Gmax), s	10.3	103.6	30.3	* 27	18.3	* 1.1E2	21.3	35.6						
Max Q Clear Time (g_c+10), s	10.4	25.9	25.0	24.9	10.9	25.1	15.4	10.5						
Green Ext Time (p_c), s	0.1	4.6	0.4	0.5	0.1	26.0	0.1	0.6						

Intersection Summary

HCM 6th Ctrl Delay	60.9
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

Existing Plus Project Plus Event Conditions

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔	↑↑↑			↑↑	↔
Traffic Volume (veh/h)	4	78	0	408	19	132	275	139	632	0	0	927	647
Future Volume (veh/h)	4	78	0	408	19	132	275	139	632	0	0	927	647
Initial Q (Qb), veh		0	0	20	0	20	20	20	20	0	0	20	20
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No			No			No		
Adj Sat Flow, veh/h/ln		1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h		83	0	130	20	140	20	148	672	0	0	986	505
Peak Hour Factor		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h		0	0	0	16	229	201	178	4274	0	0	2547	1093
Arrive On Green		0.00	0.00	0.00	0.10	0.10	0.10	0.09	0.84	0.00	0.00	1.00	1.00
Sat Flow, veh/h			0		232	1626	1580	1781	5274	0	0	3647	1551
Grp Volume(v), veh/h			0.0		160	0	20	148	672	0	0	986	505
Grp Sat Flow(s),veh/h/ln					1859	0	1580	1781	1702	0	0	1777	1551
Q Serve(g_s), s					17.0	0.0	2.3	16.5	4.9	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s					17.0	0.0	2.3	16.5	4.9	0.0	0.0	0.0	0.0
Prop In Lane					0.12		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					256	0	201	178	4274	0	0	2547	1093
V/C Ratio(X)					0.63	0.00	0.10	0.83	0.16	0.00	0.00	0.39	0.46
Avail Cap(c_a), veh/h					372	0	316	178	4287	0	0	2572	1123
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)					1.00	0.00	1.00	0.76	0.76	0.00	0.00	0.84	0.84
Uniform Delay (d), s/veh					85.4	0.0	81.5	90.0	3.6	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh					0.9	0.0	0.1	20.5	0.1	0.0	0.0	0.4	1.2
Initial Q Delay(d3),s/veh					117.2	0.0	79.5	328.1	0.2	0.0	0.0	0.7	4.5
%ile BackOfQ(50%),veh/ln					20.6	0.0	9.5	26.5	3.0	0.0	0.0	0.4	1.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					203.5	0.0	161.1	438.6	3.8	0.0	0.0	1.1	5.7
LnGrp LOS					F	A	F	F	A	A	A	A	A
Approach Vol, veh/h						180			820			1491	
Approach Delay, s/veh						198.8			82.3			2.6	
Approach LOS						F			F			A	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		174.9			23.2	151.8		25.1					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		107.8			* 20	83.1		40.0					
Max Q Clear Time (g_c+I1), s		6.9			18.5	2.0		19.0					
Green Ext Time (p_c), s		3.3			0.0	32.5		0.5					

Intersection Summary

HCM 6th Ctrl Delay	43.0
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Existing Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	493	0	1046	1303	0
Future Volume (veh/h)	0	493	0	1046	1303	0
Initial Q (Qb), veh	0	10	0	0	50	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1870	0
Adj Flow Rate, veh/h	0	480	0	1067	1330	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	2	2	0
Cap, veh/h	0	0	0	2662	2662	0
Arrive On Green	0.00	0.00	0.00	0.73	0.73	0.00
Sat Flow, veh/h	0		0	3741	3741	0
Grp Volume(v), veh/h	0.0		0	1067	1330	0
Grp Sat Flow(s),veh/h/ln			0	1777	1777	0
Q Serve(g_s), s			0.0	2.4	3.3	0.0
Cycle Q Clear(g_c), s			0.0	2.4	3.3	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2662	2662	0
V/C Ratio(X)			0.00	0.40	0.50	0.00
Avail Cap(c_a), veh/h			0	7801	7801	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	1.0	1.4	0.0
Incr Delay (d2), s/veh			0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	5.1	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	1.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	1.0	6.5	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1067	1330	
Approach Delay, s/veh				1.0	6.5	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		20.5				20.5
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		45.0				45.0
Max Q Clear Time (g_c+I1), s		4.4				5.3
Green Ext Time (p_c), s		5.8				8.1
Intersection Summary						
HCM 6th Ctrl Delay			4.1			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
31: Texas St & Camino del Rio S

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↗	↖	↑	↗	↖	↑↑		↖	↑↑	↗
Traffic Volume (veh/h)	236	127	323	236	46	449	81	760	105	233	1369	147
Future Volume (veh/h)	236	127	323	236	46	449	81	760	105	233	1369	147
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	257	138	294	257	50	427	88	826	110	253	1488	123
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	336	353	393	264	277	476	105	1254	167	272	1746	779
Arrive On Green	0.19	0.19	0.19	0.15	0.15	0.15	0.06	0.40	0.40	0.15	0.49	0.49
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3152	420	1781	3554	1585
Grp Volume(v), veh/h	257	138	294	257	50	427	88	466	470	253	1488	123
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1795	1781	1777	1585
Q Serve(g_s), s	26.1	12.3	32.6	27.4	4.5	28.2	9.3	40.8	40.8	26.7	69.9	8.2
Cycle Q Clear(g_c), s	26.1	12.3	32.6	27.4	4.5	28.2	9.3	40.8	40.8	26.7	69.9	8.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	336	353	393	264	277	476	105	707	714	272	1746	779
V/C Ratio(X)	0.76	0.39	0.75	0.98	0.18	0.90	0.83	0.66	0.66	0.93	0.85	0.16
Avail Cap(c_a), veh/h	374	393	427	264	277	476	234	707	714	679	1865	832
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	73.3	67.7	66.2	80.8	71.1	63.8	88.7	46.8	46.8	79.8	42.4	26.7
Incr Delay (d2), s/veh	8.2	0.7	6.6	48.9	0.9	20.7	6.4	1.8	1.8	6.0	4.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.7	6.0	14.0	16.2	2.2	22.6	4.5	18.5	18.7	12.8	31.6	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.5	68.4	72.7	129.7	71.9	84.5	95.1	48.6	48.6	85.7	46.8	26.9
LnGrp LOS	F	E	E	F	E	F	F	D	D	F	D	C
Approach Vol, veh/h		689			734			1024			1864	
Approach Delay, s/veh		75.1			99.5			52.6			50.8	
Approach LOS		E			F			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	33.5	81.0		40.9	15.7	98.8		35.2				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0				
Max Green Setting (Gmax), s	72.6	51.8		40.0	25.0	* 1E2		28.2				
Max Q Clear Time (g_c+20), s	20.7	42.8		34.6	11.3	71.9		30.2				
Green Ext Time (p_c), s	0.3	2.7		1.4	0.1	21.8		0.0				

Intersection Summary

HCM 6th Ctrl Delay	63.4
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection									
Int Delay, s/veh	18.3								
Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations		↖	↗			↕		↕	
Traffic Vol, veh/h	1	45	293	2	376	427	1	528	73
Future Vol, veh/h	1	45	293	2	376	427	1	528	73
Conflicting Peds, #/hr	21	24	24	3	24	0	3	0	24
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	0	65	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	0	-
Grade, %	-	0	-	-	-	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	47	308	2	396	449	1	556	77

Major/Minor	Minor2	Major1			Major2				
Conflicting Flow All	0	1666	365	633	657	0	449	-	0
Stage 1	0	621	-	-	-	-	-	-	-
Stage 2	0	1045	-	-	-	-	-	-	-
Critical Hdwy	-	6.84	6.94	6.44	4.14	-	6.44	-	-
Critical Hdwy Stg 1	-	5.84	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.84	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.52	3.32	2.52	2.22	-	2.52	-	-
Pot Cap-1 Maneuver	0	87	632	570	926	-	746	-	-
Stage 1	0	498	-	-	-	-	-	-	-
Stage 2	0	300	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	0	~ 34	603	895	895	-	746	-	-
Mov Cap-2 Maneuver	0	~ 34	-	-	-	-	-	-	-
Stage 1	0	198	-	-	-	-	-	-	-
Stage 2	0	293	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	77.6	7.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	895	-	34	603	-	-
HCM Lane V/C Ratio	0.442	-	1.393	0.511	-	-
HCM Control Delay (s)	12.2	2.6	471.8	17.1	-	-
HCM Lane LOS	B	A	F	C	-	-
HCM 95th %tile Q(veh)	2.3	-	5.1	2.9	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th Signalized Intersection Summary
 33: Camino del Rio N & Ward Rd

Existing Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑	↑↑	↑	↙	↘
Traffic Volume (veh/h)	304	415	152	510	674	167
Future Volume (veh/h)	304	415	152	510	674	167
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	323	441	162	46	717	141
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	372	1474	510	227	768	1014
Arrive On Green	0.21	0.41	0.14	0.14	0.43	0.43
Sat Flow, veh/h	1781	3647	3647	1580	1781	1585
Grp Volume(v), veh/h	323	441	162	46	717	141
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1580	1781	1585
Q Serve(g_s), s	12.4	5.9	2.9	1.8	27.1	2.5
Cycle Q Clear(g_c), s	12.4	5.9	2.9	1.8	27.1	2.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	372	1474	510	227	768	1014
V/C Ratio(X)	0.87	0.30	0.32	0.20	0.93	0.14
Avail Cap(c_a), veh/h	1109	3520	3520	1565	1109	1318
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	13.8	27.2	26.7	19.2	5.0
Incr Delay (d2), s/veh	2.4	0.2	0.5	0.7	8.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	2.0	1.2	0.7	11.6	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.4	14.0	27.7	27.4	28.1	5.0
LnGrp LOS	C	B	C	C	C	A
Approach Vol, veh/h		764	208		858	
Approach Delay, s/veh		20.5	27.6		24.3	
Approach LOS		C	C		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		35.3		35.4	19.2	16.1
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		7.9		29.1	14.4	4.9
Green Ext Time (p_c), s		4.6		1.4	0.4	1.8

Intersection Summary

HCM 6th Ctrl Delay	23.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
34: Fairmount Ave & Mission Gorge Rd

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↖	↕			↖	↕	
Traffic Volume (veh/h)	61	10	556	23	7	2	25	457	762	27	1	7	767	29
Future Volume (veh/h)	61	10	556	23	7	2	25	457	762	27	1	7	767	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		1.00		1.00		0.98		1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	0	0	640	23	7	0		466	778	26		7	783	28
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		0.98	0.98	0.98		0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2	2	2
Cap, veh/h	0	340	546	172	46	0		893	2463	82		12	1563	56
Arrive On Green	0.00	0.00	0.18	0.18	0.18	0.00		0.52	1.00	1.00		0.01	0.45	0.45
Sat Flow, veh/h	0	1870	3006	677	254	0		3456	3507	117		1781	3497	125
Grp Volume(v), veh/h	0	0	640	30	0	0		466	394	410		7	398	413
Grp Sat Flow(s),veh/h/ln	0	1870	1503	931	0	0		1728	1777	1847		1781	1777	1846
Q Serve(g_s), s	0.0	0.0	23.6	2.4	0.0	0.0		11.6	0.0	0.0		0.5	20.7	20.7
Cycle Q Clear(g_c), s	0.0	0.0	23.6	3.0	0.0	0.0		11.6	0.0	0.0		0.5	20.7	20.7
Prop In Lane	0.00		1.00	0.77		0.00		1.00		0.06		1.00		0.07
Lane Grp Cap(c), veh/h	0	340	546	218	0	0		893	1248	1297		12	794	825
V/C Ratio(X)	0.00	0.00	1.17	0.14	0.00	0.00		0.52	0.32	0.32		0.57	0.50	0.50
Avail Cap(c_a), veh/h	0	340	546	218	0	0		906	1248	1297		179	794	825
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		2.00	2.00	2.00		1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00		0.73	0.73	0.73		1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	53.2	44.6	0.0	0.0		26.1	0.0	0.0		64.4	25.6	25.6
Incr Delay (d2), s/veh	0.0	0.0	95.9	0.3	0.0	0.0		0.2	0.5	0.5		14.6	2.3	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	16.1	0.8	0.0	0.0		4.0	0.2	0.2		0.3	9.2	9.6
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	149.1	44.9	0.0	0.0		26.3	0.5	0.5		79.0	27.9	27.8
LnGrp LOS	A	A	F	D	A	A		C	A	A		E	C	C
Approach Vol, veh/h		640			30				1270				818	
Approach Delay, s/veh		149.1			44.9				9.9				28.3	
Approach LOS		F			D				A				C	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	5.3	96.2		28.5	38.5	63.0		28.5						
Change Period (Y+Rc), s	4.4	4.9		4.9	4.9	* 4.9		4.9						
Max Green Setting (Gmax), s	13.5	79.1		23.6	34.1	* 58		23.6						
Max Q Clear Time (g_c+1/5), s	12.5	2.0		25.6	13.6	22.7		5.0						
Green Ext Time (p_c), s	0.0	14.2		0.0	0.9	12.2		0.1						

Intersection Summary

HCM 6th Ctrl Delay	48.0
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 36: Fairmount Ave & I-8 EB Off-Ramp

Existing Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations	YY	YY	U		↑↑	↑↑↑	
Traffic Volume (veh/h)	616	2328	43	0	560	1329	0
Future Volume (veh/h)	616	2328	43	0	560	1329	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		0	1870	1870	0
Adj Flow Rate, veh/h	629	2376		0	571	1356	0
Peak Hour Factor	0.98	0.98		0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2		0	2	2	0
Cap, veh/h	999	2666		0	1186	1704	0
Arrive On Green	0.56	0.56		0.00	0.33	0.33	0.00
Sat Flow, veh/h	1781	4755		0	3741	5443	0
Grp Volume(v), veh/h	629	2376		0	571	1356	0
Grp Sat Flow(s),veh/h/ln	1781	1585		0	1777	1702	0
Q Serve(g_s), s	25.2	46.1		0.0	13.4	25.3	0.0
Cycle Q Clear(g_c), s	25.2	46.1		0.0	13.4	25.3	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	999	2666		0	1186	1704	0
V/C Ratio(X)	0.63	0.89		0.00	0.48	0.80	0.00
Avail Cap(c_a), veh/h	1203	3212		0	2597	2529	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.7	20.3		0.0	27.8	31.7	0.0
Incr Delay (d2), s/veh	0.4	2.7		0.0	0.1	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.8	16.4		0.0	5.6	10.3	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	16.0	23.0		0.0	27.9	32.3	0.0
LnGrp LOS	B	C		A	C	C	A
Approach Vol, veh/h	3005				571	1356	
Approach Delay, s/veh	21.5				27.9	32.3	
Approach LOS	C				C	C	
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				41.0		64.0	41.0
Change Period (Y+Rc), s				6.0		5.1	6.0
Max Green Setting (Gmax), s				52.0		70.9	76.7
Max Q Clear Time (g_c+1), s				27.3		48.1	15.4
Green Ext Time (p_c), s				7.7		10.8	2.8

Intersection Summary

HCM 6th Ctrl Delay	25.2
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
37: Collwood Blvd & Montezuma Rd

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↵	↑↑	↵↵	↑
Traffic Volume (veh/h)	1281	1186	6	74	793	665	36
Future Volume (veh/h)	1281	1186	6	74	793	665	36
Initial Q (Qb), veh	20	20		0	0	0	0
Ped-Bike Adj(A_pbT)		0.98		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1737	1870	1870	1648
Adj Flow Rate, veh/h	1321	1089		76	818	686	16
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		11	2	2	17
Cap, veh/h	2180	1290		95	2500	744	301
Arrive On Green	0.61	0.61		0.06	0.70	0.22	0.22
Sat Flow, veh/h	3647	1546		1654	3647	3456	1397
Grp Volume(v), veh/h	1321	1089		76	818	686	16
Grp Sat Flow(s),veh/h/ln	1777	1546		1654	1777	1728	1397
Q Serve(g_s), s	30.7	54.7		6.1	11.9	26.0	1.2
Cycle Q Clear(g_c), s	30.7	54.7		6.1	11.9	26.0	1.2
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2180	1290		95	2500	744	301
V/C Ratio(X)	0.61	0.84		0.80	0.33	0.92	0.05
Avail Cap(c_a), veh/h	2180	1290		328	2500	848	343
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.9	8.7		62.4	7.7	51.5	41.7
Incr Delay (d2), s/veh	1.3	6.9		5.8	0.3	13.5	0.0
Initial Q Delay(d3),s/veh	1.5	11.1		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	22.6		2.7	4.2	12.5	0.4
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	19.7	26.7		68.2	8.0	65.0	41.8
LnGrp LOS	B	C		E	A	E	D
Approach Vol, veh/h	2410			894	702		
Approach Delay, s/veh	22.9			13.1	64.4		
Approach LOS	C			B	E		
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+Rc), s	12.1	88.7			100.8		33.2
Change Period (Y+Rc), s	4.4	* 6.5			6.5		4.4
Max Green Setting (Gmax), s	26.6	* 60			90.2		32.9
Max Q Clear Time (g_c+10), s	19.1	56.7			13.9		28.0
Green Ext Time (p_c), s	0.1	2.8			13.3		0.8

Intersection Summary

HCM 6th Ctrl Delay	28.0
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
38: Mission Village Dr & Shawn Ave

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔				↔		↔	↑↑	↔	↔	↔	
Traffic Volume (veh/h)	62	5	65	1	42	7	24	57	639	24	38	1775	65
Future Volume (veh/h)	62	5	65	1	42	7	24	57	639	24	38	1775	65
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99		0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	5	60		45	7	3	61	680	19	40	1888	68
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	268	17	191		230	151	65	190	2560	1140	591	2521	90
Arrive On Green	0.13	0.13	0.13		0.13	0.13	0.13	0.72	0.72	0.72	0.72	0.72	0.72
Sat Flow, veh/h	1260	126	1423		946	1125	482	225	3554	1582	746	3499	125
Grp Volume(v), veh/h	71	0	60		45	0	10	61	680	19	40	953	1003
Grp Sat Flow(s),veh/h/ln	1385	0	1423		946	0	1607	225	1777	1582	746	1777	1848
Q Serve(g_s), s	3.0	0.0	2.7		2.2	0.0	0.4	15.9	4.6	0.2	1.4	22.6	23.2
Cycle Q Clear(g_c), s	3.4	0.0	2.7		4.9	0.0	0.4	39.2	4.6	0.2	6.0	22.6	23.2
Prop In Lane	0.93		1.00		1.00		0.30	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	285	0	191		230	0	215	190	2560	1140	591	1280	1331
V/C Ratio(X)	0.25	0.00	0.31		0.20	0.00	0.05	0.32	0.27	0.02	0.07	0.74	0.75
Avail Cap(c_a), veh/h	903	0	813		809	0	919	221	3047	1357	694	1524	1584
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00		1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.8	0.0	27.4		29.6	0.0	26.4	18.0	3.4	2.8	4.4	5.9	6.0
Incr Delay (d2), s/veh	0.2	0.0	0.3		0.2	0.0	0.0	1.2	0.1	0.0	0.1	1.8	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.9		0.7	0.0	0.1	0.8	0.9	0.0	0.2	5.0	5.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	28.0	0.0	27.7		29.8	0.0	26.4	19.1	3.5	2.8	4.5	7.7	7.9
LnGrp LOS	C	A	C		C	A	C	B	A	A	A	A	A
Approach Vol, veh/h		131				55			760			1996	
Approach Delay, s/veh		27.9				29.2			4.7			7.7	
Approach LOS		C				C			A			A	
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		55.7		14.3		55.7		14.3					
Change Period (Y+Rc), s		5.3		4.9		5.3		4.9					
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0					
Max Q Clear Time (g_c+1), s		41.2		5.4		25.2		6.9					
Green Ext Time (p_c), s		7.0		0.5		25.2		0.2					

Intersection Summary

HCM 6th Ctrl Delay	8.2
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
39: Mission Village Dr & Fermi Ave

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	↕	
Traffic Volume (veh/h)	33	1	13	39	1	34	9	695	34	1	20	1868	20
Future Volume (veh/h)	33	1	13	39	1	34	9	695	34	1	20	1868	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	34	1	0	41	1	8	9	724	34		21	1946	21
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	212	5	0	178	11	20	16	2462	116		33	2600	28
Arrive On Green	0.08	0.08	0.00	0.08	0.08	0.08	0.01	0.71	0.71		0.02	0.72	0.72
Sat Flow, veh/h	1479	61	0	1146	134	244	1781	3456	162		1781	3600	39
Grp Volume(v), veh/h	35	0	0	50	0	0	9	372	386		21	958	1009
Grp Sat Flow(s),veh/h/ln1540	0	0	0	1524	0	0	1781	1777	1841		1781	1777	1862
Q Serve(g_s), s	0.0	0.0	0.0	0.8	0.0	0.0	0.4	5.9	5.9		0.9	25.2	25.4
Cycle Q Clear(g_c), s	1.4	0.0	0.0	2.2	0.0	0.0	0.4	5.9	5.9		0.9	25.2	25.4
Prop In Lane	0.97		0.00	0.82		0.16	1.00		0.09		1.00		0.02
Lane Grp Cap(c), veh/h	217	0	0	209	0	0	16	1266	1312		33	1283	1345
V/C Ratio(X)	0.16	0.00	0.00	0.24	0.00	0.00	0.56	0.29	0.29		0.63	0.75	0.75
Avail Cap(c_a), veh/h	831	0	0	650	0	0	690	1377	1426		690	1377	1443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	33.3	0.0	0.0	33.6	0.0	0.0	38.2	4.0	4.0		37.7	6.5	6.5
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.0	10.6	0.2	0.2		7.0	2.6	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln0.6	0.0	0.0	0.0	0.9	0.0	0.0	0.2	1.4	1.5		0.4	6.9	7.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	33.4	0.0	0.0	33.8	0.0	0.0	48.8	4.3	4.3		44.7	9.1	9.0
LnGrp LOS	C	A	A	C	A	A	D	A	A		D	A	A
Approach Vol, veh/h		35			50			767				1988	
Approach Delay, s/veh		33.4			33.8			4.8				9.4	
Approach LOS		C			C			A				A	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s5.9	60.4			11.2	5.1	61.1		11.2					
Change Period (Y+Rc), s 4.4	5.2			4.9	4.4	5.2		4.9					
Max Green Setting (Gmax), s 30.0	60.0			40.0	30.0	60.0		30.0					
Max Q Clear Time (g_c+1/3), s 12.5	7.9			3.4	2.4	27.4		4.2					
Green Ext Time (p_c), s 0.0	10.1			0.1	0.0	28.5		0.1					

Intersection Summary

HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
40: Gramercy Dr/Mission Village Dr & Ruffin Rd

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗	↖ ↗		↖ ↗	↖ ↗		↖ ↗	↖ ↗		↖ ↗	↖ ↗	
Traffic Volume (veh/h)	47	556	13	8	338	419	15	4	18	1375	9	68
Future Volume (veh/h)	47	556	13	8	338	419	15	4	18	1375	9	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	567	12	8	345	249	15	4	4	1403	9	66
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	254	1177	25	272	652	460	37	37	31	1559	85	620
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.02	0.02	0.02	0.44	0.44	0.44
Sat Flow, veh/h	821	3556	75	832	1968	1391	1781	1814	1529	3563	193	1418
Grp Volume(v), veh/h	48	283	296	8	311	283	15	4	4	1403	0	75
Grp Sat Flow(s),veh/h/ln	821	1777	1855	832	1777	1582	1781	1777	1566	1781	0	1612
Q Serve(g_s), s	3.6	9.0	9.0	0.5	10.0	10.3	0.6	0.2	0.2	25.8	0.0	1.9
Cycle Q Clear(g_c), s	13.9	9.0	9.0	9.5	10.0	10.3	0.6	0.2	0.2	25.8	0.0	1.9
Prop In Lane	1.00		0.04	1.00		0.88	1.00		0.98	1.00		0.88
Lane Grp Cap(c), veh/h	254	588	614	272	588	524	37	37	32	1559	0	705
V/C Ratio(X)	0.19	0.48	0.48	0.03	0.53	0.54	0.41	0.11	0.13	0.90	0.00	0.11
Avail Cap(c_a), veh/h	679	1510	1576	703	1510	1344	1009	1006	887	2018	0	913
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.9	18.8	18.8	22.6	19.2	19.3	34.2	33.9	34.0	18.4	0.0	11.7
Incr Delay (d2), s/veh	0.4	0.8	0.7	0.1	0.9	1.1	2.7	0.5	0.7	4.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.6	3.8	0.1	4.1	3.8	0.3	0.1	0.1	9.8	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.4	19.6	19.5	22.6	20.1	20.3	36.9	34.4	34.6	22.6	0.0	11.7
LnGrp LOS	C	B	B	C	C	C	D	C	C	C	A	B
Approach Vol, veh/h		627			602			23				1478
Approach Delay, s/veh		20.0			20.2			36.0				22.1
Approach LOS		B			C			D				C
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		28.5		35.8		28.5		6.4				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		15.9		27.8		12.3		2.6				
Green Ext Time (p_c), s		5.9		3.1		6.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	21.3
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	716	777	8	885	667	229	323
Future Volume (veh/h)	716	777	8	885	667	229	323
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	754	815		932	702	241	86
Peak Hour Factor	0.95	0.95		0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1898	963		896	2939	305	140
Arrive On Green	0.53	0.53		0.26	0.83	0.09	0.09
Sat Flow, veh/h	3647	1541		3456	3647	3456	1585
Grp Volume(v), veh/h	754	815		932	702	241	86
Grp Sat Flow(s),veh/h/ln	1777	1541		1728	1777	1728	1585
Q Serve(g_s), s	16.3	55.1		33.7	5.5	8.9	6.8
Cycle Q Clear(g_c), s	16.3	55.1		33.7	5.5	8.9	6.8
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1898	963		896	2939	305	140
V/C Ratio(X)	0.40	0.85		1.04	0.24	0.79	0.61
Avail Cap(c_a), veh/h	1898	963		896	2939	1135	521
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.94	0.94
Uniform Delay (d), s/veh	17.9	19.7		48.2	2.4	58.1	57.1
Incr Delay (d2), s/veh	0.6	9.1		41.1	0.2	1.6	1.5
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	25.4		19.1	1.2	4.0	2.8
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	18.5	28.8		89.2	2.6	59.7	58.7
LnGrp LOS	B	C		F	A	E	E
Approach Vol, veh/h	1569			1634	327		
Approach Delay, s/veh	23.9			52.0	59.4		
Approach LOS	C			D	E		
Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	38.1	75.1				113.2	16.8
Change Period (Y+Rc), s	4.4	* 5.7				5.7	5.3
Max Green Setting (Gmax), s	33.7	* 39				76.3	42.7
Max Q Clear Time (g_c+Rc), s	33.7	57.1				7.5	10.9
Green Ext Time (p_c), s	0.0	0.0				7.4	0.6

Intersection Summary

HCM 6th Ctrl Delay	40.2
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mobley St & Gramercy Dr

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	577	75	48	314	48	38	20	32	70	10	16
Future Volume (veh/h)	13	577	75	48	314	48	38	20	32	70	10	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.96	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1826	1826	1826	1752	1752	1752
Adj Flow Rate, veh/h	13	595	58	49	324	38	39	21	8	72	10	7
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	10	10	10
Cap, veh/h	688	1757	773	550	1579	183	301	121	30	386	48	18
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1012	3554	1564	776	3193	371	653	734	185	997	291	110
Grp Volume(v), veh/h	13	595	58	49	179	183	68	0	0	89	0	0
Grp Sat Flow(s),veh/h/ln	1012	1777	1564	776	1777	1787	1573	0	0	1399	0	0
Q Serve(g_s), s	0.2	3.0	0.6	1.2	1.7	1.7	0.0	0.0	0.0	0.5	0.0	0.0
Cycle Q Clear(g_c), s	1.9	3.0	0.6	4.2	1.7	1.7	1.0	0.0	0.0	1.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.21	0.57		0.12	0.81		0.08
Lane Grp Cap(c), veh/h	688	1757	773	550	878	884	452	0	0	452	0	0
V/C Ratio(X)	0.02	0.34	0.08	0.09	0.20	0.21	0.15	0.00	0.00	0.20	0.00	0.00
Avail Cap(c_a), veh/h	2260	7277	3203	1755	3638	3660	2232	0	0	2043	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.7	4.5	3.9	5.8	4.2	4.2	10.6	0.0	0.0	10.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.4	0.1	0.1	0.3	0.3	0.3	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.7	4.7	4.0	5.9	4.4	4.4	10.7	0.0	0.0	10.9	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		666			411			68			89	
Approach Delay, s/veh		4.6			4.6			10.7			10.9	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		19.6		9.7		19.6		9.7				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		5.0		3.5		6.2		3.0				
Green Ext Time (p_c), s		9.1		0.3		5.0		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				5.4								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary
43: Sandrock Rd & Greyling Dr/Gramercy Dr

Existing Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕			↕	↕	↕	↕	↕
Traffic Volume (veh/h)	68	121	8	14	144	221	1	5	9	23	549	30	109
Future Volume (veh/h)	68	121	8	14	144	221	1	5	9	23	549	30	109
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.97		0.94		1.00		1.00	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1574	1574	1870	1870	1856	1870
Adj Flow Rate, veh/h	72	127	6	15	152	129		5	9	0	601	0	51
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2		22	22	2	2	3	2
Cap, veh/h	243	333	13	131	500	825		8	14	23	911	0	389
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28		0.01	0.01	0.00	0.26	0.00	0.26
Sat Flow, veh/h	362	1180	46	64	1772	1488		552	994	1585	3563	0	1521
Grp Volume(v), veh/h	205	0	0	167	0	129		14	0	0	601	0	51
Grp Sat Flow(s),veh/h/ln	1589	0	0	1836	0	1488		1546	0	1585	1781	0	1521
Q Serve(g_s), s	0.2	0.0	0.0	0.0	0.0	1.5		0.3	0.0	0.0	5.2	0.0	0.9
Cycle Q Clear(g_c), s	3.1	0.0	0.0	2.4	0.0	1.5		0.3	0.0	0.0	5.2	0.0	0.9
Prop In Lane	0.35		0.03	0.09		1.00		0.36		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	589	0	0	631	0	825		23	0	23	911	0	389
V/C Ratio(X)	0.35	0.00	0.00	0.26	0.00	0.16		0.62	0.00	0.00	0.66	0.00	0.13
Avail Cap(c_a), veh/h	1237	0	0	1416	0	1479		893	0	915	2057	0	878
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00		1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.0	0.0	0.0	9.8	0.0	4.0		17.0	0.0	0.0	11.5	0.0	9.9
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.0		10.0	0.0	0.0	0.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.7	0.0	0.5		0.2	0.0	0.0	1.5	0.0	0.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	10.2	0.0	0.0	9.9	0.0	4.1		26.9	0.0	0.0	11.8	0.0	10.0
LnGrp LOS	B	A	A	A	A	A		C	A	A	B	A	A
Approach Vol, veh/h		205			296				14			652	
Approach Delay, s/veh		10.2			7.4				26.9			11.7	
Approach LOS		B			A				C			B	
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		15.1		14.2		15.1		5.4					
Change Period (Y+Rc), s		5.3		5.3		5.3		4.9					
Max Green Setting (Gmax), s		25.0		20.0		25.0		20.0					
Max Q Clear Time (g_c+11), s		5.1		7.2		4.4		2.3					
Green Ext Time (p_c), s		0.8		1.1		0.8		0.0					

Intersection Summary

HCM 6th Ctrl Delay	10.5
HCM 6th LOS	B

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

Queues

Existing Plus Project Plus Event Conditions

1: SR-163 SB Ramps/Ulric St & Friars Rd

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	137	1513	585	1032	694	142	141	780	293	294	169
v/c Ratio	0.60	0.64	0.37	0.69	1.21	0.61	0.60	0.49	0.77	0.77	0.37
Control Delay	61.7	26.8	0.7	41.0	138.8	60.0	59.4	1.1	56.1	56.3	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.7	26.8	0.7	41.0	138.8	60.0	59.4	1.1	56.1	56.3	13.2
Queue Length 50th (ft)	95	298	0	247	~543	104	104	0	214	215	24
Queue Length 95th (ft)	194	489	0	387	#976	201	198	0	341	342	85
Internal Link Dist (ft)		1296		18			834			622	
Turn Bay Length (ft)	120		100		70	300		215			200
Base Capacity (vph)	267	2471	1561	1490	574	1045	1055	1583	746	746	763
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.61	0.37	0.69	1.21	0.14	0.13	0.49	0.39	0.39	0.22

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

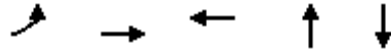
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues
2: SR-163 NB Ramps & Friars Rd

Existing Plus Project Plus Event Conditions
PM Peak Hour



Lane Group	EBL	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	550	2290	2396	1330	866
v/c Ratio	0.87	no cap	1.36	17.27	11.25
Control Delay	39.9		187.6	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0
Total Delay	39.9	Error	187.6	0.0	0.0
Queue Length 50th (ft)	260	0	~860	0	0
Queue Length 95th (ft)	385	0	#1215	0	0
Internal Link Dist (ft)		962	635	815	521
Turn Bay Length (ft)	250				
Base Capacity (vph)	1287	1	1762	77	77
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.43	2290.00	1.36	17.27	11.25

Intersection Summary

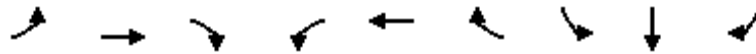
- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

Existing Plus Project Plus Event Conditions

17: I-15 SB Ramps & Friars Rd

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	522	2534	1096	271	1993	343	521	522	1140
v/c Ratio	0.96	1.46	1.36	5.02	1.57	0.65	0.98	0.98	0.61
Control Delay	75.3	244.4	191.6	1860.7	295.8	27.5	79.0	79.4	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.3	244.4	191.6	1860.7	295.8	27.5	79.0	79.4	14.5
Queue Length 50th (ft)	453	~1128	~1017	~408	~921	130	474	475	293
Queue Length 95th (ft)	#680	#1215	#1281	#590	#1016	242	#716	#717	362
Internal Link Dist (ft)		844			1079			723	
Turn Bay Length (ft)	380		200	350			520		520
Base Capacity (vph)	546	1735	808	54	1268	530	543	543	1855
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	1.46	1.36	5.02	1.57	0.65	0.96	0.96	0.61

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

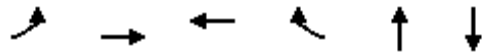
Queue shown is maximum after two cycles.

Queues

Existing Plus Project Plus Event Conditions

18: I-15 NB Ramps & Friars Rd

PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	1051	2581	1630	483	1394	1331
v/c Ratio	1.38	no cap	0.78	0.79	16.40	15.66
Control Delay	207.0		27.1	34.5	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	207.0	Error	27.1	34.5	0.0	0.0
Queue Length 50th (ft)	~927	0	348	311	0	0
Queue Length 95th (ft)	#1435	0	405	462	0	0
Internal Link Dist (ft)		1079	869		797	677
Turn Bay Length (ft)	515					
Base Capacity (vph)	761	1	2844	833	85	85
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.38	2581.00	0.57	0.58	16.40	15.66

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

Existing Plus Project Plus Event Conditions

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

PM Peak Hour



Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	87	434	160	293	148	672	986	688
v/c Ratio	0.68	0.75	0.80	0.69	0.91	0.18	0.45	0.61
Control Delay	115.0	24.4	113.3	16.6	137.3	9.0	14.6	7.3
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	6.4	2.5
Total Delay	115.0	24.4	113.3	16.8	137.3	9.0	21.0	9.7
Queue Length 50th (ft)	114	117	210	6	195	92	277	52
Queue Length 95th (ft)	180	255	290	109	#331	138	m397	m93
Internal Link Dist (ft)			653			1043	147	
Turn Bay Length (ft)				150	110			
Base Capacity (vph)	309	587	370	542	177	3725	2182	1124
Starvation Cap Reductn	0	0	0	0	0	0	1135	302
Spillback Cap Reductn	0	0	0	17	0	310	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.74	0.43	0.56	0.84	0.20	0.94	0.84

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Existing Plus Project Plus Event Conditions
 PM Peak Hour



Lane Group	EBR	NBT	SBT
Lane Group Flow (vph)	503	1067	1330
v/c Ratio	0.57	0.60	0.75
Control Delay	18.8	11.5	14.2
Queue Delay	0.0	0.0	0.0
Total Delay	18.8	11.5	14.2
Queue Length 50th (ft)	68	117	163
Queue Length 95th (ft)	149	202	280
Internal Link Dist (ft)		283	1043
Turn Bay Length (ft)			
Base Capacity (vph)	2348	2946	2946
Starvation Cap Reductn	0	307	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.21	0.40	0.45
Intersection Summary			

Queues

Existing Plus Project Plus Event Conditions

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	111	140	874	382	771	339	305	870	11	1380	57
v/c Ratio	0.55	0.66	1.53	1.24	1.31	0.85	1.12	0.56	0.04	1.05	0.09
Control Delay	63.9	69.4	276.8	174.6	191.5	61.2	140.6	27.6	40.3	81.3	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.3	0.0
Total Delay	63.9	69.4	276.8	174.6	191.5	61.2	140.6	27.6	40.3	103.6	8.2
Queue Length 50th (ft)	94	121	~981	~437	~484	280	~296	266	4	~673	3
Queue Length 95th (ft)	156	190	#1195	#656	#625	#478	#479	352	m7	m#730	m18
Internal Link Dist (ft)		2741			1304			830		254	
Turn Bay Length (ft)	105					200	215		65		140
Base Capacity (vph)	245	257	571	309	590	399	272	1553	264	1314	650
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	527	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.54	1.53	1.24	1.31	0.85	1.12	0.56	0.04	1.75	0.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
36: Fairmount Ave & I-8 EB Off-Ramp

Existing Plus Project Plus Event Conditions
PM Peak Hour



Lane Group	EBL	EBR	NBU	NBT	SBT
Lane Group Flow (vph)	1413	1592	44	571	1356
v/c Ratio	0.97dr	1.15	0.48	0.40	0.84
Control Delay	36.3	110.3	83.3	29.7	49.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	36.3	110.3	83.3	29.7	49.1
Queue Length 50th (ft)	550	~979	39	188	413
Queue Length 95th (ft)	#773	#1275	86	237	490
Internal Link Dist (ft)	749			557	830
Turn Bay Length (ft)	550		350		
Base Capacity (vph)	1664	1380	248	1965	1914
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.85	1.15	0.18	0.29	0.71

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

HCM 6th Signalized Intersection Summary
17: I-15 SB Ramps & Friars Rd

Existing Plus Project with Improvements
AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶↶	↑↑↑	↷↷		↶	↑↑↑	↷↷				↶	↷	↷↷
Traffic Volume (veh/h)	364	946	488	42	274	2069	427	0	0	0	664	2	1085
Future Volume (veh/h)	364	946	488	42	274	2069	427	0	0	0	664	2	1085
Initial Q (Qb), veh	0	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	387	1006	180		291	2201	252				707	0	1106
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	822	2295	1254		316	1857	1014				801	0	1467
Arrive On Green	0.24	0.45	0.45		0.36	0.73	0.73				0.22	0.00	0.22
Sat Flow, veh/h	3456	5106	2790		1781	5106	2790				3563	0	3170
Grp Volume(v), veh/h	387	1006	180		291	2201	252				707	0	1106
Grp Sat Flow(s),veh/h/ln	1728	1702	1395		1781	1702	1395				1781	0	1585
Q Serve(g_s), s	10.6	14.9	4.2		17.2	40.0	3.3				21.1	0.0	5.5
Cycle Q Clear(g_c), s	10.6	14.9	4.2		17.2	40.0	3.3				21.1	0.0	5.5
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	822	2295	1254		316	1857	1014				801	0	1467
V/C Ratio(X)	0.47	0.44	0.14		0.92	1.19	0.25				0.88	0.00	0.75
Avail Cap(c_a), veh/h	822	2295	1254		534	1857	1014				994	0	1639
HCM Platoon Ratio	1.00	1.00	1.00		2.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.09	0.09	0.09				1.00	0.00	1.00
Uniform Delay (d), s/veh	36.0	20.8	17.8		34.7	15.0	10.0				41.2	0.0	24.4
Incr Delay (d2), s/veh	0.2	0.6	0.2		0.9	84.0	0.1				7.0	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	5.7	1.3		5.7	19.4	0.9				10.0	0.0	18.8
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	36.1	21.4	18.1		35.6	99.0	10.0				48.2	0.0	25.9
LnGrp LOS	D	C	B		D	F	B				D	A	C
Approach Vol, veh/h		1573				2744						1813	
Approach Delay, s/veh		24.6				84.1						34.6	
Approach LOS		C				F						C	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	33.7	56.4		29.8	33.2	47.0							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	33	30.0		30.7	22.5	* 40							
Max Q Clear Time (g_c+119), s	119.2	16.9		23.1	12.6	42.0							
Green Ext Time (p_c), s	0.3	4.1		1.6	0.5	0.0							

Intersection Summary

HCM 6th Ctrl Delay	54.2
HCM 6th LOS	D

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

Existing Plus Project with Improvements
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔				↑↑↑	↔						
Traffic Volume (veh/h)	698	977	0	0	2023	1443	0	0	322	0	0	765
Future Volume (veh/h)	698	977	0	0	2023	1443	0	0	322	0	0	765
Initial Q (Qb), veh	20	0	0	0	0	20						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	735	1028	0	0	2026	1587						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	1100	0	0	0	2125	1801						
Arrive On Green	0.32	0.95	0.00	0.00	0.57	0.57						
Sat Flow, veh/h	3456	0	0	0	3741	3170						
Grp Volume(v), veh/h	735	0	0	0	2026	1587						
Grp Sat Flow(s),veh/h/ln	1728	0	0	0	1870	1585						
Q Serve(g_s), s	20.3	0.0	0.0	0.0	56.1	47.6						
Cycle Q Clear(g_c), s	20.3	0.0	0.0	0.0	56.1	47.6						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	1100	0	0	0	2125	1801						
V/C Ratio(X)	0.67	0.00	0.00	0.00	0.95	0.88						
Avail Cap(c_a), veh/h	1100	0	0	0	2125	1801						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.76	0.00	0.00	0.00	0.57	0.57						
Uniform Delay (d), s/veh	33.6	0.0	0.0	0.0	22.4	21.7						
Incr Delay (d2), s/veh	1.0	0.0	0.0	0.0	7.3	3.9						
Initial Q Delay(d3),s/veh	7.2	0.0	0.0	0.0	0.0	7.5						
%ile BackOfQ(50%),veh/ln	10.6	0.0	0.0	0.0	23.5	19.9						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.7	0.0	0.0	0.0	29.7	33.1						
LnGrp LOS	D	A	A	A	C	C						
Approach Vol, veh/h		735			3613							
Approach Delay, s/veh		41.7			31.2							
Approach LOS		D			C							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		110.0			40.5	69.5						
Change Period (Y+Rc), s		5.5			5.5	7.0						
Max Green Setting (Gmax), s		104.5			35.0	62.5						
Max Q Clear Time (g_c+I1), s		0.0			22.3	58.1						
Green Ext Time (p_c), s		0.0			1.3	4.0						

Intersection Summary

HCM 6th Ctrl Delay	33.0
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
32: Ward Rd & Rancho Mission Rd

Existing Plus Project with Improvements
AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	42	223	182	622	449	28
Future Volume (veh/h)	42	223	182	622	449	28
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	0.99			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	29	190	648	468	22
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	144	128	476	1342	1850	87
Arrive On Green	0.08	0.08	0.54	0.54	0.54	0.54
Sat Flow, veh/h	1781	1585	470	2588	3544	162
Grp Volume(v), veh/h	44	29	411	427	240	250
Grp Sat Flow(s),veh/h/ln	1781	1585	1356	1617	1777	1835
Q Serve(g_s), s	0.5	0.4	1.4	3.9	1.7	1.7
Cycle Q Clear(g_c), s	0.5	0.4	3.7	3.9	1.7	1.7
Prop In Lane	1.00	1.00	0.46			0.09
Lane Grp Cap(c), veh/h	144	128	951	867	953	984
V/C Ratio(X)	0.31	0.23	0.43	0.49	0.25	0.25
Avail Cap(c_a), veh/h	1365	1215	1502	1584	1740	1798
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.2	10.1	3.3	3.4	2.9	2.9
Incr Delay (d2), s/veh	1.2	0.9	0.3	0.4	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.1	0.1	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.4	11.0	3.6	3.9	3.1	3.1
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	73			838	490	
Approach Delay, s/veh	11.2			3.7	3.1	
Approach LOS	B			A	A	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		17.1		6.4		17.1
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		23.0		18.0		23.0
Max Q Clear Time (g_c+I1), s		5.9		2.5		3.7
Green Ext Time (p_c), s		5.4		0.1		2.7
Intersection Summary						
HCM 6th Ctrl Delay			3.9			
HCM 6th LOS			A			

HCM Signalized Intersection Capacity Analysis

Existing Plus Project with Improvements

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↖↗	↖	↔	↗	↖	↕		↖↗	↖↗	↖
Traffic Volume (vph)	34	23	402	403	684	343	495	1232	143	11	807	101
Future Volume (vph)	34	23	402	403	684	343	495	1232	143	11	807	101
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	0.88	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1752	2778	1610	3172	1422	1770	3479		3433	3539	1583
Flt Permitted	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1752	2778	1610	3172	1422	1770	3479		3433	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	36	24	423	424	720	361	521	1297	151	12	849	106
RTOR Reduction (vph)	0	0	91	0	0	0	0	6	0	0	0	75
Lane Group Flow (vph)	30	30	332	382	798	325	521	1442	0	12	849	31
Confl. Peds. (#/hr)						2			1			
Confl. Bikes (#/hr)			2			2						
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8	1	5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	7.9	7.9	55.0	39.5	39.5	47.8	47.1	73.3		8.3	34.5	34.5
Effective Green, g (s)	7.9	7.9	55.0	39.5	39.5	47.8	47.1	73.3		8.3	34.5	34.5
Actuated g/C Ratio	0.05	0.05	0.37	0.26	0.26	0.32	0.31	0.49		0.06	0.23	0.23
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	88	92	1105	423	835	453	555	1700		189	813	364
v/s Ratio Prot	0.02	0.02	c0.09	0.24	c0.25	0.04	c0.29	0.41		0.00	c0.24	
v/s Ratio Perm			0.03			0.19						0.02
v/c Ratio	0.34	0.33	0.30	0.90	0.96	0.72	0.94	0.85		0.06	1.04	0.09
Uniform Delay, d1	68.5	68.5	33.8	53.4	54.4	45.1	50.0	33.5		67.2	57.8	45.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.71	0.66	0.95
Incremental Delay, d2	0.8	0.8	0.1	21.7	20.7	4.5	23.5	5.5		0.0	42.4	0.4
Delay (s)	69.4	69.2	33.9	75.1	75.1	49.6	73.5	39.0		47.7	80.3	43.7
Level of Service	E	E	C	E	E	D	E	D		D	F	D
Approach Delay (s)		38.3			69.6			48.1			75.8	
Approach LOS		D			E			D			E	

Intersection Summary		
HCM 2000 Control Delay	59.2	HCM 2000 Level of Service E
HCM 2000 Volume to Capacity ratio	0.94	
Actuated Cycle Length (s)	150.0	Sum of lost time (s) 21.0
Intersection Capacity Utilization	90.4%	ICU Level of Service E
Analysis Period (min)	15	

c Critical Lane Group

Arterial Level of Service: EB Friars Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SR-163 SB Ramps	II	45	27.1	20.3	47.4	0.26	19.8	D
SR-163 NB Ramps	II	45	23.5	0.0	23.5	0.22	33.1	B
Frazee Rd	II	45	14.8	20.4	35.2	0.14	13.8	E
River Run Dr	II	45	119.1	15.4	134.5	1.49	39.8	A
Fenton Pkwy	II	45	23.6	18.1	41.7	0.22	18.7	D
Northside Dr	II	45	28.6	29.3	57.9	0.29	18.0	D
Stadium Way	II	45	23.0	9.6	32.6	0.21	23.3	C
I-15 SB Ramps	II	45	46.1	29.8	75.9	0.58	27.4	C
I-15 NB Ramps	II	45	23.9	0.0	23.9	0.22	33.1	B
Rancho Mission Rd	II	45	19.6	21.8	41.4	0.18	15.6	E
Santo Rd	II	45	24.2	1.6	25.8	0.22	30.9	B
Riverdale St	II	45	31.8	13.4	45.2	0.32	25.6	C
Mission Gorge Rd	II	45	11.2	8.9	20.1	0.10	18.5	D
Total	II		416.5	188.6	605.1	4.44	26.4	C

Arterial Level of Service: WB Friars Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Riverdale St	II	45	11.2	20.2	31.4	0.10	11.8	F
Santo Rd	II	45	31.8	9.6	41.4	0.32	27.9	C
Rancho Mission Rd	II	45	24.2	16.8	41.0	0.22	19.5	D
I-15 NB Ramps	II	45	19.6	63.7	83.3	0.18	7.8	F
I-15 SB Ramps	II	45	23.9	96.8	120.7	0.22	6.5	F
Stadium Way	II	45	46.1	3.9	50.0	0.58	41.5	A
Northside Dr	II	45	23.0	16.1	39.1	0.21	19.4	D
Fenton Pkwy	II	45	28.6	25.8	54.4	0.29	19.1	D
	II	45	23.6	17.9	41.5	0.22	18.8	D
Frazee Rd	II	45	119.1	49.6	168.7	1.49	31.8	B
SR-163 NB Ramps	II	45	14.8	15.6	30.4	0.14	16.0	E
Ulric St	II	45	23.5	32.1	55.6	0.22	14.0	E
Total	II		389.4	368.1	757.5	4.18	19.9	D

Arterial Level of Service: NB Rancho Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Ward Rd	III	30	22.9	12.8	35.7	0.18	18.2	C
San Diego Mission Rd	III	35	25.3	42.7	68.0	0.21	11.2	E
Friars Rd	III	35	48.3	45.8	94.1	0.40	15.4	D
Total	III		96.5	101.3	197.8	0.79	14.5	D

Arterial Level of Service: SB Rancho Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
San Diego Mission Rd	III	35	48.3	53.5	101.8	0.40	14.2	D
Rancho Mission Rd	III	35	25.3	0.0	25.3	0.21	30.0	B
Total	III		73.6	53.5	127.1	0.61	17.4	D

Arterial Level of Service: EB San Diego Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rancho Mission Rd	II	40	42.5	29.4	71.9	0.45	22.4	C
Fairmount Ave	II	40	50.6	32.1	82.7	0.56	24.5	C
Total	II		93.1	61.5	154.6	1.01	23.5	C

Arterial Level of Service: WB San Diego Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rancho Mission Rd	II	40	50.6	36.9	87.5	0.56	23.1	C
Total	II		50.6	36.9	87.5	0.56	23.1	C

Arterial Level of Service: NB Ward Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rancho Mission Rd	III	35	16.7	6.6	23.3	0.13	20.2	C
Total	III		16.7	6.6	23.3	0.13	20.2	C

Arterial Level of Service: SB Ward Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Camino del Rio N	III	35	16.7	40.0	56.7	0.13	8.3	F
Total	III		16.7	40.0	56.7	0.13	8.3	F

Arterial Level of Service: EB Camino del Rio S

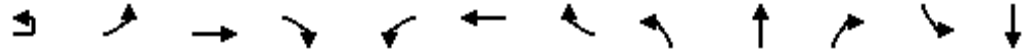
Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Texas St	III	35	16.0	65.1	81.1	0.13	5.6	F
Total	III		16.0	65.1	81.1	0.13	5.6	F

Arterial Level of Service: WB Camino del Rio S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Texas St	III	35	19.7	57.7	77.4	0.15	7.2	F
Total	III		19.7	57.7	77.4	0.15	7.2	F

HCM 6th Signalized Intersection Summary
 1: SR-163 SB Ramps/Ulrir St & Friars Rd

Existing Plus Project with Improvements
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↘	↗↗↗	↗		↗↗↗	↗↗	↘	↗	↗	↘	↗
Traffic Volume (veh/h)	1	133	1478	573	0	1010	679	258	20	637	570	0
Future Volume (veh/h)	1	133	1478	573	0	1010	679	258	20	637	570	0
Initial Q (Qb), veh		0	10	10	0	10	0	0	0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No			No				No
Adj Sat Flow, veh/h/ln		1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		136	1508	0	0	1031	581	277	0	0	582	0
Peak Hour Factor		0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %		2	2	2	0	2	2	2	2	2	2	2
Cap, veh/h		170	2212		0	1421	783	394	0		768	0
Arrive On Green		0.10	0.44	0.00	0.00	0.28	0.28	0.11	0.00	0.00	0.21	0.00
Sat Flow, veh/h		1781	5106	1585	0	5274	2790	3563	0	1585	3563	0
Grp Volume(v), veh/h		136	1508	0	0	1031	581	277	0	0	582	0
Grp Sat Flow(s),veh/h/ln		1781	1702	1585	0	1702	1395	1781	0	1585	1781	0
Q Serve(g_s), s		5.9	18.6	0.0	0.0	14.4	14.9	5.9	0.0	0.0	12.3	0.0
Cycle Q Clear(g_c), s		5.9	18.6	0.0	0.0	14.4	14.9	5.9	0.0	0.0	12.3	0.0
Prop In Lane		1.00		1.00	0.00		1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h		170	2212		0	1421	783	394	0		768	0
V/C Ratio(X)		0.80	0.68		0.00	0.73	0.74	0.70	0.00		0.76	0.00
Avail Cap(c_a), veh/h		382	2901		0	2127	1162	3148	0		2249	0
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh		37.3	19.9	0.0	0.0	29.3	27.7	36.2	0.0	0.0	30.4	0.0
Incr Delay (d2), s/veh		3.3	0.2	0.0	0.0	0.3	0.5	2.3	0.0	0.0	0.6	0.0
Initial Q Delay(d3),s/veh		0.0	0.5	0.0	0.0	1.3	0.0	0.0	0.0	0.0	5.1	0.0
%ile BackOfQ(50%),veh/ln		2.7	7.7	0.0	0.0	6.8	4.9	2.7	0.0	0.0	6.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		40.6	20.6	0.0	0.0	30.9	28.2	38.5	0.0	0.0	36.0	0.0
LnGrp LOS		D	C		A	C	C	D	A		D	A
Approach Vol, veh/h			1644	A		1612			277	A		648
Approach Delay, s/veh			22.3			29.9			38.5			35.9
Approach LOS			C			C			D			D
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		41.8		22.5	12.3	29.5		15.0				
Change Period (Y+Rc), s		7.0		6.1	* 4.7	7.0		6.1				
Max Green Setting (Gmax), s		45.0		50.0	* 17	33.0		70.0				
Max Q Clear Time (g_c+I1), s		20.6		14.3	7.9	16.9		7.9				
Green Ext Time (p_c), s		7.6		1.2	0.1	5.5		1.0				

Intersection Summary

HCM 6th Ctrl Delay	28.4
HCM 6th LOS	C

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	166
Future Volume (veh/h)	166
Initial Q (Qb), veh	10
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1870
Adj Flow Rate, veh/h	66
Peak Hour Factor	0.98
Percent Heavy Veh, %	2
Cap, veh/h	346
Arrive On Green	0.21
Sat Flow, veh/h	1578
Grp Volume(v), veh/h	66
Grp Sat Flow(s),veh/h/ln	1578
Q Serve(g_s), s	2.7
Cycle Q Clear(g_c), s	2.7
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	346
V/C Ratio(X)	0.19
Avail Cap(c_a), veh/h	996
HCM Platoon Ratio	1.00
Upstream Filter(l)	1.00
Uniform Delay (d), s/veh	27.1
Incr Delay (d2), s/veh	0.1
Initial Q Delay(d3),s/veh	7.4
%ile BackOfQ(50%),veh/ln	3.0
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	34.7
LnGrp LOS	C
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.	

HCM 6th Signalized Intersection Summary
2: SR-163 NB Ramps & Friars Rd

Existing Plus Project with Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶↷				↶↷↶↷							
Traffic Volume (veh/h)	528	2061	0	0	1412	856	0	0	1008	0	0	831
Future Volume (veh/h)	528	2061	0	0	1412	856	0	0	1008	0	0	831
Initial Q (Qb), veh	20	0	0	0	10	0						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	550	2147	0	0	1471	0						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	819	0	0	0	2614							
Arrive On Green	0.22	0.00	0.00	0.00	0.53	0.00						
Sat Flow, veh/h	3456	550		0	5443	0						
Grp Volume(v), veh/h	550	29.7		0	1471	0						
Grp Sat Flow(s),veh/h/ln	1728	C		0	1702	0						
Q Serve(g_s), s	6.4			0.0	8.2	0.0						
Cycle Q Clear(g_c), s	6.4			0.0	8.2	0.0						
Prop In Lane	1.00			0.00		0.00						
Lane Grp Cap(c), veh/h	819			0	2614							
V/C Ratio(X)	0.67			0.00	0.56							
Avail Cap(c_a), veh/h	4825			0	4991							
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	0.00						
Uniform Delay (d), s/veh	16.3			0.0	9.5	0.0						
Incr Delay (d2), s/veh	0.4			0.0	0.2	0.0						
Initial Q Delay(d3),s/veh	13.0			0.0	0.2	0.0						
%ile BackOfQ(50%),veh/ln	7			0.0	2.9	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.7			0.0	9.9	0.0						
LnGrp LOS	C			A	A							
Approach Vol, veh/h					1471	A						
Approach Delay, s/veh					9.9							
Approach LOS					A							
Timer - Assigned Phs					5	6						
Phs Duration (G+Y+Rc), s					14.4	28.6						
Change Period (Y+Rc), s					5.0	6.0						
Max Green Setting (Gmax), s					60.0	42.0						
Max Q Clear Time (g_c+I1), s					8.4	10.2						
Green Ext Time (p_c), s					1.0	12.4						

Intersection Summary

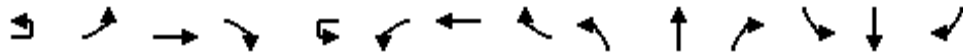
HCM 6th Ctrl Delay	15.3
HCM 6th LOS	B

Notes

Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
3: Frazee Rd & Friars Rd

Existing Plus Project with Improvements
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↑↑↑↑	↔		↔	↑↑↑↑	↔	↔↔	↑↑		↔↔	↔	↔
Traffic Volume (veh/h)	17	274	2197	547	3	98	1517	85	271	56	126	111	62	311
Future Volume (veh/h)	17	274	2197	547	3	98	1517	85	271	56	126	111	62	311
Initial Q (Qb), veh		0	0	0		0	20	0	10	0	0	0	0	10
Ped-Bike Adj(A_pbT)		1.00		0.96		1.00		0.99	1.00		0.92	1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		308	2469	426		110	1704	39	304	63	22	125	107	95
Peak Hour Factor		0.89	0.89	0.89		0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h		378	3167	750		137	2294	725	410	519	169	191	239	198
Arrive On Green		0.11	0.51	0.51		0.08	0.48	0.48	0.11	0.17	0.17	0.05	0.11	0.11
Sat Flow, veh/h		3456	6434	1525		1781	5106	1577	3456	2578	836	3563	1870	1563
Grp Volume(v), veh/h		308	2469	426		110	1704	39	304	42	43	125	107	95
Grp Sat Flow(s),veh/h/ln		1728	1609	1525		1781	1702	1577	1728	1777	1637	1781	1870	1563
Q Serve(g_s), s		9.3	32.4	20.2		6.5	27.8	1.4	9.2	2.2	2.4	3.7	5.8	6.1
Cycle Q Clear(g_c), s		9.3	32.4	20.2		6.5	27.8	1.4	9.2	2.2	2.4	3.7	5.8	6.1
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.51	1.00		1.00
Lane Grp Cap(c), veh/h		378	3167	750		137	2294	725	410	357	331	191	239	198
V/C Ratio(X)		0.82	0.78	0.57		0.81	0.74	0.05	0.74	0.12	0.13	0.66	0.45	0.48
Avail Cap(c_a), veh/h		1456	3299	782		500	2869	886	971	499	460	1001	525	439
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		51.0	25.3	21.7		53.2	30.1	18.1	48.3	37.5	37.6	54.4	46.7	48.5
Incr Delay (d2), s/veh		1.7	1.3	1.1		4.2	1.1	0.1	1.0	0.1	0.1	2.1	0.8	1.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	2.1	0.0	16.6	0.0	0.0	0.0	0.0	35.0
%ile BackOfQ(50%),veh/ln		4.4	13.5	8.2		3.3	15.4	0.6	5.9	1.0	1.0	1.8	2.9	6.2
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		52.7	26.6	22.8		57.4	33.2	18.1	66.0	37.6	37.7	56.5	47.5	84.6
LnGrp LOS		D	C	C		E	C	B	E	D	D	E	D	F
Approach Vol, veh/h			3203			1853			389		327			
Approach Delay, s/veh			28.6			34.4			59.8		61.7			
Approach LOS			C			C			E		E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	12.7	61.3	16.1	16.8	16.2	57.7	10.3	22.6						
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9						
Max Green Setting (Gmax), s	30.0	* 50	30.0	30.0	45.0	60.0	30.0	30.0						
Max Q Clear Time (g_c+I), s	19.5	34.4	11.2	8.1	11.3	29.8	5.7	4.4						
Green Ext Time (p_c), s	0.1	14.8	0.5	0.5	0.5	21.4	0.2	0.2						

Intersection Summary

HCM 6th Ctrl Delay	34.4
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 9: Fenton Pkwy & Friars Rd

Existing Plus Project with Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗		↔↔	↑↑↑	↗	↔↔	↑	↗	↔↔	↗	↗
Traffic Volume (veh/h)	110	2202	283	6	201	1290	62	259	44	340	32	13	51
Future Volume (veh/h)	110	2202	283	6	201	1290	62	259	44	340	32	13	51
Initial Q (Qb), veh	15	25	15		0	0	0	0	0	15	15	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	113	2270	227		207	1330	36	267	45	246	33	13	6
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	515	2247	916		533	2257	731	787	463	300	99	77	306
Arrive On Green	0.51	0.88	0.88		0.51	0.88	0.88	0.13	0.15	0.15	0.02	0.04	0.04
Sat Flow, veh/h	3456	5106	1585		3456	5106	1564	3456	1870	1579	3563	1870	1554
Grp Volume(v), veh/h	113	2270	227		207	1330	36	267	45	246	33	13	6
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1564	1728	1870	1579	1781	1870	1554
Q Serve(g_s), s	2.6	66.0	0.0		5.0	9.5	0.1	11.0	3.1	14.1	1.4	1.0	0.0
Cycle Q Clear(g_c), s	2.6	66.0	0.0		5.0	9.5	0.1	11.0	3.1	14.1	1.4	1.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	515	2247	916		533	2257	731	787	463	300	99	77	306
V/C Ratio(X)	0.22	1.01	0.25		0.39	0.59	0.05	0.34	0.10	0.82	0.33	0.17	0.02
Avail Cap(c_a), veh/h	880	2247	897		885	2257	723	436	621	524	105	524	839
HCM Platoon Ratio	2.00	2.00	2.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.60	0.60	0.60		0.89	0.89	0.89	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.8	9.0	4.8		47.9	5.4	2.0	49.2	44.1	26.6	72.8	69.4	49.6
Incr Delay (d2), s/veh	0.0	17.3	0.4		0.2	1.0	0.1	0.0	0.0	2.4	0.7	4.7	0.1
Initial Q Delay(d3),s/veh	7.8	40.1	2.6		0.0	0.0	0.0	0.0	0.0	99.6	247.2	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	15.4	3.7		2.8	2.1	0.1	4.3	1.3	16.1	5.2	0.6	0.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	56.6	66.4	7.7		48.0	6.4	2.1	49.2	44.2	128.7	320.8	74.1	49.7
LnGrp LOS	E	F	A		D	A	A	D	D	F	F	E	D
Approach Vol, veh/h		2610				1573			558			52	
Approach Delay, s/veh		60.8				11.8			83.8			227.8	
Approach LOS		E				B			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	42.8	72.3	23.8	11.1	42.6	72.5	7.4	27.5					
Change Period (Y+Rc), s	4.4	6.3	4.9	* 4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	9.8	66.0	12.2	* 42	9.6	66.3	4.4	49.8					
Max Q Clear Time (g_c+1), s	17.0	68.0	13.0	3.0	4.6	11.5	3.4	16.1					
Green Ext Time (p_c), s	0.1	0.0	0.0	0.2	0.1	37.2	0.0	4.6					

Intersection Summary

HCM 6th Ctrl Delay	49.2
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

Existing Plus Project with Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↔↔		↔	↑↑↑	↔↔				↔	↑	↔↔
Traffic Volume (veh/h)	473	2350	1037	3	255	1459	326	0	0	0	1001	0	581
Future Volume (veh/h)	473	2350	1037	3	255	1459	326	0	0	0	1001	0	581
Initial Q (Qb), veh	20	0	20		20	0	20				0	0	20
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	493	2448	783		266	1520	156				1043	0	577
Peak Hour Factor	0.96	0.96	0.96		0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	1007	2886	1182		355	1427	779				1113	0	1886
Arrive On Green	0.27	0.41	0.41		0.16	0.28	0.28				0.31	0.00	0.31
Sat Flow, veh/h	3456	5106	2731		1781	5106	2790				3563	0	3170
Grp Volume(v), veh/h	493	2448	783		266	1520	156				1043	0	577
Grp Sat Flow(s),veh/h/ln	1728	1702	1366		1781	1702	1395				1781	0	1585
Q Serve(g_s), s	16.5	55.7	32.3		20.0	38.0	5.8				39.0	0.0	0.0
Cycle Q Clear(g_c), s	16.5	55.7	32.3		20.0	38.0	5.8				39.0	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	1007	2886	1182		355	1427	779				1113	0	1886
V/C Ratio(X)	0.49	0.85	0.66		0.75	1.07	0.20				0.94	0.00	0.31
Avail Cap(c_a), veh/h	945	2090	1118		393	1427	779				1153	0	1890
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.78	0.78	0.78				1.00	0.00	1.00
Uniform Delay (d), s/veh	40.9	28.0	32.0		54.1	49.0	38.9				45.4	0.0	14.3
Incr Delay (d2), s/veh	0.2	3.3	2.9		4.6	40.9	0.5				13.4	0.0	0.0
Initial Q Delay(d3),s/veh	5.6	0.0	6.1		90.9	0.0	5.9				0.0	0.0	1.2
%ile BackOfQ(50%),veh/ln	8.3	16.1	11.3		20.9	21.0	4.0				19.3	0.0	12.5
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	46.7	31.3	41.0		149.6	89.9	45.3				58.9	0.0	15.5
LnGrp LOS	D	C	D		F	F	D				E	A	B
Approach Vol, veh/h		3724				1942						1620	
Approach Delay, s/veh		35.4				94.5						43.4	
Approach LOS		D				F						D	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	36.4	62.7		46.9	44.1	45.0							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	36	45.7		44.0	37.2	* 38							
Max Q Clear Time (g_c+20), s	22.0	57.7		41.0	18.5	40.0							
Green Ext Time (p_c), s	0.2	0.0		0.8	0.8	0.0							

Intersection Summary

HCM 6th Ctrl Delay	52.9
HCM 6th LOS	D

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

Existing Plus Project with Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔				↑↑↑							
Traffic Volume (veh/h)	952	2415	0	0	1074	796	0	0	1211	0	0	934
Future Volume (veh/h)	952	2415	0	0	1074	796	0	0	1211	0	0	934
Initial Q (Qb), veh	40	0	0	0	20	40						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	1002	2542	0	0	1100	859						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	1265	0	0	0	1639	1414						
Arrive On Green	0.34	0.87	0.00	0.00	0.43	0.43						
Sat Flow, veh/h	3456	0	0	0	3741	3170						
Grp Volume(v), veh/h	1002	0	0	0	1100	859						
Grp Sat Flow(s),veh/h/ln	1728	0	0	0	1870	1585						
Q Serve(g_s), s	14.8	0.0	0.0	0.0	13.0	11.6						
Cycle Q Clear(g_c), s	14.8	0.0	0.0	0.0	13.0	11.6						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	1265	0	0	0	1639	1414						
V/C Ratio(X)	0.79	0.00	0.00	0.00	0.67	0.61						
Avail Cap(c_a), veh/h	3044	0	0	0	4111	3484						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	1.00	1.00						
Uniform Delay (d), s/veh	25.2	0.0	0.0	0.0	14.5	16.3						
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	0.2	0.2						
Initial Q Delay(d3),s/veh	34.6	0.0	0.0	0.0	3.3	14.7						
%ile BackOfQ(50%),veh/ln	16.9	0.0	0.0	0.0	7.0	9.9						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.2	0.0	0.0	0.0	17.9	31.1						
LnGrp LOS	E	A	A	A	B	C						
Approach Vol, veh/h		1002			1959							
Approach Delay, s/veh		60.2			23.7							
Approach LOS		E			C							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		55.1			24.3	30.7						
Change Period (Y+Rc), s		* 7			5.5	7.0						
Max Green Setting (Gmax), s*		1.2E2			48.5	60.5						
Max Q Clear Time (g_c+I1), s		0.0			16.8	15.0						
Green Ext Time (p_c), s		0.0			2.0	8.7						

Intersection Summary

HCM 6th Ctrl Delay	36.1
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 31: Texas St & Camino del Rio S

Existing Plus Project with Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↕	↗	↗	↕	↗	↗	↕	↕	↗	↕	↗
Traffic Volume (veh/h)	236	127	323	236	46	449	81	755	104	233	1368	147
Future Volume (veh/h)	236	127	323	236	46	449	81	755	104	233	1368	147
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	198	221	293	293	0	426	88	821	109	253	1487	124
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	337	353	393	527	0	476	105	1254	166	272	1745	778
Arrive On Green	0.19	0.19	0.19	0.15	0.00	0.15	0.06	0.40	0.40	0.15	0.49	0.49
Sat Flow, veh/h	1781	1870	1585	3563	0	1585	1781	3153	419	1781	3554	1585
Grp Volume(v), veh/h	198	221	293	293	0	426	88	463	467	253	1487	124
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1585	1781	1777	1795	1781	1777	1585
Q Serve(g_s), s	19.3	20.7	32.5	14.6	0.0	28.2	9.3	40.4	40.4	26.7	69.8	8.2
Cycle Q Clear(g_c), s	19.3	20.7	32.5	14.6	0.0	28.2	9.3	40.4	40.4	26.7	69.8	8.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	337	353	393	527	0	476	105	707	714	272	1745	778
V/C Ratio(X)	0.59	0.63	0.74	0.56	0.00	0.89	0.83	0.65	0.65	0.93	0.85	0.16
Avail Cap(c_a), veh/h	374	393	427	527	0	476	234	707	714	679	1865	832
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.5	71.1	66.1	75.4	0.0	63.7	88.7	46.7	46.7	79.7	42.4	26.8
Incr Delay (d2), s/veh	2.0	2.6	6.4	2.7	0.0	20.4	6.4	1.7	1.7	6.0	4.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	10.2	13.9	6.9	0.0	22.5	4.5	18.3	18.5	12.8	31.5	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.5	73.7	72.5	78.1	0.0	84.2	95.1	48.5	48.5	85.7	46.8	27.0
LnGrp LOS	E	E	E	E	A	F	F	D	D	F	D	C
Approach Vol, veh/h		712			719			1018			1864	
Approach Delay, s/veh		72.9			81.7			52.5			50.8	
Approach LOS		E			F			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	33.5	81.0		40.9	15.7	98.8		35.2				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0				
Max Green Setting (Gmax), s	72.6	51.8		40.0	25.0	* 1E2		28.2				
Max Q Clear Time (g_c+20), s	20.7	42.4		34.5	11.3	71.8		30.2				
Green Ext Time (p_c), s	0.3	2.8		1.5	0.1	21.8		0.0				

Intersection Summary

HCM 6th Ctrl Delay	60.0
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
32: Ward Rd & Rancho Mission Rd

Existing Plus Project with Improvements
PM Peak Hour



Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations									
Traffic Volume (veh/h)	1	45	293	2	236	403	1	505	73
Future Volume (veh/h)	1	45	293	2	236	403	1	505	73
Initial Q (Qb), veh		0	0		0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		0.99				0.96
Parking Bus, Adj		1.00	1.00		1.00	1.00		1.00	1.00
Work Zone On Approach		No			No	No		No	
Adj Sat Flow, veh/h/ln		1870	1870		1870	1870		1870	1870
Adj Flow Rate, veh/h		47	166		248	424		532	55
Peak Hour Factor		0.95	0.95		0.95	0.95		0.95	0.95
Percent Heavy Veh, %		2	2		2	2		2	2
Cap, veh/h		272	242		560	969		1739	179
Arrive On Green		0.15	0.15		0.54	0.54		0.54	0.54
Sat Flow, veh/h		1781	1585		622	1889		3330	333
Grp Volume(v), veh/h		47	166		302	370		291	296
Grp Sat Flow(s),veh/h/ln		1781	1585		809	1617		1777	1793
Q Serve(g_s), s		0.7	2.9		6.6	4.0		2.6	2.7
Cycle Q Clear(g_c), s		0.7	2.9		9.3	4.0		2.6	2.7
Prop In Lane		1.00	1.00		0.82				0.19
Lane Grp Cap(c), veh/h		272	242		661	869		955	964
V/C Ratio(X)		0.17	0.69		0.46	0.43		0.30	0.31
Avail Cap(c_a), veh/h		1104	983		893	1281		1408	1420
HCM Platoon Ratio		1.00	1.00		1.00	1.00		1.00	1.00
Upstream Filter(I)		1.00	1.00		1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh		10.7	11.6		5.8	4.0		3.7	3.7
Incr Delay (d2), s/veh		0.3	3.4		0.5	0.3		0.2	0.2
Initial Q Delay(d3),s/veh		0.0	0.0		0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln		0.2	1.0		0.6	0.4		0.3	0.3
Unsig. Movement Delay, s/veh									
LnGrp Delay(d),s/veh		11.0	15.1		6.3	4.4		3.9	3.9
LnGrp LOS		B	B		A	A		A	A
Approach Vol, veh/h		213				672		587	
Approach Delay, s/veh		14.2				5.2		3.9	
Approach LOS		B				A		A	
Timer - Assigned Phs		2		4		6			
Phs Duration (G+Y+Rc), s		20.1		8.9		20.1			
Change Period (Y+Rc), s		4.5		4.5		4.5			
Max Green Setting (Gmax), s		23.0		18.0		23.0			
Max Q Clear Time (g_c+I1), s		11.3		4.9		4.7			
Green Ext Time (p_c), s		3.8		0.5		3.3			

Intersection Summary

HCM 6th Ctrl Delay	6.0
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis

Existing Plus Project with Improvements

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	127	842	663	244	328	266	664	157	11	1348	56
Future Volume (vph)	122	127	842	663	244	328	266	664	157	11	1348	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	0.88	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1762	2787	1610	3080	1424	1770	3429		3433	3539	1563
Flt Permitted	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1762	2787	1610	3080	1424	1770	3429		3433	3539	1563
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	123	128	851	670	246	331	269	671	159	11	1362	57
RTOR Reduction (vph)	0	0	44	0	0	0	0	13	0	0	0	36
Lane Group Flow (vph)	111	140	807	335	631	281	269	817	0	11	1362	21
Confl. Peds. (#/hr)						3			1			
Confl. Bikes (#/hr)									1			1
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8	1	5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	14.0	14.0	39.3	34.0	34.0	47.0	25.3	68.0		13.0	55.7	55.7
Effective Green, g (s)	14.0	14.0	39.3	34.0	34.0	47.0	25.3	68.0		13.0	55.7	55.7
Actuated g/C Ratio	0.09	0.09	0.26	0.23	0.23	0.31	0.17	0.45		0.09	0.37	0.37
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	1.0	1.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	156	164	730	364	698	446	298	1554		297	1314	580
v/s Ratio Prot	0.07	0.08	c0.19	c0.21	0.20	0.05	0.15	0.24		0.00	c0.38	
v/s Ratio Perm			0.10			0.14						0.01
v/c Ratio	0.71	0.85	1.11	0.92	0.90	0.63	0.90	0.53		0.04	1.04	0.04
Uniform Delay, d1	66.0	67.0	55.4	56.7	56.4	44.1	61.1	29.4		62.8	47.1	30.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.25	0.66	1.00
Incremental Delay, d2	12.0	31.6	65.9	27.6	14.8	2.1	28.0	1.3		0.0	33.3	0.1
Delay (s)	78.0	98.6	121.3	84.3	71.2	46.2	89.2	30.7		78.7	64.5	30.2
Level of Service	E	F	F	F	E	D	F	C		E	E	C
Approach Delay (s)		114.0			69.1			45.0			63.2	
Approach LOS		F			E			D			E	

Intersection Summary		
HCM 2000 Control Delay	72.1	HCM 2000 Level of Service E
HCM 2000 Volume to Capacity ratio	1.03	
Actuated Cycle Length (s)	150.0	Sum of lost time (s) 21.0
Intersection Capacity Utilization	101.9%	ICU Level of Service G
Analysis Period (min)	15	

c Critical Lane Group

Arterial Level of Service: EB Friars Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SR-163 SB Ramps	II	45	27.1	26.6	53.7	0.26	17.5	D
SR-163 NB Ramps	II	45	23.5	0.0	23.5	0.22	33.1	B
Frazee Rd	II	45	14.8	41.0	55.8	0.14	8.7	F
River Run Dr	II	45	119.1	25.1	144.2	1.49	37.2	A
Fenton Pkwy	II	45	23.6	13.0	36.6	0.22	21.3	D
Northside Dr	II	45	28.6	16.8	45.4	0.29	22.9	C
Stadium Way	II	45	23.0	8.7	31.7	0.21	24.0	C
I-15 SB Ramps	II	45	46.1	223.3	269.4	0.58	7.7	F
I-15 NB Ramps	II	45	23.9	0.0	23.9	0.22	33.1	B
Rancho Mission Rd	II	45	19.6	38.7	58.3	0.18	11.1	F
Santo Rd	II	45	24.1	3.7	27.8	0.22	28.7	B
Riverdale St	II	45	31.8	21.7	53.5	0.32	21.6	D
Mission Gorge Rd	II	45	11.2	34.9	46.1	0.10	8.0	F
Total	II		416.4	453.5	869.9	4.44	18.4	D

Arterial Level of Service: WB Friars Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Riverdale St	II	45	11.2	20.0	31.2	0.10	11.8	F
Santo Rd	II	45	31.8	8.8	40.6	0.32	28.5	B
Rancho Mission Rd	II	45	24.1	6.4	30.5	0.22	26.1	C
I-15 NB Ramps	II	45	19.6	26.9	46.5	0.18	13.9	E
I-15 SB Ramps	II	45	23.9	141.1	165.0	0.22	4.8	F
Stadium Way	II	45	46.1	3.5	49.6	0.58	41.9	A
Northside Dr	II	45	23.0	15.0	38.0	0.21	20.0	D
Fenton Pkwy	II	45	28.6	10.0	38.6	0.29	27.0	C
	II	45	23.6	4.0	27.6	0.22	28.3	B
Frazee Rd	II	45	119.1	43.6	162.7	1.49	32.9	B
SR-163 NB Ramps	II	45	14.8	28.6	43.4	0.14	11.2	F
Ulric St	II	45	23.5	40.9	64.4	0.22	12.1	F
Total	II		389.3	348.8	738.1	4.18	20.4	D

Arterial Level of Service: NB Rancho Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Ward Rd	III	30	22.9	11.3	34.2	0.18	19.0	C
San Diego Mission Rd	III	35	25.3	66.7	92.0	0.21	8.2	F
Friars Rd	III	35	48.3	60.1	108.4	0.40	13.4	E
Total	III		96.5	138.1	234.6	0.79	12.2	E

Arterial Level of Service: SB Rancho Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
San Diego Mission Rd	III	35	48.3	47.7	96.0	0.40	15.1	D
Rancho Mission Rd	III	35	25.3	0.0	25.3	0.21	30.0	B
Total	III		73.6	47.7	121.3	0.61	18.2	C

Arterial Level of Service: EB San Diego Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rancho Mission Rd	II	40	42.5	38.0	80.5	0.45	20.0	D
Fairmount Ave	II	40	50.6	32.4	83.0	0.56	24.4	C
Total	II		93.1	70.4	163.5	1.01	22.2	C

Arterial Level of Service: WB San Diego Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rancho Mission Rd	II	40	50.6	26.7	77.3	0.56	26.2	C
Total	II		50.6	26.7	77.3	0.56	26.2	C

Arterial Level of Service: NB Ward Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rancho Mission Rd	III	35	16.7	10.2	26.9	0.13	17.5	D
Total	III		16.7	10.2	26.9	0.13	17.5	D

Arterial Level of Service: SB Ward Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Camino del Rio N	III	35	16.7	34.1	50.8	0.13	9.2	F
Total	III		16.7	34.1	50.8	0.13	9.2	F

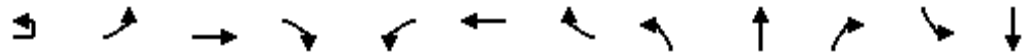
Arterial Level of Service: EB Camino del Rio S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Texas St	III	35	16.1	94.0	110.1	0.13	4.1	F
Total	III		16.1	94.0	110.1	0.13	4.1	F

Arterial Level of Service: WB Camino del Rio S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Texas St	III	35	20.1	94.5	114.6	0.16	4.9	F
Total	III		20.1	94.5	114.6	0.16	4.9	F

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 1: SR-163 SB Ramps/Ulrir St & Friars Rd PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		↘	↗↗↗	↗		↗↗↗	↗↗	↘	↗	↗	↘	↗
Traffic Volume (veh/h)	1	133	1483	573	0	1011	680	258	20	764	575	0
Future Volume (veh/h)	1	133	1483	573	0	1011	680	258	20	764	575	0
Initial Q (Qb), veh		0	10	10	0	10	0	0	0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No			No				No
Adj Sat Flow, veh/h/ln		1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		136	1513	0	0	1032	582	277	0	0	587	0
Peak Hour Factor		0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %		2	2	2	0	2	2	2	2	2	2	2
Cap, veh/h		170	2210		0	1421	782	394	0		772	0
Arrive On Green		0.10	0.44	0.00	0.00	0.28	0.28	0.11	0.00	0.00	0.21	0.00
Sat Flow, veh/h		1781	5106	1585	0	5274	2790	3563	0	1585	3563	0
Grp Volume(v), veh/h		136	1513	0	0	1032	582	277	0	0	587	0
Grp Sat Flow(s),veh/h/ln		1781	1702	1585	0	1702	1395	1781	0	1585	1781	0
Q Serve(g_s), s		5.9	18.8	0.0	0.0	14.4	15.0	6.0	0.0	0.0	12.4	0.0
Cycle Q Clear(g_c), s		5.9	18.8	0.0	0.0	14.4	15.0	6.0	0.0	0.0	12.4	0.0
Prop In Lane		1.00		1.00	0.00		1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h		170	2210		0	1421	782	394	0		772	0
V/C Ratio(X)		0.80	0.68		0.00	0.73	0.74	0.70	0.00		0.76	0.00
Avail Cap(c_a), veh/h		381	2890		0	2119	1158	3137	0		2241	0
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh		37.5	20.1	0.0	0.0	29.4	27.8	36.3	0.0	0.0	30.4	0.0
Incr Delay (d2), s/veh		3.3	0.2	0.0	0.0	0.3	0.6	2.3	0.0	0.0	0.6	0.0
Initial Q Delay(d3),s/veh		0.0	0.5	0.0	0.0	1.3	0.0	0.0	0.0	0.0	5.0	0.0
%ile BackOfQ(50%),veh/ln		2.8	7.8	0.0	0.0	6.8	5.0	2.7	0.0	0.0	6.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh		40.7	20.7	0.0	0.0	31.0	28.4	38.6	0.0	0.0	36.1	0.0
LnGrp LOS		D	C		A	C	C	D	A		D	A
Approach Vol, veh/h			1649	A		1614			277	A		654
Approach Delay, s/veh			22.4			30.0			38.6			35.9
Approach LOS			C			C			D			D
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		41.9		22.6	12.3	29.6		15.0				
Change Period (Y+Rc), s		7.0		6.1	* 4.7	7.0		6.1				
Max Green Setting (Gmax), s		45.0		50.0	* 17	33.0		70.0				
Max Q Clear Time (g_c+I1), s		20.8		14.4	7.9	17.0		8.0				
Green Ext Time (p_c), s		7.6		1.2	0.1	5.5		1.0				

Intersection Summary

HCM 6th Ctrl Delay	28.5
HCM 6th LOS	C

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 1: SR-163 SB Ramps/Ulric St & Friars Rd PM Peak Hour

Movement	SBR
Lane Configurations	
Traffic Volume (veh/h)	166
Future Volume (veh/h)	166
Initial Q (Qb), veh	10
Ped-Bike Adj(A_pbT)	1.00
Parking Bus, Adj	1.00
Work Zone On Approach	
Adj Sat Flow, veh/h/ln	1870
Adj Flow Rate, veh/h	67
Peak Hour Factor	0.98
Percent Heavy Veh, %	2
Cap, veh/h	348
Arrive On Green	0.21
Sat Flow, veh/h	1578
Grp Volume(v), veh/h	67
Grp Sat Flow(s),veh/h/ln	1578
Q Serve(g_s), s	2.8
Cycle Q Clear(g_c), s	2.8
Prop In Lane	1.00
Lane Grp Cap(c), veh/h	348
V/C Ratio(X)	0.19
Avail Cap(c_a), veh/h	993
HCM Platoon Ratio	1.00
Upstream Filter(l)	1.00
Uniform Delay (d), s/veh	27.2
Incr Delay (d2), s/veh	0.1
Initial Q Delay(d3),s/veh	7.3
%ile BackOfQ(50%),veh/ln	3.0
Unsig. Movement Delay, s/veh	
LnGrp Delay(d),s/veh	34.6
LnGrp LOS	C
Approach Vol, veh/h	
Approach Delay, s/veh	
Approach LOS	
Timer - Assigned Phs	
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.	

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 2: SR-163 NB Ramps & Friars Rd PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘				↑↑↑							
Traffic Volume (veh/h)	528	2198	0	0	1430	870	0	0	1277	0	0	831
Future Volume (veh/h)	528	2198	0	0	1430	870	0	0	1277	0	0	831
Initial Q (Qb), veh	20	0	0	0	10	0						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	550	2290	0	0	1490	0						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	678	0	0	0	2324							
Arrive On Green	0.34	0.00	0.00	0.00	0.46	0.00						
Sat Flow, veh/h	1781	550		0	5443	0						
Grp Volume(v), veh/h	550	53.6		0	1490	0						
Grp Sat Flow(s),veh/h/ln	1781	D		0	1702	0						
Q Serve(g_s), s	16.7			0.0	12.6	0.0						
Cycle Q Clear(g_c), s	16.7			0.0	12.6	0.0						
Prop In Lane	1.00			0.00		0.00						
Lane Grp Cap(c), veh/h	678			0	2324							
V/C Ratio(X)	0.81			0.00	0.64							
Avail Cap(c_a), veh/h	1877			0	3766							
HCM Platoon Ratio	1.00			1.00	1.00	1.00						
Upstream Filter(I)	1.00			0.00	1.00	0.00						
Uniform Delay (d), s/veh	19.6			0.0	13.9	0.0						
Incr Delay (d2), s/veh	0.9			0.0	0.3	0.0						
Initial Q Delay(d3),s/veh	33.2			0.0	0.4	0.0						
%ile BackOfQ(50%),veh/ln	5.3			0.0	4.8	0.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.6			0.0	14.6	0.0						
LnGrp LOS	D			A	B							
Approach Vol, veh/h					1490	A						
Approach Delay, s/veh					14.6							
Approach LOS					B							
Timer - Assigned Phs					5	6						
Phs Duration (G+Y+Rc), s					24.5	32.4						
Change Period (Y+Rc), s					5.0	6.0						
Max Green Setting (Gmax), s					60.0	42.0						
Max Q Clear Time (g_c+I1), s					18.7	14.6						
Green Ext Time (p_c), s					0.8	11.9						

Intersection Summary

HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C

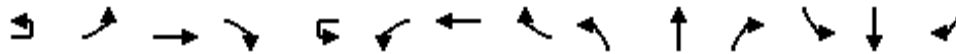
Notes

Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements

3: Frazee Rd & Friars Rd

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↑↑↑↑	↔		↔	↑↑↑↑	↔	↔↔	↑↑		↔↔	↔	↔
Traffic Volume (veh/h)	17	274	2603	547	3	99	1549	85	271	56	131	112	62	311
Future Volume (veh/h)	17	274	2603	547	3	99	1549	85	271	56	131	112	62	311
Initial Q (Qb), veh		0	0	0		0	20	0	10	0	0	0	0	10
Ped-Bike Adj(A_pbT)		1.00		0.96		1.00		1.00	1.00		0.92	1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		308	2925	455		111	1740	39	304	63	22	126	107	95
Peak Hour Factor		0.89	0.89	0.89		0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h		372	2657	719		136	2280	696	409	611	200	185	270	197
Arrive On Green		0.11	0.52	0.52		0.08	0.48	0.48	0.11	0.16	0.16	0.05	0.11	0.11
Sat Flow, veh/h		3456	6434	1525		1781	5106	1577	3456	2578	835	3563	1870	1563
Grp Volume(v), veh/h		308	2925	455		111	1740	39	304	42	43	126	107	95
Grp Sat Flow(s),veh/h/ln		1728	1609	1525		1781	1702	1577	1728	1777	1636	1781	1870	1563
Q Serve(g_s), s		9.4	43.6	22.2		6.6	28.8	1.4	9.3	2.2	2.4	3.7	5.8	6.2
Cycle Q Clear(g_c), s		9.4	43.6	22.2		6.6	28.8	1.4	9.3	2.2	2.4	3.7	5.8	6.2
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.51	1.00		1.00
Lane Grp Cap(c), veh/h		372	2657	719		136	2280	696	409	419	392	185	270	197
V/C Ratio(X)		0.83	1.10	0.63		0.81	0.76	0.06	0.74	0.10	0.11	0.68	0.40	0.48
Avail Cap(c_a), veh/h		1442	3316	786		496	2841	877	961	494	455	991	520	435
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		56.1	45.9	26.6		58.3	31.5	21.4	48.7	37.2	37.3	59.8	49.0	48.9
Incr Delay (d2), s/veh		1.8	50.9	1.7		4.4	1.3	0.1	1.0	0.0	0.0	2.3	0.6	1.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	2.3	0.0	16.8	0.0	0.0	0.0	0.0	35.7
%ile BackOfQ(50%),veh/ln		4.9	34.2	10.6		3.6	16.4	0.7	5.9	1.0	1.0	2.0	3.1	6.2
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		57.9	96.8	28.3		62.8	35.1	21.4	66.5	37.3	37.4	62.1	49.6	85.8
LnGrp LOS		E	F	C		E	D	C	E	D	D	E	D	F
Approach Vol, veh/h			3688			1890			389		328			
Approach Delay, s/veh			85.1			36.5			60.1		64.9			
Approach LOS			F			D			E		E			
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	12.8	62.1	16.2	16.8	16.3	58.6	10.3	22.7						
Change Period (Y+Rc), s	4.4	* 6.5	4.4	4.9	4.4	6.5	4.4	4.9						
Max Green Setting (Gmax), s	30.0	* 50	30.0	30.0	45.0	60.0	30.0	30.0						
Max Q Clear Time (g_c+1), s	10.6	45.6	11.3	8.2	11.4	30.8	5.7	4.4						
Green Ext Time (p_c), s	0.1	4.4	0.5	0.5	0.5	21.2	0.2	0.2						

Intersection Summary

HCM 6th Ctrl Delay	67.9
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 4: Mission Center Rd & Friars Rd WB PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↶		↶	↷			↷	↶
Traffic Volume (veh/h)	0	0	0	205	3	240	3	187	728	0	0	1004	274
Future Volume (veh/h)	0	0	0	205	3	240	3	187	728	0	0	1004	274
Initial Q (Qb), veh				0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00		1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No			No
Adj Sat Flow, veh/h/ln				1870	1870	1870		1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				216	0	62		195	758	0	0	1046	228
Peak Hour Factor				0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2		2	2	0	0	2	2
Cap, veh/h				299	0	133		258	2887	0	0	2477	1068
Arrive On Green				0.17	0.00	0.17		0.15	1.00	0.00	0.00	0.70	0.70
Sat Flow, veh/h				3563	0	1585		3456	3647	0	0	3647	1532
Grp Volume(v), veh/h				216	0	62		195	758	0	0	1046	228
Grp Sat Flow(s),veh/h/ln				1781	0	1585		1728	1777	0	0	1777	1532
Q Serve(g_s), s				6.2	0.0	3.8		5.8	0.0	0.0	0.0	13.7	5.7
Cycle Q Clear(g_c), s				6.2	0.0	3.8		5.8	0.0	0.0	0.0	13.7	5.7
Prop In Lane				1.00		1.00		1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				299	0	133		258	2887	0	0	2477	1068
V/C Ratio(X)				0.72	0.00	0.47		0.76	0.26	0.00	0.00	0.42	0.21
Avail Cap(c_a), veh/h				1013	0	451		579	2887	0	0	2477	1068
HCM Platoon Ratio				2.00	2.00	2.00		2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00		0.78	0.78	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				43.7	0.0	42.7		45.0	0.0	0.0	0.0	7.0	5.8
Incr Delay (d2), s/veh				3.3	0.0	2.5		1.3	0.2	0.0	0.0	0.5	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.6	0.0	1.5		2.4	0.1	0.0	0.0	4.4	1.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh				47.0	0.0	45.3		46.3	0.2	0.0	0.0	7.6	6.3
LnGrp LOS				D	A	D		D	A	A	A	A	A
Approach Vol, veh/h						278				953			1274
Approach Delay, s/veh						46.6				9.6			7.3
Approach LOS						D				A			A
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		94.0			12.5	81.6		14.0					
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9					
Max Green Setting (Gmax), s		* 67			18.1	43.6		30.7					
Max Q Clear Time (g_c+I1), s		2.0			7.8	15.7		8.2					
Green Ext Time (p_c), s		4.8			0.2	15.4		0.9					

Intersection Summary

HCM 6th Ctrl Delay	12.6
HCM 6th LOS	B

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements

5: Mission Center Rd & Friars Rd EB

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	312	5	250	0	0	0	0	596	396	462	739	0
Future Volume (veh/h)	312	5	250	0	0	0	0	596	396	462	739	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	332	0	83				0	627	337	486	778	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	431	0	192				0	755	406	1339	2772	0
Arrive On Green	0.12	0.00	0.12				0.00	0.34	0.34	0.77	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2291	1181	3456	3647	0
Grp Volume(v), veh/h	332	0	83				0	507	457	486	778	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1602	1728	1777	0
Q Serve(g_s), s	9.8	0.0	5.2				0.0	28.3	28.3	4.8	0.0	0.0
Cycle Q Clear(g_c), s	9.8	0.0	5.2				0.0	28.3	28.3	4.8	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.74	1.00		0.00
Lane Grp Cap(c), veh/h	431	0	192				0	610	550	1339	2772	0
V/C Ratio(X)	0.77	0.00	0.43				0.00	0.83	0.83	0.36	0.28	0.00
Avail Cap(c_a), veh/h	976	0	434				0	610	550	1339	2772	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.83	0.83	0.00
Uniform Delay (d), s/veh	46.0	0.0	44.0				0.0	32.6	32.6	8.0	0.0	0.0
Incr Delay (d2), s/veh	2.9	0.0	1.5				0.0	12.4	13.6	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	2.1				0.0	13.7	12.5	1.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.0	0.0	45.6				0.0	45.0	46.2	8.0	0.1	0.0
LnGrp LOS	D	A	D				A	D	D	A	A	A
Approach Vol, veh/h		415						964			1264	
Approach Delay, s/veh		48.3						45.5			3.1	
Approach LOS		D						D			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	47.6	42.4	18.0	90.0								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	26.7	* 37	29.6	67.7								
Max Q Clear Time (g_c+I), s	10.8	30.3	11.8	2.0								
Green Ext Time (p_c), s	0.9	4.0	1.3	7.5								

Intersection Summary

HCM 6th Ctrl Delay	25.7
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements 6: Qualcomm Way & Friars Rd WB

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷		↶	↷			↶	↷
Traffic Volume (veh/h)	0	0	0	458	8	68	427	68	0	0	160	8
Future Volume (veh/h)	0	0	0	458	8	68	427	68	0	0	160	8
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				531	0	0	445	71	0	0	167	4
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				628	330	0	606	1307	0	0	1053	25
Arrive On Green				0.29	0.00	0.00	0.57	1.00	0.00	0.00	0.30	0.30
Sat Flow, veh/h				3563	1870	0	1781	1870	0	0	3638	85
Grp Volume(v), veh/h				531	0	0	445	71	0	0	83	88
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1781	1870	0	0	1777	1852
Q Serve(g_s), s				11.2	0.0	0.0	14.8	0.0	0.0	0.0	2.8	2.8
Cycle Q Clear(g_c), s				11.2	0.0	0.0	14.8	0.0	0.0	0.0	2.8	2.8
Prop In Lane				1.00		0.00	1.00		0.00	0.00		0.05
Lane Grp Cap(c), veh/h				628	330	0	606	1307	0	0	528	550
V/C Ratio(X)				0.85	0.00	0.00	0.73	0.05	0.00	0.00	0.16	0.16
Avail Cap(c_a), veh/h				1251	657	0	606	1307	0	0	528	550
HCM Platoon Ratio				1.67	1.67	1.67	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.98	0.98	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				27.2	0.0	0.0	14.6	0.0	0.0	0.0	20.7	20.7
Incr Delay (d2), s/veh				1.2	0.0	0.0	4.7	0.1	0.0	0.0	0.1	0.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.0	0.0	0.0	4.8	0.0	0.0	0.0	1.1	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				28.4	0.0	0.0	19.2	0.1	0.0	0.0	20.9	20.9
LnGrp LOS				C	A	A	B	A	A	A	C	C
Approach Vol, veh/h					531			516			171	
Approach Delay, s/veh					28.4			16.6			20.9	
Approach LOS					C			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		61.0			32.3	28.7		19.0				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+11), s		2.0			16.8	4.8		13.2				
Green Ext Time (p_c), s		0.4			0.7	0.6		0.9				

Intersection Summary

HCM 6th Ctrl Delay	22.4
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 7: Qualcomm Way & Friars Rd EB PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↕↕	↗	↘	↕↕	
Traffic Volume (veh/h)	56	5	332	0	0	0	0	435	327	85	537	0
Future Volume (veh/h)	56	5	332	0	0	0	0	435	327	85	537	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No					No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	62	6	205				0	483	169	94	597	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	255	25	248				0	2120	945	119	2553	0
Arrive On Green	0.16	0.16	0.16				0.00	0.60	0.60	0.13	1.00	0.00
Sat Flow, veh/h	1631	158	1585				0	3647	1584	1781	3647	0
Grp Volume(v), veh/h	68	0	205				0	483	169	94	597	0
Grp Sat Flow(s),veh/h/ln	1789	0	1585				0	1777	1584	1781	1777	0
Q Serve(g_s), s	2.7	0.0	10.0				0.0	5.1	3.9	4.1	0.0	0.0
Cycle Q Clear(g_c), s	2.7	0.0	10.0				0.0	5.1	3.9	4.1	0.0	0.0
Prop In Lane	0.91		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	280	0	248				0	2120	945	119	2553	0
V/C Ratio(X)	0.24	0.00	0.83				0.00	0.23	0.18	0.79	0.23	0.00
Avail Cap(c_a), veh/h	762	0	676				0	2120	945	225	2553	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.92	0.92	0.78	0.78	0.00
Uniform Delay (d), s/veh	29.6	0.0	32.7				0.0	7.5	7.3	34.1	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	2.7				0.0	0.2	0.4	3.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	3.8				0.0	1.7	1.2	1.7	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.8	0.0	35.4				0.0	7.8	7.7	37.5	0.2	0.0
LnGrp LOS	C	A	D				A	A	A	D	A	A
Approach Vol, veh/h		273						652			691	
Approach Delay, s/veh		34.0						7.7			5.2	
Approach LOS		C						A			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	9.8	52.8	17.4	62.6								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.0	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	10.0	7.1	12.0	2.0								
Green Ext Time (p_c), s	0.0	3.6	0.5	2.7								

Intersection Summary

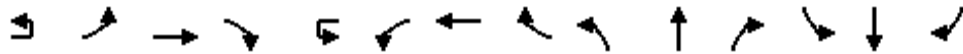
HCM 6th Ctrl Delay	11.1
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 8: River Run Dr & Friars Rd

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↖ ↗ ↘ ↙		↖		↖ ↗ ↘ ↙				↖ ↗	↖ ↗		↖ ↗		
Traffic Volume (veh/h)	10	9	2731	125	1	63	1572	19	59	8	122	183	12	73	
Future Volume (veh/h)	10	9	2731	125	1	63	1572	19	59	8	122	183	12	73	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	1.00		0.97	0.97		0.97	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		9	2815	103		65	1621	19	61	8	36	189	12	65	
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2	
Cap, veh/h		15	2791	864		159	3328	39	343	42	377	246	13	70	
Arrive On Green		0.01	0.55	0.55		0.18	1.00	1.00	0.25	0.25	0.25	0.25	0.25	0.25	
Sat Flow, veh/h		1781	5106	1581		1781	5201	61	1206	172	1537	832	53	286	
Grp Volume(v), veh/h		9	2815	103		65	1061	579	69	0	36	266	0	0	
Grp Sat Flow(s),veh/h/ln		1781	1702	1581		1781	1702	1858	1378	0	1537	1170	0	0	
Q Serve(g_s), s		0.7	79.8	4.6		4.7	0.0	0.0	0.0	0.0	2.6	27.4	0.0	0.0	
Cycle Q Clear(g_c), s		0.7	79.8	4.6		4.7	0.0	0.0	5.7	0.0	2.6	33.1	0.0	0.0	
Prop In Lane		1.00		1.00		1.00		0.03	0.88		1.00	0.71		0.24	
Lane Grp Cap(c), veh/h		15	2791	864		159	2178	1189	385	0	377	330	0	0	
V/C Ratio(X)		0.60	1.01	0.12		0.41	0.49	0.49	0.18	0.00	0.10	0.81	0.00	0.00	
Avail Cap(c_a), veh/h		71	2791	864		159	2178	1189	425	0	422	370	0	0	
HCM Platoon Ratio		1.00	1.00	1.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		0.87	0.87	0.87	1.00	0.00	1.00	1.00	0.00	0.00	
Uniform Delay (d), s/veh		72.1	33.1	16.1		56.5	0.0	0.0	43.7	0.0	42.5	56.8	0.0	0.0	
Incr Delay (d2), s/veh		13.7	19.2	0.3		0.5	0.7	1.2	0.2	0.0	0.1	11.8	0.0	0.0	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		0.4	35.3	1.7		2.0	0.2	0.4	2.0	0.0	1.0	10.7	0.0	0.0	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		85.8	52.3	16.3		57.1	0.7	1.2	43.8	0.0	42.6	68.6	0.0	0.0	
LnGrp LOS		F	F	B		E	A	A	D	A	D	E	A	A	
Approach Vol, veh/h		2927				1705				105			266		
Approach Delay, s/veh		51.1				3.0				43.4			68.6		
Approach LOS		D				A				D			E		
Timer - Assigned Phs	1	2	4		5	6	8								
Phs Duration (G+Y+Rc), s	19.2	86.0	40.8		5.6	99.6	40.8								
Change Period (Y+Rc), s	6.2	* 6.2	4.9		4.4	6.2	4.9								
Max Green Setting (Gmax), s	10.6	* 80	40.1		5.8	84.6	40.1								
Max Q Clear Time (g_c+10), s	10.7	81.8	35.1		2.7	2.0	7.7								
Green Ext Time (p_c), s	0.0	0.0	0.8		0.0	62.9	0.4								

Intersection Summary

HCM 6th Ctrl Delay	35.5
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements

9: Fenton Pkwy & Friars Rd

PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗		↔↔	↑↑↑	↗	↔↔	↑	↗	↔↔	↗	↗
Traffic Volume (veh/h)	110	2621	294	6	201	1330	62	259	44	340	32	14	51
Future Volume (veh/h)	110	2621	294	6	201	1330	62	259	44	340	32	14	51
Initial Q (Qb), veh	15	25	15		0	0	0	0	0	15	15	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	113	2702	245		207	1371	36	267	45	246	33	14	6
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	537	2210	907		538	2203	715	790	466	302	101	79	316
Arrive On Green	0.52	0.87	0.87		0.51	0.86	0.86	0.13	0.15	0.15	0.02	0.04	0.04
Sat Flow, veh/h	3456	5106	1585		3456	5106	1564	3456	1870	1579	3563	1870	1555
Grp Volume(v), veh/h	113	2702	245		207	1371	36	267	45	246	33	14	6
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1564	1728	1870	1579	1781	1870	1555
Q Serve(g_s), s	2.5	63.2	0.0		4.8	11.6	0.2	10.7	3.1	13.8	1.3	1.1	0.0
Cycle Q Clear(g_c), s	2.5	63.2	0.0		4.8	11.6	0.2	10.7	3.1	13.8	1.3	1.1	0.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	537	2210	907		538	2203	715	790	466	302	101	79	316
V/C Ratio(X)	0.21	1.22	0.27		0.38	0.62	0.05	0.34	0.10	0.81	0.33	0.18	0.02
Avail Cap(c_a), veh/h	897	2210	887		890	2203	707	439	630	532	107	538	859
HCM Platoon Ratio	2.00	2.00	2.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.35	0.35	0.35		0.88	0.88	0.88	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.4	9.8	5.1		46.3	6.5	2.4	47.8	42.8	25.5	70.8	67.5	47.6
Incr Delay (d2), s/veh	0.0	101.6	0.3		0.1	1.2	0.1	0.0	0.0	2.3	0.7	4.8	0.1
Initial Q Delay(d3),s/veh	7.1	40.7	2.7		0.0	0.0	0.0	0.0	0.0	95.6	238.6	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	32.9	3.8		2.7	2.5	0.1	4.1	1.3	15.6	5.1	0.6	0.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	53.5	152.2	8.0		46.5	7.7	2.5	47.9	42.9	123.4	310.1	72.3	47.7
LnGrp LOS	D	F	A		D	A	A	D	D	F	F	E	D
Approach Vol, veh/h		3060				1614			558			53	
Approach Delay, s/veh		137.0				12.5			80.7			217.6	
Approach LOS		F				B			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	42.0	69.5	23.4	11.1	42.3	69.2	7.4	27.2					
Change Period (Y+Rc), s	4.4	6.3	4.9	* 4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	9.2	63.2	11.6	* 42	9.5	63.0	4.4	49.2					
Max Q Clear Time (g_c+10), s	10.8	65.2	12.7	3.1	4.5	13.6	3.3	15.8					
Green Ext Time (p_c), s	0.1	0.0	0.0	0.2	0.1	35.6	0.0	4.6					

Intersection Summary

HCM 6th Ctrl Delay	93.8
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements

10: Northside Dr & Friars Rd

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↑↑↑	↔	↔↔	↑↑↑	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	4	126	2673	206	448	1342	182	167	28	666	90	19	79
Future Volume (veh/h)	4	126	2673	206	448	1342	182	167	28	666	90	19	79
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		135	2874	222	482	1443	135	180	30	632	97	20	1
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		222	2197	671	518	2571	838	930	474	635	109	29	25
Arrive On Green		0.13	0.86	0.86	0.30	1.00	1.00	0.27	0.25	0.25	0.03	0.02	0.02
Sat Flow, veh/h		3456	5106	1560	3456	5106	1565	3456	1870	1570	3456	1870	1585
Grp Volume(v), veh/h		135	2874	222	482	1443	135	180	30	632	97	20	1
Grp Sat Flow(s),veh/h/ln		1728	1702	1560	1728	1702	1565	1728	1870	1570	1728	1870	1585
Q Serve(g_s), s		5.4	62.8	1.6	19.8	0.0	0.0	5.9	1.8	37.0	4.1	1.6	0.1
Cycle Q Clear(g_c), s		5.4	62.8	1.6	19.8	0.0	0.0	5.9	1.8	37.0	4.1	1.6	0.1
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		222	2197	671	518	2571	838	930	474	635	109	29	25
V/C Ratio(X)		0.61	1.31	0.33	0.93	0.56	0.16	0.19	0.06	0.99	0.89	0.68	0.04
Avail Cap(c_a), veh/h		260	2197	671	530	2571	838	930	474	635	109	366	310
HCM Platoon Ratio		2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.26	0.26	0.26	0.87	0.87	0.87	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		61.9	10.2	1.0	50.4	0.0	0.0	41.1	41.4	29.0	70.4	71.5	70.8
Incr Delay (d2), s/veh		0.4	139.4	0.3	20.5	0.8	0.4	0.0	0.2	34.4	52.3	82.9	3.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.3	32.3	1.2	8.6	0.2	0.1	2.6	0.9	26.1	2.6	1.4	0.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		62.2	149.6	1.3	70.9	0.8	0.4	41.2	41.5	63.4	122.7	154.4	73.8
LnGrp LOS		E	F	A	E	A	A	D	D	E	F	F	E
Approach Vol, veh/h			3231		2060			842		118			
Approach Delay, s/veh			135.8		17.2			57.9		127.7			
Approach LOS			F		B			E		F			
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	26.3	68.8	43.7	7.2	15.4	79.7	9.0	41.9					
Change Period (Y+Rc), s	4.4	6.0	4.4	4.9	6.0	* 6.2	4.4	4.9					
Max Green Setting (Gmax), s	22.4	62.3	13.0	28.6	11.0	* 74	4.6	37.0					
Max Q Clear Time (g_c+D), s	21.8	64.8	7.9	3.6	7.4	2.0	6.1	39.0					
Green Ext Time (p_c), s	0.1	0.0	0.1	0.2	0.1	42.4	0.0	0.0					

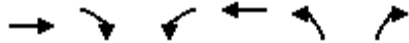
Intersection Summary

HCM 6th Ctrl Delay	86.0
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 11: Stadium Way (Street A) & Friars Rd PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖↗	↑↑↑	↖↗	↗↖
Traffic Volume (veh/h)	2823	595	1097	1698	289	614
Future Volume (veh/h)	2823	595	1097	1698	289	614
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2972	463	1155	1787	304	646
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	3322	1008	497	4232	355	688
Arrive On Green	1.00	1.00	0.14	0.83	0.10	0.10
Sat Flow, veh/h	5274	1549	3456	5274	3456	2790
Grp Volume(v), veh/h	2972	463	1155	1787	304	646
Grp Sat Flow(s),veh/h/ln	1702	1549	1728	1702	1728	1395
Q Serve(g_s), s	0.0	0.0	21.0	13.5	12.6	15.0
Cycle Q Clear(g_c), s	0.0	0.0	21.0	13.5	12.6	15.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3322	1008	497	4232	355	688
V/C Ratio(X)	0.89	0.46	2.32	0.42	0.86	0.94
Avail Cap(c_a), veh/h	3322	1008	497	4232	355	688
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	62.5	3.3	64.4	53.9
Incr Delay (d2), s/veh	0.4	0.1	602.0	0.3	18.2	20.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	50.6	3.2	6.5	13.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.4	0.1	664.5	3.6	82.7	74.7
LnGrp LOS	A	A	F	A	F	E
Approach Vol, veh/h	3435			2942	950	
Approach Delay, s/veh	0.4			263.0	77.3	
Approach LOS	A			F	E	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	36.0	100.0		126.0	20.0	
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	
Max Green Setting (Gmax), s	21.0	95.0		121.0	15.0	
Max Q Clear Time (g_c+Y), s	23.0	2.0		15.5	17.0	
Green Ext Time (p_c), s	0.0	73.7		22.4	0.0	

Intersection Summary

HCM 6th Ctrl Delay	115.8
HCM 6th LOS	F

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 12: Mission Village Dr & Friars Rd WB PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↶	↶↷	↶↷			↶↷	↶
Traffic Volume (veh/h)	0	0	0	683	0	297	417	661	0	0	1341	475
Future Volume (veh/h)	0	0	0	683	0	297	417	661	0	0	1341	475
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				711	0	180	434	689	0	0	1397	394
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				763	0	338	588	2533	0	0	1751	769
Arrive On Green				0.43	0.00	0.43	0.34	1.00	0.00	0.00	0.49	0.49
Sat Flow, veh/h				3563	0	1578	3456	3647	0	0	3647	1561
Grp Volume(v), veh/h				711	0	180	434	689	0	0	1397	394
Grp Sat Flow(s),veh/h/ln				1781	0	1578	1728	1777	0	0	1777	1561
Q Serve(g_s), s				26.6	0.0	11.8	15.5	0.0	0.0	0.0	46.0	24.0
Cycle Q Clear(g_c), s				26.6	0.0	11.8	15.5	0.0	0.0	0.0	46.0	24.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				763	0	338	588	2533	0	0	1751	769
V/C Ratio(X)				0.93	0.00	0.53	0.74	0.27	0.00	0.00	0.80	0.51
Avail Cap(c_a), veh/h				893	0	396	588	2533	0	0	1751	769
HCM Platoon Ratio				2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.94	0.94	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				39.0	0.0	34.8	43.4	0.0	0.0	0.0	29.7	24.1
Incr Delay (d2), s/veh				13.8	0.0	0.5	4.1	0.2	0.0	0.0	3.9	2.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				10.4	0.0	3.9	5.8	0.1	0.0	0.0	19.5	9.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				52.9	0.0	35.3	47.5	0.2	0.0	0.0	33.6	26.5
LnGrp LOS				D	A	D	D	A	A	A	C	C
Approach Vol, veh/h					891			1123			1791	
Approach Delay, s/veh					49.3			18.5			32.0	
Approach LOS					D			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		105.1			29.1	76.0		34.9				
Change Period (Y+Rc), s		5.3			5.3	7.0		4.9				
Max Green Setting (Gmax), s		94.7			18.7	69.0		35.1				
Max Q Clear Time (g_c+1), s		2.0			17.5	48.0		28.6				
Green Ext Time (p_c), s		2.9			0.1	14.0		1.2				

Intersection Summary

HCM 6th Ctrl Delay	32.1
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 13: Mission Village Dr/Street D & Friars Rd EB PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↖	↗	↘	↖	
Traffic Volume (veh/h)	289	1	593	0	0	0	0	806	1086	422	1601	0
Future Volume (veh/h)	289	1	593	0	0	0	0	806	1086	422	1601	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	304	1	624				0	848	1143	444	1685	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	445	1	690				0	2454	1335	494	2373	0
Arrive On Green	0.25	0.25	0.25				0.00	0.80	0.80	0.29	1.00	0.00
Sat Flow, veh/h	1776	6	2750				0	5274	2778	3456	3647	0
Grp Volume(v), veh/h	305	0	624				0	848	1143	444	1685	0
Grp Sat Flow(s),veh/h/ln	1782	0	1375				0	1702	1389	1728	1777	0
Q Serve(g_s), s	21.7	0.0	30.8				0.0	6.3	36.3	17.3	0.0	0.0
Cycle Q Clear(g_c), s	21.7	0.0	30.8				0.0	6.3	36.3	17.3	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	447	0	690				0	2454	1335	494	2373	0
V/C Ratio(X)	0.68	0.00	0.90				0.00	0.35	0.86	0.90	0.71	0.00
Avail Cap(c_a), veh/h	494	0	762				0	2454	1335	587	2373	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.67	1.67	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.27	0.27	0.50	0.50	0.00
Uniform Delay (d), s/veh	47.4	0.0	50.8				0.0	7.8	10.8	49.0	0.0	0.0
Incr Delay (d2), s/veh	3.4	0.0	13.5				0.0	0.1	2.1	8.5	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	11.6				0.0	2.0	5.6	7.0	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.8	0.0	64.3				0.0	7.9	12.9	57.5	0.9	0.0
LnGrp LOS	D	A	E				A	A	B	E	A	A
Approach Vol, veh/h		929						1991			2129	
Approach Delay, s/veh		59.9						10.7			12.7	
Approach LOS		E						B			B	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	26.2	73.5	40.3	99.7								
Change Period (Y+Rc), s	6.2	* 6.2	5.2	6.2								
Max Green Setting (Gmax), s	23.8	* 61	38.8	89.8								
Max Q Clear Time (g_c+1/3), s	19.3	38.3	32.8	2.0								
Green Ext Time (p_c), s	0.7	12.7	2.3	24.2								

Intersection Summary

HCM 6th Ctrl Delay	20.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 14: Street D & Street 4

PM Peak Hour































Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	126	27	4	491	46	212	8	1562	189	910	1151	133
Future Volume (veh/h)	126	27	4	491	46	212	8	1562	189	910	1151	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.94	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	133	28	1	517	48	223	8	1644	188	958	1212	107
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	115	187	7	64	142	1166	14	1717	196	1198	2521	1092
Arrive On Green	0.06	0.10	0.10	0.01	0.03	0.03	0.01	0.37	0.37	0.69	1.00	1.00
Sat Flow, veh/h	1781	1791	64	1781	1870	2625	1781	4637	529	3456	3554	1540
Grp Volume(v), veh/h	133	0	29	517	48	223	8	1206	626	958	1212	107
Grp Sat Flow(s), veh/h/ln	1781	0	1855	1781	1870	1313	1781	1702	1761	1728	1777	1540
Q Serve(g_s), s	9.0	0.0	2.0	5.0	3.5	7.5	0.6	48.4	48.6	26.7	0.0	0.0
Cycle Q Clear(g_c), s	9.0	0.0	2.0	5.0	3.5	7.5	0.6	48.4	48.6	26.7	0.0	0.0
Prop In Lane	1.00		0.03	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	115	0	194	64	142	1166	14	1261	652	1198	2521	1092
V/C Ratio(X)	1.16	0.00	0.15	8.13	0.34	0.19	0.59	0.96	0.96	0.80	0.48	0.10
Avail Cap(c_a), veh/h	115	0	464	64	414	1548	89	1264	654	1198	2521	1092
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.56	0.56	0.56
Uniform Delay (d), s/veh	65.5	0.0	57.0	69.2	64.8	26.9	69.2	43.0	43.1	18.1	0.0	0.0
Incr Delay (d2), s/veh	134.0	0.0	0.4	3238.9	1.4	0.1	34.4	16.0	25.6	2.2	0.1	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%), veh/ln	8.4	0.0	1.0	59.6	1.8	2.6	0.4	23.0	25.6	7.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	199.5	0.0	57.4	3308.1	66.2	27.0	103.6	59.0	68.6	20.4	0.1	0.0
LnGrp LOS	F	A	E	F	E	C	F	E	E	C	A	A
Approach Vol, veh/h		162			788			1840			2277	
Approach Delay, s/veh		174.0			2182.1			62.5			8.6	
Approach LOS		F			F			E			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	53.5	56.8	10.0	19.6	6.1	104.3	14.0	15.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	28.0	52.0	5.0	35.0	7.0	73.0	9.0	31.0				
Max Q Clear Time (g_c+20), s	20.7	50.6	7.0	4.0	2.6	2.0	11.0	9.5				
Green Ext Time (p_c), s	0.0	1.2	0.0	0.1	0.0	13.9	0.0	1.2				

Intersection Summary

HCM 6th Ctrl Delay		371.5										
HCM 6th LOS			F									

HCM Signalized Intersection Capacity Analysis Existing Plus Project Plus Event With Improvements
 15: Street F & Street 4 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 			 	 		 	 		 	 	
Traffic Volume (vph)	1040	21	4	5	8	21	8	222	4	82	356	713
Future Volume (vph)	1040	21	4	5	8	21	8	222	4	82	356	713
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	2.1	4.5
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.88
Frbp, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.89		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1807		1770	1622		1770	1856		1770	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	1807		1770	1622		1770	1856		1770	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1130	23	4	5	9	23	9	241	4	89	387	775
RTOR Reduction (vph)	0	2	0	0	20	0	0	1	0	0	0	0
Lane Group Flow (vph)	1130	25	0	5	12	0	9	244	0	89	387	775
Confl. Peds. (#/hr)			10			10			10			
Confl. Bikes (#/hr)			3			3			3			3
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	7	4		3	8		5	2		1	6	9
Permitted Phases												
Actuated Green, G (s)	69.6	84.1		1.0	15.5		1.0	26.6		10.3	35.9	82.4
Effective Green, g (s)	69.6	84.1		1.0	15.5		1.0	26.6		10.3	35.9	82.4
Actuated g/C Ratio	0.50	0.60		0.01	0.11		0.01	0.19		0.07	0.26	0.59
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)	1706	1085		12	179		12	352		130	477	1640
v/s Ratio Prot	c0.33	0.01		0.00	c0.01		0.01	0.13		c0.05	c0.21	c0.28
v/s Ratio Perm												
v/c Ratio	0.66	0.02		0.42	0.06		0.75	0.69		0.68	0.81	0.47
Uniform Delay, d1	26.4	11.3		69.2	55.8		69.4	52.9		63.3	48.9	16.4
Progression Factor	0.72	0.32		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.1	0.0		21.8	0.2		128.3	5.8		13.9	9.6	0.2
Delay (s)	20.2	3.7		91.0	55.9		197.6	58.7		77.2	58.5	16.6
Level of Service	C	A		F	E		F	E		E	E	B
Approach Delay (s)		19.8			60.6			63.6			33.9	
Approach LOS		B			E			E			C	
Intersection Summary												
HCM 2000 Control Delay			31.0									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			140.0									Sum of lost time (s) 20.1
Intersection Capacity Utilization			70.1%									ICU Level of Service C
Analysis Period (min)			15									

c Critical Lane Group

Intersection					
Intersection Delay, s/veh 10.6					
Intersection LOS B					
Approach	EB		WB		NB
Entry Lanes	2		2		1
Conflicting Circle Lanes	2		2		2
Adj Approach Flow, veh/h	1395		1048		301
Demand Flow Rate, veh/h	1423		1069		307
Vehicles Circulating, veh/h	52		259		1323
Vehicles Exiting, veh/h	1276		1371		152
Ped Vol Crossing Leg, #/h	0		0		0
Ped Cap Adj	1.000		1.000		1.000
Approach Delay, s/veh	8.7		8.9		25.8
Approach LOS	A		A		D
Lane	Left	Right	Left	Right	Left
Designated Moves	LT	TR	LT	TR	LR
Assumed Moves	LT	TR	LT	TR	LR
RT Channelized					
Lane Util	0.470	0.530	0.470	0.530	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328
Entry Flow, veh/h	669	754	502	567	307
Cap Entry Lane, veh/h	1287	1359	1064	1139	461
Entry HV Adj Factor	0.980	0.981	0.981	0.980	0.980
Flow Entry, veh/h	656	739	493	555	301
Cap Entry, veh/h	1261	1332	1044	1116	452
V/C Ratio	0.520	0.555	0.472	0.498	0.666
Control Delay, s/veh	8.5	8.8	8.9	8.9	25.8
LOS	A	A	A	A	D
95th %tile Queue, veh	3	4	3	3	5

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements

17: I-15 SB Ramps & Friars Rd

PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	501	2433	1052	3	257	1913	329	0	0	0	1001	0	1094
Future Volume (veh/h)	501	2433	1052	3	257	1913	329	0	0	0	1001	0	1094
Initial Q (Qb), veh	20	0	20		20	0	20				0	0	20
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	522	2534	805		268	1993	0				1043	0	1136
Peak Hour Factor	0.96	0.96	0.96		0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	623	3043	733		357	1246					1122	0	2006
Arrive On Green	0.31	0.41	0.41		0.16	0.24	0.00				0.31	0.00	0.31
Sat Flow, veh/h	1781	5106	1552		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	522	2534	805		268	1993	0				1043	0	1136
Grp Sat Flow(s),veh/h/ln	1781	1702	1552		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	39.1	55.2	55.2		20.1	33.2	0.0				38.9	0.0	0.0
Cycle Q Clear(g_c), s	39.1	55.2	55.2		20.1	33.2	0.0				38.9	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	623	3043	733		357	1246					1122	0	2006
V/C Ratio(X)	0.84	0.83	1.10		0.75	1.60					0.93	0.00	0.57
Avail Cap(c_a), veh/h	550	2074	630		393	1246					1153	0	1995
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.53	0.53	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	43.4	25.6	35.9		54.0	51.4	0.0				45.1	0.0	15.3
Incr Delay (d2), s/veh	11.7	2.8	63.2		3.2	271.5	0.0				12.6	0.0	0.2
Initial Q Delay(d3),s/veh	45.7	0.0	98.2		90.7	0.0	0.0				0.0	0.0	1.6
%ile BackOfQ(50%),veh	26.7	14.5	50.3		20.8	45.1	0.0				19.1	0.0	23.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	100.8	28.4	197.2		148.0	322.9	0.0				57.7	0.0	17.1
LnGrp LOS	F	C	F		F	F					E	A	B
Approach Vol, veh/h		3861				2261	A					2179	
Approach Delay, s/veh		73.4				302.2						36.6	
Approach LOS		E				F						D	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	36.6	62.2		47.2	48.6	40.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	36	45.7		44.0	42.0	* 33							
Max Q Clear Time (g_c+20), s	20	57.2		40.9	41.1	35.2							
Green Ext Time (p_c), s	0.2	0.0		1.2	0.1	0.0							

Intersection Summary

HCM 6th Ctrl Delay	126.1
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements

18: I-15 NB Ramps & Friars Rd

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖				↑↑↑	↗						
Traffic Volume (veh/h)	998	2452	0	0	1203	805	0	0	1324	0	0	1264
Future Volume (veh/h)	998	2452	0	0	1203	805	0	0	1324	0	0	1264
Initial Q (Qb), veh	40	0	0	0	20	40						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	1051	2581	0	0	1163	916						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	660	0	0	0	1521	1337						
Arrive On Green	0.47	0.93	0.00	0.00	0.39	0.39						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	1051	0	0	0	1163	916						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	45.0	0.0	0.0	0.0	25.9	23.4						
Cycle Q Clear(g_c), s	45.0	0.0	0.0	0.0	25.9	23.4						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	660	0	0	0	1521	1337						
V/C Ratio(X)	1.59	0.00	0.00	0.00	0.76	0.69						
Avail Cap(c_a), veh/h	846	0	0	0	2526	2140						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	1.00	1.00						
Uniform Delay (d), s/veh	38.3	0.0	0.0	0.0	25.6	25.4						
Incr Delay (d2), s/veh	274.0	0.0	0.0	0.0	0.3	0.2						
Initial Q Delay(d3),s/veh	218.3	0.0	0.0	0.0	5.3	20.5						
%ile BackOfQ(50%),veh	108.7	0.0	0.0	0.0	13.2	14.8						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	530.5	0.0	0.0	0.0	31.2	46.1						
LnGrp LOS	F	A	A	A	C	D						
Approach Vol, veh/h		1051			2079							
Approach Delay, s/veh		530.5			37.8							
Approach LOS		F			D							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		94.8			50.5	44.3						
Change Period (Y+Rc), s		* 7			5.5	7.0						
Max Green Setting (Gmax), s		* 18			45.0	64.0						
Max Q Clear Time (g_c+I1), s		0.0			47.0	27.9						
Green Ext Time (p_c), s		0.0			0.0	9.3						

Intersection Summary

HCM 6th Ctrl Delay	203.3
HCM 6th LOS	F

Notes

- User approved volume balancing among the lanes for turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
- Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 19: Rancho Mission Rd & Friars Rd

PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↓	↑↑↑	↓	↑
Traffic Volume (veh/h)	2850	926	2	145	1568	433	225
Future Volume (veh/h)	2850	926	2	145	1568	433	225
Initial Q (Qb), veh	0	0		0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	2969	918		151	1633	451	66
Peak Hour Factor	0.96	0.96		0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	2814	1247		175	4968	550	284
Arrive On Green	0.64	0.64		0.10	0.77	0.14	0.14
Sat Flow, veh/h	5274	1583		1781	6696	3563	1585
Grp Volume(v), veh/h	2969	918		151	1633	451	66
Grp Sat Flow(s),veh/h/ln	1702	1583		1781	1609	1781	1585
Q Serve(g_s), s	67.5	39.9		11.4	10.5	16.9	5.1
Cycle Q Clear(g_c), s	67.5	39.9		11.4	10.5	16.9	5.1
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2814	1247		175	4968	550	284
V/C Ratio(X)	1.06	0.74		0.86	0.33	0.82	0.23
Avail Cap(c_a), veh/h	3282	1247		208	4976	843	375
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.92	0.92	0.59	0.59
Uniform Delay (d), s/veh	30.5	7.3		60.4	4.9	56.4	48.0
Incr Delay (d2), s/veh	33.8	3.9		21.8	0.2	1.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	13.3	0.0
%ile BackOfQ(50%),veh	16.8	25.9		6.1	3.2	9.3	1.9
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	64.4	11.2		82.2	5.1	70.9	48.0
LnGrp LOS	F	B		F	A	E	D
Approach Vol, veh/h	3887			1784	517		
Approach Delay, s/veh	51.8			11.7	68.0		
Approach LOS	D			B	E		
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+Rc), s	17.8	93.4			111.2		24.8
Change Period (Y+Rc), s	4.4	* 6			6.0		5.1
Max Green Setting (Gmax), s	15.9	* 73			92.7		32.2
Max Q Clear Time (g_c+11), s	11.4	69.5			12.5		18.9
Green Ext Time (p_c), s	0.0	3.1			41.7		0.9

Intersection Summary

HCM 6th Ctrl Delay	41.6
HCM 6th LOS	D

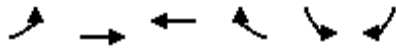
Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements

20: Friars Rd & Santo Rd

PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑↑		↔↔	↔
Traffic Volume (veh/h)	385	2790	1439	91	71	243
Future Volume (veh/h)	385	2790	1439	91	71	243
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1856	1870	1870
Adj Flow Rate, veh/h	401	2906	1499	90	74	243
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	3	3	2	2
Cap, veh/h	466	3880	3649	219	516	451
Arrive On Green	0.13	0.76	0.59	0.59	0.15	0.15
Sat Flow, veh/h	3456	5274	6464	372	3456	1585
Grp Volume(v), veh/h	401	2906	1156	433	74	243
Grp Sat Flow(s),veh/h/ln	1728	1702	1596	1789	1728	1585
Q Serve(g_s), s	13.6	38.1	15.7	15.8	2.2	15.6
Cycle Q Clear(g_c), s	13.6	38.1	15.7	15.8	2.2	15.6
Prop In Lane	1.00			0.21	1.00	1.00
Lane Grp Cap(c), veh/h	466	3880	2816	1052	516	451
V/C Ratio(X)	0.86	0.75	0.41	0.41	0.14	0.54
Avail Cap(c_a), veh/h	737	3880	2816	1052	734	551
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.19	0.19	0.82	0.82	1.00	1.00
Uniform Delay (d), s/veh	50.8	8.0	13.4	13.4	44.4	36.3
Incr Delay (d2), s/veh	0.7	0.3	0.4	1.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	10.1	5.3	6.1	1.0	13.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	51.5	8.3	13.8	14.4	44.4	36.7
LnGrp LOS	D	A	B	B	D	D
Approach Vol, veh/h		3307	1589		317	
Approach Delay, s/veh		13.5	13.9		38.5	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		97.7		22.3	20.6	77.1
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		83.6		25.5	25.6	* 54
Max Q Clear Time (g_c+I1), s		40.1		17.6	15.6	17.8
Green Ext Time (p_c), s		38.5		0.4	0.6	15.8

Intersection Summary

HCM 6th Ctrl Delay	15.2
HCM 6th LOS	B

Notes

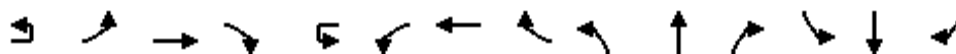
User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements

21: Riverdale St & Friars Rd

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔ ↑↑↑	↔ ↑↑↑	↔ ↑		↔ ↑↑↑	↔ ↑↑↑	↔ ↑	↔ ↑	↔ ↑		↔ ↑	↔ ↑	
Traffic Volume (veh/h)	19	195	2456	198	4	38	1163	46	186	85	114	48	45	118
Future Volume (veh/h)	19	195	2456	198	4	38	1163	46	186	85	114	48	45	118
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	0.99		0.99	0.99		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No			No		
Adj Sat Flow, veh/h/ln		1870	1870	1856		1737	1856	1870	1870	1870	1870	1811	1870	1870
Adj Flow Rate, veh/h		201	2532	128		39	1199	22	192	88	60	49	46	23
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	3		11	3	2	2	2	2	6	2	2
Cap, veh/h		232	3130	961		54	2608	816	304	217	148	231	246	123
Arrive On Green		0.13	0.61	0.61		0.03	0.51	0.51	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h		1781	5106	1569		1654	5066	1585	1322	1032	704	1193	1173	586
Grp Volume(v), veh/h		201	2532	128		39	1199	22	192	0	148	49	0	69
Grp Sat Flow(s),veh/h/ln		1781	1702	1569		1654	1689	1585	1322	0	1736	1193	0	1759
Q Serve(g_s), s		11.6	40.0	3.6		2.5	15.8	0.7	14.7	0.0	7.7	3.9	0.0	3.4
Cycle Q Clear(g_c), s		11.6	40.0	3.6		2.5	15.8	0.7	18.1	0.0	7.7	11.6	0.0	3.4
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.41	1.00		0.33
Lane Grp Cap(c), veh/h		232	3130	961		54	2608	816	304	0	365	231	0	369
V/C Ratio(X)		0.86	0.81	0.13		0.73	0.46	0.03	0.63	0.00	0.41	0.21	0.00	0.19
Avail Cap(c_a), veh/h		324	3130	961		206	2608	816	496	0	617	405	0	625
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.72	0.72	0.72		0.94	0.94	0.94	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		44.7	15.6	8.6		50.3	16.2	12.5	41.5	0.0	35.8	40.8	0.0	34.1
Incr Delay (d2), s/veh		9.3	1.7	0.2		6.5	0.6	0.1	0.8	0.0	0.3	0.2	0.0	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		5.5	13.5	1.1		1.1	5.7	0.2	4.8	0.0	3.3	1.2	0.0	1.5
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		54.1	17.3	8.8		56.8	16.7	12.6	42.3	0.0	36.1	41.0	0.0	34.2
LnGrp LOS		D	B	A		E	B	B	D	A	D	D	A	C
Approach Vol, veh/h			2861				1260			340			118	
Approach Delay, s/veh			19.5				17.9			39.6			37.0	
Approach LOS			B				B			D			D	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	7.8	70.3		26.9	18.1	60.0		26.9						
Change Period (Y+Rc), s	4.4	* 5.9		4.9	4.4	5.9		4.9						
Max Green Setting (Gmax), s	13.5	* 40		37.3	19.1	33.4		37.3						
Max Q Clear Time (g_c+1/5), s	14.5	42.0		13.6	13.6	17.8		20.1						
Green Ext Time (p_c), s	0.0	0.0		0.3	0.1	7.0		0.8						

Intersection Summary

HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 22: Mission Gorge Rd & Friars Rd PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↖↗	↑↑↑		↘↙	↑↑
Traffic Volume (veh/h)	2187	240	225	992	8	299	493
Future Volume (veh/h)	2187	240	225	992	8	299	493
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	2327	0	239	1055		318	522
Peak Hour Factor	0.94	0.94	0.94	0.94		0.94	0.94
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2621		571	0		356	1018
Arrive On Green	0.51	0.00	0.17	0.00		0.20	0.20
Sat Flow, veh/h	5443	0	3456	239		1781	2790
Grp Volume(v), veh/h	2327	0	239	45.1		318	522
Grp Sat Flow(s),veh/h/ln	1702	0	1728	D		1781	1395
Q Serve(g_s), s	48.9	0.0	7.4			20.9	0.0
Cycle Q Clear(g_c), s	48.9	0.0	7.4			20.9	0.0
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2621		571			356	1018
V/C Ratio(X)	0.89		0.42			0.89	0.51
Avail Cap(c_a), veh/h	2621		571			425	1126
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.49	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	26.1	0.0	44.9			46.8	29.8
Incr Delay (d2), s/veh	2.5	0.0	0.2			16.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh/ln	18.6	0.0	3.1			10.9	5.9
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	28.6	0.0	45.1			63.7	29.9
LnGrp LOS	C		D			E	C
Approach Vol, veh/h	2327	A				840	
Approach Delay, s/veh	28.6					42.7	
Approach LOS	C					D	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	24.2	67.4					28.4
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	61.6					28.6
Max Q Clear Time (g_c+1), s	19.4	50.9					22.9
Green Ext Time (p_c), s	0.2	9.5					1.1

Intersection Summary

HCM 6th Ctrl Delay	33.3
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 23: Qualcomm Way & Rio San Diego Dr PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations	↔↔	↑	↗		↔↔	↑↑	↗	↔↔	↑↑↑	↗		↔↔	↑↑↑	
Traffic Volume (veh/h)	231	154	217	10	585	260	238	47	292	128	3	40	599	223
Future Volume (veh/h)	231	154	217	10	585	260	238	47	292	128	3	40	599	223
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		0.99	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	243	162	197		616	274	79	49	307	21		42	631	200
Peak Hour Factor	0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2		2	2	2
Cap, veh/h	345	323	323		734	1014	449	118	1657	512		108	1235	383
Arrive On Green	0.10	0.17	0.17		0.21	0.29	0.29	0.03	0.32	0.32		0.03	0.32	0.32
Sat Flow, veh/h	3456	1870	1554		3456	3554	1575	3456	5106	1579		3456	3843	1193
Grp Volume(v), veh/h	243	162	197		616	274	79	49	307	21		42	557	274
Grp Sat Flow(s),veh/h/ln	1728	1870	1554		1728	1777	1575	1728	1702	1579		1728	1702	1632
Q Serve(g_s), s	5.0	5.8	8.5		12.7	4.4	2.8	1.0	3.2	0.7		0.9	9.8	10.1
Cycle Q Clear(g_c), s	5.0	5.8	8.5		12.7	4.4	2.8	1.0	3.2	0.7		0.9	9.8	10.1
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.73
Lane Grp Cap(c), veh/h	345	323	323		734	1014	449	118	1657	512		108	1094	525
V/C Ratio(X)	0.70	0.50	0.61		0.84	0.27	0.18	0.41	0.19	0.04		0.39	0.51	0.52
Avail Cap(c_a), veh/h	1399	1010	893		1399	1918	850	2798	4134	1279		1399	2756	1321
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	27.8	26.7		28.0	20.5	19.9	35.1	18.0	17.1		35.2	20.4	20.5
Incr Delay (d2), s/veh	1.0	1.2	1.9		1.0	0.1	0.2	0.9	0.1	0.0		0.8	0.6	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	2.5	3.1		4.9	1.7	1.0	0.4	1.2	0.2		0.4	3.7	3.8
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	33.3	29.0	28.6		29.0	20.7	20.1	35.9	18.1	17.2		36.1	21.0	21.9
LnGrp LOS	C	C	C		C	C	C	D	B	B		D	C	C
Approach Vol, veh/h		602			969			377				873		
Approach Delay, s/veh		30.6			25.9			20.3				22.0		
Approach LOS		C			C			C				C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	6.7	29.1	20.1	18.1	6.9	28.9	11.8	26.4						
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3						
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0						
Max Q Clear Time (g_c+1), s	12.5	5.2	14.7	10.5	3.0	12.1	7.0	6.4						
Green Ext Time (p_c), s	0.1	3.3	1.1	1.5	0.1	11.4	0.4	2.0						

Intersection Summary

HCM 6th Ctrl Delay	25.0
HCM 6th LOS	C

Notes

- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection														
Intersection Delay, s/veh	13.4													
Intersection LOS	B													

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↖	↕		↖	↕			↕				↕	
Traffic Vol, veh/h	10	118	429	8	9	373	39	11	14	10	9	79	15	65
Future Vol, veh/h	10	118	429	8	9	373	39	11	14	10	9	79	15	65
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	131	477	9	10	414	43	12	16	11	10	88	17	72
Number of Lanes	0	1	2	0	1	2	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	13.4	13.3	10.9	13.9
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	31%	100%	0%	0%	100%	0%	0%	50%
Vol Thru, %	40%	0%	100%	95%	0%	100%	76%	9%
Vol Right, %	29%	0%	0%	5%	0%	0%	24%	41%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	35	128	286	151	9	249	163	168
LT Vol	11	128	0	0	9	0	0	83
Through Vol	14	0	286	143	0	249	124	16
RT Vol	10	0	0	8	0	0	39	69
Lane Flow Rate	39	142	318	168	10	276	181	187
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.081	0.258	0.532	0.279	0.019	0.478	0.306	0.366
Departure Headway (Hd)	7.487	6.539	6.031	5.994	6.741	6.232	6.062	7.063
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	476	548	597	597	530	577	592	508
Service Time	5.271	4.295	3.787	3.749	4.499	3.99	3.82	4.829
HCM Lane V/C Ratio	0.082	0.259	0.533	0.281	0.019	0.478	0.306	0.368
HCM Control Delay	10.9	11.6	15.5	11.1	9.6	14.6	11.5	13.9
HCM Lane LOS	B	B	C	B	A	B	B	B
HCM 95th-tile Q	0.3	1	3.1	1.1	0.1	2.6	1.3	1.7

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	1	133	193	119	15	218	184	154	137	13	21	304	121	61
Future Volume (veh/h)	1	133	193	119	15	218	184	154	137	13	21	304	121	61
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		0.98	1.00		0.98		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No		No		No		No			No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h		137	199	44	15	225	108	159	141	9		313	125	21
Peak Hour Factor		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97		0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h		320	336	280	28	420	209	206	474	30		457	477	78
Arrive On Green		0.18	0.18	0.18	0.19	0.19	0.19	0.12	0.14	0.14		0.13	0.16	0.16
Sat Flow, veh/h		1781	1870	1561	148	2245	1116	1781	3389	214		3456	3050	501
Grp Volume(v), veh/h		137	199	44	189	0	159	159	73	77		313	72	74
Grp Sat Flow(s),veh/h/ln		1781	1870	1561	1863	0	1646	1781	1777	1827		1728	1777	1774
Q Serve(g_s), s		3.8	5.4	1.3	5.0	0.0	4.8	4.8	2.0	2.1		4.8	2.0	2.0
Cycle Q Clear(g_c), s		3.8	5.4	1.3	5.0	0.0	4.8	4.8	2.0	2.1		4.8	2.0	2.0
Prop In Lane		1.00		1.00	0.08		0.68	1.00		0.12		1.00		0.28
Lane Grp Cap(c), veh/h		320	336	280	348	0	308	206	248	255		457	278	278
V/C Ratio(X)		0.43	0.59	0.16	0.54	0.00	0.52	0.77	0.30	0.30		0.68	0.26	0.27
Avail Cap(c_a), veh/h		1294	1358	1134	1353	0	1195	970	1936	1990		1882	1936	1933
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		20.1	20.7	19.1	20.3	0.0	20.2	23.6	21.3	21.3		22.8	20.4	20.5
Incr Delay (d2), s/veh		0.6	1.0	0.2	0.5	0.0	0.5	2.3	3.0	3.0		0.7	2.2	2.4
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.4	2.1	0.5	2.1	0.0	1.8	2.0	1.0	1.1		1.9	0.9	1.0
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		20.6	21.8	19.2	20.7	0.0	20.7	26.0	24.3	24.3		23.5	22.7	22.8
LnGrp LOS		C	C	B	C	A	C	C	C	C		C	C	C
Approach Vol, veh/h			380			348			309				459	
Approach Delay, s/veh			21.1			20.7			25.1				23.2	
Approach LOS			C			C			C				C	
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	1.7	13.1	15.1	10.8	14.0	15.2								
Change Period (Y+Rc), s	4.4	* 5.4	5.2	4.4	5.4	4.9								
Max Green Setting (Gmax), s	30.0	* 60	40.0	30.0	60.0	40.0								
Max Q Clear Time (g_c+1), s	10.8	4.1	7.4	6.8	4.0	7.0								
Green Ext Time (p_c), s	0.6	3.3	1.1	0.2	3.2	1.5								

Intersection Summary

HCM 6th Ctrl Delay	22.5
HCM 6th LOS	C

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 26: Rancho Mission Rd & San Diego Mission Rd

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	204	663	368	110	402	192	141	235	143	225	236	465
Future Volume (veh/h)	204	663	368	110	402	192	141	235	143	225	236	465
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	215	698	351	116	423	173	148	247	22	237	248	257
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	252	904	454	147	836	338	182	318	263	274	415	344
Arrive On Green	0.14	0.40	0.40	0.08	0.34	0.34	0.10	0.17	0.17	0.15	0.22	0.22
Sat Flow, veh/h	1781	2270	1141	1781	2465	997	1781	1870	1545	1781	1870	1551
Grp Volume(v), veh/h	215	546	503	116	304	292	148	247	22	237	248	257
Grp Sat Flow(s),veh/h/ln	1781	1777	1634	1781	1777	1686	1781	1870	1545	1781	1870	1551
Q Serve(g_s), s	11.2	25.4	25.4	6.1	12.9	13.2	7.7	12.0	1.1	12.3	11.3	14.7
Cycle Q Clear(g_c), s	11.2	25.4	25.4	6.1	12.9	13.2	7.7	12.0	1.1	12.3	11.3	14.7
Prop In Lane	1.00		0.70	1.00		0.59	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	252	707	650	147	603	572	182	318	263	274	415	344
V/C Ratio(X)	0.85	0.77	0.77	0.79	0.50	0.51	0.81	0.78	0.08	0.87	0.60	0.75
Avail Cap(c_a), veh/h	656	934	859	656	1028	975	562	984	812	562	984	816
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.9	24.9	24.9	42.8	25.0	25.1	41.8	37.7	33.2	39.3	33.2	34.5
Incr Delay (d2), s/veh	3.2	3.7	4.0	3.6	1.1	1.2	3.3	1.5	0.1	3.2	0.5	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	10.6	9.9	2.7	5.3	5.2	3.5	5.5	0.4	5.5	5.0	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.1	28.6	28.9	46.4	26.1	26.3	45.1	39.3	33.3	42.5	33.7	35.7
LnGrp LOS	D	C	C	D	C	C	D	D	C	D	C	D
Approach Vol, veh/h		1264			712			417			742	
Approach Delay, s/veh		31.2			29.5			41.0			37.2	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.8	43.4	13.7	26.2	17.4	37.8	18.6	21.3				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	* 5.5	4.0	* 5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	* 55	30.0	* 50				
Max Q Clear Time (g_c+1), s	19.1	27.4	9.7	16.7	13.2	15.2	14.3	14.0				
Green Ext Time (p_c), s	0.1	10.4	0.2	1.3	0.3	6.6	0.3	0.9				

Intersection Summary

HCM 6th Ctrl Delay	33.5
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements

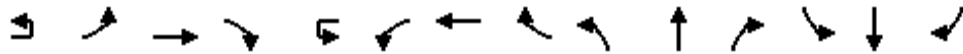
27: Fairmount Ave & San Diego Mission Rd/Twain Ave

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗	↖	↗		↖	↗	
Traffic Volume (veh/h)	120	397	384	43	195	15	360	74	66	22	122	108
Future Volume (veh/h)	120	397	384	43	195	15	360	74	66	22	122	108
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	133	441	294	48	217	14	400	82	51	24	136	94
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	190	527	1079	104	775	58	446	267	166	288	166	115
Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44	0.25	0.25	0.25	0.16	0.16	0.16
Sat Flow, veh/h	321	1197	1548	104	1758	131	1781	1068	664	1781	1028	710
Grp Volume(v), veh/h	574	0	294	99	0	180	400	0	133	24	0	230
Grp Sat Flow(s),veh/h/ln	1518	0	1548	314	0	1678	1781	0	1732	1781	0	1738
Q Serve(g_s), s	26.1	0.0	6.7	4.5	0.0	6.2	19.9	0.0	5.7	1.1	0.0	11.7
Cycle Q Clear(g_c), s	32.2	0.0	6.7	36.7	0.0	6.2	19.9	0.0	5.7	1.1	0.0	11.7
Prop In Lane	0.23		1.00	0.48		0.08	1.00		0.38	1.00		0.41
Lane Grp Cap(c), veh/h	717	0	1079	197	0	740	446	0	434	288	0	281
V/C Ratio(X)	0.80	0.00	0.27	0.51	0.00	0.24	0.90	0.00	0.31	0.08	0.00	0.82
Avail Cap(c_a), veh/h	1065	0	1408	422	0	1097	776	0	755	776	0	757
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.4	0.0	5.4	25.4	0.0	16.1	33.3	0.0	27.9	32.7	0.0	37.2
Incr Delay (d2), s/veh	2.5	0.0	0.1	1.8	0.0	0.2	3.5	0.0	0.1	0.0	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	4.0	2.2	0.0	2.4	8.8	0.0	2.4	0.5	0.0	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.9	0.0	5.5	27.2	0.0	16.2	36.8	0.0	28.1	32.7	0.0	39.4
LnGrp LOS	C	A	A	C	A	B	D	A	C	C	A	D
Approach Vol, veh/h		868			279			533			254	
Approach Delay, s/veh		19.7			20.2			34.6			38.8	
Approach LOS		B			C			C			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		45.0		19.4		45.0		27.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		34.2		13.7		38.7		21.9				
Green Ext Time (p_c), s		4.6		0.9		1.7		1.0				
Intersection Summary												
HCM 6th Ctrl Delay				26.4								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 28: Qualcomm Way & Camino de la Reina/Camino del Rio N PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	2	117	368	249	2	391	166	111	148	533	263	243	975	121
Future Volume (veh/h)	2	117	368	249	2	391	166	111	148	533	263	243	975	121
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.97	1.00		0.98	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No			No		
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1841	1870	1856	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		121	381	190		403	171	17	153	549	218	251	1005	118
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2		2	4	2	3	2	2	2	2	2
Cap, veh/h		138	475	284		440	618	273	189	2847	869	285	2704	317
Arrive On Green		0.08	0.13	0.13		0.13	0.18	0.18	0.02	0.18	0.18	0.08	0.58	0.58
Sat Flow, veh/h		1781	3741	1549		3456	3497	1545	3428	5106	1559	3456	4624	542
Grp Volume(v), veh/h		121	381	190		403	171	17	153	549	218	251	739	384
Grp Sat Flow(s),veh/h/ln		1781	1870	1549		1728	1749	1545	1714	1702	1559	1728	1702	1762
Q Serve(g_s), s		13.4	19.8	22.9		23.0	8.5	1.8	8.9	18.2	23.9	14.4	23.0	23.1
Cycle Q Clear(g_c), s		13.4	19.8	22.9		23.0	8.5	1.8	8.9	18.2	23.9	14.4	23.0	23.1
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h		138	475	284		440	618	273	189	2847	869	285	1990	1030
V/C Ratio(X)		0.88	0.80	0.67		0.92	0.28	0.06	0.81	0.19	0.25	0.88	0.37	0.37
Avail Cap(c_a), veh/h		190	498	294		524	623	275	314	2847	869	316	1990	1030
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	0.94	0.94	0.94	0.09	0.09	0.09
Uniform Delay (d), s/veh		91.3	84.9	76.3		86.2	71.3	68.6	97.1	43.5	45.9	90.8	22.0	22.0
Incr Delay (d2), s/veh		22.1	8.5	5.1		17.6	0.1	0.0	2.9	0.1	0.7	2.5	0.0	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		7.1	10.2	9.5		11.3	3.8	0.7	4.2	8.4	10.2	6.6	9.4	9.8
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		113.4	93.4	81.3		103.9	71.4	68.6	100.1	43.7	46.5	93.3	22.1	22.1
LnGrp LOS		F	F	F		F	E	E	F	D	D	F	C	C
Approach Vol, veh/h			692			591			920			1374		
Approach Delay, s/veh			93.6			93.5			53.7			35.1		
Approach LOS			F			F			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	20.9	118.2	29.8	31.1	15.4	123.6	19.9	41.0						
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7						
Max Green Setting (Gmax), s	10.3	103.6	30.3	* 27	18.3*	1.1E2	21.3	35.6						
Max Q Clear Time (g_c+110), s	10.4	25.9	25.0	24.9	10.9	25.1	15.4	10.5						
Green Ext Time (p_c), s	0.1	4.6	0.4	0.5	0.1	26.0	0.1	0.6						

Intersection Summary

HCM 6th Ctrl Delay	60.9
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔	↑↑↑			↑↑	↔
Traffic Volume (veh/h)	4	78	0	408	19	132	275	139	632	0	0	927	647
Future Volume (veh/h)	4	78	0	408	19	132	275	139	632	0	0	927	647
Initial Q (Qb), veh		0	0	20	0	20	20	20	20	0	0	20	20
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No			No			No		
Adj Sat Flow, veh/h/ln		1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h		83	0	130	20	140	20	148	672	0	0	986	505
Peak Hour Factor		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h		0	0	0	16	229	201	178	4274	0	0	2547	1093
Arrive On Green		0.00	0.00	0.00	0.10	0.10	0.10	0.09	0.84	0.00	0.00	1.00	1.00
Sat Flow, veh/h			0		232	1626	1580	1781	5274	0	0	3647	1551
Grp Volume(v), veh/h			0.0		160	0	20	148	672	0	0	986	505
Grp Sat Flow(s),veh/h/ln					1859	0	1580	1781	1702	0	0	1777	1551
Q Serve(g_s), s					17.0	0.0	2.3	16.5	4.9	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s					17.0	0.0	2.3	16.5	4.9	0.0	0.0	0.0	0.0
Prop In Lane					0.12		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					256	0	201	178	4274	0	0	2547	1093
V/C Ratio(X)					0.63	0.00	0.10	0.83	0.16	0.00	0.00	0.39	0.46
Avail Cap(c_a), veh/h					372	0	316	178	4287	0	0	2572	1123
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)					1.00	0.00	1.00	0.76	0.76	0.00	0.00	0.84	0.84
Uniform Delay (d), s/veh					85.4	0.0	81.5	90.0	3.6	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh					0.9	0.0	0.1	20.5	0.1	0.0	0.0	0.4	1.2
Initial Q Delay(d3),s/veh					117.2	0.0	79.5	328.1	0.2	0.0	0.0	0.7	4.5
%ile BackOfQ(50%),veh/ln					20.6	0.0	9.5	26.5	3.0	0.0	0.0	0.4	1.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					203.5	0.0	161.1	438.6	3.8	0.0	0.0	1.1	5.7
LnGrp LOS					F	A	F	F	A	A	A	A	A
Approach Vol, veh/h						180			820			1491	
Approach Delay, s/veh						198.8			82.3			2.6	
Approach LOS						F			F			A	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		174.9			23.2	151.8		25.1					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		107.8			* 20	83.1		40.0					
Max Q Clear Time (g_c+I1), s		6.9			18.5	2.0		19.0					
Green Ext Time (p_c), s		3.3			0.0	32.5		0.5					

Intersection Summary

HCM 6th Ctrl Delay	43.0
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	493	0	1046	1303	0
Future Volume (veh/h)	0	493	0	1046	1303	0
Initial Q (Qb), veh	0	10	0	0	50	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1870	0
Adj Flow Rate, veh/h	0	480	0	1067	1330	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	2	2	0
Cap, veh/h	0	0	0	2662	2662	0
Arrive On Green	0.00	0.00	0.00	0.73	0.73	0.00
Sat Flow, veh/h	0		0	3741	3741	0
Grp Volume(v), veh/h	0.0		0	1067	1330	0
Grp Sat Flow(s),veh/h/ln			0	1777	1777	0
Q Serve(g_s), s			0.0	2.4	3.3	0.0
Cycle Q Clear(g_c), s			0.0	2.4	3.3	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2662	2662	0
V/C Ratio(X)			0.00	0.40	0.50	0.00
Avail Cap(c_a), veh/h			0	7801	7801	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	1.0	1.4	0.0
Incr Delay (d2), s/veh			0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	5.1	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	1.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	1.0	6.5	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1067	1330	
Approach Delay, s/veh				1.0	6.5	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		20.5				20.5
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		45.0				45.0
Max Q Clear Time (g_c+I1), s		4.4				5.3
Green Ext Time (p_c), s		5.8				8.1
Intersection Summary						
HCM 6th Ctrl Delay			4.1			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 31: Texas St & Camino del Rio S PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↕	↕	↔	↕	↔
Traffic Volume (veh/h)	236	127	323	236	46	449	81	760	105	233	1369	147
Future Volume (veh/h)	236	127	323	236	46	449	81	760	105	233	1369	147
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	198	221	293	293	0	426	88	826	110	253	1488	124
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	336	353	393	527	0	476	105	1254	167	272	1745	779
Arrive On Green	0.19	0.19	0.19	0.15	0.00	0.15	0.06	0.40	0.40	0.15	0.49	0.49
Sat Flow, veh/h	1781	1870	1585	3563	0	1585	1781	3152	420	1781	3554	1585
Grp Volume(v), veh/h	198	221	293	293	0	426	88	466	470	253	1488	124
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1585	1781	1777	1795	1781	1777	1585
Q Serve(g_s), s	19.3	20.7	32.5	14.6	0.0	28.2	9.3	40.8	40.8	26.7	69.9	8.2
Cycle Q Clear(g_c), s	19.3	20.7	32.5	14.6	0.0	28.2	9.3	40.8	40.8	26.7	69.9	8.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	336	353	393	527	0	476	105	707	714	272	1745	779
V/C Ratio(X)	0.59	0.63	0.75	0.56	0.00	0.89	0.83	0.66	0.66	0.93	0.85	0.16
Avail Cap(c_a), veh/h	374	392	426	527	0	476	234	707	714	678	1864	831
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.5	71.1	66.1	75.4	0.0	63.8	88.7	46.8	46.8	79.8	42.5	26.8
Incr Delay (d2), s/veh	2.0	2.6	6.5	2.7	0.0	20.4	6.4	1.8	1.8	6.0	4.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	10.2	13.9	6.9	0.0	22.5	4.5	18.5	18.7	12.8	31.6	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.5	73.7	72.6	78.1	0.0	84.2	95.1	48.7	48.6	85.8	46.8	27.0
LnGrp LOS	E	E	E	E	A	F	F	D	D	F	D	C
Approach Vol, veh/h		712			719			1024			1865	
Approach Delay, s/veh		72.9			81.7			52.6			50.8	
Approach LOS		E			F			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	33.5	81.0		40.9	15.7	98.8		35.2				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0				
Max Green Setting (Gmax), s	72.6	51.8		40.0	25.0	* 1E2		28.2				
Max Q Clear Time (g_c+20), s	20.7	42.8		34.5	11.3	71.9		30.2				
Green Ext Time (p_c), s	0.3	2.7		1.5	0.1	21.8		0.0				

Intersection Summary

HCM 6th Ctrl Delay	60.0
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 32: Ward Rd & Rancho Mission Rd

PM Peak Hour



Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations									
Traffic Volume (veh/h)	1	45	293	2	376	427	1	528	73
Future Volume (veh/h)	1	45	293	2	376	427	1	528	73
Initial Q (Qb), veh		0	0		0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		0.99				0.96
Parking Bus, Adj		1.00	1.00		1.00	1.00		1.00	1.00
Work Zone On Approach		No			No		No		
Adj Sat Flow, veh/h/ln		1870	1870		1870	1870		1870	1870
Adj Flow Rate, veh/h		47	172		396	449		556	58
Peak Hour Factor		0.95	0.95		0.95	0.95		0.95	0.95
Percent Heavy Veh, %		2	2		2	2		2	2
Cap, veh/h		272	242		613	982		1964	204
Arrive On Green		0.15	0.15		0.61	0.61		0.61	0.61
Sat Flow, veh/h		1781	1585		694	1702		3327	336
Grp Volume(v), veh/h		47	172		396	449		305	309
Grp Sat Flow(s),veh/h/ln		1781	1585		694	1617		1777	1793
Q Serve(g_s), s		0.9	3.9		17.4	5.7		3.1	3.1
Cycle Q Clear(g_c), s		0.9	3.9		20.4	5.7		3.1	3.1
Prop In Lane		1.00	1.00		1.00				0.19
Lane Grp Cap(c), veh/h		272	242		613	982		1079	1089
V/C Ratio(X)		0.17	0.71		0.65	0.46		0.28	0.28
Avail Cap(c_a), veh/h		854	760		618	991		1089	1099
HCM Platoon Ratio		1.00	1.00		1.00	1.00		1.00	1.00
Upstream Filter(I)		1.00	1.00		1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh		13.8	15.1		8.3	4.0		3.5	3.5
Incr Delay (d2), s/veh		0.3	3.8		2.3	0.3		0.1	0.1
Initial Q Delay(d3),s/veh		0.0	0.0		0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln		0.3	1.4		1.8	0.7		0.4	0.4
Unsig. Movement Delay, s/veh									
LnGrp Delay(d),s/veh		14.1	18.9		10.6	4.3		3.6	3.6
LnGrp LOS		B	B		B	A		A	A
Approach Vol, veh/h		219				845		614	
Approach Delay, s/veh		17.9				7.3		3.6	
Approach LOS		B				A		A	
Timer - Assigned Phs		2		4		6			
Phs Duration (G+Y+Rc), s		27.3		10.2		27.3			
Change Period (Y+Rc), s		4.5		4.5		4.5			
Max Green Setting (Gmax), s		23.0		18.0		23.0			
Max Q Clear Time (g_c+I1), s		22.4		5.9		5.1			
Green Ext Time (p_c), s		0.4		0.5		3.4			

Intersection Summary

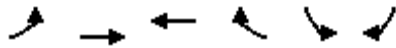
HCM 6th Ctrl Delay		7.3	
HCM 6th LOS		A	

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 33: Camino del Rio N & Ward Rd

PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	304	415	152	510	674	167
Future Volume (veh/h)	304	415	152	510	674	167
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	323	441	162	46	717	141
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	372	1474	510	227	768	1014
Arrive On Green	0.21	0.41	0.14	0.14	0.43	0.43
Sat Flow, veh/h	1781	3647	3647	1580	1781	1585
Grp Volume(v), veh/h	323	441	162	46	717	141
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1580	1781	1585
Q Serve(g_s), s	12.4	5.9	2.9	1.8	27.1	2.5
Cycle Q Clear(g_c), s	12.4	5.9	2.9	1.8	27.1	2.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	372	1474	510	227	768	1014
V/C Ratio(X)	0.87	0.30	0.32	0.20	0.93	0.14
Avail Cap(c_a), veh/h	1109	3520	3520	1565	1109	1318
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	13.8	27.2	26.7	19.2	5.0
Incr Delay (d2), s/veh	2.4	0.2	0.5	0.7	8.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	2.0	1.2	0.7	11.6	3.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	29.4	14.0	27.7	27.4	28.1	5.0
LnGrp LOS	C	B	C	C	C	A
Approach Vol, veh/h		764	208		858	
Approach Delay, s/veh		20.5	27.6		24.3	
Approach LOS		C	C		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		35.3		35.4	19.2	16.1
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		7.9		29.1	14.4	4.9
Green Ext Time (p_c), s		4.6		1.4	0.4	1.8

Intersection Summary

HCM 6th Ctrl Delay	23.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 34: Fairmount Ave & Mission Gorge Rd

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↗	↕			↗	↕	
Traffic Volume (veh/h)	61	10	556	23	7	2	25	457	762	27	1	7	767	29
Future Volume (veh/h)	61	10	556	23	7	2	25	457	762	27	1	7	767	29
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		1.00	1.00		0.98		1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	640	23	7	0	466	778	26		7	783	28	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	340	546	172	46	0	893	2463	82		12	1563	56	
Arrive On Green	0.00	0.00	0.18	0.18	0.18	0.00	0.52	1.00	1.00		0.01	0.45	0.45	
Sat Flow, veh/h	0	1870	3006	677	254	0	3456	3507	117		1781	3497	125	
Grp Volume(v), veh/h	0	0	640	30	0	0	466	394	410		7	398	413	
Grp Sat Flow(s),veh/h/ln	0	1870	1503	931	0	0	1728	1777	1847		1781	1777	1846	
Q Serve(g_s), s	0.0	0.0	23.6	2.4	0.0	0.0	11.6	0.0	0.0		0.5	20.7	20.7	
Cycle Q Clear(g_c), s	0.0	0.0	23.6	3.0	0.0	0.0	11.6	0.0	0.0		0.5	20.7	20.7	
Prop In Lane	0.00		1.00	0.77		0.00	1.00		0.06		1.00		0.07	
Lane Grp Cap(c), veh/h	0	340	546	218	0	0	893	1248	1297		12	794	825	
V/C Ratio(X)	0.00	0.00	1.17	0.14	0.00	0.00	0.52	0.32	0.32		0.57	0.50	0.50	
Avail Cap(c_a), veh/h	0	340	546	218	0	0	906	1248	1297		179	794	825	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00		1.00	1.00	1.00	
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.73	0.73	0.73		1.00	1.00	1.00	
Uniform Delay (d), s/veh	0.0	0.0	53.2	44.6	0.0	0.0	26.1	0.0	0.0		64.4	25.6	25.6	
Incr Delay (d2), s/veh	0.0	0.0	95.9	0.3	0.0	0.0	0.2	0.5	0.5		14.6	2.3	2.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.0	0.0	16.1	0.8	0.0	0.0	4.0	0.2	0.2		0.3	9.2	9.6	
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	149.1	44.9	0.0	0.0	26.3	0.5	0.5		79.0	27.9	27.8	
LnGrp LOS	A	A	F	D	A	A	C	A	A		E	C	C	
Approach Vol, veh/h		640			30			1270					818	
Approach Delay, s/veh		149.1			44.9			9.9					28.3	
Approach LOS		F			D			A					C	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	5.3	96.2		28.5	38.5	63.0		28.5						
Change Period (Y+Rc), s	4.4	4.9		4.9	4.9	* 4.9		4.9						
Max Green Setting (Gmax), s	13.5	79.1		23.6	34.1	* 58		23.6						
Max Q Clear Time (g_c+1), s	12.5	2.0		25.6	13.6	22.7		5.0						
Green Ext Time (p_c), s	0.0	14.2		0.0	0.9	12.2		0.1						

Intersection Summary

HCM 6th Ctrl Delay	48.0
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis Existing Plus Project Plus Event With Improvements
 35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	127	865	663	366	447	302	704	157	11	1366	56
Future Volume (vph)	122	127	865	663	366	447	302	704	157	11	1366	56
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	0.98	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1762	1583	1610	3069	1425	1770	3434		3433	3539	1563
Flt Permitted	0.95	1.00	1.00	0.95	0.98	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1762	1583	1610	3069	1425	1770	3434		3433	3539	1563
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	123	128	874	670	370	452	305	711	159	11	1380	57
RTOR Reduction (vph)	0	0	79	0	0	0	0	14	0	0	0	36
Lane Group Flow (vph)	111	140	795	382	771	339	305	856	0	11	1380	21
Confl. Peds. (#/hr)						3			1			
Confl. Bikes (#/hr)									1			1
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8	1	5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	15.4	15.4	35.4	25.0	25.0	35.0	20.0	58.6		10.0	48.6	48.6
Effective Green, g (s)	15.4	15.4	35.4	25.0	25.0	35.0	20.0	58.6		10.0	48.6	48.6
Actuated g/C Ratio	0.12	0.12	0.27	0.19	0.19	0.27	0.15	0.45		0.08	0.37	0.37
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	1.0	1.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	199	208	488	309	590	383	272	1547		264	1323	584
v/s Ratio Prot	0.07	0.08	c0.25	0.24	c0.25	0.07	0.17	0.25		0.00	c0.39	
v/s Ratio Perm			0.25			0.17						0.01
v/c Ratio	0.56	0.67	1.63	1.24	1.31	0.89	1.12	0.55		0.04	1.04	0.04
Uniform Delay, d1	54.1	54.9	47.3	52.5	52.5	45.6	55.0	26.1		55.6	40.7	25.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.72	1.21	1.00
Incremental Delay, d2	1.9	6.6	292.7	131.0	150.0	20.4	91.2	1.4		0.0	31.8	0.1
Delay (s)	56.0	61.5	340.0	183.5	202.5	65.9	146.2	27.6		39.8	81.0	25.9
Level of Service	E	E	F	F	F	E	F	C		D	F	C
Approach Delay (s)		277.3			166.6			58.4			78.5	
Approach LOS		F			F			E			E	
Intersection Summary												
HCM 2000 Control Delay			141.8			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.36									
Actuated Cycle Length (s)			130.0	Sum of lost time (s)					21.0			
Intersection Capacity Utilization			128.1%	ICU Level of Service			H					
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 36: Fairmount Ave & I-8 EB Off-Ramp

PM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations	YY	YY	U		↑↑	↑↑↑	
Traffic Volume (veh/h)	616	2328	43	0	560	1329	0
Future Volume (veh/h)	616	2328	43	0	560	1329	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		0	1870	1870	0
Adj Flow Rate, veh/h	629	2376		0	571	1356	0
Peak Hour Factor	0.98	0.98		0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2		0	2	2	0
Cap, veh/h	999	2666		0	1186	1704	0
Arrive On Green	0.56	0.56		0.00	0.33	0.33	0.00
Sat Flow, veh/h	1781	4755		0	3741	5443	0
Grp Volume(v), veh/h	629	2376		0	571	1356	0
Grp Sat Flow(s),veh/h/ln	1781	1585		0	1777	1702	0
Q Serve(g_s), s	25.2	46.1		0.0	13.4	25.3	0.0
Cycle Q Clear(g_c), s	25.2	46.1		0.0	13.4	25.3	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	999	2666		0	1186	1704	0
V/C Ratio(X)	0.63	0.89		0.00	0.48	0.80	0.00
Avail Cap(c_a), veh/h	1203	3212		0	2597	2529	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	15.7	20.3		0.0	27.8	31.7	0.0
Incr Delay (d2), s/veh	0.4	2.7		0.0	0.1	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.8	16.4		0.0	5.6	10.3	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	16.0	23.0		0.0	27.9	32.3	0.0
LnGrp LOS	B	C		A	C	C	A
Approach Vol, veh/h	3005				571	1356	
Approach Delay, s/veh	21.5				27.9	32.3	
Approach LOS	C				C	C	
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				41.0		64.0	41.0
Change Period (Y+Rc), s				6.0		5.1	6.0
Max Green Setting (Gmax), s				52.0		70.9	76.7
Max Q Clear Time (g_c+I1), s				27.3		48.1	15.4
Green Ext Time (p_c), s				7.7		10.8	2.8

Intersection Summary

HCM 6th Ctrl Delay	25.2
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 37: Collwood Blvd & Montezuma Rd

PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↵	↑↑	↵↵	↑
Traffic Volume (veh/h)	1281	1186	6	74	793	665	36
Future Volume (veh/h)	1281	1186	6	74	793	665	36
Initial Q (Qb), veh	20	20		0	0	0	0
Ped-Bike Adj(A_pbT)		0.98		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1737	1870	1870	1648
Adj Flow Rate, veh/h	1321	1089		76	818	686	16
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		11	2	2	17
Cap, veh/h	2180	1290		95	2500	744	301
Arrive On Green	0.61	0.61		0.06	0.70	0.22	0.22
Sat Flow, veh/h	3647	1546		1654	3647	3456	1397
Grp Volume(v), veh/h	1321	1089		76	818	686	16
Grp Sat Flow(s),veh/h/ln	1777	1546		1654	1777	1728	1397
Q Serve(g_s), s	30.7	54.7		6.1	11.9	26.0	1.2
Cycle Q Clear(g_c), s	30.7	54.7		6.1	11.9	26.0	1.2
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2180	1290		95	2500	744	301
V/C Ratio(X)	0.61	0.84		0.80	0.33	0.92	0.05
Avail Cap(c_a), veh/h	2180	1290		328	2500	848	343
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.9	8.7		62.4	7.7	51.5	41.7
Incr Delay (d2), s/veh	1.3	6.9		5.8	0.3	13.5	0.0
Initial Q Delay(d3),s/veh	1.5	11.1		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	22.6		2.7	4.2	12.5	0.4
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	19.7	26.7		68.2	8.0	65.0	41.8
LnGrp LOS	B	C		E	A	E	D
Approach Vol, veh/h	2410				894	702	
Approach Delay, s/veh	22.9				13.1	64.4	
Approach LOS	C				B	E	
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	12.1	88.7			100.8	33.2	
Change Period (Y+Rc), s	4.4	* 6.5			6.5	4.4	
Max Green Setting (Gmax), s	26.6	* 60			90.2	32.9	
Max Q Clear Time (g_c+10), s	19.1	56.7			13.9	28.0	
Green Ext Time (p_c), s	0.1	2.8			13.3	0.8	

Intersection Summary

HCM 6th Ctrl Delay	28.0
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 38: Mission Village Dr & Shawn Ave PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔				↔↔		↔	↑↑	↔	↔	↑↑	
Traffic Volume (veh/h)	62	5	65	1	42	7	24	57	639	24	38	1775	65
Future Volume (veh/h)	62	5	65	1	42	7	24	57	639	24	38	1775	65
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99		0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	66	5	60		45	7	3	61	680	19	40	1888	68
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	268	17	191		230	151	65	190	2560	1140	591	2521	90
Arrive On Green	0.13	0.13	0.13		0.13	0.13	0.13	0.72	0.72	0.72	0.72	0.72	0.72
Sat Flow, veh/h	1260	126	1423		946	1125	482	225	3554	1582	746	3499	125
Grp Volume(v), veh/h	71	0	60		45	0	10	61	680	19	40	953	1003
Grp Sat Flow(s),veh/h/ln	1385	0	1423		946	0	1607	225	1777	1582	746	1777	1848
Q Serve(g_s), s	3.0	0.0	2.7		2.2	0.0	0.4	15.9	4.6	0.2	1.4	22.6	23.2
Cycle Q Clear(g_c), s	3.4	0.0	2.7		4.9	0.0	0.4	39.2	4.6	0.2	6.0	22.6	23.2
Prop In Lane	0.93		1.00		1.00		0.30	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	285	0	191		230	0	215	190	2560	1140	591	1280	1331
V/C Ratio(X)	0.25	0.00	0.31		0.20	0.00	0.05	0.32	0.27	0.02	0.07	0.74	0.75
Avail Cap(c_a), veh/h	903	0	813		809	0	919	221	3047	1357	694	1524	1584
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00		1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.8	0.0	27.4		29.6	0.0	26.4	18.0	3.4	2.8	4.4	5.9	6.0
Incr Delay (d2), s/veh	0.2	0.0	0.3		0.2	0.0	0.0	1.2	0.1	0.0	0.1	1.8	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.9		0.7	0.0	0.1	0.8	0.9	0.0	0.2	5.0	5.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	28.0	0.0	27.7		29.8	0.0	26.4	19.1	3.5	2.8	4.5	7.7	7.9
LnGrp LOS	C	A	C		C	A	C	B	A	A	A	A	A
Approach Vol, veh/h		131				55			760			1996	
Approach Delay, s/veh		27.9				29.2			4.7			7.7	
Approach LOS		C				C			A			A	
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		55.7		14.3		55.7		14.3					
Change Period (Y+Rc), s		5.3		4.9		5.3		4.9					
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0					
Max Q Clear Time (g_c+1), s		41.2		5.4		25.2		6.9					
Green Ext Time (p_c), s		7.0		0.5		25.2		0.2					

Intersection Summary

HCM 6th Ctrl Delay	8.2
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 39: Mission Village Dr & Fermi Ave PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	↕	
Traffic Volume (veh/h)	33	1	13	39	1	34	9	695	34	1	20	1868	20
Future Volume (veh/h)	33	1	13	39	1	34	9	695	34	1	20	1868	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	34	1	0	41	1	8	9	724	34		21	1946	21
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	212	5	0	178	11	20	16	2462	116		33	2600	28
Arrive On Green	0.08	0.08	0.00	0.08	0.08	0.08	0.01	0.71	0.71		0.02	0.72	0.72
Sat Flow, veh/h	1479	61	0	1146	134	244	1781	3456	162		1781	3600	39
Grp Volume(v), veh/h	35	0	0	50	0	0	9	372	386		21	958	1009
Grp Sat Flow(s),veh/h/ln1540	0	0	0	1524	0	0	1781	1777	1841		1781	1777	1862
Q Serve(g_s), s	0.0	0.0	0.0	0.8	0.0	0.0	0.4	5.9	5.9		0.9	25.2	25.4
Cycle Q Clear(g_c), s	1.4	0.0	0.0	2.2	0.0	0.0	0.4	5.9	5.9		0.9	25.2	25.4
Prop In Lane	0.97		0.00	0.82		0.16	1.00		0.09		1.00		0.02
Lane Grp Cap(c), veh/h	217	0	0	209	0	0	16	1266	1312		33	1283	1345
V/C Ratio(X)	0.16	0.00	0.00	0.24	0.00	0.00	0.56	0.29	0.29		0.63	0.75	0.75
Avail Cap(c_a), veh/h	831	0	0	650	0	0	690	1377	1426		690	1377	1443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	33.3	0.0	0.0	33.6	0.0	0.0	38.2	4.0	4.0		37.7	6.5	6.5
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.2	0.0	0.0	10.6	0.2	0.2		7.0	2.6	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln0.6	0.0	0.0	0.0	0.9	0.0	0.0	0.2	1.4	1.5		0.4	6.9	7.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	33.4	0.0	0.0	33.8	0.0	0.0	48.8	4.3	4.3		44.7	9.1	9.0
LnGrp LOS	C	A	A	C	A	A	D	A	A		D	A	A
Approach Vol, veh/h		35			50			767				1988	
Approach Delay, s/veh		33.4			33.8			4.8				9.4	
Approach LOS		C			C			A				A	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s5.9	60.4			11.2	5.1	61.1		11.2					
Change Period (Y+Rc), s 4.4	5.2			4.9	4.4	5.2		4.9					
Max Green Setting (Gmax), s 30.0	60.0			40.0	30.0	60.0		30.0					
Max Q Clear Time (g_c+1), s 12.5	7.9			3.4	2.4	27.4		4.2					
Green Ext Time (p_c), s 0.0	10.1			0.1	0.0	28.5		0.1					

Intersection Summary

HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 40: Gramercy Dr/Mission Village Dr & Ruffin Rd PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗	↖ ↗		↖ ↗	↖ ↗		↖ ↗	↖ ↗		↖ ↗	↖ ↗	
Traffic Volume (veh/h)	47	556	13	8	338	419	15	4	18	1375	9	68
Future Volume (veh/h)	47	556	13	8	338	419	15	4	18	1375	9	68
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	567	12	8	345	249	15	4	4	1403	9	66
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	254	1177	25	272	652	460	37	37	31	1559	85	620
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.33	0.02	0.02	0.02	0.44	0.44	0.44
Sat Flow, veh/h	821	3556	75	832	1968	1391	1781	1814	1529	3563	193	1418
Grp Volume(v), veh/h	48	283	296	8	311	283	15	4	4	1403	0	75
Grp Sat Flow(s),veh/h/ln	821	1777	1855	832	1777	1582	1781	1777	1566	1781	0	1612
Q Serve(g_s), s	3.6	9.0	9.0	0.5	10.0	10.3	0.6	0.2	0.2	25.8	0.0	1.9
Cycle Q Clear(g_c), s	13.9	9.0	9.0	9.5	10.0	10.3	0.6	0.2	0.2	25.8	0.0	1.9
Prop In Lane	1.00		0.04	1.00		0.88	1.00		0.98	1.00		0.88
Lane Grp Cap(c), veh/h	254	588	614	272	588	524	37	37	32	1559	0	705
V/C Ratio(X)	0.19	0.48	0.48	0.03	0.53	0.54	0.41	0.11	0.13	0.90	0.00	0.11
Avail Cap(c_a), veh/h	679	1510	1576	703	1510	1344	1009	1006	887	2018	0	913
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.9	18.8	18.8	22.6	19.2	19.3	34.2	33.9	34.0	18.4	0.0	11.7
Incr Delay (d2), s/veh	0.4	0.8	0.7	0.1	0.9	1.1	2.7	0.5	0.7	4.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.6	3.8	0.1	4.1	3.8	0.3	0.1	0.1	9.8	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.4	19.6	19.5	22.6	20.1	20.3	36.9	34.4	34.6	22.6	0.0	11.7
LnGrp LOS	C	B	B	C	C	C	D	C	C	C	A	B
Approach Vol, veh/h		627			602			23			1478	
Approach Delay, s/veh		20.0			20.2			36.0			22.1	
Approach LOS		B			C			D			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		28.5		35.8		28.5		6.4				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		15.9		27.8		12.3		2.6				
Green Ext Time (p_c), s		5.9		3.1		6.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	21.3
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements

41: Ruffin Rd & Aero Dr

PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	716	777	8	885	667	229	323
Future Volume (veh/h)	716	777	8	885	667	229	323
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	754	815		932	702	241	86
Peak Hour Factor	0.95	0.95		0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1898	963		896	2939	305	140
Arrive On Green	0.53	0.53		0.26	0.83	0.09	0.09
Sat Flow, veh/h	3647	1541		3456	3647	3456	1585
Grp Volume(v), veh/h	754	815		932	702	241	86
Grp Sat Flow(s),veh/h/ln	1777	1541		1728	1777	1728	1585
Q Serve(g_s), s	16.3	55.1		33.7	5.5	8.9	6.8
Cycle Q Clear(g_c), s	16.3	55.1		33.7	5.5	8.9	6.8
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1898	963		896	2939	305	140
V/C Ratio(X)	0.40	0.85		1.04	0.24	0.79	0.61
Avail Cap(c_a), veh/h	1898	963		896	2939	1135	521
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.94	0.94
Uniform Delay (d), s/veh	17.9	19.7		48.2	2.4	58.1	57.1
Incr Delay (d2), s/veh	0.6	9.1		41.1	0.2	1.6	1.5
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	25.4		19.1	1.2	4.0	2.8
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	18.5	28.8		89.2	2.6	59.7	58.7
LnGrp LOS	B	C		F	A	E	E
Approach Vol, veh/h	1569			1634	327		
Approach Delay, s/veh	23.9			52.0	59.4		
Approach LOS	C			D	E		
Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	38.1	75.1				113.2	16.8
Change Period (Y+Rc), s	4.4	* 5.7				5.7	5.3
Max Green Setting (Gmax), s	33.7	* 39				76.3	42.7
Max Q Clear Time (g_c+Rc), s	33.7	57.1				7.5	10.9
Green Ext Time (p_c), s	0.0	0.0				7.4	0.6

Intersection Summary

HCM 6th Ctrl Delay	40.2
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements
 42: Mobley St & Gramercy Dr PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	577	75	48	314	48	38	20	32	70	10	16
Future Volume (veh/h)	13	577	75	48	314	48	38	20	32	70	10	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.96	0.98		0.98	0.98		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1826	1826	1826	1752	1752	1752
Adj Flow Rate, veh/h	13	595	58	49	324	38	39	21	8	72	10	7
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	10	10	10
Cap, veh/h	688	1757	773	550	1579	183	301	121	30	386	48	18
Arrive On Green	0.49	0.49	0.49	0.49	0.49	0.49	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	1012	3554	1564	776	3193	371	653	734	185	997	291	110
Grp Volume(v), veh/h	13	595	58	49	179	183	68	0	0	89	0	0
Grp Sat Flow(s),veh/h/ln	1012	1777	1564	776	1777	1787	1573	0	0	1399	0	0
Q Serve(g_s), s	0.2	3.0	0.6	1.2	1.7	1.7	0.0	0.0	0.0	0.5	0.0	0.0
Cycle Q Clear(g_c), s	1.9	3.0	0.6	4.2	1.7	1.7	1.0	0.0	0.0	1.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.21	0.57		0.12	0.81		0.08
Lane Grp Cap(c), veh/h	688	1757	773	550	878	884	452	0	0	452	0	0
V/C Ratio(X)	0.02	0.34	0.08	0.09	0.20	0.21	0.15	0.00	0.00	0.20	0.00	0.00
Avail Cap(c_a), veh/h	2260	7277	3203	1755	3638	3660	2232	0	0	2043	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.7	4.5	3.9	5.8	4.2	4.2	10.6	0.0	0.0	10.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.1	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.4	0.1	0.1	0.3	0.3	0.3	0.0	0.0	0.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.7	4.7	4.0	5.9	4.4	4.4	10.7	0.0	0.0	10.9	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		666			411			68			89	
Approach Delay, s/veh		4.6			4.6			10.7			10.9	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		19.6		9.7		19.6		9.7				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		5.0		3.5		6.2		3.0				
Green Ext Time (p_c), s		9.1		0.3		5.0		0.2				
Intersection Summary												
HCM 6th Ctrl Delay				5.4								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary Existing Plus Project Plus Event With Improvements

43: Sandrock Rd & Greyling Dr/Gramercy Dr

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕			↕	↕	↕	↕	↕
Traffic Volume (veh/h)	68	121	8	14	144	221	1	5	9	23	549	30	109
Future Volume (veh/h)	68	121	8	14	144	221	1	5	9	23	549	30	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.97		0.94	1.00		1.00	1.00			0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1574	1574	1870	1870	1856	1870	
Adj Flow Rate, veh/h	72	127	6	15	152	129	5	9	0	601	0	51	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	22	22	2	2	3	2	
Cap, veh/h	243	333	13	131	500	825	8	14	23	911	0	389	
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.01	0.01	0.00	0.26	0.00	0.26	
Sat Flow, veh/h	362	1180	46	64	1772	1488	552	994	1585	3563	0	1521	
Grp Volume(v), veh/h	205	0	0	167	0	129	14	0	0	601	0	51	
Grp Sat Flow(s),veh/h/ln	1589	0	0	1836	0	1488	1546	0	1585	1781	0	1521	
Q Serve(g_s), s	0.2	0.0	0.0	0.0	0.0	1.5	0.3	0.0	0.0	5.2	0.0	0.9	
Cycle Q Clear(g_c), s	3.1	0.0	0.0	2.4	0.0	1.5	0.3	0.0	0.0	5.2	0.0	0.9	
Prop In Lane	0.35		0.03	0.09		1.00	0.36		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	589	0	0	631	0	825	23	0	23	911	0	389	
V/C Ratio(X)	0.35	0.00	0.00	0.26	0.00	0.16	0.62	0.00	0.00	0.66	0.00	0.13	
Avail Cap(c_a), veh/h	1237	0	0	1416	0	1479	893	0	915	2057	0	878	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh	10.0	0.0	0.0	9.8	0.0	4.0	17.0	0.0	0.0	11.5	0.0	9.9	
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.1	0.0	0.0	10.0	0.0	0.0	0.3	0.0	0.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	0.7	0.0	0.5	0.2	0.0	0.0	1.5	0.0	0.2	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	10.2	0.0	0.0	9.9	0.0	4.1	26.9	0.0	0.0	11.8	0.0	10.0	
LnGrp LOS	B	A	A	A	A	A	C	A	A	B	A	A	
Approach Vol, veh/h		205			296			14				652	
Approach Delay, s/veh		10.2			7.4			26.9				11.7	
Approach LOS		B			A			C				B	
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		15.1		14.2		15.1		5.4					
Change Period (Y+Rc), s		5.3		5.3		5.3		4.9					
Max Green Setting (Gmax), s		25.0		20.0		25.0		20.0					
Max Q Clear Time (g_c+I1), s		5.1		7.2		4.4		2.3					
Green Ext Time (p_c), s		0.8		1.1		0.8		0.0					

Intersection Summary

HCM 6th Ctrl Delay	10.5
HCM 6th LOS	B

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

APPENDIX C: SATURDAY TRIP GENERATION



Proposed SDSU Mission Valley Project Weekday Trip Generation

Description and Size	Quantity	Units	Daily Trip Rate	Breakdown by Trip Type	Daily Trips	AM Commuter Peak (7 to 9 AM)					PM Commuter Peak (4 to 6 PM)				
						Peak Hour % of Daily	In : Out Split	Volume			Peak Hour % of Daily	In : Out Split	Volume		
								In	Out	Total			In	Out	Total
Proposed Project															
Supermarket	12	ksf	150		1,800	4%	70:30	50	22	72	10%	50:50	90	90	180
<i>Cumulative</i>				60%	1,080			30	13	43			54	54	108
<i>Pass-By</i>				40%	720			20	9	29			36	36	72
<i>Driveway</i>				100%	1,800			50	22	72			90	90	180
Neighborhood Retail	83	ksf	120		9,960	4%	60:40	239	160	399	11%	50:50	548	548	1,096
<i>Cumulative</i>				60%	5,976			143	96	239			329	329	658
<i>Pass-By</i>				40%	3,984			96	64	160			219	219	438
<i>Driveway</i>				100%	9,960			239	160	399			548	548	1,096
Apartments	4,300	du	6		25,800	8%	20:80	413	1,651	2,064	9%	70:30	1,625	697	2,322
<i>Cumulative</i>				100%	25,800			413	1,651	2,064			1,625	697	2,322
<i>Pass-By</i>				0%	-			-	-	-			-	-	-
<i>Driveway</i>				100%	25,800			413	1,651	2,064			1,625	697	2,322
Student Focused Housing	300	du	4.4		1,320	5%	90:10	59	7	66	7%	30:70	28	65	93
<i>Cumulative</i>				100%	1,320			59	7	66			28	65	93
<i>Pass-By</i>				0%	-			-	-	-			-	-	-
<i>Driveway</i>				100%	1,320			59	7	66			28	65	93
Commercial Office	1,165	ksf	[a]		19,981	13%	90:10	2,338	260	2,598	14%	20:80	559	2,238	2,797
<i>Cumulative</i>				100%	19,981			2,338	260	2,598			559	2,238	2,797
<i>Pass-By</i>				0%	-			-	-	-			-	-	-
<i>Driveway</i>				100%	19,981			2,338	260	2,598			559	2,238	2,797
Medical Office	100	ksf	50		5,000	6%	90:10	270	30	300	10%	10:90	50	450	500
<i>Cumulative</i>				32%	1,600			86	10	96			16	144	160
<i>Pass-By</i>				68%	3,400			184	20	204			34	306	340
<i>Driveway</i>				100%	5,000			270	30	300			50	450	500
Scientific Research	301	ksf	8		2,407	16%	90:10	347	39	386	14%	10:90	34	303	337
<i>Cumulative</i>				100%	2,407			347	39	386			34	303	337
<i>Pass-By</i>				0%	-			-	-	-			-	-	-
<i>Driveway</i>				100%	2,407			347	39	386			34	303	337
Hotel	400	room	10		4,000	6%	60:40	144	96	240	8%	60:40	192	128	320
<i>Cumulative</i>				100%	4,000			144	96	240			192	128	320
<i>Pass-By</i>				0%	-			-	-	-			-	-	-
<i>Driveway</i>				100%	4,000			144	96	240			192	128	320
Racquetball/Tennis/Health Club	25	ksf	40		1,000	4%	60:40	24	16	40	9%	60:40	54	36	90
<i>Cumulative</i>				100%	1,000			24	16	40			54	36	90
<i>Pass-By</i>				0%	-			-	-	-			-	-	-
<i>Driveway</i>				100%	1,000			24	16	40			54	36	90
Community Park/River Park	6	acre	5		30	4%	60:40	1	0	1	8%	60:40	1	1	2
<i>Cumulative</i>				100%	30			1	0	1			1	1	2
<i>Pass-By</i>				0%	-			-	-	-			-	-	-
<i>Driveway</i>				100%	30			1	0	1			1	1	2
Active Parks	50	acre	50		2,500	4%	60:40	60	40	100	8%	60:40	120	80	200
<i>Cumulative</i>				100%	2,500			60	40	100			120	80	200
<i>Pass-By</i>				0%	-			-	-	-			-	-	-
<i>Driveway</i>				100%	2,500			60	40	100			120	80	200
Landscaped Areas, Paseos, Trails,	27.6	acre	-		-	-	0:0	-	-	-	-	0:0	-	-	-
<i>Cumulative</i>				100%	-			-	-	-			-	-	-
<i>Pass-By</i>				0%	-			-	-	-			-	-	-
<i>Driveway</i>				100%	-			-	-	-			-	-	-
Gross Subtotal Proposed Project				Cumulative	65,694			3,645	2,228	5,873			3,012	4,075	7,087
				Pass-By	8,104			300	93	393			289	561	850
				Driveway	73,798			3,945	2,321	6,266			3,301	4,636	7,937
				Mixed-Use Credit (11%D/15%A/13%P)	(7,226)			(547)	(334)	(881)			(392)	(530)	(921)
				Transit/Bike/Walk Credit (7%D/10%A/10%P)	(4,599)			(364)	(223)	(587)			(301)	(407)	(709)
				Cumulative	53,869			2,734	1,671	4,405			2,319	3,138	5,457
				Pass-By	8,104			300	93	393			289	561	850
				Driveway	61,973			3,034	1,764	4,798			2,608	3,699	6,307
Existing															
Stadium					(1,089)			(62)	(2)	(64)			(17)	(33)	(50)
<i>Cumulative</i>				100%	(1,089)			(62)	(2)	(64)			(17)	(33)	(50)
<i>Pass-By</i>				0%	-			-	-	-			-	-	-
<i>Driveway</i>				100%	(1,089)			(62)	(2)	(64)			(17)	(33)	(50)
Trip Generation Subtotal															
Net Project Subtotal (Proposed - Existing)				Cumulative	52,780			2,672	1,669	4,341			2,302	3,105	5,407
				Pass-By	8,104			300	93	393			289	561	850
				Driveway	60,884			2,972	1,762	4,734			2,591	3,666	6,257
TDM															
14.41% reduction				100%	(7,606)			(385)	(241)	(625)			(332)	(447)	(779)
					(7,606)			(385)	(241)	(625)			(332)	(447)	(779)
Trip Generation Summary															
Net Project Total				Cumulative	45,174			2,287	1,429	3,716			1,970	2,658	4,628
				Pass-By	8,104			300	93	393			289	561	850
				Driveway	53,278			2,587	1,522	4,109			2,259	3,219	5,478

[a] Commercial Office Formula: Ln(T) = 0.756 Ln(ksf) + 3.95
Calculated separately by building

Proposed SDSU Mission Valley Project Saturday Trip Generation

Description and Size	Quantity	Units	Daily Trip Rate	Breakdown by Trip Type	Daily Trips	AM Peak (7 to 9 AM)						PM Peak (4 to 6 PM)					
						Peak Hour % of Daily	In : Out		Volume		Peak Hour % of Daily	In : Out		Volume			
							Split	In	Out	Total		Split	In	Out	Total		
Proposed																	
Supermarket		12 ksf	250		2,994	4%	70:30	84	36	120	10%	50:50	150	150	299		
	Cumulative			60%	1,796			50	22	72			90	90	180		
	Pass-By			40%	1,198			34	14	48			60	60	120		
	Driveway			100%	2,994			84	36	120			150	150	299		
Neighborhood Retail		83 ksf	147		12,168	4%	60:40	292	195	487	11%	50:50	669	669	1,339		
	Cumulative			60%	7,301			175	117	292			402	402	804		
	Pass-By			40%	4,867			117	78	195			268	268	535		
	Driveway			100%	12,168			292	195	487			669	669	1,339		
Apartments		4,300 du	5.4		23,286	8%	20:80	373	1,490	1,863	9%	70:30	1,467	629	2,096		
	Cumulative			100%	23,286			373	1,490	1,863			1,467	629	2,096		
	Pass-By			0%	-			-	-	-			-	-	-		
	Driveway			100%	23,286			373	1,490	1,863			1,467	629	2,096		
Student Focused Housing		300 du	4.0		1,191	5%	90:10	54	6	60	7%	30:70	25	58	84		
	Cumulative			100%	1,191			54	6	60			25	58	84		
	Pass-By			0%	-			-	-	-			-	-	-		
	Driveway			100%	1,191			54	6	60			25	58	84		
Commercial Office		1,165 ksf	[a]		4,534	13%	90:10	530	59	589	14%	20:80	127	508	635		
	Cumulative			100%	4,534			530	59	589			127	508	635		
	Pass-By			0%	-			-	-	-			-	-	-		
	Driveway			100%	4,534			530	59	589			127	508	635		
Medical Office		100 ksf	12.3		1,231	6%	90:10	66	7	74	10%	10:90	12	111	123		
	Cumulative			32%	394			21	2	24			4	35	39		
	Pass-By			68%	837			45	5	50			8	75	84		
	Driveway			100%	1,231			66	7	74			12	111	123		
Scientific Research		301 ksf	1.3		406	16%	90:10	59	7	66	14%	10:90	6	51	57		
	Cumulative			100%	406			59	7	66			6	51	57		
	Pass-By			0%	-			-	-	-			-	-	-		
	Driveway			100%	406			59	7	66			6	51	57		
Hotel		400 room	9.8		3,919	6%	60:40	141	94	235	8%	60:40	188	125	313		
	Cumulative			100%	3,919			141	94	235			188	125	313		
	Pass-By			0%	-			-	-	-			-	-	-		
	Driveway			100%	3,919			141	94	235			188	125	313		
Racquetball/Tennis/Health Club		25 ksf	12.6		316	4%	60:40	8	5	13	9%	60:40	17	11	28		
	Cumulative			100%	316			8	5	13			17	11	28		
	Pass-By			0%	-			-	-	-			-	-	-		
	Driveway			100%	316			8	5	13			17	11	28		
Community Park/River Park		6 acre	12.6		75	4%	60:40	2	1	3	8%	60:40	4	2	6		
	Cumulative			100%	75			2	1	3			4	2	6		
	Pass-By			0%	-			-	-	-			-	-	-		
	Driveway			100%	75			2	1	3			4	2	6		
Active Parks		50 acre	125.6		6,282	4%	60:40	151	101	251	8%	60:40	302	201	503		
	Cumulative			100%	6,282			151	101	251			302	201	503		
	Pass-By			0%	-			-	-	-			-	-	-		
	Driveway			100%	6,282			151	101	251			302	201	503		
Landscaped Areas, Paseos, Trails		27.6 acre	-		-	-	0:0	-	-	-	-	0:0	-	-	-		
	Cumulative			100%	-			-	-	-			-	-	-		
	Pass-By			0%	-			-	-	-			-	-	-		
	Driveway			100%	-			-	-	-			-	-	-		
Gross Subtotal Proposed Project (except Stadium)					49,107			1,542	1,902	3,444			2,626	2,078	4,705		
	Cumulative				6,065			150	92	243			328	328	655		
	Pass-By				55,172			1,692	1,994	3,687			2,954	2,406	5,360		
	Driveway				(5,402)			(231)	(285)	(517)			(341)	(270)	(612)		
Trip Reductions					(3,438)			(154)	(190)	(344)			(263)	(207)	(470)		
Trip Generation Summary																	
Adjusted Gross Subtotal Proposed Project					40,268			1,156	1,426	2,583			2,022	1,601	3,623		
	Cumulative				6,065			150	92	243			328	328	655		
	Pass-By				46,333			1,307	1,519	2,826			2,350	1,929	4,278		
	Driveway																
Existing																	
Stadium					(1,089)			(62)	(2)	(64)			(17)	(33)	(50)		
	Cumulative/Driveway				100%			(62)	(2)	(64)			(17)	(33)	(50)		
Trip Generation Subtotal																	
Net Project Total (Proposed - Existing)					39,179			1,094	1,424	2,519			2,005	1,568	3,573		
	Cumulative				6,065			150	92	243			328	328	655		
	Pass-By				45,244			1,245	1,517	2,762			2,333	1,896	4,228		
	Driveway																
TDM																	
14.41% reduction					(5,646)			(158)	(205)	(363)			(289)	(226)	(515)		
	100%				(5,646)			(158)	(205)	(363)			(289)	(226)	(515)		
Trip Generation Summary																	
Net Project Subtotal (Proposed - Existing)					33,533			937	1,219	2,156			1,716	1,343	3,058		
	Cumulative				4,976			88	90	179			311	295	605		
	Pass-By				38,509			1,025	1,310	2,335			2,027	1,638	3,663		
	Driveway																

*Regional Retail Ln Formula: Ln(T) = 0.756 Ln(x) + 5.25

Saturday trip rates are calculated by applying the ratio of ITE 10th Edition trip rates on a Saturday vs. a weekday to the City of San Diego weekday trip rates:

Supermarket - 166% of weekday rate

Neighborhood Retail - 122% of weekday rate

Apartments and Student Housing - 90% of weekday rate

Commercial Office - 23% of weekday trips

Medical Office - 25% of weekday rate

Scientific Research - 17% of weekday rate

Hotel - 98% of weekday rate

Racquetball/Tennis/Health Club - 32% of weekday rate

Remaining uses - assumed to be equal to the weekday rate

Community Park/River Park and Active Parks - 251% of weekday rate

Proposed SDSU Mission Valley Project Campus Trip Generation

Description and Size	Quantity	Units	Daily Trip Rate	Breakdown by Trip Type	Daily Trips	AM Commuter Peak (7 to 9 AM)					PM Commuter Peak (4 to 6 PM)				
						Peak Hour % of Daily	In : Out Split	Volume			Peak Hour % of Daily	In : Out Split	Volume		
								In	Out	Total			In	Out	Total
Proposed															
Supermarket	12	ksf	150		1,800	4%	70:30	50	22	72	10%	50:50	90	90	180
<i>Cumulative</i>				60%	1,080			30	13	43			54	54	108
<i>Pass-By</i>				40%	720			20	9	29			36	36	72
<i>Driveway</i>				100%	1,800			50	22	72			90	90	180
Neighborhood Retail	83	ksf	120		9,960	4%	60:40	239	160	399	11%	50:50	548	548	1,096
<i>Cumulative</i>				60%	5,976			143	96	239			329	329	658
<i>Pass-By</i>				40%	3,984			96	64	160			219	219	438
<i>Driveway</i>				100%	9,960			239	160	399			548	548	1,096
Apartments	0	du	6		-	8%	20:80	-	-	-	9%	70:30	-	-	-
<i>Cumulative</i>				100%	-			-	-	-			-	-	-
<i>Pass-By</i>				0%	-			-	-	-			-	-	-
<i>Driveway</i>				100%	-			-	-	-			-	-	-
Student Focused Housing	0	du	4.4		-	5%	90:10	-	-	-	7%	30:70	-	-	-
<i>Cumulative</i>				100%	-			-	-	-			-	-	-
<i>Pass-By</i>				0%	-			-	-	-			-	-	-
<i>Driveway</i>				100%	-			-	-	-			-	-	-
Commercial Office	0	ksf	[a]		-	13%	90:10	-	-	-	14%	20:80	-	-	-
<i>Cumulative</i>				100%	-			-	-	-			-	-	-
<i>Pass-By</i>				0%	-			-	-	-			-	-	-
<i>Driveway</i>				100%	-			-	-	-			-	-	-
Scientific Research	0	ksf	8		-	16%	90:10	-	-	-	14%	10:90	-	-	-
<i>Cumulative</i>				100%	-			-	-	-			-	-	-
<i>Pass-By</i>				0%	-			-	-	-			-	-	-
<i>Driveway</i>				100%	-			-	-	-			-	-	-
University/College	15000	student	2.5		37,500	10%	90:10	3,375	375	3,750	9%	10:90	1,013	2,363	3,375
<i>Cumulative</i>				100%	37,500			3,375	375	3,750			1,013	2,363	3,375
<i>Pass-By</i>				0%	-			-	-	-			-	-	-
<i>Driveway</i>				100%	37,500			3,375	375	3,750			1,013	2,363	3,375
Hotel	400	room	10		4,000	6%	60:40	144	96	240	8%	60:40	192	128	320
<i>Cumulative</i>				100%	4,000			144	96	240			192	128	320
<i>Pass-By</i>				0%	-			-	-	-			-	-	-
<i>Driveway</i>				100%	4,000			144	96	240			192	128	320
Racquetball/Tennis/Health Club	25	ksf	40		1,000	4%	60:40	24	16	40	9%	60:40	54	36	90
<i>Cumulative</i>				100%	1,000			24	16	40			54	36	90
<i>Pass-By</i>				0%	-			-	-	-			-	-	-
<i>Driveway</i>				100%	1,000			24	16	40			54	36	90
Community Park/River Park	6	acre	5		30	4%	60:40	1	0	1	8%	60:40	1	1	2
<i>Cumulative</i>				100%	30			1	0	1			1	1	2
<i>Pass-By</i>				0%	-			-	-	-			-	-	-
<i>Driveway</i>				100%	30			1	0	1			1	1	2
Active Parks	50	acre	50		2,500	4%	60:40	60	40	100	8%	60:40	120	80	200
<i>Cumulative</i>				100%	2,500			60	40	100			120	80	200
<i>Pass-By</i>				0%	-			-	-	-			-	-	-
<i>Driveway</i>				100%	2,500			60	40	100			120	80	200
Landscaped Areas, Paseos, Trails, Cumulative	33	acre	-		-	-	0:0	-	-	-	-	0:0	-	-	-
<i>Cumulative</i>				100%	-			-	-	-			-	-	-
<i>Pass-By</i>				0%	-			-	-	-			-	-	-
<i>Driveway</i>				100%	-			-	-	-			-	-	-
Gross Subtotal Proposed Project				Cumulative	52,086			3,777	636	4,414			1,763	2,990	4,753
				Pass-By	4,704			116	73	188			255	255	510
				Driveway	56,790			3,893	709	4,602			2,018	3,245	5,263
Trip Reductions				Mixed-Use Credit (11%D/15%A/13%P)	(5,729)			(567)	(95)	(662)			(229)	(389)	(618)
				Transit/Bike/Walk Credit (7%D/10%A/10%P)	(3,646)			(378)	(64)	(441)			(176)	(299)	(475)
Adjusted Gross Subtotal Proposed Project				Cumulative	42,711			2,833	478	3,311			1,357	2,302	3,660
				Pass-By	4,704			116	73	188			255	255	510
				Driveway	47,415			2,949	550	3,499			1,612	2,557	4,170
Existing															
Stadium					(1,089)			(62)	(2)	(64)			(17)	(33)	(50)
<i>Cumulative</i>				100%	(1,089)			(62)	(2)	(64)			(17)	(33)	(50)
<i>Pass-By</i>				0%	-			-	-	-			-	-	-
<i>Driveway</i>				100%	(1,089)			(62)	(2)	(64)			(17)	(33)	(50)
Trip Generation Summary															
Net Project Total (Proposed - Existing)				Cumulative	41,622			2,771	476	3,247			1,340	2,269	3,610
				Pass-By	4,704			116	73	188			255	255	510
				Driveway	46,326			2,887	548	3,435			1,595	2,524	4,120

[a] Commercial Office Formula: Ln(T) = 0.756 Ln(ksf) + 3.95
Calculated separately by building

**APPENDIX D: ROADWAY SEGMENT VOLUME GROWTH
CALCULATIONS**



MISSION VALLEY ANNUAL GROWTH RATE CALCULATION

SANDAG SERIES 13 MODEL - ADT

Roadway	Extent	2012	2035	CAGR	Growth Applied
Friars	Frazee to Mission Center	33000	35400	0.3%	1.0%
	Mission Center to Qualcomm Way	37400	43000	0.6%	1.0%
	Qualcomm Way to River Run	33800	42700	1.0%	1.0%
	River Run to Fenton	30900	38600	1.0%	1.0%
	Fenton to Northside	27700	37775	1.4%	1.4%
	Northside to Mission Village	50800	63571	1.0%	1.0%
	Mission Village to I-15	55900	69921	1.0%	1.0%
	I-15 to Rancho Mission	71300	78000	0.4%	1.0%
	Rancho Mission to Santo	63900	69800	0.4%	1.0%
	Santo to Riverdale	56800	68800	0.8%	1.0%
	Riverdale to Mission Gorge	22800	23100	0.1%	1.0%
Qualcomm Way	Friars to Rio San Diego	7700	13200	2.4%	2.4%
	Rio SD to Cam. De la Reina	17300	22900	1.2%	1.2%
	Cam. De la Reina to I-8W	25300	32200	1.1%	1.1%
	I-8W to I-8E	20300	33700	2.2%	2.2%
	Mid-overpass	29700	41700	1.5%	1.5%
	I-8E to Cam del Rio S	31700	39000	0.9%	1.0%
	S of Cam del Rio S	28900	35900	0.9%	1.0%
Rio San Diego	Qualcomm Way to River Run	5500	8300	1.8%	1.8%
	River Run to Fenton	7200	11100	1.9%	1.9%
Fenton Parkway	Rio San Diego to Northside	7000	8400	0.8%	1.0%
San Diego Mission	Mission Village to Rancho Mission	11400	11000	-0.2%	1.0%
	Rancho Mission to Fairmount	8500	13900	2.2%	2.2%
Rancho Mission	Friars to San Diego Mission	13100	16800	1.1%	1.1%
	San Diego Mission to Ward	16100	16800	0.2%	1.0%
Ward	Rancho Mission to Camino Del Rio	15700	14800	-0.3%	1.0%
Fairmount	San Diego Mission to Mission Gorge	25200	29600	0.7%	1.0%
Mission Village	Ruffin to Shawn	22400	22800	0.1%	1.0%
	Shawn to Ronda	24100	28027	0.7%	1.0%
	Ronda to Friars	25500	29505	0.6%	1.0%
Ruffin	Aero to Mission Village	15000	15400	0.1%	1.0%
Gramercy	Mobley to Ruffin	8000	8000	0.0%	1.0%
Aero	Sandrock to Ruffin	16100	20700	1.1%	1.1%
	Ruffin to Daley Center	20900	19800	-0.2%	1.0%
I-15 NB - Friars Rd On-Ramp		18300	16306	-0.5%	1.0%
I-15 SB / I-8 - Friars Rd Loop On-Ramp		12300	16098	1.2%	1.2%
I-15 SB - Friars Rd Direct On-Ramp		12800	15778	0.9%	1.0%
I-8 EB - SB Fairmount Ave		5700	6946	0.9%	1.0%
SR-163	NB 6th Ave to I-8	91700	104131	0.6%	1.0%
	SB 6th Ave to I-8	92600	104463	0.5%	1.0%
	NB Friars to Genessee	110900	127473	0.6%	1.0%
	SB Friars to Genessee	94800	114032	0.8%	1.0%

MISSION VALLEY ANNUAL GROWTH RATE CALCULATION

SANDAG SERIES 13 MODEL - ADT

Roadway	Extent	2012	2035	CAGR	Growth Applied
I-805	NB Madison Ave to I-8	107000	136225	1.1%	1.1%
	SB Madison Ave to I-8	115900	145799	1.0%	1.0%
	NB I-8 to SR-163	109900	137900	1.0%	1.0%
	SB I-8 to SR-163	116000	145032	1.0%	1.0%
	NB SR-163 to Balboa Ave	110000	156772	1.6%	1.6%
	SB SR-163 to Balboa Ave	99700	131677	1.2%	1.2%
I-15	NB Adams Ave to I-8	97100	124009	1.1%	1.1%
	SB Adams Ave to I-8	100500	125479	1.0%	1.0%
	NB I-8 to Aero Dr	118200	138587	0.7%	1.0%
	SB I-8 to Aero Dr	122600	146032	0.8%	1.0%
	NB Aero Dr to Balboa/Tierrasanta	109400	133384	0.9%	1.0%
	SB Aero Dr to Balboa/Tierrasanta	114300	140101	0.9%	1.0%
I-8	EB Morena to Taylor	94600	115961	0.9%	1.0%
	WB Morena to Taylor	95200	109067	0.6%	1.0%
	EB Taylor to Hotel Cir	95900	116618	0.9%	1.0%
	WB Taylor to Hotel Cir	98900	116080	0.7%	1.0%
	EB Hotel Cir to SR-163	88500	116618	1.2%	1.2%
	WB Hotel Cir to SR-163	90600	116080	1.1%	1.1%
	EB SR-163 to I-805	99400	130184	1.2%	1.2%
	WB SR-163 to I-805	108800	133709	0.9%	1.0%
	EB I-805 to I-15	108000	135484	1.0%	1.0%
	WB I-805 to I-15	119900	144626	0.8%	1.0%
	EB I-15 to Waring	120200	155466	1.1%	1.1%
	WB I-15 to Waring	108800	133709	0.9%	1.0%
	EB Waring to College	129500	154449	0.8%	1.0%
	WB Waring to College	116900	134228	0.6%	1.0%

























APPENDIX E: HORIZON YEAR (2037) CONDITIONS

Technical Analysis



HCM Signalized Intersection Capacity Analysis
 1: SR-163 SB Ramps/Ulríc St & Friars Rd

Horizon Year
 AM Peak Hour

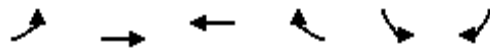
													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	70	610	270	590	900	720	310	60	840	410	0	100	
Future Volume (vph)	70	610	270	590	900	720	310	60	840	410	0	100	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.7	7.0	7.0	4.5	3.0	6.1	6.1	6.1	4.5	6.1	6.1	6.1	
Lane Util. Factor	1.00	0.86	1.00	0.97	0.91	0.88	0.97	1.00	0.88	0.95	0.95	1.00	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	
Satd. Flow (prot)	1770	6408	1558	3433	5085	2787	3433	1863	2787	1681	1681	1562	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	
Satd. Flow (perm)	1770	6408	1558	3433	5085	2787	3433	1863	2787	1681	1681	1562	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	73	635	281	615	938	750	323	62	875	427	0	104	
RTOR Reduction (vph)	0	0	233	0	0	0	0	0	0	0	0	81	
Lane Group Flow (vph)	73	635	48	615	938	750	323	63	875	213	214	23	
Confl. Peds. (#/hr)			2									2	
Confl. Bikes (#/hr)			1										
Turn Type	Prot	NA	Perm	Prot	NA	custom	Split	NA	pm+ov	Split	NA	Perm	
Protected Phases	5	2		1	6	4	8	8	1	4	4		
Permitted Phases			2						8			4	
Actuated Green, G (s)	5.4	15.8	15.8	26.2	36.4	45.3	6.1	6.1	32.3	20.6	20.6	20.6	
Effective Green, g (s)	5.4	15.8	15.8	26.2	36.4	38.3	6.1	6.1	32.3	20.6	20.6	20.6	
Actuated g/C Ratio	0.06	0.17	0.17	0.28	0.39	0.41	0.07	0.07	0.35	0.22	0.22	0.22	
Clearance Time (s)	4.7	7.0	7.0	4.5			6.1	6.1	4.5	6.1	6.1	6.1	
Vehicle Extension (s)	2.0	2.0	2.0	3.0			3.0	3.0	3.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	103	1095	266	973	2003	1155	226	122	974	374	374	348	
v/s Ratio Prot	0.04	0.10		0.18	c0.18	c0.27	c0.09	0.03	c0.25	0.13	0.13		
v/s Ratio Perm			0.03						0.06			0.01	
v/c Ratio	0.71	0.58	0.18	0.63	0.47	0.65	1.43	0.52	0.90	0.57	0.57	0.07	
Uniform Delay, d1	42.7	35.2	32.8	28.9	20.8	21.7	43.2	41.7	28.5	32.0	32.0	28.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	16.6	0.5	0.1	1.3	0.1	1.0	216.8	3.7	10.9	1.2	1.3	0.0	
Delay (s)	59.3	35.7	32.9	30.2	20.9	22.6	259.9	45.4	39.4	33.1	33.3	28.3	
Level of Service	E	D	C	C	C	C	F	D	D	C	C	C	
Approach Delay (s)		36.7			23.9			96.2			32.3		
Approach LOS		D			C			F			C		
Intersection Summary													
HCM 2000 Control Delay			45.2		HCM 2000 Level of Service					D			
HCM 2000 Volume to Capacity ratio			0.89										
Actuated Cycle Length (s)			92.4		Sum of lost time (s)					26.9			
Intersection Capacity Utilization			66.3%		ICU Level of Service					C			
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: Friars Rd & SR-163 NB Ramps

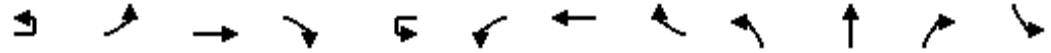
Horizon Year
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	500	1340	1370	820	1170	800
Future Volume (vph)	500	1340	1370	820	1170	800
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	6.0	4.5	4.5	5.0
Lane Util. Factor	0.97	0.86	0.86	0.88	0.94	0.88
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	6408	6408	2787	4990	2764
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	6408	6408	2787	4990	2764
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	521	1396	1427	854	1219	833
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	521	1396	1427	854	1219	833
Confl. Peds. (#/hr)						1
Confl. Bikes (#/hr)				1		
Turn Type	Prot	NA	NA	custom	Prot	pm+ov
Protected Phases	5	2	3	6	4	3
Permitted Phases						4
Actuated Green, G (s)	14.0	45.2	28.2	41.0	24.1	38.1
Effective Green, g (s)	14.0	45.2	28.2	41.0	24.1	38.1
Actuated g/C Ratio	0.18	0.57	0.36	0.52	0.31	0.48
Clearance Time (s)	5.0	5.0			4.5	5.0
Vehicle Extension (s)	2.0	2.0			3.0	2.0
Lane Grp Cap (vph)	609	3675	2293	1450	1526	1511
v/s Ratio Prot	c0.15	0.22	c0.22	0.31	c0.24	0.10
v/s Ratio Perm						0.20
v/c Ratio	0.86	0.38	0.62	0.59	0.80	0.55
Uniform Delay, d1	31.4	9.2	20.9	13.1	25.1	14.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.9	0.0	0.5	0.6	3.0	0.2
Delay (s)	42.4	9.2	21.4	13.7	28.1	14.6
Level of Service	D	A	C	B	C	B
Approach Delay (s)		18.2	18.5		22.6	
Approach LOS		B	B		C	
Intersection Summary						
HCM 2000 Control Delay			19.8		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.81			
Actuated Cycle Length (s)			78.8		Sum of lost time (s)	18.5
Intersection Capacity Utilization			69.3%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
3: Frazee Rd & Friars Rd

Horizon Year
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		2 1	1 1 1 1	1 1		2 1	1 1 1 1	1	1 1	1 1		1 1
Traffic Volume (vph)	20	780	1170	520	10	50	1820	140	140	70	40	30
Future Volume (vph)	20	780	1170	520	10	50	1820	140	140	70	40	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.4	3.0	4.4		4.4	6.5	6.5	4.4	4.9		4.4
Lane Util. Factor		0.97	0.86	0.88		0.97	0.86	1.00	0.97	0.95		0.97
Frbp, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.98		1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.95		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (prot)		3433	6408	2787		3433	6408	1583	3433	3290		3433
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (perm)		3433	6408	2787		3433	6408	1583	3433	3290		3433
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	21	812	1219	542	10	52	1896	146	146	73	42	31
RTOR Reduction (vph)	0	0	0	0	0	0	0	90	0	31	0	0
Lane Group Flow (vph)	0	834	1219	542	0	62	1896	56	146	84	0	31
Confl. Peds. (#/hr)				3							37	
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	custom	Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2 9	3 9	1	1	6		3	8		7
Permitted Phases							6					
Actuated Green, G (s)		38.5	82.1	76.1		5.9	48.5	48.5	10.9	38.0		3.3
Effective Green, g (s)		38.5	82.1	70.6		5.9	48.5	48.5	10.9	38.0		3.3
Actuated g/C Ratio		0.26	0.55	0.48		0.04	0.33	0.33	0.07	0.26		0.02
Clearance Time (s)		4.4				4.4	6.5	6.5	4.4	4.9		4.4
Vehicle Extension (s)		2.0				2.0	4.4	4.4	2.2	2.0		2.2
Lane Grp Cap (vph)		890	3542	1324		136	2092	517	251	841		76
v/s Ratio Prot		c0.24	0.19	0.19		0.02	c0.30		c0.04	0.03		0.01
v/s Ratio Perm							0.04					
v/c Ratio		0.94	0.34	0.41		0.46	0.91	0.11	0.58	0.10		0.41
Uniform Delay, d1		53.8	18.3	25.4		69.7	47.8	34.9	66.6	42.2		71.6
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		16.6	0.0	0.1		0.9	6.3	0.2	2.5	0.0		1.8
Delay (s)		70.4	18.4	25.5		70.6	54.2	35.1	69.1	42.2		73.5
Level of Service		E	B	C		E	D	D	E	D		E
Approach Delay (s)			36.6				53.3			57.2		
Approach LOS			D				D			E		

Intersection Summary

HCM 2000 Control Delay	45.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	148.5	Sum of lost time (s)	22.2
Intersection Capacity Utilization	94.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Frazee Rd & Friars Rd

Horizon Year
AM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑	↑↑
Traffic Volume (vph)	20	210
Future Volume (vph)	20	210
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.9	4.9
Lane Util. Factor	1.00	0.88
Frbp, ped/bikes	1.00	1.00
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1863	2787
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1863	2787
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	21	219
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	21	219
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	30.4	30.4
Effective Green, g (s)	30.4	30.4
Actuated g/C Ratio	0.20	0.20
Clearance Time (s)	4.9	4.9
Vehicle Extension (s)	2.3	2.3
Lane Grp Cap (vph)	381	570
v/s Ratio Prot	0.01	
v/s Ratio Perm		c0.08
v/c Ratio	0.06	0.38
Uniform Delay, d1	47.5	51.0
Progression Factor	1.00	1.00
Incremental Delay, d2	0.0	0.3
Delay (s)	47.5	51.2
Level of Service	D	D
Approach Delay (s)	53.5	
Approach LOS	D	
Intersection Summary		

HCM 6th Signalized Intersection Summary

4: Mission Center Rd & Friars Rd WB

Horizon Year
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↘	↙	↘	↘↙	↘↙			↘↙	↘
Traffic Volume (veh/h)	0	0	0	180	10	370	110	540	0	0	440	330
Future Volume (veh/h)	0	0	0	180	10	370	110	540	0	0	440	330
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				199	0	162	117	574	0	0	468	192
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				463	0	206	183	2650	0	0	2288	995
Arrive On Green				0.26	0.00	0.26	0.11	1.00	0.00	0.00	0.64	0.64
Sat Flow, veh/h				3563	0	1585	3456	3647	0	0	3647	1546
Grp Volume(v), veh/h				199	0	162	117	574	0	0	468	192
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1728	1777	0	0	1777	1546
Q Serve(g_s), s				4.2	0.0	8.6	2.9	0.0	0.0	0.0	4.9	4.5
Cycle Q Clear(g_c), s				4.2	0.0	8.6	2.9	0.0	0.0	0.0	4.9	4.5
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				463	0	206	183	2650	0	0	2288	995
V/C Ratio(X)				0.43	0.00	0.79	0.64	0.22	0.00	0.00	0.20	0.19
Avail Cap(c_a), veh/h				1215	0	541	580	2650	0	0	2288	995
HCM Platoon Ratio				2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.96	0.96	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				30.5	0.0	32.2	39.4	0.0	0.0	0.0	6.6	6.5
Incr Delay (d2), s/veh				0.6	0.0	6.5	1.3	0.2	0.0	0.0	0.2	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.7	0.0	3.2	1.2	0.1	0.0	0.0	1.6	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				31.2	0.0	38.7	40.7	0.2	0.0	0.0	6.8	7.0
LnGrp LOS				C	A	D	D	A	A	A	A	A
Approach Vol, veh/h					361			691			660	
Approach Delay, s/veh					34.5			7.0			6.8	
Approach LOS					C			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		73.4			9.2	64.2		16.6				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 49			15.1	28.6		30.7				
Max Q Clear Time (g_c+I1), s		2.0			4.9	6.9		10.6				
Green Ext Time (p_c), s		3.4			0.1	6.3		1.1				

Intersection Summary

HCM 6th Ctrl Delay	12.8
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

5: Mission Center Rd & Friars Rd EB

Horizon Year
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	10	200	0	0	0	0	440	100	140	480	0
Future Volume (veh/h)	210	10	200	0	0	0	0	440	100	140	480	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	236	0	15				0	478	94	152	522	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	395	0	176				0	1149	224	1110	2737	0
Arrive On Green	0.11	0.00	0.11				0.00	0.39	0.39	0.43	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	3039	575	3456	3647	0
Grp Volume(v), veh/h	236	0	15				0	287	285	152	522	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1743	1728	1777	0
Q Serve(g_s), s	5.7	0.0	0.8				0.0	10.6	10.7	2.4	0.0	0.0
Cycle Q Clear(g_c), s	5.7	0.0	0.8				0.0	10.6	10.7	2.4	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.33	1.00		0.00
Lane Grp Cap(c), veh/h	395	0	176				0	693	680	1110	2737	0
V/C Ratio(X)	0.60	0.00	0.09				0.00	0.41	0.42	0.14	0.19	0.00
Avail Cap(c_a), veh/h	1013	0	451				0	693	680	1110	2737	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.33	1.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.98	0.98	0.00
Uniform Delay (d), s/veh	38.1	0.0	35.9				0.0	20.0	20.0	18.2	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.0	0.2				0.0	1.8	1.9	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.3				0.0	4.4	4.4	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.5	0.0	36.1				0.0	21.8	21.9	18.2	0.0	0.0
LnGrp LOS	D	A	D				A	C	C	B	A	A
Approach Vol, veh/h		251						572			674	
Approach Delay, s/veh		39.3						21.9			4.1	
Approach LOS		D						C			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	34.7	40.4	14.9	75.1								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	14.7	* 35	25.6	53.7								
Max Q Clear Time (g_c+I), s	14.4	12.7	7.7	2.0								
Green Ext Time (p_c), s	0.2	4.7	0.7	4.5								

Intersection Summary

HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
6: Qualcomm Way & Friars Rd WB

Horizon Year
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↔		↖	↕			↕	↗
Traffic Volume (veh/h)	0	0	0	190	0	50	550	140	0	0	100	40
Future Volume (veh/h)	0	0	0	190	0	50	550	140	0	0	100	40
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				223	0	0	618	157	0	0	112	9
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				315	165	0	1196	2795	0	0	1348	601
Arrive On Green				0.15	0.00	0.00	0.58	1.00	0.00	0.00	0.38	0.38
Sat Flow, veh/h				3563	1870	0	3456	3647	0	0	3647	1585
Grp Volume(v), veh/h				223	0	0	618	157	0	0	112	9
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1728	1777	0	0	1777	1585
Q Serve(g_s), s				4.8	0.0	0.0	8.6	0.0	0.0	0.0	1.6	0.3
Cycle Q Clear(g_c), s				4.8	0.0	0.0	8.6	0.0	0.0	0.0	1.6	0.3
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				315	165	0	1196	2795	0	0	1348	601
V/C Ratio(X)				0.71	0.00	0.00	0.52	0.06	0.00	0.00	0.08	0.01
Avail Cap(c_a), veh/h				1251	657	0	1196	2795	0	0	1348	601
HCM Platoon Ratio				1.67	1.67	1.67	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.99	0.99	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				33.1	0.0	0.0	12.9	0.0	0.0	0.0	15.9	15.5
Incr Delay (d2), s/veh				1.1	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.9	0.0	0.0	2.6	0.0	0.0	0.0	0.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				34.2	0.0	0.0	13.3	0.0	0.0	0.0	15.9	15.5
LnGrp LOS				C	A	A	B	A	A	A	B	B
Approach Vol, veh/h					223			775			121	
Approach Delay, s/veh					34.2			10.6			15.9	
Approach LOS					C			B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		68.0			32.8	35.2		12.0				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+I1), s		2.0			10.6	3.6		6.8				
Green Ext Time (p_c), s		1.2			2.1	0.4		0.4				

Intersection Summary

HCM 6th Ctrl Delay	15.9
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
7: Qualcomm Way & Friars Rd EB

Horizon Year
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	0	110	0	0	0	0	590	310	50	320	0
Future Volume (veh/h)	60	0	110	0	0	0	0	590	310	50	320	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	68	0	1				0	670	209	57	364	0
Peak Hour Factor	0.88	0.88	0.88				0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	170	0	75				0	4737	1142	124	2939	0
Arrive On Green	0.05	0.00	0.05				0.00	0.74	0.74	0.07	1.00	0.00
Sat Flow, veh/h	3563	0	1566				0	6696	1551	3456	3647	0
Grp Volume(v), veh/h	68	0	1				0	670	209	57	364	0
Grp Sat Flow(s),veh/h/ln	1781	0	1566				0	1609	1551	1728	1777	0
Q Serve(g_s), s	1.5	0.0	0.0				0.0	2.5	3.3	1.3	0.0	0.0
Cycle Q Clear(g_c), s	1.5	0.0	0.0				0.0	2.5	3.3	1.3	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	170	0	75				0	4737	1142	124	2939	0
V/C Ratio(X)	0.40	0.00	0.01				0.00	0.14	0.18	0.46	0.12	0.00
Avail Cap(c_a), veh/h	1519	0	668				0	4737	1142	436	2939	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.96	0.96	0.93	0.93	0.00
Uniform Delay (d), s/veh	37.0	0.0	36.3				0.0	3.1	3.2	36.4	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0				0.0	0.1	0.3	0.9	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0				0.0	0.5	0.8	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	0.0	36.3				0.0	3.2	3.6	37.3	0.1	0.0
LnGrp LOS	D	A	D				A	A	A	D	A	A
Approach Vol, veh/h		69						879			421	
Approach Delay, s/veh		37.5						3.3			5.1	
Approach LOS		D						A			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	7.3	64.0	8.7	71.3								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.1	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	13.3	5.3	3.5	2.0								
Green Ext Time (p_c), s	0.0	5.4	0.1	1.6								

Intersection Summary

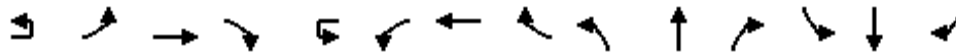
HCM 6th Ctrl Delay	5.6
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

Horizon Year
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↖ ↗ ↘ ↙		↖		↖ ↗ ↘ ↙				↖ ↗	↖ ↗		↖ ↗		
Traffic Volume (veh/h)	10	110	790	40	10	170	1780	180	130	60	60	20	10	10	
Future Volume (veh/h)	10	110	790	40	10	170	1780	180	130	60	60	20	10	10	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	0.98		0.97	0.98		0.97	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		116	832	21		179	1874	183	137	63	9	21	11	2	
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2	
Cap, veh/h		145	2647	822		211	2624	255	261	95	335	124	57	8	
Arrive On Green		0.08	0.52	0.52		0.12	0.56	0.56	0.22	0.22	0.22	0.22	0.22	0.22	
Sat Flow, veh/h		1781	5106	1585		1781	4722	458	937	438	1543	320	261	36	
Grp Volume(v), veh/h		116	832	21		179	1348	709	200	0	9	34	0	0	
Grp Sat Flow(s),veh/h/ln		1781	1702	1585		1781	1702	1776	1375	0	1543	617	0	0	
Q Serve(g_s), s		6.8	10.0	0.7		10.5	31.0	31.4	0.0	0.0	0.5	0.7	0.0	0.0	
Cycle Q Clear(g_c), s		6.8	10.0	0.7		10.5	31.0	31.4	14.9	0.0	0.5	15.7	0.0	0.0	
Prop In Lane		1.00		1.00		1.00		0.26	0.68		1.00	0.62		0.06	
Lane Grp Cap(c), veh/h		145	2647	822		211	1891	987	356	0	335	189	0	0	
V/C Ratio(X)		0.80	0.31	0.03		0.85	0.71	0.72	0.56	0.00	0.03	0.18	0.00	0.00	
Avail Cap(c_a), veh/h		670	2881	894		503	1921	1002	453	0	435	421	0	0	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	
Uniform Delay (d), s/veh		48.0	14.7	12.5		45.9	17.4	17.5	38.4	0.0	32.8	36.4	0.0	0.0	
Incr Delay (d2), s/veh		3.8	0.3	0.1		3.6	2.3	4.5	1.0	0.0	0.0	0.5	0.0	0.0	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		3.1	3.6	0.2		4.7	11.3	12.5	4.9	0.0	0.2	0.9	0.0	0.0	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		51.8	15.0	12.6		49.5	19.7	22.0	39.4	0.0	32.8	36.9	0.0	0.0	
LnGrp LOS		D	B	B		D	B	C	D	A	C	D	A	A	
Approach Vol, veh/h		969				2236				209			34		
Approach Delay, s/veh		19.4				22.8				39.1			36.9		
Approach LOS		B				C				D			D		
Timer - Assigned Phs	1	2	4		5	6	8								
Phs Duration (G+Y+Rc), s	7.0	61.3	28.0		13.0	65.3	28.0								
Change Period (Y+Rc), s	4.4	6.2	4.9		4.4	6.2	4.9								
Max Green Setting (Gmax), s	30.0	60.0	40.0		40.0	60.0	30.0								
Max Q Clear Time (g_c+12.5), s	12.5	12.0	17.7		8.8	33.4	16.9								
Green Ext Time (p_c), s	0.2	22.0	0.1		0.1	25.7	0.8								

Intersection Summary

HCM 6th Ctrl Delay	23.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 9: Fenton Pkwy & Friars Rd

Horizon Year
 AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑↑	↗		↖↗	↑↑↑	↗	↖↗	↑	↗	↖↗	↗	↗
Traffic Volume (veh/h)	50	830	60	10	210	1870	30	100	10	180	90	20	190
Future Volume (veh/h)	50	830	60	10	210	1870	30	100	10	180	90	20	190
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	902	35		228	2033	20	109	11	12	98	22	20
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	102	3144	1070		295	3430	1134	205	138	116	155	100	130
Arrive On Green	0.03	0.62	0.62		0.03	0.22	0.22	0.06	0.07	0.07	0.04	0.05	0.05
Sat Flow, veh/h	3456	5106	1585		3456	5106	1585	3456	1870	1579	3563	1870	1570
Grp Volume(v), veh/h	54	902	35		228	2033	20	109	11	12	98	22	20
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1585	1728	1870	1579	1781	1870	1570
Q Serve(g_s), s	1.7	9.1	0.3		7.2	39.2	0.9	3.4	0.6	0.8	3.0	1.2	1.0
Cycle Q Clear(g_c), s	1.7	9.1	0.3		7.2	39.2	0.9	3.4	0.6	0.8	3.0	1.2	1.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	102	3144	1070		295	3430	1134	205	138	116	155	100	130
V/C Ratio(X)	0.53	0.29	0.03		0.77	0.59	0.02	0.53	0.08	0.10	0.63	0.22	0.15
Avail Cap(c_a), veh/h	286	3144	1070		459	3430	1134	349	537	453	347	531	492
HCM Platoon Ratio	1.00	1.00	1.00		0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.96	0.96	0.96		0.72	0.72	0.72	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.6	9.9	1.4		52.4	29.3	10.9	50.3	47.5	47.6	51.7	49.9	30.2
Incr Delay (d2), s/veh	1.5	0.2	0.1		1.2	0.5	0.0	0.8	1.1	1.7	1.6	5.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.1	0.2		3.2	17.9	0.3	1.5	0.3	0.4	1.4	0.7	0.5
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	54.2	10.1	1.5		53.6	29.9	10.9	51.0	48.6	49.3	53.3	54.9	32.7
LnGrp LOS	D	B	A		D	C	B	D	D	D	D	D	C
Approach Vol, veh/h		991				2281			132			140	
Approach Delay, s/veh		12.2				32.1			50.7			50.6	
Approach LOS		B				C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	13.8	74.0	11.4	10.8	7.6	80.2	9.2	13.0					
Change Period (Y+Rc), s	4.4	6.3	4.9	*4.9	4.4	*6.3	4.4	4.9					
Max Green Setting (Gmax), s	14.6	33.1	11.1	*31	9.1	*39	10.7	31.6					
Max Q Clear Time (g_c+1), s	19.2	11.1	5.4	3.2	3.7	41.2	5.0	2.8					
Green Ext Time (p_c), s	0.2	12.4	0.1	0.4	0.0	0.0	0.1	0.2					

Intersection Summary

HCM 6th Ctrl Delay	27.9
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 10: Northside Dr & Friars Rd

Horizon Year
 AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↑↑↑	↔	↔↔	↑↑↑	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	10	40	710	270	570	1790	70	120	10	250	200	40	190
Future Volume (veh/h)	10	40	710	270	570	1790	70	120	10	250	200	40	190
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		42	747	284	600	1884	51	126	11	203	211	42	48
Peak Hour Factor		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		91	2166	671	600	2919	1021	185	264	497	276	313	266
Arrive On Green		0.01	0.14	0.14	0.17	0.57	0.57	0.05	0.14	0.14	0.08	0.17	0.17
Sat Flow, veh/h		3456	5106	1582	3456	5106	1565	3456	1870	1568	3456	1870	1585
Grp Volume(v), veh/h		42	747	284	600	1884	51	126	11	203	211	42	48
Grp Sat Flow(s),veh/h/ln		1728	1702	1582	1728	1702	1565	1728	1870	1568	1728	1870	1585
Q Serve(g_s), s		1.3	14.5	18.1	19.1	27.6	1.3	3.9	0.6	11.2	6.6	2.1	2.9
Cycle Q Clear(g_c), s		1.3	14.5	18.1	19.1	27.6	1.3	3.9	0.6	11.2	6.6	2.1	2.9
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		91	2166	671	600	2919	1021	185	264	497	276	313	266
V/C Ratio(X)		0.46	0.34	0.42	1.00	0.65	0.05	0.68	0.04	0.41	0.76	0.13	0.18
Avail Cap(c_a), veh/h		254	2166	671	600	2919	1021	346	452	654	471	520	441
HCM Platoon Ratio		0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.93	0.93	0.93	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		53.7	33.5	35.0	45.4	16.0	6.9	51.1	40.8	29.6	49.6	39.0	39.3
Incr Delay (d2), s/veh		1.3	0.4	1.8	33.9	0.9	0.1	1.6	0.2	1.6	1.7	0.9	1.5
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.6	6.7	8.0	10.7	9.8	0.4	1.8	0.3	4.5	2.9	1.1	1.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		55.0	33.9	36.8	79.3	16.9	7.0	52.8	41.0	31.2	51.3	39.9	40.8
LnGrp LOS		E	C	D	E	B	A	D	D	C	D	D	D
Approach Vol, veh/h			1073			2535			340			301	
Approach Delay, s/veh			35.5			31.5			39.5			48.0	
Approach LOS			D			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	23.5	52.9	10.3	23.3	7.3	69.1	13.2	20.4					
Change Period (Y+Rc), s	4.4	* 6.2	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	19.5	* 30	11.0	30.6	8.1	40.4	15.0	26.6					
Max Q Clear Time (g_c+D1), s	21.5	20.1	5.9	4.9	3.3	29.6	8.6	13.2					
Green Ext Time (p_c), s	0.0	6.3	0.1	1.3	0.0	10.3	0.2	1.5					

Intersection Summary

HCM 6th Ctrl Delay	34.3
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 12: Mission Village Dr & Friars Rd WB

Horizon Year
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕	↕	↕↕			↕↕	↕
Traffic Volume (veh/h)	0	0	0	90	0	540	270	830	0	0	530	280
Future Volume (veh/h)	0	0	0	90	0	540	270	830	0	0	530	280
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				97	0	581	290	892	0	0	570	174
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				690	0	613	329	1706	0	0	840	375
Arrive On Green				0.39	0.00	0.39	0.18	0.48	0.00	0.00	0.24	0.24
Sat Flow, veh/h				1781	0	1584	1781	3647	0	0	3647	1585
Grp Volume(v), veh/h				97	0	581	290	892	0	0	570	174
Grp Sat Flow(s),veh/h/ln				1781	0	1584	1781	1777	0	0	1777	1585
Q Serve(g_s), s				3.2	0.0	31.9	14.2	15.6	0.0	0.0	13.1	8.5
Cycle Q Clear(g_c), s				3.2	0.0	31.9	14.2	15.6	0.0	0.0	13.1	8.5
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				690	0	613	329	1706	0	0	840	375
V/C Ratio(X)				0.14	0.00	0.95	0.88	0.52	0.00	0.00	0.68	0.46
Avail Cap(c_a), veh/h				793	0	705	1190	5056	0	0	2374	1059
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				17.8	0.0	26.6	35.6	16.2	0.0	0.0	31.2	29.4
Incr Delay (d2), s/veh				0.0	0.0	19.5	3.1	0.2	0.0	0.0	1.3	1.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.2	0.0	14.1	6.1	5.6	0.0	0.0	5.4	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				17.9	0.0	46.1	38.7	16.5	0.0	0.0	32.5	30.6
LnGrp LOS				B	A	D	D	B	A	A	C	C
Approach Vol, veh/h					678			1182			744	
Approach Delay, s/veh					42.1			21.9			32.0	
Approach LOS					D			C			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		50.1			21.9	28.2		39.7				
Change Period (Y+Rc), s		* 7			5.3	7.0		4.9				
Max Green Setting (Gmax), s* 1.3E2					60.0	60.0		40.0				
Max Q Clear Time (g_c+11), s		17.6			16.2	15.1		33.9				
Green Ext Time (p_c), s		6.9			0.4	6.1		0.9				

Intersection Summary

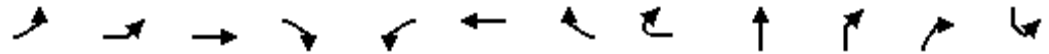
HCM 6th Ctrl Delay	30.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
 13: Mission Village Dr & Friars Rd EB & San Diego Mission Rd

Horizon Year
 AM Peak Hour



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBT	NBR	NBR2	SBL2		
Lane Configurations														
Traffic Volume (vph)	210	0	80	20	10	0	870	140	10	20	10	390		
Future Volume (vph)	210	0	80	20	10	0	870	140	10	20	10	390		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)		5.2	5.2			5.4	5.4		4.9					
Lane Util. Factor		1.00	1.00			0.95	0.95		0.95					
Frbp, ped/bikes		1.00	1.00			1.00	1.00		0.99					
Flpb, ped/bikes		1.00	1.00			1.00	1.00		1.00					
Frt		1.00	0.97			0.85	0.85		0.89					
Flt Protected		0.95	1.00			1.00	1.00		1.00					
Satd. Flow (prot)		1770	1802			1508	1504		3103					
Flt Permitted		0.95	1.00			1.00	1.00		1.00					
Satd. Flow (perm)		1770	1802			1508	1504		3103					
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89		
Adj. Flow (vph)	236	0	90	22	11	0	978	157	11	22	11	438		
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	10	0	0	0		
Lane Group Flow (vph)	0	236	112	0	0	578	568	0	34	0	0	0		
Confl. Peds. (#/hr)				2	2					1	1			
Confl. Bikes (#/hr)				1										
Turn Type	Split	Split	NA		Split	NA	Perm		NA			Split		
Protected Phases	4	4	4		3	3			2			1		
Permitted Phases							3							
Actuated Green, G (s)		25.9	25.9			40.4	40.4		8.3					
Effective Green, g (s)		25.9	25.9			40.4	40.4		8.3					
Actuated g/C Ratio		0.17	0.17			0.26	0.26		0.05					
Clearance Time (s)		5.2	5.2			5.4	5.4		4.9					
Vehicle Extension (s)		3.0	3.0			3.0	3.0		3.0					
Lane Grp Cap (vph)		292	297			388	387		164					
v/s Ratio Prot		c0.13	0.06			c0.38			c0.01					
v/s Ratio Perm							0.38							
v/c Ratio		0.81	0.38			1.49	1.47		0.20					
Uniform Delay, d1		63.1	58.3			58.2	58.2		71.1					
Progression Factor		1.00	1.00			1.00	1.00		1.00					
Incremental Delay, d2		15.0	0.8			233.7	224.2		0.6					
Delay (s)		78.2	59.1			291.9	282.4		71.8					
Level of Service		E	E			F	F		E					
Approach Delay (s)			72.0			287.2			71.8					
Approach LOS			E			F			E					
Intersection Summary														
HCM 2000 Control Delay			173.4									HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio			0.94											
Actuated Cycle Length (s)			156.9						21.7				Sum of lost time (s)	
Intersection Capacity Utilization			88.7%										ICU Level of Service	E
Analysis Period (min)			15											
c Critical Lane Group														

HCM Signalized Intersection Capacity Analysis
 13: Mission Village Dr & Friars Rd EB & San Diego Mission Rd

Horizon Year
 AM Peak Hour



Movement	SBL	SBT
Lane Configurations		
Traffic Volume (vph)	140	80
Future Volume (vph)	140	80
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.2	6.2
Lane Util. Factor	0.91	0.91
Frbp, ped/bikes	1.00	1.00
Flpb, ped/bikes	1.00	1.00
Frt	1.00	1.00
Flt Protected	0.95	0.97
Satd. Flow (prot)	1610	3290
Flt Permitted	0.95	0.97
Satd. Flow (perm)	1610	3290
Peak-hour factor, PHF	0.89	0.89
Adj. Flow (vph)	157	90
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	454	231
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Turn Type	Split	NA
Protected Phases	1	1
Permitted Phases		
Actuated Green, G (s)	60.6	60.6
Effective Green, g (s)	60.6	60.6
Actuated g/C Ratio	0.39	0.39
Clearance Time (s)	6.2	6.2
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	621	1270
v/s Ratio Prot	c0.28	0.07
v/s Ratio Perm		
v/c Ratio	0.73	0.18
Uniform Delay, d1	41.2	31.8
Progression Factor	1.00	1.00
Incremental Delay, d2	4.4	0.1
Delay (s)	45.6	31.9
Level of Service	D	C
Approach Delay (s)		41.0
Approach LOS		D
Intersection Summary		

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

Horizon Year
 AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↗		↖	↑↑↑	↗				↖	↗	↖↗
Traffic Volume (veh/h)	300	730	350	60	330	1710	520	0	0	0	770	10	810
Future Volume (veh/h)	300	730	350	60	330	1710	520	0	0	0	770	10	810
Initial Q (Qb), veh	0	0	0		0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	319	777	102		351	1819	0				827	0	856
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	447	1972	612		374	1634					910	0	1605
Arrive On Green	0.25	0.39	0.39		0.42	0.64	0.00				0.26	0.00	0.26
Sat Flow, veh/h	1781	5106	1585		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	319	777	102		351	1819	0				827	0	856
Grp Sat Flow(s),veh/h/ln	1781	1702	1585		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	18.0	12.1	4.6		20.7	35.2	0.0				24.8	0.0	0.0
Cycle Q Clear(g_c), s	18.0	12.1	4.6		20.7	35.2	0.0				24.8	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	447	1972	612		374	1634					910	0	1605
V/C Ratio(X)	0.71	0.39	0.17		0.94	1.11					0.91	0.00	0.53
Avail Cap(c_a), veh/h	447	1972	612		534	1634					1069	0	1747
HCM Platoon Ratio	1.00	1.00	1.00		2.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.09	0.09	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	37.6	24.4	22.1		31.2	19.8	0.0				39.7	0.0	18.4
Incr Delay (d2), s/veh	4.6	0.6	0.6		2.2	51.9	0.0				9.4	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	4.8	1.8		6.4	13.8	0.0				12.0	0.0	13.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	42.2	25.0	22.7		33.4	71.7	0.0				49.1	0.0	18.5
LnGrp LOS	D	C	C		C	F					D	A	B
Approach Vol, veh/h		1198				2170	A					1683	
Approach Delay, s/veh		29.4				65.5						33.5	
Approach LOS		C				E						C	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	37.3	49.5		33.2	34.6	42.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	33	27.7		33.0	25.0	* 35							
Max Q Clear Time (g_c+20), s	20.7	14.1		26.8	20.0	37.2							
Green Ext Time (p_c), s	0.4	3.0		1.3	0.2	0.0							

Intersection Summary

HCM 6th Ctrl Delay	46.3
HCM 6th LOS	D

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

Horizon Year
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖				↑↑↑							↗
Traffic Volume (veh/h)	520	1070	0	0	2180	1740	0	0	300	0	0	420
Future Volume (veh/h)	520	1070	0	0	2180	1740	0	0	300	0	0	420
Initial Q (Qb), veh	20	0	0	0	0	20						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach	No				No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	547	1126	0	0	2295	1832						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	567	0	0	0	2125	1801						
Arrive On Green	0.32	0.95	0.00	0.00	0.57	0.57						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	547	0	0	0	2295	1832						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	33.2	0.0	0.0	0.0	62.5	62.5						
Cycle Q Clear(g_c), s	33.2	0.0	0.0	0.0	62.5	62.5						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	567	0	0	0	2125	1801						
V/C Ratio(X)	0.97	0.00	0.00	0.00	1.08	1.02						
Avail Cap(c_a), veh/h	567	0	0	0	2125	1801						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.73	0.00	0.00	0.00	0.40	0.40						
Uniform Delay (d), s/veh	37.5	0.0	0.0	0.0	23.7	23.8						
Incr Delay (d2), s/veh	23.8	0.0	0.0	0.0	40.0	17.9						
Initial Q Delay(d3),s/veh	11.3	0.0	0.0	0.0	0.0	40.0						
%ile BackOfQ(50%),veh	35.6	0.0	0.0	0.0	35.5	34.6						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	172.7	0.0	0.0	0.0	63.8	81.6						
LnGrp LOS	F	A	A	A	F	F						
Approach Vol, veh/h	547				4127							
Approach Delay, s/veh	172.7				71.7							
Approach LOS	F				E							
Timer - Assigned Phs	2				5		6					
Phs Duration (G+Y+Rc), s	110.0				40.5		69.5					
Change Period (Y+Rc), s	5.5				5.5		7.0					
Max Green Setting (Gmax), s	104.5				35.0		62.5					
Max Q Clear Time (g_c+I1), s	0.0				35.2		64.5					
Green Ext Time (p_c), s	0.0				0.0		0.0					

Intersection Summary

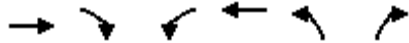
HCM 6th Ctrl Delay	83.5
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

Horizon Year
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↘	↗
Traffic Volume (veh/h)	1060	320	100	3130	800	100
Future Volume (veh/h)	1060	320	100	3130	800	100
Initial Q (Qb), veh	0	0	0	20	20	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1128	237	106	3330	851	34
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1945	1048	330	3979	996	444
Arrive On Green	0.13	0.13	0.20	0.64	0.26	0.26
Sat Flow, veh/h	5274	1585	1781	6696	3563	1585
Grp Volume(v), veh/h	1128	237	106	3330	851	34
Grp Sat Flow(s),veh/h/ln	1702	1585	1781	1609	1781	1585
Q Serve(g_s), s	22.9	8.7	5.5	42.9	25.4	1.8
Cycle Q Clear(g_c), s	22.9	8.7	5.5	42.9	25.4	1.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1945	1048	330	3979	996	444
V/C Ratio(X)	0.58	0.23	0.32	0.84	0.85	0.08
Avail Cap(c_a), veh/h	1945	1020	361	4094	1185	527
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.59	0.59	0.77	0.77
Uniform Delay (d), s/veh	39.8	11.0	38.9	17.3	38.7	29.2
Incr Delay (d2), s/veh	1.3	0.5	0.1	1.1	3.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	1.1	20.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	6.5	2.4	15.5	15.2	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.1	11.5	39.0	19.5	62.3	29.2
LnGrp LOS	D	B	D	B	E	C
Approach Vol, veh/h	1365			3436	885	
Approach Delay, s/veh	35.9			20.1	61.1	
Approach LOS	D			C	E	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	28.3	47.7		76.0	34.0	
Change Period (Y+Rc), s	6.0	* 5.8		6.0	5.1	
Max Green Setting (Gmax), s	16.2	* 42		62.3	36.6	
Max Q Clear Time (g_c+1), s	17.5	24.9		44.9	27.4	
Green Ext Time (p_c), s	0.1	10.2		17.3	1.5	

Intersection Summary

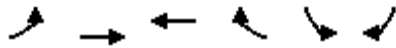
HCM 6th Ctrl Delay	30.3
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: Friars Rd & Santo Rd

Horizon Year
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑↑		↔↔	↔
Traffic Volume (veh/h)	130	990	2790	70	80	380
Future Volume (veh/h)	130	990	2790	70	80	380
Initial Q (Qb), veh	0	0	80	0	50	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1811	1826	1826	1870	1870
Adj Flow Rate, veh/h	131	1000	2818	69	81	384
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	6	5	5	2	2
Cap, veh/h	188	3166	3471	58	885	512
Arrive On Green	0.05	0.66	0.57	0.57	0.25	0.25
Sat Flow, veh/h	3456	5107	6609	155	3456	1585
Grp Volume(v), veh/h	131	1000	2088	799	81	384
Grp Sat Flow(s),veh/h/ln	1728	1648	1570	1798	1728	1585
Q Serve(g_s), s	4.5	10.2	40.8	41.0	2.2	26.9
Cycle Q Clear(g_c), s	4.5	10.2	40.8	41.0	2.2	26.9
Prop In Lane	1.00			0.09	1.00	1.00
Lane Grp Cap(c), veh/h	188	3166	2546	986	885	512
V/C Ratio(X)	0.70	0.32	0.82	0.81	0.09	0.75
Avail Cap(c_a), veh/h	449	3282	2699	1030	1022	555
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.86	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	55.8	9.8	25.4	24.5	36.5	36.3
Incr Delay (d2), s/veh	1.5	0.2	0.3	0.7	0.0	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	22.2	15.7	25.3	0.0
%ile BackOfQ(50%),veh/ln	1.9	3.6	23.7	24.8	7.0	22.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	57.3	10.0	47.9	40.9	61.9	40.7
LnGrp LOS	E	A	D	D	E	D
Approach Vol, veh/h		1131	2887		465	
Approach Delay, s/veh		15.5	46.0		44.4	
Approach LOS		B	D		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		86.2		33.8	10.9	75.3
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		73.6		35.5	15.6	* 54
Max Q Clear Time (g_c+I1), s		12.2		28.9	6.5	43.0
Green Ext Time (p_c), s		9.6		0.6	0.1	10.6

Intersection Summary

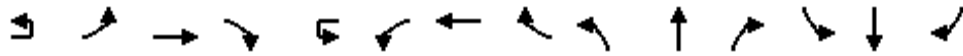
HCM 6th Ctrl Delay	38.1
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 21: Riverdale St & Friars Rd

Horizon Year
 AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔ ↑↑↑	↔ ↑↑↑	↔ ↑		↔ ↑↑↑	↔ ↑↑↑	↔ ↑	↔ ↑	↔ ↑		↔ ↑	↔ ↑	
Traffic Volume (veh/h)	10	70	680	250	20	130	2630	30	130	30	30	20	140	170
Future Volume (veh/h)	10	70	680	250	20	130	2630	30	130	30	30	20	140	170
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		0.99	0.99		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No			No		
Adj Sat Flow, veh/h/ln		1870	1781	1826		1826	1841	1841	1781	1870	1870	1781	1870	1870
Adj Flow Rate, veh/h		73	708	124		135	2740	16	135	31	7	21	146	135
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		2	8	5		5	4	4	8	2	2	8	2	2
Cap, veh/h		94	2442	776		162	2728	845	193	393	89	390	237	220
Arrive On Green		0.05	0.50	0.50		0.09	0.54	0.54	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h		1781	4863	1546		1739	5025	1557	1042	1475	333	1296	891	824
Grp Volume(v), veh/h		73	708	124		135	2740	16	135	0	38	21	0	281
Grp Sat Flow(s),veh/h/ln		1781	1621	1546		1739	1675	1557	1042	0	1808	1296	0	1715
Q Serve(g_s), s		4.5	9.3	4.8		8.4	59.7	0.5	13.5	0.0	1.7	1.4	0.0	15.8
Cycle Q Clear(g_c), s		4.5	9.3	4.8		8.4	59.7	0.5	29.3	0.0	1.7	3.1	0.0	15.8
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.18	1.00		0.48
Lane Grp Cap(c), veh/h		94	2442	776		162	2728	845	193	0	482	390	0	457
V/C Ratio(X)		0.78	0.29	0.16		0.83	1.00	0.02	0.70	0.00	0.08	0.05	0.00	0.61
Avail Cap(c_a), veh/h		228	2442	776		223	2728	845	193	0	482	390	0	457
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.98	0.98	0.98		0.80	0.80	0.80	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		51.5	16.0	14.8		49.0	25.1	11.6	48.6	0.0	30.2	31.4	0.0	35.4
Incr Delay (d2), s/veh		5.0	0.3	0.4		10.5	16.5	0.0	9.0	0.0	0.0	0.0	0.0	1.8
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.1	3.3	1.7		4.0	24.9	0.2	4.2	0.0	0.8	0.4	0.0	6.8
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		56.5	16.3	15.3		59.5	41.6	11.6	57.6	0.0	30.3	31.4	0.0	37.2
LnGrp LOS		E	B	B		E	F	B	E	A	C	C	A	D
Approach Vol, veh/h			905				2891			173			302	
Approach Delay, s/veh			19.4				42.3			51.6			36.8	
Approach LOS			B				D			D			D	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	4.7	61.1		34.2	10.2	65.6		34.2						
Change Period (Y+Rc), s	4.4	* 5.9		4.9	4.4	5.9		4.9						
Max Green Setting (Gmax), s	14.1	* 52		29.3	14.1	51.4		29.3						
Max Q Clear Time (g_c+10), s	11.0	11.3		17.8	6.5	61.7		31.3						
Green Ext Time (p_c), s	0.1	7.4		0.9	0.0	0.0		0.0						

Intersection Summary

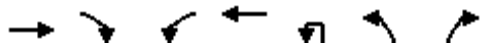
HCM 6th Ctrl Delay	37.4
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 22: Mission Gorge Rd & Friars Rd

Horizon Year
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↔	↑↑↑		↔	↔
Traffic Volume (veh/h)	550	170	560	2690	30	170	270
Future Volume (veh/h)	550	170	560	2690	30	170	270
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	567	0	577	2773		185	63
Peak Hour Factor	0.97	0.97	0.97	0.97		0.92	0.92
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2962		615	0		215	832
Arrive On Green	0.58	0.00	0.18	0.00		0.12	0.12
Sat Flow, veh/h	5443	0	3456	577		1781	2790
Grp Volume(v), veh/h	567	0	577	70.7		185	63
Grp Sat Flow(s),veh/h/ln	1702	0	1728	E		1781	1395
Q Serve(g_s), s	6.3	0.0	19.8			12.2	0.0
Cycle Q Clear(g_c), s	6.3	0.0	19.8			12.2	0.0
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2962		615			215	832
V/C Ratio(X)	0.19		0.94			0.86	0.08
Avail Cap(c_a), veh/h	2962		615			306	975
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.97	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	11.9	0.0	48.7			51.8	30.2
Incr Delay (d2), s/veh	0.1	0.0	22.1			12.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	10.1			6.2	0.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	12.0	0.0	70.7			63.8	30.2
LnGrp LOS	B		E			E	C
Approach Vol, veh/h	567	A				248	
Approach Delay, s/veh	12.0					55.3	
Approach LOS	B					E	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	25.7	75.4					18.9
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	69.6					20.6
Max Q Clear Time (g_c+D), s	11.8	8.3					14.2
Green Ext Time (p_c), s	0.0	4.5					0.2

Intersection Summary

HCM 6th Ctrl Delay	44.1
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 23: Qualcomm Way & Rio San Diego Dr

Horizon Year
 AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑	↗		↔↔	↑↑	↗	↔↔	↑↑↑	↗	↔↔	↑↑↑	
Traffic Volume (veh/h)	120	50	170	20	330	50	70	90	580	810	90	280	60
Future Volume (veh/h)	120	50	170	20	330	50	70	90	580	810	90	280	60
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	130	54	21		359	54	11	98	630	518	98	304	51
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	217	130	187		476	512	223	173	2370	723	172	2052	334
Arrive On Green	0.06	0.07	0.07		0.14	0.14	0.14	0.05	0.46	0.46	0.05	0.46	0.46
Sat Flow, veh/h	3456	1870	1551		3456	3554	1549	3456	5106	1556	3456	4424	719
Grp Volume(v), veh/h	130	54	21		359	54	11	98	630	518	98	232	123
Grp Sat Flow(s),veh/h/ln	1728	1870	1551		1728	1777	1549	1728	1702	1556	1728	1702	1739
Q Serve(g_s), s	2.5	1.9	0.8		6.9	0.9	0.4	1.9	5.2	18.4	1.9	2.7	2.8
Cycle Q Clear(g_c), s	2.5	1.9	0.8		6.9	0.9	0.4	1.9	5.2	18.4	1.9	2.7	2.8
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.41
Lane Grp Cap(c), veh/h	217	130	187		476	512	223	173	2370	723	172	1579	807
V/C Ratio(X)	0.60	0.42	0.11		0.75	0.11	0.05	0.57	0.27	0.72	0.57	0.15	0.15
Avail Cap(c_a), veh/h	1505	1086	980		1505	2064	900	3011	4449	1356	1505	2966	1515
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.4	30.7	27.1		28.6	25.6	25.4	32.0	11.3	14.8	32.0	10.6	10.7
Incr Delay (d2), s/veh	1.0	2.1	0.3		0.9	0.1	0.1	1.1	0.1	1.9	1.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0	0.9	0.3		2.7	0.4	0.1	0.8	1.7	5.8	0.8	0.9	1.0
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	32.4	32.8	27.3		29.5	25.7	25.5	33.0	11.4	16.7	33.1	10.7	10.8
LnGrp LOS	C	C	C		C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		205				424			1246			453	
Approach Delay, s/veh		32.0				28.9			15.3			15.6	
Approach LOS		C				C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	7.8	37.1	13.9	10.1	7.9	37.0	8.7	15.2					
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3					
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0					
Max Q Clear Time (g_c+1), s	13.9	20.4	8.9	3.9	3.9	4.8	4.5	2.9					
Green Ext Time (p_c), s	0.1	11.6	0.6	0.3	0.2	4.1	0.2	0.3					

Intersection Summary

HCM 6th Ctrl Delay	19.3
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection															
Intersection Delay, s/veh	12.9														
Intersection LOS	B														

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↗	↕		↗	↕				↕				↕	
Traffic Vol, veh/h	20	120	150	20	0	390	110	10	10	10	10	10	20	0	230
Future Vol, veh/h	20	120	150	20	0	390	110	10	10	10	10	10	20	0	230
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	128	160	21	0	415	117	11	11	11	11	11	21	0	245
Number of Lanes	0	1	2	0	1	2	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	11.2	13.4	10.7	14.4
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	33%	100%	0%	0%	0%	0%	0%	8%
Vol Thru, %	33%	0%	100%	71%	100%	100%	54%	0%
Vol Right, %	33%	0%	0%	29%	0%	0%	46%	92%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	140	100	70	0	260	240	260
LT Vol	13	140	0	0	0	0	0	21
Through Vol	13	0	100	50	0	260	130	0
RT Vol	13	0	0	20	0	0	110	239
Lane Flow Rate	43	149	106	74	0	277	255	277
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.085	0.283	0.187	0.127	0	0.469	0.41	0.473
Departure Headway (Hd)	7.214	6.843	6.334	6.13	6.108	6.108	5.782	6.151
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	494	523	564	582	0	589	620	584
Service Time	4.999	4.608	4.098	3.894	3.866	3.866	3.539	3.911
HCM Lane V/C Ratio	0.087	0.285	0.188	0.127	0	0.47	0.411	0.474
HCM Control Delay	10.7	12.3	10.6	9.8	8.9	14.2	12.5	14.4
HCM Lane LOS	B	B	B	A	N	B	B	B
HCM 95th-tile Q	0.3	1.2	0.7	0.4	0	2.5	2	2.5

HCM 6th Signalized Intersection Summary
 25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy

Horizon Year
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	100	90	50	10	140	120	40	80	10	30	80	70	160
Future Volume (veh/h)	100	90	50	10	140	120	40	80	10	30	80	70	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00		1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	109	111	3	11	161	46	46	92	5		92	80	35
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87		0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	212	223	188	24	358	106	71	624	34		221	505	208
Arrive On Green	0.12	0.12	0.12	0.14	0.14	0.14	0.04	0.18	0.18		0.06	0.21	0.21
Sat Flow, veh/h	1781	1870	1577	177	2630	775	1781	3428	185		3456	2448	1010
Grp Volume(v), veh/h	109	111	3	116	0	102	46	47	50		92	57	58
Grp Sat Flow(s),veh/h/ln	1781	1870	1577	1862	0	1721	1781	1777	1836		1728	1777	1682
Q Serve(g_s), s	2.3	2.2	0.1	2.3	0.0	2.2	1.0	0.9	0.9		1.0	1.0	1.1
Cycle Q Clear(g_c), s	2.3	2.2	0.1	2.3	0.0	2.2	1.0	0.9	0.9		1.0	1.0	1.1
Prop In Lane	1.00		1.00	0.09		0.45	1.00		0.10		1.00		0.60
Lane Grp Cap(c), veh/h	212	223	188	253	0	234	71	324	334		221	366	347
V/C Ratio(X)	0.51	0.50	0.02	0.46	0.00	0.44	0.65	0.15	0.15		0.42	0.15	0.17
Avail Cap(c_a), veh/h	1785	1874	1580	1865	0	1724	1339	2671	2760		2597	2671	2528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	16.5	16.5	15.5	15.9	0.0	15.8	18.9	13.7	13.7		18.0	13.0	13.0
Incr Delay (d2), s/veh	1.2	1.1	0.0	0.5	0.0	0.5	3.6	1.0	0.9		0.5	0.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.8	0.0	0.9	0.0	0.8	0.4	0.4	0.4		0.4	0.5	0.5
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	17.7	17.5	15.5	16.4	0.0	16.3	22.5	14.7	14.7		18.4	13.9	14.1
LnGrp LOS	B	B	B	B	A	B	C	B	B		B	B	B
Approach Vol, veh/h		223			218			143				207	
Approach Delay, s/veh		17.6			16.3			17.2				16.0	
Approach LOS		B			B			B				B	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	7.0	12.7		10.0	6.0	13.6		10.3					
Change Period (Y+Rc), s	4.4	* 5.4		5.2	4.4	5.4		4.9					
Max Green Setting (Gmax), s	30.0	* 60		40.0	30.0	60.0		40.0					
Max Q Clear Time (g_c+1), s	13.0	2.9		4.3	3.0	3.1		4.3					
Green Ext Time (p_c), s	0.1	2.0		0.6	0.0	2.5		0.9					

Intersection Summary

HCM 6th Ctrl Delay	16.7
HCM 6th LOS	B

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 26: Rancho Mission Rd & San Diego Mission Rd

Horizon Year
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖	↖↗	↖	↖	↖↗
Traffic Volume (veh/h)	50	70	110	190	570	280	310	320	50	100	150	80
Future Volume (veh/h)	50	70	110	190	570	280	310	320	50	100	150	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	79	20	213	640	282	348	360	12	112	169	16
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	785	191	253	907	399	388	529	446	143	272	224
Arrive On Green	0.04	0.28	0.28	0.14	0.38	0.38	0.22	0.28	0.28	0.08	0.15	0.15
Sat Flow, veh/h	1781	2820	687	1781	2388	1052	1781	1870	1577	1781	1870	1539
Grp Volume(v), veh/h	56	49	50	213	476	446	348	360	12	112	169	16
Grp Sat Flow(s),veh/h/ln	1781	1777	1730	1781	1777	1663	1781	1870	1577	1781	1870	1539
Q Serve(g_s), s	2.7	1.7	1.9	10.0	19.5	19.5	16.3	14.7	0.5	5.3	7.3	0.8
Cycle Q Clear(g_c), s	2.7	1.7	1.9	10.0	19.5	19.5	16.3	14.7	0.5	5.3	7.3	0.8
Prop In Lane	1.00		0.40	1.00		0.63	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	72	495	482	253	675	632	388	529	446	143	272	224
V/C Ratio(X)	0.77	0.10	0.10	0.84	0.71	0.71	0.90	0.68	0.03	0.78	0.62	0.07
Avail Cap(c_a), veh/h	725	1034	1006	725	1137	1064	622	1088	917	622	1088	895
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	23.0	23.1	35.9	22.6	22.6	32.7	27.4	22.3	38.8	34.5	31.7
Incr Delay (d2), s/veh	6.4	0.1	0.1	2.9	2.2	2.4	6.7	0.6	0.0	3.5	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.7	0.7	4.4	7.9	7.4	7.5	6.3	0.2	2.4	3.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.3	23.1	23.2	38.9	24.8	25.0	39.3	28.0	22.3	42.3	35.4	31.8
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	D	C
Approach Vol, veh/h		155			1135			720			297	
Approach Delay, s/veh		31.9			27.5			33.4			37.8	
Approach LOS		C			C			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.2	29.4	22.7	17.6	7.5	38.1	10.9	29.4				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	* 5.5	4.0	* 5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	* 55	30.0	* 50				
Max Q Clear Time (g_c+1/2g), s	11.0	3.9	18.3	9.3	4.7	21.5	7.3	16.7				
Green Ext Time (p_c), s	0.3	0.8	0.4	0.6	0.1	11.1	0.1	1.4				

Intersection Summary

HCM 6th Ctrl Delay	31.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave

Horizon Year
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↕	↗		↕	↗	
Traffic Volume (veh/h)	40	120	90	70	690	30	160	130	40	10	90	230
Future Volume (veh/h)	40	120	90	70	690	30	160	130	40	10	90	230
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	47	140	54	81	802	33	186	151	39	12	105	207
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	142	395	964	125	1251	58	258	207	53	399	125	246
Arrive On Green	0.47	0.47	0.47	0.47	0.47	0.47	0.15	0.15	0.15	0.22	0.22	0.22
Sat Flow, veh/h	187	848	1578	158	2689	124	1781	1425	368	1781	557	1098
Grp Volume(v), veh/h	187	0	54	468	0	448	186	0	190	12	0	312
Grp Sat Flow(s),veh/h/ln1035	0	1578	1292	0	1679	1781	0	1793	1781	0	1655	
Q Serve(g_s), s	1.7	0.0	1.1	11.5	0.0	15.9	8.1	0.0	8.3	0.4	0.0	14.7
Cycle Q Clear(g_c), s	17.6	0.0	1.1	29.1	0.0	15.9	8.1	0.0	8.3	0.4	0.0	14.7
Prop In Lane	0.25		1.00	0.17		0.07	1.00		0.21	1.00		0.66
Lane Grp Cap(c), veh/h	537	0	964	653	0	781	258	0	260	399	0	371
V/C Ratio(X)	0.35	0.00	0.06	0.72	0.00	0.57	0.72	0.00	0.73	0.03	0.00	0.84
Avail Cap(c_a), veh/h	993	0	1528	1197	0	1319	1027	0	1034	962	0	894
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.7	0.0	6.4	19.9	0.0	15.9	33.3	0.0	33.3	24.7	0.0	30.2
Incr Delay (d2), s/veh	0.4	0.0	0.0	1.4	0.0	0.6	1.4	0.0	1.5	0.0	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.9	0.0	0.0	0.5	8.0	0.0	5.9	3.5	0.0	3.6	0.2	0.0	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.0	0.0	6.4	21.3	0.0	16.5	34.7	0.0	34.8	24.7	0.0	32.2
LnGrp LOS	B	A	A	C	A	B	C	A	C	C	A	C
Approach Vol, veh/h		241			916			376			324	
Approach Delay, s/veh		12.3			18.9			34.7			32.0	
Approach LOS		B			B			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		42.4		22.8		42.4		16.3				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		67.0		44.0		64.0		47.0				
Max Q Clear Time (g_c+11), s		19.6		16.7		31.1		10.3				
Green Ext Time (p_c), s		1.4		1.4		6.9		1.0				

Intersection Summary

HCM 6th Ctrl Delay	23.5
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary

28: Qualcomm Way & Camino de la Reina/Camino del Rio N

Horizon Year
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↔	↔	↔		↔	↔	↔	↔	↔	↔		↔	↔	↔
Traffic Volume (veh/h)	10	40	110	100	10	310	260	260	120	1000	490	10	120	480	40
Future Volume (veh/h)	10	40	110	100	10	310	260	260	120	1000	490	10	120	480	40
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.97	1.00		0.98		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No				No			No				No	
Adj Sat Flow, veh/h/ln		1781	1870	1870		1870	1870	1870	1841	1856	1870		1870	1811	1811
Adj Flow Rate, veh/h		44	122	23		344	289	26	133	1111	487		133	533	38
Peak Hour Factor		0.90	0.90	0.90		0.90	0.90	0.90	0.90	0.90	0.90		0.90	0.90	0.90
Percent Heavy Veh, %		8	2	2		2	2	2	4	3	2		2	6	6
Cap, veh/h		54	335	240		451	668	288	216	2187	669		218	2030	143
Arrive On Green		0.03	0.09	0.09		0.13	0.19	0.19	0.06	0.43	0.43		0.06	0.43	0.43
Sat Flow, veh/h		1697	3741	1555		3456	3554	1530	3401	5066	1550		3456	4709	333
Grp Volume(v), veh/h		44	122	23		344	289	26	133	1111	487		133	372	199
Grp Sat Flow(s),veh/h/ln		1697	1870	1555		1728	1777	1530	1700	1689	1550		1728	1648	1745
Q Serve(g_s), s		1.9	2.3	0.9		7.1	5.3	1.0	2.8	11.9	19.4		2.8	5.4	5.5
Cycle Q Clear(g_c), s		1.9	2.3	0.9		7.1	5.3	1.0	2.8	11.9	19.4		2.8	5.4	5.5
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.19
Lane Grp Cap(c), veh/h		54	335	240		451	668	288	216	2187	669		218	1421	753
V/C Ratio(X)		0.81	0.36	0.10		0.76	0.43	0.09	0.62	0.51	0.73		0.61	0.26	0.27
Avail Cap(c_a), veh/h		685	1510	728		1395	1434	618	1373	3407	1043		1395	2217	1174
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		35.7	31.9	27.1		31.2	26.7	24.9	33.9	15.4	17.5		33.9	13.6	13.6
Incr Delay (d2), s/veh		10.0	0.5	0.1		1.0	0.2	0.0	1.1	0.2	1.4		1.0	0.3	0.5
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.9	1.0	0.3		2.8	2.1	0.4	1.2	4.1	6.1		1.2	1.9	2.0
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		45.7	32.3	27.2		32.2	26.8	25.0	35.0	15.5	18.9		35.0	13.8	14.1
LnGrp LOS		D	C	C		C	C	C	C	B	B		C	B	B
Approach Vol, veh/h			189				659			1731				704	
Approach Delay, s/veh			34.8				29.6			18.0				17.9	
Approach LOS			C				C			B				B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8							
Phs Duration (G+Y+Rc), s	9.1	38.8	14.1	12.3	9.1	38.7	6.8	19.7							
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7							
Max Green Setting (Gmax), s	30.0	50.0	30.0	* 30	30.0	* 50	30.0	30.0							
Max Q Clear Time (g_c+1), s	14.8	21.4	9.1	4.3	4.8	7.5	3.9	7.3							
Green Ext Time (p_c), s	0.2	10.7	0.6	0.6	0.2	8.9	0.0	1.1							

Intersection Summary

HCM 6th Ctrl Delay	21.3
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

Horizon Year
 AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔	↑↑↑			↑↑	↔
Traffic Volume (veh/h)	10	50	0	110	20	190	660	130	1220	0	0	390	480
Future Volume (veh/h)	10	50	0	110	20	190	660	130	1220	0	0	390	480
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1722	0	1796	1870	1870	1870	1870	1870	0	0	1826	1870
Adj Flow Rate, veh/h		54	0	17	22	204	544	140	1312	0	0	419	78
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		12	0	7	2	2	2	2	2	0	0	5	2
Cap, veh/h		0	0	0	68	632	596	312	2369	0	0	786	349
Arrive On Green		0.00	0.00	0.00	0.38	0.38	0.38	0.18	0.46	0.00	0.00	0.23	0.23
Sat Flow, veh/h			0		181	1680	1584	1781	5274	0	0	3561	1538
Grp Volume(v), veh/h			0.0		226	0	544	140	1312	0	0	419	78
Grp Sat Flow(s),veh/h/ln					1861	0	1584	1781	1702	0	0	1735	1538
Q Serve(g_s), s					6.5	0.0	24.7	5.3	14.0	0.0	0.0	8.0	3.1
Cycle Q Clear(g_c), s					6.5	0.0	24.7	5.3	14.0	0.0	0.0	8.0	3.1
Prop In Lane					0.10		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					700	0	596	312	2369	0	0	786	349
V/C Ratio(X)					0.32	0.00	0.91	0.45	0.55	0.00	0.00	0.53	0.22
Avail Cap(c_a), veh/h					1107	0	942	800	3846	0	0	2659	1179
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)					1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh					16.8	0.0	22.4	27.9	14.6	0.0	0.0	25.7	23.8
Incr Delay (d2), s/veh					0.1	0.0	6.1	0.4	0.1	0.0	0.0	1.2	0.7
Initial Q Delay(d3),s/veh					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln					2.5	0.0	8.9	2.2	4.8	0.0	0.0	3.3	1.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					16.9	0.0	28.6	28.3	14.7	0.0	0.0	26.9	24.5
LnGrp LOS					B	A	C	C	B	A	A	C	C
Approach Vol, veh/h						770			1452			497	
Approach Delay, s/veh						25.1			16.0			26.6	
Approach LOS						C			B			C	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		42.1			18.0	24.2		33.6					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		57.0			* 34	58.0		45.0					
Max Q Clear Time (g_c+I1), s		16.0			7.3	10.0		26.7					
Green Ext Time (p_c), s		7.7			0.1	6.7		1.6					

Intersection Summary

HCM 6th Ctrl Delay	20.5
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Horizon Year
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	620	0	1310	900	0
Future Volume (veh/h)	0	620	0	1310	900	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1856	0
Adj Flow Rate, veh/h	0	583	0	1351	928	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	2	0	2	3	0
Cap, veh/h	0	0	0	2600	2580	0
Arrive On Green	0.00	0.00	0.00	0.73	0.73	0.00
Sat Flow, veh/h	0		0	3741	3711	0
Grp Volume(v), veh/h	0.0		0	1351	928	0
Grp Sat Flow(s),veh/h/ln			0	1777	1763	0
Q Serve(g_s), s			0.0	3.4	2.0	0.0
Cycle Q Clear(g_c), s			0.0	3.4	2.0	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2600	2580	0
V/C Ratio(X)			0.00	0.52	0.36	0.00
Avail Cap(c_a), veh/h			0	6067	6019	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	1.2	1.0	0.0
Incr Delay (d2), s/veh			0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	1.3	1.0	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1351	928	
Approach Delay, s/veh				1.3	1.0	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		20.5				20.5
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		35.0				35.0
Max Q Clear Time (g_c+I1), s		5.4				4.0
Green Ext Time (p_c), s		7.9				4.7
Intersection Summary						
HCM 6th Ctrl Delay			1.2			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
 31: Texas St & Camino del Rio S

Horizon Year
 AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↘	↗	↗	↘	↗	↗	↘	↗	↗	↘	↗	↗
Traffic Volume (veh/h)	10	100	50	60	70	90	120	150	1360	170	480	570	290
Future Volume (veh/h)	10	100	50	60	70	90	120	150	1360	170	480	570	290
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.98	1.00		0.96	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1811	1663	1870	1841	1870	1796	1841	1870	1870	1870	1870	1826
Adj Flow Rate, veh/h		104	52	12	73	94	51	156	1417	173	500	594	181
Peak Hour Factor		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		6	16	2	4	2	7	4	2	2	2	2	5
Cap, veh/h		141	136	295	171	182	597	184	1098	133	529	1913	816
Arrive On Green		0.08	0.08	0.08	0.10	0.10	0.10	0.10	0.35	0.35	0.30	0.54	0.54
Sat Flow, veh/h		1725	1663	1579	1753	1870	1489	1753	3176	384	1781	3554	1515
Grp Volume(v), veh/h		104	52	12	73	94	51	156	786	804	500	594	181
Grp Sat Flow(s),veh/h/ln		1725	1663	1579	1753	1870	1489	1753	1777	1783	1781	1777	1515
Q Serve(g_s), s		7.1	3.6	0.8	4.7	5.8	2.6	10.6	41.8	41.8	33.2	11.2	7.6
Cycle Q Clear(g_c), s		7.1	3.6	0.8	4.7	5.8	2.6	10.6	41.8	41.8	33.2	11.2	7.6
Prop In Lane		1.00		1.00	1.00		1.00	1.00		0.22	1.00		1.00
Lane Grp Cap(c), veh/h		141	136	295	171	182	597	184	615	617	529	1913	816
V/C Ratio(X)		0.74	0.38	0.04	0.43	0.52	0.09	0.85	1.28	1.30	0.94	0.31	0.22
Avail Cap(c_a), veh/h		428	413	558	409	436	800	363	615	617	1070	2646	1128
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		54.2	52.6	40.3	51.4	51.9	23.0	53.2	39.5	39.5	41.5	15.5	14.6
Incr Delay (d2), s/veh		7.2	1.7	0.1	4.6	6.1	0.2	4.2	137.9	148.3	4.0	0.2	0.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.4	1.6	0.3	2.3	3.0	0.9	4.8	41.2	43.2	14.8	4.5	2.6
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		61.4	54.3	40.3	56.0	58.0	23.1	57.4	177.4	187.8	45.5	15.7	14.9
LnGrp LOS		E	D	D	E	E	C	E	F	F	D	B	B
Approach Vol, veh/h			168			218			1746			1275	
Approach Delay, s/veh			57.7			49.2			171.5			27.3	
Approach LOS			E			D			F			C	
Timer - Assigned Phs	1	2	4	5	6	8							
Phs Duration (G+Y+Rc), s	40.3	47.0		14.8	17.1	70.2		18.8					
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0					
Max Green Setting (Gmax), s	72.6	41.8		30.0	25.0	* 90		28.2					
Max Q Clear Time (g_c+Rc), s	45.2	43.8		9.1	12.6	13.2		7.8					
Green Ext Time (p_c), s	0.7	0.0		0.5	0.2	11.7		1.9					

Intersection Summary

HCM 6th Ctrl Delay	104.1
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Int Delay, s/veh 1.8

Movement EBL EBR NBL NBT SBT SBR

Lane Configurations						
Traffic Vol, veh/h	40	80	30	640	530	20
Future Vol, veh/h	40	80	30	640	530	20
Conflicting Peds, #/hr	32	33	33	0	0	32
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	65	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	83	31	667	552	21

Major/Minor Minor2 Major1 Major2

Conflicting Flow All	1024	353	606	0	-	0
Stage 1	596	-	-	-	-	-
Stage 2	428	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	231	643	968	-	-	-
Stage 1	513	-	-	-	-	-
Stage 2	625	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	206	603	938	-	-	-
Mov Cap-2 Maneuver	206	-	-	-	-	-
Stage 1	471	-	-	-	-	-
Stage 2	606	-	-	-	-	-

Approach EB NB SB

HCM Control Delay, s 16.9 0.6 0
 HCM LOS C

Minor Lane/Major Mvmt NBL NBT EBLn1 EBLn2 SBT SBR

Capacity (veh/h)	938	-	206	603	-	-
HCM Lane V/C Ratio	0.033	-	0.202	0.138	-	-
HCM Control Delay (s)	9	0.2	26.9	11.9	-	-
HCM Lane LOS	A	A	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.7	0.5	-	-

HCM 6th Signalized Intersection Summary
 33: Camino del Rio N & Ward Rd

Horizon Year
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↗	↑↑	↑↑	↗	↗	↗
Traffic Volume (veh/h)	90	50	650	580	240	380
Future Volume (veh/h)	90	50	650	580	240	380
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	93	52	670	428	247	315
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	121	2101	1594	696	400	464
Arrive On Green	0.07	0.59	0.45	0.45	0.22	0.22
Sat Flow, veh/h	1781	3647	3647	1551	1781	1585
Grp Volume(v), veh/h	93	52	670	428	247	315
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1551	1781	1585
Q Serve(g_s), s	3.0	0.4	7.6	12.4	7.4	10.4
Cycle Q Clear(g_c), s	3.0	0.4	7.6	12.4	7.4	10.4
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	121	2101	1594	696	400	464
V/C Ratio(X)	0.77	0.02	0.42	0.62	0.62	0.68
Avail Cap(c_a), veh/h	1326	4209	4209	1837	1326	1288
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.1	5.0	11.1	12.4	20.6	18.5
Incr Delay (d2), s/veh	3.8	0.0	0.3	1.4	0.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.1	2.3	3.5	2.8	8.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	30.8	5.0	11.3	13.8	21.2	19.1
LnGrp LOS	C	A	B	B	C	B
Approach Vol, veh/h		145	1098		562	
Approach Delay, s/veh		21.6	12.3		20.0	
Approach LOS		C	B		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		40.9		18.2	8.4	32.5
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		2.4		12.4	5.0	14.4
Green Ext Time (p_c), s		0.5		0.9	0.1	12.1

Intersection Summary

HCM 6th Ctrl Delay	15.4
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 34: Fairmount Ave & Mission Gorge Rd

Horizon Year
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↗	↕			↗	↕	
Traffic Volume (veh/h)	20	10	300	20	10	0	40	520	1180	30	10	10	670	20
Future Volume (veh/h)	20	10	300	20	10	0	40	520	1180	30	10	10	670	20
Initial Q (Qb), veh	0	0	15	0	15	0	0	0	0	0	0	0	15	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		1.00	1.00		0.99		1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	354	22	11	0	559	1269	31		11	720	20	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	269	453	127	101	0	922	2561	63		18	1633	43	
Arrive On Green	0.00	0.00	0.14	0.14	0.14	0.00	0.55	1.00	1.00		0.01	0.46	0.46	
Sat Flow, veh/h	0	1870	3010	749	494	0	3456	3545	87		1781	3531	98	
Grp Volume(v), veh/h	0	0	354	33	0	0	559	636	664		11	362	378	
Grp Sat Flow(s),veh/h/ln	0	1870	1505	1243	0	0	1728	1777	1854		1781	1777	1852	
Q Serve(g_s), s	0.0	0.0	13.2	1.2	0.0	0.0	12.4	0.0	0.0		0.7	15.8	15.9	
Cycle Q Clear(g_c), s	0.0	0.0	13.2	2.2	0.0	0.0	12.4	0.0	0.0		0.7	15.8	15.9	
Prop In Lane	0.00		1.00	0.67		0.00	1.00		0.05		1.00		0.05	
Lane Grp Cap(c), veh/h	0	269	453	239	0	0	922	1284	1340		18	820	856	
V/C Ratio(X)	0.00	0.00	0.78	0.14	0.00	0.00	0.61	0.50	0.50		0.60	0.44	0.44	
Avail Cap(c_a), veh/h	0	335	539	273	0	0	947	1297	1353		156	820	855	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00		1.00	1.00	1.00	
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.12	0.12	0.12		1.00	1.00	1.00	
Uniform Delay (d), s/veh	0.0	0.0	48.2	44.5	0.0	0.0	22.7	0.0	0.0		56.7	21.6	21.5	
Incr Delay (d2), s/veh	0.0	0.0	5.0	0.3	0.0	0.0	0.1	0.2	0.2		11.1	1.7	1.7	
Initial Q Delay(d3),s/veh	0.0	0.0	36.2	32.9	0.0	0.0	0.0	0.0	0.0		0.0	1.1	1.0	
%ile BackOfQ(50%),veh/ln	0.0	0.0	8.4	4.8	0.0	0.0	4.1	0.1	0.1		0.4	8.1	8.4	
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	89.4	77.7	0.0	0.0	22.8	0.2	0.2		67.8	24.4	24.2	
LnGrp LOS	A	A	F	E	A	A	C	A	A		E	C	C	
Approach Vol, veh/h		354			33			1859					751	
Approach Delay, s/veh		89.4			77.7			7.0					24.9	
Approach LOS		F			E			A					C	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	5.6	88.8		20.6	36.4	58.0		20.6						
Change Period (Y+Rc), s	4.4	4.9		4.9	4.9	* 4.9		4.9						
Max Green Setting (Gmax), s	10.0	70.1		20.6	27.1	* 53		20.6						
Max Q Clear Time (g_c+1/2), s	12.5	2.0		15.2	14.4	17.9		4.2						
Green Ext Time (p_c), s	0.0	31.3		0.5	1.0	10.8		0.1						

Intersection Summary

HCM 6th Ctrl Delay	22.0
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis
 35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

Horizon Year
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↔	↖	↖	↕		↖	↕	↖
Traffic Volume (vph)	50	30	310	490	700	280	480	1470	180	10	880	130
Future Volume (vph)	50	30	310	490	700	280	480	1470	180	10	880	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	0.99	1.00	0.95	0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1747	1578	1610	3168	1424	1770	3477		3433	3539	1583
Flt Permitted	0.95	0.99	1.00	0.95	0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1747	1578	1610	3168	1424	1770	3477		3433	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	32	326	516	737	295	505	1547	189	11	926	137
RTOR Reduction (vph)	0	0	85	0	0	0	0	8	0	0	0	89
Lane Group Flow (vph)	42	43	241	418	865	265	505	1728	0	11	926	48
Confl. Peds. (#/hr)						2			1			
Confl. Bikes (#/hr)			2			2						
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	7	5	8	8	1	5	2		1	6	
Permitted Phases			7			8						6
Actuated Green, G (s)	8.0	8.0	35.0	25.0	25.0	33.0	27.0	53.0		8.0	34.0	34.0
Effective Green, g (s)	8.0	8.0	35.0	25.0	25.0	33.0	27.0	53.0		8.0	34.0	34.0
Actuated g/C Ratio	0.07	0.07	0.30	0.22	0.22	0.29	0.23	0.46		0.07	0.30	0.30
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	116	121	544	350	688	408	415	1602		238	1046	468
v/s Ratio Prot	0.02	0.02	c0.10	0.26	c0.27	0.05	c0.29	c0.50		0.00	c0.26	
v/s Ratio Perm			0.05			0.14						0.03
v/c Ratio	0.36	0.36	0.44	1.19	1.26	0.65	1.22	1.08		0.05	0.89	0.10
Uniform Delay, d1	51.1	51.0	32.2	45.0	45.0	35.9	44.0	31.0		49.9	38.6	29.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.64	0.78	1.30
Incremental Delay, d2	0.7	0.7	0.2	112.1	127.4	2.7	117.8	47.0		0.0	9.8	0.4
Delay (s)	51.8	51.7	32.4	157.1	172.4	38.6	161.8	78.0		31.8	39.7	38.7
Level of Service	D	D	C	F	F	D	F	E		C	D	D
Approach Delay (s)		36.4			145.4			96.9			39.5	
Approach LOS		D			F			F			D	

Intersection Summary		
HCM 2000 Control Delay	94.7	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.10	F
Actuated Cycle Length (s)	115.0	Sum of lost time (s)
Intersection Capacity Utilization	99.3%	ICU Level of Service
Analysis Period (min)	15	F

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 36: Fairmount Ave & I-8 EB Off-Ramp

Horizon Year
 AM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	820	860	300	0	1070	660	0
Future Volume (veh/h)	820	860	300	0	1070	660	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1826	1870		0	1856	1856	0
Adj Flow Rate, veh/h	1010	1012		0	1289	795	0
Peak Hour Factor	0.83	0.83		0.83	0.83	0.83	0.83
Percent Heavy Veh, %	5	2		0	3	3	0
Cap, veh/h	1353	1233		0	1613	2317	0
Arrive On Green	0.39	0.39		0.00	0.46	0.46	0.00
Sat Flow, veh/h	3478	3170		0	3711	5400	0
Grp Volume(v), veh/h	1010	1012		0	1289	795	0
Grp Sat Flow(s),veh/h/ln	1739	1585		0	1763	1689	0
Q Serve(g_s), s	18.1	20.7		0.0	22.6	7.3	0.0
Cycle Q Clear(g_c), s	18.1	20.7		0.0	22.6	7.3	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	1353	1233		0	1613	2317	0
V/C Ratio(X)	0.75	0.82		0.00	0.80	0.34	0.00
Avail Cap(c_a), veh/h	2117	1929		0	3740	3644	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.0	19.8		0.0	16.8	12.6	0.0
Incr Delay (d2), s/veh	0.3	0.8		0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	7.1		0.0	8.2	2.5	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	19.3	20.7		0.0	17.1	12.7	0.0
LnGrp LOS	B	C		A	B	B	A
Approach Vol, veh/h	2022				1289	795	
Approach Delay, s/veh	20.0				17.1	12.7	
Approach LOS	B				B	B	
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				39.1		33.2	39.1
Change Period (Y+Rc), s				6.0		5.1	6.0
Max Green Setting (Gmax), s				52.0		44.0	76.7
Max Q Clear Time (g_c+I1), s				9.3		22.7	24.6
Green Ext Time (p_c), s				4.3		5.4	8.5

Intersection Summary

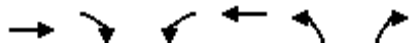
HCM 6th Ctrl Delay	17.7
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
37: Collwood Blvd & Montezuma Rd

Horizon Year
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↓
Traffic Volume (veh/h)	470	470	70	1210	1150	60
Future Volume (veh/h)	470	470	70	1210	1150	60
Initial Q (Qb), veh	0	0	0	30	30	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1663	1870	1870	1618
Adj Flow Rate, veh/h	500	417	74	1287	1223	42
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	16	2	2	19
Cap, veh/h	1551	1276	91	1917	1341	523
Arrive On Green	0.45	0.45	0.06	0.54	0.37	0.37
Sat Flow, veh/h	3618	1538	1584	3647	3456	1372
Grp Volume(v), veh/h	500	417	74	1287	1223	42
Grp Sat Flow(s),veh/h/ln	1763	1538	1584	1777	1728	1372
Q Serve(g_s), s	11.4	8.4	5.8	32.7	43.4	2.5
Cycle Q Clear(g_c), s	11.4	8.4	5.8	32.7	43.4	2.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1551	1276	91	1917	1341	523
V/C Ratio(X)	0.32	0.33	0.81	0.67	0.91	0.08
Avail Cap(c_a), veh/h	1588	1275	158	1929	1341	532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.0	2.8	58.7	22.5	38.5	24.9
Incr Delay (d2), s/veh	0.6	0.7	6.3	1.9	9.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	5.4	40.9	0.0
%ile BackOfQ(50%),veh/ln	4.9	1.9	2.5	17.5	29.2	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.6	3.5	65.0	29.8	88.8	24.9
LnGrp LOS	C	A	E	C	F	C
Approach Vol, veh/h	917			1361	1265	
Approach Delay, s/veh	14.4			31.7	86.7	
Approach LOS	B			C	F	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	11.7	63.3		74.9	51.1	
Change Period (Y+Rc), s	4.4	* 6.5		6.5	4.4	
Max Green Setting (Gmax), s	12.6	* 50		66.2	48.9	
Max Q Clear Time (g_c+1), s	17.8	13.4		34.7	45.4	
Green Ext Time (p_c), s	0.0	9.1		18.7	1.2	

Intersection Summary

HCM 6th Ctrl Delay	46.9
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
38: Mission Village Dr & Shawn Ave

Horizon Year
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔		↖	↕↕	↗	↖	↕↕	
Traffic Volume (veh/h)	120	10	60	50	10	30	50	1110	10	10	510	40
Future Volume (veh/h)	120	10	60	50	10	30	50	1110	10	10	510	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	129	11	12	54	11	6	54	1194	6	11	548	37
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	379	118	129	373	164	90	603	2128	933	355	2021	136
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	1312	743	810	1273	1034	564	829	3554	1559	466	3375	227
Grp Volume(v), veh/h	129	0	23	54	0	17	54	1194	6	11	288	297
Grp Sat Flow(s),veh/h/ln	1312	0	1553	1273	0	1598	829	1777	1559	466	1777	1825
Q Serve(g_s), s	3.7	0.0	0.5	1.5	0.0	0.4	1.4	8.5	0.1	0.6	3.3	3.3
Cycle Q Clear(g_c), s	4.0	0.0	0.5	2.0	0.0	0.4	4.7	8.5	0.1	9.2	3.3	3.3
Prop In Lane	1.00		0.52	1.00		0.35	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	379	0	247	373	0	254	603	2128	933	355	1064	1093
V/C Ratio(X)	0.34	0.00	0.09	0.14	0.00	0.07	0.09	0.56	0.01	0.03	0.27	0.27
Avail Cap(c_a), veh/h	1479	0	1475	1467	0	1518	1288	5063	2220	740	2531	2600
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.8	0.0	15.1	16.0	0.0	15.1	5.2	5.1	3.4	7.9	4.0	4.0
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.1	0.0	0.0	0.1	0.3	0.0	0.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.2	0.4	0.0	0.1	0.1	1.3	0.0	0.0	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.0	0.0	15.2	16.0	0.0	15.1	5.2	5.4	3.4	7.9	4.2	4.2
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		152			71			1254			596	
Approach Delay, s/veh		16.7			15.8			5.4			4.3	
Approach LOS		B			B			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		30.5		11.6		30.5		11.6				
Change Period (Y+Rc), s		5.3		4.9		5.3		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		10.5		6.0		11.2		4.0				
Green Ext Time (p_c), s		14.6		0.6		5.0		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				6.2								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary
 39: Mission Village Dr & Fermi Ave

Horizon Year
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕		↙	↕	
Traffic Volume (veh/h)	50	20	20	100	10	100	10	1190	110	70	450	10
Future Volume (veh/h)	50	20	20	100	10	100	10	1190	110	70	450	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	55	22	13	110	11	83	11	1308	117	77	495	10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	209	79	36	203	27	109	19	1929	172	100	2247	45
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.01	0.59	0.59	0.06	0.63	0.63
Sat Flow, veh/h	785	463	211	772	156	637	1781	3292	293	1781	3560	72
Grp Volume(v), veh/h	90	0	0	204	0	0	11	704	721	77	247	258
Grp Sat Flow(s),veh/h/ln1458		0	0	1565	0	0	1781	1777	1809	1781	1777	1855
Q Serve(g_s), s	0.0	0.0	0.0	5.4	0.0	0.0	0.5	21.1	21.3	3.3	4.6	4.6
Cycle Q Clear(g_c), s	4.0	0.0	0.0	9.4	0.0	0.0	0.5	21.1	21.3	3.3	4.6	4.6
Prop In Lane	0.61		0.14	0.54		0.41	1.00		0.16	1.00		0.04
Lane Grp Cap(c), veh/h	324	0	0	339	0	0	19	1041	1060	100	1122	1171
V/C Ratio(X)	0.28	0.00	0.00	0.60	0.00	0.00	0.57	0.68	0.68	0.77	0.22	0.22
Avail Cap(c_a), veh/h	820	0	0	655	0	0	688	1373	1398	688	1373	1434
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.2	0.0	0.0	30.3	0.0	0.0	38.2	11.0	11.1	36.1	6.1	6.1
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.6	0.0	0.0	9.3	1.5	1.5	4.6	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.5	0.0	0.0	0.0	3.6	0.0	0.0	0.2	6.9	7.2	1.5	1.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.4	0.0	0.0	31.0	0.0	0.0	47.5	12.5	12.6	40.7	6.3	6.3
LnGrp LOS	C	A	A	C	A	A	D	B	B	D	A	A
Approach Vol, veh/h		90			204			1436			582	
Approach Delay, s/veh		28.4			31.0			12.8			10.9	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.8	50.7		18.2	5.2	54.2		18.2				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	5.2		4.9				
Max Green Setting (Gmax), s	30.0	60.0		40.0	30.0	60.0		30.0				
Max Q Clear Time (g_c+1/3), s	15.3	23.3		6.0	2.5	6.6		11.4				
Green Ext Time (p_c), s	0.1	22.2		0.4	0.0	6.2		0.8				

Intersection Summary

HCM 6th Ctrl Delay	14.5
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
 40: Gramercy Dr/Mission Village Dr & Ruffin Rd

Horizon Year
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	260	30	40	480	830	20	10	20	240	20	50
Future Volume (veh/h)	70	260	30	40	480	830	20	10	20	240	20	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	80	295	31	45	545	803	23	11	0	273	23	29
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	155	1988	207	677	1090	955	158	316	0	519	106	134
Arrive On Green	0.61	0.61	0.61	0.61	0.61	0.61	0.09	0.09	0.00	0.15	0.15	0.15
Sat Flow, veh/h	405	3242	338	1051	1777	1557	1781	3647	0	3563	731	922
Grp Volume(v), veh/h	80	161	165	45	545	803	23	11	0	273	0	52
Grp Sat Flow(s),veh/h/ln	405	1777	1803	1051	1777	1557	1781	1777	0	1781	0	1652
Q Serve(g_s), s	19.2	3.8	3.8	1.9	16.7	40.3	1.2	0.3	0.0	6.9	0.0	2.7
Cycle Q Clear(g_c), s	59.6	3.8	3.8	5.7	16.7	40.3	1.2	0.3	0.0	6.9	0.0	2.7
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.00	1.00		0.56
Lane Grp Cap(c), veh/h	155	1090	1105	677	1090	955	158	316	0	519	0	241
V/C Ratio(X)	0.52	0.15	0.15	0.07	0.50	0.84	0.15	0.03	0.00	0.53	0.00	0.22
Avail Cap(c_a), veh/h	155	1090	1105	677	1090	955	728	1453	0	1456	0	676
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.9	8.0	8.1	9.3	10.6	15.1	41.1	40.7	0.0	38.7	0.0	36.9
Incr Delay (d2), s/veh	3.6	0.1	0.1	0.1	0.4	7.0	0.2	0.0	0.0	0.3	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	1.4	1.5	0.4	6.3	14.9	0.5	0.1	0.0	3.0	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.5	8.1	8.1	9.3	11.0	22.1	41.3	40.8	0.0	39.0	0.0	37.0
LnGrp LOS	D	A	A	A	B	C	D	D	A	D	A	D
Approach Vol, veh/h		406			1393			34			325	
Approach Delay, s/veh		14.9			17.3			41.1			38.7	
Approach LOS		B			B			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.1		19.1		65.1		13.6				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		61.6		8.9		42.3		3.2				
Green Ext Time (p_c), s		0.0		0.7		11.7		0.1				

Intersection Summary

HCM 6th Ctrl Delay	20.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

Horizon Year
AM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↖↗	↑↑	↖↗	↗
Traffic Volume (veh/h)	680	120	10	250	600	560	730
Future Volume (veh/h)	680	120	10	250	600	560	730
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	739	120		272	652	609	610
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1361	1231		324	1815	1398	641
Arrive On Green	0.38	0.38		0.09	0.51	0.40	0.40
Sat Flow, veh/h	3647	1540		3456	3647	3456	1585
Grp Volume(v), veh/h	739	120		272	652	609	610
Grp Sat Flow(s),veh/h/ln1777	1540			1728	1777	1728	1585
Q Serve(g_s), s	21.1	2.3		10.1	14.3	16.6	48.4
Cycle Q Clear(g_c), s	21.1	2.3		10.1	14.3	16.6	48.4
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1361	1231		324	1815	1398	641
V/C Ratio(X)	0.54	0.10		0.84	0.36	0.44	0.95
Avail Cap(c_a), veh/h	1361	1231		391	1815	1614	740
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.88	0.88
Uniform Delay (d), s/veh	31.2	3.2		57.9	19.1	28.0	37.5
Incr Delay (d2), s/veh	1.6	0.2		11.0	0.6	0.1	17.9
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.5		4.8	5.8	6.9	21.6
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	32.8	3.3		69.0	19.6	28.0	55.4
LnGrp LOS	C	A		E	B	C	E
Approach Vol, veh/h	859			924	1219		
Approach Delay, s/veh	28.7			34.1	41.7		
Approach LOS	C			C	D		
Timer - Assigned Phs	1	2		6	8		
Phs Duration (G+Y+Rc), s	66.6	55.5		72.1	57.9		
Change Period (Y+Rc), s	4.4	* 5.7		5.7	5.3		
Max Green Setting (Gmax), s	44.7	* 40		58.3	60.7		
Max Q Clear Time (g_c+112), s	112.1	23.1		16.3	50.4		
Green Ext Time (p_c), s	0.1	7.8		6.5	2.2		

Intersection Summary

HCM 6th Ctrl Delay	35.7
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mobley St & Gramercy Dr

Horizon Year
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	190	30	30	460	100	90	40	60	80	10	20
Future Volume (veh/h)	20	190	30	30	460	100	90	40	60	80	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1826	1841	1737	1870	1870	1870	1870	1870	1707	1707	1707
Adj Flow Rate, veh/h	21	200	13	32	484	80	95	42	45	84	11	13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	5	4	11	2	2	2	2	2	13	13	13
Cap, veh/h	508	1515	655	663	1325	218	329	133	94	444	58	41
Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	841	3469	1501	1072	3036	499	631	549	388	987	241	168
Grp Volume(v), veh/h	21	200	13	32	282	282	182	0	0	108	0	0
Grp Sat Flow(s),veh/h/ln	841	1735	1501	1072	1777	1758	1567	0	0	1396	0	0
Q Serve(g_s), s	0.5	1.1	0.2	0.6	3.3	3.3	1.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.9	1.1	0.2	1.6	3.3	3.3	2.9	0.0	0.0	1.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.28	0.52		0.25	0.78		0.12
Lane Grp Cap(c), veh/h	508	1515	655	663	776	767	555	0	0	543	0	0
V/C Ratio(X)	0.04	0.13	0.02	0.05	0.36	0.37	0.33	0.00	0.00	0.20	0.00	0.00
Avail Cap(c_a), veh/h	1765	6701	2900	2265	3432	3395	2130	0	0	1846	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.2	5.2	5.0	5.7	5.9	5.9	10.0	0.0	0.0	9.6	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.1	0.5	0.5	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.2	0.0	0.1	0.7	0.7	0.8	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.2	5.3	5.0	5.8	6.4	6.4	10.1	0.0	0.0	9.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	A	A	A
Approach Vol, veh/h		234			596			182			108	
Approach Delay, s/veh		5.5			6.4			10.1			9.6	
Approach LOS		A			A			B			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		18.7		12.4		18.7		12.4				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		5.9		3.7		5.3		4.9				
Green Ext Time (p_c), s		3.0		0.5		7.6		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				7.1								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary
43: Sandrock Rd & Greyling Dr/Gramercy Dr

Horizon Year
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕	↕	↕	↕
Traffic Volume (veh/h)	60	90	10	10	110	420	0	20	20	240	10	60
Future Volume (veh/h)	60	90	10	10	110	420	0	20	20	240	10	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.92	0.96		0.94	1.00		1.00	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1663	1870	1870	1870	1841	1870	1870
Adj Flow Rate, veh/h	65	98	8	11	120	207	0	22	0	269	0	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	2	2	16	2	2	2	4	2	2
Cap, veh/h	278	355	24	131	614	712	0	41	35	638	0	268
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.00	0.02	0.00	0.18	0.00	0.18
Sat Flow, veh/h	388	1039	70	50	1795	1331	0	1870	1585	3506	0	1472
Grp Volume(v), veh/h	171	0	0	131	0	207	0	22	0	269	0	15
Grp Sat Flow(s),veh/h/ln1497	0	0	1845	0	1331	0	1870	1585	1753	0	1472	
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.4	0.0	2.3	0.0	0.3
Cycle Q Clear(g_c), s	2.3	0.0	0.0	1.7	0.0	3.0	0.0	0.4	0.0	2.3	0.0	0.3
Prop In Lane	0.38		0.05	0.08		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	657	0	0	745	0	712	0	41	35	638	0	268
V/C Ratio(X)	0.26	0.00	0.00	0.18	0.00	0.29	0.00	0.53	0.00	0.42	0.00	0.06
Avail Cap(c_a), veh/h	1197	0	0	1445	0	1231	0	1096	929	3081	0	1293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.2	0.0	0.0	7.9	0.0	4.6	0.0	16.5	0.0	12.4	0.0	11.5
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.1	0.0	3.9	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln0.7	0.0	0.0	0.4	0.0	0.8	0.0	0.2	0.0	0.7	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.2	0.0	0.0	8.0	0.0	4.7	0.0	20.4	0.0	12.5	0.0	11.6
LnGrp LOS	A	A	A	A	A	A	A	C	A	B	A	B
Approach Vol, veh/h		171			338			22			284	
Approach Delay, s/veh		8.2			6.0			20.4			12.5	
Approach LOS		A			A			C			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.0		11.5		17.0		5.7				
Change Period (Y+Rc), s		5.3		5.3		5.3		4.9				
Max Green Setting (Gmax), s		25.0		30.0		25.0		20.0				
Max Q Clear Time (g_c+I1), s		4.3		4.3		5.0		2.4				
Green Ext Time (p_c), s		0.7		0.5		0.8		0.0				

Intersection Summary

HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Arterial Level of Service: EB Friars Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SR-163 SB Ramps	II	45	27.1	39.9	67.0	0.26	14.0	E
SR-163 NB Ramps	II	45	23.6	9.5	33.1	0.22	23.6	C
Frazee Rd	II	45	14.8	19.2	34.0	0.14	14.3	E
River Run Dr	II	45	119.1	16.5	135.6	1.49	39.5	A
Fenton Pkwy	II	45	23.6	19.1	42.7	0.22	18.3	D
Northside Dr	II	45	28.6	26.6	55.2	0.29	18.9	D
Stadium Way	II	45	23.0	0.1	23.1	0.21	32.9	B
I-15 SB Ramps	II	45	46.1	33.2	79.3	0.58	26.2	C
I-15 NB Ramps	II	45	23.9	0.0	23.9	0.22	33.1	B
Rancho Mission Rd	II	45	19.6	25.0	44.6	0.18	14.5	E
Santo Rd	II	45	24.1	1.7	25.8	0.22	30.9	B
Riverdale St	II	45	31.8	17.5	49.3	0.32	23.5	C
Mission Gorge Rd	II	45	11.2	9.8	21.0	0.10	17.6	D
Total	II		416.5	218.1	634.6	4.44	25.2	C

Arterial Level of Service: WB Friars Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Riverdale St	II	45	11.2	48.8	60.0	0.10	6.1	F
Santo Rd	II	45	31.8	11.3	43.1	0.32	26.9	C
Rancho Mission Rd	II	45	24.1	21.3	45.4	0.22	17.6	D
I-15 NB Ramps	II	45	19.6	123.2	142.8	0.18	4.5	F
I-15 SB Ramps	II	45	23.9	50.4	74.3	0.22	10.6	F
Stadium Way	II	45	46.1	0.4	46.5	0.58	44.6	A
Northside Dr	II	45	23.0	21.5	44.5	0.21	17.1	D
Fenton Pkwy	II	45	28.6	27.7	56.3	0.29	18.5	D
	II	45	23.6	21.5	45.1	0.22	17.3	D
Frazee Rd	II	45	119.1	55.4	174.5	1.49	30.7	B
SR-163 NB Ramps	II	45	14.8	25.4	40.2	0.14	12.1	F
Ulric St	II	45	23.6	20.4	44.0	0.22	17.7	D
Total	II		389.4	427.3	816.7	4.18	18.4	D

Arterial Level of Service: NB Rancho Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
San Diego Mission Rd	III	35	41.0	43.6	84.6	0.34	14.5	D
Friars Rd	III	35	48.3	46.2	94.5	0.40	15.3	D
Total	III		89.3	89.8	179.1	0.74	15.0	D

Arterial Level of Service: SB Rancho Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
San Diego Mission Rd	III	35	48.3	58.1	106.4	0.40	13.6	E
Total	III		48.3	58.1	106.4	0.40	13.6	E

Arterial Level of Service: EB San Diego Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rancho Mission Rd	II	40	54.6	15.8	70.4	0.61	31.0	B
Fairmount Ave	II	40	50.6	28.7	79.3	0.56	25.5	C
Total	II		105.2	44.5	149.7	1.17	28.1	B

Arterial Level of Service: WB San Diego Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rancho Mission Rd	II	40	50.6	36.6	87.2	0.56	23.2	C
Friars Rd EB	II	40	54.6	0.0	54.6	0.61	40.0	A
Total	II		105.2	36.6	141.8	1.17	29.7	B

Arterial Level of Service: SB Ward Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Camino del Rio N	III	35	41.0	32.3	73.3	0.34	16.8	D
Total	III		41.0	32.3	73.3	0.34	16.8	D

Arterial Level of Service: EB Camino del Rio S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Texas St	IV	35	20.6	66.0	86.6	0.12	5.2	F
Total	IV		20.6	66.0	86.6	0.12	5.2	F

Arterial Level of Service: WB Camino del Rio S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Texas St	III	35	19.7	69.8	89.5	0.15	6.2	F
Total	III		19.7	69.8	89.5	0.15	6.2	F



Major Street Ward Rd
 Minor Street Rancho Mission Rd

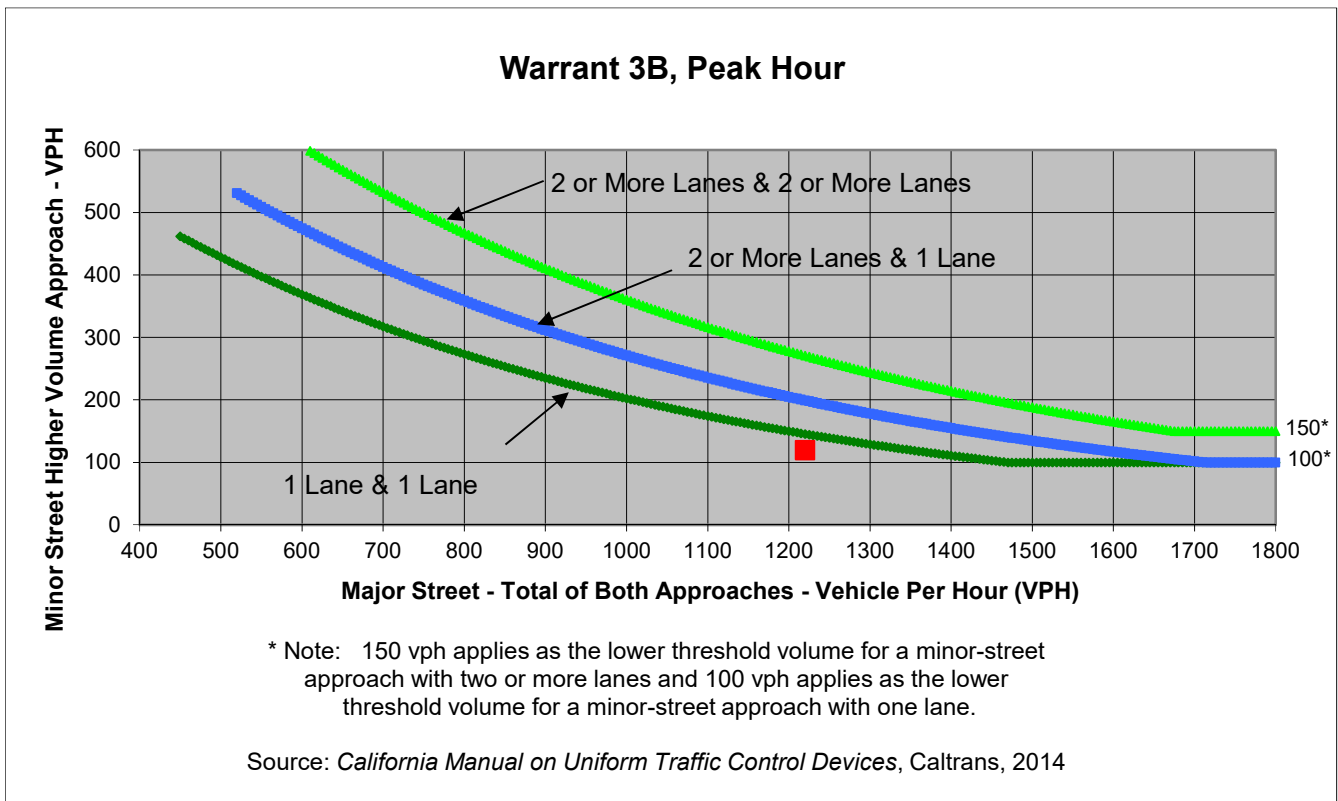
Project SDSU Mission Valley
 Scenario Horizon Year
 Peak Hour AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	30	0	40	0
Through	640	530	0	0
Right	0	20	80	0
Total	670	550	120	0

Major Street Direction

x	North/South
	East/West



	Major Street	Minor Street	Warrant Met
	Ward Rd	Rancho Mission Rd	
Number of Approach Lanes	2	1	<u>NO</u>
Traffic Volume (VPH) *	1,220	120	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
 Traffic Volume for Minor Street is the Volume of High Volume Approach.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

Project SDSU Mission Valley
 Scenario Horizon Year
 Peak Hour AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	30	0	40	0
Through	640	530	0	0
Right	0	20	80	0
Total	670	550	120	0

Major Street Direction

x North/South
 East/West

Intersection Geometry

Number of Approach Lanes for Minor Street 1
 Total Approaches 3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle) 26.9
 Approach with Worst Case Delay EB
 Total Vehicles on Approach 120

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Horizon Year	0.9	120	1,340
Limiting Value	4	100	650
Condition Satisfied?	Not Met	Met	Met
Warrant Met	<u>NO</u>		

Queues
1: SR-163 SB Ramps/Ulric St & Friars Rd

Horizon Year
AM Peak Hour

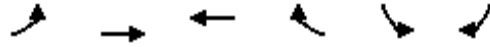


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	73	635	281	615	938	750	323	63	875	213	214	104
v/c Ratio	0.60	0.31	0.41	0.82	0.38	0.50	0.76	0.27	0.82	0.70	0.70	0.26
Control Delay	88.0	42.7	7.4	65.9	13.8	22.9	75.2	61.8	47.8	68.1	68.3	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.0	42.7	7.4	65.9	13.8	22.9	75.2	61.8	47.8	68.1	68.3	3.7
Queue Length 50th (ft)	71	137	0	237	68	331	159	57	428	209	210	0
Queue Length 95th (ft)	126	204	86	246	344	452	211	104	487	270	271	20
Internal Link Dist (ft)		1296			1065			834			622	
Turn Bay Length (ft)	300		350	400		200	300		215			200
Base Capacity (vph)	149	2021	683	867	2500	1775	482	262	1164	471	471	538
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.31	0.41	0.71	0.38	0.42	0.67	0.24	0.75	0.45	0.45	0.19

Intersection Summary

Queues
2: Friars Rd & SR-163 NB Ramps

Horizon Year
AM Peak Hour

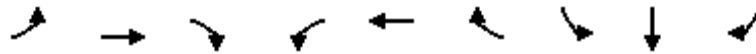


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	521	1396	1427	854	1219	833
v/c Ratio	0.50	0.34	0.76	0.61	0.83	0.50
Control Delay	41.8	10.1	26.5	20.1	54.6	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	10.1	26.5	20.1	54.6	16.1
Queue Length 50th (ft)	243	165	269	148	387	223
Queue Length 95th (ft)	229	109	347	198	444	305
Internal Link Dist (ft)		1065	635		521	
Turn Bay Length (ft)	500			200	500	400
Base Capacity (vph)	1051	4107	2527	1396	1546	1657
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.34	0.56	0.61	0.79	0.50

Intersection Summary

Queues
17: I-15 SB Ramps & Friars Rd

Horizon Year
AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	319	777	372	415	1819	553	418	412	862
v/c Ratio	0.79	0.48	0.49	0.89	1.03	0.35	0.91	0.90	0.57
Control Delay	55.8	33.2	5.9	44.5	50.4	0.1	64.4	61.7	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.8	33.2	5.9	44.5	50.4	0.1	64.4	61.7	17.5
Queue Length 50th (ft)	213	170	0	236	~525	0	290	285	201
Queue Length 95th (ft)	#349	222	76	m138	m254	m0	#460	#449	257
Internal Link Dist (ft)		844			1079			723	
Turn Bay Length (ft)	380		200	350			520		520
Base Capacity (vph)	402	1607	754	531	1770	1583	504	506	1525
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.48	0.49	0.78	1.03	0.35	0.83	0.81	0.57

Intersection Summary

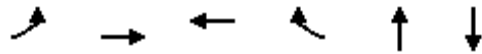
- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues

Horizon Year

18: I-15 NB Ramps & Friars Rd

AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	547	1126	3174	953	316	442
v/c Ratio	0.97	no cap	1.21	1.23	3.36	4.70
Control Delay	71.5		123.2	135.9	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	71.5	Error	123.2	135.9	0.0	0.0
Queue Length 50th (ft)	415	0	~1077	~981	0	0
Queue Length 95th (ft)	m#604	0	#1177	m#1272	0	0
Internal Link Dist (ft)		1079	869		797	677
Turn Bay Length (ft)	515					
Base Capacity (vph)	563	1	2615	773	94	94
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.97	1126.00	1.21	1.23	3.36	4.70

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues

Horizon Year

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

AM Peak Hour



Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	65	118	226	710	140	1312	419	516
v/c Ratio	0.42	0.26	0.31	0.92	0.59	0.66	0.57	0.70
Control Delay	61.2	7.6	28.2	41.2	60.2	31.1	44.6	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2
Total Delay	61.2	7.6	28.2	41.2	60.2	31.1	44.7	9.5
Queue Length 50th (ft)	47	0	115	352	100	297	148	0
Queue Length 95th (ft)	103	46	221	#740	185	365	218	102
Internal Link Dist (ft)			656			1041	147	
Turn Bay Length (ft)				150	110			
Base Capacity (vph)	575	685	729	771	529	4301	1754	1034
Starvation Cap Reductn	0	0	0	0	0	0	398	118
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.17	0.31	0.92	0.26	0.31	0.31	0.56

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Horizon Year
 AM Peak Hour



Lane Group	EBR	NBT	SBT
Lane Group Flow (vph)	639	1351	928
v/c Ratio	0.75	0.72	0.50
Control Delay	23.2	13.8	10.5
Queue Delay	0.0	0.5	0.0
Total Delay	23.2	14.4	10.5
Queue Length 50th (ft)	104	173	100
Queue Length 95th (ft)	169	302	177
Internal Link Dist (ft)		285	1041
Turn Bay Length (ft)			
Base Capacity (vph)	2163	2119	2099
Starvation Cap Reductn	0	355	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.30	0.77	0.44
Intersection Summary			

Queues

Horizon Year

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	42	43	326	418	865	265	505	1736	11	926	137
v/c Ratio	0.29	0.28	0.57	1.19	1.26	0.62	1.22	1.06	0.05	0.86	0.24
Control Delay	54.7	54.5	22.1	152.0	165.6	38.5	156.4	70.3	32.2	38.9	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.9	0.0	5.1	0.0
Total Delay	54.7	54.5	22.1	152.0	165.6	38.5	156.4	87.1	32.2	43.9	9.9
Queue Length 50th (ft)	31	31	113	~412	~466	173	~458	~778	3	368	39
Queue Length 95th (ft)	70	71	200	#627	#607	269	#668	#920	m7	#489	m80
Internal Link Dist (ft)		2741			1304			835		254	
Turn Bay Length (ft)	105					200	215		65		140
Base Capacity (vph)	146	151	569	350	688	425	415	1641	238	1077	569
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	104	0
Spillback Cap Reductn	0	0	0	0	0	0	0	61	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.28	0.57	1.19	1.26	0.62	1.22	1.10	0.05	0.95	0.24

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues

36: Fairmount Ave & I-8 EB Off-Ramp

Horizon Year

AM Peak Hour



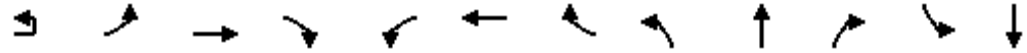
Lane Group	EBL	EBR	NBU	NBT	SBT
Lane Group Flow (vph)	1092	932	361	1289	795
v/c Ratio	0.81	0.86	1.07	0.76	0.63
Control Delay	34.3	39.4	113.7	28.1	39.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	34.3	39.4	113.7	28.1	39.4
Queue Length 50th (ft)	310	310	~259	361	175
Queue Length 95th (ft)	484	493	#649	563	255
Internal Link Dist (ft)	970			972	835
Turn Bay Length (ft)	550		350		
Base Capacity (vph)	2244	1816	337	2561	2494
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.51	1.07	0.50	0.32

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 1: SR-163 SB Ramps/Ulríc St & Friars Rd

Horizon Year
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations		3		7	77	777	77	77	7	77	7	7	
Traffic Volume (vph)	10	170	1730	700	610	1140	750	320	30	750	670	0	
Future Volume (vph)	10	170	1730	700	610	1140	750	320	30	750	670	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.7	7.0	7.0	4.5	3.0	6.1	6.1	6.1	4.5	6.1	6.1	
Lane Util. Factor		1.00	0.86	1.00	0.97	0.91	0.88	0.97	1.00	0.88	0.95	0.95	
Frbp, ped/bikes		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (prot)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (perm)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	10	173	1765	714	622	1163	765	327	31	765	684	0	
RTOR Reduction (vph)	0	0	0	491	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	183	1765	223	622	1163	765	327	31	765	342	342	
Confl. Peds. (#/hr)				5									
Confl. Bikes (#/hr)				2									
Turn Type	Prot	Prot	NA	Perm	Prot	NA	custom	Split	NA	pm+ov	Split	NA	
Protected Phases	5	5	2		1	6 7	4 7	8	8	1	4	4	
Permitted Phases				2						8			
Actuated Green, G (s)		17.5	44.7	44.7	26.0	50.0	71.1	14.1	14.1	40.1	36.5	36.5	
Effective Green, g (s)		17.5	44.7	44.7	26.0	50.0	64.1	14.1	14.1	40.1	36.5	36.5	
Actuated g/C Ratio		0.12	0.31	0.31	0.18	0.34	0.44	0.10	0.10	0.28	0.25	0.25	
Clearance Time (s)		4.7	7.0	7.0	4.5			6.1	6.1	4.5	6.1	6.1	
Vehicle Extension (s)		2.0	2.0	2.0	3.0			3.0	3.0	3.0	2.0	2.0	
Lane Grp Cap (vph)		213	1975	476	615	1753	1232	333	181	770	423	423	
v/s Ratio Prot		0.10	c0.28		c0.18	c0.23	0.27	0.10	0.02	c0.18	c0.20	0.20	
v/s Ratio Perm				0.14						0.10			
v/c Ratio		0.86	0.89	0.47	1.01	0.66	0.62	0.98	0.17	0.99	0.81	0.81	
Uniform Delay, d1		62.5	47.9	40.5	59.5	40.4	31.1	65.3	60.1	52.3	51.0	51.0	
Progression Factor		1.00	1.00	1.00	0.72	0.72	0.67	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		26.5	6.7	3.3	34.1	0.6	0.5	44.2	0.5	30.6	10.3	10.3	
Delay (s)		89.1	54.6	43.8	76.8	29.5	21.2	109.5	60.5	83.0	61.2	61.2	
Level of Service		F	D	D	E	C	C	F	E	F	E	E	
Approach Delay (s)			54.1			38.6			90.1			56.8	
Approach LOS			D			D			F			E	
Intersection Summary													
HCM 2000 Control Delay			54.5		HCM 2000 Level of Service					D			
HCM 2000 Volume to Capacity ratio			0.94										
Actuated Cycle Length (s)			145.0		Sum of lost time (s)					26.9			
Intersection Capacity Utilization			96.1%		ICU Level of Service					F			
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis
 1: SR-163 SB Ramps/Ulric St & Friars Rd

Horizon Year
 PM Peak Hour

Movement	SBR
Lane Configurations	7
Traffic Volume (vph)	210
Future Volume (vph)	210
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.1
Lane Util. Factor	1.00
Frbp, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1560
Flt Permitted	1.00
Satd. Flow (perm)	1560
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	214
RTOR Reduction (vph)	140
Lane Group Flow (vph)	74
Confl. Peds. (#/hr)	3
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	36.5
Effective Green, g (s)	36.5
Actuated g/C Ratio	0.25
Clearance Time (s)	6.1
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	392
v/s Ratio Prot	
v/s Ratio Perm	0.05
v/c Ratio	0.19
Uniform Delay, d1	42.6
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	42.7
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis

2: Friars Rd & SR-163 NB Ramps

Horizon Year
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	640	2390	1510	1020	1130	1010
Future Volume (vph)	640	2390	1510	1020	1130	1010
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.5	6.0	4.5	4.5	5.0
Lane Util. Factor	0.97	0.86	0.86	0.88	0.94	0.88
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	6408	6408	2787	4990	2787
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	6408	6408	2787	4990	2787
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	667	2490	1573	1062	1177	1052
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	667	2490	1573	1063	1177	1052
Turn Type	Prot	NA	NA	custom	Prot	pm+ov
Protected Phases	5	2	3	6	4	3
Permitted Phases						4
Actuated Green, G (s)	42.0	92.5	47.0	65.0	43.5	85.5
Effective Green, g (s)	42.0	92.5	47.0	65.0	43.5	85.5
Actuated g/C Ratio	0.29	0.64	0.32	0.45	0.30	0.59
Clearance Time (s)	5.0	4.5			4.5	5.0
Vehicle Extension (s)	2.0	3.0			3.0	2.0
Lane Grp Cap (vph)	994	4087	2077	1249	1497	1739
v/s Ratio Prot	c0.19	0.39	c0.25	c0.38	0.24	0.18
v/s Ratio Perm						0.20
v/c Ratio	0.67	0.61	0.76	0.85	0.79	0.60
Uniform Delay, d1	45.4	15.5	43.9	35.7	46.5	19.0
Progression Factor	0.99	0.89	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.3	1.4	5.8	2.8	0.4
Delay (s)	45.8	14.1	45.3	41.4	49.3	19.4
Level of Service	D	B	D	D	D	B
Approach Delay (s)		20.8	43.8		35.2	
Approach LOS		C	D		D	

Intersection Summary

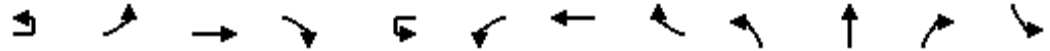
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Frazee Rd & Friars Rd

Horizon Year
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	
Lane Configurations		🚗🚗		🚗🚗		🚗🚗		🚗	🚗🚗	↑↑		🚗🚗	
Traffic Volume (vph)	30	340	2460	670	10	90	1610	100	330	70	130	130	
Future Volume (vph)	30	340	2460	670	10	90	1610	100	330	70	130	130	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.4	3.0	4.4		4.4	6.5	6.5	4.4	4.9		4.4	
Lane Util. Factor		0.97	0.86	0.88		0.97	0.86	1.00	0.97	0.95		0.97	
Frbp, ped/bikes		1.00	1.00	1.00		1.00	1.00	0.98	1.00	0.97		1.00	
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.90		1.00	
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95	
Satd. Flow (prot)		3433	6408	2787		3433	6408	1547	3433	3097		3433	
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95	
Satd. Flow (perm)		3433	6408	2787		3433	6408	1547	3433	3097		3433	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	
Adj. Flow (vph)	34	382	2764	753	11	101	1809	112	371	79	146	146	
RTOR Reduction (vph)	0	0	0	0	0	0	0	71	0	55	0	0	
Lane Group Flow (vph)	0	416	2764	753	0	112	1809	41	371	170	0	146	
Confl. Peds. (#/hr)				18				8			43		
Confl. Bikes (#/hr)				1									
Turn Type	Prot	Prot	NA	custom	Prot	Prot	NA	Perm	Prot	NA		Prot	
Protected Phases	5	5	2 9	3 9	1	1	6		3	8		7	
Permitted Phases							6						
Actuated Green, G (s)		19.2	63.4	58.4		6.5	49.7	49.7	19.7	40.0		7.3	
Effective Green, g (s)		19.2	63.4	52.9		6.5	49.7	49.7	19.7	40.0		7.3	
Actuated g/C Ratio		0.14	0.46	0.39		0.05	0.36	0.36	0.14	0.29		0.05	
Clearance Time (s)		4.4				4.4	6.5	6.5	4.4	4.9		4.4	
Vehicle Extension (s)		2.0				2.0	4.4	4.4	2.0	2.0		2.2	
Lane Grp Cap (vph)		483	2978	1080		163	2334	563	495	908		183	
v/s Ratio Prot		c0.12	c0.43	0.27		0.03	0.28		c0.11	0.05		0.04	
v/s Ratio Perm							0.03						
v/c Ratio		0.86	0.93	0.70		0.69	0.78	0.07	0.75	0.19		0.80	
Uniform Delay, d1		57.3	34.4	35.0		63.9	38.4	28.3	56.0	36.0		63.8	
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	
Incremental Delay, d2		14.1	5.7	1.6		9.2	1.9	0.1	5.4	0.0		20.0	
Delay (s)		71.4	40.0	36.6		73.1	40.3	28.4	61.4	36.1		83.8	
Level of Service		E	D	D		E	D	C	E	D		F	
Approach Delay (s)			42.7				41.4			51.8			
Approach LOS			D				D			D			
Intersection Summary													
HCM 2000 Control Delay			44.8		HCM 2000 Level of Service					D			
HCM 2000 Volume to Capacity ratio			0.89										
Actuated Cycle Length (s)			136.4		Sum of lost time (s)					22.2			
Intersection Capacity Utilization			91.8%		ICU Level of Service					F			
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

3: Frazee Rd & Friars Rd

Horizon Year
PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑	↑↑
Traffic Volume (vph)	80	380
Future Volume (vph)	80	380
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.9	4.9
Lane Util. Factor	1.00	0.88
Frbp, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1863	2750
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1863	2750
Peak-hour factor, PHF	0.89	0.89
Adj. Flow (vph)	90	427
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	90	427
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		1
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	27.6	27.6
Effective Green, g (s)	27.6	27.6
Actuated g/C Ratio	0.20	0.20
Clearance Time (s)	4.9	4.9
Vehicle Extension (s)	2.3	2.3
Lane Grp Cap (vph)	376	556
v/s Ratio Prot	0.05	
v/s Ratio Perm		c0.16
v/c Ratio	0.24	0.77
Uniform Delay, d1	45.6	51.4
Progression Factor	1.00	1.00
Incremental Delay, d2	0.2	5.9
Delay (s)	45.8	57.3
Level of Service	D	E
Approach Delay (s)	61.6	
Approach LOS	E	
Intersection Summary		

HCM 6th Signalized Intersection Summary
4: Mission Center Rd & Friars Rd WB

Horizon Year
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↘	↙	↗		↘	↙			↗	↘
Traffic Volume (veh/h)	0	0	0	180	10	280	10	230	880	0	0	1200	340
Future Volume (veh/h)	0	0	0	180	10	280	10	230	880	0	0	1200	340
Initial Q (Qb), veh				0	0	0		0	0			0	0
Ped-Bike Adj(A_pbT)				1.00		1.00		1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No			No
Adj Sat Flow, veh/h/ln				1870	1870	1870		1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				195	0	163		240	917	0	0	1250	292
Peak Hour Factor				0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2		2	2	0	0	2	2
Cap, veh/h				447	0	199		303	2739	0	0	2283	983
Arrive On Green				0.25	0.00	0.25		0.18	1.00	0.00	0.00	0.64	0.64
Sat Flow, veh/h				3563	0	1585		3456	3647	0	0	3647	1531
Grp Volume(v), veh/h				195	0	163		240	917	0	0	1250	292
Grp Sat Flow(s),veh/h/ln				1781	0	1585		1728	1777	0	0	1777	1531
Q Serve(g_s), s				5.0	0.0	10.5		7.2	0.0	0.0	0.0	21.0	9.1
Cycle Q Clear(g_c), s				5.0	0.0	10.5		7.2	0.0	0.0	0.0	21.0	9.1
Prop In Lane				1.00		1.00		1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				447	0	199		303	2739	0	0	2283	983
V/C Ratio(X)				0.44	0.00	0.82		0.79	0.33	0.00	0.00	0.55	0.30
Avail Cap(c_a), veh/h				1013	0	451		579	2739	0	0	2283	983
HCM Platoon Ratio				2.00	2.00	2.00		2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00		0.59	0.59	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				37.2	0.0	39.3		43.6	0.0	0.0	0.0	10.7	8.5
Incr Delay (d2), s/veh				0.7	0.0	8.0		1.1	0.2	0.0	0.0	0.9	0.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.0	0.0	3.9		2.8	0.1	0.0	0.0	7.4	2.9
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh				37.9	0.0	47.3		44.7	0.2	0.0	0.0	11.6	9.3
LnGrp LOS				D	A	D		D	A	A	A	B	A
Approach Vol, veh/h						358				1157			1542
Approach Delay, s/veh						42.2				9.4			11.2
Approach LOS						D				A			B
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		89.5			13.9	75.7		18.5					
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9					
Max Green Setting (Gmax), s		* 67			18.1	43.6		30.7					
Max Q Clear Time (g_c+I1), s		2.0			9.2	23.0		12.5					
Green Ext Time (p_c), s		6.2			0.3	15.0		1.1					

Intersection Summary

HCM 6th Ctrl Delay	14.1
HCM 6th LOS	B

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Mission Center Rd & Friars Rd EB

Horizon Year
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	10	310	0	0	0	0	730	430	550	830	0
Future Volume (veh/h)	380	10	310	0	0	0	0	730	430	550	830	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	408	0	185				0	768	386	579	874	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	528	0	235				0	776	389	1244	2675	0
Arrive On Green	0.15	0.00	0.15				0.00	0.34	0.34	0.72	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2353	1131	3456	3647	0
Grp Volume(v), veh/h	408	0	185				0	603	551	579	874	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1614	1728	1777	0
Q Serve(g_s), s	11.9	0.0	12.2				0.0	36.5	36.7	7.6	0.0	0.0
Cycle Q Clear(g_c), s	11.9	0.0	12.2				0.0	36.5	36.7	7.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.70	1.00		0.00
Lane Grp Cap(c), veh/h	528	0	235				0	610	554	1244	2675	0
V/C Ratio(X)	0.77	0.00	0.79				0.00	0.99	0.99	0.47	0.33	0.00
Avail Cap(c_a), veh/h	976	0	434				0	610	554	1244	2675	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.72	0.72	0.00
Uniform Delay (d), s/veh	44.2	0.0	44.3				0.0	35.2	35.3	10.7	0.0	0.0
Incr Delay (d2), s/veh	2.4	0.0	5.8				0.0	33.7	36.6	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	0.0	5.0				0.0	20.7	19.3	2.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.7	0.0	50.1				0.0	69.0	71.9	10.8	0.1	0.0
LnGrp LOS	D	A	D				A	E	E	B	A	A
Approach Vol, veh/h		593						1154			1453	
Approach Delay, s/veh		47.7						70.4			4.3	
Approach LOS		D						E			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	44.7	42.4	20.9	87.1								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	26.7	* 37	29.6	67.7								
Max Q Clear Time (g_c+I), s	19.6	38.7	14.2	2.0								
Green Ext Time (p_c), s	1.0	0.0	1.9	8.8								

Intersection Summary

HCM 6th Ctrl Delay	36.2
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
6: Qualcomm Way & Friars Rd WB

Horizon Year
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷		↶	↷			↶	↷
Traffic Volume (veh/h)	0	0	0	450	10	50	670	110	0	0	210	20
Future Volume (veh/h)	0	0	0	450	10	50	670	110	0	0	210	20
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				512	0	0	698	115	0	0	219	2
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				622	326	0	1169	2489	0	0	1069	464
Arrive On Green				0.17	0.00	0.00	0.34	0.70	0.00	0.00	0.30	0.30
Sat Flow, veh/h				3563	1870	0	3456	3647	0	0	3647	1542
Grp Volume(v), veh/h				512	0	0	698	115	0	0	219	2
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1728	1777	0	0	1777	1542
Q Serve(g_s), s				11.1	0.0	0.0	13.4	0.8	0.0	0.0	3.7	0.1
Cycle Q Clear(g_c), s				11.1	0.0	0.0	13.4	0.8	0.0	0.0	3.7	0.1
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				622	326	0	1169	2489	0	0	1069	464
V/C Ratio(X)				0.82	0.00	0.00	0.60	0.05	0.00	0.00	0.20	0.00
Avail Cap(c_a), veh/h				1251	657	0	1169	2489	0	0	1069	464
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.98	0.98	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				31.8	0.0	0.0	21.9	3.7	0.0	0.0	20.8	19.6
Incr Delay (d2), s/veh				1.1	0.0	0.0	0.9	0.0	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.6	0.0	0.0	5.2	0.2	0.0	0.0	1.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				32.9	0.0	0.0	22.8	3.7	0.0	0.0	20.9	19.6
LnGrp LOS				C	A	A	C	A	A	A	C	B
Approach Vol, veh/h					512			813			221	
Approach Delay, s/veh					32.9			20.1			20.9	
Approach LOS					C			C			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		61.1			32.2	29.0		18.9				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+11), s		2.8			15.4	5.7		13.1				
Green Ext Time (p_c), s		0.8			1.7	0.9		0.9				

Intersection Summary

HCM 6th Ctrl Delay	24.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
7: Qualcomm Way & Friars Rd EB

Horizon Year
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	10	410	0	0	0	0	680	410	90	710	0
Future Volume (veh/h)	70	10	410	0	0	0	0	680	410	90	710	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	86	0	374				0	756	177	100	789	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	933	0	415				0	3283	808	165	2179	0
Arrive On Green	0.26	0.00	0.26				0.00	0.51	0.51	0.10	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	6696	1583	3456	3647	0
Grp Volume(v), veh/h	86	0	374				0	756	177	100	789	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1609	1583	1728	1777	0
Q Serve(g_s), s	1.5	0.0	18.2				0.0	5.2	4.9	2.2	0.0	0.0
Cycle Q Clear(g_c), s	1.5	0.0	18.2				0.0	5.2	4.9	2.2	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	933	0	415				0	3283	808	165	2179	0
V/C Ratio(X)	0.09	0.00	0.90				0.00	0.23	0.22	0.61	0.36	0.00
Avail Cap(c_a), veh/h	1519	0	676				0	3283	808	436	2179	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.82	0.82	0.78	0.78	0.00
Uniform Delay (d), s/veh	22.3	0.0	28.5				0.0	10.9	10.8	35.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	6.2				0.0	0.1	0.5	1.0	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	7.1				0.0	1.7	1.7	0.9	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.3	0.0	34.7				0.0	11.0	11.3	36.5	0.4	0.0
LnGrp LOS	C	A	C				A	B	B	D	A	A
Approach Vol, veh/h		460						933			889	
Approach Delay, s/veh		32.4						11.1			4.4	
Approach LOS		C						B			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	8.2	45.9	25.9	54.1								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.1	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	14.2	7.2	20.2	2.0								
Green Ext Time (p_c), s	0.1	5.5	0.7	3.8								

Intersection Summary

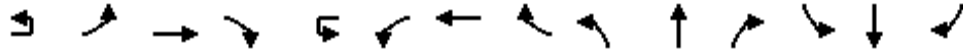
HCM 6th Ctrl Delay	12.8
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

Horizon Year
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔↔↔	↔		↔	↔↔↔		↔	↔			↔	
Traffic Volume (veh/h)	20	20	2370	160	10	70	1360	20	80	10	140	220	20	90
Future Volume (veh/h)	20	20	2370	160	10	70	1360	20	80	10	140	220	20	90
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	1.00		0.98	0.98		0.98
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No			No		
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		21	2443	139		72	1402	20	82	10	38	227	21	82
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h		243	2273	703		243	2308	33	409	47	469	289	23	88
Arrive On Green		0.14	0.45	0.45		0.14	0.45	0.45	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h		1781	5106	1580		1781	5185	74	1180	155	1546	805	74	291
Grp Volume(v), veh/h		21	2443	139		72	920	502	92	0	38	330	0	0
Grp Sat Flow(s),veh/h/ln		1781	1702	1580		1781	1702	1855	1335	0	1546	1170	0	0
Q Serve(g_s), s		1.4	60.1	7.2		4.9	27.8	27.8	0.0	0.0	2.4	31.0	0.0	0.0
Cycle Q Clear(g_c), s		1.4	60.1	7.2		4.9	27.8	27.8	6.9	0.0	2.4	37.8	0.0	0.0
Prop In Lane		1.00		1.00		1.00		0.04	0.89		1.00	0.69		0.25
Lane Grp Cap(c), veh/h		243	2273	703		243	1515	826	456	0	469	400	0	0
V/C Ratio(X)		0.09	1.07	0.20		0.30	0.61	0.61	0.20	0.00	0.08	0.82	0.00	0.00
Avail Cap(c_a), veh/h		243	2273	703		243	1515	826	502	0	522	448	0	0
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		0.90	0.90	0.90	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh		50.9	37.5	22.8		52.4	28.5	28.5	35.1	0.0	33.6	49.3	0.0	0.0
Incr Delay (d2), s/veh		0.1	42.6	0.6		0.2	1.6	3.0	0.2	0.0	0.1	11.3	0.0	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.6	32.5	2.8		2.2	11.2	12.5	2.3	0.0	0.9	12.1	0.0	0.0
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		51.0	80.1	23.4		52.7	30.1	31.5	35.3	0.0	33.6	60.6	0.0	0.0
LnGrp LOS		D	F	C		D	C	C	D	A	C	E	A	A
Approach Vol, veh/h			2603			1494			130		330			
Approach Delay, s/veh			76.8			31.7			34.8		60.6			
Approach LOS			E			C			C		E			
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	22.8	66.3	45.9	22.8	66.3	45.9								
Change Period (Y+Rc), s	4.4	6.2	4.9	4.4	6.2	4.9								
Max Green Setting (Gmax), s	13.8	60.1	45.6	13.8	60.1	45.6								
Max Q Clear Time (g_c+10), s	10.9	62.1	39.8	3.4	29.8	8.9								
Green Ext Time (p_c), s	0.0	0.0	1.1	0.0	25.0	0.6								

Intersection Summary

HCM 6th Ctrl Delay	59.6
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary

9: Fenton Pkwy & Friars Rd

Horizon Year
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗		↔↔	↑↑↑	↗	↔↔	↑	↗	↔↔	↗	↗
Traffic Volume (veh/h)	150	2390	370	10	250	1050	80	320	50	420	40	20	70
Future Volume (veh/h)	150	2390	370	10	250	1050	80	320	50	420	40	20	70
Initial Q (Qb), veh	15	25	15		0	0	0	0	0	15	15	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	2464	291		258	1082	45	330	52	231	41	21	9
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	253	2147	1135		303	2620	872	759	424	341	132	88	198
Arrive On Green	0.06	0.55	0.55		0.18	1.00	1.00	0.16	0.19	0.19	0.02	0.05	0.05
Sat Flow, veh/h	3456	5106	1585		3456	5106	1565	3456	1870	1580	3563	1870	1557
Grp Volume(v), veh/h	155	2464	291		258	1082	45	330	52	231	41	21	9
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1565	1728	1870	1580	1781	1870	1557
Q Serve(g_s), s	6.0	56.7	3.7		9.8	0.0	0.0	12.0	3.2	18.9	1.5	1.5	0.5
Cycle Q Clear(g_c), s	6.0	56.7	3.7		9.8	0.0	0.0	12.0	3.2	18.9	1.5	1.5	0.5
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	253	2147	1135		303	2620	872	759	424	341	132	88	198
V/C Ratio(X)	0.61	1.15	0.26		0.85	0.41	0.05	0.43	0.12	0.68	0.31	0.24	0.05
Avail Cap(c_a), veh/h	384	2824	1133		333	2966	946	558	545	460	280	470	486
HCM Platoon Ratio	1.00	1.00	1.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.34	0.34	0.34		0.90	0.90	0.90	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.3	39.4	2.0		55.2	3.5	2.4	46.2	42.0	51.3	64.9	62.5	26.8
Incr Delay (d2), s/veh	0.3	68.6	0.2		14.8	0.4	0.1	0.0	0.1	1.0	0.5	6.3	0.4
Initial Q Delay(d3),s/veh	65.6	41.9	1.7		0.0	0.0	0.0	0.0	0.0	43.1	134.6	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	44.6	2.6		4.5	1.0	0.1	4.9	1.4	13.9	4.2	0.9	0.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	128.2	149.9	3.9		70.1	3.9	2.5	46.3	42.0	95.4	200.0	68.7	27.2
LnGrp LOS	F	F	A		E	A	A	D	D	F	F	E	C
Approach Vol, veh/h		2910				1385			613			71	
Approach Delay, s/veh		134.1				16.2			64.4			139.3	
Approach LOS		F				B			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	6.3	81.5	26.9	11.3	12.5	85.3	7.6	30.6					
Change Period (Y+Rc), s	4.4	6.3	4.9	*4.9	4.4	*6.3	4.4	4.9					
Max Green Setting (Gmax), s	13.1	52.6	16.1	*34	15.1	*51	10.7	39.6					
Max Q Clear Time (g_c+ll), s	11.8	58.7	14.0	3.5	8.0	2.0	3.5	20.9					
Green Ext Time (p_c), s	0.1	0.0	0.2	0.3	0.1	27.8	0.0	3.5					

Intersection Summary

HCM 6th Ctrl Delay	92.8
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
10: Northside Dr & Friars Rd

Horizon Year
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↑↑↑	↔	↔↔	↑↑↑	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	10	160	2290	250	530	1060	210	210	40	800	100	30	100
Future Volume (veh/h)	10	160	2290	250	530	1060	210	210	40	800	100	30	100
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		172	2462	269	570	1140	142	226	43	772	108	32	5
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		220	2410	737	409	2690	897	280	407	529	158	341	289
Arrive On Green		0.13	0.94	0.94	0.12	0.53	0.53	0.08	0.22	0.22	0.05	0.18	0.18
Sat Flow, veh/h		3456	5106	1561	3456	5106	1565	3456	1870	1568	3456	1870	1585
Grp Volume(v), veh/h		172	2462	269	570	1140	142	226	43	772	108	32	5
Grp Sat Flow(s),veh/h/ln		1728	1702	1561	1728	1702	1565	1728	1870	1568	1728	1870	1585
Q Serve(g_s), s		6.6	64.2	2.0	16.1	18.5	5.8	8.7	2.5	29.6	4.2	1.9	0.4
Cycle Q Clear(g_c), s		6.6	64.2	2.0	16.1	18.5	5.8	8.7	2.5	29.6	4.2	1.9	0.4
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		220	2410	737	409	2690	897	280	407	529	158	341	289
V/C Ratio(X)		0.78	1.02	0.37	1.39	0.42	0.16	0.81	0.11	1.46	0.68	0.09	0.02
Avail Cap(c_a), veh/h		307	2410	737	409	2690	897	483	407	529	483	407	345
HCM Platoon Ratio		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.26	0.26	0.26	0.93	0.93	0.93	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		58.5	3.8	2.1	60.0	19.6	13.7	61.4	42.6	45.2	63.9	46.3	45.6
Incr Delay (d2), s/veh		1.4	15.5	0.4	190.5	0.5	0.4	2.1	0.3	217.2	2.0	0.5	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.7	4.9	0.6	17.7	7.1	0.1	4.0	1.2	49.8	1.9	1.0	0.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		59.9	19.3	2.4	250.4	20.1	14.0	63.6	42.9	262.4	65.9	46.8	45.7
LnGrp LOS		E	F	A	F	C	B	E	D	F	E	D	D
Approach Vol, veh/h			2903			1852			1041			145	
Approach Delay, s/veh			20.1			90.5			210.2			61.0	
Approach LOS			C			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	20.5	70.4	15.4	29.7	13.0	77.8	10.6	34.5					
Change Period (Y+Rc), s	4.4	* 6.2	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	10.5	* 52	19.0	29.6	12.1	55.4	19.0	29.6					
Max Q Clear Time (g_c+11g), s	11.0	66.2	10.7	3.9	8.6	20.5	6.2	31.6					
Green Ext Time (p_c), s	0.0	0.0	0.3	0.4	0.1	21.3	0.1	0.0					

Intersection Summary

HCM 6th Ctrl Delay	76.4
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 12: Mission Village Dr & Friars Rd WB

Horizon Year
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕	↕	↕↕			↕↕	↕
Traffic Volume (veh/h)	0	0	0	50	0	380	100	430	0	0	1320	550
Future Volume (veh/h)	0	0	0	50	0	380	100	430	0	0	1320	550
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				52	0	0	104	448	0	0	1375	474
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				86	0		131	1768	0	0	1318	572
Arrive On Green				0.05	0.00	0.00	0.07	0.50	0.00	0.00	0.37	0.37
Sat Flow, veh/h				1781	0	1585	1781	3647	0	0	3647	1542
Grp Volume(v), veh/h				52	0	0	104	448	0	0	1375	474
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	1777	0	0	1777	1542
Q Serve(g_s), s				2.9	0.0	0.0	5.7	7.2	0.0	0.0	37.1	27.9
Cycle Q Clear(g_c), s				2.9	0.0	0.0	5.7	7.2	0.0	0.0	37.1	27.9
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				86	0		131	1768	0	0	1318	572
V/C Ratio(X)				0.60	0.00		0.79	0.25	0.00	0.00	1.04	0.83
Avail Cap(c_a), veh/h				588	0		226	1958	0	0	1318	572
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.90	0.90	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				46.6	0.0	0.0	45.6	14.4	0.0	0.0	31.4	28.6
Incr Delay (d2), s/veh				2.5	0.0	0.0	3.7	0.1	0.0	0.0	36.7	13.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.3	0.0	0.0	2.6	2.7	0.0	0.0	21.3	11.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				49.1	0.0	0.0	49.3	14.5	0.0	0.0	68.2	41.6
LnGrp LOS				D	A		D	B	A	A	F	D
Approach Vol, veh/h				52	A		552				1849	
Approach Delay, s/veh				49.1			21.1				61.4	
Approach LOS				D			C				E	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		56.8			12.7	44.1		9.8				
Change Period (Y+Rc), s		7.0			5.3	7.0		4.9				
Max Green Setting (Gmax), s		55.1			12.7	37.1		33.0				
Max Q Clear Time (g_c+11), s		9.2			7.7	39.1		4.9				
Green Ext Time (p_c), s		3.9			0.0	0.0		0.1				

Intersection Summary

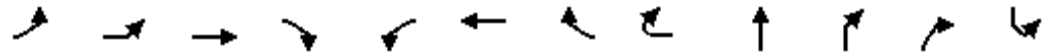
HCM 6th Ctrl Delay	52.0
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis
 13: Mission Village Dr & Friars Rd EB & San Diego Mission Rd

Horizon Year
 PM Peak Hour



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	310	10	310	10	10	0	190	40	40	20	20	540
Future Volume (vph)	310	10	310	10	10	0	190	40	40	20	20	540
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.2	5.2			5.4	5.4		4.9			
Lane Util. Factor		1.00	1.00			0.95	0.95		0.95			
Frbp, ped/bikes		1.00	1.00			1.00	1.00		0.99			
Flpb, ped/bikes		1.00	1.00			1.00	1.00		1.00			
Frt		1.00	1.00			0.86	0.85		0.93			
Flt Protected		0.95	1.00			1.00	1.00		1.00			
Satd. Flow (prot)		1770	1853			1521	1504		3239			
Flt Permitted		0.95	1.00			1.00	1.00		1.00			
Satd. Flow (perm)		1770	1853			1521	1504		3239			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	326	11	326	11	11	0	200	42	42	21	21	568
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	19	0	0	0
Lane Group Flow (vph)	0	337	337	0	0	127	126	0	65	0	0	0
Confl. Peds. (#/hr)				1	1					4	3	
Confl. Bikes (#/hr)				1								
Turn Type	Split	Split	NA		Split	NA	Perm		NA			Split
Protected Phases	4	4	4		3	3			2			1
Permitted Phases							3					
Actuated Green, G (s)		14.1	14.1			14.8	14.8		9.0			
Effective Green, g (s)		14.1	14.1			14.8	14.8		9.0			
Actuated g/C Ratio		0.14	0.14			0.15	0.15		0.09			
Clearance Time (s)		5.2	5.2			5.4	5.4		4.9			
Vehicle Extension (s)		3.0	3.0			3.0	3.0		3.0			
Lane Grp Cap (vph)		249	261			225	222		291			
v/s Ratio Prot		c0.19	0.18			0.08			c0.02			
v/s Ratio Perm							c0.08					
v/c Ratio		1.35	1.29			0.56	0.57		0.22			
Uniform Delay, d1		43.0	43.0			39.6	39.6		42.3			
Progression Factor		1.00	1.00			1.00	1.00		1.00			
Incremental Delay, d2		183.1	156.6			3.2	3.3		0.4			
Delay (s)		226.0	199.6			42.8	42.9		42.6			
Level of Service		F	F			D	D		D			
Approach Delay (s)			212.8			42.9			42.6			
Approach LOS			F			D			D			
Intersection Summary												
HCM 2000 Control Delay			94.0			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			21.7			
Intersection Capacity Utilization			80.5%			ICU Level of Service			D			
Analysis Period (min)			15									
dl Defacto Left Lane. Recode with 1 though lane as a left lane.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 13: Mission Village Dr & Friars Rd EB & San Diego Mission Rd

Horizon Year
 PM Peak Hour



Movement	SBL	SBT
Lane Configurations		
Traffic Volume (vph)	800	40
Future Volume (vph)	800	40
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.2	6.2
Lane Util. Factor	0.91	0.91
Frpb, ped/bikes	1.00	1.00
Flpb, ped/bikes	1.00	1.00
Frt	1.00	1.00
Flt Protected	0.95	0.95
Satd. Flow (prot)	1610	3237
Flt Permitted	0.95	0.95
Satd. Flow (perm)	1610	3237
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	842	42
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	703	749
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Turn Type	Split	NA
Protected Phases	1	1
Permitted Phases		
Actuated Green, G (s)	40.4	40.4
Effective Green, g (s)	40.4	40.4
Actuated g/C Ratio	0.40	0.40
Clearance Time (s)	6.2	6.2
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	650	1307
v/s Ratio Prot	c0.44	0.23
v/s Ratio Perm		
v/c Ratio	1.08	1.02dl
Uniform Delay, d1	29.8	23.1
Progression Factor	0.80	0.91
Incremental Delay, d2	56.7	1.5
Delay (s)	80.7	22.6
Level of Service	F	C
Approach Delay (s)		50.7
Approach LOS		D
Intersection Summary		

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

Horizon Year
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	380	1920	790	10	300	1320	360	0	0	0	1120	0	330
Future Volume (veh/h)	380	1920	790	10	300	1320	360	0	0	0	1120	0	330
Initial Q (Qb), veh	20	0	20		20	0	20				0	0	20
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	396	2000	552		312	1375	0				1167	0	340
Peak Hour Factor	0.96	0.96	0.96		0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	591	3345	649		392	1246					1153	0	1993
Arrive On Green	0.29	0.37	0.37		0.19	0.24	0.00				0.32	0.00	0.32
Sat Flow, veh/h	1781	5106	1552		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	396	2000	552		312	1375	0				1167	0	340
Grp Sat Flow(s),veh/h/ln	1781	1702	1552		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	27.5	50.1	47.5		23.4	33.2	0.0				44.0	0.0	0.0
Cycle Q Clear(g_c), s	27.5	50.1	47.5		23.4	33.2	0.0				44.0	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	591	3345	649		392	1246					1153	0	1993
V/C Ratio(X)	0.67	0.60	0.85		0.80	1.10					1.01	0.00	0.17
Avail Cap(c_a), veh/h	550	1879	571		393	1246					1153	0	1951
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00		0.85	0.85	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	41.4	20.7	38.8		53.0	51.4	0.0				46.0	0.0	11.0
Incr Delay (d2), s/veh	2.9	0.8	13.1		8.6	57.1	0.0				29.6	0.0	0.0
Initial Q Delay(d3),s/veh	24.9	0.0	45.5		91.5	0.0	0.0				0.0	0.0	0.9
%ile BackOfQ(50%),veh/ln	16.8	9.7	26.4		23.9	20.3	0.0				24.2	0.0	7.9
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	69.3	21.5	97.5		153.1	108.5	0.0				75.6	0.0	11.9
LnGrp LOS	E	C	F		F	F					F	A	B
Approach Vol, veh/h		2948				1687	A					1507	
Approach Delay, s/veh		42.2				116.7						61.3	
Approach LOS		D				F						E	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	29.8	57.1		49.1	46.7	40.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	30	45.7		44.0	42.0	* 33							
Max Q Clear Time (g_c+2p_c), s	25.4	52.1		46.0	29.5	35.2							
Green Ext Time (p_c), s	0.2	0.0		0.0	0.5	0.0							

Intersection Summary

HCM 6th Ctrl Delay	67.3
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

Horizon Year
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖				↑↑↑	↗						
Traffic Volume (veh/h)	570	2530	0	0	1160	940	0	0	1260	0	0	790
Future Volume (veh/h)	570	2530	0	0	1160	940	0	0	1260	0	0	790
Initial Q (Qb), veh	40	0	0	0	20	40						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	600	2663	0	0	1221	989						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	660	0	0	0	1719	1487						
Arrive On Green	0.36	0.90	0.00	0.00	0.45	0.45						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	600	0	0	0	1221	989						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	21.9	0.0	0.0	0.0	18.1	16.9						
Cycle Q Clear(g_c), s	21.9	0.0	0.0	0.0	18.1	16.9						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	660	0	0	0	1719	1487						
V/C Ratio(X)	0.91	0.00	0.00	0.00	0.71	0.66						
Avail Cap(c_a), veh/h	1179	0	0	0	3521	2984						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	1.00	1.00						
Uniform Delay (d), s/veh	38.3	0.0	0.0	0.0	16.6	18.1						
Incr Delay (d2), s/veh	2.5	0.0	0.0	0.0	0.2	0.2						
Initial Q Delay(d3),s/veh	177.5	0.0	0.0	0.0	3.4	15.5						
%ile BackOfQ(50%),veh/ln	11.5	0.0	0.0	0.0	9.1	12.1						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	218.3	0.0	0.0	0.0	20.2	33.9						
LnGrp LOS	F	A	A	A	C	C						
Approach Vol, veh/h		600			2210							
Approach Delay, s/veh		218.3			26.3							
Approach LOS		F			C							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		68.0			30.3	37.7						
Change Period (Y+Rc), s		* 7			5.5	7.0						
Max Green Setting (Gmax), s		* 18			45.0	64.0						
Max Q Clear Time (g_c+I1), s		0.0			23.9	20.1						
Green Ext Time (p_c), s		0.0			0.9	10.6						

Intersection Summary

HCM 6th Ctrl Delay	67.3
HCM 6th LOS	E

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

Horizon Year
 PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗		↖	↑↑↑	↘	↗
Traffic Volume (veh/h)	3310	490	10	110	1660	430	220
Future Volume (veh/h)	3310	490	10	110	1660	430	220
Initial Q (Qb), veh	0	0		0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	3448	439		115	1729	448	75
Peak Hour Factor	0.96	0.96		0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	2918	1280		138	3346	547	284
Arrive On Green	0.66	0.66		0.08	0.77	0.14	0.14
Sat Flow, veh/h	5274	1583		1781	5125	3563	1585
Grp Volume(v), veh/h	3448	439		115	1729	448	75
Grp Sat Flow(s),veh/h/ln	1702	1583		1781	1085	1781	1585
Q Serve(g_s), s	90.3	10.0		8.7	20.3	16.7	5.8
Cycle Q Clear(g_c), s	90.3	10.0		8.7	20.3	16.7	5.8
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2918	1280		138	3346	547	284
V/C Ratio(X)	1.18	0.34		0.83	0.52	0.82	0.26
Avail Cap(c_a), veh/h	3391	1280		208	3359	843	375
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.90	0.90	0.59	0.59
Uniform Delay (d), s/veh	29.1	3.5		61.8	6.3	56.5	48.2
Incr Delay (d2), s/veh	85.5	0.7		9.0	0.5	1.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.1	13.3	0.0
%ile BackOfQ(50%),veh/ln	11.8	6.6		4.2	4.3	9.3	2.2
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	114.6	4.2		70.9	6.9	70.9	48.3
LnGrp LOS	F	A		E	A	E	D
Approach Vol, veh/h	3887			1844	523		
Approach Delay, s/veh	102.2			10.9	67.7		
Approach LOS	F			B	E		
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+Rc), s	5.0	96.3			111.3		24.7
Change Period (Y+Rc), s	4.4	* 6			6.0		5.1
Max Green Setting (Gmax), s	15.9	* 73			92.7		32.2
Max Q Clear Time (g_c+110), s	110.7	92.3			22.3		18.7
Green Ext Time (p_c), s	0.1	0.0			42.5		0.9

Intersection Summary

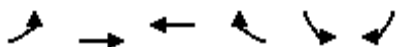
HCM 6th Ctrl Delay	72.4
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: Friars Rd & Santo Rd

Horizon Year
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑↑		↔↔	↔
Traffic Volume (veh/h)	410	3200	1460	110	90	260
Future Volume (veh/h)	410	3200	1460	110	90	260
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1856	1870	1870
Adj Flow Rate, veh/h	427	3333	1521	109	94	262
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	3	3	2	2
Cap, veh/h	492	3833	3501	251	548	477
Arrive On Green	0.14	0.75	0.57	0.57	0.16	0.16
Sat Flow, veh/h	3456	5274	6385	439	3456	1585
Grp Volume(v), veh/h	427	3333	1188	442	94	262
Grp Sat Flow(s),veh/h/ln	1728	1702	1596	1777	1728	1585
Q Serve(g_s), s	14.5	56.2	17.0	17.0	2.8	16.6
Cycle Q Clear(g_c), s	14.5	56.2	17.0	17.0	2.8	16.6
Prop In Lane	1.00			0.25	1.00	1.00
Lane Grp Cap(c), veh/h	492	3833	2737	1016	548	477
V/C Ratio(X)	0.87	0.87	0.43	0.43	0.17	0.55
Avail Cap(c_a), veh/h	737	3833	2737	1016	734	563
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.76	0.76	1.00	1.00
Uniform Delay (d), s/veh	50.3	10.7	14.6	14.7	43.7	35.1
Incr Delay (d2), s/veh	0.5	0.3	0.4	1.0	0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	15.3	5.8	6.6	1.2	14.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.8	11.0	15.0	15.7	43.7	35.5
LnGrp LOS	D	B	B	B	D	D
Approach Vol, veh/h		3760	1630		356	
Approach Delay, s/veh		15.5	15.2		37.7	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		96.6		23.4	21.5	75.1
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		83.6		25.5	25.6	* 54
Max Q Clear Time (g_c+I1), s		58.2		18.6	16.5	19.0
Green Ext Time (p_c), s		24.6		0.4	0.6	16.1

Intersection Summary

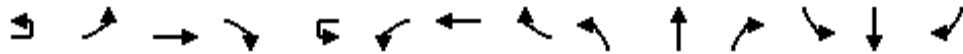
HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 21: Riverdale St & Friars Rd

Horizon Year
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		🚗 🚗 🚗	🚗 🚗 🚗	🚗		🚗 🚗 🚗	🚗	🚗	🚗	🚗	🚗	🚗	🚗	🚗
Traffic Volume (veh/h)	30	230	2810	240	10	50	1140	60	220	110	140	60	60	140
Future Volume (veh/h)	30	230	2810	240	10	50	1140	60	220	110	140	60	60	140
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	0.99		0.99	1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1856		1737	1856	1870	1870	1870	1870	1811	1870	1870
Adj Flow Rate, veh/h		237	2897	153		52	1175	25	227	113	92	62	62	49
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	3		11	3	2	2	2	2	6	2	2
Cap, veh/h		268	2822	867		65	2237	700	340	250	204	255	254	201
Arrive On Green		0.15	0.55	0.55		0.04	0.44	0.44	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h		1781	5106	1568		1654	5066	1585	1275	951	774	1135	965	762
Grp Volume(v), veh/h		237	2897	153		52	1175	25	227	0	205	62	0	111
Grp Sat Flow(s),veh/h/ln		1781	1702	1568		1654	1689	1585	1275	0	1725	1135	0	1727
Q Serve(g_s), s		13.7	58.0	5.1		3.3	17.7	0.9	17.9	0.0	10.4	5.1	0.0	5.3
Cycle Q Clear(g_c), s		13.7	58.0	5.1		3.3	17.7	0.9	23.2	0.0	10.4	15.5	0.0	5.3
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.45	1.00		0.44
Lane Grp Cap(c), veh/h		268	2822	867		65	2237	700	340	0	454	255	0	455
V/C Ratio(X)		0.88	1.03	0.18		0.80	0.53	0.04	0.67	0.00	0.45	0.24	0.00	0.24
Avail Cap(c_a), veh/h		324	2822	867		206	2237	700	457	0	613	359	0	613
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.55	0.55	0.55		0.92	0.92	0.92	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		43.7	23.5	11.6		50.0	21.3	16.6	39.6	0.0	32.3	38.8	0.0	30.5
Incr Delay (d2), s/veh		11.7	20.1	0.2		7.5	0.8	0.1	0.9	0.0	0.3	0.2	0.0	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		6.7	25.2	1.7		1.4	6.7	0.3	5.6	0.0	4.4	1.4	0.0	2.2
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		55.4	43.6	11.9		57.5	22.1	16.7	40.4	0.0	32.6	39.0	0.0	30.6
LnGrp LOS		E	F	B		E	C	B	D	A	C	D	A	C
Approach Vol, veh/h			3287				1252			432			173	
Approach Delay, s/veh			43.0				23.5			36.7			33.6	
Approach LOS			D				C			D			C	
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	8.5	63.9	32.5	20.2	52.3	32.5								
Change Period (Y+Rc), s	4.4	* 5.9	4.9	4.4	5.9	4.9								
Max Green Setting (Gmax), s	13.5	* 40	37.3	19.1	33.4	37.3								
Max Q Clear Time (g_c+1/3), s	15.3	60.0	17.5	15.7	19.7	25.2								
Green Ext Time (p_c), s	0.0	0.0	0.5	0.1	6.4	1.0								

Intersection Summary

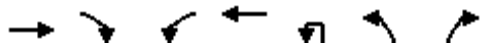
HCM 6th Ctrl Delay	37.4
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 22: Mission Gorge Rd & Friars Rd

Horizon Year
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↖↗	↑↑↑		↘↙	↖↗
Traffic Volume (veh/h)	2530	270	280	960	10	350	600
Future Volume (veh/h)	2530	270	280	960	10	350	600
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	2691	0	298	1021		372	637
Peak Hour Factor	0.94	0.94	0.94	0.94		0.94	0.94
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2621		479	0		403	1018
Arrive On Green	0.51	0.00	0.14	0.00		0.23	0.23
Sat Flow, veh/h	5443	0	3456	298		1781	2790
Grp Volume(v), veh/h	2691	0	298	50.6		372	637
Grp Sat Flow(s),veh/h/ln	1702	0	1728	D		1781	1395
Q Serve(g_s), s	61.6	0.0	9.8			24.5	5.9
Cycle Q Clear(g_c), s	61.6	0.0	9.8			24.5	5.9
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2621		479			403	1018
V/C Ratio(X)	1.03		0.62			0.92	0.63
Avail Cap(c_a), veh/h	2621		479			425	1051
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.09	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	29.2	0.0	48.7			45.4	31.4
Incr Delay (d2), s/veh	14.0	0.0	1.9			24.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh	26.1	0.0	4.2			13.5	7.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	43.2	0.0	50.6			69.6	32.2
LnGrp LOS	F		D			E	C
Approach Vol, veh/h	2691	A				1009	
Approach Delay, s/veh	43.2					46.0	
Approach LOS	D					D	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	31.0	67.4					31.6
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	61.6					28.6
Max Q Clear Time (g_c+I1), s	11.8	63.6					26.5
Green Ext Time (p_c), s	0.2	0.0					0.7

Intersection Summary

HCM 6th Ctrl Delay	44.5
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 23: Qualcomm Way & Rio San Diego Dr

Horizon Year
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations	↔↔	↑	↗		↔↔	↑↑	↗	↔↔	↑↑↑	↗		↔↔	↑↑↑	
Traffic Volume (veh/h)	290	190	310	20	770	340	340	60	320	150	10	70	860	310
Future Volume (veh/h)	290	190	310	20	770	340	340	60	320	150	10	70	860	310
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		0.99	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	305	200	299		811	358	137	63	337	16		74	905	297
Peak Hour Factor	0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2		2	2	2
Cap, veh/h	369	403	384		846	1255	557	107	1778	550		122	1335	436
Arrive On Green	0.11	0.22	0.22		0.24	0.35	0.35	0.03	0.35	0.35		0.04	0.35	0.35
Sat Flow, veh/h	3456	1870	1556		3456	3554	1577	3456	5106	1580		3456	3788	1239
Grp Volume(v), veh/h	305	200	299		811	358	137	63	337	16		74	813	389
Grp Sat Flow(s),veh/h/ln	1728	1870	1556		1728	1777	1577	1728	1702	1580		1728	1702	1623
Q Serve(g_s), s	10.6	11.5	22.0		28.4	8.9	7.5	2.2	5.6	0.8		2.6	24.9	25.0
Cycle Q Clear(g_c), s	10.6	11.5	22.0		28.4	8.9	7.5	2.2	5.6	0.8		2.6	24.9	25.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.76
Lane Grp Cap(c), veh/h	369	403	384		846	1255	557	107	1778	550		122	1199	572
V/C Ratio(X)	0.83	0.50	0.78		0.96	0.29	0.25	0.59	0.19	0.03		0.61	0.68	0.68
Avail Cap(c_a), veh/h	846	610	557		846	1255	557	1692	2499	773		846	1666	794
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	53.6	42.3	43.1		45.7	28.5	28.1	58.6	27.9	26.3		58.3	33.8	33.8
Incr Delay (d2), s/veh	1.8	0.9	4.3		21.3	0.1	0.2	1.9	0.1	0.0		1.8	1.2	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	5.3	8.7		14.4	3.7	2.8	1.0	2.3	0.3		1.2	10.3	10.1
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	55.4	43.2	47.4		67.0	28.6	28.3	60.5	28.0	26.3		60.1	34.9	36.3
LnGrp LOS	E	D	D		E	C	C	E	C	C		E	C	D
Approach Vol, veh/h		804				1306			416				1276	
Approach Delay, s/veh		49.4				52.4			32.8				36.8	
Approach LOS		D				D			C				D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	8.7	47.8	34.4	31.7	8.2	48.3	17.5	48.6						
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3						
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0						
Max Q Clear Time (g_c+1), s	14.6	7.6	30.4	24.0	4.2	27.0	12.6	10.9						
Green Ext Time (p_c), s	0.1	3.6	0.0	1.9	0.1	16.1	0.5	2.7						

Intersection Summary

HCM 6th Ctrl Delay	44.4
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Intersection Delay, s/veh25.1
Intersection LOS D

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↖	↕		↖	↕			↕				↕	
Traffic Vol, veh/h	20	170	560	20	10	450	60	20	10	20	20	130	20	110
Future Vol, veh/h	20	170	560	20	10	450	60	20	10	20	20	130	20	110
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	189	622	22	11	500	67	22	11	22	22	144	22	122
Number of Lanes	0	1	2	0	1	2	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	26.6	22.5	13.3	27.9
HCM LOS	D	C	B	D

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	40%	100%	0%	0%	100%	0%	0%	50%
Vol Thru, %	20%	0%	100%	90%	0%	100%	71%	8%
Vol Right, %	40%	0%	0%	10%	0%	0%	29%	42%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	190	373	207	10	300	210	280
LT Vol	20	190	0	0	10	0	0	140
Through Vol	10	0	373	187	0	300	150	22
RT Vol	20	0	0	20	0	0	60	118
Lane Flow Rate	56	211	415	230	11	333	233	311
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.14	0.456	0.837	0.459	0.025	0.706	0.481	0.701
Departure Headway (Hd)	9.054	7.781	7.264	7.194	8.147	7.63	7.423	8.111
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	395	462	498	501	438	473	483	445
Service Time	6.836	5.543	5.026	4.956	5.915	5.397	5.19	5.871
HCM Lane V/C Ratio	0.142	0.457	0.833	0.459	0.025	0.704	0.482	0.699
HCM Control Delay	13.3	16.9	37.4	16	11.1	26.8	16.9	27.9
HCM Lane LOS	B	C	E	C	B	D	C	D
HCM 95th-tile Q	0.5	2.3	8.4	2.4	0.1	5.5	2.6	5.3

HCM 6th Signalized Intersection Summary

25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy

Horizon Year
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	10	200	280	130	10	320	270	110	160	0	30	370	130	80
Future Volume (veh/h)	10	200	280	130	10	320	270	110	160	0	30	370	130	80
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99	1.00		0.99	1.00		1.00		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No		No		No		No			No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h		206	289	56	10	330	199	113	165	0		381	134	23
Peak Hour Factor		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97		0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h		381	400	335	14	482	308	147	464	0		498	585	98
Arrive On Green		0.21	0.21	0.21	0.23	0.23	0.23	0.08	0.13	0.00		0.14	0.19	0.19
Sat Flow, veh/h		1781	1870	1565	63	2082	1330	1781	3647	0		3456	3040	511
Grp Volume(v), veh/h		206	289	56	298	0	241	113	165	0		381	77	80
Grp Sat Flow(s),veh/h/ln		1781	1870	1565	1867	0	1608	1781	1777	0		1728	1777	1774
Q Serve(g_s), s		7.3	10.2	2.1	10.4	0.0	9.6	4.4	3.0	0.0		7.5	2.6	2.7
Cycle Q Clear(g_c), s		7.3	10.2	2.1	10.4	0.0	9.6	4.4	3.0	0.0		7.5	2.6	2.7
Prop In Lane		1.00		1.00	0.03		0.83	1.00		0.00		1.00		0.29
Lane Grp Cap(c), veh/h		381	400	335	432	0	372	147	464	0		498	342	341
V/C Ratio(X)		0.54	0.72	0.17	0.69	0.00	0.65	0.77	0.36	0.00		0.76	0.23	0.23
Avail Cap(c_a), veh/h		1002	1052	880	1050	0	904	751	2998	0		1458	1499	1496
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	0.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		24.8	26.0	22.8	25.0	0.0	24.7	32.0	28.2	0.0		29.3	24.2	24.3
Incr Delay (d2), s/veh		0.7	1.5	0.1	0.7	0.0	0.7	3.2	2.1	0.0		0.9	1.5	1.6
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.9	4.3	0.8	4.5	0.0	3.6	2.0	1.4	0.0		3.1	1.2	1.3
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		25.6	27.5	22.9	25.7	0.0	25.4	35.2	30.3	0.0		30.2	25.8	25.9
LnGrp LOS		C	C	C	C	A	C	D	C	A		C	C	C
Approach Vol, veh/h			551			539			278				538	
Approach Delay, s/veh			26.3			25.6			32.3				28.9	
Approach LOS			C			C			C				C	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	14.7	14.7		20.4	10.3	19.1		21.4						
Change Period (Y+Rc), s	4.4	* 5.4		5.2	4.4	5.4		4.9						
Max Green Setting (Gmax), s	30.0	* 60		40.0	30.0	60.0		40.0						
Max Q Clear Time (g_c+1), s	19.5	5.0		12.2	6.4	4.7		12.4						
Green Ext Time (p_c), s	0.7	3.9		1.6	0.1	3.4		2.5						

Intersection Summary

HCM 6th Ctrl Delay	27.7
HCM 6th LOS	C

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 26: Rancho Mission Rd & San Diego Mission Rd

Horizon Year
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗	↗	↖	↗	↗
Traffic Volume (veh/h)	180	560	390	140	160	170	100	290	160	130	220	70
Future Volume (veh/h)	180	560	390	140	160	170	100	290	160	130	220	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	189	589	349	147	168	80	105	305	37	137	232	25
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	228	805	477	183	837	381	135	382	316	172	421	349
Arrive On Green	0.13	0.38	0.38	0.10	0.35	0.35	0.08	0.20	0.20	0.10	0.22	0.22
Sat Flow, veh/h	1781	2126	1259	1781	2368	1077	1781	1870	1548	1781	1870	1551
Grp Volume(v), veh/h	189	492	446	147	124	124	105	305	37	137	232	25
Grp Sat Flow(s),veh/h/ln	1781	1777	1608	1781	1777	1668	1781	1870	1548	1781	1870	1551
Q Serve(g_s), s	8.9	20.4	20.4	6.9	4.2	4.4	5.0	13.3	1.7	6.4	9.4	1.1
Cycle Q Clear(g_c), s	8.9	20.4	20.4	6.9	4.2	4.4	5.0	13.3	1.7	6.4	9.4	1.1
Prop In Lane	1.00		0.78	1.00		0.65	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	228	673	609	183	628	590	135	382	316	172	421	349
V/C Ratio(X)	0.83	0.73	0.73	0.80	0.20	0.21	0.78	0.80	0.12	0.80	0.55	0.07
Avail Cap(c_a), veh/h	729	1038	940	729	1142	1072	624	1093	905	624	1093	906
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.4	22.8	22.8	37.5	19.2	19.3	38.8	32.4	27.8	37.8	29.3	26.1
Incr Delay (d2), s/veh	2.9	2.4	2.6	3.1	0.3	0.3	3.6	1.5	0.1	3.2	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	8.2	7.5	3.0	1.6	1.7	2.2	5.9	0.6	2.9	4.1	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.3	25.2	25.4	40.6	19.5	19.6	42.4	33.9	27.8	41.0	29.8	26.2
LnGrp LOS	D	C	C	D	B	B	D	C	C	D	C	C
Approach Vol, veh/h		1127			395			447			394	
Approach Delay, s/veh		27.7			27.4			35.4			33.4	
Approach LOS		C			C			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.8	37.9	10.5	24.4	15.0	35.8	12.3	22.6				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	* 5.5	4.0	* 5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	* 55	30.0	* 50				
Max Q Clear Time (g_c+1), s	19.5	22.4	7.0	11.4	10.9	6.4	8.4	15.3				
Green Ext Time (p_c), s	0.2	10.0	0.1	0.9	0.2	2.5	0.2	1.2				

Intersection Summary

HCM 6th Ctrl Delay	30.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave

Horizon Year
 PM Peak Hour



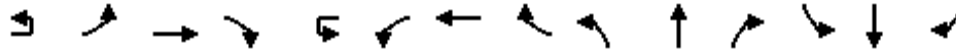
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	140	520	210	70	190	30	100	90	80	30	150	110
Future Volume (veh/h)	140	520	210	70	190	30	100	90	80	30	150	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	156	578	151	78	211	29	111	100	62	33	167	101
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	218	688	1051	152	843	127	215	129	80	324	198	120
Arrive On Green	0.56	0.56	0.56	0.56	0.56	0.56	0.12	0.12	0.12	0.18	0.18	0.18
Sat Flow, veh/h	309	1239	1549	156	1519	229	1781	1068	662	1781	1089	659
Grp Volume(v), veh/h	734	0	151	108	0	210	111	0	162	33	0	268
Grp Sat Flow(s),veh/h/ln	1548	0	1549	244	0	1661	1781	0	1729	1781	0	1748
Q Serve(g_s), s	33.5	0.0	3.3	9.7	0.0	6.1	5.5	0.0	8.6	1.5	0.0	14.1
Cycle Q Clear(g_c), s	39.6	0.0	3.3	49.3	0.0	6.1	5.5	0.0	8.6	1.5	0.0	14.1
Prop In Lane	0.21		1.00	0.72		0.14	1.00		0.38	1.00		0.38
Lane Grp Cap(c), veh/h	905	0	1051	201	0	922	215	0	209	324	0	318
V/C Ratio(X)	0.81	0.00	0.14	0.54	0.00	0.23	0.52	0.00	0.77	0.10	0.00	0.84
Avail Cap(c_a), veh/h	1032	0	1170	268	0	1049	750	0	729	750	0	736
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.3	0.0	5.5	33.3	0.0	10.8	39.1	0.0	40.5	32.4	0.0	37.5
Incr Delay (d2), s/veh	4.3	0.0	0.1	2.0	0.0	0.1	0.7	0.0	2.3	0.1	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	0.0	1.4	2.5	0.0	2.2	2.4	0.0	3.8	0.6	0.0	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.7	0.0	5.6	35.3	0.0	10.9	39.8	0.0	42.8	32.4	0.0	39.9
LnGrp LOS	C	A	A	D	A	B	D	A	D	C	A	D
Approach Vol, veh/h		885			318			273			301	
Approach Delay, s/veh		20.6			19.2			41.6			39.1	
Approach LOS		C			B			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		57.2		21.8		57.2		16.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		41.6		16.1		51.3		10.6				
Green Ext Time (p_c), s		5.0		1.1		1.4		0.8				

Intersection Summary

HCM 6th Ctrl Delay	26.7
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
 28: Qualcomm Way & Camino de la Reina/Camino del Rio N

Horizon Year
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	10	130	450	320	10	470	210	140	180	610	310	290	1150	130
Future Volume (veh/h)	10	130	450	320	10	470	210	140	180	610	310	290	1150	130
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No			No		
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1841	1870	1856	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		134	498	243		485	216	22	186	629	264	299	1186	127
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2		2	4	2	3	2	2	2	2	2
Cap, veh/h		151	498	309		516	691	306	222	2656	811	316	2556	274
Arrive On Green		0.08	0.13	0.13		0.15	0.20	0.20	0.02	0.17	0.17	0.09	0.55	0.55
Sat Flow, veh/h		1781	3741	1550		3456	3497	1549	3428	5106	1558	3456	4674	500
Grp Volume(v), veh/h		134	498	243		485	216	22	186	629	264	299	864	449
Grp Sat Flow(s),veh/h/ln		1781	1870	1550		1728	1749	1549	1714	1702	1558	1728	1702	1770
Q Serve(g_s), s		14.9	26.6	26.6		27.8	10.6	2.3	10.8	21.3	29.7	17.2	30.8	30.8
Cycle Q Clear(g_c), s		14.9	26.6	26.6		27.8	10.6	2.3	10.8	21.3	29.7	17.2	30.8	30.8
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.28
Lane Grp Cap(c), veh/h		151	498	309		516	691	306	222	2656	811	316	1862	968
V/C Ratio(X)		0.89	1.00	0.79		0.94	0.31	0.07	0.84	0.24	0.33	0.95	0.46	0.46
Avail Cap(c_a), veh/h		190	498	309		524	691	306	314	2656	811	316	1862	968
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	0.84	0.84	0.84	0.48	0.48	0.48
Uniform Delay (d), s/veh		90.6	86.7	76.3		84.2	68.6	65.3	96.8	48.5	52.1	90.4	27.5	27.5
Incr Delay (d2), s/veh		28.0	40.6	12.2		24.7	0.1	0.0	7.9	0.2	0.9	22.3	0.4	0.8
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		8.1	15.8	12.9		14.1	4.7	0.9	5.3	9.9	12.7	8.7	12.9	13.5
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		118.5	127.3	88.5		108.9	68.7	65.4	104.7	48.7	52.9	112.7	27.9	28.3
LnGrp LOS		F	F	F		F	E	E	F	D	D	F	C	C
Approach Vol, veh/h			875				723			1079			1612	
Approach Delay, s/veh			115.2				95.6			59.4			43.7	
Approach LOS			F				F			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	22.7	110.7	34.3	32.3	17.4	116.1	21.3	45.2						
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7						
Max Green Setting (Gmax), s	10.3	103.6	30.3	* 27	18.3	* 1.1E2	21.3	35.6						
Max Q Clear Time (g_c+119), s	119.2	31.7	29.8	28.6	12.8	32.8	16.9	12.6						
Green Ext Time (p_c), s	0.0	5.4	0.1	0.0	0.2	32.5	0.1	0.8						

Intersection Summary

HCM 6th Ctrl Delay	71.0
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

Horizon Year
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔	↑↑↑			↑↑	↔
Traffic Volume (veh/h)	10	100	0	610	30	190	410	210	880	0	0	1120	720
Future Volume (veh/h)	10	100	0	610	30	190	410	210	880	0	0	1120	720
Initial Q (Qb), veh		0	0	20	0	20	20	20	20	0	0	20	20
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No			No			No		
Adj Sat Flow, veh/h/ln		1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h		106	0	386	32	202	254	223	936	0	0	1191	555
Peak Hour Factor		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h		0	0	0	22	320	317	178	3913	0	0	2279	990
Arrive On Green		0.00	0.00	0.00	0.17	0.17	0.17	0.10	0.77	0.00	0.00	1.00	1.00
Sat Flow, veh/h			0		254	1604	1582	1781	5274	0	0	3647	1551
Grp Volume(v), veh/h			0.0		234	0	254	223	936	0	0	1191	555
Grp Sat Flow(s),veh/h/ln					1858	0	1582	1781	1702	0	0	1777	1551
Q Serve(g_s), s					23.9	0.0	31.6	20.0	10.5	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s					23.9	0.0	31.6	20.0	10.5	0.0	0.0	0.0	0.0
Prop In Lane					0.14		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					351	0	317	178	3913	0	0	2279	990
V/C Ratio(X)					0.67	0.00	0.80	1.25	0.24	0.00	0.00	0.52	0.56
Avail Cap(c_a), veh/h					372	0	316	178	3916	0	0	2287	998
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)					1.00	0.00	1.00	0.65	0.65	0.00	0.00	0.75	0.75
Uniform Delay (d), s/veh					79.3	0.0	80.0	90.0	7.2	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh					3.2	0.0	12.9	139.8	0.1	0.0	0.0	0.6	1.7
Initial Q Delay(d3),s/veh					70.2	0.0	138.6	404.2	0.2	0.0	0.0	1.2	6.7
%ile BackOfQ(50%),veh/ln					22.9	0.0	29.5	36.2	5.3	0.0	0.0	0.6	2.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					152.7	0.0	231.4	634.0	7.5	0.0	0.0	1.8	8.4
LnGrp LOS					F	A	F	F	A	A	A	A	A
Approach Vol, veh/h						488			1159			1746	
Approach Delay, s/veh						193.7			128.1			3.9	
Approach LOS						F			F			A	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		160.4			24.7	135.7		39.6					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		107.8			* 20	83.1		40.0					
Max Q Clear Time (g_c+I1), s		12.5			22.0	2.0		33.6					
Green Ext Time (p_c), s		4.9			0.0	43.3		0.7					

Intersection Summary

HCM 6th Ctrl Delay	73.6
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Horizon Year
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↖↖		↑↑	↑↑	
Traffic Volume (veh/h)	0	740	0	1340	1910	0
Future Volume (veh/h)	0	740	0	1340	1910	0
Initial Q (Qb), veh	0	10	0	0	50	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1870	0
Adj Flow Rate, veh/h	0	752	0	1367	1949	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	2	2	0
Cap, veh/h	0	0	0	2934	2934	0
Arrive On Green	0.00	0.00	0.00	0.81	0.81	0.00
Sat Flow, veh/h	0		0	3741	3741	0
Grp Volume(v), veh/h	0.0		0	1367	1949	0
Grp Sat Flow(s),veh/h/ln			0	1777	1777	0
Q Serve(g_s), s			0.0	3.4	6.7	0.0
Cycle Q Clear(g_c), s			0.0	3.4	6.7	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2934	2934	0
V/C Ratio(X)			0.00	0.47	0.66	0.00
Avail Cap(c_a), veh/h			0	5445	5445	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	0.8	1.4	0.0
Incr Delay (d2), s/veh			0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	6.2	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	2.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	0.8	7.7	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1367	1949	
Approach Delay, s/veh				0.8	7.7	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		29.4				29.4
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		45.0				45.0
Max Q Clear Time (g_c+I1), s		5.4				8.7
Green Ext Time (p_c), s		8.4				15.2
Intersection Summary						
HCM 6th Ctrl Delay			4.9			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
 31: Texas St & Camino del Rio S

Horizon Year
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	280	150	390	270	60	540	100	890	120	310	1770	190
Future Volume (veh/h)	280	150	390	270	60	540	100	890	120	310	1770	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	286	153	346	276	61	508	102	908	118	316	1806	159
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	351	368	417	247	259	515	119	1169	152	334	1748	774
Arrive On Green	0.20	0.20	0.20	0.14	0.14	0.14	0.07	0.37	0.37	0.19	0.49	0.49
Sat Flow, veh/h	1781	1870	1580	1781	1870	1571	1781	3147	409	1781	3554	1574
Grp Volume(v), veh/h	286	153	346	276	61	508	102	513	513	316	1806	159
Grp Sat Flow(s),veh/h/ln	1781	1870	1580	1781	1870	1571	1781	1777	1780	1781	1777	1574
Q Serve(g_s), s	31.2	14.5	40.0	28.2	5.9	28.2	11.5	51.8	51.8	35.6	100.0	11.6
Cycle Q Clear(g_c), s	31.2	14.5	40.0	28.2	5.9	28.2	11.5	51.8	51.8	35.6	100.0	11.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	351	368	417	247	259	515	119	660	661	334	1748	774
V/C Ratio(X)	0.82	0.42	0.83	1.12	0.24	0.99	0.86	0.78	0.78	0.95	1.03	0.21
Avail Cap(c_a), veh/h	351	368	417	247	259	515	219	660	661	636	1748	774
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	78.1	71.4	70.6	87.5	77.9	68.1	93.9	56.4	56.4	81.6	51.6	29.2
Incr Delay (d2), s/veh	13.9	0.7	13.2	92.2	1.3	36.3	6.7	5.3	5.3	6.2	30.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.7	7.1	18.6	19.4	3.0	31.4	5.6	24.3	24.3	17.0	51.4	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.0	72.2	83.8	179.8	79.2	104.4	100.6	61.7	61.7	87.8	82.2	29.5
LnGrp LOS	F	E	F	F	E	F	F	E	E	F	F	C
Approach Vol, veh/h		785			845			1128			2281	
Approach Delay, s/veh		84.5			127.2			65.3			79.3	
Approach LOS		F			F			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	42.5	80.7		44.9	18.0	105.2		35.2				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0				
Max Green Setting (Gmax), s	72.6	51.8		40.0	25.0	* 1E2		28.2				
Max Q Clear Time (g_c+R), s	77.6	53.8		42.0	13.5	102.0		30.2				
Green Ext Time (p_c), s	0.4	0.0		0.0	0.1	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	85.0
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection									
Int Delay, s/veh	2.4								
Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations		↖	↗			↕		↕	
Traffic Vol, veh/h	10	40	40	10	50	480	10	530	70
Future Vol, veh/h	10	40	40	10	50	480	10	530	70
Conflicting Peds, #/hr	21	24	24	3	24	0	3	0	24
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	0	65	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	0	-
Grade, %	-	0	-	-	-	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	42	42	11	53	505	11	558	74

Major/Minor	Minor2	Major1				Major2			
Conflicting Flow All	0	1046	364	632	656	0	505	-	0
Stage 1	0	641	-	-	-	-	-	-	-
Stage 2	0	405	-	-	-	-	-	-	-
Critical Hdwy	-	6.84	6.94	6.44	4.14	-	6.44	-	-
Critical Hdwy Stg 1	-	5.84	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.84	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.52	3.32	2.52	2.22	-	2.52	-	-
Pot Cap-1 Maneuver	0	224	633	571	927	-	687	-	-
Stage 1	0	487	-	-	-	-	-	-	-
Stage 2	0	642	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	0	186	604	811	811	-	687	-	-
Mov Cap-2 Maneuver	0	186	-	-	-	-	-	-	-
Stage 1	0	424	-	-	-	-	-	-	-
Stage 2	0	612	-	-	-	-	-	-	-

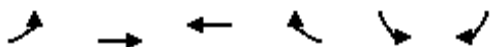
Approach	EB	NB	SB
HCM Control Delay, s	20.7	1.9	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	811	-	186	604	-	-
HCM Lane V/C Ratio	0.065	-	0.226	0.07	-	-
HCM Control Delay (s)	9.8	0.9	29.9	11.4	-	-
HCM Lane LOS	A	A	D	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.8	0.2	-	-

HCM 6th Signalized Intersection Summary

33: Camino del Rio N & Ward Rd

Horizon Year
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑	↑↑	↑	↘	↘
Traffic Volume (veh/h)	320	510	190	220	460	140
Future Volume (veh/h)	320	510	190	220	460	140
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	340	543	202	21	489	103
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	402	1739	652	290	557	854
Arrive On Green	0.23	0.49	0.18	0.18	0.31	0.31
Sat Flow, veh/h	1781	3647	3647	1581	1781	1585
Grp Volume(v), veh/h	340	543	202	21	489	103
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1581	1781	1585
Q Serve(g_s), s	10.1	5.1	2.7	0.6	14.3	1.8
Cycle Q Clear(g_c), s	10.1	5.1	2.7	0.6	14.3	1.8
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	402	1739	652	290	557	854
V/C Ratio(X)	0.85	0.31	0.31	0.07	0.88	0.12
Avail Cap(c_a), veh/h	1423	4518	4518	2009	1423	1625
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.4	8.5	19.5	18.6	17.9	6.3
Incr Delay (d2), s/veh	1.9	0.2	0.4	0.2	1.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	1.4	1.0	0.2	5.3	2.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	22.3	8.6	19.9	18.8	19.7	6.3
LnGrp LOS	C	A	B	B	B	A
Approach Vol, veh/h		883	223		592	
Approach Delay, s/veh		13.9	19.8		17.4	
Approach LOS		B	B		B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		32.9		22.1	16.8	16.1
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		7.1		16.3	12.1	4.7
Green Ext Time (p_c), s		5.9		0.9	0.4	2.1

Intersection Summary

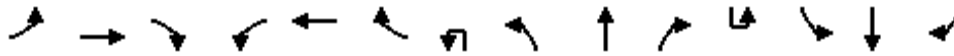
HCM 6th Ctrl Delay	15.9
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 34: Fairmount Ave & Mission Gorge Rd

Horizon Year
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↗	↕			↗	↕	
Traffic Volume (veh/h)	20	10	470	30	10	10	40	260	900	40	10	10	930	20
Future Volume (veh/h)	20	10	470	30	10	10	40	260	900	40	10	10	930	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		0.98	1.00		0.98		1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No				No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	508	31	10	3	265	918	39		10	949	19	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	340	546	175	52	13	893	2429	103		17	1592	32	
Arrive On Green	0.00	0.00	0.18	0.18	0.18	0.18	0.52	1.00	1.00		0.01	0.45	0.45	
Sat Flow, veh/h	0	1870	3006	706	289	73	3456	3470	147		1781	3562	71	
Grp Volume(v), veh/h	0	0	508	44	0	0	265	470	487		10	473	495	
Grp Sat Flow(s),veh/h/ln	0	1870	1503	1067	0	0	1728	1777	1841		1781	1777	1856	
Q Serve(g_s), s	0.0	0.0	21.6	3.2	0.0	0.0	5.7	0.0	0.0		0.7	26.1	26.1	
Cycle Q Clear(g_c), s	0.0	0.0	21.6	4.0	0.0	0.0	5.7	0.0	0.0		0.7	26.1	26.1	
Prop In Lane	0.00		1.00	0.70		0.07	1.00		0.08		1.00		0.04	
Lane Grp Cap(c), veh/h	0	340	546	241	0	0	893	1244	1289		17	794	830	
V/C Ratio(X)	0.00	0.00	0.93	0.18	0.00	0.00	0.30	0.38	0.38		0.60	0.60	0.60	
Avail Cap(c_a), veh/h	0	340	546	241	0	0	906	1244	1289		179	794	830	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00		1.00	1.00	1.00	
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.72	0.72	0.72		1.00	1.00	1.00	
Uniform Delay (d), s/veh	0.0	0.0	52.4	45.0	0.0	0.0	24.7	0.0	0.0		64.2	27.1	27.1	
Incr Delay (d2), s/veh	0.0	0.0	22.5	0.4	0.0	0.0	0.0	0.6	0.6		12.3	3.3	3.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.0	0.0	9.9	1.2	0.0	0.0	2.2	0.2	0.2		0.4	11.7	12.2	
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	74.9	45.4	0.0	0.0	24.7	0.6	0.6		76.5	30.4	30.3	
LnGrp LOS	A	A	E	D	A	A	C	A	A		E	C	C	
Approach Vol, veh/h		508			44			1222				978		
Approach Delay, s/veh		74.9			45.4			5.8				30.8		
Approach LOS		E			D			A				C		
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	5.6	95.9		28.5	38.5	63.0		28.5						
Change Period (Y+Rc), s	4.4	4.9		4.9	4.9	* 4.9		4.9						
Max Green Setting (Gmax), s	13.1	79.1		23.6	34.1	* 58		23.6						
Max Q Clear Time (g_c+1/2), s	12.7	2.0		23.6	7.7	28.1		6.0						
Green Ext Time (p_c), s	0.0	18.9		0.0	0.5	14.0		0.2						

Intersection Summary

HCM 6th Ctrl Delay	28.1
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis
 35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

Horizon Year
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↔	↖	↖	↔		↖	↖	↖
Traffic Volume (vph)	150	150	690	810	180	290	240	780	190	10	1450	70
Future Volume (vph)	150	150	690	810	180	290	240	780	190	10	1450	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1762	1583	1610	3078	1425	1770	3426		3433	3539	1563
Flt Permitted	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1762	1583	1610	3078	1425	1770	3426		3433	3539	1563
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	152	152	697	818	182	293	242	788	192	10	1465	71
RTOR Reduction (vph)	0	0	78	0	0	0	0	16	0	0	0	45
Lane Group Flow (vph)	137	167	619	409	620	264	242	964	0	10	1465	26
Confl. Peds. (#/hr)						3			1			
Confl. Bikes (#/hr)									1			1
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	7	5	8	8	1	5	2		1	6	
Permitted Phases			7			8						6
Actuated Green, G (s)	16.5	16.5	36.5	25.0	25.0	35.0	20.0	57.5		10.0	47.5	47.5
Effective Green, g (s)	16.5	16.5	36.5	25.0	25.0	35.0	20.0	57.5		10.0	47.5	47.5
Actuated g/C Ratio	0.13	0.13	0.28	0.19	0.19	0.27	0.15	0.44		0.08	0.37	0.37
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	213	223	501	309	591	383	272	1515		264	1293	571
v/s Ratio Prot	0.08	0.09	c0.19	c0.25	0.20	0.05	0.14	0.28		0.00	c0.41	
v/s Ratio Perm			0.20			0.13						0.02
v/c Ratio	0.64	0.75	1.24	1.32	1.32dl	0.69	0.89	0.64		0.04	1.13	0.05
Uniform Delay, d1	54.0	54.8	46.8	52.5	52.5	42.6	53.9	28.1		55.5	41.2	26.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.70	1.11	6.04
Incremental Delay, d2	4.9	11.4	122.6	166.5	50.5	4.1	27.1	2.1		0.0	67.4	0.1
Delay (s)	58.9	66.1	169.3	219.0	103.0	46.7	81.0	30.2		38.7	113.4	160.9
Level of Service	E	E	F	F	F	D	F	C		D	F	F
Approach Delay (s)		137.0			128.2			40.3			115.1	
Approach LOS		F			F			D			F	

Intersection Summary		
HCM 2000 Control Delay	104.7	HCM 2000 Level of Service F
HCM 2000 Volume to Capacity ratio	1.26	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 21.0
Intersection Capacity Utilization	119.2%	ICU Level of Service H
Analysis Period (min)	15	
dl Defacto Left Lane. Recode with 1 though lane as a left lane.		
c Critical Lane Group		

HCM 6th Signalized Intersection Summary

36: Fairmount Ave & I-8 EB Off-Ramp

Horizon Year
PM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations	YY	YY	Y		↑↑	↑↑↑	
Traffic Volume (veh/h)	720	2770	60	0	500	1420	0
Future Volume (veh/h)	720	2770	60	0	500	1420	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		0	1870	1870	0
Adj Flow Rate, veh/h	735	2827		0	510	1449	0
Peak Hour Factor	0.98	0.98		0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2		0	2	2	0
Cap, veh/h	1020	2723		0	1200	1724	0
Arrive On Green	0.57	0.57		0.00	0.34	0.34	0.00
Sat Flow, veh/h	1781	4755		0	3741	5443	0
Grp Volume(v), veh/h	735	2827		0	510	1449	0
Grp Sat Flow(s),veh/h/ln	1781	1585		0	1777	1702	0
Q Serve(g_s), s	37.2	70.9		0.0	13.7	32.5	0.0
Cycle Q Clear(g_c), s	37.2	70.9		0.0	13.7	32.5	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	1020	2723		0	1200	1724	0
V/C Ratio(X)	0.72	1.04		0.00	0.42	0.84	0.00
Avail Cap(c_a), veh/h	1020	2723		0	2202	2145	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.2	26.5		0.0	31.7	37.9	0.0
Incr Delay (d2), s/veh	2.2	28.1		0.0	0.1	2.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.4	32.2		0.0	5.9	13.7	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	21.4	54.6		0.0	31.8	40.1	0.0
LnGrp LOS	C	F		A	C	D	A
Approach Vol, veh/h	3562				510	1449	
Approach Delay, s/veh	47.8				31.8	40.1	
Approach LOS	D				C	D	
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				47.8		76.0	47.8
Change Period (Y+Rc), s				6.0		5.1	6.0
Max Green Setting (Gmax), s				52.0		70.9	76.7
Max Q Clear Time (g_c+I1), s				34.5		72.9	15.7
Green Ext Time (p_c), s				7.3		0.0	2.5

Intersection Summary

HCM 6th Ctrl Delay	44.3
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
37: Collwood Blvd & Montezuma Rd

Horizon Year
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↓	↑↑	↑↑	↑
Traffic Volume (veh/h)	1470	1370	10	90	820	700	50
Future Volume (veh/h)	1470	1370	10	90	820	700	50
Initial Q (Qb), veh	20	20		0	0	0	0
Ped-Bike Adj(A_pbT)		0.98		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1737	1870	1870	1648
Adj Flow Rate, veh/h	1515	1284		93	845	722	25
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		11	2	2	17
Cap, veh/h	2105	1272		114	2466	777	314
Arrive On Green	0.59	0.59		0.07	0.69	0.22	0.22
Sat Flow, veh/h	3647	1546		1654	3647	3456	1397
Grp Volume(v), veh/h	1515	1284		93	845	722	25
Grp Sat Flow(s),veh/h/ln	1777	1546		1654	1777	1728	1397
Q Serve(g_s), s	40.6	79.4		7.4	12.8	27.4	1.9
Cycle Q Clear(g_c), s	40.6	79.4		7.4	12.8	27.4	1.9
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2105	1272		114	2466	777	314
V/C Ratio(X)	0.72	1.01		0.82	0.34	0.93	0.08
Avail Cap(c_a), veh/h	2105	1272		328	2466	848	343
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.5	12.5		61.6	8.2	50.9	41.0
Incr Delay (d2), s/veh	2.2	27.6		5.3	0.4	15.1	0.0
Initial Q Delay(d3),s/veh	2.3	56.6		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.0	54.7		3.3	4.6	13.3	0.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	25.0	96.7		66.9	8.6	66.0	41.0
LnGrp LOS	C	F		E	A	E	D
Approach Vol, veh/h	2799			938	747		
Approach Delay, s/veh	57.9			14.4	65.2		
Approach LOS	E			B	E		
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+Rc), s	13.6	85.9			99.5		34.5
Change Period (Y+Rc), s	4.4	* 6.5			6.5		4.4
Max Green Setting (Gmax), s	26.6	* 60			90.2		32.9
Max Q Clear Time (g_c+1), s	19.4	81.4			14.8		29.4
Green Ext Time (p_c), s	0.1	0.0			13.9		0.7

Intersection Summary

HCM 6th Ctrl Delay	50.0
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
38: Mission Village Dr & Shawn Ave

Horizon Year
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔				↔		↔	↑↑	↔	↔	↔	
Traffic Volume (veh/h)	80	10	80	10	50	10	30	70	460	30	50	1830	80
Future Volume (veh/h)	80	10	80	10	50	10	30	70	460	30	50	1830	80
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99		0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	11	78		53	11	3	74	489	22	53	1947	83
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	259	29	208		214	188	51	167	2589	1153	697	2531	107
Arrive On Green	0.15	0.15	0.15		0.15	0.15	0.15	0.73	0.73	0.73	0.73	0.73	0.73
Sat Flow, veh/h	1199	196	1425		857	1284	350	209	3554	1582	888	3473	147
Grp Volume(v), veh/h	96	0	78		53	0	14	74	489	22	53	989	1041
Grp Sat Flow(s),veh/h/ln1394	0	1425		857	0	1634	209	1777	1582	888	1777	1844	
Q Serve(g_s), s	4.7	0.0	4.0		3.1	0.0	0.6	27.8	3.5	0.3	1.6	27.7	28.7
Cycle Q Clear(g_c), s	5.3	0.0	4.0		7.2	0.0	0.6	56.5	3.5	0.3	5.1	27.7	28.7
Prop In Lane	0.89		1.00		1.00		0.21	1.00		1.00	1.00		0.08
Lane Grp Cap(c), veh/h	287	0	208		214	0	239	167	2589	1153	697	1294	1343
V/C Ratio(X)	0.33	0.00	0.37		0.25	0.00	0.06	0.44	0.19	0.02	0.08	0.76	0.78
Avail Cap(c_a), veh/h	780	0	700		662	0	803	169	2621	1167	705	1310	1359
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00		1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	0.0	31.4		34.6	0.0	29.9	24.5	3.5	3.0	4.3	6.8	6.9
Incr Delay (d2), s/veh	0.3	0.0	0.4		0.2	0.0	0.0	2.2	0.0	0.0	0.1	2.8	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.7	0.0	1.4		1.0	0.0	0.2	1.3	0.8	0.1	0.2	7.2	7.8	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	32.3	0.0	31.8		34.8	0.0	30.0	26.7	3.5	3.0	4.3	9.6	9.8
LnGrp LOS	C	A	C		C	A	C	C	A	A	A	A	A
Approach Vol, veh/h		174				67			585			2083	
Approach Delay, s/veh		32.1				33.8			6.4			9.6	
Approach LOS		C				C			A			A	
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		64.6		16.8		64.6		16.8					
Change Period (Y+Rc), s		5.3		4.9		5.3		4.9					
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0					
Max Q Clear Time (g_c+1), s		58.5		7.3		30.7		9.2					
Green Ext Time (p_c), s		0.8		0.7		23.1		0.2					

Intersection Summary

HCM 6th Ctrl Delay	10.8
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 39: Mission Village Dr & Fermi Ave

Horizon Year
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕			↙	↕	
Traffic Volume (veh/h)	40	10	10	50	10	50	10	540	40	10	30	1960	30
Future Volume (veh/h)	40	10	10	50	10	50	10	540	40	10	30	1960	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	42	10	4	52	10	26	10	562	39		31	2042	31
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	178	38	11	145	26	42	18	2376	165		44	2578	39
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.01	0.70	0.70		0.02	0.72	0.72
Sat Flow, veh/h	1112	424	118	825	296	470	1781	3372	234		1781	3582	54
Grp Volume(v), veh/h	56	0	0	88	0	0	10	296	305		31	1010	1063
Grp Sat Flow(s),veh/h/ln1654	0	0	1591	0	0	1781	1777	1828			1781	1777	1859
Q Serve(g_s), s	0.0	0.0	0.0	1.7	0.0	0.0	0.4	4.7	4.7		1.4	29.6	30.0
Cycle Q Clear(g_c), s	2.3	0.0	0.0	4.1	0.0	0.0	0.4	4.7	4.7		1.4	29.6	30.0
Prop In Lane	0.75		0.07	0.59		0.30	1.00		0.13		1.00		0.03
Lane Grp Cap(c), veh/h	226	0	0	214	0	0	18	1252	1289		44	1279	1338
V/C Ratio(X)	0.25	0.00	0.00	0.41	0.00	0.00	0.56	0.24	0.24		0.70	0.79	0.79
Avail Cap(c_a), veh/h	822	0	0	639	0	0	667	1331	1370		667	1331	1393
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	0.0	0.0	35.0	0.0	0.0	39.5	4.2	4.2		38.7	7.3	7.3
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.5	0.0	0.0	10.0	0.2	0.2		7.2	3.6	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.0	0.0	0.0	0.0	1.7	0.0	0.0	0.2	1.2	1.2		0.7	8.6	9.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	34.5	0.0	0.0	35.5	0.0	0.0	49.5	4.4	4.4		45.9	10.9	10.9
LnGrp LOS	C	A	A	D	A	A	D	A	A		D	B	B
Approach Vol, veh/h		56			88			611				2104	
Approach Delay, s/veh		34.5			35.5			5.1				11.4	
Approach LOS		C			D			A				B	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	6.4	61.6		12.0	5.2	62.8		12.0					
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	5.2		4.9					
Max Green Setting (Gmax), s	30.0	60.0		40.0	30.0	60.0		30.0					
Max Q Clear Time (g_c+1), s	13.4	6.7		4.3	2.4	32.0		6.1					
Green Ext Time (p_c), s	0.0	7.4		0.2	0.0	25.7		0.3					

Intersection Summary

HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 40: Gramercy Dr/Mission Village Dr & Ruffin Rd

Horizon Year
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖↗	
Traffic Volume (veh/h)	60	580	20	10	310	320	20	10	20	1470	20	90
Future Volume (veh/h)	60	580	20	10	310	320	20	10	20	1470	20	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	592	18	10	316	175	20	10	2	1500	20	88
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	265	1086	33	230	682	368	70	116	22	1630	138	607
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.04	0.04	0.04	0.46	0.46	0.46
Sat Flow, veh/h	902	3518	107	808	2208	1191	1781	2961	571	3563	302	1327
Grp Volume(v), veh/h	61	299	311	10	253	238	20	6	6	1500	0	108
Grp Sat Flow(s),veh/h/ln	902	1777	1848	808	1777	1623	1781	1777	1756	1781	0	1628
Q Serve(g_s), s	4.5	10.7	10.7	0.8	8.8	9.1	0.8	0.2	0.3	30.2	0.0	3.0
Cycle Q Clear(g_c), s	13.6	10.7	10.7	11.5	8.8	9.1	0.8	0.2	0.3	30.2	0.0	3.0
Prop In Lane	1.00		0.06	1.00		0.73	1.00		0.33	1.00		0.81
Lane Grp Cap(c), veh/h	265	548	570	230	548	501	70	70	69	1630	0	745
V/C Ratio(X)	0.23	0.54	0.55	0.04	0.46	0.48	0.29	0.08	0.09	0.92	0.00	0.14
Avail Cap(c_a), veh/h	693	1392	1448	614	1392	1271	930	928	917	1861	0	851
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.0	22.0	22.0	26.8	21.3	21.5	35.7	35.5	35.5	19.5	0.0	12.1
Incr Delay (d2), s/veh	0.5	1.1	1.0	0.1	0.8	0.9	0.8	0.2	0.2	6.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0	4.5	4.7	0.2	3.7	3.5	0.4	0.1	0.1	12.2	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.5	23.1	23.0	26.9	22.1	22.3	36.6	35.7	35.7	26.3	0.0	12.1
LnGrp LOS	C	C	C	C	C	C	D	D	D	C	A	B
Approach Vol, veh/h		671			501			32				1608
Approach Delay, s/veh		23.4			22.3			36.2				25.4
Approach LOS		C			C			D				C
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		28.7		39.9		28.7		7.9				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		15.6		32.2		13.5		2.8				
Green Ext Time (p_c), s		6.3		2.8		4.7		0.1				

Intersection Summary

HCM 6th Ctrl Delay	24.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary

41: Ruffin Rd & Aero Dr

Horizon Year
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	880	850	10	990	810	180	310
Future Volume (veh/h)	880	850	10	990	810	180	310
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	926	894		1042	853	189	91
Peak Hour Factor	0.95	0.95		0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1943	963		896	2984	261	120
Arrive On Green	0.55	0.55		0.26	0.84	0.08	0.08
Sat Flow, veh/h	3647	1542		3456	3647	3456	1585
Grp Volume(v), veh/h	926	894		1042	853	189	91
Grp Sat Flow(s),veh/h/ln	1777	1542		1728	1777	1728	1585
Q Serve(g_s), s	20.8	67.8		33.7	6.6	7.0	7.3
Cycle Q Clear(g_c), s	20.8	67.8		33.7	6.6	7.0	7.3
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1943	963		896	2984	261	120
V/C Ratio(X)	0.48	0.93		1.16	0.29	0.72	0.76
Avail Cap(c_a), veh/h	1943	963		896	2984	1135	521
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.90	0.90
Uniform Delay (d), s/veh	18.1	22.1		48.2	2.2	58.8	58.9
Incr Delay (d2), s/veh	0.8	16.2		85.7	0.2	1.3	3.3
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	31.6		24.7	1.4	3.1	3.1
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	18.9	38.3		133.8	2.4	60.1	62.3
LnGrp LOS	B	D		F	A	E	E
Approach Vol, veh/h	1820			1895	280		
Approach Delay, s/veh	28.4			74.7	60.8		
Approach LOS	C			E	E		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	38.1	76.8			114.9	15.1	
Change Period (Y+Rc), s	4.4	* 5.7			5.7	5.3	
Max Green Setting (Gmax), s	33.7	* 39			76.3	42.7	
Max Q Clear Time (g_c+Rc), s	33.7	69.8			8.6	9.3	
Green Ext Time (p_c), s	0.0	0.0			9.6	0.5	

Intersection Summary

HCM 6th Ctrl Delay	52.6
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mobley St & Gramercy Dr

Horizon Year
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	610	90	60	290	50	50	30	40	80	20	20
Future Volume (veh/h)	20	610	90	60	290	50	50	30	40	80	20	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.96	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1826	1826	1826	1752	1752	1752
Adj Flow Rate, veh/h	21	629	69	62	299	38	52	31	20	82	21	13
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	10	10	10
Cap, veh/h	695	1804	794	522	1604	202	273	127	56	346	78	29
Arrive On Green	0.51	0.51	0.51	0.51	0.51	0.51	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1035	3554	1565	744	3161	397	577	695	306	851	426	161
Grp Volume(v), veh/h	21	629	69	62	167	170	103	0	0	116	0	0
Grp Sat Flow(s),veh/h/ln	1035	1777	1565	744	1777	1782	1578	0	0	1439	0	0
Q Serve(g_s), s	0.4	3.4	0.7	1.8	1.6	1.7	0.0	0.0	0.0	0.4	0.0	0.0
Cycle Q Clear(g_c), s	2.0	3.4	0.7	5.2	1.6	1.7	1.6	0.0	0.0	2.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.22	0.50		0.19	0.71		0.11
Lane Grp Cap(c), veh/h	695	1804	794	522	902	904	456	0	0	453	0	0
V/C Ratio(X)	0.03	0.35	0.09	0.12	0.18	0.19	0.23	0.00	0.00	0.26	0.00	0.00
Avail Cap(c_a), veh/h	2094	6607	2909	1528	3303	3312	2023	0	0	1870	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.9	4.8	4.1	6.3	4.3	4.3	11.5	0.0	0.0	11.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.7	0.1	0.2	0.3	0.3	0.5	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.9	5.0	4.2	6.5	4.5	4.5	11.5	0.0	0.0	11.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		719			399			103			116	
Approach Delay, s/veh		4.9			4.8			11.5			11.7	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		21.5		10.8		21.5		10.8				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		5.4		4.0		7.2		3.6				
Green Ext Time (p_c), s		10.8		0.5		4.9		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				6.0								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary
43: Sandrock Rd & Greyling Dr/Gramercy Dr

Horizon Year
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕			↕	↕	↕	↕	↕
Traffic Volume (veh/h)	90	140	10	20	170	200	10	10	20	30	600	40	140
Future Volume (veh/h)	90	140	10	20	170	200	10	10	20	30	600	40	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.98		0.94	1.00		1.00	1.00		0.96	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1574	1574	1870	1870	1856	1870	
Adj Flow Rate, veh/h	95	147	10	21	179	129	11	21	0	662	0	75	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	22	22	2	2	3	2	
Cap, veh/h	247	321	18	126	533	879	16	31	48	952	0	407	
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.03	0.03	0.00	0.27	0.00	0.27	
Sat Flow, veh/h	393	1050	60	80	1746	1493	532	1015	1585	3563	0	1522	
Grp Volume(v), veh/h	252	0	0	200	0	129	32	0	0	662	0	75	
Grp Sat Flow(s),veh/h/ln1503	0	0	1826	0	1493		1547	0	1585	1781	0	1522	
Q Serve(g_s), s	1.8	0.0	0.0	0.0	0.0	1.6	0.8	0.0	0.0	6.5	0.0	1.5	
Cycle Q Clear(g_c), s	5.1	0.0	0.0	3.2	0.0	1.6	0.8	0.0	0.0	6.5	0.0	1.5	
Prop In Lane	0.38		0.04	0.10		1.00	0.34		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	586	0	0	659	0	879	46	0	48	952	0	407	
V/C Ratio(X)	0.43	0.00	0.00	0.30	0.00	0.15	0.69	0.00	0.00	0.70	0.00	0.18	
Avail Cap(c_a), veh/h	1067	0	0	1252	0	1381	793	0	813	2740	0	1171	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh	11.0	0.0	0.0	10.5	0.0	3.9	18.7	0.0	0.0	12.9	0.0	11.0	
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	6.6	0.0	0.0	0.3	0.0	0.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln1.4	0.0	0.0	1.0	0.0	0.6		0.3	0.0	0.0	2.0	0.0	0.4	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	11.2	0.0	0.0	10.6	0.0	3.9	25.3	0.0	0.0	13.2	0.0	11.1	
LnGrp LOS	B	A	A	B	A	A	C	A	A	B	A	B	
Approach Vol, veh/h		252			329			32				737	
Approach Delay, s/veh		11.2			8.0			25.3				13.0	
Approach LOS		B			A			C				B	
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		17.2		15.7		17.2		6.1					
Change Period (Y+Rc), s		5.3		5.3		5.3		4.9					
Max Green Setting (Gmax), s		25.0		30.0		25.0		20.0					
Max Q Clear Time (g_c+1), s		7.1		8.5		5.2		2.8					
Green Ext Time (p_c), s		1.1		1.4		0.9		0.1					

Intersection Summary

HCM 6th Ctrl Delay	11.7
HCM 6th LOS	B

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

Arterial Level of Service: EB Friars Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SR-163 SB Ramps	II	45	27.1	54.8	81.9	0.26	11.5	F
SR-163 NB Ramps	II	45	23.7	14.2	37.9	0.22	20.7	D
Frazee Rd	II	45	14.8	38.0	52.8	0.14	9.2	F
River Run Dr	II	45	119.1	37.9	157.0	1.49	34.1	B
Fenton Pkwy	II	45	23.6	42.5	66.1	0.22	11.8	F
Northside Dr	II	45	28.6	29.3	57.9	0.29	18.0	D
Stadium Way	II	45	23.0	0.7	23.7	0.21	32.1	B
I-15 SB Ramps	II	45	46.1	98.6	144.7	0.58	14.3	E
I-15 NB Ramps	II	45	23.9	0.0	23.9	0.22	33.1	B
Rancho Mission Rd	II	45	19.6	95.5	115.1	0.18	5.6	F
Santo Rd	II	45	24.1	6.0	30.1	0.22	26.5	C
Riverdale St	II	45	31.8	64.2	96.0	0.32	12.1	F
Mission Gorge Rd	II	45	11.1	95.0	106.1	0.10	3.5	F
Total	II		416.5	576.7	993.2	4.44	16.1	E

Arterial Level of Service: WB Friars Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Riverdale St	II	45	11.1	25.7	36.8	0.10	10.0	F
Santo Rd	II	45	31.8	10.5	42.3	0.32	27.4	C
Rancho Mission Rd	II	45	24.1	8.8	32.9	0.22	24.2	C
I-15 NB Ramps	II	45	19.6	18.7	38.3	0.18	16.9	E
I-15 SB Ramps	II	45	23.9	107.6	131.5	0.22	6.0	F
Stadium Way	II	45	46.1	0.2	46.3	0.58	44.8	A
Northside Dr	II	45	23.0	17.9	40.9	0.21	18.6	D
Fenton Pkwy	II	45	28.6	14.9	43.5	0.29	23.9	C
	II	45	23.6	23.1	46.7	0.22	16.7	E
Frazee Rd	II	45	119.1	43.0	162.1	1.49	33.1	B
SR-163 NB Ramps	II	45	14.8	50.1	64.9	0.14	7.5	F
Ulric St	II	45	23.7	17.9	41.6	0.22	18.8	D
Total	II		389.4	338.4	727.8	4.18	20.7	D

Arterial Level of Service: NB Rancho Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
San Diego Mission Rd	III	35	41.0	59.9	100.9	0.34	12.2	E
Friars Rd	III	35	48.3	61.8	110.1	0.40	13.2	E
Total	III		89.3	121.7	211.0	0.74	12.7	E

Arterial Level of Service: SB Rancho Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
San Diego Mission Rd	III	35	48.3	47.5	95.8	0.40	15.1	D
Total	III		48.3	47.5	95.8	0.40	15.1	D

Arterial Level of Service: EB San Diego Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rancho Mission Rd	II	40	54.6	36.7	91.3	0.61	23.9	C
Fairmount Ave	II	40	50.6	37.6	88.2	0.56	23.0	C
Total	II		105.2	74.3	179.5	1.17	23.4	C

Arterial Level of Service: WB San Diego Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rancho Mission Rd	II	40	50.6	18.6	69.2	0.56	29.3	B
Friars Rd EB	II	40	54.6	0.0	54.6	0.61	40.0	A
Total	II		105.2	18.6	123.8	1.17	34.0	B

Arterial Level of Service: SB Ward Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Camino del Rio N	III	35	41.0	26.2	67.2	0.34	18.3	C
Total	III		41.0	26.2	67.2	0.34	18.3	C

Arterial Level of Service: EB Camino del Rio S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Texas St	IV	35	20.5	79.8	100.3	0.12	4.5	F
Total	IV		20.5	79.8	100.3	0.12	4.5	F

Arterial Level of Service: WB Camino del Rio S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Texas St	III	35	20.1	82.5	102.6	0.16	5.5	F
Total	III		20.1	82.5	102.6	0.16	5.5	F



Major Street Ward Rd
 Minor Street Rancho Mission Rd

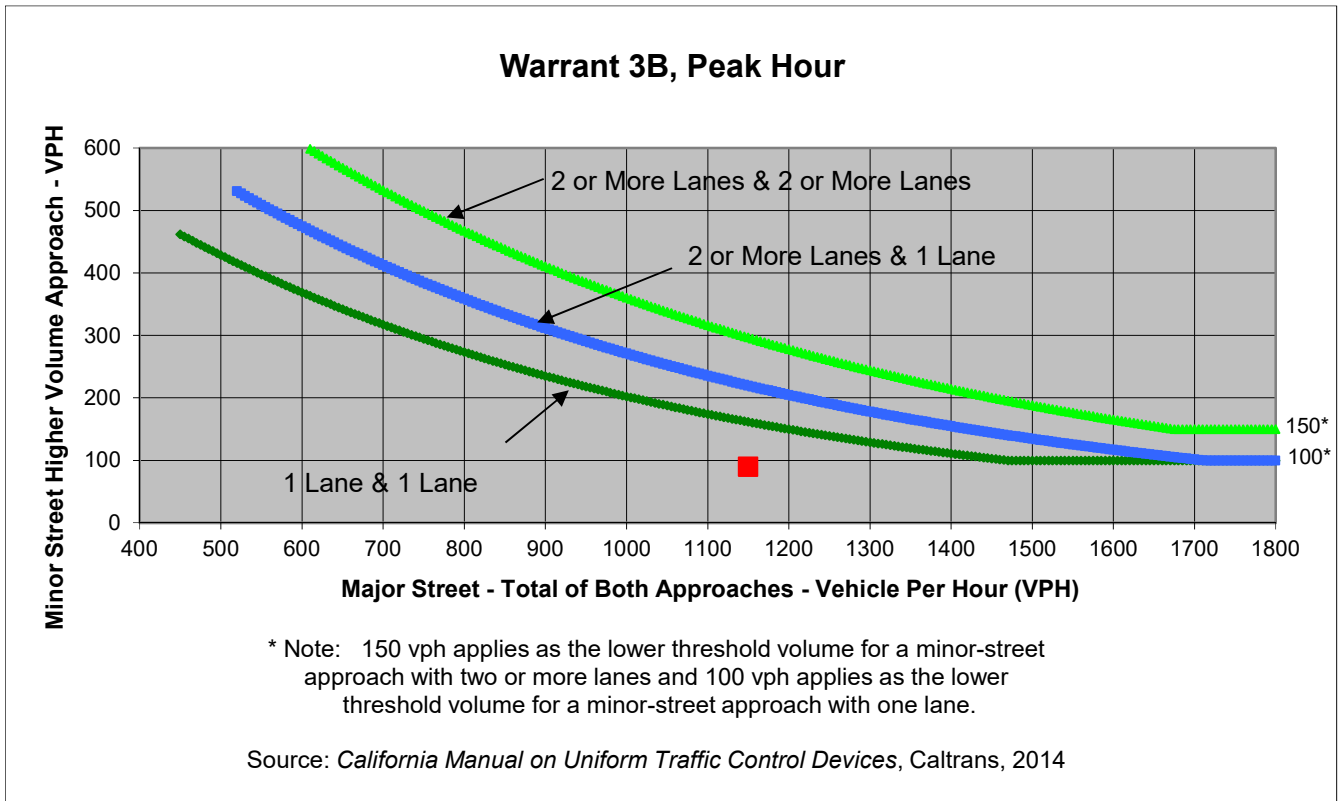
Project SDSU Mission Valley
 Scenario Horizon Year
 Peak Hour PM

Turn Movement Volumes

	NB	SB	EB	WB
Left/U-turns	60	10	50	0
Through	480	530	0	0
Right	0	70	40	0
Total	540	610	90	0

Major Street Direction

x	North/South
	East/West



	Major Street	Minor Street	Warrant Met
	Ward Rd	Rancho Mission Rd	
Number of Approach Lanes	2	1	<u>NO</u>
Traffic Volume (VPH) *	1,150	90	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
 Traffic Volume for Minor Street is the Volume of High Volume Approach.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

Project SDSU Mission Valley
 Scenario Horizon Year
 Peak Hour PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	60	10	50	0
Through	480	530	0	0
Right	0	70	40	0
Total	540	610	90	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	29.9
Approach with Worst Case Delay	EB
Total Vehicles on Approach	90

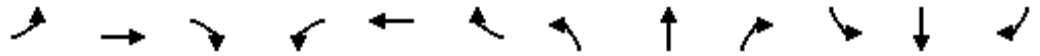
Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Horizon Year	0.7	90	1,240
Limiting Value	4	100	650
Condition Satisfied?	Not Met	Not Met	Met
Warrant Met	<u>NO</u>		

Queues

Horizon Year

1: SR-163 SB Ramps/Ulric St & Friars Rd

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	183	1765	714	622	1163	765	327	31	765	342	342	214
v/c Ratio	0.86	0.89	0.74	1.01	0.58	0.57	0.98	0.17	0.86	0.81	0.81	0.40
Control Delay	95.3	54.8	8.3	104.6	26.8	19.8	109.4	62.7	57.6	65.9	65.9	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	95.3	54.8	8.3	104.6	26.8	19.8	109.4	62.7	57.6	65.9	65.9	8.9
Queue Length 50th (ft)	170	474	3	~323	194	328	161	27	386	314	314	12
Queue Length 95th (ft)	#290	#587	133	#447	246	408	#263	62	#485	429	429	77
Internal Link Dist (ft)		1296			1068			834			622	
Turn Bay Length (ft)	300		350	400		200	300		215			200
Base Capacity (vph)	234	1977	968	615	1998	1440	333	181	887	486	486	591
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.89	0.74	1.01	0.58	0.53	0.98	0.17	0.86	0.70	0.70	0.36

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues
2: Friars Rd & SR-163 NB Ramps

Horizon Year
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	667	2490	1573	1063	1177	1052
v/c Ratio	0.67	0.61	0.81	0.83	0.79	0.61
Control Delay	39.4	8.1	59.5	55.2	51.0	19.3
Queue Delay	0.0	0.1	0.0	0.4	0.0	0.0
Total Delay	39.4	8.2	59.5	55.6	51.0	19.3
Queue Length 50th (ft)	294	208	406	601	362	327
Queue Length 95th (ft)	m370	220	406	682	418	447
Internal Link Dist (ft)		1068	635		521	
Turn Bay Length (ft)	500			200	500	400
Base Capacity (vph)	993	4087	2253	1278	1497	1729
Starvation Cap Reductn	0	0	0	35	0	0
Spillback Cap Reductn	0	322	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.66	0.70	0.86	0.79	0.61

Intersection Summary

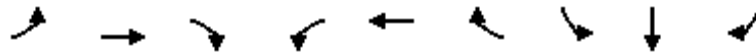
m Volume for 95th percentile queue is metered by upstream signal.

Queues

17: I-15 SB Ramps & Friars Rd

Horizon Year

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	396	2000	823	323	1375	375	583	584	344
v/c Ratio	0.73	1.11	1.02	0.90	1.11	0.24	1.07	1.08	0.18
Control Delay	50.8	98.6	58.6	81.4	107.6	0.4	103.5	104.0	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.8	98.6	58.6	81.4	107.6	0.4	103.5	104.0	8.5
Queue Length 50th (ft)	312	~768	~534	275	~506	0	~601	~602	58
Queue Length 95th (ft)	436	#863	#788	#427	#604	0	#842	#845	80
Internal Link Dist (ft)		844			1079			723	
Turn Bay Length (ft)	380		200	350			520		520
Base Capacity (vph)	546	1803	809	390	1241	1583	543	543	1870
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	1.11	1.02	0.83	1.11	0.24	1.07	1.08	0.18

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

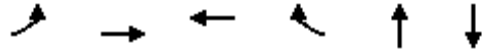
Queue shown is maximum after two cycles.

Queues

18: I-15 NB Ramps & Friars Rd

Horizon Year

PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	600	2663	1320	890	1326	832
v/c Ratio	0.96	no cap	0.51	1.21	15.60	9.79
Control Delay	64.4		18.7	135.1	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	64.4	Error	18.7	135.1	0.0	0.0
Queue Length 50th (ft)	445	0	253	~1008	0	0
Queue Length 95th (ft)	#668	0	298	#1295	0	0
Internal Link Dist (ft)		1079	869		797	677
Turn Bay Length (ft)	515					
Base Capacity (vph)	671	1	2565	735	85	85
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.89	2663.00	0.51	1.21	15.60	9.79

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

Horizon Year

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

PM Peak Hour



Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	117	649	234	436	223	936	1191	766
v/c Ratio	0.75	1.12	0.70	0.97	1.26	0.28	0.64	0.76
Control Delay	116.4	112.0	88.4	75.8	219.9	16.5	28.3	17.7
Queue Delay	0.0	0.0	0.0	10.0	0.0	0.1	50.0	35.4
Total Delay	116.4	112.0	88.4	85.8	219.9	16.6	78.3	53.1
Queue Length 50th (ft)	154	~651	286	326	~366	200	505	306
Queue Length 95th (ft)	226	#867	394	#545	#560	249	m618	m446
Internal Link Dist (ft)			657			1041	147	
Turn Bay Length (ft)				150	110			
Base Capacity (vph)	309	577	370	478	177	3285	1849	1005
Starvation Cap Reductn	0	0	0	0	0	0	899	283
Spillback Cap Reductn	0	0	0	34	0	851	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	1.12	0.63	0.98	1.26	0.38	1.25	1.06

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Horizon Year
 PM Peak Hour



Lane Group	EBR	NBT	SBT
Lane Group Flow (vph)	755	1367	1949
v/c Ratio	0.85	0.70	1.00
Control Delay	35.8	16.9	40.6
Queue Delay	0.0	8.4	0.0
Total Delay	35.8	25.3	40.6
Queue Length 50th (ft)	201	248	484
Queue Length 95th (ft)	274	412	#816
Internal Link Dist (ft)		285	1041
Turn Bay Length (ft)			
Base Capacity (vph)	1540	1953	1953
Starvation Cap Reductn	0	556	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.49	0.98	1.00

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

Horizon Year

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	137	167	697	409	620	264	242	980	10	1465	71
v/c Ratio	0.64	0.75	1.20	1.32	1.32dl	0.66	0.89	0.64	0.04	1.13	0.11
Control Delay	67.9	75.0	139.9	207.5	100.8	46.9	86.5	30.0	39.0	109.5	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0
Total Delay	67.9	75.0	139.9	207.5	100.8	46.9	86.5	30.0	39.0	111.9	7.9
Queue Length 50th (ft)	116	145	~649	~489	~329	204	203	323	4	~778	7
Queue Length 95th (ft)	188	224	#868	#714	#464	308	#355	411	m6	m#932	m25
Internal Link Dist (ft)		2741			1304			820		254	
Turn Bay Length (ft)	105					200	215		65		140
Base Capacity (vph)	245	257	580	309	591	399	272	1531	264	1292	642
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	509	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.65	1.20	1.32	1.05	0.66	0.89	0.64	0.04	1.87	0.11

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.
- dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Queues
36: Fairmount Ave & I-8 EB Off-Ramp

Horizon Year
PM Peak Hour



Lane Group	EBL	EBR	NBU	NBT	SBT
Lane Group Flow (vph)	1668	1894	61	510	1449
v/c Ratio	1.16dr	1.38	0.58	0.35	0.86
Control Delay	59.8	206.2	88.0	28.5	50.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	59.8	206.2	88.0	28.5	50.2
Queue Length 50th (ft)	~884	~1406	57	165	460
Queue Length 95th (ft)	#1099	#1659	110	209	546
Internal Link Dist (ft)	892			990	820
Turn Bay Length (ft)	550		350		
Base Capacity (vph)	1651	1371	247	1953	1902
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.01	1.38	0.25	0.26	0.76

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- dr Defacto Right Lane. Recode with 1 though lane as a right lane.

HCM Signalized Intersection Capacity Analysis - Horizon Year Plus Project Without Event Conditions
 1: SR-163 SB Ramps/Ulríc St & Friars Rd AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	70	666	270	599	938	764	310	60	858	434	0	100	
Future Volume (vph)	70	666	270	599	938	764	310	60	858	434	0	100	
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.7	7.0	7.0	4.5	3.0	6.1	6.1	6.1	4.5	6.1	6.1	6.1	
Lane Util. Factor	1.00	0.86	1.00	0.97	0.91	0.88	0.97	1.00	0.88	0.95	0.95	1.00	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	
Satd. Flow (prot)	1770	6408	1557	3433	5085	2787	3433	1863	2787	1681	1681	1561	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	
Satd. Flow (perm)	1770	6408	1557	3433	5085	2787	3433	1863	2787	1681	1681	1561	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	73	694	281	624	977	796	323	62	894	452	0	104	
RTOR Reduction (vph)	0	0	196	0	0	0	0	0	0	0	0	84	
Lane Group Flow (vph)	73	694	85	624	977	796	323	63	894	226	226	20	
Confl. Peds. (#/hr)			2									2	
Confl. Bikes (#/hr)			1										
Turn Type	Prot	NA	Perm	Prot	NA	custom	Split	NA	pm+ov	Split	NA	Perm	
Protected Phases	5	2		1	6	4	8	8	1	4	4		
Permitted Phases			2						8			4	
Actuated Green, G (s)	10.3	45.5	45.5	33.4	68.4	80.2	18.7	18.7	52.1	28.7	28.7	28.7	
Effective Green, g (s)	10.3	45.5	45.5	33.4	68.4	73.2	18.7	18.7	52.1	28.7	28.7	28.7	
Actuated g/C Ratio	0.07	0.30	0.30	0.22	0.46	0.49	0.12	0.12	0.35	0.19	0.19	0.19	
Clearance Time (s)	4.7	7.0	7.0	4.5			6.1	6.1	4.5	6.1	6.1	6.1	
Vehicle Extension (s)	2.0	2.0	2.0	3.0			3.0	3.0	3.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	121	1943	472	764	2318	1360	427	232	968	321	321	298	
v/s Ratio Prot	0.04	0.11		0.18	c0.19	c0.29	0.09	0.03	c0.21	c0.13	0.13		
v/s Ratio Perm			0.05						0.12			0.01	
v/c Ratio	0.60	0.36	0.18	0.82	0.42	0.59	0.76	0.27	0.92	0.70	0.70	0.07	
Uniform Delay, d1	67.9	40.8	38.5	55.4	27.5	27.5	63.4	59.5	47.0	56.7	56.7	49.7	
Progression Factor	1.00	1.00	1.00	1.37	0.62	0.52	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.7	0.5	0.8	5.7	0.0	0.3	7.5	0.6	13.9	5.6	5.6	0.0	
Delay (s)	73.6	41.3	39.3	81.8	17.2	14.6	70.9	60.1	61.0	62.3	62.3	49.7	
Level of Service	E	D	D	F	B	B	E	E	E	E	E	D	
Approach Delay (s)		43.0			33.1			63.4			60.0		
Approach LOS		D			C			E			E		
Intersection Summary													
HCM 2000 Control Delay			45.3		HCM 2000 Level of Service				D				
HCM 2000 Volume to Capacity ratio			0.77										
Actuated Cycle Length (s)			150.0		Sum of lost time (s)				26.9				
Intersection Capacity Utilization			75.7%		ICU Level of Service				D				
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis - Horizon Year Plus Project Without Event Conditions

2: Friars Rd & SR-163 NB Ramps

AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	500	1438	1460	833	1295	800
Future Volume (vph)	500	1438	1460	833	1295	800
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.5	6.0	6.0	4.5	5.0
Lane Util. Factor	0.97	0.86	0.86	0.88	0.94	0.88
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	6408	6408	2787	4990	2769
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	6408	6408	2787	4990	2769
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	521	1498	1521	868	1349	833
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	521	1498	1521	868	1349	833
Confl. Peds. (#/hr)						1
Confl. Bikes (#/hr)				1		
Turn Type	Prot	NA	NA	custom	Prot	pm+ov
Protected Phases	5	2	3	6	4	5
Permitted Phases						4
Actuated Green, G (s)	43.7	95.2	48.0	74.0	45.8	89.5
Effective Green, g (s)	43.7	95.2	48.0	69.5	45.8	89.5
Actuated g/C Ratio	0.29	0.63	0.32	0.46	0.31	0.60
Clearance Time (s)	5.0	4.5			4.5	5.0
Vehicle Extension (s)	2.0	3.0			3.0	2.0
Lane Grp Cap (vph)	1000	4066	2050	1291	1523	1744
v/s Ratio Prot	c0.15	0.23	c0.24	0.31	c0.27	0.14
v/s Ratio Perm						0.16
v/c Ratio	0.52	0.37	0.74	0.67	0.89	0.48
Uniform Delay, d1	44.4	13.1	45.5	31.4	49.6	17.1
Progression Factor	1.04	0.99	0.70	0.37	1.00	1.00
Incremental Delay, d2	0.2	0.2	0.8	0.9	6.6	0.1
Delay (s)	46.2	13.2	32.8	12.4	56.2	17.1
Level of Service	D	B	C	B	E	B
Approach Delay (s)		21.7	25.4		41.3	
Approach LOS		C	C		D	

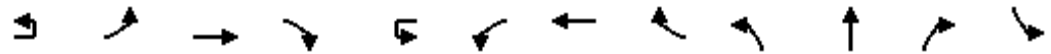
Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis - Horizon Year Plus Project Without Event Conditions

3: Frazee Rd & Friars Rd

AM Peak Hour

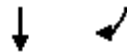


Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		2 1	1 1 1 1	2 1		2 1	1 1 1 1	1	2 1	1 1		2 1
Traffic Volume (vph)	20	780	1393	520	10	69	1923	144	140	70	65	37
Future Volume (vph)	20	780	1393	520	10	69	1923	144	140	70	65	37
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.4	3.0	4.4		4.4	6.5	6.5	4.4	4.9		4.4
Lane Util. Factor		0.97	0.86	0.88		0.97	0.86	1.00	0.97	0.95		0.97
Frbp, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.98		1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.93		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (prot)		3433	6408	2787		3433	6408	1583	3433	3211		3433
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (perm)		3433	6408	2787		3433	6408	1583	3433	3211		3433
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	21	812	1451	542	10	72	2003	150	146	73	68	39
RTOR Reduction (vph)	0	0	0	0	0	0	0	91	0	51	0	0
Lane Group Flow (vph)	0	834	1451	542	0	82	2003	59	146	90	0	39
Confl. Peds. (#/hr)				3							37	
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	custom	Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2 9	3 9	1	1	6		3	8		7
Permitted Phases								6				
Actuated Green, G (s)		33.8	84.5	73.1		6.3	53.5	53.5	11.0	37.7		4.8
Effective Green, g (s)		33.8	84.5	70.1		6.3	53.5	53.5	11.0	37.7		4.8
Actuated g/C Ratio		0.23	0.56	0.47		0.04	0.36	0.36	0.07	0.25		0.03
Clearance Time (s)		4.4				4.4	6.5	6.5	4.4	4.9		4.4
Vehicle Extension (s)		2.0				2.0	4.4	4.4	2.2	2.0		2.2
Lane Grp Cap (vph)		773	3609	1302		144	2285	564	251	807		109
v/s Ratio Prot		c0.24	c0.23	0.19		0.02	c0.31		c0.04	0.03		0.01
v/s Ratio Perm								0.04				
v/c Ratio		1.08	0.40	0.42		0.57	0.88	0.10	0.58	0.11		0.36
Uniform Delay, d1		58.1	18.5	26.4		70.5	45.2	32.2	67.3	43.3		71.1
Progression Factor		1.15	1.06	0.95		1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		52.6	0.0	0.1		3.1	5.1	0.4	2.5	0.0		1.0
Delay (s)		119.7	19.7	25.1		73.6	50.3	32.6	69.7	43.3		72.1
Level of Service		F	B	C		E	D	C	E	D		E
Approach Delay (s)			50.2			50.0			56.7			
Approach LOS			D			D			E			

Intersection Summary		
HCM 2000 Control Delay	50.6	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.79	D
Actuated Cycle Length (s)	150.0	Sum of lost time (s)
Intersection Capacity Utilization	95.6%	20.2
Analysis Period (min)	15	ICU Level of Service
		F

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis Horizon Year Plus Project Without Event Conditions
 3: Frazee Rd & Friars Rd AM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑	↑↑
Traffic Volume (vph)	20	210
Future Volume (vph)	20	210
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.9	4.9
Lane Util. Factor	1.00	0.88
Frbp, ped/bikes	1.00	1.00
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1863	2787
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1863	2787
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	21	219
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	21	219
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	31.5	31.5
Effective Green, g (s)	31.5	31.5
Actuated g/C Ratio	0.21	0.21
Clearance Time (s)	4.9	4.9
Vehicle Extension (s)	2.3	2.3
Lane Grp Cap (vph)	391	585
v/s Ratio Prot	0.01	
v/s Ratio Perm		c0.08
v/c Ratio	0.05	0.37
Uniform Delay, d1	47.3	50.8
Progression Factor	1.00	1.00
Incremental Delay, d2	0.0	0.2
Delay (s)	47.4	51.0
Level of Service	D	D
Approach Delay (s)	53.7	
Approach LOS	D	
Intersection Summary		

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions

4: Mission Center Rd & Friars Rd WB

AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↘	↙	↘	↘↙	↘↙			↘↙	↘
Traffic Volume (veh/h)	0	0	0	220	10	380	110	540	0	0	454	330
Future Volume (veh/h)	0	0	0	220	10	380	110	540	0	0	454	330
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				242	0	174	117	574	0	0	483	195
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				494	0	220	183	2619	0	0	2257	982
Arrive On Green				0.28	0.00	0.28	0.11	1.00	0.00	0.00	0.64	0.64
Sat Flow, veh/h				3563	0	1585	3456	3647	0	0	3647	1546
Grp Volume(v), veh/h				242	0	174	117	574	0	0	483	195
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1728	1777	0	0	1777	1546
Q Serve(g_s), s				5.1	0.0	9.2	2.9	0.0	0.0	0.0	5.2	4.7
Cycle Q Clear(g_c), s				5.1	0.0	9.2	2.9	0.0	0.0	0.0	5.2	4.7
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				494	0	220	183	2619	0	0	2257	982
V/C Ratio(X)				0.49	0.00	0.79	0.64	0.22	0.00	0.00	0.21	0.20
Avail Cap(c_a), veh/h				1215	0	541	580	2619	0	0	2257	982
HCM Platoon Ratio				2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.95	0.95	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				29.9	0.0	31.3	39.4	0.0	0.0	0.0	6.9	6.9
Incr Delay (d2), s/veh				0.8	0.0	6.3	1.3	0.2	0.0	0.0	0.2	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.0	0.0	3.3	1.2	0.1	0.0	0.0	1.7	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				30.6	0.0	37.7	40.7	0.2	0.0	0.0	7.2	7.3
LnGrp LOS				C	A	D	D	A	A	A	A	A
Approach Vol, veh/h					416			691			678	
Approach Delay, s/veh					33.6			7.0			7.2	
Approach LOS					C			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		72.6			9.2	63.5		17.4				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 49			15.1	28.6		30.7				
Max Q Clear Time (g_c+11), s		2.0			4.9	7.2		11.2				
Green Ext Time (p_c), s		3.4			0.1	6.4		1.3				

Intersection Summary

HCM 6th Ctrl Delay	13.3
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 5: Mission Center Rd & Friars Rd EB AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	10	200	0	0	0	0	440	147	153	520	0
Future Volume (veh/h)	210	10	200	0	0	0	0	440	147	153	520	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	236	0	15				0	478	134	166	565	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	395	0	176				0	1062	295	1110	2737	0
Arrive On Green	0.11	0.00	0.11				0.00	0.39	0.39	0.43	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2816	757	3456	3647	0
Grp Volume(v), veh/h	236	0	15				0	311	301	166	565	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1703	1728	1777	0
Q Serve(g_s), s	5.7	0.0	0.8				0.0	11.6	11.8	2.6	0.0	0.0
Cycle Q Clear(g_c), s	5.7	0.0	0.8				0.0	11.6	11.8	2.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.44	1.00		0.00
Lane Grp Cap(c), veh/h	395	0	176				0	693	664	1110	2737	0
V/C Ratio(X)	0.60	0.00	0.09				0.00	0.45	0.45	0.15	0.21	0.00
Avail Cap(c_a), veh/h	1013	0	451				0	693	664	1110	2737	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.33	1.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	38.1	0.0	35.9				0.0	20.3	20.3	18.2	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.0	0.2				0.0	2.1	2.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.3				0.0	4.9	4.8	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.5	0.0	36.1				0.0	22.4	22.6	18.3	0.0	0.0
LnGrp LOS	D	A	D				A	C	C	B	A	A
Approach Vol, veh/h		251						612			731	
Approach Delay, s/veh		39.3						22.5			4.2	
Approach LOS		D						C			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	34.7	40.4	14.9	75.1								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	14.7	* 35	25.6	53.7								
Max Q Clear Time (g_c+I), s	14.6	13.8	7.7	2.0								
Green Ext Time (p_c), s	0.2	5.0	0.7	4.9								

Intersection Summary

HCM 6th Ctrl Delay	16.7
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 6: Qualcomm Way & Friars Rd WB

AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷		↶	↷			↶	↷
Traffic Volume (veh/h)	0	0	0	255	0	65	550	140	0	0	133	40
Future Volume (veh/h)	0	0	0	255	0	65	550	140	0	0	133	40
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				301	0	0	618	157	0	0	149	9
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				396	208	0	1179	2714	0	0	1284	573
Arrive On Green				0.19	0.00	0.00	0.57	1.00	0.00	0.00	0.36	0.36
Sat Flow, veh/h				3563	1870	0	3456	3647	0	0	3647	1585
Grp Volume(v), veh/h				301	0	0	618	157	0	0	149	9
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1728	1777	0	0	1777	1585
Q Serve(g_s), s				6.4	0.0	0.0	8.8	0.0	0.0	0.0	2.2	0.3
Cycle Q Clear(g_c), s				6.4	0.0	0.0	8.8	0.0	0.0	0.0	2.2	0.3
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				396	208	0	1179	2714	0	0	1284	573
V/C Ratio(X)				0.76	0.00	0.00	0.52	0.06	0.00	0.00	0.12	0.02
Avail Cap(c_a), veh/h				1251	657	0	1179	2714	0	0	1284	573
HCM Platoon Ratio				1.67	1.67	1.67	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.99	0.99	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				31.6	0.0	0.0	13.2	0.0	0.0	0.0	17.0	16.4
Incr Delay (d2), s/veh				1.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.5	0.0	0.0	2.7	0.0	0.0	0.0	0.9	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				32.7	0.0	0.0	13.7	0.0	0.0	0.0	17.1	16.4
LnGrp LOS				C	A	A	B	A	A	A	B	B
Approach Vol, veh/h					301			775			158	
Approach Delay, s/veh					32.7			10.9			17.0	
Approach LOS					C			B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		66.2			32.4	33.8		13.8				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+I1), s		2.0			10.8	4.2		8.4				
Green Ext Time (p_c), s		1.2			2.1	0.6		0.5				

Intersection Summary

HCM 6th Ctrl Delay	17.0
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 7: Qualcomm Way & Friars Rd EB AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	0	110	0	0	0	0	590	343	83	385	0
Future Volume (veh/h)	60	0	110	0	0	0	0	590	343	83	385	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	68	0	1				0	670	221	94	438	0
Peak Hour Factor	0.88	0.88	0.88				0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	170	0	74				0	4676	1127	157	2939	0
Arrive On Green	0.05	0.00	0.05				0.00	0.73	0.73	0.09	1.00	0.00
Sat Flow, veh/h	3563	0	1553				0	6696	1551	3456	3647	0
Grp Volume(v), veh/h	68	0	1				0	670	221	94	438	0
Grp Sat Flow(s),veh/h/ln	1781	0	1553				0	1609	1551	1728	1777	0
Q Serve(g_s), s	1.5	0.0	0.0				0.0	2.5	3.6	2.1	0.0	0.0
Cycle Q Clear(g_c), s	1.5	0.0	0.0				0.0	2.5	3.6	2.1	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	170	0	74				0	4676	1127	157	2939	0
V/C Ratio(X)	0.40	0.00	0.01				0.00	0.14	0.20	0.60	0.15	0.00
Avail Cap(c_a), veh/h	1519	0	662				0	4676	1127	436	2939	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.96	0.96	0.88	0.88	0.00
Uniform Delay (d), s/veh	37.0	0.0	36.3				0.0	3.3	3.5	35.7	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0				0.0	0.1	0.4	1.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0				0.0	0.6	0.9	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	0.0	36.3				0.0	3.4	3.9	36.9	0.1	0.0
LnGrp LOS	D	A	D				A	A	A	D	A	A
Approach Vol, veh/h	69						891			532		
Approach Delay, s/veh	37.5						3.5			6.6		
Approach LOS	D						A			A		
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	8.0	63.2	8.7	71.3								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.5	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	14.5	5.6	3.5	2.0								
Green Ext Time (p_c), s	0.1	5.4	0.1	1.9								

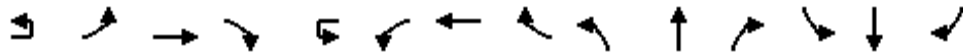
Intersection Summary

HCM 6th Ctrl Delay	6.2
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 8: River Run Dr & Friars Rd AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖ ↗ ↘ ↙		↖		↖ ↗ ↘ ↙				↖ ↗	↖ ↗		↖ ↗	
Traffic Volume (veh/h)	10	110	1171	40	10	179	2037	184	130	60	62	28	10	10
Future Volume (veh/h)	10	110	1171	40	10	179	2037	184	130	60	62	28	10	10
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	0.98		0.97	0.98		0.97
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No			No		
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		116	1233	21		188	2144	189	137	63	9	29	11	4
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h		145	2626	815		220	2657	231	266	98	336	136	46	13
Arrive On Green		0.08	0.51	0.51		0.12	0.56	0.56	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h		1781	5106	1585		1781	4773	416	964	450	1544	367	213	58
Grp Volume(v), veh/h		116	1233	21		188	1522	811	200	0	9	44	0	0
Grp Sat Flow(s),veh/h/ln		1781	1702	1585		1781	1702	1785	1414	0	1544	639	0	0
Q Serve(g_s), s		6.9	16.6	0.7		11.1	38.5	39.7	0.0	0.0	0.5	1.7	0.0	0.0
Cycle Q Clear(g_c), s		6.9	16.6	0.7		11.1	38.5	39.7	14.3	0.0	0.5	16.0	0.0	0.0
Prop In Lane		1.00		1.00		1.00		0.23	0.68		1.00	0.66		0.09
Lane Grp Cap(c), veh/h		145	2626	815		220	1895	994	364	0	336	195	0	0
V/C Ratio(X)		0.80	0.47	0.03		0.85	0.80	0.82	0.55	0.00	0.03	0.23	0.00	0.00
Avail Cap(c_a), veh/h		663	2852	885		498	1902	997	457	0	431	417	0	0
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh		48.5	16.7	12.8		46.1	19.1	19.4	38.4	0.0	33.0	39.9	0.0	0.0
Incr Delay (d2), s/veh		3.9	0.6	0.1		3.7	3.7	7.4	1.0	0.0	0.0	0.7	0.0	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.1	6.1	0.2		5.0	14.3	16.4	4.9	0.0	0.2	1.1	0.0	0.0
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		52.3	17.3	12.9		49.8	22.8	26.7	39.4	0.0	33.1	40.6	0.0	0.0
LnGrp LOS		D	B	B		D	C	C	D	A	C	D	A	A
Approach Vol, veh/h			1370			2521			209			44		
Approach Delay, s/veh			20.2			26.1			39.1			40.6		
Approach LOS			C			C			D			D		
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	17.7	61.4	28.3	13.1	66.0	28.3								
Change Period (Y+Rc), s	4.4	6.2	4.9	4.4	6.2	4.9								
Max Green Setting (Gmax), s	30.0	60.0	40.0	40.0	60.0	30.0								
Max Q Clear Time (g_c+11), s	18.6	18.6	18.0	8.9	41.7	16.3								
Green Ext Time (p_c), s	0.2	30.0	0.2	0.1	18.1	0.8								

Intersection Summary

HCM 6th Ctrl Delay	25.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 9: Fenton Pkwy & Friars Rd AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗		↔↔	↑↑↑	↗	↔↔	↑	↗	↔↔	↗	↗
Traffic Volume (veh/h)	50	1219	62	10	210	2140	30	100	13	180	90	24	190
Future Volume (veh/h)	50	1219	62	10	210	2140	30	100	13	180	90	24	190
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	1325	35		228	2326	20	109	14	12	98	26	19
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	102	3146	1068		294	3430	1134	200	138	116	155	102	133
Arrive On Green	0.03	0.62	0.62		0.06	0.45	0.45	0.06	0.07	0.07	0.04	0.05	0.05
Sat Flow, veh/h	3456	5106	1585		3456	5106	1585	3456	1870	1579	3563	1870	1570
Grp Volume(v), veh/h	54	1325	35		228	2326	20	109	14	12	98	26	19
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1585	1728	1870	1579	1781	1870	1570
Q Serve(g_s), s	1.7	14.8	0.3		7.2	39.7	0.7	3.4	0.8	0.8	3.0	1.5	1.0
Cycle Q Clear(g_c), s	1.7	14.8	0.3		7.2	39.7	0.7	3.4	0.8	0.8	3.0	1.5	1.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	102	3146	1068		294	3430	1134	200	138	116	155	102	133
V/C Ratio(X)	0.53	0.42	0.03		0.78	0.68	0.02	0.55	0.10	0.10	0.63	0.25	0.14
Avail Cap(c_a), veh/h	286	3146	1068		459	3430	1134	349	537	453	347	531	492
HCM Platoon Ratio	1.00	1.00	1.00		0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89		0.60	0.60	0.60	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.6	10.9	1.4		50.8	20.8	7.6	50.4	47.6	47.6	51.7	49.8	30.2
Incr Delay (d2), s/veh	1.4	0.4	0.1		1.0	0.7	0.0	0.8	1.4	1.7	1.6	5.9	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	5.0	0.2		3.1	16.3	0.2	1.5	0.4	0.4	1.4	0.9	0.5
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	54.1	11.3	1.5		51.9	21.5	7.6	51.3	49.0	49.3	53.3	55.7	32.4
LnGrp LOS	D	B	A		D	C	A	D	D	D	D	E	C
Approach Vol, veh/h		1414				2574			135			143	
Approach Delay, s/veh		12.7				24.1			50.9			51.0	
Approach LOS		B				C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	13.7	74.1	11.3	10.9	7.6	80.2	9.2	13.0					
Change Period (Y+Rc), s	4.4	6.3	4.9	*4.9	4.4	*6.3	4.4	4.9					
Max Green Setting (Gmax), s	14.6	33.1	11.1	*31	9.1	*39	10.7	31.6					
Max Q Clear Time (g_c+1), s	19.2	16.8	5.4	3.5	3.7	41.7	5.0	2.8					
Green Ext Time (p_c), s	0.2	13.1	0.1	0.5	0.0	0.0	0.1	0.2					

Intersection Summary

HCM 6th Ctrl Delay	22.1
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 10: Northside Dr & Friars Rd AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↔↔↔	↔	↔↔	↔↔↔	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	10	40	1099	270	578	2060	74	120	10	262	212	40	190
Future Volume (veh/h)	10	40	1099	270	578	2060	74	120	10	262	212	40	190
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		42	1157	284	608	2168	54	126	11	216	223	42	48
Peak Hour Factor		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		91	2115	655	600	2868	1011	185	277	507	288	332	282
Arrive On Green		0.01	0.14	0.14	0.35	1.00	1.00	0.05	0.15	0.15	0.08	0.18	0.18
Sat Flow, veh/h		3456	5106	1582	3456	5106	1565	3456	1870	1569	3456	1870	1585
Grp Volume(v), veh/h		42	1157	284	608	2168	54	126	11	216	223	42	48
Grp Sat Flow(s),veh/h/ln		1728	1702	1582	1728	1702	1565	1728	1870	1569	1728	1870	1585
Q Serve(g_s), s		1.3	23.3	18.1	19.1	0.0	0.0	3.9	0.6	11.9	7.0	2.1	2.8
Cycle Q Clear(g_c), s		1.3	23.3	18.1	19.1	0.0	0.0	3.9	0.6	11.9	7.0	2.1	2.8
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		91	2115	655	600	2868	1011	185	277	507	288	332	282
V/C Ratio(X)		0.46	0.55	0.43	1.01	0.76	0.05	0.68	0.04	0.43	0.77	0.13	0.17
Avail Cap(c_a), veh/h		254	2115	655	600	2868	1011	346	452	655	471	520	441
HCM Platoon Ratio		0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.85	0.85	0.85	0.72	0.72	0.72	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		53.7	37.9	35.6	35.9	0.0	0.0	51.1	40.2	29.4	49.4	38.1	38.4
Incr Delay (d2), s/veh		1.2	0.9	1.8	34.5	1.4	0.1	1.6	0.2	1.6	1.7	0.8	1.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.6	10.7	8.0	8.8	0.4	0.0	1.8	0.3	4.8	3.1	1.0	1.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		54.9	38.7	37.4	70.4	1.4	0.1	52.8	40.3	31.0	51.1	38.8	39.7
LnGrp LOS		D	D	D	F	A	A	D	D	C	D	D	D
Approach Vol, veh/h		1483			2830			353			313		
Approach Delay, s/veh		38.9			16.2			39.1			47.7		
Approach LOS		D			B			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	23.5	51.8	10.3	24.4	7.3	68.0	13.6	21.2					
Change Period (Y+Rc), s	4.4	* 6.2	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	19.5	* 30	11.0	30.6	8.1	40.4	15.0	26.6					
Max Q Clear Time (g_c+D1), s	15	25.3	5.9	4.8	3.3	2.0	9.0	13.9					
Green Ext Time (p_c), s	0.0	3.8	0.1	1.3	0.0	35.5	0.2	1.5					

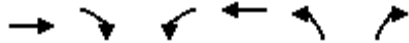
Intersection Summary

HCM 6th Ctrl Delay	26.6
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 11: Stadium Way (Street A) & Friars Rd AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↔	↑↑↑	↔	↔
Traffic Volume (veh/h)	1317	256	710	2607	134	72
Future Volume (veh/h)	1317	256	710	2607	134	72
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1372	130	740	2716	140	75
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2837	879	853	4329	212	171
Arrive On Green	1.00	1.00	0.25	0.85	0.06	0.06
Sat Flow, veh/h	5274	1582	3456	5274	3456	2790
Grp Volume(v), veh/h	1372	130	740	2716	140	75
Grp Sat Flow(s),veh/h/ln	1702	1582	1728	1702	1728	1395
Q Serve(g_s), s	0.0	0.0	22.6	19.0	4.4	2.9
Cycle Q Clear(g_c), s	0.0	0.0	22.6	19.0	4.4	2.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2837	879	853	4329	212	171
V/C Ratio(X)	0.48	0.15	0.87	0.63	0.66	0.44
Avail Cap(c_a), veh/h	2837	879	1319	4329	408	330
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	39.7	2.7	50.5	49.8
Incr Delay (d2), s/veh	0.5	0.3	4.0	0.7	3.5	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	9.6	2.4	2.0	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.5	0.3	43.8	3.4	54.0	51.6
LnGrp LOS	A	A	D	A	D	D
Approach Vol, veh/h	1502			3456	215	
Approach Delay, s/veh	0.5			12.1	53.2	
Approach LOS	A			B	D	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	32.1	66.1		98.3	11.7	
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	
Max Green Setting (Gmax), s	42.6	40.0		87.0	13.0	
Max Q Clear Time (g_c+Y), s	24.6	2.0		21.0	6.4	
Green Ext Time (p_c), s	2.6	12.6		46.1	0.4	
Intersection Summary						
HCM 6th Ctrl Delay			10.4			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 12: Mission Village Dr & Friars Rd WB AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↘	↙	↘	↘↙	↘↙			↘↙	↘
Traffic Volume (veh/h)	0	0	0	568	0	510	423	986	0	0	747	298
Future Volume (veh/h)	0	0	0	568	0	510	423	986	0	0	747	298
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				611	0	481	455	1060	0	0	803	168
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1123	0	499	821	2104	0	0	1034	461
Arrive On Green				0.63	0.00	0.63	0.24	0.59	0.00	0.00	0.29	0.29
Sat Flow, veh/h				3563	0	1584	3456	3647	0	0	3647	1585
Grp Volume(v), veh/h				611	0	481	455	1060	0	0	803	168
Grp Sat Flow(s),veh/h/ln				1781	0	1584	1728	1777	0	0	1777	1585
Q Serve(g_s), s				10.6	0.0	31.5	12.7	19.1	0.0	0.0	22.8	9.2
Cycle Q Clear(g_c), s				10.6	0.0	31.5	12.7	19.1	0.0	0.0	22.8	9.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1123	0	499	821	2104	0	0	1034	461
V/C Ratio(X)				0.54	0.00	0.96	0.55	0.50	0.00	0.00	0.78	0.36
Avail Cap(c_a), veh/h				1234	0	548	821	2104	0	0	1034	461
HCM Platoon Ratio				2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.86	0.86	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				15.9	0.0	19.7	36.8	13.0	0.0	0.0	35.7	30.9
Incr Delay (d2), s/veh				0.2	0.0	27.6	0.4	0.7	0.0	0.0	5.7	2.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.2	0.0	9.2	5.2	6.9	0.0	0.0	10.2	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				16.0	0.0	47.3	37.2	13.8	0.0	0.0	41.5	33.2
LnGrp LOS				B	A	D	D	B	A	A	D	C
Approach Vol, veh/h						1092		1515			971	
Approach Delay, s/veh						29.8		20.8			40.0	
Approach LOS						C		C			D	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		70.4			31.4	39.0		39.6				
Change Period (Y+Rc), s		* 5.3			5.3	7.0		4.9				
Max Green Setting (Gmax), s		* 63			22.7	32.0		38.1				
Max Q Clear Time (g_c+I1), s		21.1			14.7	24.8		33.5				
Green Ext Time (p_c), s		8.6			0.6	3.8		1.2				

Intersection Summary



















HCM 6th Ctrl Delay	28.8
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
 13: Mission Village Dr/Street D & Friars Rd EB

HY Plus Project Without Event Conditions
 AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	205	0	322	0	0	0	0	1186	776	369	936	0	
Future Volume (vph)	205	0	322	0	0	0	0	1186	776	369	936	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		5.2	5.2					4.9	4.9	6.2	6.2		
Lane Util. Factor		1.00	0.88					0.91	0.88	0.97	0.95		
Frbp, ped/bikes		1.00	0.98					1.00	0.98	1.00	1.00		
Flpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00		
Frt		1.00	0.85					1.00	0.85	1.00	1.00		
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)		1770	2740					5085	2721	3433	3539		
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)		1770	2740					5085	2721	3433	3539		
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	
Adj. Flow (vph)	230	0	362	0	0	0	0	1333	872	415	1052	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	230	362	0	0	0	0	1333	872	415	1052	0	
Confl. Peds. (#/hr)			2						1				
Confl. Bikes (#/hr)			1										
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA		
Protected Phases	4	4						2		1	6		
Permitted Phases			4						2				
Actuated Green, G (s)		19.3	19.3					58.0	58.0	16.4	79.3		
Effective Green, g (s)		19.3	19.3					58.0	58.0	16.4	79.3		
Actuated g/C Ratio		0.18	0.18					0.53	0.53	0.15	0.72		
Clearance Time (s)		5.2	5.2					4.9	4.9	6.2	6.2		
Vehicle Extension (s)		3.0	3.0					3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)		310	480					2681	1434	511	2551		
v/s Ratio Prot		0.13						0.26		c0.12	0.30		
v/s Ratio Perm			c0.13						c0.32				
v/c Ratio		0.74	0.75					0.50	0.61	0.81	0.41		
Uniform Delay, d1		43.0	43.1					16.7	18.1	45.3	6.1		
Progression Factor		1.00	1.00					0.48	0.48	0.98	0.10		
Incremental Delay, d2		9.2	6.6					0.4	1.2	7.6	0.4		
Delay (s)		52.2	49.7					8.4	10.0	51.9	1.0		
Level of Service		D	D					A	A	D	A		
Approach Delay (s)		50.7			0.0			9.0			15.4		
Approach LOS		D			A			A			B		
Intersection Summary													
HCM 2000 Control Delay			17.0									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.67										
Actuated Cycle Length (s)			110.0									Sum of lost time (s)	16.3
Intersection Capacity Utilization			66.8%									ICU Level of Service	C
Analysis Period (min)			15										

c Critical Lane Group

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 14: Street D & Street 4

AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	4	4	249	11	1072	8	821	29	239	973	47
Future Volume (veh/h)	32	4	4	249	11	1072	8	821	29	239	973	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	35	4	0	271	12	1165	9	892	28	260	1058	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	53	8	0	668	662	1634	19	1076	34	801	1536	685
Arrive On Green	0.03	0.00	0.00	0.38	0.35	0.35	0.01	0.21	0.21	0.46	0.86	0.86
Sat Flow, veh/h	1781	1870	0	1781	1870	2790	1781	5086	159	3456	3554	1585
Grp Volume(v), veh/h	35	4	0	271	12	1165	9	597	323	260	1058	28
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1781	1870	1395	1781	1702	1842	1728	1777	1585
Q Serve(g_s), s	2.1	0.2	0.0	12.3	0.5	32.7	0.6	18.4	18.5	5.2	11.0	0.3
Cycle Q Clear(g_c), s	2.1	0.2	0.0	12.3	0.5	32.7	0.6	18.4	18.5	5.2	11.0	0.3
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	53	8	0	668	662	1634	19	720	390	801	1536	685
V/C Ratio(X)	0.66	0.51	0.00	0.41	0.02	0.71	0.46	0.83	0.83	0.32	0.69	0.04
Avail Cap(c_a), veh/h	100	595	0	668	774	1800	81	826	447	801	1536	685
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.86	0.86	0.86
Uniform Delay (d), s/veh	52.8	54.7	0.0	25.3	23.1	16.2	54.1	41.5	41.5	24.1	5.0	4.2
Incr Delay (d2), s/veh	13.0	43.4	0.0	0.4	0.0	1.2	16.1	6.3	11.2	0.2	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.2	0.0	5.3	0.2	10.0	0.3	8.1	9.3	1.9	2.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.8	98.1	0.0	25.7	23.1	17.4	70.2	47.8	52.6	24.3	6.1	4.3
LnGrp LOS	E	F	A	C	C	B	E	D	D	C	A	A
Approach Vol, veh/h		39			1448			929			1346	
Approach Delay, s/veh		69.1			19.0			49.7			9.6	
Approach LOS		E			B			D			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.0	28.3	46.3	5.5	5.7	52.6	7.8	44.0				
Change Period (Y+Rc), s	4.5	5.0	5.0	* 5	4.5	5.0	4.5	5.0				
Max Green Setting (Gmax), s	12.6	26.7	16.7	* 35	5.0	34.3	6.2	45.5				
Max Q Clear Time (g_c+1), s	17.2	20.5	14.3	2.2	2.6	13.0	4.1	34.7				
Green Ext Time (p_c), s	0.4	2.8	0.2	0.0	0.0	7.3	0.0	4.3				

Intersection Summary






























HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
 15: Street F & Street 4

HY Plus Project Without Event Conditions
 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 			 	 		 	 		 	 	 
Traffic Volume (vph)	251	9	15	4	39	15	54	179	9	38	94	1237
Future Volume (vph)	251	9	15	4	39	15	54	179	9	38	94	1237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	2.1	4.5
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.88
Frt	1.00	0.91		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1691		1770	1786		1770	1849		1770	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	1691		1770	1786		1770	1849		1770	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	273	10	16	4	42	16	59	195	10	41	102	1345
RTOR Reduction (vph)	0	6	0	0	14	0	0	2	0	0	0	0
Lane Group Flow (vph)	273	20	0	4	44	0	59	203	0	41	102	1345
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	7	4		3	8		5	2		1	6	9
Permitted Phases												
Actuated Green, G (s)	54.1	65.8		1.0	12.7		4.0	20.1		5.1	21.2	66.7
Effective Green, g (s)	54.1	65.8		1.0	12.7		4.0	20.1		5.1	21.2	66.7
Actuated g/C Ratio	0.49	0.60		0.01	0.12		0.04	0.18		0.05	0.19	0.61
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)	1688	1011		16	206		64	337		82	359	1689
v/s Ratio Prot	0.08	0.01		0.00	c0.02		c0.03	c0.11		0.02	0.05	c0.48
v/s Ratio Perm												
v/c Ratio	0.16	0.02		0.25	0.21		0.92	0.60		0.50	0.28	0.80
Uniform Delay, d1	15.4	9.0		54.1	44.1		52.8	41.3		51.2	37.9	16.5
Progression Factor	1.18	0.21		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0		8.1	0.5		84.8	3.0		4.7	0.2	2.7
Delay (s)	18.4	1.9		62.2	44.6		137.7	44.3		55.9	38.1	19.2
Level of Service	B	A		E	D		F	D		E	D	B
Approach Delay (s)		17.0			45.8			65.2			21.5	
Approach LOS		B			D			E			C	
Intersection Summary												
HCM 2000 Control Delay			27.0									C
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			110.0								20.1	
Intersection Capacity Utilization			62.9%									B
Analysis Period (min)			15									

c Critical Lane Group

Intersection					
Intersection Delay, s/veh	8.1				
Intersection LOS	A				
Approach	EB		WB		NB
Entry Lanes	2		2		1
Conflicting Circle Lanes	2		2		2
Adj Approach Flow, veh/h	485		1481		113
Demand Flow Rate, veh/h	495		1510		115
Vehicles Circulating, veh/h	68		75		415
Vehicles Exiting, veh/h	1517		455		148
Ped Vol Crossing Leg, #/h	0		0		0
Ped Cap Adj	1.000		1.000		1.000
Approach Delay, s/veh	4.4		9.6		4.7
Approach LOS	A		A		A
Lane	Left	Right	Left	Right	Left
Designated Moves	LT	TR	LT	TR	LR
Assumed Moves	LT	TR	LT	TR	LR
RT Channelized					
Lane Util	0.471	0.529	0.470	0.530	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328
Entry Flow, veh/h	233	262	710	800	115
Cap Entry Lane, veh/h	1268	1340	1260	1332	998
Entry HV Adj Factor	0.978	0.981	0.980	0.981	0.983
Flow Entry, veh/h	228	257	696	785	113
Cap Entry, veh/h	1240	1315	1235	1307	981
V/C Ratio	0.184	0.195	0.564	0.600	0.115
Control Delay, s/veh	4.5	4.4	9.4	9.8	4.7
LOS	A	A	A	A	A
95th %tile Queue, veh	1	1	4	4	0

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 17: I-15 SB Ramps & Friars Rd AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	414	1069	553	60	330	2350	520	0	0	0	794	10	1221
Future Volume (veh/h)	414	1069	553	60	330	2350	520	0	0	0	794	10	1221
Initial Q (Qb), veh	0	0	0		0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	440	1137	181		351	2500	0				853	0	1293
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	430	1908	592		379	1634					945	0	1605
Arrive On Green	0.24	0.37	0.37		0.28	0.43	0.00				0.27	0.00	0.27
Sat Flow, veh/h	1781	5106	1585		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	440	1137	181		351	2500	0				853	0	1293
Grp Sat Flow(s),veh/h/ln	1781	1702	1585		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	26.5	19.7	8.9		21.1	35.2	0.0				25.4	0.0	10.9
Cycle Q Clear(g_c), s	26.5	19.7	8.9		21.1	35.2	0.0				25.4	0.0	10.9
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	430	1908	592		379	1634					945	0	1605
V/C Ratio(X)	1.02	0.60	0.31		0.93	1.53					0.90	0.00	0.81
Avail Cap(c_a), veh/h	430	1908	592		534	1634					1069	0	1715
HCM Platoon Ratio	1.00	1.00	1.00		1.33	1.33	1.33				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.09	0.09	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	41.7	27.8	24.4		38.6	31.6	0.0				39.0	0.0	22.6
Incr Delay (d2), s/veh	49.8	1.4	1.3		1.8	238.8	0.0				9.2	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	7.8	3.4		8.4	48.3	0.0				12.3	0.0	23.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	91.5	29.1	25.7		40.4	270.4	0.0				48.2	0.0	25.1
LnGrp LOS	F	C	C		D	F					D	A	C
Approach Vol, veh/h		1758				2851	A					2146	
Approach Delay, s/veh		44.4				242.1						34.3	
Approach LOS		D				F						C	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	37.6	48.1		34.3	33.5	42.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	33	27.7		33.0	25.0	* 35							
Max Q Clear Time (g_c+20), s	20	21.7		27.4	28.5	37.2							
Green Ext Time (p_c), s	0.4	2.8		1.7	0.0	0.0							

Intersection Summary

HCM 6th Ctrl Delay	124.6
HCM 6th LOS	F

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 18: I-15 NB Ramps & Friars Rd AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖				↑↑↑	↗						
Traffic Volume (veh/h)	789	1164	0	0	2401	1743	0	0	380	0	0	839
Future Volume (veh/h)	789	1164	0	0	2401	1743	0	0	380	0	0	839
Initial Q (Qb), veh	20	0	0	0	0	20						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	831	1225	0	0	2429	1900						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	567	0	0	0	2125	1801						
Arrive On Green	0.32	0.95	0.00	0.00	0.57	0.57						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	831	0	0	0	2429	1900						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	35.0	0.0	0.0	0.0	62.5	62.5						
Cycle Q Clear(g_c), s	35.0	0.0	0.0	0.0	62.5	62.5						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	567	0	0	0	2125	1801						
V/C Ratio(X)	1.47	0.00	0.00	0.00	1.14	1.05						
Avail Cap(c_a), veh/h	567	0	0	0	2125	1801						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.54	0.00	0.00	0.00	0.27	0.27						
Uniform Delay (d), s/veh	37.5	0.0	0.0	0.0	23.7	23.8						
Incr Delay (d2), s/veh	215.0	0.0	0.0	0.0	66.1	29.1						
Initial Q Delay(d3),s/veh	127.0	0.0	0.0	0.0	0.0	40.0						
%ile BackOfQ(50%),veh	68.2	0.0	0.0	0.0	43.2	37.4						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	379.6	0.0	0.0	0.0	89.8	92.8						
LnGrp LOS	F	A	A	A	F	F						
Approach Vol, veh/h		831			4329							
Approach Delay, s/veh		379.6			91.1							
Approach LOS		F			F							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		110.0			40.5	69.5						
Change Period (Y+Rc), s		5.5			5.5	7.0						
Max Green Setting (Gmax), s		104.5			35.0	62.5						
Max Q Clear Time (g_c+I1), s		0.0			37.0	64.5						
Green Ext Time (p_c), s		0.0			0.0	0.0						

Intersection Summary

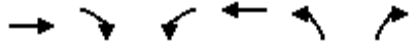
HCM 6th Ctrl Delay	137.6
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 19: Rancho Mission Rd & Friars Rd

AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↵	↑↑↑	↵↵	↑
Traffic Volume (veh/h)	1131	423	108	3233	922	109
Future Volume (veh/h)	1131	423	108	3233	922	109
Initial Q (Qb), veh	0	0	0	20	20	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1203	329	115	3439	981	39
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1945	1097	275	3784	1108	493
Arrive On Green	0.13	0.13	0.17	0.60	0.30	0.30
Sat Flow, veh/h	5274	1585	1781	6696	3563	1585
Grp Volume(v), veh/h	1203	329	115	3439	981	39
Grp Sat Flow(s),veh/h/ln	1702	1585	1781	1609	1781	1585
Q Serve(g_s), s	24.6	11.1	6.3	50.3	29.4	2.0
Cycle Q Clear(g_c), s	24.6	11.1	6.3	50.3	29.4	2.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1945	1097	275	3784	1108	493
V/C Ratio(X)	0.62	0.30	0.42	0.91	0.89	0.08
Avail Cap(c_a), veh/h	1945	1075	300	3873	1185	527
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.54	0.54	0.52	0.52
Uniform Delay (d), s/veh	40.5	9.7	42.1	20.7	37.2	26.8
Incr Delay (d2), s/veh	1.5	0.7	0.2	2.1	4.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	2.2	20.4	0.0
%ile BackOfQ(50%),veh/ln	1.4	9.2	2.8	18.7	17.4	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.0	10.4	42.3	25.1	61.7	26.8
LnGrp LOS	D	B	D	C	E	C
Approach Vol, veh/h	1532			3554	1020	
Approach Delay, s/veh	35.2			25.6	60.4	
Approach LOS	D			C	E	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	24.5	47.7		72.2	37.8	
Change Period (Y+Rc), s	6.0	* 5.8		6.0	5.1	
Max Green Setting (Gmax), s	16.2	* 42		62.3	36.6	
Max Q Clear Time (g_c+1), s	19.3	26.6		52.3	31.4	
Green Ext Time (p_c), s	0.1	10.3		10.0	1.3	

Intersection Summary

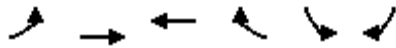
HCM 6th Ctrl Delay	33.8
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 20: Friars Rd & Santo Rd

AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖ ↗	↑ ↑ ↑	↑ ↑ ↑		↖ ↗	↖ ↗
Traffic Volume (veh/h)	153	1047	2872	70	80	408
Future Volume (veh/h)	153	1047	2872	70	80	408
Initial Q (Qb), veh	0	0	80	0	50	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1811	1826	1826	1870	1870
Adj Flow Rate, veh/h	155	1058	2901	69	81	412
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	6	5	5	2	2
Cap, veh/h	213	3105	3354	46	923	543
Arrive On Green	0.06	0.65	0.55	0.55	0.26	0.26
Sat Flow, veh/h	3456	5107	6614	151	3456	1585
Grp Volume(v), veh/h	155	1058	2147	823	81	412
Grp Sat Flow(s),veh/h/ln	1728	1648	1570	1798	1728	1585
Q Serve(g_s), s	5.3	11.4	45.1	45.4	2.1	28.6
Cycle Q Clear(g_c), s	5.3	11.4	45.1	45.4	2.1	28.6
Prop In Lane	1.00			0.08	1.00	1.00
Lane Grp Cap(c), veh/h	213	3105	2451	951	923	543
V/C Ratio(X)	0.73	0.34	0.88	0.87	0.09	0.76
Avail Cap(c_a), veh/h	449	3213	2598	992	1022	567
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	55.3	10.6	28.1	27.2	35.5	35.1
Incr Delay (d2), s/veh	1.4	0.2	0.5	1.1	0.0	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	34.8	23.7	23.2	0.0
%ile BackOfQ(50%),veh/ln	2.3	4.0	28.2	28.9	6.8	23.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	56.8	10.8	63.4	51.9	58.7	40.0
LnGrp LOS	E	B	E	D	E	D
Approach Vol, veh/h		1213	2970		493	
Approach Delay, s/veh		16.7	60.2		43.1	
Approach LOS		B	E		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		84.5		35.5	11.8	72.7
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		73.6		35.5	15.6	* 54
Max Q Clear Time (g_c+I1), s		13.4		30.6	7.3	47.4
Green Ext Time (p_c), s		10.4		0.5	0.1	6.6

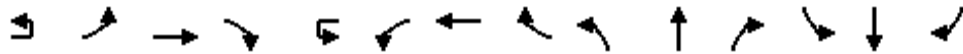
Intersection Summary

HCM 6th Ctrl Delay	47.1
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 21: Riverdale St & Friars Rd AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔ ↑↑↑	↔ ↑↑↑	↔ ↑		↔ ↑↑↑	↔ ↑↑↑	↔ ↑	↔ ↑	↔ ↑		↔ ↑	↔ ↑		
Traffic Volume (veh/h)	10	73	732	253	20	130	2707	30	133	30	30	20	140	173	
Future Volume (veh/h)	10	73	732	253	20	130	2707	30	133	30	30	20	140	173	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		0.99	0.99		0.99	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No			No			No			No				
Adj Sat Flow, veh/h/ln		1870	1781	1826		1826	1841	1841	1781	1870	1870	1781	1870	1870	
Adj Flow Rate, veh/h		76	762	123		135	2820	15	139	31	7	21	146	137	
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %		2	8	5		5	4	4	8	2	2	8	2	2	
Cap, veh/h		97	2442	776		162	2717	842	192	393	89	390	236	221	
Arrive On Green		0.05	0.50	0.50		0.09	0.54	0.54	0.27	0.27	0.27	0.27	0.27	0.27	
Sat Flow, veh/h		1781	4863	1546		1739	5025	1557	1041	1475	333	1296	884	830	
Grp Volume(v), veh/h		76	762	123		135	2820	15	139	0	38	21	0	283	
Grp Sat Flow(s),veh/h/ln		1781	1621	1546		1739	1675	1557	1041	0	1808	1296	0	1714	
Q Serve(g_s), s		4.6	10.2	4.7		8.4	59.5	0.5	13.3	0.0	1.7	1.4	0.0	16.0	
Cycle Q Clear(g_c), s		4.6	10.2	4.7		8.4	59.5	0.5	29.3	0.0	1.7	3.1	0.0	16.0	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.18	1.00		0.48	
Lane Grp Cap(c), veh/h		97	2442	776		162	2717	842	192	0	482	390	0	457	
V/C Ratio(X)		0.78	0.31	0.16		0.83	1.04	0.02	0.73	0.00	0.08	0.05	0.00	0.62	
Avail Cap(c_a), veh/h		228	2442	776		223	2717	842	192	0	482	390	0	457	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		0.98	0.98	0.98		0.79	0.79	0.79	1.00	0.00	1.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh		51.3	16.2	14.8		49.0	25.3	11.7	48.9	0.0	30.2	31.4	0.0	35.5	
Incr Delay (d2), s/veh		4.9	0.3	0.4		10.4	26.3	0.0	11.2	0.0	0.0	0.0	0.0	1.9	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		2.1	3.6	1.7		4.0	27.3	0.2	4.4	0.0	0.8	0.4	0.0	6.9	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		56.2	16.5	15.2		59.4	51.5	11.7	60.2	0.0	30.3	31.4	0.0	37.4	
LnGrp LOS		E	B	B		E	F	B	E	A	C	C	A	D	
Approach Vol, veh/h		961			2970			177			304				
Approach Delay, s/veh		19.5			51.7			53.7			37.0				
Approach LOS		B			D			D			D				
Timer - Assigned Phs	1	2	4		5	6	8								
Phs Duration (G+Y+Rc), s	4.7	61.1	34.2		10.4	65.4	34.2								
Change Period (Y+Rc), s	4.4	* 5.9	4.9		4.4	5.9	4.9								
Max Green Setting (Gmax), s	14.1	* 52	29.3		14.1	51.4	29.3								
Max Q Clear Time (g_c+10), s	11.4	12.2	18.0		6.6	61.5	31.3								
Green Ext Time (p_c), s	0.1	8.0	0.9		0.0	0.0	0.0								

Intersection Summary

HCM 6th Ctrl Delay	43.8
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 22: Mission Gorge Rd & Friars Rd

AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↵↵	↑↑↑		↵	↵↵
Traffic Volume (veh/h)	595	178	560	2758	30	179	270
Future Volume (veh/h)	595	178	560	2758	30	179	270
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	613	0	577	2843		195	64
Peak Hour Factor	0.97	0.97	0.97	0.97		0.92	0.92
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2962		596	0		224	832
Arrive On Green	0.58	0.00	0.17	0.00		0.13	0.13
Sat Flow, veh/h	5443	0	3456	577		1781	2790
Grp Volume(v), veh/h	613	0	577	78.2		195	64
Grp Sat Flow(s),veh/h/ln	1702	0	1728	E		1781	1395
Q Serve(g_s), s	6.9	0.0	19.9			12.9	0.0
Cycle Q Clear(g_c), s	6.9	0.0	19.9			12.9	0.0
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2962		596			224	832
V/C Ratio(X)	0.21		0.97			0.87	0.08
Avail Cap(c_a), veh/h	2962		596			306	960
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.96	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	12.0	0.0	49.3			51.5	30.2
Incr Delay (d2), s/veh	0.2	0.0	28.8			14.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	10.7			6.6	0.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	12.2	0.0	78.2			65.8	30.2
LnGrp LOS	B		E			E	C
Approach Vol, veh/h	613	A				259	
Approach Delay, s/veh	12.2					57.0	
Approach LOS	B					E	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	25.1	75.4					19.5
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	69.6					20.6
Max Q Clear Time (g_c+D), s	11.9	8.9					14.9
Green Ext Time (p_c), s	0.0	4.9					0.2

Intersection Summary

HCM 6th Ctrl Delay	46.5
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 23: Qualcomm Way & Rio San Diego Dr AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑	↗		↔↔	↑↑	↗	↔↔	↑↑↑	↗	↔↔	↑↑↑	↗
Traffic Volume (veh/h)	133	84	170	20	333	53	70	90	600	850	90	328	77
Future Volume (veh/h)	133	84	170	20	333	53	70	90	600	850	90	328	77
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	145	91	56		362	58	11	98	652	576	98	357	69
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	228	181	228		463	585	256	168	2454	748	167	2074	388
Arrive On Green	0.07	0.10	0.10		0.13	0.16	0.16	0.05	0.48	0.48	0.05	0.48	0.48
Sat Flow, veh/h	3456	1870	1560		3456	3554	1553	3456	5106	1557	3456	4318	808
Grp Volume(v), veh/h	145	91	56		362	58	11	98	652	576	98	279	147
Grp Sat Flow(s),veh/h/ln	1728	1870	1560		1728	1777	1553	1728	1702	1557	1728	1702	1722
Q Serve(g_s), s	3.3	3.7	2.5		8.1	1.1	0.5	2.2	6.1	24.4	2.2	3.7	3.9
Cycle Q Clear(g_c), s	3.3	3.7	2.5		8.1	1.1	0.5	2.2	6.1	24.4	2.2	3.7	3.9
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.47
Lane Grp Cap(c), veh/h	228	181	228		463	585	256	168	2454	748	167	1635	827
V/C Ratio(X)	0.64	0.50	0.25		0.78	0.10	0.04	0.58	0.27	0.77	0.59	0.17	0.18
Avail Cap(c_a), veh/h	1297	936	858		1297	1779	778	2595	3834	1169	1297	2556	1293
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.4	34.3	30.3		33.5	28.3	28.1	37.2	12.4	17.1	37.2	11.8	11.8
Incr Delay (d2), s/veh	1.1	2.2	0.6		1.1	0.1	0.1	1.2	0.1	2.4	1.2	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.7	0.9		3.3	0.5	0.2	0.9	2.1	8.0	0.9	1.3	1.4
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	37.5	36.4	30.8		34.6	28.4	28.1	38.4	12.4	19.5	38.4	11.8	12.0
LnGrp LOS	D	D	C		C	C	C	D	B	B	D	B	B
Approach Vol, veh/h		292				431			1326			524	
Approach Delay, s/veh		35.9				33.6			17.4			16.9	
Approach LOS		D				C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	8.3	43.5	15.1	13.0	8.3	43.5	9.7	18.5					
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3					
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0					
Max Q Clear Time (g_c+1/2), s	14.2	26.4	10.1	5.7	4.2	5.9	5.3	3.1					
Green Ext Time (p_c), s	0.1	12.0	0.6	0.6	0.2	5.0	0.2	0.3					

Intersection Summary													
HCM 6th Ctrl Delay												22.1	
HCM 6th LOS												C	

Notes
 User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection															
Intersection Delay, s/veh	13.6														
Intersection LOS	B														

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↗	↕		↗	↕				↕				↕	
Traffic Vol, veh/h	20	120	224	20	1	397	110	10	10	12	19	10	20	9	230
Future Vol, veh/h	20	120	224	20	1	397	110	10	10	12	19	10	20	9	230
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	128	238	21	1	422	117	11	11	13	20	11	21	10	245
Number of Lanes	0	1	2	0	1	2	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	11.8	14.3	11	15.5
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	24%	100%	0%	0%	100%	0%	0%	8%
Vol Thru, %	29%	0%	100%	79%	0%	100%	55%	3%
Vol Right, %	46%	0%	0%	21%	0%	0%	45%	89%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	51	140	149	95	1	265	242	269
LT Vol	12	140	0	0	1	0	0	21
Through Vol	15	0	149	75	0	265	132	9
RT Vol	24	0	0	20	0	0	110	239
Lane Flow Rate	54	149	159	101	1	282	258	286
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.112	0.29	0.287	0.177	0.002	0.496	0.431	0.505
Departure Headway (Hd)	7.406	7.007	6.496	6.345	6.855	6.344	6.02	6.356
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	487	509	550	561	519	566	593	564
Service Time	5.106	4.795	4.283	4.131	4.636	4.125	3.8	4.138
HCM Lane V/C Ratio	0.111	0.293	0.289	0.18	0.002	0.498	0.435	0.507
HCM Control Delay	11	12.7	11.9	10.5	9.6	15.3	13.3	15.5
HCM Lane LOS	B	B	B	B	A	C	B	C
HCM 95th-tile Q	0.4	1.2	1.2	0.6	0	2.7	2.2	2.8

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	100	90	133	22	140	120	48	83	18	30	80	76	160
Future Volume (veh/h)	100	90	133	22	140	120	48	83	18	30	80	76	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	111	7	25	161	53	55	95	8	92	87	33	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	212	223	188	53	347	118	81	597	50	220	505	182	
Arrive On Green	0.12	0.12	0.12	0.15	0.15	0.15	0.05	0.18	0.18	0.06	0.20	0.20	
Sat Flow, veh/h	1781	1870	1577	364	2390	812	1781	3320	276	3456	2554	921	
Grp Volume(v), veh/h	109	111	7	127	0	112	55	50	53	92	59	61	
Grp Sat Flow(s),veh/h/ln	1781	1870	1577	1852	0	1714	1781	1777	1819	1728	1777	1698	
Q Serve(g_s), s	2.3	2.2	0.2	2.5	0.0	2.4	1.2	1.0	1.0	1.0	1.1	1.2	
Cycle Q Clear(g_c), s	2.3	2.2	0.2	2.5	0.0	2.4	1.2	1.0	1.0	1.0	1.1	1.2	
Prop In Lane	1.00		1.00	0.20		0.47	1.00		0.15	1.00		0.54	
Lane Grp Cap(c), veh/h	212	223	188	269	0	249	81	319	327	220	352	336	
V/C Ratio(X)	0.51	0.50	0.04	0.47	0.00	0.45	0.68	0.16	0.16	0.42	0.17	0.18	
Avail Cap(c_a), veh/h	1762	1850	1560	1832	0	1695	1321	2636	2698	2563	2636	2519	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	16.7	16.7	15.8	15.9	0.0	15.8	19.0	14.0	14.0	18.2	13.5	13.5	
Incr Delay (d2), s/veh	1.2	1.0	0.0	0.5	0.0	0.5	3.6	1.1	1.1	0.5	1.0	1.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.8	0.8	0.1	1.0	0.0	0.9	0.5	0.4	0.5	0.4	0.5	0.5	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	17.9	17.7	15.8	16.3	0.0	16.3	22.7	15.1	15.1	18.7	14.5	14.7	
LnGrp LOS	B	B	B	B	A	B	C	B	B	B	B	B	
Approach Vol, veh/h		227		239		158		212					
Approach Delay, s/veh		17.7		16.3		17.7		16.4					
Approach LOS		B		B		B		B					
Timer - Assigned Phs	1	2	4	5	6	8							
Phs Duration (G+Y+Rc), s	7.0	12.7	10.0	6.2	13.4	10.8							
Change Period (Y+Rc), s	4.4	* 5.4	5.2	4.4	5.4	4.9							
Max Green Setting (Gmax), s	30.0	* 60	40.0	30.0	60.0	40.0							
Max Q Clear Time (g_c+1), s	13.0	3.0	4.3	3.2	3.2	4.5							
Green Ext Time (p_c), s	0.1	2.2	0.6	0.1	2.6	1.0							

Intersection Summary

HCM 6th Ctrl Delay	17.0
HCM 6th LOS	B

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 26: Rancho Mission Rd & San Diego Mission Rd

AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	208	136	205	751	338	358	395	60	112	155	193
Future Volume (veh/h)	66	208	136	205	751	338	358	395	60	112	155	193
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	234	90	230	844	354	402	444	19	126	174	48
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	95	811	302	260	1007	421	427	541	456	154	254	208
Arrive On Green	0.05	0.32	0.32	0.15	0.41	0.41	0.24	0.29	0.29	0.09	0.14	0.14
Sat Flow, veh/h	1781	2519	938	1781	2432	1016	1781	1870	1577	1781	1870	1536
Grp Volume(v), veh/h	74	163	161	230	616	582	402	444	19	126	174	48
Grp Sat Flow(s),veh/h/ln	1781	1777	1680	1781	1777	1671	1781	1870	1577	1781	1870	1536
Q Serve(g_s), s	4.9	8.1	8.5	15.0	36.8	37.1	26.3	26.2	1.0	8.2	10.5	3.3
Cycle Q Clear(g_c), s	4.9	8.1	8.5	15.0	36.8	37.1	26.3	26.2	1.0	8.2	10.5	3.3
Prop In Lane	1.00		0.56	1.00		0.61	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	95	572	541	260	736	692	427	541	456	154	254	208
V/C Ratio(X)	0.78	0.28	0.30	0.89	0.84	0.84	0.94	0.82	0.04	0.82	0.69	0.23
Avail Cap(c_a), veh/h	526	749	709	526	824	775	451	789	665	451	789	648
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.4	30.0	30.1	49.7	31.1	31.2	44.2	39.3	30.3	53.3	48.8	45.7
Incr Delay (d2), s/veh	5.0	0.4	0.5	4.0	7.6	8.4	26.9	2.9	0.0	4.1	1.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	3.5	3.5	6.8	16.6	15.9	14.6	12.2	0.4	3.8	4.9	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.4	30.4	30.6	53.7	38.8	39.6	71.1	42.2	30.3	57.3	50.1	45.9
LnGrp LOS	E	C	C	D	D	D	E	D	C	E	D	D
Approach Vol, veh/h		398			1428			865			348	
Approach Delay, s/veh		36.1			41.5			55.4			52.1	
Approach LOS		D			D			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.3	43.7	32.4	21.2	10.3	54.6	14.2	39.4				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	* 5.5	4.0	* 5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	* 55	30.0	* 50				
Max Q Clear Time (g_c+11), s	11.0	10.5	28.3	12.5	6.9	39.1	10.2	28.2				
Green Ext Time (p_c), s	0.3	3.0	0.1	0.7	0.1	10.0	0.1	1.7				

Intersection Summary

HCM 6th Ctrl Delay	46.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↖	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (veh/h)	55	142	208	70	743	30	326	130	40	10	90	253
Future Volume (veh/h)	55	142	208	70	743	30	326	130	40	10	90	253
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	64	165	147	81	864	33	379	151	39	12	105	224
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	111	270	1084	64	972	52	411	329	85	388	115	245
Arrive On Green	0.46	0.46	0.46	0.46	0.46	0.46	0.23	0.23	0.23	0.22	0.22	0.22
Sat Flow, veh/h	171	593	1578	74	2134	114	1781	1428	369	1781	526	1123
Grp Volume(v), veh/h	229	0	147	491	0	487	379	0	190	12	0	329
Grp Sat Flow(s),veh/h/ln	764	0	1578	641	0	1681	1781	0	1797	1781	0	1650
Q Serve(g_s), s	15.5	0.0	4.5	17.3	0.0	31.2	29.2	0.0	12.8	0.7	0.0	27.4
Cycle Q Clear(g_c), s	46.7	0.0	4.5	64.0	0.0	31.2	29.2	0.0	12.8	0.7	0.0	27.4
Prop In Lane	0.28		1.00	0.16		0.07	1.00		0.21	1.00		0.68
Lane Grp Cap(c), veh/h	381	0	1084	322	0	766	411	0	414	388	0	359
V/C Ratio(X)	0.60	0.00	0.14	1.53	0.00	0.64	0.92	0.00	0.46	0.03	0.00	0.92
Avail Cap(c_a), veh/h	406	0	1118	322	0	766	596	0	601	558	0	517
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.3	0.0	7.6	48.3	0.0	29.3	52.8	0.0	46.5	43.3	0.0	53.7
Incr Delay (d2), s/veh	2.1	0.0	0.1	252.3	0.0	1.7	12.7	0.0	0.3	0.0	0.0	13.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	0.0	2.9	34.2	0.0	13.1	14.5	0.0	5.8	0.3	0.0	12.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.4	0.0	7.7	300.6	0.0	31.0	65.5	0.0	46.8	43.3	0.0	67.0
LnGrp LOS	D	A	A	F	A	C	E	A	D	D	A	E
Approach Vol, veh/h		376			978			569			341	
Approach Delay, s/veh		26.4			166.4			59.3			66.2	
Approach LOS		C			F			E			E	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		68.5		35.1		68.5		36.9				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		67.0		44.0		64.0		47.0				
Max Q Clear Time (g_c+1), s		48.7		29.4		66.0		31.2				
Green Ext Time (p_c), s		1.8		1.2		0.0		1.2				
Intersection Summary												
HCM 6th Ctrl Delay				101.1								
HCM 6th LOS				F								

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 28: Qualcomm Way & Camino de la Reina/Camino del Rio N AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR	
Lane Configurations		↔	↔	↔		↔	↔	↔	↔	↔	↔		↔	↔	↔	
Traffic Volume (veh/h)	10	62	116	102	10	314	262	269	122	1028	499	10	126	515	50	
Future Volume (veh/h)	10	62	116	102	10	314	262	269	122	1028	499	10	126	515	50	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0		0	0	0	
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.94	1.00		0.98		1.00		0.99	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No		
Adj Sat Flow, veh/h/ln		1781	1870	1870		1870	1870	1870	1841	1900	1870		1870	1811	1811	
Adj Flow Rate, veh/h		69	129	25		349	291	21	136	1142	498		140	572	49	
Peak Hour Factor		0.90	0.90	0.90		0.90	0.90	0.90	0.90	0.90	0.90		0.90	0.90	0.90	
Percent Heavy Veh, %		8	2	2		2	2	2	4	0	2		2	6	6	
Cap, veh/h		88	331	239		454	597	250	219	2265	677		225	2029	172	
Arrive On Green		0.05	0.09	0.09		0.13	0.17	0.17	0.06	0.44	0.44		0.07	0.44	0.44	
Sat Flow, veh/h		1697	3741	1555		3456	3554	1487	3401	5187	1550		3456	4636	393	
Grp Volume(v), veh/h		69	129	25		349	291	21	136	1142	498		140	405	216	
Grp Sat Flow(s),veh/h/ln		1697	1870	1555		1728	1777	1487	1700	1729	1550		1728	1648	1733	
Q Serve(g_s), s		3.1	2.5	1.1		7.4	5.7	0.9	3.0	12.1	20.3		3.0	6.0	6.1	
Cycle Q Clear(g_c), s		3.1	2.5	1.1		7.4	5.7	0.9	3.0	12.1	20.3		3.0	6.0	6.1	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.23	
Lane Grp Cap(c), veh/h		88	331	239		454	597	250	219	2265	677		225	1442	758	
V/C Ratio(X)		0.79	0.39	0.10		0.77	0.49	0.08	0.62	0.50	0.74		0.62	0.28	0.28	
Avail Cap(c_a), veh/h		668	1474	714		1361	1400	586	1340	3405	1018		1361	2164	1138	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Uniform Delay (d), s/veh		35.7	32.8	27.8		32.0	28.7	26.7	34.7	15.5	17.8		34.7	13.7	13.8	
Incr Delay (d2), s/veh		5.7	0.6	0.1		1.0	0.2	0.1	1.1	0.2	1.4		1.0	0.3	0.5	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		1.4	1.1	0.4		2.9	2.2	0.3	1.2	4.3	6.4		1.2	2.1	2.3	
Unsig. Movement Delay, s/veh																
LnGrp Delay(d),s/veh		41.4	33.3	27.9		33.0	28.9	26.8	35.8	15.7	19.2		35.7	14.0	14.3	
LnGrp LOS		D	C	C		C	C	C	D	B	B		D	B	B	
Approach Vol, veh/h		223				661				1776				761		
Approach Delay, s/veh		35.2				31.0				18.2				18.1		
Approach LOS		D				C				B				B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8								
Phs Duration (G+Y+Rc), s	9.4	40.0	14.4	12.4	9.3	40.0	8.3	18.5								
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7								
Max Green Setting (Gmax), s	30.0	50.0	30.0	* 30	30.0	* 50	30.0	30.0								
Max Q Clear Time (g_c+1), s	15.0	22.3	9.4	4.5	5.0	8.1	5.1	7.7								
Green Ext Time (p_c), s	0.2	11.0	0.6	0.7	0.2	9.8	0.1	1.1								

Intersection Summary

HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖		↗		↖	↗	↖	↗			↖	↗
Traffic Volume (veh/h)	10	69	0	112	22	194	660	134	1240	0	0	412	499
Future Volume (veh/h)	10	69	0	112	22	194	660	134	1240	0	0	412	499
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1722	0	1796	1870	1870	1870	1870	1870	0	0	1826	1870
Adj Flow Rate, veh/h		74	0	20	24	209	558	144	1333	0	0	443	85
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		12	0	7	2	2	2	2	2	0	0	5	2
Cap, veh/h		0	0	0	73	640	607	303	2365	0	0	810	359
Arrive On Green		0.00	0.00	0.00	0.38	0.38	0.38	0.17	0.46	0.00	0.00	0.23	0.23
Sat Flow, veh/h			0		192	1669	1584	1781	5274	0	0	3561	1538
Grp Volume(v), veh/h			0.0		233	0	558	144	1333	0	0	443	85
Grp Sat Flow(s),veh/h/ln					1861	0	1584	1781	1702	0	0	1735	1538
Q Serve(g_s), s					7.0	0.0	26.4	5.8	14.9	0.0	0.0	8.8	3.5
Cycle Q Clear(g_c), s					7.0	0.0	26.4	5.8	14.9	0.0	0.0	8.8	3.5
Prop In Lane					0.10		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					713	0	607	303	2365	0	0	810	359
V/C Ratio(X)					0.33	0.00	0.92	0.48	0.56	0.00	0.00	0.55	0.24
Avail Cap(c_a), veh/h					1063	0	904	769	3693	0	0	2553	1132
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)					1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh					17.1	0.0	23.1	29.5	15.4	0.0	0.0	26.5	24.5
Incr Delay (d2), s/veh					0.1	0.0	8.1	0.4	0.1	0.0	0.0	1.2	0.7
Initial Q Delay(d3),s/veh					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln					2.7	0.0	9.9	2.4	5.2	0.0	0.0	3.6	1.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					17.2	0.0	31.3	30.0	15.4	0.0	0.0	27.8	25.2
LnGrp LOS					B	A	C	C	B	A	A	C	C
Approach Vol, veh/h						791			1477			528	
Approach Delay, s/veh						27.1			16.9			27.4	
Approach LOS						C			B			C	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		43.5			18.1	25.4		35.3					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		57.0			* 34	58.0		45.0					
Max Q Clear Time (g_c+I1), s		16.9			7.8	10.8		28.4					
Green Ext Time (p_c), s		7.8			0.1	7.2		1.7					

Intersection Summary

HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	620	0	1327	926	0
Future Volume (veh/h)	0	620	0	1327	926	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1856	0
Adj Flow Rate, veh/h	0	588	0	1368	955	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	2	0	2	3	0
Cap, veh/h	0	0	0	2600	2580	0
Arrive On Green	0.00	0.00	0.00	0.73	0.73	0.00
Sat Flow, veh/h	0		0	3741	3711	0
Grp Volume(v), veh/h	0.0		0	1368	955	0
Grp Sat Flow(s),veh/h/ln			0	1777	1763	0
Q Serve(g_s), s			0.0	3.4	2.0	0.0
Cycle Q Clear(g_c), s			0.0	3.4	2.0	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2600	2580	0
V/C Ratio(X)			0.00	0.53	0.37	0.00
Avail Cap(c_a), veh/h			0	6067	6019	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	1.2	1.0	0.0
Incr Delay (d2), s/veh			0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	1.3	1.0	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1368	955	
Approach Delay, s/veh				1.3	1.0	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		20.5				20.5
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		35.0				35.0
Max Q Clear Time (g_c+I1), s		5.4				4.0
Green Ext Time (p_c), s		8.0				4.9
Intersection Summary						
HCM 6th Ctrl Delay			1.2			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions

31: Texas St & Camino del Rio S

AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↘	↗	↗	↘	↗	↗	↘	↗	↗	↘	↗	↗
Traffic Volume (veh/h)	10	103	53	60	74	92	120	150	1387	179	480	592	293
Future Volume (veh/h)	10	103	53	60	74	92	120	150	1387	179	480	592	293
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.98	1.00		0.96	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No			No	
Adj Sat Flow, veh/h/ln		1811	1663	1870	1841	1870	1796	1841	1870	1870	1870	1870	1826
Adj Flow Rate, veh/h		107	55	12	77	96	51	156	1445	181	500	617	187
Peak Hour Factor		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		6	16	2	4	2	7	4	2	2	2	2	5
Cap, veh/h		144	139	298	172	184	599	183	1089	135	529	1906	813
Arrive On Green		0.08	0.08	0.08	0.10	0.10	0.10	0.10	0.34	0.34	0.30	0.54	0.54
Sat Flow, veh/h		1725	1663	1579	1753	1870	1490	1753	3166	392	1781	3554	1515
Grp Volume(v), veh/h		107	55	12	77	96	51	156	803	823	500	617	187
Grp Sat Flow(s),veh/h/ln		1725	1663	1579	1753	1870	1490	1753	1777	1781	1781	1777	1515
Q Serve(g_s), s		7.4	3.8	0.8	5.0	5.9	2.6	10.6	41.8	41.8	33.3	11.8	7.9
Cycle Q Clear(g_c), s		7.4	3.8	0.8	5.0	5.9	2.6	10.6	41.8	41.8	33.3	11.8	7.9
Prop In Lane		1.00		1.00	1.00		1.00	1.00		0.22	1.00		1.00
Lane Grp Cap(c), veh/h		144	139	298	172	184	599	183	611	613	529	1906	813
V/C Ratio(X)		0.74	0.39	0.04	0.45	0.52	0.09	0.85	1.31	1.34	0.95	0.32	0.23
Avail Cap(c_a), veh/h		426	411	556	407	434	798	361	611	613	1064	2632	1122
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		54.4	52.8	40.3	51.7	52.1	23.0	53.5	39.9	39.9	41.7	15.8	14.9
Incr Delay (d2), s/veh		7.2	1.8	0.1	4.9	6.2	0.2	4.2	152.7	165.1	4.0	0.2	0.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.5	1.7	0.3	2.4	3.1	0.9	4.9	43.7	45.9	14.9	4.7	2.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		61.6	54.6	40.4	56.6	58.3	23.2	57.7	192.6	205.0	45.8	16.0	15.2
LnGrp LOS		E	D	D	E	E	C	E	F	F	D	B	B
Approach Vol, veh/h			174			224			1782			1304	
Approach Delay, s/veh			57.9			49.7			186.5			27.3	
Approach LOS			E			D			F			C	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	40.5	47.0		15.1	17.1	70.4		18.9					
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0					
Max Green Setting (Gmax), s	72.6	41.8		30.0	25.0	* 90		28.2					
Max Q Clear Time (g_c+Rc), s	40.3	43.8		9.4	12.6	13.8		7.9					
Green Ext Time (p_c), s	0.7	0.0		0.5	0.2	12.4		1.9					

Intersection Summary

HCM 6th Ctrl Delay	111.7
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	7.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	50	245	190	738	544	34
Future Vol, veh/h	50	245	190	738	544	34
Conflicting Peds, #/hr	32	33	33	0	0	32
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	65	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	52	255	198	769	567	35

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1431	367	635	0	-	0
Stage 1	618	-	-	-	-	-
Stage 2	813	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	125	630	944	-	-	-
Stage 1	500	-	-	-	-	-
Stage 2	396	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	73	591	914	-	-	-
Mov Cap-2 Maneuver	73	-	-	-	-	-
Stage 1	302	-	-	-	-	-
Stage 2	384	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	35.2	3.1	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	914	-	73	591	-	-
HCM Lane V/C Ratio	0.217	-	0.713	0.432	-	-
HCM Control Delay (s)	10	1.3	131.2	15.6	-	-
HCM Lane LOS	B	A	F	C	-	-
HCM 95th %tile Q(veh)	0.8	-	3.3	2.2	-	-

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 33: Camino del Rio N & Ward Rd

AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	138	50	650	790	389	410
Future Volume (veh/h)	138	50	650	790	389	410
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	142	52	670	613	401	349
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	175	2260	1748	763	447	554
Arrive On Green	0.10	0.64	0.49	0.49	0.25	0.25
Sat Flow, veh/h	1781	3647	3647	1551	1781	1585
Grp Volume(v), veh/h	142	52	670	613	401	349
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1551	1781	1585
Q Serve(g_s), s	7.5	0.5	11.4	32.0	21.0	17.7
Cycle Q Clear(g_c), s	7.5	0.5	11.4	32.0	21.0	17.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	175	2260	1748	763	447	554
V/C Ratio(X)	0.81	0.02	0.38	0.80	0.90	0.63
Avail Cap(c_a), veh/h	814	2583	2583	1127	814	880
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.5	6.5	15.3	20.6	34.9	26.1
Incr Delay (d2), s/veh	3.4	0.0	0.2	3.6	2.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.2	4.2	10.9	9.1	15.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.9	6.5	15.5	24.2	37.5	26.6
LnGrp LOS	D	A	B	C	D	C
Approach Vol, veh/h		194	1283		750	
Approach Delay, s/veh		35.3	19.7		32.4	
Approach LOS		D	B		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		67.2		29.1	13.9	53.4
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		2.5		23.0	9.5	34.0
Green Ext Time (p_c), s		0.5		1.2	0.2	13.4

Intersection Summary

HCM 6th Ctrl Delay	25.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 34: Fairmount Ave & Mission Gorge Rd AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↖	↕			↖	↕	
Traffic Volume (veh/h)	39	13	383	20	16	0	40	648	1184	30	10	10	670	37
Future Volume (veh/h)	39	13	383	20	16	0	40	648	1184	30	10	10	670	37
Initial Q (Qb), veh	0	0	15	0	15	0	0	0	0	0	0	0	15	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		1.00	1.00		0.99		1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	466	22	17	0	697	1273	31	11	720	37		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	323	537	126	151	0	822	2459	60	18	1592	77		
Arrive On Green	0.00	0.00	0.17	0.17	0.17	0.00	0.48	1.00	1.00	0.01	0.46	0.46		
Sat Flow, veh/h	0	1870	3029	614	622	0	3456	3545	86	1781	3438	177		
Grp Volume(v), veh/h	0	0	466	39	0	0	697	638	666	11	372	385		
Grp Sat Flow(s),veh/h/ln	0	1870	1515	1237	0	0	1728	1777	1854	1781	1777	1837		
Q Serve(g_s), s	0.0	0.0	17.4	0.8	0.0	0.0	20.2	0.0	0.0	0.7	16.4	16.4		
Cycle Q Clear(g_c), s	0.0	0.0	17.4	2.3	0.0	0.0	20.2	0.0	0.0	0.7	16.4	16.4		
Prop In Lane	0.00		1.00	0.56		0.00	1.00		0.05	1.00		0.10		
Lane Grp Cap(c), veh/h	0	323	537	268	0	0	822	1232	1286	18	820	849		
V/C Ratio(X)	0.00	0.00	0.87	0.15	0.00	0.00	0.85	0.52	0.52	0.60	0.45	0.45		
Avail Cap(c_a), veh/h	0	335	543	270	0	0	831	1237	1291	156	820	848		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.09	0.09	0.09	1.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.0	47.1	42.1	0.0	0.0	28.3	0.0	0.0	56.7	21.7	21.7		
Incr Delay (d2), s/veh	0.0	0.0	13.3	0.2	0.0	0.0	0.8	0.1	0.1	11.1	1.8	1.7		
Initial Q Delay(d3),s/veh	0.0	0.0	42.5	26.3	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.0		
%ile BackOfQ(50%),veh/ln	0.0	0.0	11.6	4.7	0.0	0.0	6.5	0.0	0.0	0.4	8.4	8.6		
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	102.9	68.6	0.0	0.0	29.1	0.1	0.1	67.8	24.6	24.5		
LnGrp LOS	A	A	F	E	A	A	C	A	A	E	C	C		
Approach Vol, veh/h		466			39			2001				768		
Approach Delay, s/veh		102.9			68.6			10.2				25.2		
Approach LOS		F			E			B				C		
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	5.6	85.0		24.5	32.5	58.0		24.5						
Change Period (Y+Rc), s	4.4	4.9		4.9	4.9	* 4.9		4.9						
Max Green Setting (Gmax), s	10.0	70.1		20.6	27.1	* 53		20.6						
Max Q Clear Time (g_c+1/2), s	10.0	2.0		19.4	22.2	18.4		4.3						
Green Ext Time (p_c), s	0.0	31.5		0.2	0.8	11.1		0.1						

Intersection Summary

HCM 6th Ctrl Delay	27.6
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis HY Plus Project Without Event Conditions
 35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	33	456	490	807	395	583	1488	180	13	960	130
Future Volume (vph)	50	33	456	490	807	395	583	1488	180	13	960	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1749	1578	1610	3172	1424	1770	3477		3433	3539	1583
Flt Permitted	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1749	1578	1610	3172	1424	1770	3477		3433	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	35	480	516	849	416	614	1566	189	14	1011	137
RTOR Reduction (vph)	0	0	85	0	0	0	0	8	0	0	0	89
Lane Group Flow (vph)	42	46	395	464	943	374	614	1747	0	14	1011	48
Confl. Peds. (#/hr)							2		1			
Confl. Bikes (#/hr)			2			2						
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8	1	5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	8.0	8.0	35.0	25.0	25.0	33.0	27.0	53.0		8.0	34.0	34.0
Effective Green, g (s)	8.0	8.0	35.0	25.0	25.0	33.0	27.0	53.0		8.0	34.0	34.0
Actuated g/C Ratio	0.07	0.07	0.30	0.22	0.22	0.29	0.23	0.46		0.07	0.30	0.30
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	116	121	544	350	689	408	415	1602		238	1046	468
v/s Ratio Prot	0.02	0.03	c0.17	0.29	c0.30	0.06	c0.35	c0.50		0.00	c0.29	
v/s Ratio Perm			0.08			0.20						0.03
v/c Ratio	0.36	0.38	0.73	1.33	1.37	0.92	1.48	1.09		0.06	0.97	0.10
Uniform Delay, d1	51.1	51.1	35.7	45.0	45.0	39.7	44.0	31.0		50.0	39.9	29.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.63	0.77	1.35
Incremental Delay, d2	0.7	0.7	4.1	165.1	175.1	24.6	228.4	51.6		0.0	17.8	0.3
Delay (s)	51.8	51.9	39.8	210.1	220.1	64.2	272.4	82.6		31.4	48.7	40.2
Level of Service	D	D	D	F	F	E	F	F		C	D	D
Approach Delay (s)		41.7			184.8			131.8			47.5	
Approach LOS		D			F			F			D	
Intersection Summary												
HCM 2000 Control Delay			122.5	HCM 2000 Level of Service				F				
HCM 2000 Volume to Capacity ratio			1.25									
Actuated Cycle Length (s)			115.0	Sum of lost time (s)				21.0				
Intersection Capacity Utilization			103.7%	ICU Level of Service				G				
Analysis Period (min)			15									
c Critical Lane Group												

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 36: Fairmount Ave & I-8E Off-Ramp

AM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations	YY	YY	U		↑↑	↑↑↑	
Traffic Volume (veh/h)	833	863	300	0	1178	736	0
Future Volume (veh/h)	833	863	300	0	1178	736	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1826	1870		0	1856	1856	0
Adj Flow Rate, veh/h	1021	1022		0	1419	887	0
Peak Hour Factor	0.83	0.83		0.83	0.83	0.83	0.83
Percent Heavy Veh, %	5	2		0	3	3	0
Cap, veh/h	1324	1207		0	1716	2466	0
Arrive On Green	0.38	0.38		0.00	0.49	0.49	0.00
Sat Flow, veh/h	3478	3170		0	3711	5400	0
Grp Volume(v), veh/h	1021	1022		0	1419	887	0
Grp Sat Flow(s),veh/h/ln	1739	1585		0	1763	1689	0
Q Serve(g_s), s	21.6	24.7		0.0	29.0	9.1	0.0
Cycle Q Clear(g_c), s	21.6	24.7		0.0	29.0	9.1	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	1324	1207		0	1716	2466	0
V/C Ratio(X)	0.77	0.85		0.00	0.83	0.36	0.00
Avail Cap(c_a), veh/h	1826	1665		0	3227	3144	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.7	23.7		0.0	18.5	13.4	0.0
Incr Delay (d2), s/veh	0.9	2.3		0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	9.1		0.0	10.9	3.3	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	23.6	26.0		0.0	18.9	13.4	0.0
LnGrp LOS	C	C		A	B	B	A
Approach Vol, veh/h	2043				1419	887	
Approach Delay, s/veh	24.8				18.9	13.4	
Approach LOS	C				B	B	
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				46.8		37.0	46.8
Change Period (Y+Rc), s				6.0		5.1	6.0
Max Green Setting (Gmax), s				52.0		44.0	76.7
Max Q Clear Time (g_c+1), s				11.1		26.7	31.0
Green Ext Time (p_c), s				4.9		5.2	9.8

Intersection Summary

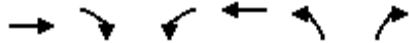
HCM 6th Ctrl Delay	20.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 37: Collwood Blvd & Montezuma Rd

AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑↑	↑
Traffic Volume (veh/h)	497	491	70	1255	1184	60
Future Volume (veh/h)	497	491	70	1255	1184	60
Initial Q (Qb), veh	0	0	0	30	30	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1663	1870	1870	1618
Adj Flow Rate, veh/h	529	439	74	1335	1260	43
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	16	2	2	19
Cap, veh/h	1541	1276	91	2726	1341	527
Arrive On Green	0.44	0.44	0.06	0.53	0.38	0.38
Sat Flow, veh/h	3618	1538	1584	5274	3456	1372
Grp Volume(v), veh/h	529	439	74	1335	1260	43
Grp Sat Flow(s),veh/h/ln	1763	1538	1584	1702	1728	1372
Q Serve(g_s), s	12.4	9.0	5.8	20.8	44.9	2.5
Cycle Q Clear(g_c), s	12.4	9.0	5.8	20.8	44.9	2.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1541	1276	91	2726	1341	527
V/C Ratio(X)	0.34	0.34	0.81	0.49	0.94	0.08
Avail Cap(c_a), veh/h	1559	1276	158	2730	1341	532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.5	2.8	58.7	19.5	38.5	24.7
Incr Delay (d2), s/veh	0.6	0.7	6.3	0.6	12.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	1.7	53.3	0.0
%ile BackOfQ(50%),veh/ln	5.2	2.1	2.5	9.9	32.1	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.1	3.6	65.0	21.8	104.5	24.7
LnGrp LOS	C	A	E	C	F	C
Approach Vol, veh/h	968			1409	1303	
Approach Delay, s/veh	14.8			24.1	101.9	
Approach LOS	B			C	F	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	11.7	62.2		73.9	52.1	
Change Period (Y+Rc), s	4.4	* 6.5		6.5	4.4	
Max Green Setting (Gmax), s	12.6	* 50		66.2	48.9	
Max Q Clear Time (g_c+1), s	17.8	14.4		22.8	46.9	
Green Ext Time (p_c), s	0.0	9.7		22.5	0.8	

Intersection Summary

HCM 6th Ctrl Delay	49.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 38: Mission Village Dr & Shawn Ave AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↔	↑↑	↔	↔	↔	
Traffic Volume (veh/h)	120	10	66	56	10	30	53	1250	13	10	733	40
Future Volume (veh/h)	120	10	66	56	10	30	53	1250	13	10	733	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	129	11	13	60	11	5	57	1344	6	11	788	39
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	354	110	130	346	172	78	497	2248	986	315	2178	108
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.63	0.63	0.63	0.63	0.63	0.63
Sat Flow, veh/h	1316	709	838	1264	1106	503	662	3554	1559	404	3443	170
Grp Volume(v), veh/h	129	0	24	60	0	16	57	1344	6	11	407	420
Grp Sat Flow(s),veh/h/ln	1316	0	1547	1264	0	1609	662	1777	1559	404	1777	1836
Q Serve(g_s), s	4.2	0.0	0.6	1.9	0.0	0.4	2.2	10.7	0.1	0.8	5.2	5.2
Cycle Q Clear(g_c), s	4.6	0.0	0.6	2.5	0.0	0.4	7.4	10.7	0.1	11.5	5.2	5.2
Prop In Lane	1.00		0.54	1.00		0.31	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	354	0	240	346	0	250	497	2248	986	315	1124	1162
V/C Ratio(X)	0.36	0.00	0.10	0.17	0.00	0.06	0.11	0.60	0.01	0.03	0.36	0.36
Avail Cap(c_a), veh/h	1297	0	1288	1282	0	1340	905	4438	1947	564	2219	2294
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.3	0.0	17.4	18.5	0.0	17.3	6.0	5.2	3.3	8.6	4.2	4.2
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.1	0.0	0.0	0.1	0.3	0.0	0.1	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3	0.0	0.2	0.6	0.0	0.1	0.2	1.8	0.0	0.1	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.5	0.0	17.5	18.6	0.0	17.4	6.1	5.5	3.3	8.7	4.5	4.4
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		153			76			1407			838	
Approach Delay, s/veh		19.2			18.3			5.5			4.5	
Approach LOS		B			B			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		35.7		12.4		35.7		12.4				
Change Period (Y+Rc), s		5.3		4.9		5.3		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		12.7		6.6		13.5		4.5				
Green Ext Time (p_c), s		17.6		0.6		7.7		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				6.4								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 39: Mission Village Dr & Fermi Ave

AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕		↙	↕	
Traffic Volume (veh/h)	50	20	26	106	10	100	13	1323	113	70	660	10
Future Volume (veh/h)	50	20	26	106	10	100	13	1323	113	70	660	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	55	22	17	116	11	84	14	1454	121	77	725	11
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	195	76	45	204	24	107	24	1995	165	100	2309	35
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.01	0.60	0.60	0.06	0.64	0.64
Sat Flow, veh/h	743	442	262	805	140	625	1781	3315	274	1781	3582	54
Grp Volume(v), veh/h	94	0	0	211	0	0	14	775	800	77	360	376
Grp Sat Flow(s),veh/h/ln1447	0	0	0	1569	0	0	1781	1777	1813	1781	1777	1859
Q Serve(g_s), s	0.0	0.0	0.0	6.0	0.0	0.0	0.7	26.2	26.7	3.6	7.7	7.7
Cycle Q Clear(g_c), s	4.6	0.0	0.0	10.6	0.0	0.0	0.7	26.2	26.7	3.6	7.7	7.7
Prop In Lane	0.59		0.18	0.55		0.40	1.00		0.15	1.00		0.03
Lane Grp Cap(c), veh/h	315	0	0	335	0	0	24	1069	1091	100	1145	1198
V/C Ratio(X)	0.30	0.00	0.00	0.63	0.00	0.00	0.59	0.72	0.73	0.77	0.31	0.31
Avail Cap(c_a), veh/h	749	0	0	600	0	0	629	1256	1281	629	1256	1314
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh 30.9	0.0	0.0	0.0	33.3	0.0	0.0	41.7	11.9	12.1	39.5	6.7	6.7
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.7	0.0	0.0	8.5	2.4	2.5	4.6	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.7	0.0	0.0	0.0	4.2	0.0	0.0	0.3	9.1	9.5	1.7	2.5	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	0.0	0.0	34.0	0.0	0.0	50.2	14.3	14.5	44.1	7.0	7.0
LnGrp LOS	C	A	A	C	A	A	D	B	B	D	A	A
Approach Vol, veh/h		94			211			1589			813	
Approach Delay, s/veh		31.1			34.0			14.7			10.5	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s9.2	56.3			19.4	5.5	59.9		19.4				
Change Period (Y+Rc), s 4.4	5.2			4.9	4.4	5.2		4.9				
Max Green Setting (Gmax), s 30.0	60.0			40.0	30.0	60.0		30.0				
Max Q Clear Time (g_c+1), s 15.6	28.7			6.6	2.7	9.7		12.6				
Green Ext Time (p_c), s 0.1	22.4			0.4	0.0	10.0		0.8				

Intersection Summary

HCM 6th Ctrl Delay	15.5
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 40: Gramercy Dr/Mission Village Dr & Ruffin Rd AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	330	30	42	525	916	20	10	23	377	20	50
Future Volume (veh/h)	70	330	30	42	525	916	20	10	23	377	20	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	80	375	31	48	597	889	23	11	0	428	23	41
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	84	1949	160	593	1043	914	157	313	0	638	105	187
Arrive On Green	0.59	0.59	0.59	0.59	0.59	0.59	0.09	0.09	0.00	0.18	0.18	0.18
Sat Flow, veh/h	355	3319	273	977	1777	1557	1781	3647	0	3563	586	1045
Grp Volume(v), veh/h	80	200	206	48	597	889	23	11	0	428	0	64
Grp Sat Flow(s),veh/h/ln	355	1777	1816	977	1777	1557	1781	1777	0	1781	0	1632
Q Serve(g_s), s	3.8	5.3	5.4	2.5	21.3	56.2	1.2	0.3	0.0	11.5	0.0	3.4
Cycle Q Clear(g_c), s	60.0	5.3	5.4	7.9	21.3	56.2	1.2	0.3	0.0	11.5	0.0	3.4
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.00	1.00		0.64
Lane Grp Cap(c), veh/h	84	1043	1066	593	1043	914	157	313	0	638	0	292
V/C Ratio(X)	0.96	0.19	0.19	0.08	0.57	0.97	0.15	0.04	0.00	0.67	0.00	0.22
Avail Cap(c_a), veh/h	84	1043	1066	593	1043	914	697	1391	0	1395	0	639
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.8	9.8	9.8	11.7	13.1	20.3	43.0	42.6	0.0	39.1	0.0	35.8
Incr Delay (d2), s/veh	83.5	0.1	0.1	0.1	0.9	23.3	0.2	0.0	0.0	0.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.1	2.1	0.5	8.4	24.7	0.5	0.1	0.0	4.9	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	134.2	9.9	9.9	11.7	14.0	43.6	43.2	42.6	0.0	39.6	0.0	36.0
LnGrp LOS	F	A	A	B	B	D	D	D	A	D	A	D
Approach Vol, veh/h		486			1534			34			492	
Approach Delay, s/veh		30.4			31.1			43.0			39.1	
Approach LOS		C			C			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.1		23.2		65.1		13.9				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		62.0		13.5		58.2		3.2				
Green Ext Time (p_c), s		0.0		1.0		1.6		0.1				

Intersection Summary

HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 41: Ruffin Rd & Aero Dr AM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	680	191	10	309	600	603	766
Future Volume (veh/h)	680	191	10	309	600	603	766
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	739	204		336	652	655	657
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1202	1205		385	1717	1493	685
Arrive On Green	0.34	0.34		0.11	0.48	0.43	0.43
Sat Flow, veh/h	3647	1538		3456	3647	3456	1585
Grp Volume(v), veh/h	739	204		336	652	655	657
Grp Sat Flow(s),veh/h/ln	1777	1538		1728	1777	1728	1585
Q Serve(g_s), s	22.6	4.6		12.4	15.1	17.3	52.3
Cycle Q Clear(g_c), s	22.6	4.6		12.4	15.1	17.3	52.3
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1202	1205		385	1717	1493	685
V/C Ratio(X)	0.61	0.17		0.87	0.38	0.44	0.96
Avail Cap(c_a), veh/h	1202	1205		391	1717	1614	740
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.58	0.58
Uniform Delay (d), s/veh	35.9	4.0		56.9	21.3	25.9	35.8
Incr Delay (d2), s/veh	2.4	0.3		18.2	0.6	0.0	15.4
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	4.9		6.3	6.2	7.1	22.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	38.3	4.3		75.1	21.9	25.9	51.2
LnGrp LOS	D	A		E	C	C	D
Approach Vol, veh/h	943			988	1312		
Approach Delay, s/veh	30.9			40.0	38.6		
Approach LOS	C			D	D		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	18.9	49.7			68.5	61.5	
Change Period (Y+Rc), s	4.4	* 5.7			5.7	5.3	
Max Green Setting (Gmax), s	14.7	* 40			58.3	60.7	
Max Q Clear Time (g_c+14), s	14.4	24.6			17.1	54.3	
Green Ext Time (p_c), s	0.0	7.8			6.5	1.9	

Intersection Summary

HCM 6th Ctrl Delay	36.8
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 42: Mobley St & Gramercy Dr AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	251	30	32	499	104	90	40	63	86	10	20
Future Volume (veh/h)	20	251	30	32	499	104	90	40	63	86	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1826	1841	1737	1870	1870	1870	1870	1870	1707	1707	1707
Adj Flow Rate, veh/h	21	264	13	34	525	88	95	42	47	91	11	13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	5	4	11	2	2	2	2	2	13	13	13
Cap, veh/h	492	1569	679	634	1370	228	318	131	97	442	53	38
Arrive On Green	0.45	0.45	0.45	0.45	0.45	0.45	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	804	3469	1502	1013	3028	505	626	544	402	1013	222	157
Grp Volume(v), veh/h	21	264	13	34	307	306	184	0	0	115	0	0
Grp Sat Flow(s),veh/h/ln	804	1735	1502	1013	1777	1757	1572	0	0	1393	0	0
Q Serve(g_s), s	0.6	1.5	0.2	0.7	3.7	3.8	1.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.3	1.5	0.2	2.1	3.7	3.8	3.0	0.0	0.0	1.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.29	0.52		0.26	0.79		0.11
Lane Grp Cap(c), veh/h	492	1569	679	634	804	794	546	0	0	533	0	0
V/C Ratio(X)	0.04	0.17	0.02	0.05	0.38	0.39	0.34	0.00	0.00	0.22	0.00	0.00
Avail Cap(c_a), veh/h	1612	6401	2771	2044	3278	3241	2036	0	0	1760	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.3	5.3	4.9	5.9	5.9	5.9	10.5	0.0	0.0	10.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.1	0.6	0.6	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	0.0	0.1	0.8	0.8	0.9	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.4	5.4	4.9	6.0	6.5	6.5	10.6	0.0	0.0	10.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		298			647			184			115	
Approach Delay, s/veh		5.5			6.4			10.6			10.2	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		19.8		12.7		19.8		12.7				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		6.3		3.9		5.8		5.0				
Green Ext Time (p_c), s		3.7		0.5		8.5		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				7.2								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 43: Sandrock Rd & Greyling Dr/Gramercy Dr AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕	↕	↕	↕
Traffic Volume (veh/h)	60	97	10	13	114	448	0	20	23	287	10	60
Future Volume (veh/h)	60	97	10	13	114	448	0	20	23	287	10	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.92	0.96		0.95	1.00		1.00	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1663	1870	1870	1870	1841	1870	1870
Adj Flow Rate, veh/h	65	105	8	14	124	239	0	22	0	320	0	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	2	2	16	2	2	2	4	2	2
Cap, veh/h	266	366	23	133	614	739	0	41	35	690	0	291
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.00	0.02	0.00	0.20	0.00	0.20
Sat Flow, veh/h	369	1056	67	64	1773	1332	0	1870	1585	3506	0	1480
Grp Volume(v), veh/h	178	0	0	138	0	239	0	22	0	320	0	17
Grp Sat Flow(s),veh/h/ln1492	0	0	0	1837	0	1332	0	1870	1585	1753	0	1480
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.4	0.0	2.9	0.0	0.3
Cycle Q Clear(g_c), s	2.5	0.0	0.0	1.9	0.0	3.6	0.0	0.4	0.0	2.9	0.0	0.3
Prop In Lane	0.37		0.04	0.10		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	655	0	0	748	0	739	0	41	35	690	0	291
V/C Ratio(X)	0.27	0.00	0.00	0.18	0.00	0.32	0.00	0.54	0.00	0.46	0.00	0.06
Avail Cap(c_a), veh/h	1143	0	0	1378	0	1211	0	1050	889	2951	0	1246
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.4	0.0	0.0	8.2	0.0	4.5	0.0	17.2	0.0	12.7	0.0	11.6
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.1	0.0	4.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln0.8	0.0	0.0	0.0	0.5	0.0	1.0	0.0	0.2	0.0	1.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.5	0.0	0.0	8.3	0.0	4.6	0.0	21.2	0.0	12.8	0.0	11.7
LnGrp LOS	A	A	A	A	A	A	A	C	A	B	A	B
Approach Vol, veh/h		178			377			22			337	
Approach Delay, s/veh		8.5			6.0			21.2			12.8	
Approach LOS		A			A			C			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.6		12.3		17.6		5.7				
Change Period (Y+Rc), s		5.3		5.3		5.3		4.9				
Max Green Setting (Gmax), s		25.0		30.0		25.0		20.0				
Max Q Clear Time (g_c+I1), s		4.5		4.9		5.6		2.4				
Green Ext Time (p_c), s		0.8		0.6		0.9		0.0				

Intersection Summary

HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
 User approved volume balancing among the lanes for turning movement.



Major Street **Ward Rd**
 Minor Street **Rancho Mission Rd**

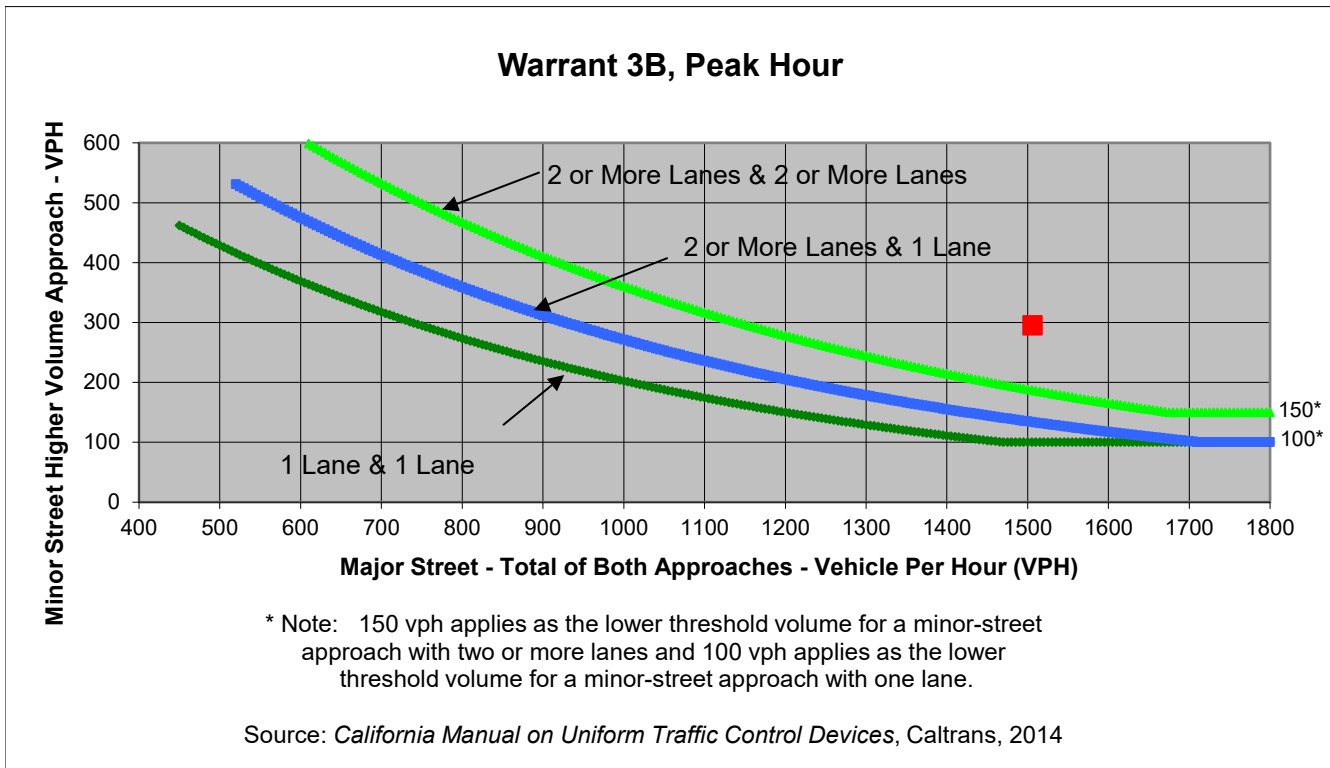
Project **SDSU Mission Valley**
 Scenario **Horizon Year + Project**
 Peak Hour **AM**

Turn Movement Volumes

	NB	SB	EB	WB
Left	190	0	50	0
Through	738	544	0	0
Right	0	34	245	0
Total	928	578	295	0

Major Street Direction

x North/South
 East/West



	Major Street Ward Rd	Minor Street Rancho Mission Rd	Warrant Met
Number of Approach Lanes	2	1	<u>YES</u>
Traffic Volume (VPH) *	1,506	295	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
 Traffic Volume for Minor Street is the Volume of High Volume Approach.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

Project SDSU Mission Valley
 Scenario Horizon Year + Project
 Peak Hour AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	217	0	50	0
Through	754	546	0	0
Right	0	34	273	0
Total	971	580	323	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	131.2
Approach with Worst Case Delay	EB
Total Vehicles on Approach	295

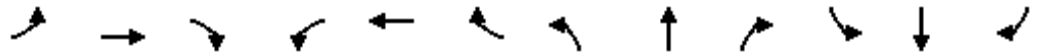
Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Horizon Year + Project	10.8	323	1,874
Limiting Value	4	100	650
Condition Satisfied?	Met	Met	Met
Warrant Met	<u>YES</u>		

Queues

Horizon Year Plus Project Without Event Conditions

1: SR-163 SB Ramps/Ulric St & Friars Rd

AM Peak Hour



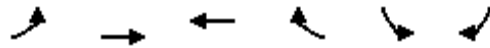
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	73	694	281	624	977	796	323	63	894	226	226	104
v/c Ratio	0.60	0.36	0.42	0.82	0.40	0.53	0.76	0.27	0.83	0.70	0.70	0.25
Control Delay	88.0	44.5	7.6	83.6	17.3	13.8	75.2	61.8	48.2	67.3	67.3	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.0	44.5	7.6	83.6	17.3	13.8	75.2	61.8	48.2	67.3	67.3	3.6
Queue Length 50th (ft)	71	157	0	323	119	134	159	57	434	221	221	0
Queue Length 95th (ft)	126	223	86	313	152	418	211	104	502	286	286	20
Internal Link Dist (ft)		1296			1069			834			622	
Turn Bay Length (ft)	300		350	400		200	300		215			200
Base Capacity (vph)	149	1943	667	867	2454	1739	482	262	1164	471	471	538
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.36	0.42	0.72	0.40	0.46	0.67	0.24	0.77	0.48	0.48	0.19

Intersection Summary

Queues
2: Friars Rd & SR-163 NB Ramps

Horizon Year Plus Project Without Event Conditions

AM Peak Hour

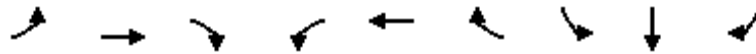


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	521	1498	1521	868	1349	833
v/c Ratio	0.52	0.37	0.79	0.63	0.89	0.51
Control Delay	48.8	13.3	35.9	11.8	57.7	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	13.3	35.9	11.8	57.7	16.8
Queue Length 50th (ft)	244	229	426	50	443	232
Queue Length 95th (ft)	315	159	461	60	505	318
Internal Link Dist (ft)		1069	635		521	
Turn Bay Length (ft)	500			200	500	400
Base Capacity (vph)	999	4068	2466	1365	1546	1642
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.37	0.62	0.64	0.87	0.51

Intersection Summary

Queues
17: I-15 SB Ramps & Friars Rd

Horizon Year Plus Project Without Event Conditions
AM Peak Hour



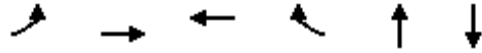
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	440	1137	588	415	2500	553	431	425	1299
v/c Ratio	1.09	0.72	0.67	0.89	1.43	0.73	0.93	0.91	0.84
Control Delay	113.5	38.3	8.4	44.0	224.7	14.3	65.8	63.0	26.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	113.5	38.3	8.4	44.0	224.7	14.3	65.8	63.0	26.5
Queue Length 50th (ft)	~352	275	17	242	~905	111	301	294	388
Queue Length 95th (ft)	#548	#360	133	m114	m341	m39	#482	#470	500
Internal Link Dist (ft)		844			1079			723	
Turn Bay Length (ft)	380		200	350			520		520
Base Capacity (vph)	402	1582	875	531	1744	753	504	506	1539
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.09	0.72	0.67	0.78	1.43	0.73	0.86	0.84	0.84

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
18: I-15 NB Ramps & Friars Rd

Horizon Year Plus Project Without Event Conditions
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	831	1225	3353	1009	400	883
v/c Ratio	1.48	no cap	1.28	1.31	4.26	9.39
Control Delay	250.9		149.4	165.4	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	250.9	Error	149.4	165.4	0.0	0.0
Queue Length 50th (ft)	~840	0	~1180	~1081	0	0
Queue Length 95th (ft)	m#1078	0	#1274	m#1259	0	0
Internal Link Dist (ft)		1079	869		797	677
Turn Bay Length (ft)	515					
Base Capacity (vph)	563	1	2629	773	94	94
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.48	1225.00	1.28	1.31	4.26	9.39

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues

Horizon Year Plus Project Without Event Conditions

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

AM Peak Hour



Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	85	120	233	710	144	1333	443	537
v/c Ratio	0.52	0.24	0.34	0.98	0.63	0.68	0.59	0.71
Control Delay	66.1	7.2	31.2	56.3	64.8	32.9	46.5	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
Total Delay	66.1	7.2	31.2	56.3	64.8	32.9	46.6	9.6
Queue Length 50th (ft)	63	0	125	399	107	309	160	0
Queue Length 95th (ft)	131	47	243	#824	198	385	239	105
Internal Link Dist (ft)			657			1041	147	
Turn Bay Length (ft)				150	110			
Base Capacity (vph)	539	707	686	723	498	4072	1651	1014
Starvation Cap Reductn	0	0	0	0	0	0	438	130
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.17	0.34	0.98	0.29	0.33	0.37	0.61

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

Horizon Year Plus Project Without Event Conditions

30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

AM Peak Hour



Lane Group	EBR	NBT	SBT
Lane Group Flow (vph)	639	1368	955
v/c Ratio	0.75	0.71	0.50
Control Delay	23.7	13.3	10.2
Queue Delay	0.0	0.7	0.0
Total Delay	23.7	14.0	10.2
Queue Length 50th (ft)	105	172	101
Queue Length 95th (ft)	169	302	181
Internal Link Dist (ft)		285	1041
Turn Bay Length (ft)			
Base Capacity (vph)	2171	2101	2081
Starvation Cap Reductn	0	367	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.29	0.79	0.46

Intersection Summary

Queues

Horizon Year Plus Project Without Event Conditions

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	42	46	480	464	943	374	614	1755	14	1011	137
v/c Ratio	0.29	0.30	0.84	1.33	1.37	0.88	1.48	1.07	0.06	0.94	0.24
Control Delay	54.7	55.0	39.4	201.9	210.9	57.9	261.7	74.2	31.9	45.7	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.2	0.0	17.7	0.0
Total Delay	54.7	55.0	39.4	201.9	210.9	57.9	261.7	87.5	31.9	63.4	10.2
Queue Length 50th (ft)	31	33	231	~490	~536	269	~627	~795	4	~428	39
Queue Length 95th (ft)	70	74	#390	#713	#680	#394	#849	#937	m7	m#550	m69
Internal Link Dist (ft)		2741			1304			808		254	
Turn Bay Length (ft)	105					200	215		65		140
Base Capacity (vph)	146	152	569	350	689	425	415	1641	238	1077	569
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	95	0
Spillback Cap Reductn	0	0	0	0	0	0	0	242	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.30	0.84	1.33	1.37	0.88	1.48	1.25	0.06	1.03	0.24

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
36: Fairmount Ave & I-8E Off-Ramp

Horizon Year Plus Project Without Event Conditions
AM Peak Hour

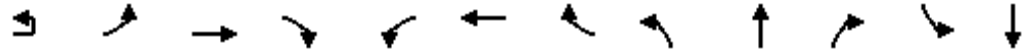


Lane Group	EBL	EBR	NBU	NBT	SBT
Lane Group Flow (vph)	1108	936	361	1419	887
v/c Ratio	0.81	0.85	1.16	0.83	0.65
Control Delay	36.7	41.2	145.7	32.5	40.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	36.7	41.2	145.7	32.5	40.8
Queue Length 50th (ft)	362	356	~321	467	214
Queue Length 95th (ft)	505	508	#667	661	290
Internal Link Dist (ft)	721			683	808
Turn Bay Length (ft)	550		350		
Base Capacity (vph)	2076	1680	311	2370	2309
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.53	0.56	1.16	0.60	0.38

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis - Horizon Year Plus Project Without Event Conditions
 1: SR-163 SB Ramps/Ulrir St & Friars Rd PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations		3		7	77	777	77	77	7	77	7	7	
Traffic Volume (vph)	10	170	1780	700	634	1208	827	320	30	769	690	0	
Future Volume (vph)	10	170	1780	700	634	1208	827	320	30	769	690	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.7	7.0	7.0	4.5	3.0	6.1	6.1	6.1	4.5	6.1	6.1	
Lane Util. Factor		1.00	0.86	1.00	0.97	0.91	0.88	0.97	1.00	0.88	0.95	0.95	
Frbp, ped/bikes		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (prot)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (perm)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	10	173	1816	714	647	1233	844	327	31	785	704	0	
RTOR Reduction (vph)	0	0	0	481	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	183	1816	233	647	1233	844	327	31	785	352	352	
Confl. Peds. (#/hr)				5									
Confl. Bikes (#/hr)				2									
Turn Type	Prot	Prot	NA	Perm	Prot	NA	custom	Split	NA	pm+ov	Split	NA	
Protected Phases	5	5	2		1	6 7	4 7	8	8	1	4	4	
Permitted Phases				2						8			
Actuated Green, G (s)		17.5	44.0	44.0	26.0	52.3	68.9	14.1	14.1	40.1	37.2	37.2	
Effective Green, g (s)		17.5	44.0	44.0	26.0	52.3	61.9	14.1	14.1	40.1	37.2	37.2	
Actuated g/C Ratio		0.12	0.30	0.30	0.18	0.36	0.43	0.10	0.10	0.28	0.26	0.26	
Clearance Time (s)		4.7	7.0	7.0	4.5			6.1	6.1	4.5	6.1	6.1	
Vehicle Extension (s)		2.0	2.0	2.0	3.0			3.0	3.0	3.0	2.0	2.0	
Lane Grp Cap (vph)		213	1944	469	615	1834	1189	333	181	770	431	431	
v/s Ratio Prot		0.10	c0.28		c0.19	0.24	0.30	0.10	0.02	c0.18	c0.21	0.21	
v/s Ratio Perm				0.15						0.10			
v/c Ratio		0.86	0.93	0.50	1.05	0.67	0.71	0.98	0.17	1.02	0.82	0.82	
Uniform Delay, d1		62.5	49.1	41.4	59.5	39.1	34.2	65.3	60.1	52.5	50.7	50.7	
Progression Factor		1.00	1.00	1.00	1.04	1.23	0.69	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		26.5	9.9	3.7	44.5	0.5	1.1	44.2	0.5	37.4	10.8	10.8	
Delay (s)		89.1	58.9	45.2	106.2	48.8	24.6	109.5	60.5	89.9	61.5	61.5	
Level of Service		F	E	D	F	D	C	F	E	F	E	E	
Approach Delay (s)			57.4			54.9			94.7			57.0	
Approach LOS			E			D			F			E	
Intersection Summary													
HCM 2000 Control Delay			62.1		HCM 2000 Level of Service					E			
HCM 2000 Volume to Capacity ratio			0.96										
Actuated Cycle Length (s)			145.0		Sum of lost time (s)					26.9			
Intersection Capacity Utilization			97.3%		ICU Level of Service					F			
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis Horizon Year Plus Project Without Event Conditions
 1: SR-163 SB Ramps/Ulric St & Friars Rd PM Peak Hour

Movement	SBR
Lane Configurations	7
Traffic Volume (vph)	210
Future Volume (vph)	210
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.1
Lane Util. Factor	1.00
Frpb, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1560
Flt Permitted	1.00
Satd. Flow (perm)	1560
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	214
RTOR Reduction (vph)	142
Lane Group Flow (vph)	72
Confl. Peds. (#/hr)	3
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	37.2
Effective Green, g (s)	37.2
Actuated g/C Ratio	0.26
Clearance Time (s)	6.1
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	400
v/s Ratio Prot	
v/s Ratio Perm	0.05
v/c Ratio	0.18
Uniform Delay, d1	42.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	42.1
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis - Horizon Year Plus Project Without Event Conditions

2: Friars Rd & SR-163 NB Ramps

PM Peak Hour



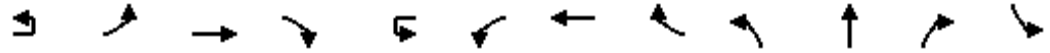
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	640	2478	1679	1038	1210	1010
Future Volume (vph)	640	2478	1679	1038	1210	1010
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.5	6.0	4.5	4.5	5.0
Lane Util. Factor	0.97	0.86	0.86	0.88	0.94	0.88
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	6408	6408	2787	4990	2787
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	6408	6408	2787	4990	2787
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	667	2581	1749	1081	1260	1052
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	667	2581	1749	1081	1260	1052
Turn Type	Prot	NA	NA	custom	Prot	pm+ov
Protected Phases	5	2	3	6	4	5
Permitted Phases						4
Actuated Green, G (s)	38.6	92.5	50.4	65.0	43.5	82.1
Effective Green, g (s)	38.6	92.5	50.4	65.0	43.5	82.1
Actuated g/C Ratio	0.27	0.64	0.35	0.45	0.30	0.57
Clearance Time (s)	5.0	4.5			4.5	5.0
Vehicle Extension (s)	2.0	3.0			3.0	2.0
Lane Grp Cap (vph)	913	4087	2227	1249	1497	1674
v/s Ratio Prot	c0.19	0.40	c0.27	c0.39	0.25	0.17
v/s Ratio Perm						0.21
v/c Ratio	0.73	0.63	0.79	0.87	0.84	0.63
Uniform Delay, d1	48.5	15.9	42.4	36.1	47.5	21.2
Progression Factor	0.96	0.75	1.19	1.47	1.00	1.00
Incremental Delay, d2	1.2	0.3	1.1	4.1	4.5	0.5
Delay (s)	47.6	12.3	51.7	57.0	52.0	21.7
Level of Service	D	B	D	E	D	C
Approach Delay (s)		19.5	53.7		38.2	
Approach LOS		B	D		D	

Intersection Summary

HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis Horizon Year Plus Project Without Event Conditions
 3: Frazee Rd & Friars Rd PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		🚗	🚗🚗	🚗		🚗	🚗🚗	🚗	🚗🚗	🚗🚗		🚗🚗
Traffic Volume (vph)	30	340	2629	670	10	121	1797	108	330	70	154	137
Future Volume (vph)	30	340	2629	670	10	121	1797	108	330	70	154	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.4	3.0	4.4		4.4	6.5	6.5	4.4	4.9		4.4
Lane Util. Factor		0.97	0.86	0.88		0.97	0.86	1.00	0.97	0.95		0.97
Frbp, ped/bikes		1.00	1.00	1.00		1.00	1.00	0.98	1.00	0.97		1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.90		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (prot)		3433	6408	2787		3433	6408	1546	3433	3067		3433
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (perm)		3433	6408	2787		3433	6408	1546	3433	3067		3433
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	34	382	2954	753	11	136	2019	121	371	79	173	154
RTOR Reduction (vph)	0	0	0	0	0	0	0	75	0	55	0	0
Lane Group Flow (vph)	0	416	2954	753	0	147	2019	46	371	197	0	154
Confl. Peds. (#/hr)				18				8			43	
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	custom	Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2 9	3 9	1	1	6		3	8		7
Permitted Phases							6					
Actuated Green, G (s)		20.1	69.7	65.8		6.5	55.1	55.1	20.6	42.3		7.3
Effective Green, g (s)		20.1	69.7	60.3		6.5	55.1	55.1	20.6	42.3		7.3
Actuated g/C Ratio		0.14	0.48	0.42		0.04	0.38	0.38	0.14	0.29		0.05
Clearance Time (s)		4.4				4.4	6.5	6.5	4.4	4.9		4.4
Vehicle Extension (s)		2.0				2.0	4.4	4.4	2.0	2.0		2.2
Lane Grp Cap (vph)		475	3080	1159		153	2435	587	487	894		172
v/s Ratio Prot		c0.12	c0.46	0.27		0.04	0.32		c0.11	0.06		0.04
v/s Ratio Perm							0.03					
v/c Ratio		0.88	0.96	0.65		0.96	0.83	0.08	0.76	0.22		0.90
Uniform Delay, d1		61.2	36.3	33.9		69.1	40.7	28.7	59.8	38.9		68.5
Progression Factor		1.09	0.80	1.12		1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		12.6	6.8	0.7		60.4	3.4	0.3	6.3	0.0		39.5
Delay (s)		79.2	35.9	38.8		129.6	44.1	29.0	66.1	38.9		107.9
Level of Service		E	D	D		F	D	C	E	D		F
Approach Delay (s)			40.8				48.8			55.1		
Approach LOS			D				D			E		
Intersection Summary												
HCM 2000 Control Delay			46.9			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			145.0			Sum of lost time (s)				22.2		
Intersection Capacity Utilization			94.9%			ICU Level of Service				F		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis Horizon Year Plus Project Without Event Conditions
 3: Frazee Rd & Friars Rd PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑	↑↑
Traffic Volume (vph)	80	380
Future Volume (vph)	80	380
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.9	4.9
Lane Util. Factor	1.00	0.88
Frbp, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1863	2750
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1863	2750
Peak-hour factor, PHF	0.89	0.89
Adj. Flow (vph)	90	427
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	90	427
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		1
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	29.0	29.0
Effective Green, g (s)	29.0	29.0
Actuated g/C Ratio	0.20	0.20
Clearance Time (s)	4.9	4.9
Vehicle Extension (s)	2.3	2.3
Lane Grp Cap (vph)	372	550
v/s Ratio Prot	0.05	
v/s Ratio Perm		c0.16
v/c Ratio	0.24	0.78
Uniform Delay, d1	48.8	54.9
Progression Factor	1.00	1.00
Incremental Delay, d2	0.2	6.4
Delay (s)	49.0	61.3
Level of Service	D	E
Approach Delay (s)	70.4	
Approach LOS	E	
Intersection Summary		

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions

4: Mission Center Rd & Friars Rd WB

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↶		↶	↷			↷	↶
Traffic Volume (veh/h)	0	0	0	239	10	295	10	230	880	0	0	1212	340
Future Volume (veh/h)	0	0	0	239	10	295	10	230	880	0	0	1212	340
Initial Q (Qb), veh				0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00		1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No			No
Adj Sat Flow, veh/h/ln				1870	1870	1870		1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				256	0	179		240	917	0	0	1262	292
Peak Hour Factor				0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2		2	2	0	0	2	2
Cap, veh/h				488	0	217		303	2699	0	0	2242	966
Arrive On Green				0.27	0.00	0.27		0.18	1.00	0.00	0.00	0.63	0.63
Sat Flow, veh/h				3563	0	1585		3456	3647	0	0	3647	1530
Grp Volume(v), veh/h				256	0	179		240	917	0	0	1262	292
Grp Sat Flow(s),veh/h/ln				1781	0	1585		1728	1777	0	0	1777	1530
Q Serve(g_s), s				6.6	0.0	11.4		7.2	0.0	0.0	0.0	21.9	9.4
Cycle Q Clear(g_c), s				6.6	0.0	11.4		7.2	0.0	0.0	0.0	21.9	9.4
Prop In Lane				1.00		1.00		1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				488	0	217		303	2699	0	0	2242	966
V/C Ratio(X)				0.52	0.00	0.82		0.79	0.34	0.00	0.00	0.56	0.30
Avail Cap(c_a), veh/h				1013	0	451		579	2699	0	0	2242	966
HCM Platoon Ratio				2.00	2.00	2.00		2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00		0.55	0.55	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				36.2	0.0	38.0		43.6	0.0	0.0	0.0	11.4	9.1
Incr Delay (d2), s/veh				0.9	0.0	7.7		1.0	0.2	0.0	0.0	1.0	0.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.6	0.0	4.2		2.8	0.1	0.0	0.0	7.9	3.0
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh				37.1	0.0	45.7		44.6	0.2	0.0	0.0	12.4	9.9
LnGrp LOS				D	A	D		D	A	A	A	B	A
Approach Vol, veh/h					435				1157			1554	
Approach Delay, s/veh					40.6				9.4			12.0	
Approach LOS					D				A			B	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		88.3			13.9	74.5		19.7					
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9					
Max Green Setting (Gmax), s		* 67			18.1	43.6		30.7					
Max Q Clear Time (g_c+I1), s		2.0			9.2	23.9		13.4					
Green Ext Time (p_c), s		6.2			0.3	14.5		1.3					

Intersection Summary

HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 5: Mission Center Rd & Friars Rd EB PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	10	310	0	0	0	0	730	471	562	889	0
Future Volume (veh/h)	380	10	310	0	0	0	0	730	471	562	889	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	408	0	204				0	768	412	592	936	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	570	0	254				0	757	404	1204	2633	0
Arrive On Green	0.16	0.00	0.16				0.00	0.34	0.34	0.70	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2298	1176	3456	3647	0
Grp Volume(v), veh/h	408	0	204				0	618	562	592	936	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1604	1728	1777	0
Q Serve(g_s), s	11.7	0.0	13.4				0.0	37.1	37.1	8.5	0.0	0.0
Cycle Q Clear(g_c), s	11.7	0.0	13.4				0.0	37.1	37.1	8.5	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.73	1.00		0.00
Lane Grp Cap(c), veh/h	570	0	254				0	610	551	1204	2633	0
V/C Ratio(X)	0.72	0.00	0.80				0.00	1.01	1.02	0.49	0.36	0.00
Avail Cap(c_a), veh/h	976	0	434				0	610	551	1204	2633	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.69	0.69	0.00
Uniform Delay (d), s/veh	43.0	0.0	43.7				0.0	35.5	35.5	12.0	0.0	0.0
Incr Delay (d2), s/veh	1.7	0.0	5.9				0.0	39.7	43.4	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	5.5				0.0	21.9	20.4	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.7	0.0	49.6				0.0	75.2	78.8	12.0	0.1	0.0
LnGrp LOS	D	A	D				A	F	F	B	A	A
Approach Vol, veh/h		612						1180			1528	
Approach Delay, s/veh		46.4						76.9			4.7	
Approach LOS		D						E			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	43.4	42.4	22.2	85.8								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	26.7	* 37	29.6	67.7								
Max Q Clear Time (g_c+110), s	110.5	39.1	15.4	2.0								
Green Ext Time (p_c), s	1.0	0.0	1.9	9.7								

Intersection Summary

HCM 6th Ctrl Delay	38.1
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 6: Qualcomm Way & Friars Rd WB PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖ ↗	↔		↖ ↗	↕			↕	↗
Traffic Volume (veh/h)	0	0	0	532	10	80	670	110	0	0	237	20
Future Volume (veh/h)	0	0	0	532	10	80	670	110	0	0	237	20
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				621	0	0	698	115	0	0	247	2
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				733	385	0	1168	2378	0	0	959	416
Arrive On Green				0.21	0.00	0.00	0.34	0.67	0.00	0.00	0.27	0.27
Sat Flow, veh/h				3563	1870	0	3456	3647	0	0	3647	1541
Grp Volume(v), veh/h				621	0	0	698	115	0	0	247	2
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1728	1777	0	0	1777	1541
Q Serve(g_s), s				13.4	0.0	0.0	13.4	0.9	0.0	0.0	4.4	0.1
Cycle Q Clear(g_c), s				13.4	0.0	0.0	13.4	0.9	0.0	0.0	4.4	0.1
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				733	385	0	1168	2378	0	0	959	416
V/C Ratio(X)				0.85	0.00	0.00	0.60	0.05	0.00	0.00	0.26	0.00
Avail Cap(c_a), veh/h				1251	657	0	1168	2378	0	0	959	416
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.97	0.97	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				30.6	0.0	0.0	22.0	4.5	0.0	0.0	22.9	21.3
Incr Delay (d2), s/veh				1.1	0.0	0.0	0.9	0.0	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.5	0.0	0.0	5.2	0.3	0.0	0.0	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				31.6	0.0	0.0	22.8	4.6	0.0	0.0	23.1	21.4
LnGrp LOS				C	A	A	C	A	A	A	C	C
Approach Vol, veh/h					621			813			249	
Approach Delay, s/veh					31.6			20.3			23.0	
Approach LOS					C			C			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		58.6			32.1	26.5		21.4				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+11), s		2.9			15.4	6.4		15.4				
Green Ext Time (p_c), s		0.8			1.7	1.0		1.1				

Intersection Summary

HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 7: Qualcomm Way & Friars Rd EB PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	10	410	0	0	0	0	680	470	123	787	0
Future Volume (veh/h)	70	10	410	0	0	0	0	680	470	123	787	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No					No		No			
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	86	0	387				0	756	185	137	874	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	962	0	428				0	3147	774	210	2150	0
Arrive On Green	0.27	0.00	0.27				0.00	0.49	0.49	0.12	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	6696	1583	3456	3647	0
Grp Volume(v), veh/h	86	0	387				0	756	185	137	874	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1609	1583	1728	1777	0
Q Serve(g_s), s	1.4	0.0	18.9				0.0	5.4	5.4	3.0	0.0	0.0
Cycle Q Clear(g_c), s	1.4	0.0	18.9				0.0	5.4	5.4	3.0	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	962	0	428				0	3147	774	210	2150	0
V/C Ratio(X)	0.09	0.00	0.90				0.00	0.24	0.24	0.65	0.41	0.00
Avail Cap(c_a), veh/h	1519	0	676				0	3147	774	436	2150	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.81	0.81	0.72	0.72	0.00
Uniform Delay (d), s/veh	21.8	0.0	28.2				0.0	11.8	11.8	34.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	7.3				0.0	0.1	0.6	0.9	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	7.4				0.0	1.8	1.9	1.2	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.9	0.0	35.5				0.0	12.0	12.4	35.2	0.4	0.0
LnGrp LOS	C	A	D				A	B	B	D	A	A
Approach Vol, veh/h		473						941			1011	
Approach Delay, s/veh		33.0						12.1			5.1	
Approach LOS		C						B			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	9.3	44.2	26.5	53.5								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.5	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	15.0	7.4	20.9	2.0								
Green Ext Time (p_c), s	0.1	5.5	0.7	4.4								

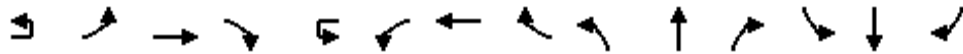
Intersection Summary

HCM 6th Ctrl Delay	13.3
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 8: River Run Dr & Friars Rd PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑ ↑ ↑	↑ ↑ ↑	↑		↑ ↑ ↑	↑ ↑ ↑			↑	↑		↑ ↓		
Traffic Volume (veh/h)	20	20	2715	160	10	78	1771	28	80	10	152	225	20	90	
Future Volume (veh/h)	20	20	2715	160	10	78	1771	28	80	10	152	225	20	90	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	1.00		0.98	0.98		0.98	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		21	2799	139		80	1826	28	82	10	43	232	21	82	
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2	
Cap, veh/h		237	2273	703		237	2306	35	415	48	475	294	23	88	
Arrive On Green		0.13	0.45	0.45		0.13	0.45	0.45	0.31	0.31	0.31	0.31	0.31	0.31	
Sat Flow, veh/h		1781	5106	1580		1781	5179	79	1187	156	1546	811	73	287	
Grp Volume(v), veh/h		21	2799	139		80	1200	654	92	0	43	335	0	0	
Grp Sat Flow(s),veh/h/ln		1781	1702	1580		1781	1702	1854	1343	0	1546	1171	0	0	
Q Serve(g_s), s		1.4	60.1	7.2		5.5	40.8	40.8	0.0	0.0	2.7	31.6	0.0	0.0	
Cycle Q Clear(g_c), s		1.4	60.1	7.2		5.5	40.8	40.8	6.8	0.0	2.7	38.4	0.0	0.0	
Prop In Lane		1.00		1.00		1.00		0.04	0.89		1.00	0.69		0.24	
Lane Grp Cap(c), veh/h		237	2273	703		237	1515	825	463	0	475	404	0	0	
V/C Ratio(X)		0.09	1.23	0.20		0.34	0.79	0.79	0.20	0.00	0.09	0.83	0.00	0.00	
Avail Cap(c_a), veh/h		237	2273	703		237	1515	825	504	0	522	448	0	0	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		0.80	0.80	0.80	1.00	0.00	1.00	1.00	0.00	0.00	
Uniform Delay (d), s/veh		51.3	37.5	22.8		53.1	32.1	32.1	34.7	0.0	33.4	49.0	0.0	0.0	
Incr Delay (d2), s/veh		0.1	108.2	0.6		0.2	3.5	6.2	0.2	0.0	0.1	11.7	0.0	0.0	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		0.6	46.3	2.8		2.4	16.7	18.9	2.3	0.0	1.0	12.3	0.0	0.0	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		51.4	145.6	23.4		53.4	35.6	38.3	34.9	0.0	33.4	60.7	0.0	0.0	
LnGrp LOS		D	F	C		D	D	D	C	A	C	E	A	A	
Approach Vol, veh/h		2959				1934				135				335	
Approach Delay, s/veh		139.2				37.2				34.4				60.7	
Approach LOS		F				D				C				E	
Timer - Assigned Phs	1	2	4		5	6	8								
Phs Duration (G+Y+Rc), s	22.4	66.3	46.3		22.4	66.3	46.3								
Change Period (Y+Rc), s	4.4	6.2	4.9		4.4	6.2	4.9								
Max Green Setting (Gmax), s	13.8	60.1	45.6		13.8	60.1	45.6								
Max Q Clear Time (g_c+1), s	17.5	62.1	40.4		3.4	42.8	8.8								
Green Ext Time (p_c), s	0.0	0.0	1.1		0.0	16.5	0.6								

Intersection Summary

HCM 6th Ctrl Delay	94.9
HCM 6th LOS	F

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 9: Fenton Pkwy & Friars Rd PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗		↔↔	↑↑↑	↗	↔↔	↑	↗	↔↔	↗	↗
Traffic Volume (veh/h)	150	2750	372	10	250	1476	80	320	56	420	40	22	70
Future Volume (veh/h)	150	2750	372	10	250	1476	80	320	56	420	40	22	70
Initial Q (Qb), veh	15	25	15		0	0	0	0	0	15	15	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	2835	306		258	1522	45	330	58	231	41	23	9
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	253	2147	1134		303	2618	871	756	425	342	132	90	200
Arrive On Green	0.06	0.55	0.55		0.18	1.00	1.00	0.16	0.19	0.19	0.02	0.05	0.05
Sat Flow, veh/h	3456	5106	1585		3456	5106	1565	3456	1870	1580	3563	1870	1557
Grp Volume(v), veh/h	155	2835	306		258	1522	45	330	58	231	41	23	9
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1565	1728	1870	1580	1781	1870	1557
Q Serve(g_s), s	6.0	75.1	3.9		9.8	0.0	0.0	12.0	3.5	18.9	1.5	1.6	0.5
Cycle Q Clear(g_c), s	6.0	75.1	3.9		9.8	0.0	0.0	12.0	3.5	18.9	1.5	1.6	0.5
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	253	2147	1134		303	2618	871	756	425	342	132	90	200
V/C Ratio(X)	0.61	1.32	0.27		0.85	0.58	0.05	0.44	0.14	0.68	0.31	0.26	0.05
Avail Cap(c_a), veh/h	384	2821	1131		333	2964	945	556	545	460	280	470	486
HCM Platoon Ratio	1.00	1.00	1.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09		0.81	0.81	0.81	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.3	39.4	2.1		55.2	3.9	2.4	46.3	42.1	51.2	64.9	62.4	26.8
Incr Delay (d2), s/veh	0.1	144.5	0.1		13.5	0.8	0.1	0.0	0.1	1.0	0.5	6.7	0.4
Initial Q Delay(d3),s/veh	65.6	41.9	1.7		0.0	0.0	0.0	0.0	0.0	42.8	134.6	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	59.7	2.7		4.4	1.6	0.1	4.9	1.6	13.8	4.2	0.9	0.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	127.9	225.8	3.9		68.8	4.7	2.5	46.3	42.1	95.0	200.0	69.1	27.2
LnGrp LOS	F	F	A		E	A	A	D	D	F	F	E	C
Approach Vol, veh/h		3296				1825			619			73	
Approach Delay, s/veh		200.6				13.7			64.1			137.4	
Approach LOS		F				B			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	6.3	81.4	26.8	11.5	12.5	85.2	7.6	30.7					
Change Period (Y+Rc), s	4.4	6.3	4.9	*4.9	4.4	*6.3	4.4	4.9					
Max Green Setting (Gmax), s	13.1	52.6	16.1	*34	15.1	*51	10.7	39.6					
Max Q Clear Time (g_c+ll), s	11.8	77.1	14.0	3.6	8.0	2.0	3.5	20.9					
Green Ext Time (p_c), s	0.1	0.0	0.2	0.3	0.1	38.6	0.0	3.6					

Intersection Summary

HCM 6th Ctrl Delay	126.6
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 10: Northside Dr & Friars Rd PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↑↑↑	↔	↔↔	↑↑↑	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	10	160	2650	250	545	1486	225	210	40	811	111	30	100
Future Volume (veh/h)	10	160	2650	250	545	1486	225	210	40	811	111	30	100
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		172	2849	269	586	1598	153	226	43	791	119	32	5
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		220	2392	731	409	2672	897	280	407	529	170	347	294
Arrive On Green		0.13	0.94	0.94	0.24	1.00	1.00	0.08	0.22	0.22	0.05	0.19	0.19
Sat Flow, veh/h		3456	5106	1561	3456	5106	1565	3456	1870	1568	3456	1870	1585
Grp Volume(v), veh/h		172	2849	269	586	1598	153	226	43	791	119	32	5
Grp Sat Flow(s),veh/h/ln		1728	1702	1561	1728	1702	1565	1728	1870	1568	1728	1870	1585
Q Serve(g_s), s		6.6	63.7	2.3	16.1	0.0	0.0	8.7	2.5	29.6	4.6	1.9	0.4
Cycle Q Clear(g_c), s		6.6	63.7	2.3	16.1	0.0	0.0	8.7	2.5	29.6	4.6	1.9	0.4
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		220	2392	731	409	2672	897	280	407	529	170	347	294
V/C Ratio(X)		0.78	1.19	0.37	1.43	0.60	0.17	0.81	0.11	1.50	0.70	0.09	0.02
Avail Cap(c_a), veh/h		307	2392	731	409	2672	897	483	407	529	483	407	345
HCM Platoon Ratio		2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.09	0.09	0.09	0.82	0.82	0.82	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		58.5	4.3	2.3	51.9	0.0	0.0	61.4	42.6	45.2	63.7	45.9	45.2
Incr Delay (d2), s/veh		0.5	86.3	0.1	205.9	0.8	0.3	2.1	0.3	232.9	2.0	0.5	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.7	20.8	0.6	17.6	0.2	0.1	4.0	1.2	52.1	2.1	1.0	0.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		59.0	90.6	2.5	257.8	0.8	0.3	63.6	42.9	278.1	65.6	46.4	45.3
LnGrp LOS		E	F	A	F	A	A	E	D	F	E	D	D
Approach Vol, veh/h			3290			2337			1060			156	
Approach Delay, s/veh			81.8			65.2			222.9			61.0	
Approach LOS			F			E			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	20.5	69.9	15.4	30.2	13.0	77.4	11.1	34.5					
Change Period (Y+Rc), s	4.4	* 6.2	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	10.5	* 52	19.0	29.6	12.1	55.4	19.0	29.6					
Max Q Clear Time (g_c+11g), s	11.0	65.7	10.7	3.9	8.6	2.0	6.6	31.6					
Green Ext Time (p_c), s	0.0	0.0	0.3	0.4	0.1	39.4	0.1	0.0					

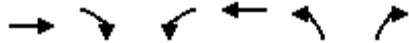
Intersection Summary

HCM 6th Ctrl Delay	97.5
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
 User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 11: Stadium Way (Street A) & Friars Rd PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖↖	↑↑↑	↖↖	↗↗
Traffic Volume (veh/h)	3348	194	193	1999	266	614
Future Volume (veh/h)	3348	194	193	1999	266	614
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3524	156	203	2104	280	646
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	3454	1048	432	4280	305	595
Arrive On Green	1.00	1.00	0.13	0.84	0.09	0.09
Sat Flow, veh/h	5274	1549	3456	5274	3456	2790
Grp Volume(v), veh/h	3524	156	203	2104	280	646
Grp Sat Flow(s),veh/h/ln	1702	1549	1728	1702	1728	1395
Q Serve(g_s), s	92.0	0.0	7.4	15.4	10.9	12.0
Cycle Q Clear(g_c), s	92.0	0.0	7.4	15.4	10.9	12.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3454	1048	432	4280	305	595
V/C Ratio(X)	1.02	0.15	0.47	0.49	0.92	1.09
Avail Cap(c_a), veh/h	3454	1048	432	4280	305	595
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	55.3	3.0	61.5	53.5
Incr Delay (d2), s/veh	11.1	0.0	0.8	0.4	31.3	62.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	3.2	3.2	6.2	8.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.1	0.0	56.1	3.4	92.8	115.9
LnGrp LOS	F	A	E	A	F	F
Approach Vol, veh/h	3680			2307	926	
Approach Delay, s/veh	10.6			8.1	108.9	
Approach LOS	B			A	F	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	22.0	97.0			119.0	17.0
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	92.0	92.0			114.0	12.0
Max Q Clear Time (g_c+19.4), s	94.0	94.0			17.4	14.0
Green Ext Time (p_c), s	0.4	0.0			32.4	0.0
Intersection Summary						
HCM 6th Ctrl Delay			22.9			
HCM 6th LOS			C			

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 12: Mission Village Dr & Friars Rd WB PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↶	↶↷	↶↷			↶↷	↶
Traffic Volume (veh/h)	0	0	0	616	0	364	420	731	0	0	1511	563
Future Volume (veh/h)	0	0	0	616	0	364	420	731	0	0	1511	563
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				642	0	201	438	761	0	0	1574	483
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				702	0	311	647	2595	0	0	1751	769
Arrive On Green				0.39	0.00	0.39	0.37	1.00	0.00	0.00	0.49	0.49
Sat Flow, veh/h				3563	0	1578	3456	3647	0	0	3647	1561
Grp Volume(v), veh/h				642	0	201	438	761	0	0	1574	483
Grp Sat Flow(s),veh/h/ln				1781	0	1578	1728	1777	0	0	1777	1561
Q Serve(g_s), s				23.9	0.0	14.5	14.9	0.0	0.0	0.0	56.5	31.8
Cycle Q Clear(g_c), s				23.9	0.0	14.5	14.9	0.0	0.0	0.0	56.5	31.8
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				702	0	311	647	2595	0	0	1751	769
V/C Ratio(X)				0.92	0.00	0.65	0.68	0.29	0.00	0.00	0.90	0.63
Avail Cap(c_a), veh/h				893	0	396	647	2595	0	0	1751	769
HCM Platoon Ratio				2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.93	0.93	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				41.3	0.0	38.5	40.2	0.0	0.0	0.0	32.3	26.1
Incr Delay (d2), s/veh				10.5	0.0	1.0	2.2	0.3	0.0	0.0	7.8	3.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				9.3	0.0	4.7	5.4	0.1	0.0	0.0	24.7	12.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				51.8	0.0	39.5	42.4	0.3	0.0	0.0	40.1	29.9
LnGrp LOS				D	A	D	D	A	A	A	D	C
Approach Vol, veh/h					843			1199			2057	
Approach Delay, s/veh					48.9			15.6			37.7	
Approach LOS					D			B			D	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		107.5			31.5	76.0		32.5				
Change Period (Y+Rc), s		5.3			5.3	7.0		4.9				
Max Green Setting (Gmax), s		94.7			18.7	69.0		35.1				
Max Q Clear Time (g_c+I1), s		2.0			16.9	58.5		25.9				
Green Ext Time (p_c), s		3.3			0.2	8.9		1.3				

Intersection Summary

HCM 6th Ctrl Delay	33.6
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM Signalized Intersection Capacity Analysis
 13: Mission Village Dr/Street D & Friars Rd EB

HY Plus Project Without Event Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗↘					↑↑↑	↗↘	↗↘	↑↑	
Traffic Volume (vph)	339	10	642	0	0	0	0	834	1040	518	1619	0
Future Volume (vph)	339	10	642	0	0	0	0	834	1040	518	1619	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.2	5.2					4.9	4.9	6.2	6.2	
Lane Util. Factor		1.00	0.88					0.91	0.88	0.97	0.95	
Frbp, ped/bikes		1.00	0.99					1.00	0.96	1.00	1.00	
Flpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1777	2748					5085	2680	3433	3539	
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1777	2748					5085	2680	3433	3539	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	357	11	676	0	0	0	0	878	1095	545	1704	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	368	676	0	0	0	0	878	1095	545	1704	0
Confl. Peds. (#/hr)			1						4			4
Confl. Bikes (#/hr)			1									
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		37.6	37.6					62.4	62.4	23.7	91.0	
Effective Green, g (s)		37.6	37.6					62.4	62.4	23.7	91.0	
Actuated g/C Ratio		0.27	0.27					0.45	0.45	0.17	0.65	
Clearance Time (s)		5.2	5.2					4.9	4.9	6.2	6.2	
Vehicle Extension (s)		3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		477	738					2266	1194	581	2300	
v/s Ratio Prot		0.21						0.17		c0.16	0.48	
v/s Ratio Perm			c0.25						c0.41			
v/c Ratio		0.77	0.92					0.39	0.92	0.94	0.74	
Uniform Delay, d1		47.2	49.7					26.0	36.4	57.4	16.5	
Progression Factor		1.00	1.00					0.59	0.46	1.16	0.27	
Incremental Delay, d2		7.6	16.0					0.2	6.4	15.1	1.2	
Delay (s)		54.8	65.7					15.5	23.3	81.9	5.7	
Level of Service		D	E					B	C	F	A	
Approach Delay (s)		61.8			0.0			19.8			24.1	
Approach LOS		E			A			B			C	
Intersection Summary												
HCM 2000 Control Delay			30.0		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			140.0		Sum of lost time (s)				16.3			
Intersection Capacity Utilization			86.2%		ICU Level of Service				E			
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 14: Street D & Street 4

PM Peak Hour
































Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	4	4	76	8	259	8	1579	193	1111	1084	66
Future Volume (veh/h)	44	4	4	76	8	259	8	1579	193	1111	1084	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.95	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	4	0	80	8	273	8	1662	192	1169	1141	47
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	156	0	64	160	1250	14	1719	198	1269	2596	1125
Arrive On Green	0.03	0.08	0.00	0.04	0.09	0.09	0.01	0.37	0.37	0.61	1.00	1.00
Sat Flow, veh/h	1781	1870	0	1781	1870	2640	1781	4631	533	3456	3554	1540
Grp Volume(v), veh/h	46	4	0	80	8	273	8	1220	634	1169	1141	47
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1781	1870	1320	1781	1702	1760	1728	1777	1540
Q Serve(g_s), s	3.6	0.3	0.0	5.0	0.5	8.8	0.6	49.2	49.5	42.1	0.0	0.0
Cycle Q Clear(g_c), s	3.6	0.3	0.0	5.0	0.5	8.8	0.6	49.2	49.5	42.1	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	59	156	0	64	160	1250	14	1263	653	1269	2596	1125
V/C Ratio(X)	0.77	0.03	0.00	1.26	0.05	0.22	0.59	0.97	0.97	0.92	0.44	0.04
Avail Cap(c_a), veh/h	115	468	0	64	414	1609	89	1264	654	1269	2596	1125
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.51	0.51	0.51
Uniform Delay (d), s/veh	67.1	59.0	0.0	67.5	58.8	23.4	69.2	43.2	43.3	25.3	0.0	0.0
Incr Delay (d2), s/veh	18.9	0.1	0.0	197.1	0.1	0.1	34.4	17.7	27.8	6.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.1	0.0	5.8	0.3	2.8	0.4	23.6	26.4	14.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.1	59.0	0.0	264.6	58.9	23.5	103.6	60.9	71.0	31.6	0.1	0.0
LnGrp LOS	F	E	A	F	E	C	F	E	E	C	A	A
Approach Vol, veh/h		50			361			1862			2357	
Approach Delay, s/veh		83.9			77.7			64.5			15.7	
Approach LOS		F			E			E			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	56.4	57.0	10.0	16.6	6.1	107.3	9.7	17.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	28.0	52.0	5.0	35.0	7.0	73.0	9.0	31.0				
Max Q Clear Time (g_c+Rc), s	44.1	51.5	7.0	2.3	2.6	2.0	5.6	10.8				
Green Ext Time (p_c), s	0.0	0.4	0.0	0.0	0.0	12.2	0.0	1.1				

Intersection Summary

HCM 6th Ctrl Delay	40.9
HCM 6th LOS	D

HCM Signalized Intersection Capacity Analysis
15: Street F & Street 4

HY Plus Project Without Event Conditions
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 			 	 		 	 		 	 	 
Traffic Volume (vph)	1222	21	4	5	8	21	8	222	4	82	356	307
Future Volume (vph)	1222	21	4	5	8	21	8	222	4	82	356	307
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	2.1	4.5
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.88
Frbp, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.89		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1807		1770	1622		1770	1856		1770	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	1807		1770	1622		1770	1856		1770	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1328	23	4	5	9	23	9	241	4	89	387	334
RTOR Reduction (vph)	0	2	0	0	20	0	0	1	0	0	0	0
Lane Group Flow (vph)	1328	25	0	5	12	0	9	244	0	89	387	334
Confl. Peds. (#/hr)			10			10			10			
Confl. Bikes (#/hr)			3			3			3			3
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	7	4		3	8		5	2		1	6 9	7 9
Permitted Phases												
Actuated Green, G (s)	69.6	84.1		1.0	15.5		1.0	26.6		10.3	35.9	82.4
Effective Green, g (s)	69.6	84.1		1.0	15.5		1.0	26.6		10.3	35.9	82.4
Actuated g/C Ratio	0.50	0.60		0.01	0.11		0.01	0.19		0.07	0.26	0.59
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)	1706	1085		12	179		12	352		130	477	1640
v/s Ratio Prot	c0.39	0.01		0.00	c0.01		0.01	0.13		c0.05	c0.21	0.12
v/s Ratio Perm												
v/c Ratio	0.78	0.02		0.42	0.06		0.75	0.69		0.68	0.81	0.20
Uniform Delay, d1	28.9	11.3		69.2	55.8		69.4	52.9		63.3	48.9	13.5
Progression Factor	0.83	0.24		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.5	0.0		21.8	0.2		128.3	5.8		13.9	9.6	0.1
Delay (s)	25.4	2.8		91.0	55.9		197.6	58.7		77.2	58.5	13.5
Level of Service	C	A		F	E		F	E		E	E	B
Approach Delay (s)		25.0			60.6			63.6			42.0	
Approach LOS		C			E			E			D	
Intersection Summary												
HCM 2000 Control Delay			35.1									HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			140.0									Sum of lost time (s) 20.1
Intersection Capacity Utilization			75.3%									ICU Level of Service D
Analysis Period (min)			15									
c Critical Lane Group												

Intersection					
Intersection Delay, s/veh 9.3					
Intersection LOS A					
Approach	EB		WB		NB
Entry Lanes	2		2		1
Conflicting Circle Lanes	2		2		2
Adj Approach Flow, veh/h	1593		759		149
Demand Flow Rate, veh/h	1625		774		152
Vehicles Circulating, veh/h	52		104		1525
Vehicles Exiting, veh/h	826		1573		152
Ped Vol Crossing Leg, #/h	0		0		0
Ped Cap Adj	1.000		1.000		1.000
Approach Delay, s/veh	10.2		5.7		17.4
Approach LOS	B		A		C
Lane	Left	Right	Left	Right	Left
Designated Moves	LT	TR	LT	TR	LR
Assumed Moves	LT	TR	LT	TR	LR
RT Channelized					
Lane Util	0.470	0.530	0.470	0.530	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328
Entry Flow, veh/h	764	861	364	410	152
Cap Entry Lane, veh/h	1287	1359	1227	1300	388
Entry HV Adj Factor	0.980	0.981	0.980	0.981	0.980
Flow Entry, veh/h	749	844	357	402	149
Cap Entry, veh/h	1261	1332	1202	1275	381
V/C Ratio	0.594	0.634	0.297	0.315	0.391
Control Delay, s/veh	9.9	10.4	5.7	5.7	17.4
LOS	A	B	A	A	C
95th %tile Queue, veh	4	5	1	1	2

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 17: I-15 SB Ramps & Friars Rd PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	539	2666	1171	10	309	1680	390	0	0	0	1185	0	639
Future Volume (veh/h)	539	2666	1171	10	309	1680	390	0	0	0	1185	0	639
Initial Q (Qb), veh	20	0	20		20	0	20				0	0	20
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	561	2777	922		322	1750	0				1234	0	662
Peak Hour Factor	0.96	0.96	0.96		0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	784	3632	844		393	1246					1153	0	2338
Arrive On Green	0.40	0.47	0.47		0.19	0.24	0.00				0.32	0.00	0.32
Sat Flow, veh/h	1781	5106	1552		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	561	2777	922		322	1750	0				1234	0	662
Grp Sat Flow(s),veh/h/ln	1781	1702	1552		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	37.4	64.3	64.3		24.2	33.2	0.0				44.0	0.0	0.0
Cycle Q Clear(g_c), s	37.4	64.3	64.3		24.2	33.2	0.0				44.0	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	784	3632	844		393	1246					1153	0	2338
V/C Ratio(X)	0.72	0.76	1.09		0.82	1.40					1.07	0.00	0.28
Avail Cap(c_a), veh/h	716	2414	734		393	1246					1153	0	2300
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.48	0.48	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	33.3	17.0	31.0		53.0	51.4	0.0				46.0	0.0	6.4
Incr Delay (d2), s/veh	3.4	1.6	59.1		6.2	184.2	0.0				47.6	0.0	0.0
Initial Q Delay(d3),s/veh	16.5	0.0	85.3		102.0	0.0	0.0				0.0	0.0	0.7
%ile BackOfQ(50%),veh	20.1	11.9	52.9		24.9	35.0	0.0				27.1	0.0	13.9
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	53.3	18.5	175.3		161.2	235.6	0.0				93.6	0.0	7.1
LnGrp LOS	D	B	F		F	F					F	A	A
Approach Vol, veh/h		4260				2072	A					1896	
Approach Delay, s/veh		57.1				224.0						63.4	
Approach LOS		E				F						E	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	30.6	71.3		49.1	61.7	40.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	30	45.7		44.0	42.0	* 33							
Max Q Clear Time (g_c+20.2), s	20.2	66.3		46.0	39.4	35.2							
Green Ext Time (p_c), s	0.2	0.0		0.0	0.3	0.0							

Intersection Summary

HCM 6th Ctrl Delay	100.6
HCM 6th LOS	F

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 18: I-15 NB Ramps & Friars Rd PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖			↑↑↑			↗					
Traffic Volume (veh/h)	1055	2856	0	0	1278	961	0	0	1429	0	0	1071
Future Volume (veh/h)	1055	2856	0	0	1278	961	0	0	1429	0	0	1071
Initial Q (Qb), veh	40	0	0	0	20	40						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach	No			No								
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	1111	3006	0	0	1319	1029						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	660	0	0	0	1671	1453						
Arrive On Green	0.44	0.93	0.00	0.00	0.44	0.44						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	1111	0	0	0	1319	1029						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	45.0	0.0	0.0	0.0	31.3	27.6						
Cycle Q Clear(g_c), s	45.0	0.0	0.0	0.0	31.3	27.6						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	660	0	0	0	1671	1453						
V/C Ratio(X)	1.68	0.00	0.00	0.00	0.79	0.71						
Avail Cap(c_a), veh/h	787	0	0	0	2350	1992						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	1.00	1.00						
Uniform Delay (d), s/veh	38.3	0.0	0.0	0.0	25.5	25.2						
Incr Delay (d2), s/veh	314.4	0.0	0.0	0.0	0.8	0.3						
Initial Q Delay(d3),s/veh	218.3	0.0	0.0	0.0	4.9	18.7						
%ile BackOfQ(50%),veh/ln	116.1	0.0	0.0	0.0	15.6	16.4						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	570.9	0.0	0.0	0.0	31.2	44.3						
LnGrp LOS	F	A	A	A	C	D						
Approach Vol, veh/h	1111			2348								
Approach Delay, s/veh	570.9			36.9								
Approach LOS	F			D								
Timer - Assigned Phs	2		5			6						
Phs Duration (G+Y+Rc), s	101.9		50.5			51.4						
Change Period (Y+Rc), s	* 7		5.5			7.0						
Max Green Setting (Gmax), s	* 18		45.0			64.0						
Max Q Clear Time (g_c+I1), s	0.0		47.0			33.3						
Green Ext Time (p_c), s	0.0		0.0			11.0						

Intersection Summary

HCM 6th Ctrl Delay	208.4
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 19: Rancho Mission Rd & Friars Rd

PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↵	↑↑↑	↵↵	↑
Traffic Volume (veh/h)	3418	878	10	131	1746	483	263
Future Volume (veh/h)	3418	878	10	131	1746	483	263
Initial Q (Qb), veh	0	0		0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	3560	859		136	1819	503	123
Peak Hour Factor	0.96	0.96		0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	2857	1260		160	4870	603	300
Arrive On Green	0.64	0.64		0.09	0.76	0.16	0.16
Sat Flow, veh/h	5274	1583		1781	6696	3563	1585
Grp Volume(v), veh/h	3560	859		136	1819	503	123
Grp Sat Flow(s),veh/h/ln	1702	1583		1781	1609	1781	1585
Q Serve(g_s), s	86.5	32.9		10.2	13.0	18.8	9.6
Cycle Q Clear(g_c), s	86.5	32.9		10.2	13.0	18.8	9.6
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2857	1260		160	4870	603	300
V/C Ratio(X)	1.25	0.68		0.85	0.37	0.83	0.41
Avail Cap(c_a), veh/h	3247	1260		208	4878	843	375
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.88	0.88	0.48	0.48
Uniform Delay (d), s/veh	30.0	6.2		61.0	5.8	55.4	48.6
Incr Delay (d2), s/veh	113.9	3.0		16.4	0.2	1.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	12.0	0.0
%ile BackOfQ(50%),veh	58.4	22.3		5.3	4.0	10.2	3.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	143.8	9.2		77.4	6.0	69.1	48.7
LnGrp LOS	F	A		E	A	E	D
Approach Vol, veh/h	4419				1955	626	
Approach Delay, s/veh	117.7				11.0	65.1	
Approach LOS	F				B	E	
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	66.6	92.5			109.1	26.9	
Change Period (Y+Rc), s	4.4	* 6			6.0	5.1	
Max Green Setting (Gmax), s	15.9	* 73			92.7	32.2	
Max Q Clear Time (g_c+1/2), s	112.2	88.5			15.0	20.8	
Green Ext Time (p_c), s	0.1	0.0			48.5	1.0	

Intersection Summary

HCM 6th Ctrl Delay	83.2
HCM 6th LOS	F

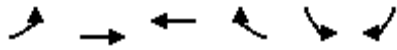
Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions

20: Friars Rd & Santo Rd

PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑↑		↔↔	↔
Traffic Volume (veh/h)	453	3308	1536	110	90	291
Future Volume (veh/h)	453	3308	1536	110	90	291
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1856	1870	1870
Adj Flow Rate, veh/h	472	3446	1600	109	94	297
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	3	3	2	2
Cap, veh/h	537	3752	3338	227	602	523
Arrive On Green	0.16	0.73	0.54	0.54	0.17	0.17
Sat Flow, veh/h	3456	5274	6409	419	3456	1585
Grp Volume(v), veh/h	472	3446	1246	463	94	297
Grp Sat Flow(s),veh/h/ln	1728	1702	1596	1780	1728	1585
Q Serve(g_s), s	16.0	66.0	19.3	19.3	2.8	18.5
Cycle Q Clear(g_c), s	16.0	66.0	19.3	19.3	2.8	18.5
Prop In Lane	1.00			0.24	1.00	1.00
Lane Grp Cap(c), veh/h	537	3752	2599	966	602	523
V/C Ratio(X)	0.88	0.92	0.48	0.48	0.16	0.57
Avail Cap(c_a), veh/h	737	3752	2599	966	734	583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.72	0.72	1.00	1.00
Uniform Delay (d), s/veh	49.6	13.0	16.9	17.0	42.0	33.2
Incr Delay (d2), s/veh	0.7	0.5	0.5	1.2	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	18.9	6.7	7.7	1.2	16.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.3	13.5	17.4	18.2	42.1	33.6
LnGrp LOS	D	B	B	B	D	C
Approach Vol, veh/h		3918	1709		391	
Approach Delay, s/veh		17.9	17.6		35.7	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		94.7		25.3	23.0	71.6
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		83.6		25.5	25.6	* 54
Max Q Clear Time (g_c+I1), s		68.0		20.5	18.0	21.3
Green Ext Time (p_c), s		15.3		0.4	0.6	16.6

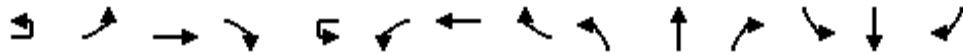
Intersection Summary

HCM 6th Ctrl Delay	19.0
HCM 6th LOS	B

Notes

- User approved pedestrian interval to be less than phase max green.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 21: Riverdale St & Friars Rd PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↑↑↑	↗		↔	↑↑↑	↗	↖	↑	↖	↖	↑	↗
Traffic Volume (veh/h)	30	234	2909	244	10	50	1211	60	223	110	140	60	60	143
Future Volume (veh/h)	30	234	2909	244	10	50	1211	60	223	110	140	60	60	143
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	0.99		0.99	1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1856		1737	1856	1870	1870	1870	1870	1811	1870	1870
Adj Flow Rate, veh/h		241	2999	159		52	1248	25	230	113	92	62	62	51
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	3		11	3	2	2	2	2	6	2	2
Cap, veh/h		272	2832	870		65	2236	700	335	248	202	252	247	203
Arrive On Green		0.15	0.55	0.55		0.04	0.44	0.44	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h		1781	5106	1568		1654	5066	1585	1273	951	774	1135	946	778
Grp Volume(v), veh/h		241	2999	159		52	1248	25	230	0	205	62	0	113
Grp Sat Flow(s),veh/h/ln		1781	1702	1568		1654	1689	1585	1273	0	1725	1135	0	1724
Q Serve(g_s), s		13.9	58.2	5.3		3.3	19.2	0.9	18.3	0.0	10.5	5.1	0.0	5.4
Cycle Q Clear(g_c), s		13.9	58.2	5.3		3.3	19.2	0.9	23.7	0.0	10.5	15.5	0.0	5.4
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.45	1.00		0.45
Lane Grp Cap(c), veh/h		272	2832	870		65	2236	700	335	0	451	252	0	450
V/C Ratio(X)		0.89	1.06	0.18		0.80	0.56	0.04	0.69	0.00	0.45	0.25	0.00	0.25
Avail Cap(c_a), veh/h		324	2832	870		206	2236	700	455	0	613	359	0	612
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.51	0.51	0.51		0.92	0.92	0.92	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		43.6	23.4	11.6		50.0	21.7	16.6	40.0	0.0	32.5	39.0	0.0	30.7
Incr Delay (d2), s/veh		11.4	31.5	0.2		7.5	0.9	0.1	1.1	0.0	0.3	0.2	0.0	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		6.8	28.2	1.7		1.4	7.2	0.3	5.8	0.0	4.4	1.4	0.0	2.3
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		55.0	54.9	11.8		57.5	22.7	16.7	41.1	0.0	32.8	39.2	0.0	30.8
LnGrp LOS		E	F	B		E	C	B	D	A	C	D	A	C
Approach Vol, veh/h			3399				1325			435			175	
Approach Delay, s/veh			52.9				23.9			37.2			33.8	
Approach LOS			D				C			D			C	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	8.5	64.1		32.3	20.4	52.2		32.3						
Change Period (Y+Rc), s	4.4	* 5.9		4.9	4.4	5.9		4.9						
Max Green Setting (Gmax), s	13.5	* 40		37.3	19.1	33.4		37.3						
Max Q Clear Time (g_c+1/3), s	15.3	60.2		17.5	15.9	21.2		25.7						
Green Ext Time (p_c), s	0.0	0.0		0.5	0.1	6.3		1.0						

Intersection Summary

HCM 6th Ctrl Delay	43.8
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 22: Mission Gorge Rd & Friars Rd PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↵↵	↑↑↑		↵	↵↵
Traffic Volume (veh/h)	2611	288	280	1021	10	360	600
Future Volume (veh/h)	2611	288	280	1021	10	360	600
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	2778	0	298	1086		383	637
Peak Hour Factor	0.94	0.94	0.94	0.94		0.94	0.94
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2621		463	0		412	1018
Arrive On Green	0.51	0.00	0.13	0.00		0.23	0.23
Sat Flow, veh/h	5443	0	3456	298		1781	2790
Grp Volume(v), veh/h	2778	0	298	51.6		383	637
Grp Sat Flow(s),veh/h/ln	1702	0	1728	D		1781	1395
Q Serve(g_s), s	61.6	0.0	9.8			25.3	6.5
Cycle Q Clear(g_c), s	61.6	0.0	9.8			25.3	6.5
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2621		463			412	1018
V/C Ratio(X)	1.06		0.64			0.93	0.63
Avail Cap(c_a), veh/h	2621		463			425	1039
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.09	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	29.2	0.0	49.3			45.2	31.4
Incr Delay (d2), s/veh	28.0	0.0	2.4			26.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh	29.5	0.0	4.3			14.1	7.6
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	57.2	0.0	51.6			71.3	32.2
LnGrp LOS	F		D			E	C
Approach Vol, veh/h	2778	A				1020	
Approach Delay, s/veh	57.2					46.9	
Approach LOS	E					D	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	30.5	67.4					32.1
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	61.6					28.6
Max Q Clear Time (g_c+I1), s	11.8	63.6					27.3
Green Ext Time (p_c), s	0.2	0.0					0.5

Intersection Summary

HCM 6th Ctrl Delay	54.2
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 23: Qualcomm Way & Rio San Diego Dr PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗		↖↗	↑↑	↗	↖↗	↑↑↑	↗		↖↗	↑↑↑	
Traffic Volume (veh/h)	316	205	310	20	803	361	340	60	354	151	10	70	907	340
Future Volume (veh/h)	316	205	310	20	803	361	340	60	354	151	10	70	907	340
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		0.99	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	333	216	299		845	380	147	63	373	18		74	955	327
Peak Hour Factor	0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2		2	2	2
Cap, veh/h	396	401	383		820	1199	532	107	1846	571		121	1368	467
Arrive On Green	0.11	0.21	0.21		0.24	0.34	0.34	0.03	0.36	0.36		0.03	0.37	0.37
Sat Flow, veh/h	3456	1870	1556		3456	3554	1577	3456	5106	1580		3456	3741	1279
Grp Volume(v), veh/h	333	216	299		845	380	147	63	373	18		74	869	413
Grp Sat Flow(s),veh/h/ln	1728	1870	1556		1728	1777	1577	1728	1702	1580		1728	1702	1615
Q Serve(g_s), s	11.9	13.0	22.7		30.0	10.0	8.6	2.3	6.4	0.9		2.7	27.5	27.6
Cycle Q Clear(g_c), s	11.9	13.0	22.7		30.0	10.0	8.6	2.3	6.4	0.9		2.7	27.5	27.6
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.79
Lane Grp Cap(c), veh/h	396	401	383		820	1199	532	107	1846	571		121	1244	591
V/C Ratio(X)	0.84	0.54	0.78		1.03	0.32	0.28	0.59	0.20	0.03		0.61	0.70	0.70
Avail Cap(c_a), veh/h	820	591	541		820	1199	532	1639	2422	749		820	1615	766
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	54.9	44.1	44.6		48.2	31.1	30.6	60.5	27.8	26.1		60.2	34.2	34.2
Incr Delay (d2), s/veh	1.9	1.1	4.8		39.6	0.2	0.3	1.9	0.1	0.0		1.9	1.4	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	6.1	9.1		17.1	4.3	3.3	1.0	2.6	0.4		1.2	11.4	11.1
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	56.8	45.2	49.3		87.9	31.3	30.9	62.4	27.9	26.1		62.1	35.6	37.1
LnGrp LOS	E	D	D		F	C	C	E	C	C		E	D	D
Approach Vol, veh/h		848				1372			454				1356	
Approach Delay, s/veh		51.2				66.1			32.6				37.5	
Approach LOS		D				E			C				D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	8.8	50.8	34.4	32.4	8.3	51.3	18.9	48.0						
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3						
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0						
Max Q Clear Time (g_c+1), s	14.5	8.4	32.0	24.7	4.3	29.6	13.9	12.0						
Green Ext Time (p_c), s	0.1	4.0	0.0	2.0	0.1	16.7	0.5	2.9						

Intersection Summary

HCM 6th Ctrl Delay	49.6
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection														
Intersection Delay, s/veh30.8														
Intersection LOS D														

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↖	↕		↖	↕			↕				↕	
Traffic Vol, veh/h	20	170	576	20	15	504	60	20	22	20	20	130	28	110
Future Vol, veh/h	20	170	576	20	15	504	60	20	22	20	20	130	28	110
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	189	640	22	17	560	67	22	24	22	22	144	31	122
Number of Lanes	0	1	2	0	1	2	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	32.3	29.7	14.3	32.4
HCM LOS	D	D	B	D

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	32%	100%	0%	0%	100%	0%	0%	49%
Vol Thru, %	35%	0%	100%	91%	0%	100%	74%	10%
Vol Right, %	32%	0%	0%	9%	0%	0%	26%	41%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	62	190	384	212	15	336	228	288
LT Vol	20	190	0	0	15	0	0	140
Through Vol	22	0	384	192	0	336	168	30
RT Vol	20	0	0	20	0	0	60	118
Lane Flow Rate	69	211	427	236	17	373	253	320
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.182	0.475	0.898	0.491	0.039	0.817	0.541	0.748
Departure Headway (Hd)	9.502	8.093	7.575	7.506	8.399	7.88	7.689	8.41
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	380	443	478	478	425	459	466	429
Service Time	7.202	5.876	5.357	5.288	6.187	5.667	5.476	6.189
HCM Lane V/C Ratio	0.182	0.476	0.893	0.494	0.04	0.813	0.543	0.746
HCM Control Delay	14.3	18.1	47.6	17.4	11.5	37.5	19.3	32.4
HCM Lane LOS	B	C	E	C	B	E	C	D
HCM 95th-tile Q	0.7	2.5	9.9	2.7	0.1	7.7	3.2	6.1

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	10	200	280	146	20	320	270	169	166	13	30	370	133	80
Future Volume (veh/h)	10	200	280	146	20	320	270	169	166	13	30	370	133	80
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99	1.00		0.99	1.00		0.98		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No		No		No		No			No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h		206	289	61	21	330	202	174	171	10		381	137	22
Peak Hour Factor		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97		0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h		380	399	333	30	476	309	217	458	27		496	479	75
Arrive On Green		0.21	0.21	0.21	0.23	0.23	0.23	0.12	0.13	0.13		0.14	0.16	0.16
Sat Flow, veh/h		1781	1870	1565	128	2029	1318	1781	3409	198		3456	3071	483
Grp Volume(v), veh/h		206	289	61	306	0	247	174	89	92		381	78	81
Grp Sat Flow(s),veh/h/ln		1781	1870	1565	1864	0	1611	1781	1777	1830		1728	1777	1778
Q Serve(g_s), s		7.5	10.4	2.3	10.9	0.0	10.1	6.9	3.3	3.3		7.7	2.8	2.9
Cycle Q Clear(g_c), s		7.5	10.4	2.3	10.9	0.0	10.1	6.9	3.3	3.3		7.7	2.8	2.9
Prop In Lane		1.00		1.00	0.07		0.82	1.00		0.11		1.00		0.27
Lane Grp Cap(c), veh/h		380	399	333	437	0	378	217	239	246		496	277	277
V/C Ratio(X)		0.54	0.73	0.18	0.70	0.00	0.65	0.80	0.37	0.38		0.77	0.28	0.29
Avail Cap(c_a), veh/h		983	1032	863	1028	0	889	737	1470	1514		1430	1470	1471
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		25.4	26.6	23.4	25.4	0.0	25.1	31.0	28.6	28.6		29.9	27.0	27.1
Incr Delay (d2), s/veh		0.7	1.6	0.2	0.8	0.0	0.7	2.6	4.4	4.3		1.0	2.5	2.7
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.0	4.4	0.9	4.8	0.0	3.8	3.1	1.7	1.7		3.2	1.4	1.4
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		26.1	28.1	23.5	26.2	0.0	25.8	33.6	33.0	33.0		30.8	29.5	29.7
LnGrp LOS		C	C	C	C	A	C	C	C	C		C	C	C
Approach Vol, veh/h			556			553			355				540	
Approach Delay, s/veh			26.9			26.0			33.3				30.5	
Approach LOS			C			C			C				C	
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	14.8	15.1	20.7	13.2	16.7	21.9								
Change Period (Y+Rc), s	4.4	* 5.4	5.2	4.4	5.4	4.9								
Max Green Setting (Gmax), s	30.0	* 60	40.0	30.0	60.0	40.0								
Max Q Clear Time (g_c+1), s	19.7	5.3	12.4	8.9	4.9	12.9								
Green Ext Time (p_c), s	0.7	4.0	1.6	0.2	3.5	2.5								

Intersection Summary

HCM 6th Ctrl Delay	28.7
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 26: Rancho Mission Rd & San Diego Mission Rd PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	226	757	435	158	307	233	139	293	172	238	265	341
Future Volume (veh/h)	226	757	435	158	307	233	139	293	172	238	265	341
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	238	797	417	166	323	171	146	308	40	251	279	214
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	267	879	457	194	795	412	174	357	296	279	468	389
Arrive On Green	0.15	0.39	0.39	0.11	0.35	0.35	0.10	0.19	0.19	0.16	0.25	0.25
Sat Flow, veh/h	1781	2240	1165	1781	2260	1170	1781	1870	1547	1781	1870	1555
Grp Volume(v), veh/h	238	631	583	166	252	242	146	308	40	251	279	214
Grp Sat Flow(s),veh/h/ln	1781	1777	1628	1781	1777	1654	1781	1870	1547	1781	1870	1555
Q Serve(g_s), s	16.2	41.3	41.8	11.3	13.2	13.7	9.9	19.7	2.6	17.1	16.2	14.8
Cycle Q Clear(g_c), s	16.2	41.3	41.8	11.3	13.2	13.7	9.9	19.7	2.6	17.1	16.2	14.8
Prop In Lane	1.00		0.72	1.00		0.71	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	267	697	639	194	625	582	174	357	296	279	468	389
V/C Ratio(X)	0.89	0.91	0.91	0.85	0.40	0.42	0.84	0.86	0.14	0.90	0.60	0.55
Avail Cap(c_a), veh/h	506	721	660	506	793	738	434	759	628	434	759	631
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.4	35.3	35.4	54.0	30.2	30.3	54.7	48.3	41.4	51.0	40.7	40.2
Incr Delay (d2), s/veh	4.2	15.2	17.2	4.1	0.7	0.8	4.2	2.4	0.1	10.5	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	20.0	18.9	5.2	5.7	5.5	4.6	9.3	1.0	8.3	7.5	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.6	50.4	52.7	58.1	30.9	31.1	58.8	50.7	41.5	61.6	41.2	40.6
LnGrp LOS	E	D	D	E	C	C	E	D	D	E	D	D
Approach Vol, veh/h		1452			660			494			744	
Approach Delay, s/veh		52.2			37.8			52.4			47.9	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.4	53.9	16.0	36.0	22.4	48.9	23.3	28.6				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	* 5.5	4.0	* 5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	* 55	30.0	* 50				
Max Q Clear Time (g_c+1/3), s	11.3	43.8	11.9	18.2	18.2	15.7	19.1	21.7				
Green Ext Time (p_c), s	0.2	4.6	0.2	1.4	0.3	5.3	0.3	1.2				

Intersection Summary

HCM 6th Ctrl Delay	48.4
HCM 6th LOS	D

Notes

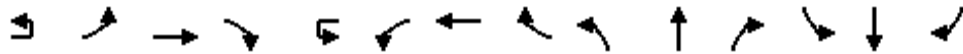
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↕	↗		↕	↗	
Traffic Volume (veh/h)	167	570	438	70	238	30	245	90	80	30	150	131
Future Volume (veh/h)	167	570	438	70	238	30	245	90	80	30	150	131
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	186	633	335	78	264	29	272	100	65	33	167	122
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	195	540	1081	54	784	95	311	183	119	337	190	139
Arrive On Green	0.52	0.52	0.52	0.52	0.52	0.52	0.17	0.17	0.17	0.19	0.19	0.19
Sat Flow, veh/h	301	1040	1548	0	1509	182	1781	1047	680	1781	1002	732
Grp Volume(v), veh/h	819	0	335	105	0	266	272	0	165	33	0	289
Grp Sat Flow(s),veh/h/ln	1341	0	1548	22	0	1669	1781	0	1727	1781	0	1734
Q Serve(g_s), s	49.5	0.0	9.8	0.0	0.0	10.5	17.2	0.0	10.1	1.8	0.0	18.7
Cycle Q Clear(g_c), s	60.0	0.0	9.8	60.0	0.0	10.5	17.2	0.0	10.1	1.8	0.0	18.7
Prop In Lane	0.23		1.00	0.74		0.11	1.00		0.39	1.00		0.42
Lane Grp Cap(c), veh/h	735	0	1081	66	0	867	311	0	301	337	0	328
V/C Ratio(X)	1.11	0.00	0.31	1.60	0.00	0.31	0.88	0.00	0.55	0.10	0.00	0.88
Avail Cap(c_a), veh/h	735	0	1081	66	0	867	617	0	598	617	0	601
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	33.9	0.0	6.9	47.5	0.0	15.9	46.5	0.0	43.5	38.7	0.0	45.6
Incr Delay (d2), s/veh	69.4	0.0	0.1	331.5	0.0	0.2	3.1	0.0	0.6	0.0	0.0	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh	4.2	0.0	5.2	8.0	0.0	4.1	7.8	0.0	4.4	0.8	0.0	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	103.3	0.0	7.1	379.0	0.0	16.1	49.5	0.0	44.1	38.7	0.0	48.6
LnGrp LOS	F	A	A	F	A	B	D	A	D	D	A	D
Approach Vol, veh/h		1154			371			437			322	
Approach Delay, s/veh		75.4			118.9			47.5			47.6	
Approach LOS		E			F			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		64.5		26.4		64.5		24.7				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		62.0		20.7		62.0		19.2				
Green Ext Time (p_c), s		0.0		1.1		0.0		1.0				
Intersection Summary												
HCM 6th Ctrl Delay												73.2
HCM 6th LOS												E

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 28: Qualcomm Way & Camino de la Reina/Camino del Rio N PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		🚗	🚗	🚗		🚗	🚗	🚗	🚗	🚗	🚗	🚗	🚗	🚗	
Traffic Volume (veh/h)	10	138	457	320	10	485	212	142	183	636	321	303	1198	149	
Future Volume (veh/h)	10	138	457	320	10	485	212	142	183	636	321	303	1198	149	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.98	1.00		0.98	1.00		0.98	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1841	1870	1856	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		142	503	246		500	219	23	189	656	275	312	1235	146	
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %		2	2	2		2	4	2	3	2	2	2	2	2	
Cap, veh/h		159	498	310		524	683	303	225	2645	807	316	2512	297	
Arrive On Green		0.09	0.13	0.13		0.15	0.20	0.20	0.02	0.17	0.17	0.09	0.54	0.54	
Sat Flow, veh/h		1781	3741	1550		3456	3497	1549	3428	5106	1558	3456	4619	546	
Grp Volume(v), veh/h		142	503	246		500	219	23	189	656	275	312	910	471	
Grp Sat Flow(s),veh/h/ln		1781	1870	1550		1728	1749	1549	1714	1702	1558	1728	1702	1761	
Q Serve(g_s), s		15.8	26.6	26.6		28.7	10.8	2.4	11.0	22.2	31.1	18.0	33.3	33.3	
Cycle Q Clear(g_c), s		15.8	26.6	26.6		28.7	10.8	2.4	11.0	22.2	31.1	18.0	33.3	33.3	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.31	
Lane Grp Cap(c), veh/h		159	498	310		524	683	303	225	2645	807	316	1851	958	
V/C Ratio(X)		0.89	1.01	0.79		0.96	0.32	0.08	0.84	0.25	0.34	0.99	0.49	0.49	
Avail Cap(c_a), veh/h		190	498	310		524	683	303	314	2645	807	316	1851	958	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	0.83	0.83	0.83	0.09	0.09	0.09	
Uniform Delay (d), s/veh		90.2	86.7	76.3		84.2	69.1	65.7	96.8	49.2	52.8	90.7	28.4	28.4	
Incr Delay (d2), s/veh		31.1	43.1	12.7		28.1	0.1	0.0	8.3	0.2	1.0	12.2	0.1	0.2	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		8.7	16.0	13.1		14.8	4.8	1.0	5.4	10.3	13.3	8.7	13.8	14.3	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		121.3	129.8	89.1		112.2	69.2	65.8	105.1	49.4	53.8	102.9	28.5	28.6	
LnGrp LOS		F	F	F		F	E	E	F	D	D	F	C	C	
Approach Vol, veh/h		891				742				1120			1693		
Approach Delay, s/veh		117.2				98.1				59.9			42.2		
Approach LOS		F				F				E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8							
Phs Duration (G+Y+Rc), s	22.7	110.3	34.7	32.3	17.5	115.5	22.2	44.8							
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7							
Max Green Setting (Gmax), s	18.3	103.6	30.3	* 27	18.3	* 1.1E2	21.3	35.6							
Max Q Clear Time (g_c+Q), s	20.0	33.1	30.7	28.6	13.0	35.3	17.8	12.8							
Green Ext Time (p_c), s	0.0	5.7	0.0	0.0	0.2	34.7	0.1	0.8							

Intersection Summary

HCM 6th Ctrl Delay	71.0
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔	↑↑↑			↑↑	↔
Traffic Volume (veh/h)	10	113	0	612	32	197	410	213	907	0	0	1132	771
Future Volume (veh/h)	10	113	0	612	32	197	410	213	907	0	0	1132	771
Initial Q (Qb), veh		0	0	20	0	20	20	20	20	0	0	20	20
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No			No			No		
Adj Sat Flow, veh/h/ln		1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h		120	0	395	34	210	272	227	965	0	0	1204	590
Peak Hour Factor		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h		0	0	0	22	329	317	178	3861	0	0	2245	976
Arrive On Green		0.00	0.00	0.00	0.18	0.18	0.18	0.10	0.76	0.00	0.00	1.00	1.00
Sat Flow, veh/h			0		259	1599	1582	1781	5274	0	0	3647	1551
Grp Volume(v), veh/h			0.0		244	0	272	227	965	0	0	1204	590
Grp Sat Flow(s),veh/h/ln					1857	0	1582	1781	1702	0	0	1777	1551
Q Serve(g_s), s					24.7	0.0	33.9	20.0	11.3	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s					24.7	0.0	33.9	20.0	11.3	0.0	0.0	0.0	0.0
Prop In Lane					0.14		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					361	0	317	178	3861	0	0	2245	976
V/C Ratio(X)					0.68	0.00	0.86	1.27	0.25	0.00	0.00	0.54	0.60
Avail Cap(c_a), veh/h					371	0	316	178	3864	0	0	2250	982
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)					1.00	0.00	1.00	0.63	0.63	0.00	0.00	0.72	0.72
Uniform Delay (d), s/veh					78.8	0.0	80.0	90.0	7.8	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh					3.8	0.0	19.7	148.1	0.1	0.0	0.0	0.7	2.0
Initial Q Delay(d3),s/veh					68.5	0.0	164.2	404.2	0.3	0.0	0.0	1.2	7.6
%ile BackOfQ(50%),veh/ln					23.5	0.0	32.3	36.6	5.7	0.0	0.0	0.6	2.6
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					151.0	0.0	263.8	642.3	8.2	0.0	0.0	1.9	9.6
LnGrp LOS					F	A	F	F	A	A	A	A	A
Approach Vol, veh/h						516			1192			1794	
Approach Delay, s/veh						210.5			128.9			4.4	
Approach LOS						F			F			A	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		158.3			24.7	133.6		41.7					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		107.8			* 20	83.1		40.0					
Max Q Clear Time (g_c+I1), s		13.3			22.0	2.0		35.9					
Green Ext Time (p_c), s		5.1			0.0	45.1		0.6					

Intersection Summary

HCM 6th Ctrl Delay	77.2
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	740	0	1361	1934	0
Future Volume (veh/h)	0	740	0	1361	1934	0
Initial Q (Qb), veh	0	10	0	0	50	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1870	0
Adj Flow Rate, veh/h	0	752	0	1389	1973	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	2	2	0
Cap, veh/h	0	0	0	2944	2944	0
Arrive On Green	0.00	0.00	0.00	0.82	0.82	0.00
Sat Flow, veh/h	0		0	3741	3741	0
Grp Volume(v), veh/h	0.0		0	1389	1973	0
Grp Sat Flow(s),veh/h/ln			0	1777	1777	0
Q Serve(g_s), s			0.0	3.5	6.9	0.0
Cycle Q Clear(g_c), s			0.0	3.5	6.9	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2944	2944	0
V/C Ratio(X)			0.00	0.47	0.67	0.00
Avail Cap(c_a), veh/h			0	5356	5356	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	0.8	1.4	0.0
Incr Delay (d2), s/veh			0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	6.3	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	2.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	0.8	7.8	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1389	1973	
Approach Delay, s/veh				0.8	7.8	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		29.9				29.9
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		45.0				45.0
Max Q Clear Time (g_c+I1), s		5.5				8.9
Green Ext Time (p_c), s		8.6				15.5
Intersection Summary						
HCM 6th Ctrl Delay			4.9			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions

31: Texas St & Camino del Rio S

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	282	155	390	285	63	540	100	909	129	310	1787	197
Future Volume (veh/h)	282	155	390	285	63	540	100	909	129	310	1787	197
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	307	168	370	310	68	549	109	988	135	337	1942	176
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	349	367	423	246	258	534	126	1136	155	355	1741	777
Arrive On Green	0.20	0.20	0.20	0.14	0.14	0.14	0.07	0.36	0.36	0.20	0.49	0.49
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3141	429	1781	3554	1585
Grp Volume(v), veh/h	307	168	370	310	68	549	109	559	564	337	1942	176
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1793	1781	1777	1585
Q Serve(g_s), s	34.2	16.2	40.0	28.2	6.6	28.2	12.4	59.8	59.9	38.1	100.0	13.0
Cycle Q Clear(g_c), s	34.2	16.2	40.0	28.2	6.6	28.2	12.4	59.8	59.9	38.1	100.0	13.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	349	367	423	246	258	534	126	642	648	355	1741	777
V/C Ratio(X)	0.88	0.46	0.88	1.26	0.26	1.03	0.87	0.87	0.87	0.95	1.12	0.23
Avail Cap(c_a), veh/h	349	367	423	246	258	534	218	642	648	634	1741	777
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	79.7	72.5	71.6	88.0	78.7	67.6	93.9	60.7	60.7	80.8	52.1	29.9
Incr Delay (d2), s/veh	21.8	0.9	18.2	145.4	1.5	46.1	6.7	11.8	11.8	9.5	60.5	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	7.9	20.7	23.0	3.3	34.6	6.0	29.1	29.4	18.5	58.7	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	101.5	73.4	89.8	233.3	80.1	113.7	100.6	72.5	72.5	90.3	112.6	30.2
LnGrp LOS	F	E	F	F	F	F	F	E	E	F	F	C
Approach Vol, veh/h	845			927			1232			2455		
Approach Delay, s/veh	90.8			151.3			75.0			103.6		
Approach LOS	F			F			E			F		
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	45.0	79.0	44.9		18.8	105.2	35.2					
Change Period (Y+Rc), s	4.4	5.2	4.9		4.4	* 5.2	7.0					
Max Green Setting (Gmax), s	72.6	51.8	40.0		25.0	* 1E2	28.2					
Max Q Clear Time (g_c+Rc), s	44.0	61.9	42.0		14.4	102.0	30.2					
Green Ext Time (p_c), s	0.5	0.0	0.0		0.1	0.0	0.0					

Intersection Summary

HCM 6th Ctrl Delay	103.3
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection									
Int Delay, s/veh	16								
Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations		↖	↗			↕		↕	
Traffic Vol, veh/h	10	55	305	10	248	493	10	597	88
Future Vol, veh/h	10	55	305	10	248	493	10	597	88
Conflicting Peds, #/hr	21	24	24	3	24	0	3	0	24
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	0	65	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	0	-
Grade, %	-	0	-	-	-	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	58	321	11	261	519	11	628	93

Major/Minor	Minor2	Major1			Major2				
Conflicting Flow All	0	1549	409	721	745	0	519	-	0
Stage 1	0	721	-	-	-	-	-	-	-
Stage 2	0	828	-	-	-	-	-	-	-
Critical Hdwy	-	6.84	6.94	6.44	4.14	-	6.44	-	-
Critical Hdwy Stg 1	-	5.84	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.84	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.52	3.32	2.52	2.22	-	2.52	-	-
Pot Cap-1 Maneuver	0	105	592	501	859	-	673	-	-
Stage 1	0	443	-	-	-	-	-	-	-
Stage 2	0	389	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	0	~ 49	565	761	761	-	673	-	-
Mov Cap-2 Maneuver	0	~ 49	-	-	-	-	-	-	-
Stage 1	0	216	-	-	-	-	-	-	-
Stage 2	0	370	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	65.5	6.3	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	761	-	49	565	-	-
HCM Lane V/C Ratio	0.343	-	1.182	0.568	-	-
HCM Control Delay (s)	12.3	3.1	321.1	19.4	-	-
HCM Lane LOS	B	A	F	C	-	-
HCM 95th %tile Q(veh)	1.5	-	5.2	3.5	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 33: Camino del Rio N & Ward Rd

PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑	↗	↑	↙	↘
Traffic Volume (veh/h)	359	510	190	391	735	197
Future Volume (veh/h)	359	510	190	391	735	197
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	382	543	202	36	782	171
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	424	1459	429	190	820	1106
Arrive On Green	0.24	0.41	0.12	0.12	0.46	0.46
Sat Flow, veh/h	1781	3647	3647	1578	1781	1585
Grp Volume(v), veh/h	382	543	202	36	782	171
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1578	1781	1585
Q Serve(g_s), s	17.5	9.0	4.5	1.7	35.6	3.1
Cycle Q Clear(g_c), s	17.5	9.0	4.5	1.7	35.6	3.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	424	1459	429	190	820	1106
V/C Ratio(X)	0.90	0.37	0.47	0.19	0.95	0.15
Avail Cap(c_a), veh/h	930	2951	2951	1311	930	1204
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	17.3	34.6	33.4	21.9	4.3
Incr Delay (d2), s/veh	2.9	0.2	1.2	0.7	17.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	3.3	1.9	0.7	17.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.1	17.5	35.8	34.1	39.4	4.3
LnGrp LOS	C	B	D	C	D	A
Approach Vol, veh/h		925	238		953	
Approach Delay, s/veh		24.4	35.5		33.1	
Approach LOS		C	D		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		40.6		43.7	24.4	16.2
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		11.0		37.6	19.5	6.5
Green Ext Time (p_c), s		5.9		1.2	0.5	2.2

Intersection Summary

HCM 6th Ctrl Delay	29.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 34: Fairmount Ave & Mission Gorge Rd PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↗	↕			↗	↕	
Traffic Volume (veh/h)	67	17	621	30	14	10	40	370	904	40	10	10	930	38
Future Volume (veh/h)	67	17	621	30	14	10	40	370	904	40	10	10	930	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		0.98	1.00		0.98		1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	718	31	14	3	378	922	39		10	949	37	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	340	546	149	61	11	893	2429	103		17	1557	61	
Arrive On Green	0.00	0.00	0.18	0.18	0.18	0.18	0.52	1.00	1.00		0.01	0.45	0.45	
Sat Flow, veh/h	0	1870	3006	569	337	60	3456	3471	147		1781	3484	136	
Grp Volume(v), veh/h	0	0	718	48	0	0	378	472	489		10	484	502	
Grp Sat Flow(s),veh/h/ln	0	1870	1503	967	0	0	1728	1777	1841		1781	1777	1844	
Q Serve(g_s), s	0.0	0.0	23.6	3.6	0.0	0.0	8.8	0.0	0.0		0.7	26.9	26.9	
Cycle Q Clear(g_c), s	0.0	0.0	23.6	4.7	0.0	0.0	8.8	0.0	0.0		0.7	26.9	26.9	
Prop In Lane	0.00		1.00	0.65		0.06	1.00		0.08		1.00		0.07	
Lane Grp Cap(c), veh/h	0	340	546	221	0	0	893	1244	1289		17	794	824	
V/C Ratio(X)	0.00	0.00	1.32	0.22	0.00	0.00	0.42	0.38	0.38		0.60	0.61	0.61	
Avail Cap(c_a), veh/h	0	340	546	221	0	0	906	1244	1289		179	794	824	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00		1.00	1.00	1.00	
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.66	0.66	0.66		1.00	1.00	1.00	
Uniform Delay (d), s/veh	0.0	0.0	53.2	45.2	0.0	0.0	25.4	0.0	0.0		64.2	27.3	27.3	
Incr Delay (d2), s/veh	0.0	0.0	154.6	0.5	0.0	0.0	0.1	0.6	0.6		12.3	3.5	3.3	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.0	0.0	20.6	1.4	0.0	0.0	3.2	0.2	0.2		0.4	12.1	12.6	
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	207.8	45.7	0.0	0.0	25.5	0.6	0.6		76.5	30.8	30.7	
LnGrp LOS	A	A	F	D	A	A	C	A	A		E	C	C	
Approach Vol, veh/h		718		48				1339				996		
Approach Delay, s/veh		207.8		45.7				7.6				31.2		
Approach LOS		F		D				A				C		
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	5.6	95.9		28.5	38.5	63.0		28.5						
Change Period (Y+Rc), s	4.4	4.9		4.9	4.9	* 4.9		4.9						
Max Green Setting (Gmax), s	13.1	79.1		23.6	34.1	* 58		23.6						
Max Q Clear Time (g_c+1/2), s	12.7	2.0		25.6	10.8	28.9		6.7						
Green Ext Time (p_c), s	0.0	19.1		0.0	0.7	14.2		0.2						

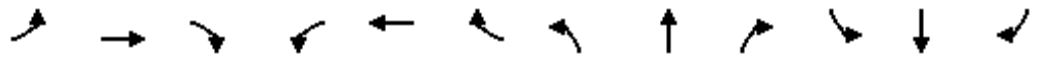
Intersection Summary

HCM 6th Ctrl Delay	62.1
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis - Horizon Year Plus Project Without Event Conditions
 35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↔	↖	↖	↕		↖	↕	↖
Traffic Volume (vph)	150	153	961	810	283	384	308	800	190	13	1599	70
Future Volume (vph)	150	153	961	810	283	384	308	800	190	13	1599	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1762	1583	1610	3082	1425	1770	3428		3433	3539	1563
Flt Permitted	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1762	1583	1610	3082	1425	1770	3428		3433	3539	1563
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	152	155	971	818	286	388	311	808	192	13	1615	71
RTOR Reduction (vph)	0	0	78	0	0	0	0	16	0	0	0	45
Lane Group Flow (vph)	137	170	893	409	749	334	311	984	0	13	1615	26
Confl. Peds. (#/hr)						3			1			
Confl. Bikes (#/hr)									1			1
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8	1	5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	16.6	16.6	36.6	25.0	25.0	35.0	20.0	57.4		10.0	47.4	47.4
Effective Green, g (s)	16.6	16.6	36.6	25.0	25.0	35.0	20.0	57.4		10.0	47.4	47.4
Actuated g/C Ratio	0.13	0.13	0.28	0.19	0.19	0.27	0.15	0.44		0.08	0.36	0.36
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	214	224	502	309	592	383	272	1513		264	1290	569
v/s Ratio Prot	0.08	0.10	c0.27	c0.25	0.24	0.07	0.18	0.29		0.00	c0.46	
v/s Ratio Perm			0.29			0.17						0.02
v/c Ratio	0.64	0.76	1.78	1.32	1.32dl	0.87	1.14	0.65		0.05	1.25	0.05
Uniform Delay, d1	53.9	54.8	46.7	52.5	52.5	45.4	55.0	28.4		55.6	41.3	26.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.69	1.15	7.25
Incremental Delay, d2	4.8	12.3	358.9	166.5	132.4	18.6	98.9	2.2		0.0	116.4	0.1
Delay (s)	58.7	67.0	405.6	219.0	184.9	63.9	153.9	30.6		38.6	164.1	193.6
Level of Service	E	E	F	F	F	E	F	C		D	F	F
Approach Delay (s)		323.3			167.2			59.9			164.3	
Approach LOS		F			F			E			F	

Intersection Summary		
HCM 2000 Control Delay	176.5	HCM 2000 Level of Service F
HCM 2000 Volume to Capacity ratio	1.52	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 21.0
Intersection Capacity Utilization	141.2%	ICU Level of Service H
Analysis Period (min)	15	
dl Defacto Left Lane. Recode with 1 though lane as a left lane.		
c Critical Lane Group		

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 36: Fairmount Ave & I-8 EB Off-Ramp PM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations	YY	YY	U		↑↑	↑↑↑	
Traffic Volume (veh/h)	731	2779	60	0	577	1557	0
Future Volume (veh/h)	731	2779	60	0	577	1557	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		0	1870	1870	0
Adj Flow Rate, veh/h	746	2836		0	589	1589	0
Peak Hour Factor	0.98	0.98		0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2		0	2	2	0
Cap, veh/h	987	2636		0	1275	1832	0
Arrive On Green	0.55	0.55		0.00	0.36	0.36	0.00
Sat Flow, veh/h	1781	4755		0	3741	5443	0
Grp Volume(v), veh/h	746	2836		0	589	1589	0
Grp Sat Flow(s),veh/h/ln	1781	1585		0	1777	1702	0
Q Serve(g_s), s	41.1	70.9		0.0	16.3	37.0	0.0
Cycle Q Clear(g_c), s	41.1	70.9		0.0	16.3	37.0	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	987	2636		0	1275	1832	0
V/C Ratio(X)	0.76	1.08		0.00	0.46	0.87	0.00
Avail Cap(c_a), veh/h	987	2636		0	2131	2076	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.9	28.5		0.0	31.5	38.2	0.0
Incr Delay (d2), s/veh	3.0	42.0		0.0	0.1	3.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	35.8		0.0	7.0	15.9	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	24.9	70.5		0.0	31.6	41.6	0.0
LnGrp LOS	C	F		A	C	D	A
Approach Vol, veh/h	3582				589	1589	
Approach Delay, s/veh	61.0				31.6	41.6	
Approach LOS	E				C	D	
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				51.9		76.0	51.9
Change Period (Y+Rc), s				6.0		5.1	6.0
Max Green Setting (Gmax), s				52.0		70.9	76.7
Max Q Clear Time (g_c+1), s				39.0		72.9	18.3
Green Ext Time (p_c), s				6.9		0.0	2.9

Intersection Summary

HCM 6th Ctrl Delay	52.7
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 37: Collwood Blvd & Montezuma Rd

PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↵	↑↑	↵↵	↑
Traffic Volume (veh/h)	1520	1409	10	90	858	728	50
Future Volume (veh/h)	1520	1409	10	90	858	728	50
Initial Q (Qb), veh	20	20		0	0	0	0
Ped-Bike Adj(A_pbT)		0.98		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1737	1870	1870	1648
Adj Flow Rate, veh/h	1567	1325		93	885	751	26
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		11	2	2	17
Cap, veh/h	2079	1272		114	2440	802	324
Arrive On Green	0.58	0.58		0.07	0.69	0.23	0.23
Sat Flow, veh/h	3647	1546		1654	3647	3456	1397
Grp Volume(v), veh/h	1567	1325		93	885	751	26
Grp Sat Flow(s),veh/h/ln	1777	1546		1654	1777	1728	1397
Q Serve(g_s), s	43.9	78.4		7.4	13.9	28.6	2.0
Cycle Q Clear(g_c), s	43.9	78.4		7.4	13.9	28.6	2.0
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2079	1272		114	2440	802	324
V/C Ratio(X)	0.75	1.04		0.82	0.36	0.94	0.08
Avail Cap(c_a), veh/h	2079	1272		328	2440	848	343
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.8	12.5		61.6	8.8	50.5	40.3
Incr Delay (d2), s/veh	2.6	36.7		5.3	0.4	16.5	0.0
Initial Q Delay(d3),s/veh	2.7	56.6		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh	20.6	57.9		3.3	5.0	14.0	0.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	27.1	105.9		66.9	9.2	67.0	40.3
LnGrp LOS	C	F		E	A	E	D
Approach Vol, veh/h	2892				978	777	
Approach Delay, s/veh	63.2				14.7	66.1	
Approach LOS	E				B	E	
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	33.6	84.9			98.5	35.5	
Change Period (Y+Rc), s	4.4	* 6.5			6.5	4.4	
Max Green Setting (Gmax), s	26.6	* 60			90.2	32.9	
Max Q Clear Time (g_c+1), s	19.4	80.4			15.9	30.6	
Green Ext Time (p_c), s	0.1	0.0			14.9	0.5	

Intersection Summary

HCM 6th Ctrl Delay	53.5
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 38: Mission Village Dr & Shawn Ave PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔				↔		↗	↑↑	↖	↗	↑↑	
Traffic Volume (veh/h)	80	10	84	10	54	10	30	76	716	36	50	2024	80
Future Volume (veh/h)	80	10	84	10	54	10	30	76	716	36	50	2024	80
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99		0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	11	86		57	11	3	81	762	27	53	2153	83
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	266	30	218		214	196	53	133	2573	1146	532	2527	97
Arrive On Green	0.15	0.15	0.15		0.15	0.15	0.15	0.72	0.72	0.72	0.72	0.72	0.72
Sat Flow, veh/h	1202	194	1425		829	1284	350	171	3554	1582	686	3489	134
Grp Volume(v), veh/h	96	0	86		57	0	14	81	762	27	53	1089	1147
Grp Sat Flow(s),veh/h/ln	1396	0	1425		829	0	1634	171	1777	1582	686	1777	1846
Q Serve(g_s), s	4.7	0.0	4.5		3.5	0.0	0.6	22.5	6.2	0.4	2.4	36.2	37.5
Cycle Q Clear(g_c), s	5.4	0.0	4.5		8.0	0.0	0.6	60.0	6.2	0.4	8.7	36.2	37.5
Prop In Lane	0.89		1.00		1.00		0.21	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	295	0	218		214	0	250	133	2573	1146	532	1287	1337
V/C Ratio(X)	0.33	0.00	0.39		0.27	0.00	0.06	0.61	0.30	0.02	0.10	0.85	0.86
Avail Cap(c_a), veh/h	766	0	688		638	0	789	133	2573	1146	532	1287	1337
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00		1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	0.0	31.6		35.2	0.0	30.0	35.0	4.0	3.2	5.5	8.1	8.3
Incr Delay (d2), s/veh	0.2	0.0	0.4		0.2	0.0	0.0	8.4	0.1	0.0	0.1	5.5	5.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	1.6		1.1	0.0	0.2	1.9	1.5	0.1	0.3	10.5	11.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	32.3	0.0	32.1		35.5	0.0	30.0	43.4	4.1	3.2	5.6	13.7	14.2
LnGrp LOS	C	A	C		D	A	C	D	A	A	A	B	B
Approach Vol, veh/h		182				71			870			2289	
Approach Delay, s/veh		32.2				34.4			7.7			13.8	
Approach LOS		C				C			A			B	
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		65.3		17.6		65.3		17.6					
Change Period (Y+Rc), s		5.3		4.9		5.3		4.9					
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0					
Max Q Clear Time (g_c+1), s		62.0		7.4		39.5		10.0					
Green Ext Time (p_c), s		0.0		0.8		18.4		0.3					

Intersection Summary

HCM 6th Ctrl Delay	13.6
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 39: Mission Village Dr & Fermi Ave PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕			↙	↕	
Traffic Volume (veh/h)	40	10	14	54	10	50	16	782	46	10	30	2145	30
Future Volume (veh/h)	40	10	14	54	10	50	16	782	46	10	30	2145	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	42	10	6	56	10	28	17	815	45		31	2234	31
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	170	38	15	145	23	42	28	2436	134		44	2584	36
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.02	0.71	0.71		0.02	0.72	0.72
Sat Flow, veh/h	1074	428	173	856	264	475	1781	3424	189		1781	3587	50
Grp Volume(v), veh/h	58	0	0	94	0	0	17	423	437		31	1103	1162
Grp Sat Flow(s),veh/h/ln1675	0	0	0	1595	0	0	1781	1777	1836		1781	1777	1860
Q Serve(g_s), s	0.0	0.0	0.0	2.0	0.0	0.0	0.8	7.4	7.4		1.4	37.7	38.3
Cycle Q Clear(g_c), s	2.5	0.0	0.0	4.5	0.0	0.0	0.8	7.4	7.4		1.4	37.7	38.3
Prop In Lane	0.72		0.10	0.60		0.30	1.00		0.10		1.00		0.03
Lane Grp Cap(c), veh/h	222	0	0	210	0	0	28	1264	1306		44	1280	1340
V/C Ratio(X)	0.26	0.00	0.00	0.45	0.00	0.00	0.61	0.33	0.33		0.71	0.86	0.87
Avail Cap(c_a), veh/h	802	0	0	621	0	0	649	1295	1339		649	1295	1356
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	0.0	36.2	0.0	0.0	40.3	4.5	4.5		39.8	8.5	8.6
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.6	0.0	0.0	7.8	0.3	0.3		7.4	6.5	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.1	0.0	0.0	0.0	1.8	0.0	0.0	0.4	1.9	2.0		0.7	12.0	12.6
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	35.6	0.0	0.0	36.8	0.0	0.0	48.0	4.8	4.8		47.3	15.0	15.1
LnGrp LOS	D	A	A	D	A	A	D	A	A		D	B	B
Approach Vol, veh/h		58			94			877				2296	
Approach Delay, s/veh		35.6			36.8			5.6				15.5	
Approach LOS		D			D			A				B	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s6.4	63.7			12.1	5.7	64.5		12.1					
Change Period (Y+Rc), s 4.4	5.2			4.9	4.4	5.2		4.9					
Max Green Setting (Gmax), s 30.0	60.0			40.0	30.0	60.0		30.0					
Max Q Clear Time (g_c+1), s 13.4	9.4			4.5	2.8	40.3		6.5					
Green Ext Time (p_c), s 0.0	12.0			0.2	0.0	19.0		0.3					

Intersection Summary

HCM 6th Ctrl Delay	13.9
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 40: Gramercy Dr/Mission Village Dr & Ruffin Rd PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	642	20	13	390	477	20	10	22	1590	20	90
Future Volume (veh/h)	60	642	20	13	390	477	20	10	22	1590	20	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	655	19	13	398	323	20	10	1	1622	20	88
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	211	1254	36	240	659	529	43	79	8	1610	136	599
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.02	0.02	0.02	0.45	0.45	0.45
Sat Flow, veh/h	730	3524	102	762	1853	1488	1781	3262	320	3563	302	1327
Grp Volume(v), veh/h	61	330	344	13	382	339	20	5	6	1622	0	108
Grp Sat Flow(s),veh/h/ln	730	1777	1849	762	1777	1564	1781	1777	1805	1781	0	1628
Q Serve(g_s), s	6.6	13.0	13.0	1.2	15.6	15.8	1.0	0.3	0.3	40.0	0.0	3.4
Cycle Q Clear(g_c), s	22.5	13.0	13.0	14.2	15.6	15.8	1.0	0.3	0.3	40.0	0.0	3.4
Prop In Lane	1.00		0.06	1.00		0.95	1.00		0.18	1.00		0.81
Lane Grp Cap(c), veh/h	211	632	658	240	632	556	43	43	44	1610	0	736
V/C Ratio(X)	0.29	0.52	0.52	0.05	0.60	0.61	0.47	0.13	0.13	1.01	0.00	0.15
Avail Cap(c_a), veh/h	446	1204	1253	486	1204	1060	805	803	816	1610	0	736
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.7	22.6	22.6	28.2	23.4	23.5	42.6	42.3	42.3	24.3	0.0	14.2
Incr Delay (d2), s/veh	0.9	0.8	0.8	0.1	1.2	1.4	2.9	0.5	0.5	24.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	5.5	5.7	0.2	6.6	5.9	0.5	0.1	0.1	20.3	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.6	23.4	23.4	28.3	24.6	24.8	45.5	42.8	42.8	48.6	0.0	14.3
LnGrp LOS	C	C	C	C	C	C	D	D	D	F	A	B
Approach Vol, veh/h		735			734			31			1730	
Approach Delay, s/veh		24.2			24.7			44.6			46.5	
Approach LOS		C			C			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.6		44.9		36.6		7.0				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		24.5		42.0		17.8		3.0				
Green Ext Time (p_c), s		7.0		0.0		7.6		0.0				

Intersection Summary

HCM 6th Ctrl Delay	36.4
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions

41: Ruffin Rd & Aero Dr

PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	880	910	10	1042	810	260	378
Future Volume (veh/h)	880	910	10	1042	810	260	378
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	926	957		1097	853	274	116
Peak Hour Factor	0.95	0.95		0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1861	963		896	2903	340	156
Arrive On Green	0.52	0.52		0.26	0.82	0.10	0.10
Sat Flow, veh/h	3647	1541		3456	3647	3456	1585
Grp Volume(v), veh/h	926	957		1097	853	274	116
Grp Sat Flow(s),veh/h/ln1777		1541		1728	1777	1728	1585
Q Serve(g_s), s	21.8	68.1		33.7	7.5	10.1	9.3
Cycle Q Clear(g_c), s	21.8	68.1		33.7	7.5	10.1	9.3
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1861	963		896	2903	340	156
V/C Ratio(X)	0.50	0.99		1.22	0.29	0.80	0.74
Avail Cap(c_a), veh/h	1861	963		896	2903	1135	521
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.86	0.86
Uniform Delay (d), s/veh	19.9	22.1		48.2	2.9	57.4	57.0
Incr Delay (d2), s/veh	1.0	27.5		111.0	0.3	1.5	2.3
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	38.4		27.8	1.8	4.5	3.8
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	20.9	49.6		159.2	3.1	58.9	59.3
LnGrp LOS	C	D		F	A	E	E
Approach Vol, veh/h	1883				1950	390	
Approach Delay, s/veh	35.5				90.9	59.0	
Approach LOS	D				F	E	
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	38.1	73.8			111.9	18.1	
Change Period (Y+Rc), s	4.4	* 5.7			5.7	5.3	
Max Green Setting (Gmax), s	33.7	* 39			76.3	42.7	
Max Q Clear Time (g_c+Rc), s	35.7	70.1			9.5	12.1	
Green Ext Time (p_c), s	0.0	0.0			9.6	0.7	

Intersection Summary

HCM 6th Ctrl Delay	63.2
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions
 42: Mobley St & Gramercy Dr PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	664	90	63	360	57	50	30	43	86	20	20
Future Volume (veh/h)	20	664	90	63	360	57	50	30	43	86	20	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.96	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1826	1826	1826	1752	1752	1752
Adj Flow Rate, veh/h	21	685	71	65	371	47	52	31	21	89	21	13
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	10	10	10
Cap, veh/h	647	1822	803	496	1621	204	267	131	60	352	74	28
Arrive On Green	0.51	0.51	0.51	0.51	0.51	0.51	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	962	3554	1565	705	3162	397	563	700	320	887	394	151
Grp Volume(v), veh/h	21	685	71	65	207	211	104	0	0	123	0	0
Grp Sat Flow(s),veh/h/ln	962	1777	1565	705	1777	1782	1583	0	0	1432	0	0
Q Serve(g_s), s	0.4	3.9	0.8	2.0	2.1	2.2	0.0	0.0	0.0	0.5	0.0	0.0
Cycle Q Clear(g_c), s	2.6	3.9	0.8	5.9	2.1	2.2	1.7	0.0	0.0	2.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.22	0.50		0.20	0.72		0.11
Lane Grp Cap(c), veh/h	647	1822	803	496	911	914	458	0	0	454	0	0
V/C Ratio(X)	0.03	0.38	0.09	0.13	0.23	0.23	0.23	0.00	0.00	0.27	0.00	0.00
Avail Cap(c_a), veh/h	1886	6401	2819	1405	3200	3209	1962	0	0	1807	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.2	4.9	4.1	6.7	4.5	4.5	11.7	0.0	0.0	11.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.1	0.2	0.4	0.4	0.5	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.2	5.1	4.2	6.9	4.7	4.7	11.8	0.0	0.0	12.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		777			483			104			123	
Approach Delay, s/veh		5.1			5.0			11.8			12.0	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.2		11.1		22.2		11.1				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		5.9		4.2		7.9		3.7				
Green Ext Time (p_c), s		11.1		0.5		6.1		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				6.1								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary Horizon Year Plus Project Without Event Conditions

43: Sandrock Rd & Greyling Dr/Gramercy Dr

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕			↕	↕	↕	↕	↕
Traffic Volume (veh/h)	90	146	10	24	177	254	10	10	20	33	640	40	140
Future Volume (veh/h)	90	146	10	24	177	254	10	10	20	33	640	40	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.98		0.94	1.00		1.00	1.00			0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1574	1574	1870	1870	1856	1870	
Adj Flow Rate, veh/h	95	154	9	25	186	161	11	21	0	704	0	80	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	22	22	2	2	3	2	
Cap, veh/h	238	325	16	130	532	896	16	30	47	975	0	417	
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.03	0.03	0.00	0.27	0.00	0.27	
Sat Flow, veh/h	373	1051	51	95	1721	1494	532	1015	1585	3563	0	1523	
Grp Volume(v), veh/h	258	0	0	211	0	161	32	0	0	704	0	80	
Grp Sat Flow(s),veh/h/ln	1476	0	0	1817	0	1494	1547	0	1585	1781	0	1523	
Q Serve(g_s), s	2.0	0.0	0.0	0.0	0.0	2.0	0.8	0.0	0.0	7.2	0.0	1.6	
Cycle Q Clear(g_c), s	5.5	0.0	0.0	3.5	0.0	2.0	0.8	0.0	0.0	7.2	0.0	1.6	
Prop In Lane	0.37		0.03	0.12		1.00	0.34		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	579	0	0	662	0	896	46	0	47	975	0	417	
V/C Ratio(X)	0.45	0.00	0.00	0.32	0.00	0.18	0.69	0.00	0.00	0.72	0.00	0.19	
Avail Cap(c_a), veh/h	1026	0	0	1215	0	1367	773	0	792	1780	0	761	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh	11.3	0.0	0.0	10.8	0.0	3.9	19.2	0.0	0.0	13.2	0.0	11.1	
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	6.7	0.0	0.0	0.4	0.0	0.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	1.1	0.0	0.8	0.4	0.0	0.0	2.2	0.0	0.4	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	11.5	0.0	0.0	10.9	0.0	3.9	25.9	0.0	0.0	13.5	0.0	11.2	
LnGrp LOS	B	A	A	B	A	A	C	A	A	B	A	B	
Approach Vol, veh/h		258			372			32			784		
Approach Delay, s/veh		11.5			7.9			25.9			13.3		
Approach LOS		B			A			C			B		
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		17.7		16.3		17.7		6.1					
Change Period (Y+Rc), s		5.3		5.3		5.3		4.9					
Max Green Setting (Gmax), s		25.0		20.0		25.0		20.0					
Max Q Clear Time (g_c+1), s		7.5		9.2		5.5		2.8					
Green Ext Time (p_c), s		1.1		1.3		1.0		0.1					

Intersection Summary

HCM 6th Ctrl Delay	11.9
HCM 6th LOS	B

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.



Major Street **Ward Rd**
 Minor Street **Rancho Mission Rd**

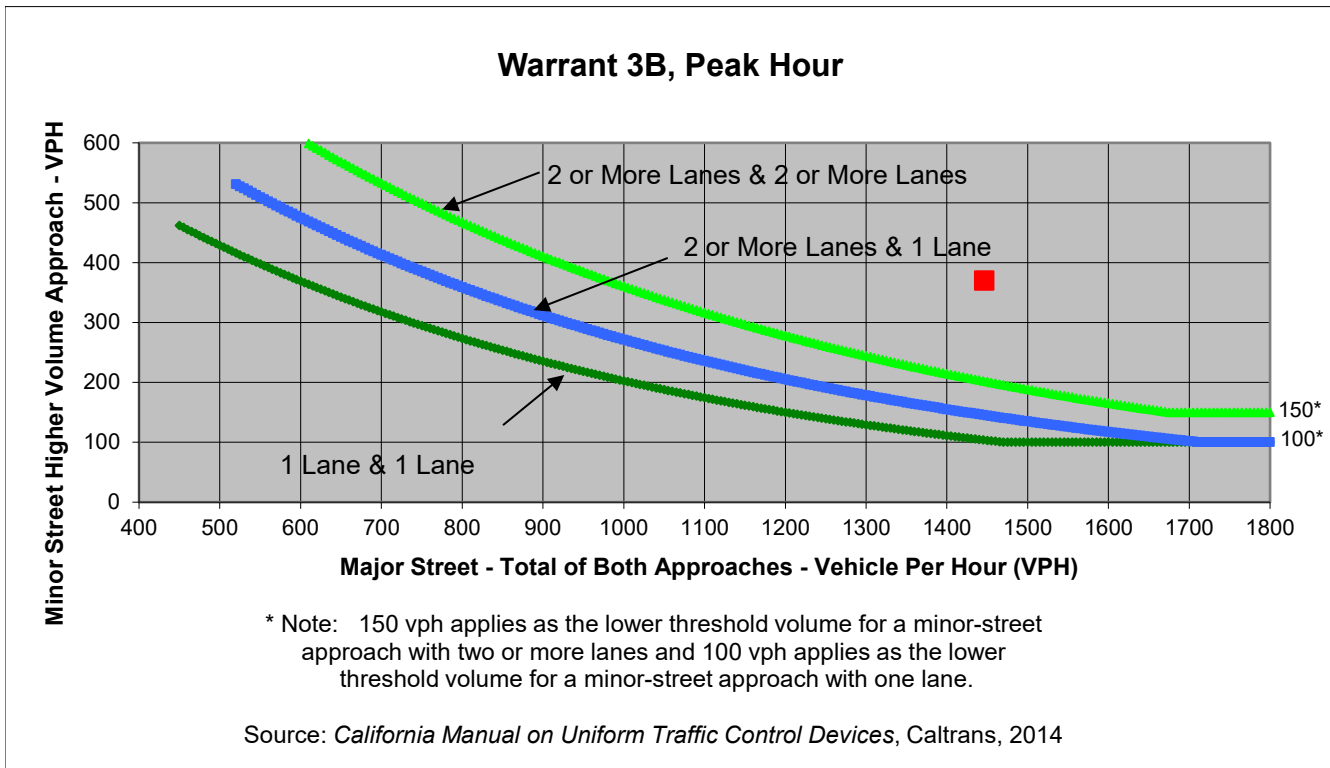
Project **SDSU Mission Valley**
 Scenario **Horizon Year + Project**
 Peak Hour **PM**

Turn Movement Volumes

	NB	SB	EB	WB
Left/U-turns	258	10	65	0
Through	493	597	0	0
Right	0	88	305	0
Total	751	695	370	0

Major Street Direction

x North/South
 East/West



	Major Street Ward Rd	Minor Street Rancho Mission Rd	Warrant Met
Number of Approach Lanes	2	1	<u>YES</u>
Traffic Volume (VPH) *	1,446	370	

* Note: Traffic Volume for Major Street is Total Volume of Both Approches.
 Traffic Volume for Minor Street is the Volume of High Volume Approach.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

Project SDSU Mission Valley
 Scenario Horizon Year + Project
 Peak Hour PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	258	10	65	0
Through	493	597	0	0
Right	0	88	305	0
Total	751	695	370	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	321.1
Approach with Worst Case Delay	EB
Total Vehicles on Approach	370

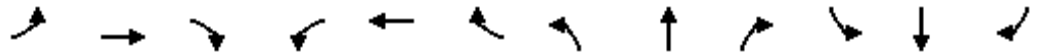
Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Horizon Year + Project	33	370	1,816
Limiting Value	4	100	650
Condition Satisfied?	Met	Met	Met
Warrant Met	<u>YES</u>		

Queues

Horizon Year Plus Project Without Event Conditions

1: SR-163 SB Ramps/Ulric St & Friars Rd

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	183	1816	714	647	1233	844	327	31	785	352	352	214
v/c Ratio	0.86	0.93	0.75	1.05	0.62	0.64	0.98	0.17	0.89	0.82	0.82	0.39
Control Delay	95.3	59.0	9.6	102.4	47.0	21.9	109.4	62.7	59.7	66.0	66.0	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	95.3	59.0	9.6	102.4	47.0	21.9	109.4	62.7	59.7	66.0	66.0	9.5
Queue Length 50th (ft)	170	500	17	~348	328	190	161	27	400	322	322	16
Queue Length 95th (ft)	#290	#616	165	#475	389	344	#263	62	#523	442	442	82
Internal Link Dist (ft)		1296			1059			834			622	
Turn Bay Length (ft)	300		350	400		200	300		215			200
Base Capacity (vph)	234	1944	949	615	1967	1416	333	181	887	486	486	587
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.93	0.75	1.05	0.63	0.60	0.98	0.17	0.89	0.72	0.72	0.36

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues
2: Friars Rd & SR-163 NB Ramps

Horizon Year Plus Project Without Event Conditions

PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	667	2581	1749	1081	1260	1052
v/c Ratio	0.73	0.63	0.84	0.85	0.84	0.63
Control Delay	49.7	12.4	56.3	56.1	53.7	21.5
Queue Delay	0.0	0.5	0.0	0.5	0.0	0.0
Total Delay	49.7	12.9	56.3	56.6	53.7	21.5
Queue Length 50th (ft)	323	311	427	612	396	352
Queue Length 95th (ft)	m360	346	437	692	456	456
Internal Link Dist (ft)		1059	635		521	
Turn Bay Length (ft)	500			200	500	400
Base Capacity (vph)	914	4087	2253	1278	1497	1664
Starvation Cap Reductn	0	0	0	35	0	0
Spillback Cap Reductn	0	938	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.82	0.78	0.87	0.84	0.63

Intersection Summary

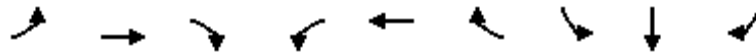
m Volume for 95th percentile queue is metered by upstream signal.

Queues

Horizon Year Plus Project Without Event Conditions

17: I-15 SB Ramps & Friars Rd

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	561	2777	1220	332	1750	406	617	617	666
v/c Ratio	1.03	1.63	1.51	6.15	1.41	0.71	1.14	1.14	0.36
Control Delay	91.6	315.6	260.2	2365.4	227.6	25.9	123.8	123.8	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	91.6	315.6	260.2	2365.4	227.6	25.9	123.8	123.8	10.2
Queue Length 50th (ft)	~528	~1291	~1240	~521	~758	133	~666	~666	131
Queue Length 95th (ft)	#755	#1375	#1508	#717	#855	260	#911	#911	168
Internal Link Dist (ft)		844			1079			723	
Turn Bay Length (ft)	380		200	350			520		520
Base Capacity (vph)	546	1708	806	54	1241	570	543	543	1870
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.03	1.63	1.51	6.15	1.41	0.71	1.14	1.14	0.36

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

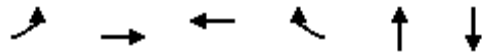
Queue shown is maximum after two cycles.

Queues

Horizon Year Plus Project Without Event Conditions

18: I-15 NB Ramps & Friars Rd

PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	1111	3006	1821	536	1504	1127
v/c Ratio	1.56	no cap	0.81	0.81	17.69	13.26
Control Delay	285.1		27.8	35.4	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	285.1	Error	27.8	35.4	0.0	0.0
Queue Length 50th (ft)	~1149	0	417	367	0	0
Queue Length 95th (ft)	#1535	0	481	547	0	0
Internal Link Dist (ft)		1079	869		797	677
Turn Bay Length (ft)	515					
Base Capacity (vph)	713	1	2649	781	85	85
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.56	3006.00	0.69	0.69	17.69	13.26

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

Horizon Year Plus Project Without Event Conditions

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

PM Peak Hour



Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	131	651	244	436	227	965	1204	820
v/c Ratio	0.78	1.11	0.70	0.97	1.28	0.30	0.67	0.82
Control Delay	116.0	108.5	87.2	80.2	227.3	17.9	31.8	22.8
Queue Delay	0.0	0.0	0.0	14.2	0.0	0.1	50.2	49.6
Total Delay	116.0	108.5	87.2	94.4	227.3	18.0	82.0	72.4
Queue Length 50th (ft)	172	~655	301	354	~377	213	533	110
Queue Length 95th (ft)	248	#868	411	#585	#573	264	m640	m506
Internal Link Dist (ft)			653			1043	147	
Turn Bay Length (ft)				150	110			
Base Capacity (vph)	309	584	370	464	177	3203	1792	998
Starvation Cap Reductn	0	0	0	0	0	0	887	270
Spillback Cap Reductn	0	0	0	33	0	903	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	1.11	0.66	1.01	1.28	0.42	1.33	1.13

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBR	NBT	SBT
Lane Group Flow (vph)	755	1389	1973
v/c Ratio	0.82	0.72	1.02
Control Delay	32.9	17.8	46.8
Queue Delay	0.0	12.2	0.0
Total Delay	32.9	30.0	46.8
Queue Length 50th (ft)	199	265	~546
Queue Length 95th (ft)	270	433	#847
Internal Link Dist (ft)		283	1043
Turn Bay Length (ft)			
Base Capacity (vph)	1546	1935	1935
Starvation Cap Reductn	0	544	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.49	1.00	1.02

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

Horizon Year Plus Project Without Event Conditions

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	137	170	971	409	749	334	311	1000	13	1615	71
v/c Ratio	0.64	0.76	1.67	1.32	1.32dl	0.84	1.14	0.65	0.05	1.25	0.11
Control Delay	67.6	75.8	337.4	207.5	175.1	59.8	147.5	30.5	38.9	156.4	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4	0.0
Total Delay	67.6	75.8	337.4	207.5	175.1	59.8	147.5	30.5	38.9	158.8	9.3
Queue Length 50th (ft)	116	147	~1134	~489	~461	274	~306	334	5	~923	7
Queue Length 95th (ft)	188	228	#1373	#714	#601	#468	#493	423	m6	m#892	m16
Internal Link Dist (ft)		2741			1304			830		254	
Turn Bay Length (ft)	105					200	215		65		140
Base Capacity (vph)	245	257	581	309	592	399	272	1529	264	1290	641
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	512	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.66	1.67	1.32	1.27	0.84	1.14	0.65	0.05	2.08	0.11

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.
- dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Queues
36: Fairmount Ave & I-8 EB Off-Ramp

Horizon Year Plus Project Without Event Conditions
PM Peak Hour



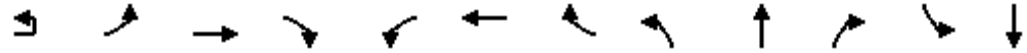
Lane Group	EBL	EBR	NBU	NBT	SBT
Lane Group Flow (vph)	1682	1900	61	589	1589
v/c Ratio	1.22dr	1.46	0.60	0.38	0.90
Control Delay	80.5	240.7	91.0	28.3	53.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	80.5	240.7	91.0	28.3	53.5
Queue Length 50th (ft)	~925	~1450	58	196	525
Queue Length 95th (ft)	#1113	#1665	110	244	618
Internal Link Dist (ft)	749			557	830
Turn Bay Length (ft)	550		350		
Base Capacity (vph)	1572	1304	235	1857	1809
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.07	1.46	0.26	0.32	0.88

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- dr Defacto Right Lane. Recode with 1 though lane as a right lane.

HCM Signalized Intersection Capacity Analysis
 1: SR-163 SB Ramps/Ulrir St & Friars Rd

HY Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations		3		7	77	777	77	77	7	77	7	7	
Traffic Volume (vph)	10	170	1785	700	640	1209	838	320	30	896	695	0	
Future Volume (vph)	10	170	1785	700	640	1209	838	320	30	896	695	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.7	7.0	7.0	4.5	3.0	6.1	6.1	6.1	4.5	6.1	6.1	
Lane Util. Factor		1.00	0.86	1.00	0.97	0.91	0.88	0.97	1.00	0.88	0.95	0.95	
Frbp, ped/bikes		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (prot)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (perm)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	10	173	1821	714	653	1234	855	327	31	914	709	0	
RTOR Reduction (vph)	0	0	0	480	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	183	1821	234	653	1234	855	327	31	914	354	355	
Confl. Peds. (#/hr)				5									
Confl. Bikes (#/hr)				2									
Turn Type	Prot	Prot	NA	Perm	Prot	NA	custom	Split	NA	pm+ov	Split	NA	
Protected Phases	5	5	2		1	6 7	4 7	8	8	1	4	4	
Permitted Phases				2						8			
Actuated Green, G (s)		17.5	43.9	43.9	26.0	52.2	68.9	14.1	14.1	40.1	37.3	37.3	
Effective Green, g (s)		17.5	43.9	43.9	26.0	52.2	61.9	14.1	14.1	40.1	37.3	37.3	
Actuated g/C Ratio		0.12	0.30	0.30	0.18	0.36	0.43	0.10	0.10	0.28	0.26	0.26	
Clearance Time (s)		4.7	7.0	7.0	4.5			6.1	6.1	4.5	6.1	6.1	
Vehicle Extension (s)		2.0	2.0	2.0	3.0			3.0	3.0	3.0	2.0	2.0	
Lane Grp Cap (vph)		213	1940	468	615	1830	1189	333	181	770	432	432	
v/s Ratio Prot		0.10	c0.28		0.19	0.24	0.31	0.10	0.02	c0.21	0.21	c0.21	
v/s Ratio Perm				0.15						0.12			
v/c Ratio		0.86	0.94	0.50	1.06	0.67	0.72	0.98	0.17	1.19	0.82	0.82	
Uniform Delay, d1		62.5	49.2	41.5	59.5	39.2	34.4	65.3	60.1	52.5	50.7	50.7	
Progression Factor		1.00	1.00	1.00	1.04	1.24	0.68	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		26.5	10.3	3.8	47.5	0.5	1.2	44.2	0.5	97.0	11.0	11.4	
Delay (s)		89.1	59.6	45.3	109.2	49.1	24.7	109.5	60.5	149.5	61.6	62.1	
Level of Service		F	E	D	F	D	C	F	E	F	E	E	
Approach Delay (s)			57.8			55.8			137.0			57.3	
Approach LOS			E			E			F			E	
Intersection Summary													
HCM 2000 Control Delay			70.2		HCM 2000 Level of Service					E			
HCM 2000 Volume to Capacity ratio			1.01										
Actuated Cycle Length (s)			145.0		Sum of lost time (s)					26.9			
Intersection Capacity Utilization			97.6%		ICU Level of Service					F			
Analysis Period (min)			15										

c Critical Lane Group

Movement	SBR
Lane Configurations	7
Traffic Volume (vph)	210
Future Volume (vph)	210
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.1
Lane Util. Factor	1.00
Frbp, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1560
Flt Permitted	1.00
Satd. Flow (perm)	1560
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	214
RTOR Reduction (vph)	141
Lane Group Flow (vph)	73
Confl. Peds. (#/hr)	3
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	37.3
Effective Green, g (s)	37.3
Actuated g/C Ratio	0.26
Clearance Time (s)	6.1
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	401
v/s Ratio Prot	
v/s Ratio Perm	0.05
v/c Ratio	0.18
Uniform Delay, d1	42.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	42.0
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
2: Friars Rd & SR-163 NB Ramps

HY Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	640	2615	1697	1052	1479	1010
Future Volume (vph)	640	2615	1697	1052	1479	1010
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.5	6.0	4.5	4.5	5.0
Lane Util. Factor	0.97	0.86	0.86	0.88	0.94	0.88
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	6408	6408	2787	4990	2787
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	6408	6408	2787	4990	2787
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	667	2724	1768	1096	1541	1052
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	667	2724	1768	1096	1541	1052
Turn Type	Prot	NA	NA	custom	Prot	pm+ov
Protected Phases	5	2	3	6	4	5
Permitted Phases						4
Actuated Green, G (s)	38.3	92.5	50.7	65.0	43.5	81.8
Effective Green, g (s)	38.3	92.5	50.7	65.0	43.5	81.8
Actuated g/C Ratio	0.26	0.64	0.35	0.45	0.30	0.56
Clearance Time (s)	5.0	4.5			4.5	5.0
Vehicle Extension (s)	2.0	3.0			3.0	2.0
Lane Grp Cap (vph)	906	4087	2240	1249	1497	1668
v/s Ratio Prot	c0.19	0.43	c0.28	c0.39	c0.31	0.17
v/s Ratio Perm						0.21
v/c Ratio	0.74	0.67	0.79	0.88	1.03	0.63
Uniform Delay, d1	48.7	16.5	42.4	36.4	50.8	21.4
Progression Factor	0.98	0.85	1.19	1.47	1.00	1.00
Incremental Delay, d2	1.0	0.3	1.1	4.5	31.1	0.6
Delay (s)	49.0	14.4	51.5	57.9	81.9	22.0
Level of Service	D	B	D	E	F	C
Approach Delay (s)		21.2	54.0		57.6	
Approach LOS		C	D		E	























Intersection Summary

HCM 2000 Control Delay	42.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Frazee Rd & Friars Rd

HY Plus Project Plus Event Conditions
PM Peak Hour

												
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	30	340	3035	670	10	122	1829	108	330	70	159	138
Future Volume (vph)	30	340	3035	670	10	122	1829	108	330	70	159	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.4	3.0	4.4		4.4	6.5	6.5	4.4	4.9		4.4
Lane Util. Factor		0.97	0.86	0.88		0.97	0.86	1.00	0.97	0.95		0.97
Frbp, ped/bikes		1.00	1.00	1.00		1.00	1.00	0.98	1.00	0.97		1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.90		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (prot)		3433	6408	2787		3433	6408	1546	3433	3062		3433
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (perm)		3433	6408	2787		3433	6408	1546	3433	3062		3433
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	34	382	3410	753	11	137	2055	121	371	79	179	155
RTOR Reduction (vph)	0	0	0	0	0	0	0	75	0	55	0	0
Lane Group Flow (vph)	0	416	3410	753	0	148	2055	46	371	203	0	155
Confl. Peds. (#/hr)				18				8			43	
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	custom	Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2 9	3 9	1	1	6		3	8		7
Permitted Phases							6					
Actuated Green, G (s)		20.1	69.7	65.8		6.5	55.1	55.1	20.6	42.3		7.3
Effective Green, g (s)		20.1	69.7	60.3		6.5	55.1	55.1	20.6	42.3		7.3
Actuated g/C Ratio		0.14	0.48	0.42		0.04	0.38	0.38	0.14	0.29		0.05
Clearance Time (s)		4.4				4.4	6.5	6.5	4.4	4.9		4.4
Vehicle Extension (s)		2.0				2.0	4.4	4.4	2.0	2.0		2.2
Lane Grp Cap (vph)		475	3080	1159		153	2435	587	487	893		172
v/s Ratio Prot		c0.12	c0.53	0.27		0.04	0.32		c0.11	0.07		0.05
v/s Ratio Perm							0.03					
v/c Ratio		0.88	1.11	0.65		0.97	0.84	0.08	0.76	0.23		0.90
Uniform Delay, d1		61.2	37.6	33.9		69.1	41.0	28.7	59.8	39.0		68.5
Progression Factor		1.04	0.81	1.14		1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		11.1	51.9	0.6		62.0	3.8	0.3	6.3	0.0		41.1
Delay (s)		75.1	82.2	39.3		131.1	44.8	29.0	66.1	39.0		109.6
Level of Service		E	F	D		F	D	C	E	D		F
Approach Delay (s)			74.5				49.5			55.0		
Approach LOS			E				D			D		
Intersection Summary												
HCM 2000 Control Delay			65.6				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			1.00									
Actuated Cycle Length (s)			145.0				Sum of lost time (s)			22.2		
Intersection Capacity Utilization			100.9%				ICU Level of Service			G		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Frazee Rd & Friars Rd

HY Plus Project Plus Event Conditions
PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑	↑↑
Traffic Volume (vph)	80	380
Future Volume (vph)	80	380
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.9	4.9
Lane Util. Factor	1.00	0.88
Frbp, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1863	2750
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1863	2750
Peak-hour factor, PHF	0.89	0.89
Adj. Flow (vph)	90	427
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	90	427
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		1
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	29.0	29.0
Effective Green, g (s)	29.0	29.0
Actuated g/C Ratio	0.20	0.20
Clearance Time (s)	4.9	4.9
Vehicle Extension (s)	2.3	2.3
Lane Grp Cap (vph)	372	550
v/s Ratio Prot	0.05	
v/s Ratio Perm		c0.16
v/c Ratio	0.24	0.78
Uniform Delay, d1	48.8	54.9
Progression Factor	1.00	1.00
Incremental Delay, d2	0.2	6.4
Delay (s)	49.0	61.3
Level of Service	D	E
Approach Delay (s)	70.8	
Approach LOS	E	
Intersection Summary		

HCM 6th Signalized Intersection Summary
4: Mission Center Rd & Friars Rd WB

HY Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↵	↵	↵		↵	↵			↵	↵
Traffic Volume (veh/h)	0	0	0	240	10	295	10	230	880	0	0	1214	340
Future Volume (veh/h)	0	0	0	240	10	295	10	230	880	0	0	1214	340
Initial Q (Qb), veh				0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00		1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No			No
Adj Sat Flow, veh/h/ln				1870	1870	1870		1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				257	0	179		240	917	0	0	1265	292
Peak Hour Factor				0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2		2	2	0	0	2	2
Cap, veh/h				488	0	217		303	2699	0	0	2242	966
Arrive On Green				0.27	0.00	0.27		0.18	1.00	0.00	0.00	0.63	0.63
Sat Flow, veh/h				3563	0	1585		3456	3647	0	0	3647	1530
Grp Volume(v), veh/h				257	0	179		240	917	0	0	1265	292
Grp Sat Flow(s),veh/h/ln				1781	0	1585		1728	1777	0	0	1777	1530
Q Serve(g_s), s				6.6	0.0	11.4		7.2	0.0	0.0	0.0	22.0	9.4
Cycle Q Clear(g_c), s				6.6	0.0	11.4		7.2	0.0	0.0	0.0	22.0	9.4
Prop In Lane				1.00		1.00		1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				488	0	217		303	2699	0	0	2242	966
V/C Ratio(X)				0.53	0.00	0.82		0.79	0.34	0.00	0.00	0.56	0.30
Avail Cap(c_a), veh/h				1013	0	451		579	2699	0	0	2242	966
HCM Platoon Ratio				2.00	2.00	2.00		2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00		0.54	0.54	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				36.2	0.0	38.0		43.6	0.0	0.0	0.0	11.4	9.1
Incr Delay (d2), s/veh				0.9	0.0	7.7		1.0	0.2	0.0	0.0	1.0	0.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.7	0.0	4.2		2.8	0.1	0.0	0.0	7.9	3.0
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh				37.1	0.0	45.7		44.6	0.2	0.0	0.0	12.4	9.9
LnGrp LOS				D	A	D		D	A	A	A	B	A
Approach Vol, veh/h				436				1157				1557	
Approach Delay, s/veh				40.6				9.4				12.0	
Approach LOS				D				A				B	
Timer - Assigned Phs		2			5	6			8				
Phs Duration (G+Y+Rc), s		88.3			13.9	74.4			19.7				
Change Period (Y+Rc), s		* 6.3			4.4	6.3			4.9				
Max Green Setting (Gmax), s		* 67			18.1	43.6			30.7				
Max Q Clear Time (g_c+I1), s		2.0			9.2	24.0			13.4				
Green Ext Time (p_c), s		6.2			0.3	14.5			1.3				

Intersection Summary

HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Mission Center Rd & Friars Rd EB

HY Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	10	310	0	0	0	0	730	477	564	890	0
Future Volume (veh/h)	380	10	310	0	0	0	0	730	477	564	890	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	408	0	204				0	768	415	594	937	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	570	0	254				0	755	406	1204	2633	0
Arrive On Green	0.16	0.00	0.16				0.00	0.34	0.34	0.70	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2291	1181	3456	3647	0
Grp Volume(v), veh/h	408	0	204				0	620	563	594	937	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1602	1728	1777	0
Q Serve(g_s), s	11.7	0.0	13.4				0.0	37.1	37.1	8.6	0.0	0.0
Cycle Q Clear(g_c), s	11.7	0.0	13.4				0.0	37.1	37.1	8.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.74	1.00		0.00
Lane Grp Cap(c), veh/h	570	0	254				0	610	550	1204	2633	0
V/C Ratio(X)	0.72	0.00	0.80				0.00	1.02	1.02	0.49	0.36	0.00
Avail Cap(c_a), veh/h	976	0	434				0	610	550	1204	2633	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.69	0.69	0.00
Uniform Delay (d), s/veh	43.0	0.0	43.7				0.0	35.5	35.5	12.0	0.0	0.0
Incr Delay (d2), s/veh	1.7	0.0	5.9				0.0	40.5	44.2	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	5.5				0.0	22.1	20.5	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.7	0.0	49.6				0.0	75.9	79.7	12.1	0.1	0.0
LnGrp LOS	D	A	D				A	F	F	B	A	A
Approach Vol, veh/h		612						1183			1531	
Approach Delay, s/veh		46.4						77.7			4.7	
Approach LOS		D						E			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	43.4	42.4	22.2	85.8								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	26.7	* 37	29.6	67.7								
Max Q Clear Time (g_c+110), s	110.6	39.1	15.4	2.0								
Green Ext Time (p_c), s	1.1	0.0	1.9	9.8								

Intersection Summary

HCM 6th Ctrl Delay	38.3
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
6: Qualcomm Way & Friars Rd WB

HY Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↔		↖	↕			↕	↗
Traffic Volume (veh/h)	0	0	0	538	10	80	670	110	0	0	237	20
Future Volume (veh/h)	0	0	0	538	10	80	670	110	0	0	237	20
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				627	0	0	698	115	0	0	247	2
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				739	388	0	1168	2372	0	0	953	413
Arrive On Green				0.21	0.00	0.00	0.34	0.67	0.00	0.00	0.27	0.27
Sat Flow, veh/h				3563	1870	0	3456	3647	0	0	3647	1541
Grp Volume(v), veh/h				627	0	0	698	115	0	0	247	2
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1728	1777	0	0	1777	1541
Q Serve(g_s), s				13.5	0.0	0.0	13.4	0.9	0.0	0.0	4.4	0.1
Cycle Q Clear(g_c), s				13.5	0.0	0.0	13.4	0.9	0.0	0.0	4.4	0.1
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				739	388	0	1168	2372	0	0	953	413
V/C Ratio(X)				0.85	0.00	0.00	0.60	0.05	0.00	0.00	0.26	0.00
Avail Cap(c_a), veh/h				1251	657	0	1168	2372	0	0	953	413
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.97	0.97	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				30.5	0.0	0.0	22.0	4.6	0.0	0.0	23.0	21.4
Incr Delay (d2), s/veh				1.1	0.0	0.0	0.9	0.0	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.5	0.0	0.0	5.2	0.3	0.0	0.0	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				31.6	0.0	0.0	22.8	4.6	0.0	0.0	23.2	21.5
LnGrp LOS				C	A	A	C	A	A	A	C	C
Approach Vol, veh/h					627			813			249	
Approach Delay, s/veh					31.6			20.3			23.1	
Approach LOS					C			C			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		58.5			32.1	26.4		21.5				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+11), s		2.9			15.4	6.4		15.5				
Green Ext Time (p_c), s		0.8			1.7	1.0		1.1				

Intersection Summary

HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
7: Qualcomm Way & Friars Rd EB

HY Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	10	410	0	0	0	0	680	480	123	793	0
Future Volume (veh/h)	70	10	410	0	0	0	0	680	480	123	793	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	86	0	387				0	756	189	137	881	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	962	0	428				0	3147	774	210	2150	0
Arrive On Green	0.27	0.00	0.27				0.00	0.49	0.49	0.12	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	6696	1583	3456	3647	0
Grp Volume(v), veh/h	86	0	387				0	756	189	137	881	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1609	1583	1728	1777	0
Q Serve(g_s), s	1.4	0.0	18.9				0.0	5.4	5.5	3.0	0.0	0.0
Cycle Q Clear(g_c), s	1.4	0.0	18.9				0.0	5.4	5.5	3.0	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	962	0	428				0	3147	774	210	2150	0
V/C Ratio(X)	0.09	0.00	0.90				0.00	0.24	0.24	0.65	0.41	0.00
Avail Cap(c_a), veh/h	1519	0	676				0	3147	774	436	2150	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.80	0.80	0.71	0.71	0.00
Uniform Delay (d), s/veh	21.8	0.0	28.2				0.0	11.8	11.9	34.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	7.3				0.0	0.1	0.6	0.9	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	7.4				0.0	1.8	1.9	1.2	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.9	0.0	35.5				0.0	12.0	12.5	35.2	0.4	0.0
LnGrp LOS	C	A	D				A	B	B	D	A	A
Approach Vol, veh/h		473						945			1018	
Approach Delay, s/veh		33.0						12.1			5.1	
Approach LOS		C						B			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	9.3	44.2	26.5	53.5								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.5	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	15.0	7.5	20.9	2.0								
Green Ext Time (p_c), s	0.1	5.5	0.7	4.4								

Intersection Summary

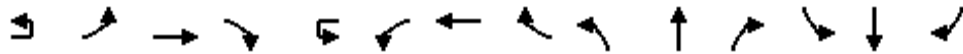
HCM 6th Ctrl Delay	13.2
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

HY Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↖ ↗ ↘ ↙	↖ ↗ ↘ ↙	↖ ↗		↖ ↗ ↘ ↙	↖ ↗ ↘ ↙		↖ ↗ ↘ ↙	↖ ↗	↖ ↗		↖ ↗		
Traffic Volume (veh/h)	20	20	3145	160	10	78	1811	28	80	10	152	225	20	90	
Future Volume (veh/h)	20	20	3145	160	10	78	1811	28	80	10	152	225	20	90	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	1.00		0.98	0.98		0.98	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		21	3242	139		80	1867	28	82	10	43	232	21	82	
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2	
Cap, veh/h		237	2273	703		237	2306	35	415	48	475	294	23	88	
Arrive On Green		0.13	0.45	0.45		0.13	0.45	0.45	0.31	0.31	0.31	0.31	0.31	0.31	
Sat Flow, veh/h		1781	5106	1580		1781	5181	78	1187	156	1546	811	73	287	
Grp Volume(v), veh/h		21	3242	139		80	1226	669	92	0	43	335	0	0	
Grp Sat Flow(s),veh/h/ln		1781	1702	1580		1781	1702	1854	1343	0	1546	1171	0	0	
Q Serve(g_s), s		1.4	60.1	7.2		5.5	42.2	42.2	0.0	0.0	2.7	31.6	0.0	0.0	
Cycle Q Clear(g_c), s		1.4	60.1	7.2		5.5	42.2	42.2	6.8	0.0	2.7	38.4	0.0	0.0	
Prop In Lane		1.00		1.00		1.00		0.04	0.89		1.00	0.69		0.24	
Lane Grp Cap(c), veh/h		237	2273	703		237	1515	826	463	0	475	404	0	0	
V/C Ratio(X)		0.09	1.43	0.20		0.34	0.81	0.81	0.20	0.00	0.09	0.83	0.00	0.00	
Avail Cap(c_a), veh/h		237	2273	703		237	1515	826	504	0	522	448	0	0	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		0.79	0.79	0.79	1.00	0.00	1.00	1.00	0.00	0.00	
Uniform Delay (d), s/veh		51.3	37.5	22.8		53.1	32.5	32.5	34.7	0.0	33.4	49.0	0.0	0.0	
Incr Delay (d2), s/veh		0.1	194.4	0.6		0.2	3.8	6.8	0.2	0.0	0.1	11.7	0.0	0.0	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		0.6	64.5	2.8		2.4	17.3	19.6	2.3	0.0	1.0	12.3	0.0	0.0	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		51.4	231.9	23.4		53.4	36.3	39.3	34.9	0.0	33.4	60.7	0.0	0.0	
LnGrp LOS		D	F	C		D	D	D	C	A	C	E	A	A	
Approach Vol, veh/h		3402				1975				135				335	
Approach Delay, s/veh		222.2				38.0				34.4				60.7	
Approach LOS		F				D				C				E	
Timer - Assigned Phs	1	2	4		5	6	8								
Phs Duration (G+Y+Rc), s	22.4	66.3	46.3		22.4	66.3	46.3								
Change Period (Y+Rc), s	4.4	6.2	4.9		4.4	6.2	4.9								
Max Green Setting (Gmax), s	13.8	60.1	45.6		13.8	60.1	45.6								
Max Q Clear Time (g_c+1), s	17.5	62.1	40.4		3.4	44.2	8.8								
Green Ext Time (p_c), s	0.0	0.0	1.1		0.0	15.3	0.6								

Intersection Summary

HCM 6th Ctrl Delay	146.4
HCM 6th LOS	F

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 9: Fenton Pkwy & Friars Rd

HY Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗		↔↔	↑↑↑	↗	↔↔	↑	↗	↔↔	↗	↗
Traffic Volume (veh/h)	150	3169	383	10	250	1516	80	320	56	420	40	23	70
Future Volume (veh/h)	150	3169	383	10	250	1516	80	320	56	420	40	23	70
Initial Q (Qb), veh	15	25	15		0	0	0	0	0	15	15	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	3267	325		258	1563	45	330	58	231	41	24	9
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	253	2147	1133		303	2618	871	755	425	342	132	91	201
Arrive On Green	0.06	0.55	0.55		0.18	1.00	1.00	0.16	0.19	0.19	0.02	0.05	0.05
Sat Flow, veh/h	3456	5106	1585		3456	5106	1565	3456	1870	1580	3563	1870	1557
Grp Volume(v), veh/h	155	3267	325		258	1563	45	330	58	231	41	24	9
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1565	1728	1870	1580	1781	1870	1557
Q Serve(g_s), s	6.0	75.1	4.2		9.8	0.0	0.0	12.1	3.5	18.9	1.5	1.7	0.5
Cycle Q Clear(g_c), s	6.0	75.1	4.2		9.8	0.0	0.0	12.1	3.5	18.9	1.5	1.7	0.5
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	253	2147	1133		303	2618	871	755	425	342	132	91	201
V/C Ratio(X)	0.61	1.52	0.29		0.85	0.60	0.05	0.44	0.14	0.68	0.31	0.26	0.04
Avail Cap(c_a), veh/h	384	2821	1130		333	2964	945	554	545	460	280	470	486
HCM Platoon Ratio	1.00	1.00	1.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09		0.80	0.80	0.80	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.3	39.4	2.1		55.2	4.0	2.4	46.4	42.1	51.2	64.9	62.3	26.7
Incr Delay (d2), s/veh	0.1	234.9	0.1		13.4	0.8	0.1	0.0	0.1	1.0	0.5	6.9	0.4
Initial Q Delay(d3),s/veh	65.6	41.9	1.8		0.0	0.0	0.0	0.0	0.0	42.8	134.6	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	77.7	2.8		4.4	1.6	0.1	4.9	1.6	13.8	4.2	1.0	0.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	127.9	316.2	3.9		68.6	4.8	2.5	46.4	42.1	95.0	200.0	69.2	27.2
LnGrp LOS	F	F	A		E	A	A	D	D	F	F	E	C
Approach Vol, veh/h		3747				1866			619			74	
Approach Delay, s/veh		281.4				13.5			64.1			136.6	
Approach LOS		F				B			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	6.3	81.4	26.7	11.5	12.5	85.2	7.6	30.7					
Change Period (Y+Rc), s	4.4	6.3	4.9	* 4.9	4.4	* 6.3	4.4	4.9					
Max Green Setting (Gmax), s	13.1	52.6	16.1	* 34	15.1	* 51	10.7	39.6					
Max Q Clear Time (g_c+I1), s	11.8	77.1	14.1	3.7	8.0	2.0	3.5	20.9					
Green Ext Time (p_c), s	0.1	0.0	0.2	0.3	0.1	39.3	0.0	3.6					

Intersection Summary

HCM 6th Ctrl Delay	179.1
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
10: Northside Dr & Friars Rd

HY Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↑↑↑	↔	↔↔	↑↑↑	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	10	160	3069	250	545	1526	225	210	40	812	112	30	100
Future Volume (veh/h)	10	160	3069	250	545	1526	225	210	40	812	112	30	100
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		172	3300	269	586	1641	153	226	43	793	120	32	5
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		221	2391	731	409	2668	896	280	407	529	171	348	295
Arrive On Green		0.09	0.62	0.62	0.24	1.00	1.00	0.08	0.22	0.22	0.05	0.19	0.19
Sat Flow, veh/h		3456	5106	1561	3456	5106	1565	3456	1870	1568	3456	1870	1585
Grp Volume(v), veh/h		172	3300	269	586	1641	153	226	43	793	120	32	5
Grp Sat Flow(s),veh/h/ln		1728	1702	1561	1728	1702	1565	1728	1870	1568	1728	1870	1585
Q Serve(g_s), s		6.6	63.7	11.5	16.1	0.0	0.0	8.7	2.5	29.6	4.7	1.9	0.4
Cycle Q Clear(g_c), s		6.6	63.7	11.5	16.1	0.0	0.0	8.7	2.5	29.6	4.7	1.9	0.4
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		221	2391	731	409	2668	896	280	407	529	171	348	295
V/C Ratio(X)		0.78	1.38	0.37	1.43	0.62	0.17	0.81	0.11	1.50	0.70	0.09	0.02
Avail Cap(c_a), veh/h		307	2391	731	409	2668	896	483	407	529	483	407	345
HCM Platoon Ratio		1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.09	0.09	0.09	0.81	0.81	0.81	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		61.3	25.7	15.8	51.9	0.0	0.0	61.4	42.6	45.2	63.7	45.8	45.2
Incr Delay (d2), s/veh		0.5	171.4	0.1	205.8	0.9	0.3	2.1	0.3	234.6	2.0	0.5	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.8	58.1	3.8	17.6	0.2	0.1	4.0	1.2	52.3	2.1	1.0	0.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		61.7	197.1	15.9	257.7	0.9	0.3	63.6	42.9	279.8	65.6	46.4	45.3
LnGrp LOS		E	F	B	F	A	A	E	D	F	E	D	D
Approach Vol, veh/h			3741			2380			1062			157	
Approach Delay, s/veh			177.8			64.1			224.2			61.0	
Approach LOS			F			E			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	20.5	69.9	15.4	30.2	13.1	77.3	11.1	34.5					
Change Period (Y+Rc), s	4.4	* 6.2	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	10.1	* 52	19.0	29.6	12.1	55.4	19.0	29.6					
Max Q Clear Time (g_c+11g), s	11.0	65.7	10.7	3.9	8.6	2.0	6.7	31.6					
Green Ext Time (p_c), s	0.0	0.0	0.3	0.4	0.1	40.4	0.1	0.0					

Intersection Summary

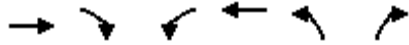
HCM 6th Ctrl Delay	145.1
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 11: Stadium Way (Street A) & Friars Rd

HY Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖↗	↑↑↑	↖↗	↗↖
Traffic Volume (veh/h)	3368	595	1097	2016	289	614
Future Volume (veh/h)	3368	595	1097	2016	289	614
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3545	479	1155	2122	304	646
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	3454	1048	432	4280	305	595
Arrive On Green	1.00	1.00	0.13	0.84	0.09	0.09
Sat Flow, veh/h	5274	1549	3456	5274	3456	2790
Grp Volume(v), veh/h	3545	479	1155	2122	304	646
Grp Sat Flow(s),veh/h/ln	1702	1549	1728	1702	1728	1395
Q Serve(g_s), s	92.0	0.0	17.0	15.6	12.0	12.0
Cycle Q Clear(g_c), s	92.0	0.0	17.0	15.6	12.0	12.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3454	1048	432	4280	305	595
V/C Ratio(X)	1.03	0.46	2.67	0.50	1.00	1.09
Avail Cap(c_a), veh/h	3454	1048	432	4280	305	595
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	59.5	3.0	62.0	53.5
Incr Delay (d2), s/veh	13.5	0.1	759.8	0.4	50.7	62.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.0	52.9	3.2	7.4	8.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.5	0.1	819.3	3.5	112.7	115.9
LnGrp LOS	F	A	F	A	F	F
Approach Vol, veh/h	4024			3277	950	
Approach Delay, s/veh	11.9			291.0	114.9	
Approach LOS	B			F	F	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	22.0	97.0		119.0	17.0	
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	
Max Green Setting (Gmax), s	92.0	92.0		114.0	12.0	
Max Q Clear Time (g_c+119), s	94.0	94.0		17.6	14.0	
Green Ext Time (p_c), s	0.0	0.0		33.0	0.0	
Intersection Summary						
HCM 6th Ctrl Delay			134.6			
HCM 6th LOS			F			

HCM 6th Signalized Intersection Summary
 12: Mission Village Dr & Friars Rd WB

HY Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↶	↶↷	↶↷			↶↷	↶
Traffic Volume (veh/h)	0	0	0	693	0	364	439	740	0	0	1573	575
Future Volume (veh/h)	0	0	0	693	0	364	439	740	0	0	1573	575
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				No
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				722	0	224	457	771	0	0	1639	495
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				774	0	343	577	2523	0	0	1751	769
Arrive On Green				0.43	0.00	0.43	0.33	1.00	0.00	0.00	0.49	0.49
Sat Flow, veh/h				3563	0	1578	3456	3647	0	0	3647	1561
Grp Volume(v), veh/h				722	0	224	457	771	0	0	1639	495
Grp Sat Flow(s),veh/h/ln				1781	0	1578	1728	1777	0	0	1777	1561
Q Serve(g_s), s				27.0	0.0	15.7	16.8	0.0	0.0	0.0	60.8	33.0
Cycle Q Clear(g_c), s				27.0	0.0	15.7	16.8	0.0	0.0	0.0	60.8	33.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				774	0	343	577	2523	0	0	1751	769
V/C Ratio(X)				0.93	0.00	0.65	0.79	0.31	0.00	0.00	0.94	0.64
Avail Cap(c_a), veh/h				893	0	396	577	2523	0	0	1751	769
HCM Platoon Ratio				2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.92	0.92	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				38.6	0.0	35.4	44.4	0.0	0.0	0.0	33.4	26.4
Incr Delay (d2), s/veh				14.2	0.0	2.0	6.3	0.3	0.0	0.0	10.9	4.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				10.5	0.0	5.0	6.4	0.1	0.0	0.0	27.2	12.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				52.9	0.0	37.4	50.7	0.3	0.0	0.0	44.3	30.5
LnGrp LOS				D	A	D	D	A	A	A	D	C
Approach Vol, veh/h					946			1228			2134	
Approach Delay, s/veh					49.2			19.0			41.1	
Approach LOS					D			B			D	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		104.7			28.7	76.0		35.3				
Change Period (Y+Rc), s		5.3			5.3	7.0		4.9				
Max Green Setting (Gmax), s		94.7			18.7	69.0		35.1				
Max Q Clear Time (g_c+I1), s		2.0			18.8	62.8		29.0				
Green Ext Time (p_c), s		3.4			0.0	5.6		1.2				

Intersection Summary



















HCM 6th Ctrl Delay	36.6
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

HCM Signalized Intersection Capacity Analysis
 13: Mission Village Dr/Street D & Friars Rd EB

HY Plus Project Plus Event Conditions
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	344	10	653	0	0	0	0	857	1099	518	1758	0
Future Volume (vph)	344	10	653	0	0	0	0	857	1099	518	1758	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.2	5.2					4.9	4.9	6.2	6.2	
Lane Util. Factor		1.00	0.88					0.91	0.88	0.97	0.95	
Frbp, ped/bikes		1.00	0.99					1.00	0.96	1.00	1.00	
Flpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1777	2748					5085	2680	3433	3539	
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1777	2748					5085	2680	3433	3539	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	362	11	687	0	0	0	0	902	1157	545	1851	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	373	687	0	0	0	0	902	1157	545	1851	0
Confl. Peds. (#/hr)			1						4			4
Confl. Bikes (#/hr)			1									
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		38.0	38.0					62.0	62.0	23.7	90.6	
Effective Green, g (s)		38.0	38.0					62.0	62.0	23.7	90.6	
Actuated g/C Ratio		0.27	0.27					0.44	0.44	0.17	0.65	
Clearance Time (s)		5.2	5.2					4.9	4.9	6.2	6.2	
Vehicle Extension (s)		3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		482	745					2251	1186	581	2290	
v/s Ratio Prot		0.21						0.18		c0.16	0.52	
v/s Ratio Perm			c0.25						c0.43			
v/c Ratio		0.77	0.92					0.40	0.98	0.94	0.81	
Uniform Delay, d1		47.0	49.6					26.4	38.3	57.4	18.3	
Progression Factor		1.00	1.00					0.67	0.53	1.17	0.28	
Incremental Delay, d2		7.6	16.9					0.2	11.7	12.8	1.5	
Delay (s)		54.6	66.4					17.9	32.1	79.8	6.5	
Level of Service		D	E					B	C	E	A	
Approach Delay (s)		62.3			0.0			25.9			23.2	
Approach LOS		E			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			31.7		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			140.0		Sum of lost time (s)				16.3			
Intersection Capacity Utilization			90.4%		ICU Level of Service				E			
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
14: Street D & Street 4

HY Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↑	↗	↖	↑↑↑		↖	↑↑	↗
Traffic Volume (veh/h)	126	27	4	499	46	259	8	1579	193	1111	1167	133
Future Volume (veh/h)	126	27	4	499	46	259	8	1579	193	1111	1167	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	133	28	1	525	48	273	8	1662	192	1169	1228	107
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	115	212	8	64	168	1164	14	1719	198	1147	2471	1071
Arrive On Green	0.06	0.12	0.12	0.01	0.03	0.03	0.01	0.37	0.37	0.55	1.00	1.00
Sat Flow, veh/h	1781	1792	64	1781	1870	2645	1781	4631	533	3456	3554	1540
Grp Volume(v), veh/h	133	0	29	525	48	273	8	1220	634	1169	1228	107
Grp Sat Flow(s),veh/h/ln	1781	0	1856	1781	1870	1323	1781	1702	1760	1728	1777	1540
Q Serve(g_s), s	9.0	0.0	2.0	5.0	3.5	9.2	0.6	49.2	49.5	46.5	0.0	0.0
Cycle Q Clear(g_c), s	9.0	0.0	2.0	5.0	3.5	9.2	0.6	49.2	49.5	46.5	0.0	0.0
Prop In Lane	1.00		0.03	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	115	0	220	64	168	1164	14	1263	653	1147	2471	1071
V/C Ratio(X)	1.16	0.00	0.13	8.25	0.29	0.23	0.59	0.97	0.97	1.02	0.50	0.10
Avail Cap(c_a), veh/h	115	0	464	64	414	1512	89	1264	654	1147	2471	1071
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.43	0.43	0.43
Uniform Delay (d), s/veh	65.5	0.0	55.3	69.2	63.5	27.8	69.2	43.2	43.3	31.2	0.0	0.0
Incr Delay (d2), s/veh	134.0	0.0	0.33	295.5	0.9	0.1	34.4	17.7	27.8	22.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	0.0	0.9	60.6	1.8	3.3	0.4	23.6	26.4	19.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	199.5	0.0	55.53	364.6	64.4	27.9	103.6	60.9	71.0	53.7	0.1	0.0
LnGrp LOS	F	A	E	F	E	C	F	E	E	F	A	A
Approach Vol, veh/h		162			846			1862			2504	
Approach Delay, s/veh		173.7			2100.6			64.5			25.1	
Approach LOS		F			F			E			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	51.5	57.0	10.0	21.6	6.1	102.3	14.0	17.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	28.0	52.0	5.0	35.0	7.0	73.0	9.0	31.0				
Max Q Clear Time (g_c+40), s	40.5	51.5	7.0	4.0	2.6	2.0	11.0	11.2				
Green Ext Time (p_c), s	0.0	0.4	0.0	0.1	0.0	14.2	0.0	1.4				

Intersection Summary

HCM 6th Ctrl Delay	370.0
HCM 6th LOS	F

HCM Signalized Intersection Capacity Analysis
15: Street F & Street 4

HY Plus Project Plus Event Conditions
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1245	21	4	5	8	21	8	222	4	82	356	768
Future Volume (vph)	1245	21	4	5	8	21	8	222	4	82	356	768
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	2.1	4.5
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.88
Frbp, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.89		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1807		1770	1622		1770	1856		1770	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	1807		1770	1622		1770	1856		1770	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1353	23	4	5	9	23	9	241	4	89	387	835
RTOR Reduction (vph)	0	2	0	0	20	0	0	1	0	0	0	0
Lane Group Flow (vph)	1353	25	0	5	12	0	9	244	0	89	387	835
Confl. Peds. (#/hr)			10			10			10			
Confl. Bikes (#/hr)			3			3			3			3
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	7	4		3	8		5	2		1	6 9	7 9
Permitted Phases												
Actuated Green, G (s)	69.6	84.1		1.0	15.5		1.0	26.6		10.3	35.9	82.4
Effective Green, g (s)	69.6	84.1		1.0	15.5		1.0	26.6		10.3	35.9	82.4
Actuated g/C Ratio	0.50	0.60		0.01	0.11		0.01	0.19		0.07	0.26	0.59
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)	1706	1085		12	179		12	352		130	477	1640
v/s Ratio Prot	c0.39	0.01		0.00	c0.01		0.01	0.13		c0.05	c0.21	c0.30
v/s Ratio Perm												
v/c Ratio	0.79	0.02		0.42	0.06		0.75	0.69		0.68	0.81	0.51
Uniform Delay, d1	29.2	11.3		69.2	55.8		69.4	52.9		63.3	48.9	16.9
Progression Factor	0.80	0.25		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	0.0		21.8	0.2		128.3	5.8		13.9	9.6	0.3
Delay (s)	23.8	2.8		91.0	55.9		197.6	58.7		77.2	58.5	17.2
Level of Service	C	A		F	E		F	E		E	E	B
Approach Delay (s)		23.3			60.6			63.6			33.4	
Approach LOS		C			E			E			C	
Intersection Summary												
HCM 2000 Control Delay			31.7									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			140.0									Sum of lost time (s) 20.1
Intersection Capacity Utilization			75.9%									ICU Level of Service D
Analysis Period (min)			15									

c Critical Lane Group

Intersection					
Intersection Delay, s/veh 13.3					
Intersection LOS B					
Approach	EB		WB		NB
Entry Lanes	2		2		1
Conflicting Circle Lanes	2		2		2
Adj Approach Flow, veh/h	1618		1108		301
Demand Flow Rate, veh/h	1650		1130		307
Vehicles Circulating, veh/h	52		259		1550
Vehicles Exiting, veh/h	1337		1598		152
Ped Vol Crossing Leg, #/h	0		0		0
Ped Cap Adj	1.000		1.000		1.000
Approach Delay, s/veh	10.4		9.4		43.8
Approach LOS	B		A		E
Lane	Left	Right	Left	Right	Left
Designated Moves	LT	TR	LT	TR	LR
Assumed Moves	LT	TR	LT	TR	LR
RT Channelized					
Lane Util	0.470	0.530	0.470	0.530	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328
Entry Flow, veh/h	776	874	531	599	307
Cap Entry Lane, veh/h	1287	1359	1064	1139	380
Entry HV Adj Factor	0.980	0.981	0.981	0.980	0.980
Flow Entry, veh/h	760	857	521	587	301
Cap Entry, veh/h	1261	1333	1043	1117	373
V/C Ratio	0.603	0.643	0.499	0.526	0.807
Control Delay, s/veh	10.1	10.6	9.3	9.4	43.8
LOS	B	B	A	A	E
95th %tile Queue, veh	4	5	3	3	7

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

HY Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗ ↘	↑ ↑ ↑	↗		↖ ↗ ↘	↗					↖ ↗ ↘	↖ ↗ ↘	↖ ↗ ↘
Traffic Volume (veh/h)	567	2749	1186	10	311	2134	393	0	0	0	1185	0	1152
Future Volume (veh/h)	567	2749	1186	10	311	2134	393	0	0	0	1185	0	1152
Initial Q (Qb), veh	20	0	20		20	0	20				0	0	20
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	591	2864	943		324	2223	0				1234	0	1196
Peak Hour Factor	0.96	0.96	0.96		0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	859	3739	906		393	1246					1153	0	2483
Arrive On Green	0.45	0.52	0.52		0.20	0.24	0.00				0.32	0.00	0.32
Sat Flow, veh/h	1781	5106	1552		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	591	2864	943		324	2223	0				1234	0	1196
Grp Sat Flow(s),veh/h/ln	1781	1702	1552		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	37.4	70.2	70.2		24.3	33.2	0.0				44.0	0.0	0.0
Cycle Q Clear(g_c), s	37.4	70.2	70.2		24.3	33.2	0.0				44.0	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	859	3739	906		393	1246					1153	0	2483
V/C Ratio(X)	0.69	0.77	1.04		0.82	1.78					1.07	0.00	0.48
Avail Cap(c_a), veh/h	796	2637	802		393	1246					1153	0	2442
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.44	0.44	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	29.3	15.6	28.3		53.0	51.4	0.0				46.0	0.0	5.6
Incr Delay (d2), s/veh	2.4	1.6	41.2		6.0	354.0	0.0				47.6	0.0	0.1
Initial Q Delay(d3),s/veh	12.5	0.0	79.5		104.3	0.0	0.0				0.0	0.0	0.9
%ile BackOfQ(50%),veh/ln	19.1	12.6	50.6		25.1	54.6	0.0				27.1	0.0	24.0
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	44.2	17.1	149.0		163.3	405.4	0.0				93.6	0.0	6.6
LnGrp LOS	D	B	F		F	F					F	A	A
Approach Vol, veh/h		4398				2547	A					2430	
Approach Delay, s/veh		49.0				374.6						50.8	
Approach LOS		D				F						D	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	30.7	77.2		49.1	67.8	40.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	30	45.7		44.0	42.0	* 33							
Max Q Clear Time (g_c+20), s	20.3	72.2		46.0	39.4	35.2							
Green Ext Time (p_c), s	0.2	0.0		0.0	0.3	0.0							

Intersection Summary

HCM 6th Ctrl Delay	137.9
HCM 6th LOS	F

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

HY Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖				↑↑↑	↗						
Traffic Volume (veh/h)	1101	2893	0	0	1407	970	0	0	1542	0	0	1401
Future Volume (veh/h)	1101	2893	0	0	1407	970	0	0	1542	0	0	1401
Initial Q (Qb), veh	40	0	0	0	20	40						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	1159	3045	0	0	1383	1086						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	660	0	0	0	1728	1497						
Arrive On Green	0.43	0.93	0.00	0.00	0.45	0.45						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	1159	0	0	0	1383	1086						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	45.0	0.0	0.0	0.0	33.7	30.0						
Cycle Q Clear(g_c), s	45.0	0.0	0.0	0.0	33.7	30.0						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	660	0	0	0	1728	1497						
V/C Ratio(X)	1.76	0.00	0.00	0.00	0.80	0.73						
Avail Cap(c_a), veh/h	764	0	0	0	2283	1935						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	1.00	1.00						
Uniform Delay (d), s/veh	38.3	0.0	0.0	0.0	25.5	25.3						
Incr Delay (d2), s/veh	346.8	0.0	0.0	0.0	1.1	0.6						
Initial Q Delay(d3),s/veh	218.3	0.0	0.0	0.0	4.8	18.7						
%ile BackOfQ(50%),veh/ln	22.1	0.0	0.0	0.0	16.7	17.4						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	603.3	0.0	0.0	0.0	31.5	44.6						
LnGrp LOS	F	A	A	A	C	D						
Approach Vol, veh/h		1159			2469							
Approach Delay, s/veh		603.3			37.3							
Approach LOS		F			D							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		104.9			50.5	54.4						
Change Period (Y+Rc), s		* 7			5.5	7.0						
Max Green Setting (Gmax), s		* 18			45.0	64.0						
Max Q Clear Time (g_c+I1), s		0.0			47.0	35.7						
Green Ext Time (p_c), s		0.0			0.0	11.6						

Intersection Summary

HCM 6th Ctrl Delay	218.1
HCM 6th LOS	F

Notes

- User approved volume balancing among the lanes for turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
- Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

HY Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↓	↑↑↑	↓	↑
Traffic Volume (veh/h)	3428	1018	10	168	1854	513	268
Future Volume (veh/h)	3428	1018	10	168	1854	513	268
Initial Q (Qb), veh	0	0		0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	3571	1025		175	1931	534	130
Peak Hour Factor	0.96	0.96		0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	2746	1226		199	4815	633	309
Arrive On Green	0.61	0.61		0.11	0.75	0.17	0.17
Sat Flow, veh/h	5274	1582		1781	6696	3563	1585
Grp Volume(v), veh/h	3571	1025		175	1931	534	130
Grp Sat Flow(s),veh/h/ln	1702	1582		1781	1609	1781	1585
Q Serve(g_s), s	82.4	56.4		13.2	14.6	19.9	10.1
Cycle Q Clear(g_c), s	82.4	56.4		13.2	14.6	19.9	10.1
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2746	1226		199	4815	633	309
V/C Ratio(X)	1.30	0.84		0.88	0.40	0.84	0.42
Avail Cap(c_a), veh/h	3092	1226		208	4822	843	375
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.86	0.86	0.49	0.49
Uniform Delay (d), s/veh	31.4	9.8		59.5	6.4	54.8	48.1
Incr Delay (d2), s/veh	138.0	6.8		27.1	0.2	2.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.1	11.5	0.0
%ile BackOfQ(50%),veh	62.6	36.1		7.3	4.6	10.8	3.9
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	169.4	16.7		86.6	6.6	68.6	48.3
LnGrp LOS	F	B		F	A	E	D
Approach Vol, veh/h	4596			2106	664		
Approach Delay, s/veh	135.4			13.3	64.6		
Approach LOS	F			B	E		
Timer - Assigned Phs	1	2		6	8		
Phs Duration (G+Y+Rc), s	19.6	88.4		107.9	28.1		
Change Period (Y+Rc), s	4.4	* 6		6.0	5.1		
Max Green Setting (Gmax), s	15.9	* 73		92.7	32.2		
Max Q Clear Time (g_c+11.2), s	11.2	84.4		16.6	21.9		
Green Ext Time (p_c), s	0.0	0.0		52.0	1.1		

Intersection Summary

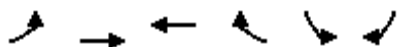
HCM 6th Ctrl Delay	94.1
HCM 6th LOS	F

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: Friars Rd & Santo Rd

HY Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑↑		↔↔	↔
Traffic Volume (veh/h)	453	3323	1679	110	90	293
Future Volume (veh/h)	453	3323	1679	110	90	293
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1856	1870	1870
Adj Flow Rate, veh/h	472	3461	1749	110	94	301
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	3	3	2	2
Cap, veh/h	537	3742	3344	210	609	526
Arrive On Green	0.16	0.73	0.54	0.54	0.18	0.18
Sat Flow, veh/h	3456	5274	6444	389	3456	1585
Grp Volume(v), veh/h	472	3461	1354	505	94	301
Grp Sat Flow(s),veh/h/ln	1728	1702	1596	1786	1728	1585
Q Serve(g_s), s	16.0	67.5	21.7	21.7	2.8	18.8
Cycle Q Clear(g_c), s	16.0	67.5	21.7	21.7	2.8	18.8
Prop In Lane	1.00			0.22	1.00	1.00
Lane Grp Cap(c), veh/h	537	3742	2589	966	609	526
V/C Ratio(X)	0.88	0.92	0.52	0.52	0.15	0.57
Avail Cap(c_a), veh/h	737	3742	2589	966	734	583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.65	0.65	1.00	1.00
Uniform Delay (d), s/veh	49.6	13.3	17.6	17.6	41.8	33.1
Incr Delay (d2), s/veh	0.7	0.5	0.5	1.3	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	19.3	7.5	8.6	1.2	16.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.3	13.8	18.1	19.0	41.9	33.6
LnGrp LOS	D	B	B	B	D	C
Approach Vol, veh/h		3933	1859		395	
Approach Delay, s/veh		18.2	18.4		35.6	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		94.4		25.6	23.0	71.4
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		83.6		25.5	25.6	* 54
Max Q Clear Time (g_c+I1), s		69.5		20.8	18.0	23.7
Green Ext Time (p_c), s		14.0		0.4	0.6	17.7

Intersection Summary

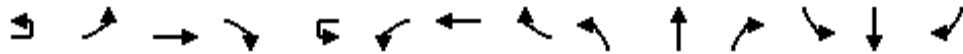
HCM 6th Ctrl Delay	19.4
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 21: Riverdale St & Friars Rd

HY Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		3	3	3					3	3	3			
Traffic Volume (veh/h)	30	234	2924	244	10	50	1354	60	223	110	140	60	60	143
Future Volume (veh/h)	30	234	2924	244	10	50	1354	60	223	110	140	60	60	143
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	0.99		0.99	1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1856		1737	1856	1870	1870	1870	1870	1811	1870	1870
Adj Flow Rate, veh/h		241	3014	159		52	1396	25	230	113	92	62	62	51
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	3		11	3	2	2	2	2	6	2	2
Cap, veh/h		272	2832	870		65	2236	700	335	248	202	252	247	203
Arrive On Green		0.15	0.55	0.55		0.04	0.44	0.44	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h		1781	5106	1568		1654	5066	1585	1273	951	774	1135	946	778
Grp Volume(v), veh/h		241	3014	159		52	1396	25	230	0	205	62	0	113
Grp Sat Flow(s),veh/h/ln		1781	1702	1568		1654	1689	1585	1273	0	1725	1135	0	1724
Q Serve(g_s), s		13.9	58.2	5.3		3.3	22.3	0.9	18.3	0.0	10.5	5.1	0.0	5.4
Cycle Q Clear(g_c), s		13.9	58.2	5.3		3.3	22.3	0.9	23.7	0.0	10.5	15.5	0.0	5.4
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.45	1.00		0.45
Lane Grp Cap(c), veh/h		272	2832	870		65	2236	700	335	0	451	252	0	450
V/C Ratio(X)		0.89	1.06	0.18		0.80	0.62	0.04	0.69	0.00	0.45	0.25	0.00	0.25
Avail Cap(c_a), veh/h		324	2832	870		206	2236	700	455	0	613	359	0	612
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.51	0.51	0.51		0.91	0.91	0.91	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		43.6	23.4	11.6		50.0	22.6	16.6	40.0	0.0	32.5	39.0	0.0	30.7
Incr Delay (d2), s/veh		11.4	33.6	0.2		7.4	1.2	0.1	1.1	0.0	0.3	0.2	0.0	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		6.8	28.8	1.7		1.4	8.4	0.3	5.8	0.0	4.4	1.4	0.0	2.3
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		55.0	57.0	11.8		57.4	23.8	16.7	41.1	0.0	32.8	39.2	0.0	30.8
LnGrp LOS		E	F	B		E	C	B	D	A	C	D	A	C
Approach Vol, veh/h			3414				1473			435			175	
Approach Delay, s/veh			54.7				24.9			37.2			33.8	
Approach LOS			D				C			D			C	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	8.5	64.1		32.3	20.4	52.2		32.3						
Change Period (Y+Rc), s	4.4	* 5.9		4.9	4.4	5.9		4.9						
Max Green Setting (Gmax), s	13	* 40		37.3	19.1	33.4		37.3						
Max Q Clear Time (g_c+1), s	15	60.2		17.5	15.9	24.3		25.7						
Green Ext Time (p_c), s	0.0	0.0		0.5	0.1	5.7		1.0						

Intersection Summary

HCM 6th Ctrl Delay	44.7
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 22: Mission Gorge Rd & Friars Rd

HY Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↵↵	↑↑↑		↵	↵↵
Traffic Volume (veh/h)	2626	288	280	1164	10	360	600
Future Volume (veh/h)	2626	288	280	1164	10	360	600
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	2794	0	298	1238		383	637
Peak Hour Factor	0.94	0.94	0.94	0.94		0.94	0.94
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2621		463	0		412	1018
Arrive On Green	0.51	0.00	0.13	0.00		0.23	0.23
Sat Flow, veh/h	5443	0	3456	298		1781	2790
Grp Volume(v), veh/h	2794	0	298	51.6		383	637
Grp Sat Flow(s),veh/h/ln	1702	0	1728	D		1781	1395
Q Serve(g_s), s	61.6	0.0	9.8			25.3	6.5
Cycle Q Clear(g_c), s	61.6	0.0	9.8			25.3	6.5
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2621		463			412	1018
V/C Ratio(X)	1.07		0.64			0.93	0.63
Avail Cap(c_a), veh/h	2621		463			425	1039
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.09	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	29.2	0.0	49.3			45.2	31.4
Incr Delay (d2), s/veh	30.6	0.0	2.4			26.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh/ln	30.1	0.0	4.3			14.1	7.6
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	59.8	0.0	51.6			71.3	32.2
LnGrp LOS	F		D			E	C
Approach Vol, veh/h	2794	A				1020	
Approach Delay, s/veh	59.8					46.9	
Approach LOS	E					D	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	30.5	67.4					32.1
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	61.6					28.6
Max Q Clear Time (g_c+I1), s	11.8	63.6					27.3
Green Ext Time (p_c), s	0.2	0.0					0.5

Intersection Summary

HCM 6th Ctrl Delay	56.0
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
23: Qualcomm Way & Rio San Diego Dr

HY Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations	↔↔	↑	↗		↔↔	↑↑	↗	↔↔	↑↑↑	↗		↔↔	↑↑↑	
Traffic Volume (veh/h)	321	210	310	20	807	362	340	60	359	164	10	70	913	340
Future Volume (veh/h)	321	210	310	20	807	362	340	60	359	164	10	70	913	340
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		0.99	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	338	221	299		849	381	147	63	378	19		74	961	327
Peak Hour Factor	0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2		2	2	2
Cap, veh/h	401	401	383		818	1192	529	107	1850	572		121	1373	466
Arrive On Green	0.12	0.21	0.21		0.24	0.34	0.34	0.03	0.36	0.36		0.03	0.37	0.37
Sat Flow, veh/h	3456	1870	1556		3456	3554	1577	3456	5106	1580		3456	3748	1273
Grp Volume(v), veh/h	338	221	299		849	381	147	63	378	19		74	873	415
Grp Sat Flow(s),veh/h/ln	1728	1870	1556		1728	1777	1577	1728	1702	1580		1728	1702	1616
Q Serve(g_s), s	12.2	13.3	22.7		30.0	10.1	8.7	2.3	6.5	1.0		2.7	27.7	27.8
Cycle Q Clear(g_c), s	12.2	13.3	22.7		30.0	10.1	8.7	2.3	6.5	1.0		2.7	27.7	27.8
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.79
Lane Grp Cap(c), veh/h	401	401	383		818	1192	529	107	1850	572		121	1247	592
V/C Ratio(X)	0.84	0.55	0.78		1.04	0.32	0.28	0.59	0.20	0.03		0.61	0.70	0.70
Avail Cap(c_a), veh/h	818	590	540		818	1192	529	1636	2417	748		818	1611	765
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	54.9	44.3	44.7		48.4	31.4	30.9	60.6	27.8	26.1		60.3	34.2	34.2
Incr Delay (d2), s/veh	1.9	1.2	4.8		41.8	0.2	0.3	1.9	0.1	0.0		1.9	1.4	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	6.2	9.1		17.4	4.3	3.3	1.0	2.6	0.4		1.2	11.5	11.2
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	56.8	45.5	49.5		90.2	31.5	31.2	62.6	27.9	26.1		62.2	35.6	37.2
LnGrp LOS	E	D	D		F	C	C	E	C	C		E	D	D
Approach Vol, veh/h		858			1377			460				1362		
Approach Delay, s/veh		51.3			67.7			32.6				37.6		
Approach LOS		D			E			C				D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	8.8	51.0	34.4	32.5	8.3	51.6	19.1	47.8						
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3						
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0						
Max Q Clear Time (g_c+1/4), s	14.7	8.5	32.0	24.7	4.3	29.8	14.2	12.1						
Green Ext Time (p_c), s	0.1	4.1	0.0	2.0	0.1	16.7	0.5	2.9						

Intersection Summary

HCM 6th Ctrl Delay	50.1
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection														
Intersection Delay, s/veh	32.7													
Intersection LOS	D													

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↖	↕		↖	↕			↕				↕	
Traffic Vol, veh/h	20	170	594	20	15	509	60	20	22	20	20	130	28	110
Future Vol, veh/h	20	170	594	20	15	509	60	20	22	20	20	130	28	110
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	189	660	22	17	566	67	22	24	22	22	144	31	122
Number of Lanes	0	1	2	0	1	2	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	35.4	30.8	14.4	32.9
HCM LOS	E	D	B	D

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	32%	100%	0%	0%	100%	0%	0%	49%
Vol Thru, %	35%	0%	100%	91%	0%	100%	74%	10%
Vol Right, %	32%	0%	0%	9%	0%	0%	26%	41%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	62	190	396	218	15	339	230	288
LT Vol	20	190	0	0	15	0	0	140
Through Vol	22	0	396	198	0	339	170	30
RT Vol	20	0	0	20	0	0	60	118
Lane Flow Rate	69	211	440	242	17	377	255	320
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.183	0.476	0.929	0.507	0.039	0.83	0.548	0.752
Departure Headway (Hd)	9.566	8.121	7.602	7.536	8.445	7.926	7.736	8.464
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	378	441	475	477	422	456	464	426
Service Time	7.266	5.901	5.382	5.315	6.231	5.711	5.521	6.243
HCM Lane V/C Ratio	0.183	0.478	0.926	0.507	0.04	0.827	0.55	0.751
HCM Control Delay	14.4	18.1	53.3	17.9	11.6	39.2	19.6	32.9
HCM Lane LOS	B	C	F	C	B	E	C	D
HCM 95th-tile Q	0.7	2.5	10.9	2.8	0.1	8	3.2	6.2

HCM 6th Signalized Intersection Summary

HY Plus Project Plus Event Conditions

25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	10	200	280	164	20	320	270	174	166	13	30	370	145	80
Future Volume (veh/h)	10	200	280	164	20	320	270	174	166	13	30	370	145	80
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99	1.00		0.99	1.00		0.98		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No		No		No		No			No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h		206	289	69	21	330	202	179	171	10		381	149	33
Peak Hour Factor		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97		0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h		380	399	334	30	476	309	223	458	27		496	444	96
Arrive On Green		0.21	0.21	0.21	0.23	0.23	0.23	0.13	0.13	0.13		0.14	0.15	0.15
Sat Flow, veh/h		1781	1870	1565	128	2029	1318	1781	3409	198		3456	2901	626
Grp Volume(v), veh/h		206	289	69	306	0	247	179	89	92		381	90	92
Grp Sat Flow(s),veh/h/ln		1781	1870	1565	1864	0	1611	1781	1777	1830		1728	1777	1750
Q Serve(g_s), s		7.5	10.4	2.6	10.9	0.0	10.1	7.1	3.3	3.3		7.7	3.3	3.4
Cycle Q Clear(g_c), s		7.5	10.4	2.6	10.9	0.0	10.1	7.1	3.3	3.3		7.7	3.3	3.4
Prop In Lane		1.00		1.00	0.07		0.82	1.00		0.11		1.00		0.36
Lane Grp Cap(c), veh/h		380	399	334	437	0	378	223	239	246		496	272	268
V/C Ratio(X)		0.54	0.72	0.21	0.70	0.00	0.65	0.80	0.37	0.38		0.77	0.33	0.34
Avail Cap(c_a), veh/h		982	1031	863	1028	0	888	737	1470	1513		1429	1470	1448
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		25.4	26.6	23.5	25.4	0.0	25.1	30.9	28.6	28.6		29.9	27.4	27.5
Incr Delay (d2), s/veh		0.7	1.5	0.2	0.8	0.0	0.7	2.6	4.4	4.3		1.0	3.2	3.5
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.0	4.4	1.0	4.8	0.0	3.8	3.1	1.7	1.7		3.2	1.6	1.7
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		26.1	28.1	23.7	26.2	0.0	25.8	33.4	33.0	33.0		30.9	30.6	31.0
LnGrp LOS		C	C	C	C	A	C	C	C	C		C	C	C
Approach Vol, veh/h			564			553			360				563	
Approach Delay, s/veh			26.8			26.0			33.2				30.8	
Approach LOS			C			C			C				C	
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	14.8	15.2	20.7	13.5	16.5	21.9								
Change Period (Y+Rc), s	4.4	* 5.4	5.2	4.4	5.4	4.9								
Max Green Setting (Gmax), s	30.0	* 60	40.0	30.0	60.0	40.0								
Max Q Clear Time (g_c+1), s	19.7	5.3	12.4	9.1	5.4	12.9								
Green Ext Time (p_c), s	0.7	4.0	1.6	0.2	4.1	2.5								

Intersection Summary

HCM 6th Ctrl Delay	28.8
HCM 6th LOS	C

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 26: Rancho Mission Rd & San Diego Mission Rd

HY Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	241	760	440	158	457	252	165	293	172	254	282	486
Future Volume (veh/h)	241	760	440	158	457	252	165	293	172	254	282	486
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	254	800	421	166	481	224	174	308	42	267	297	318
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	282	868	454	194	798	369	202	356	294	294	453	376
Arrive On Green	0.16	0.39	0.39	0.11	0.34	0.34	0.11	0.19	0.19	0.17	0.24	0.24
Sat Flow, veh/h	1781	2236	1169	1781	2355	1090	1781	1870	1547	1781	1870	1554
Grp Volume(v), veh/h	254	635	586	166	362	343	174	308	42	267	297	318
Grp Sat Flow(s),veh/h/ln	1781	1777	1627	1781	1777	1668	1781	1870	1547	1781	1870	1554
Q Serve(g_s), s	17.6	42.8	43.4	11.5	21.3	21.6	12.1	20.1	2.8	18.5	18.0	24.6
Cycle Q Clear(g_c), s	17.6	42.8	43.4	11.5	21.3	21.6	12.1	20.1	2.8	18.5	18.0	24.6
Prop In Lane	1.00		0.72	1.00		0.65	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	282	690	632	194	602	565	202	356	294	294	453	376
V/C Ratio(X)	0.90	0.92	0.93	0.86	0.60	0.61	0.86	0.87	0.14	0.91	0.66	0.84
Avail Cap(c_a), veh/h	495	705	646	495	776	728	424	742	614	424	742	617
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	36.7	36.9	55.2	34.6	34.7	54.9	49.5	42.5	51.6	43.0	45.5
Incr Delay (d2), s/veh	5.4	17.5	19.9	4.2	1.6	1.7	4.2	2.5	0.1	14.2	0.6	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	21.2	20.0	5.3	9.3	8.8	5.6	9.6	1.1	9.4	8.3	9.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.5	54.2	56.8	59.4	36.2	36.4	59.1	52.0	42.5	65.9	43.6	48.2
LnGrp LOS	E	D	E	E	D	D	E	D	D	E	D	D
Approach Vol, veh/h		1475			871			524			882	
Approach Delay, s/veh		55.8			40.7			53.6			52.0	
Approach LOS		E			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.7	54.4	18.3	35.6	23.9	48.2	24.8	29.1				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	* 5.5	4.0	* 5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	* 55	30.0	* 50				
Max Q Clear Time (g_c+1/3), s	11.5	45.4	14.1	26.6	19.6	23.6	20.5	22.1				
Green Ext Time (p_c), s	0.2	3.5	0.2	1.6	0.3	7.7	0.3	1.2				

Intersection Summary

HCM 6th Ctrl Delay	51.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave

HY Plus Project Plus Event Conditions
 PM Peak Hour



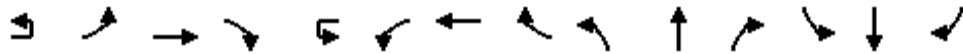
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	167	571	456	70	264	30	385	90	80	30	150	133
Future Volume (veh/h)	167	571	456	70	264	30	385	90	80	30	150	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	186	634	356	78	293	29	428	100	67	33	167	124
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	157	422	1109	45	695	78	457	265	178	334	186	138
Arrive On Green	0.45	0.45	0.45	0.45	0.45	0.45	0.26	0.26	0.26	0.19	0.19	0.19
Sat Flow, veh/h	273	930	1548	0	1531	172	1781	1034	693	1781	995	739
Grp Volume(v), veh/h	820	0	356	118	0	282	428	0	167	33	0	291
Grp Sat Flow(s),veh/h/ln1203	0	1548	32	0	1671	1781	0	1726	1781	0	1733	
Q Serve(g_s), s	45.3	0.0	11.4	0.0	0.0	14.7	31.1	0.0	10.5	2.0	0.0	21.7
Cycle Q Clear(g_c), s	60.0	0.0	11.4	60.0	0.0	14.7	31.1	0.0	10.5	2.0	0.0	21.7
Prop In Lane	0.23		1.00	0.66		0.10	1.00		0.40	1.00		0.43
Lane Grp Cap(c), veh/h	579	0	1109	60	0	758	457	0	443	334	0	325
V/C Ratio(X)	1.42	0.00	0.32	1.97	0.00	0.37	0.94	0.00	0.38	0.10	0.00	0.90
Avail Cap(c_a), veh/h	579	0	1109	60	0	758	539	0	522	539	0	524
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.8	0.0	7.2	51.8	0.0	23.7	48.1	0.0	40.4	44.5	0.0	52.5
Incr Delay (d2), s/veh	197.1	0.0	0.2	492.1	0.0	0.3	20.7	0.0	0.2	0.0	0.0	7.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh	50.6	0.0	7.8	10.2	0.0	6.0	16.4	0.0	4.5	0.9	0.0	10.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	241.8	0.0	7.3	543.9	0.0	24.0	68.8	0.0	40.6	44.5	0.0	60.0
LnGrp LOS	F	A	A	F	A	C	E	A	D	D	A	E
Approach Vol, veh/h		1176		400		595		324				
Approach Delay, s/veh		170.9		177.0		60.9		58.4				
Approach LOS		F		F		E		E				
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		64.5		29.3		64.5		38.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		62.0		23.7		62.0		33.1				
Green Ext Time (p_c), s		0.0		1.1		0.0		0.9				
Intersection Summary												
HCM 6th Ctrl Delay				131.0								
HCM 6th LOS				F								

HCM 6th Signalized Intersection Summary

HY Plus Project Plus Event Conditions

28: Qualcomm Way & Camino de la Reina/Camino del Rio N

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔	↔	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔	
Traffic Volume (veh/h)	10	143	458	320	10	485	212	142	183	649	326	304	1206	150	
Future Volume (veh/h)	10	143	458	320	10	485	212	142	183	649	326	304	1206	150	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.98	1.00		0.98	1.00		0.98	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1841	1870	1856	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		147	503	246		500	219	22	189	669	280	313	1243	147	
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %		2	2	2		2	4	2	3	2	2	2	2	2	
Cap, veh/h		164	498	310		524	674	298	225	2645	807	316	2512	297	
Arrive On Green		0.09	0.13	0.13		0.15	0.19	0.19	0.02	0.17	0.17	0.09	0.54	0.54	
Sat Flow, veh/h		1781	3741	1550		3456	3497	1548	3428	5106	1558	3456	4619	546	
Grp Volume(v), veh/h		147	503	246		500	219	22	189	669	280	313	916	474	
Grp Sat Flow(s),veh/h/ln		1781	1870	1550		1728	1749	1548	1714	1702	1558	1728	1702	1761	
Q Serve(g_s), s		16.3	26.6	26.6		28.7	10.8	2.3	11.0	22.7	31.7	18.1	33.6	33.6	
Cycle Q Clear(g_c), s		16.3	26.6	26.6		28.7	10.8	2.3	11.0	22.7	31.7	18.1	33.6	33.6	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.31	
Lane Grp Cap(c), veh/h		164	498	310		524	674	298	225	2645	807	316	1851	958	
V/C Ratio(X)		0.90	1.01	0.79		0.96	0.33	0.07	0.84	0.25	0.35	0.99	0.49	0.49	
Avail Cap(c_a), veh/h		190	498	310		524	674	298	314	2645	807	316	1851	958	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	0.83	0.83	0.83	0.09	0.09	0.09	
Uniform Delay (d), s/veh		89.9	86.7	76.3		84.2	69.5	66.1	96.8	49.4	53.1	90.8	28.5	28.5	
Incr Delay (d2), s/veh		33.0	43.1	12.7		28.1	0.1	0.0	8.3	0.2	1.0	12.9	0.1	0.2	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		9.1	16.0	13.1		14.8	4.8	0.9	5.4	10.5	13.6	8.7	14.0	14.5	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		122.8	129.8	89.1		112.2	69.7	66.2	105.1	49.6	54.1	103.6	28.6	28.6	
LnGrp LOS		F	F	F		F	E	E	F	D	D	F	C	C	
Approach Vol, veh/h		896				741				1138			1703		
Approach Delay, s/veh		117.5				98.3				59.9			42.4		
Approach LOS		F				F				E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8							
Phs Duration (G+Y+Rc), s	22.7	110.3	34.7	32.3	17.5	115.5	22.8	44.2							
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7							
Max Green Setting (Gmax), s	18.3	103.6	30.3	* 27	18.3	* 1.1E2	21.3	35.6							
Max Q Clear Time (g_c+20), s	20.1	33.7	30.7	28.6	13.0	35.6	18.3	12.8							
Green Ext Time (p_c), s	0.0	5.9	0.0	0.0	0.2	35.0	0.1	0.8							

Intersection Summary

HCM 6th Ctrl Delay	71.1
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

HY Plus Project Plus Event Conditions

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔	↑↑↑			↑↑	↔
Traffic Volume (veh/h)	10	113	0	612	32	197	410	213	925	0	0	1133	778
Future Volume (veh/h)	10	113	0	612	32	197	410	213	925	0	0	1133	778
Initial Q (Qb), veh		0	0	20	0	20	20	20	20	0	0	20	20
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No			No			No		
Adj Sat Flow, veh/h/ln		1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h		120	0	395	34	210	275	227	984	0	0	1205	595
Peak Hour Factor		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h		0	0	0	23	330	317	178	3853	0	0	2240	974
Arrive On Green		0.00	0.00	0.00	0.18	0.18	0.18	0.10	0.75	0.00	0.00	1.00	1.00
Sat Flow, veh/h			0		259	1599	1582	1781	5274	0	0	3647	1551
Grp Volume(v), veh/h			0.0		244	0	275	227	984	0	0	1205	595
Grp Sat Flow(s),veh/h/ln					1857	0	1582	1781	1702	0	0	1777	1551
Q Serve(g_s), s					24.7	0.0	34.3	20.0	11.7	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s					24.7	0.0	34.3	20.0	11.7	0.0	0.0	0.0	0.0
Prop In Lane					0.14		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					362	0	317	178	3853	0	0	2240	974
V/C Ratio(X)					0.67	0.00	0.87	1.27	0.26	0.00	0.00	0.54	0.61
Avail Cap(c_a), veh/h					371	0	316	178	3855	0	0	2244	980
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)					1.00	0.00	1.00	0.62	0.62	0.00	0.00	0.72	0.72
Uniform Delay (d), s/veh					78.7	0.0	80.0	90.0	8.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh					3.7	0.0	21.1	147.8	0.1	0.0	0.0	0.7	2.1
Initial Q Delay(d3),s/veh					67.5	0.0	168.4	404.2	0.3	0.0	0.0	1.2	7.8
%ile BackOfQ(50%),veh/ln					23.4	0.0	32.8	36.6	5.9	0.0	0.0	0.6	2.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					149.9	0.0	269.5	642.0	8.3	0.0	0.0	1.9	9.9
LnGrp LOS					F	A	F	F	A	A	A	A	A
Approach Vol, veh/h						519			1211			1800	
Approach Delay, s/veh						213.3			127.1			4.5	
Approach LOS						F			F			A	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		158.0			24.7	133.3		42.0					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		107.8			* 20	83.1		40.0					
Max Q Clear Time (g_c+I1), s		13.7			22.0	2.0		36.3					
Green Ext Time (p_c), s		5.2			0.0	45.4		0.5					

Intersection Summary

HCM 6th Ctrl Delay	77.3
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

HY Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	740	0	1366	1935	0
Future Volume (veh/h)	0	740	0	1366	1935	0
Initial Q (Qb), veh	0	10	0	0	50	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1870	0
Adj Flow Rate, veh/h	0	752	0	1394	1974	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	2	2	0
Cap, veh/h	0	0	0	2944	2944	0
Arrive On Green	0.00	0.00	0.00	0.82	0.82	0.00
Sat Flow, veh/h	0		0	3741	3741	0
Grp Volume(v), veh/h	0.0		0	1394	1974	0
Grp Sat Flow(s),veh/h/ln			0	1777	1777	0
Q Serve(g_s), s			0.0	3.6	6.9	0.0
Cycle Q Clear(g_c), s			0.0	3.6	6.9	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2944	2944	0
V/C Ratio(X)			0.00	0.47	0.67	0.00
Avail Cap(c_a), veh/h			0	5352	5352	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	0.8	1.4	0.0
Incr Delay (d2), s/veh			0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	6.3	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	2.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	0.8	7.8	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1394	1974	
Approach Delay, s/veh				0.8	7.8	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		29.9				29.9
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		45.0				45.0
Max Q Clear Time (g_c+I1), s		5.6				8.9
Green Ext Time (p_c), s		8.7				15.5
Intersection Summary						
HCM 6th Ctrl Delay			4.9			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
 31: Texas St & Camino del Rio S

HY Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↗	↖	↑	↗	↖	↑↑		↖	↑↑	↗
Traffic Volume (veh/h)	282	155	390	285	63	540	100	914	130	310	1788	197
Future Volume (veh/h)	282	155	390	285	63	540	100	914	130	310	1788	197
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	307	168	370	310	68	549	109	993	136	337	1943	176
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	349	367	423	246	258	534	126	1135	155	355	1741	777
Arrive On Green	0.20	0.20	0.20	0.14	0.14	0.14	0.07	0.36	0.36	0.20	0.49	0.49
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3140	430	1781	3554	1585
Grp Volume(v), veh/h	307	168	370	310	68	549	109	562	567	337	1943	176
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1793	1781	1777	1585
Q Serve(g_s), s	34.2	16.2	40.0	28.2	6.6	28.2	12.4	60.2	60.3	38.1	100.0	13.0
Cycle Q Clear(g_c), s	34.2	16.2	40.0	28.2	6.6	28.2	12.4	60.2	60.3	38.1	100.0	13.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	349	367	423	246	258	534	126	642	648	355	1741	777
V/C Ratio(X)	0.88	0.46	0.88	1.26	0.26	1.03	0.87	0.87	0.88	0.95	1.12	0.23
Avail Cap(c_a), veh/h	349	367	423	246	258	534	218	642	648	634	1741	777
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	79.7	72.5	71.6	88.0	78.7	67.6	93.9	60.8	60.9	80.8	52.1	29.9
Incr Delay (d2), s/veh	21.8	0.9	18.2	145.4	1.5	46.1	6.7	12.3	12.3	9.5	60.8	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	7.9	20.7	23.0	3.3	34.6	6.0	29.4	29.7	18.5	58.8	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	101.5	73.4	89.8	233.3	80.1	113.7	100.6	73.1	73.2	90.3	112.8	30.2
LnGrp LOS	F	E	F	F	F	F	F	E	E	F	F	C
Approach Vol, veh/h		845			927			1238			2456	
Approach Delay, s/veh		90.8			151.3			75.6			103.8	
Approach LOS		F			F			E			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	45.0	79.0		44.9	18.8	105.2		35.2				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0				
Max Green Setting (Gmax), s	72.6	51.8		40.0	25.0	* 1E2		28.2				
Max Q Clear Time (g_c+Rc), s	44.0	62.3		42.0	14.4	102.0		30.2				
Green Ext Time (p_c), s	0.5	0.0		0.0	0.1	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	103.4
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection									
Int Delay, s/veh	67.7								
Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations		↖	↗			↕		↕	
Traffic Vol, veh/h	10	55	305	10	388	517	10	620	88
Future Vol, veh/h	10	55	305	10	388	517	10	620	88
Conflicting Peds, #/hr	21	24	24	3	24	0	3	0	24
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	0	65	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	0	-
Grade, %	-	0	-	-	-	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	58	321	11	408	544	11	653	93

Major/Minor	Minor2	Major1			Major2				
Conflicting Flow All	0	1880	421	745	770	0	544	-	0
Stage 1	0	746	-	-	-	-	-	-	-
Stage 2	0	1134	-	-	-	-	-	-	-
Critical Hdwy	-	6.84	6.94	6.44	4.14	-	6.44	-	-
Critical Hdwy Stg 1	-	5.84	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.84	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.52	3.32	2.52	2.22	-	2.52	-	-
Pot Cap-1 Maneuver	0	63	581	484	840	-	649	-	-
Stage 1	0	430	-	-	-	-	-	-	-
Stage 2	0	269	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	0	~ 13	555	768	768	-	649	-	-
Mov Cap-2 Maneuver	0	~ 13	-	-	-	-	-	-	-
Stage 1	0	92	-	-	-	-	-	-	-
Stage 2	0	255	-	-	-	-	-	-	-

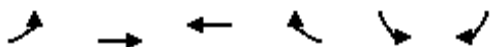
Approach	EB	NB	SB
HCM Control Delay, s	343.2	9.3	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	768	-	13	555	-	-
HCM Lane V/C Ratio	0.532	-	4.453	0.578	-	-
HCM Control Delay (s)	15.2	4.3	2135.4	20	-	-
HCM Lane LOS	C	A	F	C	-	-
HCM 95th %tile Q(veh)	3.2	-	8.2	3.7	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 6th Signalized Intersection Summary
33: Camino del Rio N & Ward Rd

HY Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	365	510	190	549	758	197
Future Volume (veh/h)	365	510	190	549	758	197
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	388	543	202	51	806	172
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	428	1442	411	183	838	1126
Arrive On Green	0.24	0.41	0.12	0.12	0.47	0.47
Sat Flow, veh/h	1781	3647	3647	1578	1781	1585
Grp Volume(v), veh/h	388	543	202	51	806	172
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1578	1781	1585
Q Serve(g_s), s	18.6	9.4	4.7	2.6	38.5	3.1
Cycle Q Clear(g_c), s	18.6	9.4	4.7	2.6	38.5	3.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	428	1442	411	183	838	1126
V/C Ratio(X)	0.91	0.38	0.49	0.28	0.96	0.15
Avail Cap(c_a), veh/h	891	2829	2829	1256	891	1174
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	18.3	36.5	35.5	22.5	4.1
Incr Delay (d2), s/veh	3.1	0.2	1.4	1.3	20.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	3.6	2.0	1.0	19.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.5	18.6	37.8	36.8	43.0	4.2
LnGrp LOS	D	B	D	D	D	A
Approach Vol, veh/h		931	253		978	
Approach Delay, s/veh		25.6	37.6		36.2	
Approach LOS		C	D		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		41.7		46.3	25.5	16.2
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		11.4		40.5	20.6	6.7
Green Ext Time (p_c), s		5.9		0.8	0.5	2.3

Intersection Summary

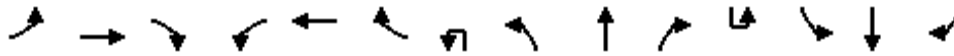
HCM 6th Ctrl Delay	31.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 34: Fairmount Ave & Mission Gorge Rd

HY Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↗	↕			↗	↕	
Traffic Volume (veh/h)	67	17	639	30	14	10	40	508	925	40	10	10	930	38
Future Volume (veh/h)	67	17	639	30	14	10	40	508	925	40	10	10	930	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		0.98	1.00		0.98		1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No			No			No		No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	736	31	14	3	518	944	39	10	949	37		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	340	546	147	61	11	893	2432	100	17	1557	61		
Arrive On Green	0.00	0.00	0.18	0.18	0.18	0.18	0.52	1.00	1.00	0.01	0.45	0.45		
Sat Flow, veh/h	0	1870	3006	561	334	60	3456	3475	144	1781	3484	136		
Grp Volume(v), veh/h	0	0	736	48	0	0	518	483	500	10	484	502		
Grp Sat Flow(s),veh/h/ln	0	1870	1503	955	0	0	1728	1777	1842	1781	1777	1844		
Q Serve(g_s), s	0.0	0.0	23.6	3.6	0.0	0.0	13.4	0.0	0.0	0.7	26.9	26.9		
Cycle Q Clear(g_c), s	0.0	0.0	23.6	4.7	0.0	0.0	13.4	0.0	0.0	0.7	26.9	26.9		
Prop In Lane	0.00		1.00	0.65		0.06	1.00		0.08	1.00		0.07		
Lane Grp Cap(c), veh/h	0	340	546	219	0	0	893	1244	1289	17	794	824		
V/C Ratio(X)	0.00	0.00	1.35	0.22	0.00	0.00	0.58	0.39	0.39	0.60	0.61	0.61		
Avail Cap(c_a), veh/h	0	340	546	219	0	0	906	1244	1289	179	794	824		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.57	0.57	0.57	1.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.0	53.2	45.2	0.0	0.0	26.5	0.0	0.0	64.2	27.3	27.3		
Incr Delay (d2), s/veh	0.0	0.0	168.7	0.5	0.0	0.0	0.3	0.5	0.5	12.3	3.5	3.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.0	21.7	1.4	0.0	0.0	4.5	0.2	0.2	0.4	12.1	12.6		
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	221.9	45.7	0.0	0.0	26.9	0.5	0.5	76.5	30.8	30.7		
LnGrp LOS	A	A	F	D	A	A	C	A	A	E	C	C		
Approach Vol, veh/h		736		48			1501			996				
Approach Delay, s/veh		221.9		45.7			9.6			31.2				
Approach LOS		F		D			A			C				
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	5.6	95.9	28.5	38.5	63.0	28.5								
Change Period (Y+Rc), s	4.4	4.9	4.9	4.9	* 4.9	4.9								
Max Green Setting (Gmax), s	13.1	79.1	23.6	34.1	* 58	23.6								
Max Q Clear Time (g_c+1/2), s	12.7	2.0	25.6	15.4	28.9	6.7								
Green Ext Time (p_c), s	0.0	19.8	0.0	1.0	14.2	0.2								

Intersection Summary

HCM 6th Ctrl Delay	64.3
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis

HY Plus Project Plus Event Conditions

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	153	984	810	405	503	344	840	190	13	1617	70
Future Volume (vph)	150	153	984	810	405	503	344	840	190	13	1617	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	0.98	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1762	1583	1610	3074	1425	1770	3433		3433	3539	1563
Flt Permitted	0.95	1.00	1.00	0.95	0.98	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1762	1583	1610	3074	1425	1770	3433		3433	3539	1563
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	152	155	994	818	409	508	347	848	192	13	1633	71
RTOR Reduction (vph)	0	0	78	0	0	0	0	15	0	0	0	45
Lane Group Flow (vph)	137	170	916	442	897	396	347	1025	0	13	1633	26
Confl. Peds. (#/hr)							3			1		
Confl. Bikes (#/hr)										1		1
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8	1	5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	16.6	16.6	36.6	25.0	25.0	35.0	20.0	57.4		10.0	47.4	47.4
Effective Green, g (s)	16.6	16.6	36.6	25.0	25.0	35.0	20.0	57.4		10.0	47.4	47.4
Actuated g/C Ratio	0.13	0.13	0.28	0.19	0.19	0.27	0.15	0.44		0.08	0.36	0.36
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	214	224	502	309	591	383	272	1515		264	1290	569
v/s Ratio Prot	0.08	0.10	c0.28	0.27	c0.29	0.08	0.20	0.30		0.00	c0.46	
v/s Ratio Perm			0.30			0.20						0.02
v/c Ratio	0.64	0.76	1.83	1.43	1.52	1.03	1.28	0.68		0.05	1.27	0.05
Uniform Delay, d1	53.9	54.8	46.7	52.5	52.5	47.5	55.0	28.9		55.6	41.3	26.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.71	1.16	7.44
Incremental Delay, d2	4.8	12.3	379.2	211.4	241.6	55.0	149.5	2.4		0.0	122.3	0.1
Delay (s)	58.7	67.0	425.9	263.9	294.1	102.5	204.5	31.4		39.2	170.4	198.7
Level of Service	E	E	F	F	F	F	F	C		D	F	F
Approach Delay (s)		340.4			242.7			74.7			170.6	
Approach LOS		F			F			E			F	
Intersection Summary												
HCM 2000 Control Delay			205.3									F
HCM 2000 Volume to Capacity ratio			1.59									
Actuated Cycle Length (s)			130.0							21.0		
Intersection Capacity Utilization			146.0%									H
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 36: Fairmount Ave & I-8 EB Off-Ramp

HY Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations	YY	YY	Y		↑↑	↑↑↑	
Traffic Volume (veh/h)	742	2786	60	0	642	1563	0
Future Volume (veh/h)	742	2786	60	0	642	1563	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		0	1870	1870	0
Adj Flow Rate, veh/h	757	2843		0	655	1595	0
Peak Hour Factor	0.98	0.98		0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2		0	2	2	0
Cap, veh/h	986	2633		0	1278	1837	0
Arrive On Green	0.55	0.55		0.00	0.36	0.36	0.00
Sat Flow, veh/h	1781	4755		0	3741	5443	0
Grp Volume(v), veh/h	757	2843		0	655	1595	0
Grp Sat Flow(s),veh/h/ln	1781	1585		0	1777	1702	0
Q Serve(g_s), s	42.2	70.9		0.0	18.5	37.3	0.0
Cycle Q Clear(g_c), s	42.2	70.9		0.0	18.5	37.3	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	986	2633		0	1278	1837	0
V/C Ratio(X)	0.77	1.08		0.00	0.51	0.87	0.00
Avail Cap(c_a), veh/h	986	2633		0	2128	2073	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.2	28.6		0.0	32.2	38.2	0.0
Incr Delay (d2), s/veh	3.3	43.6		0.0	0.1	3.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	36.2		0.0	8.0	16.0	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	25.5	72.2		0.0	32.3	41.7	0.0
LnGrp LOS	C	F		A	C	D	A
Approach Vol, veh/h	3600				655	1595	
Approach Delay, s/veh	62.4				32.3	41.7	
Approach LOS	E				C	D	
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				52.1		76.0	52.1
Change Period (Y+Rc), s				6.0		5.1	6.0
Max Green Setting (Gmax), s				52.0		70.9	76.7
Max Q Clear Time (g_c+I1), s				39.3		72.9	20.5
Green Ext Time (p_c), s				6.8		0.0	3.3

Intersection Summary

HCM 6th Ctrl Delay	53.4
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
37: Collwood Blvd & Montezuma Rd

HY Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↓	↑↑	↑↑	↑
Traffic Volume (veh/h)	1527	1415	10	90	931	783	50
Future Volume (veh/h)	1527	1415	10	90	931	783	50
Initial Q (Qb), veh	20	20		0	0	0	0
Ped-Bike Adj(A_pbT)		0.98		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1737	1870	1870	1648
Adj Flow Rate, veh/h	1574	1331		93	960	807	28
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		11	2	2	17
Cap, veh/h	2032	1273		114	2394	847	342
Arrive On Green	0.57	0.57		0.07	0.67	0.25	0.25
Sat Flow, veh/h	3647	1546		1654	3647	3456	1397
Grp Volume(v), veh/h	1574	1331		93	960	807	28
Grp Sat Flow(s),veh/h/ln	1777	1546		1654	1777	1728	1397
Q Serve(g_s), s	45.6	76.6		7.4	16.2	30.8	2.1
Cycle Q Clear(g_c), s	45.6	76.6		7.4	16.2	30.8	2.1
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2032	1273		114	2394	847	342
V/C Ratio(X)	0.77	1.05		0.82	0.40	0.95	0.08
Avail Cap(c_a), veh/h	2032	1273		328	2394	848	343
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.2	12.6		61.6	9.8	49.8	39.0
Incr Delay (d2), s/veh	3.0	38.1		5.3	0.5	20.1	0.0
Initial Q Delay(d3),s/veh	3.1	56.6		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.6	58.5		3.3	6.0	15.4	0.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	29.2	107.3		66.9	10.3	69.9	39.0
LnGrp LOS	C	F		E	B	E	D
Approach Vol, veh/h	2905			1053	835		
Approach Delay, s/veh	65.0			15.3	68.8		
Approach LOS	E			B	E		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	13.6	83.1			96.8	37.2	
Change Period (Y+Rc), s	4.4	* 6.5			6.5	4.4	
Max Green Setting (Gmax), s	26.6	* 60			90.2	32.9	
Max Q Clear Time (g_c+1), s	19.4	78.6			18.2	32.8	
Green Ext Time (p_c), s	0.1	0.0			16.9	0.0	

Intersection Summary

HCM 6th Ctrl Delay	54.7
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
38: Mission Village Dr & Shawn Ave

HY Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔				↔		↔	↑↑	↔	↔	↔	
Traffic Volume (veh/h)	80	10	85	10	55	10	30	76	724	36	50	2094	80
Future Volume (veh/h)	80	10	85	10	55	10	30	76	724	36	50	2094	80
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99		0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	11	87		59	11	3	81	770	27	53	2228	84
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	268	30	220		215	198	54	122	2568	1143	527	2524	95
Arrive On Green	0.15	0.15	0.15		0.15	0.15	0.15	0.72	0.72	0.72	0.72	0.72	0.72
Sat Flow, veh/h	1203	193	1426		829	1284	350	158	3554	1582	681	3493	131
Grp Volume(v), veh/h	96	0	87		59	0	14	81	770	27	53	1126	1186
Grp Sat Flow(s),veh/h/ln1397		0	1426		829	0	1634	158	1777	1582	681	1777	1847
Q Serve(g_s), s	4.7	0.0	4.6		3.6	0.0	0.6	18.7	6.4	0.4	2.5	39.9	41.3
Cycle Q Clear(g_c), s	5.4	0.0	4.6		8.2	0.0	0.6	60.0	6.4	0.4	8.9	39.9	41.3
Prop In Lane	0.89		1.00		1.00		0.21	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	298	0	220		215	0	253	122	2568	1143	527	1284	1334
V/C Ratio(X)	0.32	0.00	0.39		0.27	0.00	0.06	0.66	0.30	0.02	0.10	0.88	0.89
Avail Cap(c_a), veh/h	764	0	687		636	0	787	122	2568	1143	527	1284	1334
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00		1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	0.0	31.6		35.3	0.0	29.9	37.4	4.1	3.3	5.6	8.7	8.9
Incr Delay (d2), s/veh	0.2	0.0	0.4		0.3	0.0	0.0	13.3	0.1	0.0	0.1	7.3	7.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.8	0.0	0.0	1.6		1.1	0.0	0.2	2.0	1.5	0.1	0.3	12.0	13.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	32.3	0.0	32.0		35.5	0.0	30.0	50.7	4.2	3.3	5.8	16.0	16.7
LnGrp LOS	C	A	C		D	A	C	D	A	A	A	B	B
Approach Vol, veh/h		183				73			878			2365	
Approach Delay, s/veh		32.2				34.5			8.4			16.1	
Approach LOS		C				C			A			B	
Timer - Assigned Phs		2			4		6		8				
Phs Duration (G+Y+Rc), s		65.3			17.7		65.3		17.7				
Change Period (Y+Rc), s		5.3			4.9		5.3		4.9				
Max Green Setting (Gmax), s		60.0			40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		62.0			7.4		43.3		10.2				
Green Ext Time (p_c), s		0.0			0.8		15.4		0.3				

Intersection Summary

HCM 6th Ctrl Delay	15.4
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 39: Mission Village Dr & Fermi Ave

HY Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕			↙	↕	
Traffic Volume (veh/h)	40	10	15	55	10	50	16	789	46	10	30	2213	30
Future Volume (veh/h)	40	10	15	55	10	50	16	789	46	10	30	2213	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	42	10	6	57	10	28	17	822	45		31	2305	31
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	169	37	15	146	23	41	28	2440	134		44	2589	35
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.02	0.71	0.71		0.02	0.72	0.72
Sat Flow, veh/h	1077	428	174	866	258	470	1781	3426	188		1781	3589	48
Grp Volume(v), veh/h	58	0	0	95	0	0	17	426	441		31	1138	1198
Grp Sat Flow(s),veh/h/ln1678	0	0	1595	0	0	1781	1777	1837			1781	1777	1860
Q Serve(g_s), s	0.0	0.0	0.0	2.1	0.0	0.0	0.8	7.5	7.5		1.4	41.0	41.7
Cycle Q Clear(g_c), s	2.5	0.0	0.0	4.6	0.0	0.0	0.8	7.5	7.5		1.4	41.0	41.7
Prop In Lane	0.72		0.10	0.60		0.29	1.00		0.10		1.00		0.03
Lane Grp Cap(c), veh/h	222	0	0	209	0	0	28	1266	1308		44	1282	1342
V/C Ratio(X)	0.26	0.00	0.00	0.45	0.00	0.00	0.61	0.34	0.34		0.71	0.89	0.89
Avail Cap(c_a), veh/h	799	0	0	618	0	0	647	1290	1334		647	1290	1351
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	35.5	0.0	0.0	36.4	0.0	0.0	40.4	4.5	4.5		40.0	8.9	9.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.6	0.0	0.0	7.8	0.3	0.3		7.5	8.2	8.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.1	0.0	0.0	0.0	1.9	0.0	0.0	0.4	1.9	2.0		0.7	13.4	14.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	35.8	0.0	0.0	37.0	0.0	0.0	48.2	4.8	4.8		47.5	17.1	17.3
LnGrp LOS	D	A	A	D	A	A	D	A	A		D	B	B
Approach Vol, veh/h		58			95			884				2367	
Approach Delay, s/veh		35.8			37.0			5.6				17.6	
Approach LOS		D			D			A				B	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s6.4	64.1			12.1	5.7	64.8		12.1					
Change Period (Y+Rc), s 4.4	5.2			4.9	4.4	5.2		4.9					
Max Green Setting (Gmax), s 30.0	60.0			40.0	30.0	60.0		30.0					
Max Q Clear Time (g_c+1), s 13.4	9.5			4.5	2.8	43.7		6.6					
Green Ext Time (p_c), s 0.0	12.2			0.2	0.0	15.9		0.3					

Intersection Summary

HCM 6th Ctrl Delay	15.3
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 40: Gramercy Dr/Mission Village Dr & Ruffin Rd

HY Plus Project Plus Event Conditions
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	60	664	20	13	392	482	20	10	23	1634	20	90
Future Volume (veh/h)	60	664	20	13	392	482	20	10	23	1634	20	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	678	19	13	400	329	20	10	1	1667	20	88
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	211	1270	36	236	662	539	43	78	8	1599	135	595
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.02	0.02	0.02	0.45	0.45	0.45
Sat Flow, veh/h	725	3528	99	746	1840	1498	1781	3262	320	3563	302	1327
Grp Volume(v), veh/h	61	341	356	13	386	343	20	5	6	1667	0	108
Grp Sat Flow(s),veh/h/ln	725	1777	1850	746	1777	1562	1781	1777	1805	1781	0	1628
Q Serve(g_s), s	6.7	13.6	13.6	1.3	15.8	16.0	1.0	0.3	0.3	40.0	0.0	3.5
Cycle Q Clear(g_c), s	22.8	13.6	13.6	14.8	15.8	16.0	1.0	0.3	0.3	40.0	0.0	3.5
Prop In Lane	1.00		0.05	1.00		0.96	1.00		0.18	1.00		0.81
Lane Grp Cap(c), veh/h	211	640	666	236	640	562	43	43	43	1599	0	731
V/C Ratio(X)	0.29	0.53	0.53	0.06	0.60	0.61	0.47	0.13	0.13	1.04	0.00	0.15
Avail Cap(c_a), veh/h	438	1196	1245	469	1196	1051	799	797	810	1599	0	731
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.7	22.6	22.6	28.5	23.3	23.4	42.9	42.6	42.6	24.6	0.0	14.5
Incr Delay (d2), s/veh	0.9	0.9	0.8	0.1	1.1	1.3	2.9	0.5	0.5	34.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	5.7	6.0	0.2	6.7	6.0	0.5	0.1	0.1	22.6	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	23.5	23.4	28.6	24.5	24.7	45.8	43.1	43.1	59.1	0.0	14.5
LnGrp LOS	C	C	C	C	C	C	D	D	D	F	A	B
Approach Vol, veh/h		758			742			31			1775	
Approach Delay, s/veh		24.3			24.7			44.9			56.3	
Approach LOS		C			C			D			E	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		37.2		44.9		37.2		7.0				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		24.8		42.0		18.0		3.0				
Green Ext Time (p_c), s		7.3		0.0		7.8		0.0				

Intersection Summary

HCM 6th Ctrl Delay	41.8
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

HY Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	880	936	10	1058	810	263	380
Future Volume (veh/h)	880	936	10	1058	810	263	380
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	926	984		1114	853	277	222
Peak Hour Factor	0.95	0.95		0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1646	965		896	2687	550	252
Arrive On Green	0.46	0.46		0.26	0.76	0.16	0.16
Sat Flow, veh/h	3647	1540		3456	3647	3456	1585
Grp Volume(v), veh/h	926	984		1114	853	277	222
Grp Sat Flow(s),veh/h/ln	1777	1540		1728	1777	1728	1585
Q Serve(g_s), s	24.6	60.2		33.7	10.0	9.5	17.8
Cycle Q Clear(g_c), s	24.6	60.2		33.7	10.0	9.5	17.8
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1646	965		896	2687	550	252
V/C Ratio(X)	0.56	1.02		1.24	0.32	0.50	0.88
Avail Cap(c_a), veh/h	1646	965		896	2687	1135	521
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.86	0.86
Uniform Delay (d), s/veh	25.3	20.6		48.2	5.1	49.9	53.4
Incr Delay (d2), s/veh	1.4	33.9		119.0	0.3	0.2	3.4
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.2	40.5		28.8	3.1	4.2	7.3
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	26.7	54.6		167.2	5.4	50.2	56.8
LnGrp LOS	C	F		F	A	D	E
Approach Vol, veh/h	1910			1967	499		
Approach Delay, s/veh	41.1			97.0	53.1		
Approach LOS	D			F	D		
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+Rc), s	38.1	65.9			104.0		26.0
Change Period (Y+Rc), s	4.4	* 5.7			5.7		5.3
Max Green Setting (Gmax), s	33.7	* 39			76.3		42.7
Max Q Clear Time (g_c+Rc), s	33.7	62.2			12.0		19.8
Green Ext Time (p_c), s	0.0	0.0			9.6		0.9

Intersection Summary

HCM 6th Ctrl Delay		67.6	
HCM 6th LOS		E	

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mobley St & Gramercy Dr

HY Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	683	90	63	362	57	50	30	44	88	20	20
Future Volume (veh/h)	20	683	90	63	362	57	50	30	44	88	20	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.96	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1826	1826	1826	1752	1752	1752
Adj Flow Rate, veh/h	21	704	72	65	373	47	52	31	22	91	21	13
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	10	10	10
Cap, veh/h	647	1840	810	488	1638	205	263	131	62	352	72	28
Arrive On Green	0.52	0.52	0.52	0.52	0.52	0.52	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	960	3554	1565	692	3164	395	556	697	332	898	384	149
Grp Volume(v), veh/h	21	704	72	65	208	212	105	0	0	125	0	0
Grp Sat Flow(s),veh/h/ln	960	1777	1565	692	1777	1782	1584	0	0	1431	0	0
Q Serve(g_s), s	0.4	4.0	0.8	2.1	2.2	2.2	0.0	0.0	0.0	0.6	0.0	0.0
Cycle Q Clear(g_c), s	2.6	4.0	0.8	6.2	2.2	2.2	1.8	0.0	0.0	2.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.22	0.50		0.21	0.73		0.10
Lane Grp Cap(c), veh/h	647	1840	810	488	920	923	456	0	0	452	0	0
V/C Ratio(X)	0.03	0.38	0.09	0.13	0.23	0.23	0.23	0.00	0.00	0.28	0.00	0.00
Avail Cap(c_a), veh/h	1846	6278	2765	1353	3139	3148	1925	0	0	1771	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.2	4.9	4.1	6.8	4.5	4.5	11.9	0.0	0.0	12.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.1	0.2	0.4	0.4	0.4	0.6	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.2	5.2	4.2	7.0	4.7	4.7	12.0	0.0	0.0	12.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		797			485			105			125	
Approach Delay, s/veh		5.1			5.0			12.0			12.2	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.7		11.3		22.7		11.3				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		6.0		4.3		8.2		3.8				
Green Ext Time (p_c), s		11.5		0.5		6.1		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				6.1								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary
43: Sandrock Rd & Greyling Dr/Gramericy Dr

HY Plus Project Plus Event Conditions
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕			↕	↕	↕	↕	↕
Traffic Volume (veh/h)	90	148	10	24	177	256	10	10	20	34	655	40	140
Future Volume (veh/h)	90	148	10	24	177	256	10	10	20	34	655	40	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.98		0.94	1.00		1.00	1.00		0.96	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1574	1574	1870	1870	1856	1870	
Adj Flow Rate, veh/h	95	156	9	25	186	163	11	21	0	719	0	80	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	22	22	2	2	3	2	
Cap, veh/h	236	326	16	129	532	901	16	30	47	987	0	422	
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.03	0.03	0.00	0.28	0.00	0.28	
Sat Flow, veh/h	371	1054	51	95	1721	1494	532	1015	1585	3563	0	1523	
Grp Volume(v), veh/h	260	0	0	211	0	163	32	0	0	719	0	80	
Grp Sat Flow(s),veh/h/ln1476	0	0	1816	0	1494		1547	0	1585	1781	0	1523	
Q Serve(g_s), s	2.1	0.0	0.0	0.0	0.0	2.0	0.8	0.0	0.0	7.4	0.0	1.6	
Cycle Q Clear(g_c), s	5.6	0.0	0.0	3.5	0.0	2.0	0.8	0.0	0.0	7.4	0.0	1.6	
Prop In Lane	0.37		0.03	0.12		1.00	0.34		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	578	0	0	662	0	901	46	0	47	987	0	422	
V/C Ratio(X)	0.45	0.00	0.00	0.32	0.00	0.18	0.69	0.00	0.00	0.73	0.00	0.19	
Avail Cap(c_a), veh/h	1017	0	0	1204	0	1364	766	0	785	1764	0	754	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh	11.4	0.0	0.0	10.9	0.0	3.9	19.4	0.0	0.0	13.2	0.0	11.1	
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	6.7	0.0	0.0	0.4	0.0	0.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln1.6	0.0	0.0	1.1	0.0	0.9		0.4	0.0	0.0	2.3	0.0	0.4	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	11.6	0.0	0.0	11.0	0.0	3.9	26.1	0.0	0.0	13.6	0.0	11.2	
LnGrp LOS	B	A	A	B	A	A	C	A	A	B	A	B	
Approach Vol, veh/h		260			374			32			799		
Approach Delay, s/veh		11.6			7.9			26.1			13.4		
Approach LOS		B			A			C			B		
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		17.8		16.5		17.8		6.1					
Change Period (Y+Rc), s		5.3		5.3		5.3		4.9					
Max Green Setting (Gmax), s		25.0		20.0		25.0		20.0					
Max Q Clear Time (g_c+11), s		7.6		9.4		5.5		2.8					
Green Ext Time (p_c), s		1.1		1.4		1.0		0.1					

Intersection Summary

HCM 6th Ctrl Delay	11.9
HCM 6th LOS	B

Notes

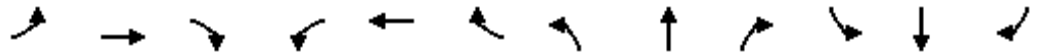
- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

Queues

HY Plus Project Plus Event Conditions

1: SR-163 SB Ramps/Ulric St & Friars Rd

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	183	1821	714	653	1234	855	327	31	914	354	355	214
v/c Ratio	0.86	0.94	0.75	1.06	0.63	0.65	0.98	0.17	1.03	0.82	0.82	0.39
Control Delay	95.3	59.7	9.7	104.9	47.3	22.0	109.4	62.7	86.1	66.1	66.3	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	95.3	59.7	9.7	104.9	47.3	22.0	109.4	62.7	86.1	66.1	66.3	9.6
Queue Length 50th (ft)	170	~509	17	~355	330	201	161	27	~523	323	325	17
Queue Length 95th (ft)	#290	#619	167	#481	391	351	#263	62	#669	445	446	83
Internal Link Dist (ft)		1296			1059			834			622	
Turn Bay Length (ft)	300		350	400		200	300		215			200
Base Capacity (vph)	234	1938	948	615	1961	1413	333	181	887	486	486	586
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.94	0.75	1.06	0.63	0.61	0.98	0.17	1.03	0.73	0.73	0.37

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues
2: Friars Rd & SR-163 NB Ramps

HY Plus Project Plus Event Conditions
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	667	2724	1768	1096	1541	1052
v/c Ratio	0.74	0.67	0.84	0.86	1.03	0.63
Control Delay	51.0	14.5	56.2	56.8	80.4	21.7
Queue Delay	0.0	9.6	0.0	0.6	0.0	0.0
Total Delay	51.0	24.1	56.2	57.4	80.4	21.7
Queue Length 50th (ft)	325	475	431	621	~550	354
Queue Length 95th (ft)	m344	m539	440	702	#645	456
Internal Link Dist (ft)		1059	635		521	
Turn Bay Length (ft)	500			200	500	400
Base Capacity (vph)	907	4087	2253	1278	1497	1659
Starvation Cap Reductn	0	0	0	35	0	0
Spillback Cap Reductn	0	1368	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.74	1.00	0.78	0.88	1.03	0.63

Intersection Summary

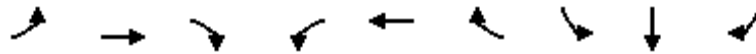
- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues

HY Plus Project Plus Event Conditions

17: I-15 SB Ramps & Friars Rd

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	591	2864	1235	334	2223	409	617	617	1200
v/c Ratio	1.08	1.68	1.54	6.19	1.79	0.77	1.14	1.14	0.64
Control Delay	106.9	337.6	272.7	2382.0	390.1	35.2	123.8	123.8	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	106.9	337.6	272.7	2382.0	390.1	35.2	123.8	123.8	14.9
Queue Length 50th (ft)	~583	~1350	~1278	~525	~1076	184	~666	~666	320
Queue Length 95th (ft)	#814	#1431	#1546	#723	#1168	317	#911	#911	395
Internal Link Dist (ft)		844			1079			723	
Turn Bay Length (ft)	380		200	350			520		520
Base Capacity (vph)	546	1708	801	54	1241	533	543	543	1870
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.08	1.68	1.54	6.19	1.79	0.77	1.14	1.14	0.64

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

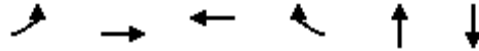
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues
18: I-15 NB Ramps & Friars Rd

HY Plus Project Plus Event Conditions
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	1159	3045	1930	572	1623	1475
v/c Ratio	1.67	no cap	0.83	0.84	19.09	17.35
Control Delay	335.3		28.4	37.6	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	335.3	Error	28.4	37.6	0.0	0.0
Queue Length 50th (ft)	~1336	0	458	410	0	0
Queue Length 95th (ft)	#1617	0	528	611	0	0
Internal Link Dist (ft)		1079	869		797	677
Turn Bay Length (ft)	515					
Base Capacity (vph)	693	1	2586	759	85	85
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.67	3045.00	0.75	0.75	19.09	17.35

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	131	651	244	436	227	984	1205	828
v/c Ratio	0.78	1.11	0.69	0.97	1.28	0.31	0.68	0.83
Control Delay	116.0	108.5	86.3	80.7	227.3	18.2	32.3	23.6
Queue Delay	0.0	0.0	0.0	15.4	0.0	0.1	50.2	49.5
Total Delay	116.0	108.5	86.3	96.1	227.3	18.3	82.5	73.1
Queue Length 50th (ft)	172	~655	301	360	~377	218	535	117
Queue Length 95th (ft)	248	#868	411	#594	#573	271	m642	m523
Internal Link Dist (ft)			653			1043	147	
Turn Bay Length (ft)				150	110			
Base Capacity (vph)	309	584	370	461	177	3191	1784	997
Starvation Cap Reductn	0	0	0	0	0	0	889	269
Spillback Cap Reductn	0	0	0	33	0	931	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	1.11	0.66	1.02	1.28	0.44	1.35	1.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

HY Plus Project Plus Event Conditions
 PM Peak Hour



Lane Group	EBR	NBT	SBT
Lane Group Flow (vph)	755	1394	1974
v/c Ratio	0.82	0.72	1.02
Control Delay	32.9	17.9	46.9
Queue Delay	0.0	12.7	0.0
Total Delay	32.9	30.5	46.9
Queue Length 50th (ft)	199	267	~547
Queue Length 95th (ft)	270	436	#848
Internal Link Dist (ft)		283	1043
Turn Bay Length (ft)			
Base Capacity (vph)	1546	1935	1935
Starvation Cap Reductn	0	542	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.49	1.00	1.02

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

HY Plus Project Plus Event Conditions

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	137	170	994	442	897	396	347	1040	13	1633	71
v/c Ratio	0.64	0.76	1.71	1.43	1.52	0.99	1.28	0.68	0.05	1.27	0.11
Control Delay	67.6	75.8	354.5	249.7	279.0	86.8	193.4	31.3	39.5	162.2	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	2.5	0.0
Total Delay	67.6	75.8	354.5	249.7	279.0	86.8	193.4	31.4	39.5	164.7	9.6
Queue Length 50th (ft)	116	147	~1175	~552	~612	346	~369	354	5	~938	8
Queue Length 95th (ft)	188	228	#1413	#783	#758	#491	#562	446	m6	m#893	m16
Internal Link Dist (ft)		2741			1304			830		254	
Turn Bay Length (ft)	105					200	215		65		140
Base Capacity (vph)	245	257	581	309	590	399	272	1530	264	1290	641
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	517	0
Spillback Cap Reductn	0	0	0	0	0	0	0	57	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.66	1.71	1.43	1.52	0.99	1.28	0.71	0.05	2.11	0.11

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
36: Fairmount Ave & I-8 EB Off-Ramp

HY Plus Project Plus Event Conditions
PM Peak Hour



Lane Group	EBL	EBR	NBU	NBT	SBT
Lane Group Flow (vph)	1695	1905	61	655	1595
v/c Ratio	1.22dr	1.46	0.60	0.42	0.90
Control Delay	83.6	242.8	91.0	29.1	53.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	83.6	242.8	91.0	29.1	53.7
Queue Length 50th (ft)	~939	~1456	58	223	528
Queue Length 95th (ft)	#1127	#1672	110	275	621
Internal Link Dist (ft)	749			557	830
Turn Bay Length (ft)	550		350		
Base Capacity (vph)	1571	1303	235	1856	1808
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.08	1.46	0.26	0.35	0.88

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- dr Defacto Right Lane. Recode with 1 though lane as a right lane.

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

Horizon Year Plus Project with Improvements
 AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↔↔		↔	↑↑↑	↔↔				↔	↑	↔↔
Traffic Volume (veh/h)	414	1069	553	60	330	2350	520	0	0	0	794	10	1221
Future Volume (veh/h)	414	1069	553	60	330	2350	520	0	0	0	794	10	1221
Initial Q (Qb), veh	0	0	0		0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	440	1137	177		351	2500	321				853	0	1247
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	926	2683	1466		386	2293	1253				891	0	1642
Arrive On Green	0.27	0.53	0.53		0.07	0.15	0.15				0.25	0.00	0.25
Sat Flow, veh/h	3456	5106	2790		1781	5106	2790				3563	0	3170
Grp Volume(v), veh/h	440	1137	177		351	2500	321				853	0	1247
Grp Sat Flow(s),veh/h/ln	1728	1702	1395		1781	1702	1395				1781	0	1585
Q Serve(g_s), s	11.8	15.0	3.5		21.5	49.4	11.2				26.0	0.0	4.9
Cycle Q Clear(g_c), s	11.8	15.0	3.5		21.5	49.4	11.2				26.0	0.0	4.9
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	926	2683	1466		386	2293	1253				891	0	1642
V/C Ratio(X)	0.48	0.42	0.12		0.91	1.09	0.26				0.96	0.00	0.76
Avail Cap(c_a), veh/h	926	2683	1466		505	2293	1253				891	0	1642
HCM Platoon Ratio	1.00	1.00	1.00		0.33	0.33	0.33				1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00		0.09	0.09	0.09				1.00	0.00	1.00
Uniform Delay (d), s/veh	33.8	15.9	13.2		50.0	46.8	30.6				40.7	0.0	21.1
Incr Delay (d2), s/veh	0.1	0.5	0.2		1.8	41.4	0.0				20.4	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	5.4	1.1		10.4	31.1	4.0				13.9	0.0	20.8
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	33.9	16.4	13.4		51.7	88.3	30.6				61.1	0.0	23.0
LnGrp LOS	C	B	B		D	F	C				E	A	C
Approach Vol, veh/h		1754				3172						2100	
Approach Delay, s/veh		20.5				78.4						38.4	
Approach LOS		C				E						D	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	38.1	64.8		32.6	36.5	56.4							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	31	35.0		27.5	16.3	* 49							
Max Q Clear Time (g_c+R), s	20.5	17.0		28.0	13.8	51.4							
Green Ext Time (p_c), s	0.3	5.2		0.0	0.3	0.0							

Intersection Summary

HCM 6th Ctrl Delay	52.0
HCM 6th LOS	D

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

Horizon Year Plus Project with Improvements
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔				↑↑↑	↔					↑	↔↔
Traffic Volume (veh/h)	789	1164	0	0	2401	1743	0	0	380	0	0	839
Future Volume (veh/h)	789	1164	0	0	2401	1743	0	0	380	0	0	839
Initial Q (Qb), veh	20	0	0	0	0	20				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	831	1225	0	0	2429	1900				0	0	845
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				0	2	2
Cap, veh/h	1084	0	0	0	2142	1816				0	0	0
Arrive On Green	0.31	0.95	0.00	0.00	0.57	0.57				0.00	0.00	0.00
Sat Flow, veh/h	3456	0	0	0	3741	3170					0	
Grp Volume(v), veh/h	831	0	0	0	2429	1900					0.0	
Grp Sat Flow(s),veh/h/ln	1728	0	0	0	1870	1585						
Q Serve(g_s), s	23.9	0.0	0.0	0.0	63.0	63.0						
Cycle Q Clear(g_c), s	23.9	0.0	0.0	0.0	63.0	63.0						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	1084	0	0	0	2142	1816						
V/C Ratio(X)	0.77	0.00	0.00	0.00	1.13	1.05						
Avail Cap(c_a), veh/h	1084	0	0	0	2142	1816						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.57	0.00	0.00	0.00	0.30	0.30						
Uniform Delay (d), s/veh	35.3	0.0	0.0	0.0	23.5	23.5						
Incr Delay (d2), s/veh	1.7	0.0	0.0	0.0	62.3	26.3						
Initial Q Delay(d3),s/veh	10.5	0.0	0.0	0.0	0.0	39.7						
%ile BackOfQ(50%),veh/ln	12.7	0.0	0.0	0.0	42.3	36.8						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.5	0.0	0.0	0.0	85.8	89.4						
LnGrp LOS	D	A	A	A	F	F						
Approach Vol, veh/h		831			4329							
Approach Delay, s/veh		47.5			87.4							
Approach LOS		D			F							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		110.0			40.0	70.0						
Change Period (Y+Rc), s		5.5			5.5	7.0						
Max Green Setting (Gmax), s		82.0			12.0	63.0						
Max Q Clear Time (g_c+I1), s		0.0			25.9	65.0						
Green Ext Time (p_c), s		0.0			0.0	0.0						

Intersection Summary

HCM 6th Ctrl Delay	80.9
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave

Horizon Year Plus Project with Improvements

AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	142	208	70	743	30	326	130	40	10	90	253
Future Volume (veh/h)	55	142	208	70	743	30	326	130	40	10	90	253
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	64	165	114	81	864	33	379	151	39	12	105	215
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	83	554	845	105	1078	41	425	341	88	393	120	245
Arrive On Green	0.05	0.30	0.30	0.06	0.31	0.31	0.24	0.24	0.24	0.22	0.22	0.22
Sat Flow, veh/h	1781	1870	1574	1781	3489	133	1781	1429	369	1781	542	1110
Grp Volume(v), veh/h	64	165	114	81	440	457	379	0	190	12	0	320
Grp Sat Flow(s),veh/h/ln	1781	1870	1574	1781	1777	1845	1781	0	1797	1781	0	1652
Q Serve(g_s), s	3.5	6.6	3.5	4.4	22.1	22.1	20.0	0.0	8.7	0.5	0.0	18.2
Cycle Q Clear(g_c), s	3.5	6.6	3.5	4.4	22.1	22.1	20.0	0.0	8.7	0.5	0.0	18.2
Prop In Lane	1.00		1.00	1.00		0.07	1.00		0.21	1.00		0.67
Lane Grp Cap(c), veh/h	83	554	845	105	549	570	425	0	429	393	0	365
V/C Ratio(X)	0.77	0.30	0.13	0.77	0.80	0.80	0.89	0.00	0.44	0.03	0.00	0.88
Avail Cap(c_a), veh/h	161	799	1051	247	845	877	724	0	731	687	0	638
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.8	26.4	11.3	45.1	30.8	30.9	35.8	0.0	31.5	29.7	0.0	36.6
Incr Delay (d2), s/veh	14.2	0.3	0.1	11.4	2.9	2.8	4.0	0.0	0.3	0.0	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	2.9	1.9	2.3	9.8	10.2	9.0	0.0	3.8	0.2	0.0	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.0	26.7	11.4	56.4	33.8	33.7	39.7	0.0	31.8	29.7	0.0	39.4
LnGrp LOS	E	C	B	E	C	C	D	A	C	C	A	D
Approach Vol, veh/h		343			978			569			332	
Approach Delay, s/veh		27.8			35.6			37.1			39.0	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.2	33.3		26.0	9.0	34.5		27.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	13.5	41.5		37.5	8.8	46.2		39.5				
Max Q Clear Time (g_c+1), s	10.4	8.6		20.2	5.5	24.1		22.0				
Green Ext Time (p_c), s	0.1	1.1		1.3	0.0	5.9		1.2				

Intersection Summary

HCM 6th Ctrl Delay	35.3
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary
 31: Texas St & Camino del Rio S

Horizon Year Plus Project with Improvements
 AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↘	↙	↗	↘	↙	↗	↘	↙	↗	↘	↙	↗
Traffic Volume (veh/h)	10	103	53	60	74	92	120	150	1387	179	480	592	293
Future Volume (veh/h)	10	103	53	60	74	92	120	150	1387	179	480	592	293
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.98	1.00		0.96	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1811	1663	1870	1841	1870	1796	1841	1870	1870	1870	1870	1826
Adj Flow Rate, veh/h		81	91	12	77	96	51	156	1445	181	500	617	187
Peak Hour Factor		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		6	16	2	4	2	7	4	2	2	2	2	5
Cap, veh/h		134	130	289	173	185	599	184	1100	136	529	1918	818
Arrive On Green		0.08	0.08	0.08	0.10	0.10	0.10	0.10	0.35	0.35	0.30	0.54	0.54
Sat Flow, veh/h		1725	1663	1579	1753	1870	1490	1753	3166	392	1781	3554	1515
Grp Volume(v), veh/h		81	91	12	77	96	51	156	803	823	500	617	187
Grp Sat Flow(s),veh/h/ln		1725	1663	1579	1753	1870	1490	1753	1777	1781	1781	1777	1515
Q Serve(g_s), s		5.5	6.4	0.8	5.0	5.9	2.6	10.5	41.8	41.8	33.0	11.6	7.8
Cycle Q Clear(g_c), s		5.5	6.4	0.8	5.0	5.9	2.6	10.5	41.8	41.8	33.0	11.6	7.8
Prop In Lane		1.00		1.00	1.00		1.00	1.00		0.22	1.00		1.00
Lane Grp Cap(c), veh/h		134	130	289	173	185	599	184	617	619	529	1918	818
V/C Ratio(X)		0.60	0.70	0.04	0.44	0.52	0.09	0.85	1.30	1.33	0.94	0.32	0.23
Avail Cap(c_a), veh/h		430	415	560	411	438	802	364	617	619	1075	2659	1134
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		53.7	54.1	40.5	51.1	51.5	22.7	52.9	39.2	39.2	41.3	15.4	14.5
Incr Delay (d2), s/veh		4.3	6.7	0.1	4.9	6.1	0.2	4.2	147.0	159.3	4.0	0.2	0.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.5	2.9	0.3	2.4	3.0	0.9	4.8	42.9	45.1	14.8	4.6	2.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		57.9	60.8	40.5	56.0	57.6	22.9	57.1	186.3	198.5	45.3	15.6	14.8
LnGrp LOS		E	E	D	E	E	C	E	F	F	D	B	B
Approach Vol, veh/h			184			224			1782			1304	
Approach Delay, s/veh			58.2			49.2			180.6			26.9	
Approach LOS			E			D			F			C	
Timer - Assigned Phs	1	2	4	5	6	8							
Phs Duration (G+Y+Rc), s	40.1	47.0		14.3	17.0	70.1		18.9					
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0					
Max Green Setting (Gmax), s	72.6	41.8		30.0	25.0	* 90		28.2					
Max Q Clear Time (g_c+Rc), s	45.0	43.8		8.4	12.5	13.6		7.9					
Green Ext Time (p_c), s	0.7	0.0		0.7	0.2	12.4		1.9					

Intersection Summary

HCM 6th Ctrl Delay	108.4
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
32: Ward Rd & Rancho Mission Rd

Horizon Year Plus Project with Improvements
AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	245	190	738	544	34
Future Volume (veh/h)	50	245	190	738	544	34
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	0.99			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	47	198	769	567	28
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	172	153	437	1430	1975	97
Arrive On Green	0.10	0.10	0.57	0.57	0.57	0.57
Sat Flow, veh/h	1781	1585	433	2577	3535	170
Grp Volume(v), veh/h	52	47	457	510	292	303
Grp Sat Flow(s),veh/h/ln	1781	1585	1308	1617	1777	1834
Q Serve(g_s), s	0.7	0.8	2.3	5.4	2.3	2.3
Cycle Q Clear(g_c), s	0.7	0.8	4.8	5.4	2.3	2.3
Prop In Lane	1.00	1.00	0.43			0.09
Lane Grp Cap(c), veh/h	172	153	939	928	1020	1053
V/C Ratio(X)	0.30	0.31	0.49	0.55	0.29	0.29
Avail Cap(c_a), veh/h	1174	1044	1698	1953	2146	2215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.5	11.5	3.4	3.6	3.0	3.0
Incr Delay (d2), s/veh	1.0	1.1	0.4	0.5	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.2	0.2	0.2	0.1	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.5	12.6	3.7	4.1	3.1	3.1
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	99			967	595	
Approach Delay, s/veh	12.5			3.9	3.1	
Approach LOS	B			A	A	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		20.2		7.1		20.2
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		33.0		18.0		33.0
Max Q Clear Time (g_c+I1), s		7.4		2.8		4.3
Green Ext Time (p_c), s		7.7		0.2		3.7
Intersection Summary						
HCM 6th Ctrl Delay			4.2			
HCM 6th LOS			A			

HCM Signalized Intersection Capacity Analysis Horizon Year Plus Project with Improvements
 35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

AM Peak Hour

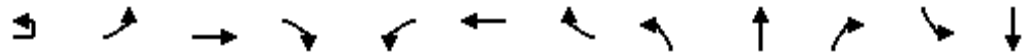


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖↗	↖	↖↗	↖	↖	↖↗		↖↗	↖↗	↖
Traffic Volume (vph)	50	33	456	490	807	395	583	1488	180	13	960	130
Future Volume (vph)	50	33	456	490	807	395	583	1488	180	13	960	130
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	0.88	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1749	2776	1610	3171	1422	1770	3477		3433	3539	1583
Flt Permitted	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1749	2776	1610	3171	1422	1770	3477		3433	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	35	480	516	849	416	614	1566	189	14	1011	137
RTOR Reduction (vph)	0	0	65	0	0	0	0	6	0	0	0	68
Lane Group Flow (vph)	42	46	415	464	943	374	614	1749	0	14	1011	69
Confl. Peds. (#/hr)						2			1			
Confl. Bikes (#/hr)			2			2						
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8	1	5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	7.9	7.9	46.2	38.0	38.0	46.3	38.3	74.8		8.3	44.8	44.8
Effective Green, g (s)	7.9	7.9	46.2	38.0	38.0	46.3	38.3	74.8		8.3	44.8	44.8
Actuated g/C Ratio	0.05	0.05	0.31	0.25	0.25	0.31	0.26	0.50		0.06	0.30	0.30
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	88	92	941	407	803	438	451	1733		189	1056	472
v/s Ratio Prot	0.02	0.03	c0.11	0.29	c0.30	0.05	c0.35	c0.50		0.00	c0.29	
v/s Ratio Perm			0.04			0.22						0.04
v/c Ratio	0.48	0.50	0.44	1.14	1.17	0.85	1.36	1.01		0.07	0.96	0.15
Uniform Delay, d1	69.0	69.1	41.6	56.0	56.0	48.7	55.9	37.6		67.2	51.7	38.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.11	0.62	0.50
Incremental Delay, d2	1.5	1.6	0.1	88.6	91.4	14.4	176.5	23.9		0.1	17.3	0.6
Delay (s)	70.5	70.7	41.7	144.6	147.4	63.1	232.3	61.5		74.9	49.2	19.8
Level of Service	E	E	D	F	F	E	F	E		E	D	B
Approach Delay (s)		46.2			129.0			105.8			46.0	
Approach LOS		D			F			F			D	

Intersection Summary		
HCM 2000 Control Delay	95.2	HCM 2000 Level of Service F
HCM 2000 Volume to Capacity ratio	1.13	
Actuated Cycle Length (s)	150.0	Sum of lost time (s) 21.0
Intersection Capacity Utilization	103.7%	ICU Level of Service G
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis Horizon Year Plus Project with Improvements
 1: SR-163 SB Ramps/Ulrir St & Friars Rd PM Peak Hour



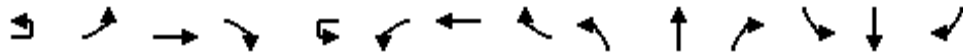
Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations		3		7	77	777	77	77	7	77	7	7	
Traffic Volume (vph)	10	170	1780	700	634	1208	827	320	30	769	690	0	
Future Volume (vph)	10	170	1780	700	634	1208	827	320	30	769	690	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.7	7.0	7.0	4.5	3.0	6.1	6.1	6.1	4.5	6.1	6.1	
Lane Util. Factor		1.00	0.86	1.00	0.97	0.91	0.88	0.97	1.00	0.88	0.95	0.95	
Frbp, ped/bikes		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (prot)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (perm)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	10	173	1816	714	647	1233	844	327	31	785	704	0	
RTOR Reduction (vph)	0	0	0	481	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	183	1816	233	647	1233	844	327	31	785	352	352	
Confl. Peds. (#/hr)				5									
Confl. Bikes (#/hr)				2									
Turn Type	Prot	Prot	NA	Perm	Prot	NA	custom	Split	NA	pm+ov	Split	NA	
Protected Phases	5	5	2		1	6 7	4 7	8	8	1	4	4	
Permitted Phases				2						8			
Actuated Green, G (s)		17.5	44.0	44.0	26.0	52.3	68.9	14.1	14.1	40.1	37.2	37.2	
Effective Green, g (s)		17.5	44.0	44.0	26.0	52.3	61.9	14.1	14.1	40.1	37.2	37.2	
Actuated g/C Ratio		0.12	0.30	0.30	0.18	0.36	0.43	0.10	0.10	0.28	0.26	0.26	
Clearance Time (s)		4.7	7.0	7.0	4.5			6.1	6.1	4.5	6.1	6.1	
Vehicle Extension (s)		2.0	2.0	2.0	3.0			3.0	3.0	3.0	2.0	2.0	
Lane Grp Cap (vph)		213	1944	469	615	1834	1189	333	181	770	431	431	
v/s Ratio Prot		0.10	c0.28		c0.19	0.24	0.30	0.10	0.02	c0.18	c0.21	0.21	
v/s Ratio Perm				0.15						0.10			
v/c Ratio		0.86	0.93	0.50	1.05	0.67	0.71	0.98	0.17	1.02	0.82	0.82	
Uniform Delay, d1		62.5	49.1	41.4	59.5	39.1	34.2	65.3	60.1	52.5	50.7	50.7	
Progression Factor		1.00	1.00	1.00	1.25	0.75	0.68	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		26.5	9.9	3.7	44.5	0.5	1.1	44.2	0.5	37.4	10.8	10.8	
Delay (s)		89.1	58.9	45.2	118.8	29.7	24.4	109.5	60.5	89.9	61.5	61.5	
Level of Service		F	E	D	F	C	C	F	E	F	E	E	
Approach Delay (s)			57.4			49.2			94.7			57.0	
Approach LOS			E			D			F			E	
Intersection Summary													
HCM 2000 Control Delay			60.1		HCM 2000 Level of Service					E			
HCM 2000 Volume to Capacity ratio			0.96										
Actuated Cycle Length (s)			145.0		Sum of lost time (s)					26.9			
Intersection Capacity Utilization			97.3%		ICU Level of Service					F			
Analysis Period (min)			15										
c Critical Lane Group													



Movement	SBR
Lane Configurations	7
Traffic Volume (vph)	210
Future Volume (vph)	210
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.1
Lane Util. Factor	1.00
Frbp, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1560
Flt Permitted	1.00
Satd. Flow (perm)	1560
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	214
RTOR Reduction (vph)	142
Lane Group Flow (vph)	72
Confl. Peds. (#/hr)	3
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	37.2
Effective Green, g (s)	37.2
Actuated g/C Ratio	0.26
Clearance Time (s)	6.1
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	400
v/s Ratio Prot	
v/s Ratio Perm	0.05
v/c Ratio	0.18
Uniform Delay, d1	42.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	42.1
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

Horizon Year Plus Project with Improvements
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕ ↕ ↕ ↕	↕	↕		↕ ↕ ↕ ↕				↕	↕		↕ ↕	
Traffic Volume (veh/h)	20	20	2715	160	10	78	1771	28	80	10	152	225	20	90
Future Volume (veh/h)	20	20	2715	160	10	78	1771	28	80	10	152	225	20	90
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	1.00		0.97	0.98		0.97
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		21	2799	140		80	1826	28	82	10	87	232	21	85
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h		27	2898	897		207	3522	54	367	42	425	246	19	76
Arrive On Green		0.02	0.57	0.57		0.23	1.00	1.00	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h		1781	5106	1581		1781	5179	79	1178	154	1542	754	68	276
Grp Volume(v), veh/h		21	2799	140		80	1200	654	92	0	87	338	0	0
Grp Sat Flow(s),veh/h/ln		1781	1702	1581		1781	1702	1854	1332	0	1542	1098	0	0
Q Serve(g_s), s		1.9	84.0	6.7		6.1	0.0	0.0	0.0	0.0	6.9	35.6	0.0	0.0
Cycle Q Clear(g_c), s		1.9	84.0	6.7		6.1	0.0	0.0	8.5	0.0	6.9	44.1	0.0	0.0
Prop In Lane		1.00		1.00		1.00		0.04	0.89		1.00	0.69		0.25
Lane Grp Cap(c), veh/h		27	2898	897		207	2315	1261	410	0	425	341	0	0
V/C Ratio(X)		0.78	0.97	0.16		0.39	0.52	0.52	0.22	0.00	0.20	0.99	0.00	0.00
Avail Cap(c_a), veh/h		104	2898	897		207	2315	1261	410	0	425	341	0	0
HCM Platoon Ratio		1.00	1.00	1.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		0.80	0.80	0.80	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh		78.5	33.1	16.4		56.5	0.0	0.0	45.0	0.0	44.5	64.1	0.0	0.0
Incr Delay (d2), s/veh		16.1	10.5	0.4		0.3	0.7	1.2	0.2	0.0	0.2	46.5	0.0	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.0	35.2	2.5		2.6	0.2	0.4	2.9	0.0	2.7	18.5	0.0	0.0
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		94.6	43.6	16.8		56.9	0.7	1.2	45.2	0.0	44.7	110.6	0.0	0.0
LnGrp LOS		F	D	B		E	A	A	D	A	D	F	A	A
Approach Vol, veh/h			2960			1934			179		338			
Approach Delay, s/veh			42.7			3.2			45.0		110.6			
Approach LOS			D			A			D		F			
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	24.9	97.0	49.0	6.8	115.0	49.0								
Change Period (Y+Rc), s	6.2	* 6.2	4.9	4.4	6.2	4.9								
Max Green Setting (Gmax), s	91	* 91	44.1	9.3	91.1	44.1								
Max Q Clear Time (g_c+1), s	19.1	86.0	46.1	3.9	2.0	10.5								
Green Ext Time (p_c), s	0.0	4.8	0.0	0.0	74.7	0.7								

Intersection Summary

HCM 6th Ctrl Delay	32.9
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
9: Fenton Pkwy & Friars Rd

Horizon Year Plus Project with Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗		↔↔	↑↑↑	↗	↔↔	↑	↗	↔↔	↗	↗
Traffic Volume (veh/h)	150	2750	372	10	250	1476	80	320	56	420	40	22	70
Future Volume (veh/h)	150	2750	372	10	250	1476	80	320	56	420	40	22	70
Initial Q (Qb), veh	15	25	15		0	0	0	0	0	15	15	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	2835	319		258	1522	45	330	58	354	41	23	9
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	382	2419	1119		207	2326	753	937	550	443	98	90	234
Arrive On Green	0.29	0.95	0.95		0.25	0.91	0.91	0.23	0.26	0.26	0.02	0.05	0.05
Sat Flow, veh/h	3456	5106	1585		3456	5106	1564	3456	1870	1581	3563	1870	1555
Grp Volume(v), veh/h	155	2835	319		258	1522	45	330	58	354	41	23	9
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1564	1728	1870	1581	1781	1870	1555
Q Serve(g_s), s	5.6	75.8	0.0		10.5	10.5	0.0	13.0	3.8	34.4	1.8	1.9	0.0
Cycle Q Clear(g_c), s	5.6	75.8	0.0		10.5	10.5	0.0	13.0	3.8	34.4	1.8	1.9	0.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	382	2419	1119		207	2326	753	937	550	443	98	90	234
V/C Ratio(X)	0.41	1.17	0.29		1.24	0.65	0.06	0.35	0.11	0.80	0.42	0.25	0.04
Avail Cap(c_a), veh/h	497	2419	1112		433	2326	746	787	587	496	98	491	636
HCM Platoon Ratio	2.00	2.00	2.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.24	0.24	0.24		0.83	0.83	0.83	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.3	4.2	2.9		70.4	4.3	3.5	47.1	41.2	56.2	77.8	73.4	58.4
Incr Delay (d2), s/veh	0.1	78.6	0.2		118.7	1.2	0.1	0.0	0.0	1.4	1.1	6.7	0.3
Initial Q Delay(d3),s/veh	18.7	37.2	1.8		0.0	0.0	0.0	0.0	0.0	41.3	289.5	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	27.6	3.7		7.3	2.0	0.2	5.4	1.7	21.8	6.0	1.1	0.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	78.0	120.0	4.9		189.1	5.5	3.7	47.1	41.2	99.0	368.4	80.0	58.7
LnGrp LOS	E	F	A		F	A	A	D	D	F	F	F	E
Approach Vol, veh/h		3309				1825			742			73	
Approach Delay, s/veh		106.9				31.4			71.4			239.3	
Approach LOS		F				C			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	24.4	82.1	40.8	12.6	27.4	79.1	7.8	45.7					
Change Period (Y+Rc), s	4.4	6.3	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	9.6	75.8	12.6	42.0	12.6	72.9	4.4	50.2					
Max Q Clear Time (g_c+1/2y), s	11.5	77.8	15.0	3.9	7.6	12.5	3.8	36.4					
Green Ext Time (p_c), s	0.0	0.0	0.0	0.4	0.1	45.6	0.0	4.4					

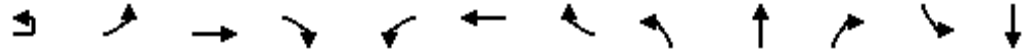
Intersection Summary

HCM 6th Ctrl Delay	81.0
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis Horizon Year Plus Project with Improvements
 10: Northside Dr & Friars Rd PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations		↔↔	↔↔↔	↔	↔↔	↔↔↔	↔	↔↔	↑	↔↔	↔↔	↑	
Traffic Volume (vph)	10	160	2650	250	545	1486	225	210	40	811	111	30	
Future Volume (vph)	10	160	2650	250	545	1486	225	210	40	811	111	30	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.4	6.0	6.0	4.4	6.2	4.4	4.4	4.9	4.4	4.4	4.9	
Lane Util. Factor		0.97	0.91	1.00	0.97	0.91	1.00	0.97	1.00	0.88	0.97	1.00	
Frbp, ped/bikes		1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		3433	5085	1553	3433	5085	1566	3433	1863	2787	3433	1863	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		3433	5085	1553	3433	5085	1566	3433	1863	2787	3433	1863	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	
Adj. Flow (vph)	11	172	2849	269	586	1598	242	226	43	872	119	32	
RTOR Reduction (vph)	0	0	0	0	0	0	72	0	0	471	0	0	
Lane Group Flow (vph)	0	183	2849	269	586	1598	170	226	43	401	119	32	
Confl. Peds. (#/hr)				4						8			
Confl. Bikes (#/hr)				2			1						
Turn Type	Prot	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	custom	Prot	NA	
Protected Phases	5	5	2		1	6	7	3	8 9	19	7	4	
Permitted Phases				2			6						
Actuated Green, G (s)		14.2	86.3	86.3	21.6	93.5	106.8	19.1	19.1	33.0	13.3	13.3	
Effective Green, g (s)		14.2	86.3	86.3	21.6	93.5	106.8	19.1	16.1	33.0	13.3	13.3	
Actuated g/C Ratio		0.09	0.54	0.54	0.14	0.58	0.67	0.12	0.10	0.21	0.08	0.08	
Clearance Time (s)		4.4	6.0	6.0	4.4	6.2	4.4	4.4			4.4	4.9	
Vehicle Extension (s)		2.0	5.4	5.4	2.0	5.7	2.0	2.0			2.0	8.0	
Lane Grp Cap (vph)		304	2742	837	463	2971	1088	409	187	574	285	154	
v/s Ratio Prot		0.05	c0.56		c0.17	0.31	0.01	c0.07	c0.02	c0.14	0.03	0.02	
v/s Ratio Perm				0.17			0.10						
v/c Ratio		0.60	1.04	0.32	1.27	0.54	0.16	0.55	0.23	0.70	0.42	0.21	
Uniform Delay, d1		70.2	36.9	20.5	69.2	20.2	9.9	66.4	66.2	58.9	69.7	68.4	
Progression Factor		0.69	0.56	0.76	1.04	0.94	0.70	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.2	19.0	0.1	133.8	0.6	0.0	0.9	0.2	3.0	0.4	2.9	
Delay (s)		48.8	39.6	15.7	205.7	19.6	6.9	67.3	66.5	61.9	70.0	71.3	
Level of Service		D	D	B	F	B	A	E	E	E	E	E	
Approach Delay (s)			38.1			63.3			63.1			69.6	
Approach LOS			D			E			E			E	
Intersection Summary													
HCM 2000 Control Delay			51.8		HCM 2000 Level of Service					D			
HCM 2000 Volume to Capacity ratio			0.99										
Actuated Cycle Length (s)			160.0		Sum of lost time (s)					22.9			
Intersection Capacity Utilization			96.3%		ICU Level of Service					F			
Analysis Period (min)			15										

c Critical Lane Group



Movement	SBR
Lane Configurations	7
Traffic Volume (vph)	100
Future Volume (vph)	100
Ideal Flow (vphpl)	1900
Total Lost time (s)	4.9
Lane Util. Factor	1.00
Frbp, ped/bikes	1.00
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1583
Flt Permitted	1.00
Satd. Flow (perm)	1583
Peak-hour factor, PHF	0.93
Adj. Flow (vph)	108
RTOR Reduction (vph)	99
Lane Group Flow (vph)	9
Confl. Peds. (#/hr)	
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	13.3
Effective Green, g (s)	13.3
Actuated g/C Ratio	0.08
Clearance Time (s)	4.9
Vehicle Extension (s)	8.0
Lane Grp Cap (vph)	131
v/s Ratio Prot	
v/s Ratio Perm	0.01
v/c Ratio	0.07
Uniform Delay, d1	67.6
Progression Factor	1.00
Incremental Delay, d2	0.9
Delay (s)	68.6
Level of Service	E
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

Horizon Year Plus Project with Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶↷	↑↑↑	↶↷		↶	↑↑↑	↶↷				↶	↷	↶↷
Traffic Volume (veh/h)	539	2666	1171	10	309	1680	390	0	0	0	1185	0	639
Future Volume (veh/h)	539	2666	1171	10	309	1680	390	0	0	0	1185	0	639
Initial Q (Qb), veh	20	0	20		20	0	20				0	0	20
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	561	2777	922		322	1750	397				1234	0	625
Peak Hour Factor	0.96	0.96	0.96		0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	1200	4100	1854		272	2365	1988				888	0	1880
Arrive On Green	0.33	0.66	0.66		0.10	0.31	0.31				0.25	0.00	0.25
Sat Flow, veh/h	3456	5106	2732		1781	5106	2790				3563	0	3170
Grp Volume(v), veh/h	561	2777	922		322	1750	397				1234	0	625
Grp Sat Flow(s),veh/h/ln	1728	1702	1366		1781	1702	1395				1781	0	1585
Q Serve(g_s), s	17.6	54.8	23.4		20.8	41.7	7.9				33.9	0.0	0.0
Cycle Q Clear(g_c), s	17.6	54.8	23.4		20.8	41.7	7.9				33.9	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	1200	4100	1854		272	2365	1988				888	0	1880
V/C Ratio(X)	0.47	0.68	0.50		1.18	0.74	0.20				1.39	0.00	0.33
Avail Cap(c_a), veh/h	1144	3380	1809		272	2365	1988				888	0	1840
HCM Platoon Ratio	1.00	1.00	1.00		0.67	0.67	0.67				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.36	0.36	0.36				1.00	0.00	1.00
Uniform Delay (d), s/veh	35.6	10.9	11.3		61.0	39.6	9.2				51.0	0.0	14.5
Incr Delay (d2), s/veh	0.1	0.9	1.0		95.2	0.8	0.1				182.3	0.0	0.0
Initial Q Delay(d3),s/veh	3.8	0.0	1.7		264.3	0.0	0.9				0.0	0.0	1.2
%ile BackOfQ(50%),veh/ln	8.9	12.3	6.8		36.8	18.1	7.0				37.7	0.0	13.6
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	39.5	11.8	13.9		420.5	40.3	10.2				233.3	0.0	15.8
LnGrp LOS	D	B	B		F	D	B				F	A	B
Approach Vol, veh/h		4260				2469						1859	
Approach Delay, s/veh		15.9				85.1						160.2	
Approach LOS		B				F						F	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	25.0	97.0		39.0	52.0	70.0							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	25	65.0		33.9	22.3	* 63							
Max Q Clear Time (g_c+Y), s	20.8	56.8		35.9	19.6	43.7							
Green Ext Time (p_c), s	0.0	7.5		0.0	0.4	9.5							

Intersection Summary

HCM 6th Ctrl Delay	67.0
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

Horizon Year Plus Project with Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔				↑↑↑	↔					↑	↔↔
Traffic Volume (veh/h)	1055	2856	0	0	1278	961	0	0	1429	0	0	1071
Future Volume (veh/h)	1055	2856	0	0	1278	961	0	0	1429	0	0	1071
Initial Q (Qb), veh	40	0	0	0	20	40				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	1111	3006	0	0	1319	1029				0	0	1105
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				0	2	2
Cap, veh/h	1156	0	0	0	2153	1824				0	0	0
Arrive On Green	0.33	0.95	0.00	0.00	1.00	1.00				0.00	0.00	0.00
Sat Flow, veh/h	3456	0	0	0	3741	3170					0	
Grp Volume(v), veh/h	1111	0	0	0	1319	1029					0.0	
Grp Sat Flow(s),veh/h/ln	1728	0	0	0	1870	1585						
Q Serve(g_s), s	43.0	0.0	0.0	0.0	0.0	0.0						
Cycle Q Clear(g_c), s	43.0	0.0	0.0	0.0	0.0	0.0						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	1156	0	0	0	2153	1824						
V/C Ratio(X)	0.96	0.00	0.00	0.00	0.61	0.56						
Avail Cap(c_a), veh/h	1156	0	0	0	2153	1825						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00						
Upstream Filter(I)	0.09	0.00	0.00	0.00	0.87	0.87						
Uniform Delay (d), s/veh	45.3	0.0	0.0	0.0	0.0	0.0						
Incr Delay (d2), s/veh	2.8	0.0	0.0	0.0	1.1	1.1						
Initial Q Delay(d3),s/veh	107.0	0.0	0.0	0.0	1.6	8.0						
%ile BackOfQ(50%),veh/ln	16.3	0.0	0.0	0.0	0.8	2.3						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	155.0	0.0	0.0	0.0	2.7	9.1						
LnGrp LOS	F	A	A	A	A	A						
Approach Vol, veh/h		1111			2348							
Approach Delay, s/veh		155.0			5.5							
Approach LOS		F			A							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		136.0			50.7	85.3						
Change Period (Y+Rc), s		* 7			5.5	7.0						
Max Green Setting (Gmax), s*		1.1E2			45.5	55.5						
Max Q Clear Time (g_c+I1), s		0.0			45.0	2.0						
Green Ext Time (p_c), s		0.0			0.2	12.3						

Intersection Summary

HCM 6th Ctrl Delay	53.5
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

Horizon Year Plus Project with Improvements
 PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↓	↑↑↑	↓	↑
Traffic Volume (veh/h)	3418	878	10	131	1746	483	263
Future Volume (veh/h)	3418	878	10	131	1746	483	263
Initial Q (Qb), veh	0	0		0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	3560	859		136	1819	503	123
Peak Hour Factor	0.96	0.96		0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	2857	1260		160	4870	603	300
Arrive On Green	1.00	1.00		0.09	0.76	0.16	0.16
Sat Flow, veh/h	5274	1583		1781	6696	3563	1585
Grp Volume(v), veh/h	3560	859		136	1819	503	123
Grp Sat Flow(s),veh/h/ln	5274	1583		1781	6696	3563	1585
Q Serve(g_s), s	0.0	0.0		10.2	13.0	18.8	9.6
Cycle Q Clear(g_c), s	0.0	0.0		10.2	13.0	18.8	9.6
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2857	1260		160	4870	603	300
V/C Ratio(X)	1.25	0.68		0.85	0.37	0.83	0.41
Avail Cap(c_a), veh/h	3247	1260		208	4878	843	375
HCM Platoon Ratio	2.00	2.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.88	0.88	0.44	0.44
Uniform Delay (d), s/veh	0.0	0.0		61.0	5.8	55.4	48.6
Incr Delay (d2), s/veh	113.9	3.0		16.4	0.2	1.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	12.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	1.0		5.3	4.0	10.2	3.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	113.9	3.0		77.4	6.0	69.0	48.7
LnGrp LOS	F	A		E	A	E	D
Approach Vol, veh/h	4419			1955	626		
Approach Delay, s/veh	92.3			11.0	65.0		
Approach LOS	F			B	E		
Timer - Assigned Phs	1	2		6	8		
Phs Duration (G+Y+Rc), s	66.6	92.5		109.1	26.9		
Change Period (Y+Rc), s	4.4	* 6		6.0	5.1		
Max Green Setting (Gmax), s	15.9	* 73		92.7	32.2		
Max Q Clear Time (g_c+1/2), s	11.2	2.0		15.0	20.8		
Green Ext Time (p_c), s	0.1	70.2		48.5	1.0		

Intersection Summary

HCM 6th Ctrl Delay	67.2
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

Horizon Year Plus Project with Improvements

27: Fairmount Ave & San Diego Mission Rd/Twain Ave

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	167	570	438	70	238	30	245	90	80	30	150	131
Future Volume (veh/h)	167	570	438	70	238	30	245	90	80	30	150	131
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	186	633	328	78	264	26	272	100	66	33	167	122
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	224	725	881	101	1040	102	317	185	122	344	193	141
Arrive On Green	0.13	0.39	0.39	0.06	0.32	0.32	0.18	0.18	0.18	0.19	0.19	0.19
Sat Flow, veh/h	1781	1870	1547	1781	3270	319	1781	1040	686	1781	1002	732
Grp Volume(v), veh/h	186	633	328	78	142	148	272	0	166	33	0	289
Grp Sat Flow(s),veh/h/ln	1781	1870	1547	1781	1777	1812	1781	0	1726	1781	0	1735
Q Serve(g_s), s	9.9	30.4	11.4	4.2	5.8	5.9	14.4	0.0	8.5	1.5	0.0	15.7
Cycle Q Clear(g_c), s	9.9	30.4	11.4	4.2	5.8	5.9	14.4	0.0	8.5	1.5	0.0	15.7
Prop In Lane	1.00		1.00	1.00		0.18	1.00		0.40	1.00		0.42
Lane Grp Cap(c), veh/h	224	725	881	101	565	576	317	0	307	344	0	335
V/C Ratio(X)	0.83	0.87	0.37	0.78	0.25	0.26	0.86	0.00	0.54	0.10	0.00	0.86
Avail Cap(c_a), veh/h	475	1200	1275	178	844	861	523	0	507	578	0	563
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.4	27.5	11.6	45.2	24.5	24.6	38.7	0.0	36.3	32.2	0.0	37.9
Incr Delay (d2), s/veh	7.7	3.9	0.2	12.0	0.2	0.2	3.8	0.0	0.6	0.0	0.0	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	13.4	5.5	2.2	2.5	2.6	6.5	0.0	3.6	0.6	0.0	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.1	31.4	11.9	57.2	24.8	24.8	42.5	0.0	36.9	32.3	0.0	41.3
LnGrp LOS	D	C	B	E	C	C	D	A	D	C	A	D
Approach Vol, veh/h		1147			368			438			322	
Approach Delay, s/veh		28.7			31.6			40.4			40.4	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	40.0	42.1		23.2	16.7	35.4		21.8				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	40.0	62.3		31.5	25.9	46.1		28.5				
Max Q Clear Time (g_c+1/2), s	40.0	32.4		17.7	11.9	7.9		16.4				
Green Ext Time (p_c), s	0.0	5.2		1.0	0.4	1.8		0.9				

Intersection Summary

HCM 6th Ctrl Delay		33.1										
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary

Horizon Year Plus Project with Improvements

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔	↑↑↑			↑↑	↔
Traffic Volume (veh/h)	10	113	0	612	32	197	410	213	907	0	0	1132	771
Future Volume (veh/h)	10	113	0	612	32	197	410	213	907	0	0	1132	771
Initial Q (Qb), veh		0	0	20	0	20	20	20	20	0	0	20	20
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No			No			No		
Adj Sat Flow, veh/h/ln		1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h		120	0	283	34	210	272	227	965	0	0	1204	553
Peak Hour Factor		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h		0	0	0	22	329	317	190	3861	0	0	2222	967
Arrive On Green		0.00	0.00	0.00	0.18	0.18	0.18	0.11	0.76	0.00	0.00	1.00	1.00
Sat Flow, veh/h			0		259	1599	1582	1781	5274	0	0	3647	1551
Grp Volume(v), veh/h			0.0		244	0	272	227	965	0	0	1204	553
Grp Sat Flow(s),veh/h/ln					1857	0	1582	1781	1702	0	0	1777	1551
Q Serve(g_s), s					24.7	0.0	33.9	21.3	11.3	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s					24.7	0.0	33.9	21.3	11.3	0.0	0.0	0.0	0.0
Prop In Lane					0.14		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					361	0	317	190	3861	0	0	2222	967
V/C Ratio(X)					0.68	0.00	0.86	1.20	0.25	0.00	0.00	0.54	0.57
Avail Cap(c_a), veh/h					371	0	316	190	3864	0	0	2227	972
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)					1.00	0.00	1.00	0.63	0.63	0.00	0.00	0.72	0.72
Uniform Delay (d), s/veh					78.8	0.0	80.0	89.4	7.8	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh					3.8	0.0	19.7	116.2	0.1	0.0	0.0	0.7	1.8
Initial Q Delay(d3),s/veh					68.5	0.0	164.2	379.5	0.3	0.0	0.0	1.3	7.2
%ile BackOfQ(50%),veh/ln					23.5	0.0	32.3	36.0	5.7	0.0	0.0	0.6	2.4
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					151.0	0.0	263.8	585.0	8.2	0.0	0.0	2.0	9.0
LnGrp LOS					F	A	F	F	A	A	A	A	A
Approach Vol, veh/h						516			1192			1757	
Approach Delay, s/veh						210.5			118.0			4.2	
Approach LOS						F			F			A	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		158.3			26.0	132.3		41.7					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		107.8			* 21	81.8		40.0					
Max Q Clear Time (g_c+I1), s		13.3			23.3	2.0		35.9					
Green Ext Time (p_c), s		5.1			0.0	43.5		0.6					

Intersection Summary

HCM 6th Ctrl Delay	74.1
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
31: Texas St & Camino del Rio S

Horizon Year Plus Project with Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↕	↕	↔	↕	↔
Traffic Volume (veh/h)	282	155	390	285	63	540	100	909	129	310	1787	197
Future Volume (veh/h)	282	155	390	285	63	540	100	909	129	310	1787	197
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	238	265	365	359	0	563	109	988	136	337	1942	180
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	265	278	347	504	0	539	125	1286	177	354	1913	853
Arrive On Green	0.15	0.15	0.15	0.14	0.00	0.14	0.07	0.41	0.41	0.20	0.54	0.54
Sat Flow, veh/h	1781	1870	1585	3563	0	1585	1781	3138	432	1781	3554	1585
Grp Volume(v), veh/h	238	265	365	359	0	563	109	559	565	337	1942	180
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1585	1781	1777	1793	1781	1777	1585
Q Serve(g_s), s	27.8	29.8	31.5	20.4	0.0	30.0	12.8	57.5	57.5	39.6	114.1	12.5
Cycle Q Clear(g_c), s	27.8	29.8	31.5	20.4	0.0	30.0	12.8	57.5	57.5	39.6	114.1	12.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	265	278	347	504	0	539	125	728	735	354	1913	853
V/C Ratio(X)	0.90	0.95	1.05	0.71	0.00	1.04	0.87	0.77	0.77	0.95	1.02	0.21
Avail Cap(c_a), veh/h	265	278	347	504	0	539	148	728	735	619	1913	853
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	88.7	89.5	82.8	86.9	0.0	69.9	97.6	53.9	53.9	83.9	48.9	25.5
Incr Delay (d2), s/veh	30.5	41.3	62.9	6.5	0.0	50.7	32.6	4.5	4.5	10.9	24.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.2	17.7	25.1	9.9	0.0	36.8	7.1	26.7	27.0	19.4	56.4	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	119.2	130.8	145.7	93.3	0.0	120.7	130.2	58.4	58.4	94.9	73.3	25.7
LnGrp LOS	F	F	F	F	A	F	F	E	E	F	F	C
Approach Vol, veh/h		868			922			1233			2459	
Approach Delay, s/veh		133.9			110.0			64.7			72.8	
Approach LOS		F			F			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	46.5	92.0		36.4	19.3	119.3		37.0				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0				
Max Green Setting (Gmax), s	73.6	57.8		31.5	17.6	* 1.1E2		30.0				
Max Q Clear Time (g_c+R1), s	41.6	59.5		33.5	14.8	116.1		32.0				
Green Ext Time (p_c), s	0.5	0.0		0.0	0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	86.9
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
32: Ward Rd & Rancho Mission Rd

Horizon Year Plus Project with Improvements
PM Peak Hour



Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations									
Traffic Volume (veh/h)	10	55	305	10	248	493	10	597	88
Future Volume (veh/h)	10	55	305	10	248	493	10	597	88
Initial Q (Qb), veh		0	0		0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		0.99				0.96
Parking Bus, Adj		1.00	1.00		1.00	1.00		1.00	1.00
Work Zone On Approach		No				No		No	
Adj Sat Flow, veh/h/ln		1870	1870		1870	1870		1870	1870
Adj Flow Rate, veh/h		58	170		261	519		628	73
Peak Hour Factor		0.95	0.95		0.95	0.95		0.95	0.95
Percent Heavy Veh, %		2	2		2	2		2	2
Cap, veh/h		276	246		518	1054		1886	219
Arrive On Green		0.16	0.16		0.59	0.59		0.59	0.59
Sat Flow, veh/h		1781	1585		564	1869		3285	370
Grp Volume(v), veh/h		58	170		320	460		349	352
Grp Sat Flow(s),veh/h/ln		1781	1585		732	1617		1777	1785
Q Serve(g_s), s		1.0	3.6		9.6	5.8		3.5	3.6
Cycle Q Clear(g_c), s		1.0	3.6		13.2	5.8		3.5	3.6
Prop In Lane		1.00	1.00		0.82				0.21
Lane Grp Cap(c), veh/h		276	246		617	956		1050	1055
V/C Ratio(X)		0.21	0.69		0.52	0.48		0.33	0.33
Avail Cap(c_a), veh/h		905	805		900	1506		1654	1662
HCM Platoon Ratio		1.00	1.00		1.00	1.00		1.00	1.00
Upstream Filter(I)		1.00	1.00		1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh		13.1	14.2		6.4	4.1		3.7	3.7
Incr Delay (d2), s/veh		0.4	3.5		0.7	0.4		0.2	0.2
Initial Q Delay(d3),s/veh		0.0	0.0		0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln		0.4	1.3		0.9	0.7		0.5	0.5
Unsig. Movement Delay, s/veh									
LnGrp Delay(d),s/veh		13.5	17.6		7.1	4.5		3.9	3.9
LnGrp LOS		B	B		A	A		A	A
Approach Vol, veh/h		228				780		701	
Approach Delay, s/veh		16.6				5.6		3.9	
Approach LOS		B				A		A	
Timer - Assigned Phs		2		4		6			
Phs Duration (G+Y+Rc), s		25.4		10.0		25.4			
Change Period (Y+Rc), s		4.5		4.5		4.5			
Max Green Setting (Gmax), s		33.0		18.0		33.0			
Max Q Clear Time (g_c+I1), s		15.2		5.6		5.6			
Green Ext Time (p_c), s		5.8		0.5		4.5			

Intersection Summary

HCM 6th Ctrl Delay	6.3
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
34: Fairmount Ave & Mission Gorge Rd

Horizon Year Plus Project with Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		↕	↗		↕			↖	↕			↗
Traffic Volume (veh/h)	67	17	621	30	14	10	40	370	904	40	10	10
Future Volume (veh/h)	67	17	621	30	14	10	40	370	904	40	10	10
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		0.98		1.00		0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1870	1870	1870		1870
Adj Flow Rate, veh/h	0	0	718	31	14	3		378	922	39		10
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		0.98	0.98	0.98		0.98
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2
Cap, veh/h	0	361	582	156	64	12		853	2389	101		17
Arrive On Green	0.00	0.00	0.19	0.19	0.19	0.19		0.49	1.00	1.00		0.01
Sat Flow, veh/h	0	1870	3012	571	333	60		3456	3471	147		1781
Grp Volume(v), veh/h	0	0	718	48	0	0		378	472	489		10
Grp Sat Flow(s),veh/h/ln	0	1870	1506	965	0	0		1728	1777	1841		1781
Q Serve(g_s), s	0.0	0.0	25.1	3.5	0.0	0.0		9.2	0.0	0.0		0.7
Cycle Q Clear(g_c), s	0.0	0.0	25.1	4.6	0.0	0.0		9.2	0.0	0.0		0.7
Prop In Lane	0.00		1.00	0.65		0.06		1.00		0.08		1.00
Lane Grp Cap(c), veh/h	0	361	582	232	0	0		853	1223	1267		17
V/C Ratio(X)	0.00	0.00	1.23	0.21	0.00	0.00		0.44	0.39	0.39		0.60
Avail Cap(c_a), veh/h	0	361	582	232	0	0		867	1223	1267		179
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		2.00	2.00	2.00		1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00		0.66	0.66	0.66		1.00
Uniform Delay (d), s/veh	0.0	0.0	52.4	43.9	0.0	0.0		27.1	0.0	0.0		64.2
Incr Delay (d2), s/veh	0.0	0.0	119.9	0.4	0.0	0.0		0.1	0.6	0.6		12.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	19.1	1.3	0.0	0.0		3.3	0.2	0.2		0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	172.3	44.3	0.0	0.0		27.2	0.6	0.6		76.5
LnGrp LOS	A	A	F	D	A	A		C	A	A		E
Approach Vol, veh/h		718			48				1339			
Approach Delay, s/veh		172.3			44.3				8.1			
Approach LOS		F			D				A			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	94.4		30.0	37.0	63.0		30.0				
Change Period (Y+Rc), s	4.4	4.9		4.9	4.9	* 4.9		4.9				
Max Green Setting (Gmax), s	13.1	77.6		25.1	32.6	* 58		25.1				
Max Q Clear Time (g_c+I1), s	2.7	2.0		27.1	11.2	28.9		6.6				
Green Ext Time (p_c), s	0.0	19.0		0.0	0.7	14.2		0.2				

Intersection Summary

HCM 6th Ctrl Delay	54.1
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	930	38
Future Volume (veh/h)	930	38
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		0.99
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1870	1870
Adj Flow Rate, veh/h	949	37
Peak Hour Factor	0.98	0.98
Percent Heavy Veh, %	2	2
Cap, veh/h	1557	61
Arrive On Green	0.45	0.45
Sat Flow, veh/h	3484	136
Grp Volume(v), veh/h	484	502
Grp Sat Flow(s),veh/h/ln	1777	1844
Q Serve(g_s), s	26.9	26.9
Cycle Q Clear(g_c), s	26.9	26.9
Prop In Lane		0.07
Lane Grp Cap(c), veh/h	794	824
V/C Ratio(X)	0.61	0.61
Avail Cap(c_a), veh/h	794	824
HCM Platoon Ratio	1.00	1.00
Upstream Filter(l)	1.00	1.00
Uniform Delay (d), s/veh	27.3	27.3
Incr Delay (d2), s/veh	3.5	3.3
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.1	12.6
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	30.8	30.7
LnGrp LOS	C	C
Approach Vol, veh/h	996	
Approach Delay, s/veh	31.2	
Approach LOS	C	

Timer - Assigned Phs

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis Horizon Year Plus Project with Improvements
 35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	153	961	810	283	384	308	800	190	13	1599	70
Future Volume (vph)	150	153	961	810	283	384	308	800	190	13	1599	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	0.88	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1762	2787	1610	3082	1425	1770	3428		3433	3539	1563
Flt Permitted	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1762	2787	1610	3082	1425	1770	3428		3433	3539	1563
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	152	155	971	818	286	388	311	808	192	13	1615	71
RTOR Reduction (vph)	0	0	69	0	0	0	0	13	0	0	0	44
Lane Group Flow (vph)	137	170	902	409	749	334	311	987	0	13	1615	27
Confl. Peds. (#/hr)							3			1		
Confl. Bikes (#/hr)										1		1
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8	1	5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	14.9	14.9	40.2	31.1	31.1	45.1	25.3	69.0		14.0	57.7	57.7
Effective Green, g (s)	14.9	14.9	40.2	31.1	31.1	45.1	25.3	69.0		14.0	57.7	57.7
Actuated g/C Ratio	0.10	0.10	0.27	0.21	0.21	0.30	0.17	0.46		0.09	0.38	0.38
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	166	175	834	333	639	428	298	1576		320	1361	601
v/s Ratio Prot	0.08	0.10	c0.18	c0.25	0.24	0.07	0.18	0.29		0.00	c0.46	
v/s Ratio Perm			0.14			0.16						0.02
v/c Ratio	0.83	0.97	1.08	1.23	1.23dl	0.78	1.04	0.63		0.04	1.19	0.05
Uniform Delay, d1	66.3	67.3	54.9	59.5	59.5	47.9	62.4	30.7		61.9	46.1	28.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.12	0.79	1.08
Incremental Delay, d2	26.0	59.1	55.7	126.3	93.4	8.3	64.0	1.9		0.0	90.2	0.1
Delay (s)	92.3	126.4	110.6	185.8	152.8	56.2	126.3	32.6		69.3	126.4	31.2
Level of Service	F	F	F	F	F	E	F	C		E	F	C
Approach Delay (s)		110.7			140.2			54.8			122.0	
Approach LOS		F			F			D			F	
Intersection Summary												
HCM 2000 Control Delay			109.0									F
HCM 2000 Volume to Capacity ratio			1.20									
Actuated Cycle Length (s)			150.0							21.0		
Intersection Capacity Utilization			115.3%									H
Analysis Period (min)			15									
dl Defacto Left Lane. Recode with 1 though lane as a left lane.												
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

Horizon Year Plus Project with Improvements
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	880	910	10	1042	810	260	378
Future Volume (veh/h)	880	910	10	1042	810	260	378
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	926	954		1097	853	274	107
Peak Hour Factor	0.95	0.95		0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1673	881		1079	2903	340	156
Arrive On Green	0.47	0.47		0.31	0.82	0.10	0.10
Sat Flow, veh/h	3647	1540		3456	3647	3456	1585
Grp Volume(v), veh/h	926	954		1097	853	274	107
Grp Sat Flow(s),veh/h/ln	1777	1540		1728	1777	1728	1585
Q Serve(g_s), s	24.2	61.2		40.6	7.5	10.1	8.5
Cycle Q Clear(g_c), s	24.2	61.2		40.6	7.5	10.1	8.5
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1673	881		1079	2903	340	156
V/C Ratio(X)	0.55	1.08		1.02	0.29	0.81	0.69
Avail Cap(c_a), veh/h	1673	881		1079	2903	1055	484
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.86	0.86
Uniform Delay (d), s/veh	24.6	25.2		44.7	2.9	57.4	56.7
Incr Delay (d2), s/veh	1.3	55.3		31.6	0.3	1.5	1.7
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	42.2		21.4	1.8	4.5	3.5
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	25.9	80.6		76.3	3.1	58.9	58.4
LnGrp LOS	C	F		F	A	E	E
Approach Vol, veh/h	1880			1950	381		
Approach Delay, s/veh	53.7			44.3	58.7		
Approach LOS	D			D	E		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	45.0	66.9			111.9	18.1	
Change Period (Y+Rc), s	4.4	* 5.7			5.7	5.3	
Max Green Setting (Gmax), s	40.6	* 35			79.3	39.7	
Max Q Clear Time (g_c+Rc), s	42.6	63.2			9.5	12.1	
Green Ext Time (p_c), s	0.0	0.0			9.7	0.7	

























Intersection Summary

HCM 6th Ctrl Delay	49.8
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis HY Plus Project with Feasible Improvements
 1: SR-163 SB Ramps/Ulric St & Friars Rd AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	70	666	270	599	938	764	310	60	858	434	0	100	
Future Volume (vph)	70	666	270	599	938	764	310	60	858	434	0	100	
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.7	7.0	7.0	4.5	3.0	6.1	6.1	6.1	4.5	6.1	6.1	6.1	
Lane Util. Factor	1.00	0.86	1.00	0.97	0.91	0.88	0.97	1.00	0.88	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	
Satd. Flow (prot)	1770	6408	1557	3433	5085	2787	3433	1863	2787	1681	1681	1561	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	
Satd. Flow (perm)	1770	6408	1557	3433	5085	2787	3433	1863	2787	1681	1681	1561	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	73	694	281	624	977	796	323	62	894	452	0	104	
RTOR Reduction (vph)	0	0	196	0	0	0	0	0	0	0	0	84	
Lane Group Flow (vph)	73	694	85	624	977	796	323	63	894	226	226	20	
Confl. Peds. (#/hr)			2									2	
Confl. Bikes (#/hr)			1										
Turn Type	Prot	NA	Perm	Prot	NA	custom	Split	NA	pm+ov	Split	NA	Perm	
Protected Phases	5	2		1	6	4	8	8	1	4	4		
Permitted Phases			2						8			4	
Actuated Green, G (s)	10.3	45.5	45.5	33.4	68.4	80.2	18.7	18.7	52.1	28.7	28.7	28.7	
Effective Green, g (s)	10.3	45.5	45.5	33.4	68.4	73.2	18.7	18.7	52.1	28.7	28.7	28.7	
Actuated g/C Ratio	0.07	0.30	0.30	0.22	0.46	0.49	0.12	0.12	0.35	0.19	0.19	0.19	
Clearance Time (s)	4.7	7.0	7.0	4.5			6.1	6.1	4.5	6.1	6.1	6.1	
Vehicle Extension (s)	2.0	2.0	2.0	3.0			3.0	3.0	3.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	121	1943	472	764	2318	1360	427	232	968	321	321	298	
v/s Ratio Prot	0.04	0.11		0.18	c0.19	c0.29	0.09	0.03	c0.21	c0.13	0.13		
v/s Ratio Perm			0.05						0.12			0.01	
v/c Ratio	0.60	0.36	0.18	0.82	0.42	0.59	0.76	0.27	0.92	0.70	0.70	0.07	
Uniform Delay, d1	67.9	40.8	38.5	55.4	27.5	27.5	63.4	59.5	47.0	56.7	56.7	49.7	
Progression Factor	1.00	1.00	1.00	1.37	0.62	0.52	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.7	0.5	0.8	5.7	0.0	0.3	7.5	0.6	13.9	5.6	5.6	0.0	
Delay (s)	73.6	41.3	39.3	81.8	17.2	14.6	70.9	60.1	61.0	62.3	62.3	49.7	
Level of Service	E	D	D	F	B	B	E	E	E	E	E	D	
Approach Delay (s)		43.0			33.1			63.4			60.0		
Approach LOS		D			C			E			E		
Intersection Summary													
HCM 2000 Control Delay			45.3		HCM 2000 Level of Service				D				
HCM 2000 Volume to Capacity ratio			0.77										
Actuated Cycle Length (s)			150.0		Sum of lost time (s)				26.9				
Intersection Capacity Utilization			75.7%		ICU Level of Service				D				
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis HY Plus Project with Feasible Improvements
 2: Friars Rd & SR-163 NB Ramps

AM Peak Hour

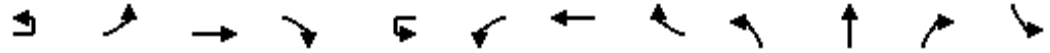


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	500	1438	1460	833	1295	800
Future Volume (vph)	500	1438	1460	833	1295	800
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.5	6.0	6.0	4.5	5.0
Lane Util. Factor	0.97	0.86	0.86	0.88	0.94	0.88
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	6408	6408	2787	4990	2769
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	6408	6408	2787	4990	2769
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	521	1498	1521	868	1349	833
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	521	1498	1521	868	1349	833
Confl. Peds. (#/hr)						1
Confl. Bikes (#/hr)				1		
Turn Type	Prot	NA	NA	custom	Prot	pm+ov
Protected Phases	5	2	3	6	3	4
Permitted Phases						4
Actuated Green, G (s)	43.7	95.2	48.0	74.0	45.8	89.5
Effective Green, g (s)	43.7	95.2	48.0	69.5	45.8	89.5
Actuated g/C Ratio	0.29	0.63	0.32	0.46	0.31	0.60
Clearance Time (s)	5.0	4.5			4.5	5.0
Vehicle Extension (s)	2.0	3.0			3.0	2.0
Lane Grp Cap (vph)	1000	4066	2050	1291	1523	1744
v/s Ratio Prot	c0.15	0.23	c0.24	0.31	c0.27	0.14
v/s Ratio Perm						0.16
v/c Ratio	0.52	0.37	0.74	0.67	0.89	0.48
Uniform Delay, d1	44.4	13.1	45.5	31.4	49.6	17.1
Progression Factor	1.04	0.99	0.70	0.37	1.00	1.00
Incremental Delay, d2	0.2	0.2	0.8	0.9	6.6	0.1
Delay (s)	46.2	13.2	32.8	12.4	56.2	17.1
Level of Service	D	B	C	B	E	B
Approach Delay (s)		21.7	25.4		41.3	
Approach LOS		C	C		D	

Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis HY Plus Project with Feasible Improvements
 3: Frazee Rd & Friars Rd AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		2 1	1 1 1 1	2 1		2 1	1 1 1 1	1	2 1	1 1		2 1
Traffic Volume (vph)	20	780	1393	520	10	69	1923	144	140	70	65	37
Future Volume (vph)	20	780	1393	520	10	69	1923	144	140	70	65	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.4	3.0	4.4		4.4	6.5	6.5	4.4	4.9		4.4
Lane Util. Factor		0.97	0.86	0.88		0.97	0.86	1.00	0.97	0.95		0.97
Frbp, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.98		1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.93		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (prot)		3433	6408	2787		3433	6408	1583	3433	3211		3433
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (perm)		3433	6408	2787		3433	6408	1583	3433	3211		3433
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	21	812	1451	542	10	72	2003	150	146	73	68	39
RTOR Reduction (vph)	0	0	0	0	0	0	0	91	0	51	0	0
Lane Group Flow (vph)	0	834	1451	542	0	82	2003	59	146	90	0	39
Confl. Peds. (#/hr)				3							37	
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	custom	Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2 9	3 9	1	1	6		3	8		7
Permitted Phases								6				
Actuated Green, G (s)		33.8	84.5	73.1		6.3	53.5	53.5	11.0	37.7		4.8
Effective Green, g (s)		33.8	84.5	70.1		6.3	53.5	53.5	11.0	37.7		4.8
Actuated g/C Ratio		0.23	0.56	0.47		0.04	0.36	0.36	0.07	0.25		0.03
Clearance Time (s)		4.4				4.4	6.5	6.5	4.4	4.9		4.4
Vehicle Extension (s)		2.0				2.0	4.4	4.4	2.2	2.0		2.2
Lane Grp Cap (vph)		773	3609	1302		144	2285	564	251	807		109
v/s Ratio Prot		c0.24	c0.23	0.19		0.02	c0.31		c0.04	0.03		0.01
v/s Ratio Perm								0.04				
v/c Ratio		1.08	0.40	0.42		0.57	0.88	0.10	0.58	0.11		0.36
Uniform Delay, d1		58.1	18.5	26.4		70.5	45.2	32.2	67.3	43.3		71.1
Progression Factor		1.15	1.06	0.95		1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		52.6	0.0	0.1		3.1	5.1	0.4	2.5	0.0		1.0
Delay (s)		119.7	19.7	25.1		73.6	50.3	32.6	69.7	43.3		72.1
Level of Service		F	B	C		E	D	C	E	D		E
Approach Delay (s)			50.2			50.0			56.7			
Approach LOS			D			D			E			

Intersection Summary		
HCM 2000 Control Delay	50.6	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.79	D
Actuated Cycle Length (s)	150.0	Sum of lost time (s)
Intersection Capacity Utilization	95.6%	20.2
Analysis Period (min)	15	ICU Level of Service
		F

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations	↑	↑↑
Traffic Volume (vph)	20	210
Future Volume (vph)	20	210
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.9	4.9
Lane Util. Factor	1.00	0.88
Frbp, ped/bikes	1.00	1.00
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1863	2787
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1863	2787
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	21	219
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	21	219
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	31.5	31.5
Effective Green, g (s)	31.5	31.5
Actuated g/C Ratio	0.21	0.21
Clearance Time (s)	4.9	4.9
Vehicle Extension (s)	2.3	2.3
Lane Grp Cap (vph)	391	585
v/s Ratio Prot	0.01	
v/s Ratio Perm		c0.08
v/c Ratio	0.05	0.37
Uniform Delay, d1	47.3	50.8
Progression Factor	1.00	1.00
Incremental Delay, d2	0.0	0.2
Delay (s)	47.4	51.0
Level of Service	D	D
Approach Delay (s)	53.7	
Approach LOS	D	
Intersection Summary		

HCM 6th Signalized Intersection Summary
4: Mission Center Rd & Friars Rd WB

HY Plus Project with Feasible Improvements
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↶	↶	↶			↶	↶
Traffic Volume (veh/h)	0	0	0	220	10	380	110	540	0	0	454	330
Future Volume (veh/h)	0	0	0	220	10	380	110	540	0	0	454	330
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				242	0	174	117	574	0	0	483	195
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				494	0	220	183	2619	0	0	2257	982
Arrive On Green				0.28	0.00	0.28	0.11	1.00	0.00	0.00	0.64	0.64
Sat Flow, veh/h				3563	0	1585	3456	3647	0	0	3647	1546
Grp Volume(v), veh/h				242	0	174	117	574	0	0	483	195
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1728	1777	0	0	1777	1546
Q Serve(g_s), s				5.1	0.0	9.2	2.9	0.0	0.0	0.0	5.2	4.7
Cycle Q Clear(g_c), s				5.1	0.0	9.2	2.9	0.0	0.0	0.0	5.2	4.7
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				494	0	220	183	2619	0	0	2257	982
V/C Ratio(X)				0.49	0.00	0.79	0.64	0.22	0.00	0.00	0.21	0.20
Avail Cap(c_a), veh/h				1215	0	541	580	2619	0	0	2257	982
HCM Platoon Ratio				2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.95	0.95	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				29.9	0.0	31.3	39.4	0.0	0.0	0.0	6.9	6.9
Incr Delay (d2), s/veh				0.8	0.0	6.3	1.3	0.2	0.0	0.0	0.2	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.0	0.0	3.3	1.2	0.1	0.0	0.0	1.7	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				30.6	0.0	37.7	40.7	0.2	0.0	0.0	7.2	7.3
LnGrp LOS				C	A	D	D	A	A	A	A	A
Approach Vol, veh/h					416			691			678	
Approach Delay, s/veh					33.6			7.0			7.2	
Approach LOS					C			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		72.6			9.2	63.5		17.4				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 49			15.1	28.6		30.7				
Max Q Clear Time (g_c+11), s		2.0			4.9	7.2		11.2				
Green Ext Time (p_c), s		3.4			0.1	6.4		1.3				

Intersection Summary

HCM 6th Ctrl Delay	13.3
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Mission Center Rd & Friars Rd EB

HY Plus Project with Feasible Improvements
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	10	200	0	0	0	0	440	147	153	520	0
Future Volume (veh/h)	210	10	200	0	0	0	0	440	147	153	520	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	236	0	15				0	478	134	166	565	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	395	0	176				0	1062	295	1110	2737	0
Arrive On Green	0.11	0.00	0.11				0.00	0.39	0.39	0.43	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2816	757	3456	3647	0
Grp Volume(v), veh/h	236	0	15				0	311	301	166	565	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1703	1728	1777	0
Q Serve(g_s), s	5.7	0.0	0.8				0.0	11.6	11.8	2.6	0.0	0.0
Cycle Q Clear(g_c), s	5.7	0.0	0.8				0.0	11.6	11.8	2.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.44	1.00		0.00
Lane Grp Cap(c), veh/h	395	0	176				0	693	664	1110	2737	0
V/C Ratio(X)	0.60	0.00	0.09				0.00	0.45	0.45	0.15	0.21	0.00
Avail Cap(c_a), veh/h	1013	0	451				0	693	664	1110	2737	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.33	1.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	38.1	0.0	35.9				0.0	20.3	20.3	18.2	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.0	0.2				0.0	2.1	2.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.3				0.0	4.9	4.8	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.5	0.0	36.1				0.0	22.4	22.6	18.3	0.0	0.0
LnGrp LOS	D	A	D				A	C	C	B	A	A
Approach Vol, veh/h		251						612			731	
Approach Delay, s/veh		39.3						22.5			4.2	
Approach LOS		D						C			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	34.7	40.4	14.9	75.1								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	14.7	* 35	25.6	53.7								
Max Q Clear Time (g_c+I), s	14.6	13.8	7.7	2.0								
Green Ext Time (p_c), s	0.2	5.0	0.7	4.9								

Intersection Summary

HCM 6th Ctrl Delay	16.7
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
6: Qualcomm Way & Friars Rd WB

HY Plus Project with Feasible Improvements
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↔		↖	↗			↗	↖
Traffic Volume (veh/h)	0	0	0	255	0	65	550	140	0	0	133	40
Future Volume (veh/h)	0	0	0	255	0	65	550	140	0	0	133	40
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				301	0	0	618	157	0	0	149	9
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				396	208	0	1179	2714	0	0	1284	573
Arrive On Green				0.19	0.00	0.00	0.57	1.00	0.00	0.00	0.36	0.36
Sat Flow, veh/h				3563	1870	0	3456	3647	0	0	3647	1585
Grp Volume(v), veh/h				301	0	0	618	157	0	0	149	9
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1728	1777	0	0	1777	1585
Q Serve(g_s), s				6.4	0.0	0.0	8.8	0.0	0.0	0.0	2.2	0.3
Cycle Q Clear(g_c), s				6.4	0.0	0.0	8.8	0.0	0.0	0.0	2.2	0.3
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				396	208	0	1179	2714	0	0	1284	573
V/C Ratio(X)				0.76	0.00	0.00	0.52	0.06	0.00	0.00	0.12	0.02
Avail Cap(c_a), veh/h				1251	657	0	1179	2714	0	0	1284	573
HCM Platoon Ratio				1.67	1.67	1.67	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.99	0.99	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				31.6	0.0	0.0	13.2	0.0	0.0	0.0	17.0	16.4
Incr Delay (d2), s/veh				1.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.5	0.0	0.0	2.7	0.0	0.0	0.0	0.9	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				32.7	0.0	0.0	13.7	0.0	0.0	0.0	17.1	16.4
LnGrp LOS				C	A	A	B	A	A	A	B	B
Approach Vol, veh/h					301			775			158	
Approach Delay, s/veh					32.7			10.9			17.0	
Approach LOS					C			B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		66.2			32.4	33.8		13.8				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+I1), s		2.0			10.8	4.2		8.4				
Green Ext Time (p_c), s		1.2			2.1	0.6		0.5				

Intersection Summary

HCM 6th Ctrl Delay	17.0
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
7: Qualcomm Way & Friars Rd EB

HY Plus Project with Feasible Improvements
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	0	110	0	0	0	0	590	343	83	385	0
Future Volume (veh/h)	60	0	110	0	0	0	0	590	343	83	385	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	68	0	1				0	670	221	94	438	0
Peak Hour Factor	0.88	0.88	0.88				0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	170	0	74				0	4676	1127	157	2939	0
Arrive On Green	0.05	0.00	0.05				0.00	0.73	0.73	0.09	1.00	0.00
Sat Flow, veh/h	3563	0	1553				0	6696	1551	3456	3647	0
Grp Volume(v), veh/h	68	0	1				0	670	221	94	438	0
Grp Sat Flow(s),veh/h/ln	1781	0	1553				0	1609	1551	1728	1777	0
Q Serve(g_s), s	1.5	0.0	0.0				0.0	2.5	3.6	2.1	0.0	0.0
Cycle Q Clear(g_c), s	1.5	0.0	0.0				0.0	2.5	3.6	2.1	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	170	0	74				0	4676	1127	157	2939	0
V/C Ratio(X)	0.40	0.00	0.01				0.00	0.14	0.20	0.60	0.15	0.00
Avail Cap(c_a), veh/h	1519	0	662				0	4676	1127	436	2939	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.96	0.96	0.88	0.88	0.00
Uniform Delay (d), s/veh	37.0	0.0	36.3				0.0	3.3	3.5	35.7	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0				0.0	0.1	0.4	1.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0				0.0	0.6	0.9	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	0.0	36.3				0.0	3.4	3.9	36.9	0.1	0.0
LnGrp LOS	D	A	D				A	A	A	D	A	A
Approach Vol, veh/h		69						891			532	
Approach Delay, s/veh		37.5						3.5			6.6	
Approach LOS		D						A			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	8.0	63.2	8.7	71.3								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.5	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	14.5	5.6	3.5	2.0								
Green Ext Time (p_c), s	0.1	5.4	0.1	1.9								

Intersection Summary

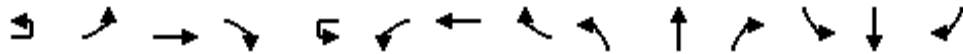
HCM 6th Ctrl Delay	6.2
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

HY Plus Project with Feasible Improvements
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↖ ↗ ↘ ↙		↖		↖ ↗ ↘ ↙				↖ ↗	↖ ↗		↖ ↗		
Traffic Volume (veh/h)	10	110	1171	40	10	179	2037	184	130	60	62	28	10	10	
Future Volume (veh/h)	10	110	1171	40	10	179	2037	184	130	60	62	28	10	10	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	0.98		0.97	0.98		0.97	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		116	1233	21		188	2144	189	137	63	9	29	11	4	
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2	
Cap, veh/h		145	2626	815		220	2657	231	266	98	336	136	46	13	
Arrive On Green		0.08	0.51	0.51		0.12	0.56	0.56	0.22	0.22	0.22	0.22	0.22	0.22	
Sat Flow, veh/h		1781	5106	1585		1781	4773	416	964	450	1544	367	213	58	
Grp Volume(v), veh/h		116	1233	21		188	1522	811	200	0	9	44	0	0	
Grp Sat Flow(s),veh/h/ln		1781	1702	1585		1781	1702	1785	1414	0	1544	639	0	0	
Q Serve(g_s), s		6.9	16.6	0.7		11.1	38.5	39.7	0.0	0.0	0.5	1.7	0.0	0.0	
Cycle Q Clear(g_c), s		6.9	16.6	0.7		11.1	38.5	39.7	14.3	0.0	0.5	16.0	0.0	0.0	
Prop In Lane		1.00		1.00		1.00		0.23	0.68		1.00	0.66		0.09	
Lane Grp Cap(c), veh/h		145	2626	815		220	1895	994	364	0	336	195	0	0	
V/C Ratio(X)		0.80	0.47	0.03		0.85	0.80	0.82	0.55	0.00	0.03	0.23	0.00	0.00	
Avail Cap(c_a), veh/h		663	2852	885		498	1902	997	457	0	431	417	0	0	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	
Uniform Delay (d), s/veh		48.5	16.7	12.8		46.1	19.1	19.4	38.4	0.0	33.0	39.9	0.0	0.0	
Incr Delay (d2), s/veh		3.9	0.6	0.1		3.7	3.7	7.4	1.0	0.0	0.0	0.7	0.0	0.0	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		3.1	6.1	0.2		5.0	14.3	16.4	4.9	0.0	0.2	1.1	0.0	0.0	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		52.3	17.3	12.9		49.8	22.8	26.7	39.4	0.0	33.1	40.6	0.0	0.0	
LnGrp LOS		D	B	B		D	C	C	D	A	C	D	A	A	
Approach Vol, veh/h		1370				2521				209			44		
Approach Delay, s/veh		20.2				26.1				39.1			40.6		
Approach LOS		C				C				D			D		
Timer - Assigned Phs	1	2	4		5	6	8								
Phs Duration (G+Y+Rc), s	17.7	61.4	28.3		13.1	66.0	28.3								
Change Period (Y+Rc), s	4.4	6.2	4.9		4.4	6.2	4.9								
Max Green Setting (Gmax), s	30.0	60.0	40.0		40.0	60.0	30.0								
Max Q Clear Time (g_c+11), s	18.6	18.6	18.0		8.9	41.7	16.3								
Green Ext Time (p_c), s	0.2	30.0	0.2		0.1	18.1	0.8								

Intersection Summary

HCM 6th Ctrl Delay	25.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
9: Fenton Pkwy & Friars Rd

HY Plus Project with Feasible Improvements
AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗		↔↔	↑↑↑	↗	↔↔	↑	↗	↔↔	↗	↗
Traffic Volume (veh/h)	50	1219	62	10	210	2140	30	100	13	180	90	24	190
Future Volume (veh/h)	50	1219	62	10	210	2140	30	100	13	180	90	24	190
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	1325	35		228	2326	20	109	14	12	98	26	19
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	102	3146	1068		294	3430	1134	200	138	116	155	102	133
Arrive On Green	0.03	0.62	0.62		0.06	0.45	0.45	0.06	0.07	0.07	0.04	0.05	0.05
Sat Flow, veh/h	3456	5106	1585		3456	5106	1585	3456	1870	1579	3563	1870	1570
Grp Volume(v), veh/h	54	1325	35		228	2326	20	109	14	12	98	26	19
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1585	1728	1870	1579	1781	1870	1570
Q Serve(g_s), s	1.7	14.8	0.3		7.2	39.7	0.7	3.4	0.8	0.8	3.0	1.5	1.0
Cycle Q Clear(g_c), s	1.7	14.8	0.3		7.2	39.7	0.7	3.4	0.8	0.8	3.0	1.5	1.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	102	3146	1068		294	3430	1134	200	138	116	155	102	133
V/C Ratio(X)	0.53	0.42	0.03		0.78	0.68	0.02	0.55	0.10	0.10	0.63	0.25	0.14
Avail Cap(c_a), veh/h	286	3146	1068		459	3430	1134	349	537	453	347	531	492
HCM Platoon Ratio	1.00	1.00	1.00		0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.89	0.89	0.89		0.60	0.60	0.60	0.98	0.98	0.98	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.6	10.9	1.4		50.8	20.8	7.6	50.4	47.6	47.6	51.7	49.8	30.2
Incr Delay (d2), s/veh	1.4	0.4	0.1		1.0	0.7	0.0	0.8	1.4	1.7	1.6	5.9	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	5.0	0.2		3.1	16.3	0.2	1.5	0.4	0.4	1.4	0.9	0.5
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	54.1	11.3	1.5		51.9	21.5	7.6	51.3	49.0	49.3	53.3	55.7	32.4
LnGrp LOS	D	B	A		D	C	A	D	D	D	D	E	C
Approach Vol, veh/h		1414				2574			135			143	
Approach Delay, s/veh		12.7				24.1			50.9			51.0	
Approach LOS		B				C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	13.7	74.1	11.3	10.9	7.6	80.2	9.2	13.0					
Change Period (Y+Rc), s	4.4	6.3	4.9	* 4.9	4.4	* 6.3	4.4	4.9					
Max Green Setting (Gmax), s	14.6	33.1	11.1	* 31	9.1	* 39	10.7	31.6					
Max Q Clear Time (g_c+1), s	19.2	16.8	5.4	3.5	3.7	41.7	5.0	2.8					
Green Ext Time (p_c), s	0.2	13.1	0.1	0.5	0.0	0.0	0.1	0.2					

Intersection Summary

HCM 6th Ctrl Delay	22.1
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
10: Northside Dr & Friars Rd

HY Plus Project with Feasible Improvements
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↔↔↔	↔	↔↔	↔↔↔	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	10	40	1099	270	578	2060	74	120	10	262	212	40	190
Future Volume (veh/h)	10	40	1099	270	578	2060	74	120	10	262	212	40	190
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		42	1157	284	608	2168	54	126	11	216	223	42	48
Peak Hour Factor		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		91	2115	655	600	2868	1011	185	277	507	288	332	282
Arrive On Green		0.01	0.14	0.14	0.35	1.00	1.00	0.05	0.15	0.15	0.08	0.18	0.18
Sat Flow, veh/h		3456	5106	1582	3456	5106	1565	3456	1870	1569	3456	1870	1585
Grp Volume(v), veh/h		42	1157	284	608	2168	54	126	11	216	223	42	48
Grp Sat Flow(s),veh/h/ln		1728	1702	1582	1728	1702	1565	1728	1870	1569	1728	1870	1585
Q Serve(g_s), s		1.3	23.3	18.1	19.1	0.0	0.0	3.9	0.6	11.9	7.0	2.1	2.8
Cycle Q Clear(g_c), s		1.3	23.3	18.1	19.1	0.0	0.0	3.9	0.6	11.9	7.0	2.1	2.8
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		91	2115	655	600	2868	1011	185	277	507	288	332	282
V/C Ratio(X)		0.46	0.55	0.43	1.01	0.76	0.05	0.68	0.04	0.43	0.77	0.13	0.17
Avail Cap(c_a), veh/h		254	2115	655	600	2868	1011	346	452	655	471	520	441
HCM Platoon Ratio		0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.85	0.85	0.85	0.72	0.72	0.72	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		53.7	37.9	35.6	35.9	0.0	0.0	51.1	40.2	29.4	49.4	38.1	38.4
Incr Delay (d2), s/veh		1.2	0.9	1.8	34.5	1.4	0.1	1.6	0.2	1.6	1.7	0.8	1.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.6	10.7	8.0	8.8	0.4	0.0	1.8	0.3	4.8	3.1	1.0	1.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		54.9	38.7	37.4	70.4	1.4	0.1	52.8	40.3	31.0	51.1	38.8	39.7
LnGrp LOS		D	D	D	F	A	A	D	D	C	D	D	D
Approach Vol, veh/h			1483			2830			353			313	
Approach Delay, s/veh			38.9			16.2			39.1			47.7	
Approach LOS			D			B			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	23.5	51.8	10.3	24.4	7.3	68.0	13.6	21.2					
Change Period (Y+Rc), s	4.4	* 6.2	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	19.5	* 30	11.0	30.6	8.1	40.4	15.0	26.6					
Max Q Clear Time (g_c+D1), s	15	25.3	5.9	4.8	3.3	2.0	9.0	13.9					
Green Ext Time (p_c), s	0.0	3.8	0.1	1.3	0.0	35.5	0.2	1.5					

Intersection Summary

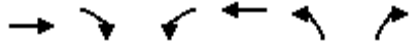
HCM 6th Ctrl Delay	26.6
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 11: Stadium Way (Street A) & Friars Rd

HY Plus Project with Feasible Improvements
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑↑↑	↑↑	↑↑
Traffic Volume (veh/h)	1317	256	710	2607	134	72
Future Volume (veh/h)	1317	256	710	2607	134	72
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1372	130	740	2716	140	75
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2837	879	853	4329	212	171
Arrive On Green	1.00	1.00	0.25	0.85	0.06	0.06
Sat Flow, veh/h	5274	1582	3456	5274	3456	2790
Grp Volume(v), veh/h	1372	130	740	2716	140	75
Grp Sat Flow(s),veh/h/ln	1702	1582	1728	1702	1728	1395
Q Serve(g_s), s	0.0	0.0	22.6	19.0	4.4	2.9
Cycle Q Clear(g_c), s	0.0	0.0	22.6	19.0	4.4	2.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2837	879	853	4329	212	171
V/C Ratio(X)	0.48	0.15	0.87	0.63	0.66	0.44
Avail Cap(c_a), veh/h	2837	879	1319	4329	408	330
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.83	0.83	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	39.7	2.7	50.5	49.8
Incr Delay (d2), s/veh	0.5	0.3	4.0	0.7	3.5	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	9.6	2.4	2.0	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.5	0.3	43.8	3.4	54.0	51.6
LnGrp LOS	A	A	D	A	D	D
Approach Vol, veh/h	1502			3456	215	
Approach Delay, s/veh	0.5			12.1	53.2	
Approach LOS	A			B	D	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	32.1	66.1			98.3	11.7
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	42.6	40.0			87.0	13.0
Max Q Clear Time (g_c+Y), s	24.6	2.0			21.0	6.4
Green Ext Time (p_c), s	2.6	12.6			46.1	0.4

Intersection Summary

HCM 6th Ctrl Delay		10.4	
HCM 6th LOS		B	

HCM 6th Signalized Intersection Summary
 12: Mission Village Dr & Friars Rd WB

HY Plus Project with Feasible Improvements
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↘	↙	↘	↘↙	↕			↕	↘
Traffic Volume (veh/h)	0	0	0	568	0	510	423	986	0	0	747	298
Future Volume (veh/h)	0	0	0	568	0	510	423	986	0	0	747	298
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				611	0	481	455	1060	0	0	803	168
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1123	0	499	821	2104	0	0	1034	461
Arrive On Green				0.63	0.00	0.63	0.24	0.59	0.00	0.00	0.29	0.29
Sat Flow, veh/h				3563	0	1584	3456	3647	0	0	3647	1585
Grp Volume(v), veh/h				611	0	481	455	1060	0	0	803	168
Grp Sat Flow(s),veh/h/ln				1781	0	1584	1728	1777	0	0	1777	1585
Q Serve(g_s), s				10.6	0.0	31.5	12.7	19.1	0.0	0.0	22.8	9.2
Cycle Q Clear(g_c), s				10.6	0.0	31.5	12.7	19.1	0.0	0.0	22.8	9.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1123	0	499	821	2104	0	0	1034	461
V/C Ratio(X)				0.54	0.00	0.96	0.55	0.50	0.00	0.00	0.78	0.36
Avail Cap(c_a), veh/h				1234	0	548	821	2104	0	0	1034	461
HCM Platoon Ratio				2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.86	0.86	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				15.9	0.0	19.7	36.8	13.0	0.0	0.0	35.7	30.9
Incr Delay (d2), s/veh				0.2	0.0	27.6	0.4	0.7	0.0	0.0	5.7	2.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.2	0.0	9.2	5.2	6.9	0.0	0.0	10.2	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				16.0	0.0	47.3	37.2	13.8	0.0	0.0	41.5	33.2
LnGrp LOS				B	A	D	D	B	A	A	D	C
Approach Vol, veh/h						1092		1515			971	
Approach Delay, s/veh						29.8		20.8			40.0	
Approach LOS						C		C			D	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		70.4			31.4	39.0		39.6				
Change Period (Y+Rc), s		* 5.3			5.3	7.0		4.9				
Max Green Setting (Gmax), s		* 63			22.7	32.0		38.1				
Max Q Clear Time (g_c+I1), s		21.1			14.7	24.8		33.5				
Green Ext Time (p_c), s		8.6			0.6	3.8		1.2				

Intersection Summary

HCM 6th Ctrl Delay	28.8
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis HY Plus Project with Feasible Improvements
 13: Mission Village Dr/Street D & Friars Rd EB AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗↘					↕↕↕	↗↘	↗↘	↕↕	
Traffic Volume (vph)	205	0	322	0	0	0	0	1186	776	369	936	0
Future Volume (vph)	205	0	322	0	0	0	0	1186	776	369	936	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.2	5.2					4.9	4.9	6.2	6.2	
Lane Util. Factor		1.00	0.88					0.91	0.88	0.97	0.95	
Frbp, ped/bikes		1.00	0.98					1.00	0.98	1.00	1.00	
Flpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1770	2740					5085	2721	3433	3539	
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1770	2740					5085	2721	3433	3539	
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	230	0	362	0	0	0	0	1333	872	415	1052	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	230	362	0	0	0	0	1333	872	415	1052	0
Confl. Peds. (#/hr)			2						1			
Confl. Bikes (#/hr)			1									
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		19.3	19.3					58.0	58.0	16.4	79.3	
Effective Green, g (s)		19.3	19.3					58.0	58.0	16.4	79.3	
Actuated g/C Ratio		0.18	0.18					0.53	0.53	0.15	0.72	
Clearance Time (s)		5.2	5.2					4.9	4.9	6.2	6.2	
Vehicle Extension (s)		3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		310	480					2681	1434	511	2551	
v/s Ratio Prot		0.13						0.26		c0.12	0.30	
v/s Ratio Perm			c0.13						c0.32			
v/c Ratio		0.74	0.75					0.50	0.61	0.81	0.41	
Uniform Delay, d1		43.0	43.1					16.7	18.1	45.3	6.1	
Progression Factor		1.00	1.00					0.48	0.48	0.98	0.10	
Incremental Delay, d2		9.2	6.6					0.4	1.2	7.6	0.4	
Delay (s)		52.2	49.7					8.4	10.0	51.9	1.0	
Level of Service		D	D					A	A	D	A	
Approach Delay (s)		50.7			0.0			9.0			15.4	
Approach LOS		D			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			17.0								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			110.0								Sum of lost time (s)	16.3
Intersection Capacity Utilization			66.8%								ICU Level of Service	C
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
14: Street D & Street 4

HY Plus Project with Feasible Improvements
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	4	4	249	11	1072	8	821	29	239	973	47
Future Volume (veh/h)	32	4	4	249	11	1072	8	821	29	239	973	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	35	4	0	271	12	1165	9	892	28	260	1058	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	53	8	0	668	662	1634	19	1076	34	801	1536	685
Arrive On Green	0.03	0.00	0.00	0.38	0.35	0.35	0.01	0.21	0.21	0.46	0.86	0.86
Sat Flow, veh/h	1781	1870	0	1781	1870	2790	1781	5086	159	3456	3554	1585
Grp Volume(v), veh/h	35	4	0	271	12	1165	9	597	323	260	1058	28
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1781	1870	1395	1781	1702	1842	1728	1777	1585
Q Serve(g_s), s	2.1	0.2	0.0	12.3	0.5	32.7	0.6	18.4	18.5	5.2	11.0	0.3
Cycle Q Clear(g_c), s	2.1	0.2	0.0	12.3	0.5	32.7	0.6	18.4	18.5	5.2	11.0	0.3
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	53	8	0	668	662	1634	19	720	390	801	1536	685
V/C Ratio(X)	0.66	0.51	0.00	0.41	0.02	0.71	0.46	0.83	0.83	0.32	0.69	0.04
Avail Cap(c_a), veh/h	100	595	0	668	774	1800	81	826	447	801	1536	685
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.86	0.86	0.86
Uniform Delay (d), s/veh	52.8	54.7	0.0	25.3	23.1	16.2	54.1	41.5	41.5	24.1	5.0	4.2
Incr Delay (d2), s/veh	13.0	43.4	0.0	0.4	0.0	1.2	16.1	6.3	11.2	0.2	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.2	0.0	5.3	0.2	10.0	0.3	8.1	9.3	1.9	2.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.8	98.1	0.0	25.7	23.1	17.4	70.2	47.8	52.6	24.3	6.1	4.3
LnGrp LOS	E	F	A	C	C	B	E	D	D	C	A	A
Approach Vol, veh/h		39			1448			929			1346	
Approach Delay, s/veh		69.1			19.0			49.7			9.6	
Approach LOS		E			B			D			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.0	28.3	46.3	5.5	5.7	52.6	7.8	44.0				
Change Period (Y+Rc), s	4.5	5.0	5.0	* 5	4.5	5.0	4.5	5.0				
Max Green Setting (Gmax), s	12.6	26.7	16.7	* 35	5.0	34.3	6.2	45.5				
Max Q Clear Time (g_c+1), s	17.2	20.5	14.3	2.2	2.6	13.0	4.1	34.7				
Green Ext Time (p_c), s	0.4	2.8	0.2	0.0	0.0	7.3	0.0	4.3				






















Intersection Summary

HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis HY Plus Project with Feasible Improvements
 15: Street F & Street 4 AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	251	9	15	4	39	15	54	179	9	38	94	1237
Future Volume (vph)	251	9	15	4	39	15	54	179	9	38	94	1237
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	2.1	4.5
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.88
Frt	1.00	0.91		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1691		1770	1786		1770	1849		1770	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	1691		1770	1786		1770	1849		1770	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	273	10	16	4	42	16	59	195	10	41	102	1345
RTOR Reduction (vph)	0	6	0	0	14	0	0	2	0	0	0	0
Lane Group Flow (vph)	273	20	0	4	44	0	59	203	0	41	102	1345
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	7	4		3	8		5	2		1	6	9
Permitted Phases												
Actuated Green, G (s)	54.1	65.8		1.0	12.7		4.0	20.1		5.1	21.2	66.7
Effective Green, g (s)	54.1	65.8		1.0	12.7		4.0	20.1		5.1	21.2	66.7
Actuated g/C Ratio	0.49	0.60		0.01	0.12		0.04	0.18		0.05	0.19	0.61
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)	1688	1011		16	206		64	337		82	359	1689
v/s Ratio Prot	0.08	0.01		0.00	c0.02		c0.03	c0.11		0.02	0.05	c0.48
v/s Ratio Perm												
v/c Ratio	0.16	0.02		0.25	0.21		0.92	0.60		0.50	0.28	0.80
Uniform Delay, d1	15.4	9.0		54.1	44.1		52.8	41.3		51.2	37.9	16.5
Progression Factor	1.18	0.21		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0		8.1	0.5		84.8	3.0		4.7	0.2	2.7
Delay (s)	18.4	1.9		62.2	44.6		137.7	44.3		55.9	38.1	19.2
Level of Service	B	A		E	D		F	D		E	D	B
Approach Delay (s)		17.0			45.8			65.2			21.5	
Approach LOS		B			D			E			C	
Intersection Summary												
HCM 2000 Control Delay			27.0									C
HCM 2000 Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			110.0							20.1		
Intersection Capacity Utilization			62.9%									B
Analysis Period (min)			15									

c Critical Lane Group

Intersection					
Intersection Delay, s/veh	8.1				
Intersection LOS	A				
Approach	EB		WB		NB
Entry Lanes	2		2		1
Conflicting Circle Lanes	2		2		2
Adj Approach Flow, veh/h	485		1481		113
Demand Flow Rate, veh/h	495		1510		115
Vehicles Circulating, veh/h	68		75		415
Vehicles Exiting, veh/h	1517		455		148
Ped Vol Crossing Leg, #/h	0		0		0
Ped Cap Adj	1.000		1.000		1.000
Approach Delay, s/veh	4.4		9.6		4.7
Approach LOS	A		A		A
Lane	Left	Right	Left	Right	Left
Designated Moves	LT	TR	LT	TR	LR
Assumed Moves	LT	TR	LT	TR	LR
RT Channelized					
Lane Util	0.471	0.529	0.470	0.530	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328
Entry Flow, veh/h	233	262	710	800	115
Cap Entry Lane, veh/h	1268	1340	1260	1332	998
Entry HV Adj Factor	0.978	0.981	0.980	0.981	0.983
Flow Entry, veh/h	228	257	696	785	113
Cap Entry, veh/h	1240	1315	1235	1307	981
V/C Ratio	0.184	0.195	0.564	0.600	0.115
Control Delay, s/veh	4.5	4.4	9.4	9.8	4.7
LOS	A	A	A	A	A
95th %tile Queue, veh	1	1	4	4	0

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

HY Plus Project with Feasible Improvements
 AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	414	1069	553	60	330	2350	520	0	0	0	794	10	1221
Future Volume (veh/h)	414	1069	553	60	330	2350	520	0	0	0	794	10	1221
Initial Q (Qb), veh	0	0	0		0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	440	1137	181		351	2500	0				853	0	1293
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	430	1908	592		379	1634					945	0	1605
Arrive On Green	0.24	0.37	0.37		0.28	0.43	0.00				0.27	0.00	0.27
Sat Flow, veh/h	1781	5106	1585		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	440	1137	181		351	2500	0				853	0	1293
Grp Sat Flow(s),veh/h/ln	1781	1702	1585		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	26.5	19.7	8.9		21.1	35.2	0.0				25.4	0.0	10.9
Cycle Q Clear(g_c), s	26.5	19.7	8.9		21.1	35.2	0.0				25.4	0.0	10.9
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	430	1908	592		379	1634					945	0	1605
V/C Ratio(X)	1.02	0.60	0.31		0.93	1.53					0.90	0.00	0.81
Avail Cap(c_a), veh/h	430	1908	592		534	1634					1069	0	1715
HCM Platoon Ratio	1.00	1.00	1.00		1.33	1.33	1.33				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.09	0.09	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	41.7	27.8	24.4		38.6	31.6	0.0				39.0	0.0	22.6
Incr Delay (d2), s/veh	49.8	1.4	1.3		1.8	238.8	0.0				9.2	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	7.8	3.4		8.4	48.3	0.0				12.3	0.0	23.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	91.5	29.1	25.7		40.4	270.4	0.0				48.2	0.0	25.1
LnGrp LOS	F	C	C		D	F					D	A	C
Approach Vol, veh/h		1758				2851	A					2146	
Approach Delay, s/veh		44.4				242.1						34.3	
Approach LOS		D				F						C	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	37.6	48.1		34.3	33.5	42.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	33	27.7		33.0	25.0	* 35							
Max Q Clear Time (g_c+Y), s	20.1	21.7		27.4	28.5	37.2							
Green Ext Time (p_c), s	0.4	2.8		1.7	0.0	0.0							

Intersection Summary

HCM 6th Ctrl Delay	124.6
HCM 6th LOS	F

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

HY Plus Project with Feasible Improvements
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖				↑↑↑	↗						
Traffic Volume (veh/h)	789	1164	0	0	2401	1743	0	0	380	0	0	839
Future Volume (veh/h)	789	1164	0	0	2401	1743	0	0	380	0	0	839
Initial Q (Qb), veh	20	0	0	0	0	20						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	831	1225	0	0	2429	1900						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	567	0	0	0	2125	1801						
Arrive On Green	0.32	0.95	0.00	0.00	0.57	0.57						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	831	0	0	0	2429	1900						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	35.0	0.0	0.0	0.0	62.5	62.5						
Cycle Q Clear(g_c), s	35.0	0.0	0.0	0.0	62.5	62.5						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	567	0	0	0	2125	1801						
V/C Ratio(X)	1.47	0.00	0.00	0.00	1.14	1.05						
Avail Cap(c_a), veh/h	567	0	0	0	2125	1801						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.54	0.00	0.00	0.00	0.27	0.27						
Uniform Delay (d), s/veh	37.5	0.0	0.0	0.0	23.7	23.8						
Incr Delay (d2), s/veh	215.0	0.0	0.0	0.0	66.1	29.1						
Initial Q Delay(d3),s/veh	127.0	0.0	0.0	0.0	0.0	40.0						
%ile BackOfQ(50%),veh	68.2	0.0	0.0	0.0	43.2	37.4						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	379.6	0.0	0.0	0.0	89.8	92.8						
LnGrp LOS	F	A	A	A	F	F						
Approach Vol, veh/h		831			4329							
Approach Delay, s/veh		379.6			91.1							
Approach LOS		F			F							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		110.0			40.5	69.5						
Change Period (Y+Rc), s		5.5			5.5	7.0						
Max Green Setting (Gmax), s		104.5			35.0	62.5						
Max Q Clear Time (g_c+I1), s		0.0			37.0	64.5						
Green Ext Time (p_c), s		0.0			0.0	0.0						

Intersection Summary

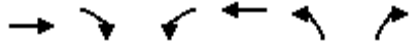
HCM 6th Ctrl Delay	137.6
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

HY Plus Project with Feasible Improvements
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↵	↑↑↑	↵↵	↑
Traffic Volume (veh/h)	1131	423	108	3233	922	109
Future Volume (veh/h)	1131	423	108	3233	922	109
Initial Q (Qb), veh	0	0	0	20	20	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1203	329	115	3439	981	39
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1945	1097	275	3784	1108	493
Arrive On Green	0.13	0.13	0.17	0.60	0.30	0.30
Sat Flow, veh/h	5274	1585	1781	6696	3563	1585
Grp Volume(v), veh/h	1203	329	115	3439	981	39
Grp Sat Flow(s),veh/h/ln	1702	1585	1781	1609	1781	1585
Q Serve(g_s), s	24.6	11.1	6.3	50.3	29.4	2.0
Cycle Q Clear(g_c), s	24.6	11.1	6.3	50.3	29.4	2.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1945	1097	275	3784	1108	493
V/C Ratio(X)	0.62	0.30	0.42	0.91	0.89	0.08
Avail Cap(c_a), veh/h	1945	1075	300	3873	1185	527
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.54	0.54	0.52	0.52
Uniform Delay (d), s/veh	40.5	9.7	42.1	20.7	37.2	26.8
Incr Delay (d2), s/veh	1.5	0.7	0.2	2.1	4.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	2.2	20.4	0.0
%ile BackOfQ(50%),veh/ln	1.4	9.2	2.8	18.7	17.4	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.0	10.4	42.3	25.1	61.7	26.8
LnGrp LOS	D	B	D	C	E	C
Approach Vol, veh/h	1532			3554	1020	
Approach Delay, s/veh	35.2			25.6	60.4	
Approach LOS	D			C	E	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	24.5	47.7		72.2	37.8	
Change Period (Y+Rc), s	6.0	* 5.8		6.0	5.1	
Max Green Setting (Gmax), s	16.2	* 42		62.3	36.6	
Max Q Clear Time (g_c+1), s	19.3	26.6		52.3	31.4	
Green Ext Time (p_c), s	0.1	10.3		10.0	1.3	

Intersection Summary

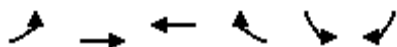
HCM 6th Ctrl Delay	33.8
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: Friars Rd & Santo Rd

HY Plus Project with Feasible Improvements
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖ ↗	↑ ↑ ↑	↑ ↑ ↑		↖ ↗	↖ ↗
Traffic Volume (veh/h)	153	1047	2872	70	80	408
Future Volume (veh/h)	153	1047	2872	70	80	408
Initial Q (Qb), veh	0	0	80	0	50	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1811	1826	1826	1870	1870
Adj Flow Rate, veh/h	155	1058	2901	69	81	412
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	6	5	5	2	2
Cap, veh/h	213	3105	3354	46	923	543
Arrive On Green	0.06	0.65	0.55	0.55	0.26	0.26
Sat Flow, veh/h	3456	5107	6614	151	3456	1585
Grp Volume(v), veh/h	155	1058	2147	823	81	412
Grp Sat Flow(s),veh/h/ln	1728	1648	1570	1798	1728	1585
Q Serve(g_s), s	5.3	11.4	45.1	45.4	2.1	28.6
Cycle Q Clear(g_c), s	5.3	11.4	45.1	45.4	2.1	28.6
Prop In Lane	1.00			0.08	1.00	1.00
Lane Grp Cap(c), veh/h	213	3105	2451	951	923	543
V/C Ratio(X)	0.73	0.34	0.88	0.87	0.09	0.76
Avail Cap(c_a), veh/h	449	3213	2598	992	1022	567
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.80	0.80	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	55.3	10.6	28.1	27.2	35.5	35.1
Incr Delay (d2), s/veh	1.4	0.2	0.5	1.1	0.0	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	34.8	23.7	23.2	0.0
%ile BackOfQ(50%),veh/ln	2.3	4.0	28.2	28.9	6.8	23.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	56.8	10.8	63.4	51.9	58.7	40.0
LnGrp LOS	E	B	E	D	E	D
Approach Vol, veh/h		1213	2970		493	
Approach Delay, s/veh		16.7	60.2		43.1	
Approach LOS		B	E		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		84.5		35.5	11.8	72.7
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		73.6		35.5	15.6	* 54
Max Q Clear Time (g_c+I1), s		13.4		30.6	7.3	47.4
Green Ext Time (p_c), s		10.4		0.5	0.1	6.6

Intersection Summary

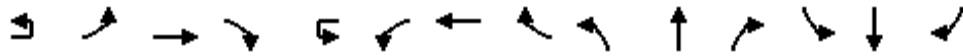
HCM 6th Ctrl Delay	47.1
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 21: Riverdale St & Friars Rd

HY Plus Project with Feasible Improvements
 AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		☞ ☞☞☞	☞	☞		☞☞☞☞	☞	☞	☞	☞		☞	☞	
Traffic Volume (veh/h)	10	73	732	253	20	130	2707	30	133	30	30	20	140	173
Future Volume (veh/h)	10	73	732	253	20	130	2707	30	133	30	30	20	140	173
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		0.99	0.99		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No			No		
Adj Sat Flow, veh/h/ln		1870	1781	1826		1826	1841	1841	1781	1870	1870	1781	1870	1870
Adj Flow Rate, veh/h		76	762	123		135	2820	15	139	31	7	21	146	137
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		2	8	5		5	4	4	8	2	2	8	2	2
Cap, veh/h		97	2442	776		162	2717	842	192	393	89	390	236	221
Arrive On Green		0.05	0.50	0.50		0.09	0.54	0.54	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h		1781	4863	1546		1739	5025	1557	1041	1475	333	1296	884	830
Grp Volume(v), veh/h		76	762	123		135	2820	15	139	0	38	21	0	283
Grp Sat Flow(s),veh/h/ln		1781	1621	1546		1739	1675	1557	1041	0	1808	1296	0	1714
Q Serve(g_s), s		4.6	10.2	4.7		8.4	59.5	0.5	13.3	0.0	1.7	1.4	0.0	16.0
Cycle Q Clear(g_c), s		4.6	10.2	4.7		8.4	59.5	0.5	29.3	0.0	1.7	3.1	0.0	16.0
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.18	1.00		0.48
Lane Grp Cap(c), veh/h		97	2442	776		162	2717	842	192	0	482	390	0	457
V/C Ratio(X)		0.78	0.31	0.16		0.83	1.04	0.02	0.73	0.00	0.08	0.05	0.00	0.62
Avail Cap(c_a), veh/h		228	2442	776		223	2717	842	192	0	482	390	0	457
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.98	0.98	0.98		0.79	0.79	0.79	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		51.3	16.2	14.8		49.0	25.3	11.7	48.9	0.0	30.2	31.4	0.0	35.5
Incr Delay (d2), s/veh		4.9	0.3	0.4		10.4	26.3	0.0	11.2	0.0	0.0	0.0	0.0	1.9
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.1	3.6	1.7		4.0	27.3	0.2	4.4	0.0	0.8	0.4	0.0	6.9
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		56.2	16.5	15.2		59.4	51.5	11.7	60.2	0.0	30.3	31.4	0.0	37.4
LnGrp LOS		E	B	B		E	F	B	E	A	C	C	A	D
Approach Vol, veh/h			961			2970			177		304			
Approach Delay, s/veh			19.5			51.7			53.7		37.0			
Approach LOS			B			D			D		D			
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	4.7	61.1	34.2	10.4	65.4	34.2								
Change Period (Y+Rc), s	4.4	* 5.9	4.9	4.4	5.9	4.9								
Max Green Setting (Gmax), s	14.1	* 52	29.3	14.1	51.4	29.3								
Max Q Clear Time (g_c+10), s	11.4	12.2	18.0	6.6	61.5	31.3								
Green Ext Time (p_c), s	0.1	8.0	0.9	0.0	0.0	0.0								

Intersection Summary

HCM 6th Ctrl Delay	43.8
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 22: Mission Gorge Rd & Friars Rd

HY Plus Project with Feasible Improvements
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↔↔	↑↑↑		↔	↔
Traffic Volume (veh/h)	595	178	560	2758	30	179	270
Future Volume (veh/h)	595	178	560	2758	30	179	270
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	613	0	577	2843		195	64
Peak Hour Factor	0.97	0.97	0.97	0.97		0.92	0.92
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2962		596	0		224	832
Arrive On Green	0.58	0.00	0.17	0.00		0.13	0.13
Sat Flow, veh/h	5443	0	3456	577		1781	2790
Grp Volume(v), veh/h	613	0	577	78.2		195	64
Grp Sat Flow(s),veh/h/ln	1702	0	1728	E		1781	1395
Q Serve(g_s), s	6.9	0.0	19.9			12.9	0.0
Cycle Q Clear(g_c), s	6.9	0.0	19.9			12.9	0.0
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2962		596			224	832
V/C Ratio(X)	0.21		0.97			0.87	0.08
Avail Cap(c_a), veh/h	2962		596			306	960
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.96	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	12.0	0.0	49.3			51.5	30.2
Incr Delay (d2), s/veh	0.2	0.0	28.8			14.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	10.7			6.6	0.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	12.2	0.0	78.2			65.8	30.2
LnGrp LOS	B		E			E	C
Approach Vol, veh/h	613	A				259	
Approach Delay, s/veh	12.2					57.0	
Approach LOS	B					E	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	25.1	75.4					19.5
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	69.6					20.6
Max Q Clear Time (g_c+D), s	11.9	8.9					14.9
Green Ext Time (p_c), s	0.0	4.9					0.2

Intersection Summary

HCM 6th Ctrl Delay	46.5
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
23: Qualcomm Way & Rio San Diego Dr

HY Plus Project with Feasible Improvements
AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑	↗		↔↔	↑↑	↗	↔↔	↑↑↑	↗	↔↔	↑↑↑	↗
Traffic Volume (veh/h)	133	84	170	20	333	53	70	90	600	850	90	328	77
Future Volume (veh/h)	133	84	170	20	333	53	70	90	600	850	90	328	77
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	145	91	56		362	58	11	98	652	576	98	357	69
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	228	181	228		463	585	256	168	2454	748	167	2074	388
Arrive On Green	0.07	0.10	0.10		0.13	0.16	0.16	0.05	0.48	0.48	0.05	0.48	0.48
Sat Flow, veh/h	3456	1870	1560		3456	3554	1553	3456	5106	1557	3456	4318	808
Grp Volume(v), veh/h	145	91	56		362	58	11	98	652	576	98	279	147
Grp Sat Flow(s),veh/h/ln	1728	1870	1560		1728	1777	1553	1728	1702	1557	1728	1702	1722
Q Serve(g_s), s	3.3	3.7	2.5		8.1	1.1	0.5	2.2	6.1	24.4	2.2	3.7	3.9
Cycle Q Clear(g_c), s	3.3	3.7	2.5		8.1	1.1	0.5	2.2	6.1	24.4	2.2	3.7	3.9
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.47
Lane Grp Cap(c), veh/h	228	181	228		463	585	256	168	2454	748	167	1635	827
V/C Ratio(X)	0.64	0.50	0.25		0.78	0.10	0.04	0.58	0.27	0.77	0.59	0.17	0.18
Avail Cap(c_a), veh/h	1297	936	858		1297	1779	778	2595	3834	1169	1297	2556	1293
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.4	34.3	30.3		33.5	28.3	28.1	37.2	12.4	17.1	37.2	11.8	11.8
Incr Delay (d2), s/veh	1.1	2.2	0.6		1.1	0.1	0.1	1.2	0.1	2.4	1.2	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.7	0.9		3.3	0.5	0.2	0.9	2.1	8.0	0.9	1.3	1.4
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	37.5	36.4	30.8		34.6	28.4	28.1	38.4	12.4	19.5	38.4	11.8	12.0
LnGrp LOS	D	D	C		C	C	C	D	B	B	D	B	B
Approach Vol, veh/h		292			431			1326			524		
Approach Delay, s/veh		35.9			33.6			17.4			16.9		
Approach LOS		D			C			B			B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	8.3	43.5	15.1	13.0	8.3	43.5	9.7	18.5					
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3					
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0					
Max Q Clear Time (g_c+1/2), s	14.2	26.4	10.1	5.7	4.2	5.9	5.3	3.1					
Green Ext Time (p_c), s	0.1	12.0	0.6	0.6	0.2	5.0	0.2	0.3					

Intersection Summary

HCM 6th Ctrl Delay	22.1
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection															
Intersection Delay, s/veh	13.6														
Intersection LOS	B														

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↗	↕		↗	↕				↕				↕	
Traffic Vol, veh/h	20	120	224	20	1	397	110	10	10	12	19	10	20	9	230
Future Vol, veh/h	20	120	224	20	1	397	110	10	10	12	19	10	20	9	230
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	128	238	21	1	422	117	11	11	13	20	11	21	10	245
Number of Lanes	0	1	2	0	1	2	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	11.8	14.3	11	15.5
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	24%	100%	0%	0%	100%	0%	0%	8%
Vol Thru, %	29%	0%	100%	79%	0%	100%	55%	3%
Vol Right, %	46%	0%	0%	21%	0%	0%	45%	89%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	51	140	149	95	1	265	242	269
LT Vol	12	140	0	0	1	0	0	21
Through Vol	15	0	149	75	0	265	132	9
RT Vol	24	0	0	20	0	0	110	239
Lane Flow Rate	54	149	159	101	1	282	258	286
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.112	0.29	0.287	0.177	0.002	0.496	0.431	0.505
Departure Headway (Hd)	7.406	7.007	6.496	6.345	6.855	6.344	6.02	6.356
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	487	509	550	561	519	566	593	564
Service Time	5.106	4.795	4.283	4.131	4.636	4.125	3.8	4.138
HCM Lane V/C Ratio	0.111	0.293	0.289	0.18	0.002	0.498	0.435	0.507
HCM Control Delay	11	12.7	11.9	10.5	9.6	15.3	13.3	15.5
HCM Lane LOS	B	B	B	B	A	C	B	C
HCM 95th-tile Q	0.4	1.2	1.2	0.6	0	2.7	2.2	2.8

HCM 6th Signalized Intersection Summary

HY Plus Project with Feasible Improvements

25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy

AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	100	90	133	22	140	120	48	83	18	30	80	76	160
Future Volume (veh/h)	100	90	133	22	140	120	48	83	18	30	80	76	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	111	7	25	161	53	55	95	8	92	87	33	
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	212	223	188	53	347	118	81	597	50	220	505	182	
Arrive On Green	0.12	0.12	0.12	0.15	0.15	0.15	0.05	0.18	0.18	0.06	0.20	0.20	
Sat Flow, veh/h	1781	1870	1577	364	2390	812	1781	3320	276	3456	2554	921	
Grp Volume(v), veh/h	109	111	7	127	0	112	55	50	53	92	59	61	
Grp Sat Flow(s),veh/h/ln	1781	1870	1577	1852	0	1714	1781	1777	1819	1728	1777	1698	
Q Serve(g_s), s	2.3	2.2	0.2	2.5	0.0	2.4	1.2	1.0	1.0	1.0	1.1	1.2	
Cycle Q Clear(g_c), s	2.3	2.2	0.2	2.5	0.0	2.4	1.2	1.0	1.0	1.0	1.1	1.2	
Prop In Lane	1.00		1.00	0.20		0.47	1.00		0.15	1.00		0.54	
Lane Grp Cap(c), veh/h	212	223	188	269	0	249	81	319	327	220	352	336	
V/C Ratio(X)	0.51	0.50	0.04	0.47	0.00	0.45	0.68	0.16	0.16	0.42	0.17	0.18	
Avail Cap(c_a), veh/h	1762	1850	1560	1832	0	1695	1321	2636	2698	2563	2636	2519	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	16.7	16.7	15.8	15.9	0.0	15.8	19.0	14.0	14.0	18.2	13.5	13.5	
Incr Delay (d2), s/veh	1.2	1.0	0.0	0.5	0.0	0.5	3.6	1.1	1.1	0.5	1.0	1.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.8	0.8	0.1	1.0	0.0	0.9	0.5	0.4	0.5	0.4	0.5	0.5	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	17.9	17.7	15.8	16.3	0.0	16.3	22.7	15.1	15.1	18.7	14.5	14.7	
LnGrp LOS	B	B	B	B	A	B	C	B	B	B	B	B	
Approach Vol, veh/h		227		239		158		212					
Approach Delay, s/veh		17.7		16.3		17.7		16.4					
Approach LOS		B		B		B		B					
Timer - Assigned Phs	1	2	4	5	6	8							
Phs Duration (G+Y+Rc), s	7.0	12.7	10.0	6.2	13.4	10.8							
Change Period (Y+Rc), s	4.4	* 5.4	5.2	4.4	5.4	4.9							
Max Green Setting (Gmax), s	30.0	* 60	40.0	30.0	60.0	40.0							
Max Q Clear Time (g_c+1.0), s	13.0	3.0	4.3	3.2	3.2	4.5							
Green Ext Time (p_c), s	0.1	2.2	0.6	0.1	2.6	1.0							

Intersection Summary

HCM 6th Ctrl Delay	17.0
HCM 6th LOS	B

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 26: Rancho Mission Rd & San Diego Mission Rd

HY Plus Project with Feasible Improvements
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗	↖	↗	↖	↗
Traffic Volume (veh/h)	66	208	136	205	751	338	358	395	60	112	155	193
Future Volume (veh/h)	66	208	136	205	751	338	358	395	60	112	155	193
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	234	90	230	844	354	402	444	19	126	174	48
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	95	811	302	260	1007	421	427	541	456	154	254	208
Arrive On Green	0.05	0.32	0.32	0.15	0.41	0.41	0.24	0.29	0.29	0.09	0.14	0.14
Sat Flow, veh/h	1781	2519	938	1781	2432	1016	1781	1870	1577	1781	1870	1536
Grp Volume(v), veh/h	74	163	161	230	616	582	402	444	19	126	174	48
Grp Sat Flow(s),veh/h/ln	1781	1777	1680	1781	1777	1671	1781	1870	1577	1781	1870	1536
Q Serve(g_s), s	4.9	8.1	8.5	15.0	36.8	37.1	26.3	26.2	1.0	8.2	10.5	3.3
Cycle Q Clear(g_c), s	4.9	8.1	8.5	15.0	36.8	37.1	26.3	26.2	1.0	8.2	10.5	3.3
Prop In Lane	1.00		0.56	1.00		0.61	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	95	572	541	260	736	692	427	541	456	154	254	208
V/C Ratio(X)	0.78	0.28	0.30	0.89	0.84	0.84	0.94	0.82	0.04	0.82	0.69	0.23
Avail Cap(c_a), veh/h	526	749	709	526	824	775	451	789	665	451	789	648
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	55.4	30.0	30.1	49.7	31.1	31.2	44.2	39.3	30.3	53.3	48.8	45.7
Incr Delay (d2), s/veh	5.0	0.4	0.5	4.0	7.6	8.4	26.9	2.9	0.0	4.1	1.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	3.5	3.5	6.8	16.6	15.9	14.6	12.2	0.4	3.8	4.9	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.4	30.4	30.6	53.7	38.8	39.6	71.1	42.2	30.3	57.3	50.1	45.9
LnGrp LOS	E	C	C	D	D	D	E	D	C	E	D	D
Approach Vol, veh/h		398			1428			865			348	
Approach Delay, s/veh		36.1			41.5			55.4			52.1	
Approach LOS		D			D			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.3	43.7	32.4	21.2	10.3	54.6	14.2	39.4				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	* 5.5	4.0	* 5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	* 55	30.0	* 50				
Max Q Clear Time (g_c+11), s	11.0	10.5	28.3	12.5	6.9	39.1	10.2	28.2				
Green Ext Time (p_c), s	0.3	3.0	0.1	0.7	0.1	10.0	0.1	1.7				

Intersection Summary

HCM 6th Ctrl Delay	46.0
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave

HY Plus Project with Feasible Improvements
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	142	208	70	743	30	326	130	40	10	90	253
Future Volume (veh/h)	55	142	208	70	743	30	326	130	40	10	90	253
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	64	165	114	81	864	33	379	151	39	12	105	215
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	83	554	845	105	1078	41	425	341	88	393	120	245
Arrive On Green	0.05	0.30	0.30	0.06	0.31	0.31	0.24	0.24	0.24	0.22	0.22	0.22
Sat Flow, veh/h	1781	1870	1574	1781	3489	133	1781	1429	369	1781	542	1110
Grp Volume(v), veh/h	64	165	114	81	440	457	379	0	190	12	0	320
Grp Sat Flow(s),veh/h/ln	1781	1870	1574	1781	1777	1845	1781	0	1797	1781	0	1652
Q Serve(g_s), s	3.5	6.6	3.5	4.4	22.1	22.1	20.0	0.0	8.7	0.5	0.0	18.2
Cycle Q Clear(g_c), s	3.5	6.6	3.5	4.4	22.1	22.1	20.0	0.0	8.7	0.5	0.0	18.2
Prop In Lane	1.00		1.00	1.00		0.07	1.00		0.21	1.00		0.67
Lane Grp Cap(c), veh/h	83	554	845	105	549	570	425	0	429	393	0	365
V/C Ratio(X)	0.77	0.30	0.13	0.77	0.80	0.80	0.89	0.00	0.44	0.03	0.00	0.88
Avail Cap(c_a), veh/h	161	799	1051	247	845	877	724	0	731	687	0	638
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.8	26.4	11.3	45.1	30.8	30.9	35.8	0.0	31.5	29.7	0.0	36.6
Incr Delay (d2), s/veh	14.2	0.3	0.1	11.4	2.9	2.8	4.0	0.0	0.3	0.0	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	2.9	1.9	2.3	9.8	10.2	9.0	0.0	3.8	0.2	0.0	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	60.0	26.7	11.4	56.4	33.8	33.7	39.7	0.0	31.8	29.7	0.0	39.4
LnGrp LOS	E	C	B	E	C	C	D	A	C	C	A	D
Approach Vol, veh/h		343			978			569			332	
Approach Delay, s/veh		27.8			35.6			37.1			39.0	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.2	33.3		26.0	9.0	34.5		27.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	13.5	41.5		37.5	8.8	46.2		39.5				
Max Q Clear Time (g_c+1), s	10.4	8.6		20.2	5.5	24.1		22.0				
Green Ext Time (p_c), s	0.1	1.1		1.3	0.0	5.9		1.2				

Intersection Summary

HCM 6th Ctrl Delay	35.3
HCM 6th LOS	D



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↖	↗	↘		↖	↗	↘	↖	↗	↘		↖	↗	↘
Traffic Volume (veh/h)	10	62	116	102	10	314	262	269	122	1028	499	10	126	515	50
Future Volume (veh/h)	10	62	116	102	10	314	262	269	122	1028	499	10	126	515	50
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.94	1.00		0.98		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No			No			No				No		
Adj Sat Flow, veh/h/ln		1781	1870	1870		1870	1870	1870	1841	1900	1870		1870	1811	1811
Adj Flow Rate, veh/h		69	129	25		349	291	21	136	1142	498		140	572	49
Peak Hour Factor		0.90	0.90	0.90		0.90	0.90	0.90	0.90	0.90	0.90		0.90	0.90	0.90
Percent Heavy Veh, %		8	2	2		2	2	2	4	0	2		2	6	6
Cap, veh/h		88	331	239		454	597	250	219	2265	677		225	2029	172
Arrive On Green		0.05	0.09	0.09		0.13	0.17	0.17	0.06	0.44	0.44		0.07	0.44	0.44
Sat Flow, veh/h		1697	3741	1555		3456	3554	1487	3401	5187	1550		3456	4636	393
Grp Volume(v), veh/h		69	129	25		349	291	21	136	1142	498		140	405	216
Grp Sat Flow(s),veh/h/ln		1697	1870	1555		1728	1777	1487	1700	1729	1550		1728	1648	1733
Q Serve(g_s), s		3.1	2.5	1.1		7.4	5.7	0.9	3.0	12.1	20.3		3.0	6.0	6.1
Cycle Q Clear(g_c), s		3.1	2.5	1.1		7.4	5.7	0.9	3.0	12.1	20.3		3.0	6.0	6.1
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.23
Lane Grp Cap(c), veh/h		88	331	239		454	597	250	219	2265	677		225	1442	758
V/C Ratio(X)		0.79	0.39	0.10		0.77	0.49	0.08	0.62	0.50	0.74		0.62	0.28	0.28
Avail Cap(c_a), veh/h		668	1474	714		1361	1400	586	1340	3405	1018		1361	2164	1138
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		35.7	32.8	27.8		32.0	28.7	26.7	34.7	15.5	17.8		34.7	13.7	13.8
Incr Delay (d2), s/veh		5.7	0.6	0.1		1.0	0.2	0.1	1.1	0.2	1.4		1.0	0.3	0.5
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.4	1.1	0.4		2.9	2.2	0.3	1.2	4.3	6.4		1.2	2.1	2.3
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		41.4	33.3	27.9		33.0	28.9	26.8	35.8	15.7	19.2		35.7	14.0	14.3
LnGrp LOS		D	C	C		C	C	C	D	B	B		D	B	B
Approach Vol, veh/h			223				661			1776				761	
Approach Delay, s/veh			35.2				31.0			18.2				18.1	
Approach LOS			D				C			B				B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8							
Phs Duration (G+Y+Rc), s	9.4	40.0	14.4	12.4	9.3	40.0	8.3	18.5							
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7							
Max Green Setting (Gmax), s	30.0	50.0	30.0	* 30	30.0	* 50	30.0	30.0							
Max Q Clear Time (g_c+1), s	15.0	22.3	9.4	4.5	5.0	8.1	5.1	7.7							
Green Ext Time (p_c), s	0.2	11.0	0.6	0.7	0.2	9.8	0.1	1.1							

Intersection Summary

HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary

HY Plus Project with Feasible Improvements

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖		↗		↖	↗	↖	↖↖↖			↖↖	↗
Traffic Volume (veh/h)	10	69	0	112	22	194	660	134	1240	0	0	412	499
Future Volume (veh/h)	10	69	0	112	22	194	660	134	1240	0	0	412	499
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1722	0	1796	1870	1870	1870	1870	1870	0	0	1826	1870
Adj Flow Rate, veh/h		74	0	20	24	209	558	144	1333	0	0	443	85
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		12	0	7	2	2	2	2	2	0	0	5	2
Cap, veh/h		0	0	0	73	640	607	303	2365	0	0	810	359
Arrive On Green		0.00	0.00	0.00	0.38	0.38	0.38	0.17	0.46	0.00	0.00	0.23	0.23
Sat Flow, veh/h			0		192	1669	1584	1781	5274	0	0	3561	1538
Grp Volume(v), veh/h			0.0		233	0	558	144	1333	0	0	443	85
Grp Sat Flow(s),veh/h/ln					1861	0	1584	1781	1702	0	0	1735	1538
Q Serve(g_s), s					7.0	0.0	26.4	5.8	14.9	0.0	0.0	8.8	3.5
Cycle Q Clear(g_c), s					7.0	0.0	26.4	5.8	14.9	0.0	0.0	8.8	3.5
Prop In Lane					0.10		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					713	0	607	303	2365	0	0	810	359
V/C Ratio(X)					0.33	0.00	0.92	0.48	0.56	0.00	0.00	0.55	0.24
Avail Cap(c_a), veh/h					1063	0	904	769	3693	0	0	2553	1132
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)					1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh					17.1	0.0	23.1	29.5	15.4	0.0	0.0	26.5	24.5
Incr Delay (d2), s/veh					0.1	0.0	8.1	0.4	0.1	0.0	0.0	1.2	0.7
Initial Q Delay(d3),s/veh					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln					2.7	0.0	9.9	2.4	5.2	0.0	0.0	3.6	1.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					17.2	0.0	31.3	30.0	15.4	0.0	0.0	27.8	25.2
LnGrp LOS					B	A	C	C	B	A	A	C	C
Approach Vol, veh/h						791			1477			528	
Approach Delay, s/veh						27.1			16.9			27.4	
Approach LOS						C			B			C	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		43.5			18.1	25.4		35.3					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		57.0			* 34	58.0		45.0					
Max Q Clear Time (g_c+I1), s		16.9			7.8	10.8		28.4					
Green Ext Time (p_c), s		7.8			0.1	7.2		1.7					

Intersection Summary

HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

HY Plus Project with Feasible Improvements
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	620	0	1327	926	0
Future Volume (veh/h)	0	620	0	1327	926	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1856	0
Adj Flow Rate, veh/h	0	588	0	1368	955	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	2	0	2	3	0
Cap, veh/h	0	0	0	2600	2580	0
Arrive On Green	0.00	0.00	0.00	0.73	0.73	0.00
Sat Flow, veh/h	0		0	3741	3711	0
Grp Volume(v), veh/h	0.0		0	1368	955	0
Grp Sat Flow(s),veh/h/ln			0	1777	1763	0
Q Serve(g_s), s			0.0	3.4	2.0	0.0
Cycle Q Clear(g_c), s			0.0	3.4	2.0	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2600	2580	0
V/C Ratio(X)			0.00	0.53	0.37	0.00
Avail Cap(c_a), veh/h			0	6067	6019	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	1.2	1.0	0.0
Incr Delay (d2), s/veh			0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	1.3	1.0	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1368	955	
Approach Delay, s/veh				1.3	1.0	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		20.5				20.5
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		35.0				35.0
Max Q Clear Time (g_c+I1), s		5.4				4.0
Green Ext Time (p_c), s		8.0				4.9
Intersection Summary						
HCM 6th Ctrl Delay			1.2			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
 31: Texas St & Camino del Rio S

HY Plus Project with Feasible Improvements
 AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↖	↗	↖	↖	↗	↖	↖	↗	↖
Traffic Volume (veh/h)	10	103	53	60	74	92	120	150	1387	179	480	592	293
Future Volume (veh/h)	10	103	53	60	74	92	120	150	1387	179	480	592	293
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.98	1.00		0.96	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1811	1663	1870	1841	1870	1796	1841	1870	1870	1870	1870	1826
Adj Flow Rate, veh/h		81	91	12	77	96	51	156	1445	181	500	617	187
Peak Hour Factor		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		6	16	2	4	2	7	4	2	2	2	2	5
Cap, veh/h		134	130	289	173	185	599	184	1100	136	529	1918	818
Arrive On Green		0.08	0.08	0.08	0.10	0.10	0.10	0.10	0.35	0.35	0.30	0.54	0.54
Sat Flow, veh/h		1725	1663	1579	1753	1870	1490	1753	3166	392	1781	3554	1515
Grp Volume(v), veh/h		81	91	12	77	96	51	156	803	823	500	617	187
Grp Sat Flow(s),veh/h/ln		1725	1663	1579	1753	1870	1490	1753	1777	1781	1781	1777	1515
Q Serve(g_s), s		5.5	6.4	0.8	5.0	5.9	2.6	10.5	41.8	41.8	33.0	11.6	7.8
Cycle Q Clear(g_c), s		5.5	6.4	0.8	5.0	5.9	2.6	10.5	41.8	41.8	33.0	11.6	7.8
Prop In Lane		1.00		1.00	1.00		1.00	1.00		0.22	1.00		1.00
Lane Grp Cap(c), veh/h		134	130	289	173	185	599	184	617	619	529	1918	818
V/C Ratio(X)		0.60	0.70	0.04	0.44	0.52	0.09	0.85	1.30	1.33	0.94	0.32	0.23
Avail Cap(c_a), veh/h		430	415	560	411	438	802	364	617	619	1075	2659	1134
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		53.7	54.1	40.5	51.1	51.5	22.7	52.9	39.2	39.2	41.3	15.4	14.5
Incr Delay (d2), s/veh		4.3	6.7	0.1	4.9	6.1	0.2	4.2	147.0	159.3	4.0	0.2	0.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.5	2.9	0.3	2.4	3.0	0.9	4.8	42.9	45.1	14.8	4.6	2.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		57.9	60.8	40.5	56.0	57.6	22.9	57.1	186.3	198.5	45.3	15.6	14.8
LnGrp LOS		E	E	D	E	E	C	E	F	F	D	B	B
Approach Vol, veh/h			184			224			1782			1304	
Approach Delay, s/veh			58.2			49.2			180.6			26.9	
Approach LOS			E			D			F			C	
Timer - Assigned Phs	1	2	4	5	6	8							
Phs Duration (G+Y+Rc), s	40.1	47.0		14.3	17.0	70.1		18.9					
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0					
Max Green Setting (Gmax), s	72.6	41.8		30.0	25.0	* 90		28.2					
Max Q Clear Time (g_c+Rc), s	45.0	43.8		8.4	12.5	13.6		7.9					
Green Ext Time (p_c), s	0.7	0.0		0.7	0.2	12.4		1.9					

Intersection Summary

HCM 6th Ctrl Delay	108.4
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
32: Ward Rd & Rancho Mission Rd

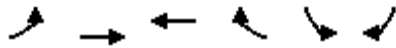
HY Plus Project with Feasible Improvements
AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	245	190	738	544	34
Future Volume (veh/h)	50	245	190	738	544	34
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	0.99			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	47	198	769	567	28
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	172	153	437	1430	1975	97
Arrive On Green	0.10	0.10	0.57	0.57	0.57	0.57
Sat Flow, veh/h	1781	1585	433	2577	3535	170
Grp Volume(v), veh/h	52	47	457	510	292	303
Grp Sat Flow(s),veh/h/ln	1781	1585	1308	1617	1777	1834
Q Serve(g_s), s	0.7	0.8	2.3	5.4	2.3	2.3
Cycle Q Clear(g_c), s	0.7	0.8	4.8	5.4	2.3	2.3
Prop In Lane	1.00	1.00	0.43			0.09
Lane Grp Cap(c), veh/h	172	153	939	928	1020	1053
V/C Ratio(X)	0.30	0.31	0.49	0.55	0.29	0.29
Avail Cap(c_a), veh/h	1174	1044	1698	1953	2146	2215
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.5	11.5	3.4	3.6	3.0	3.0
Incr Delay (d2), s/veh	1.0	1.1	0.4	0.5	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.2	0.2	0.2	0.1	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.5	12.6	3.7	4.1	3.1	3.1
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	99			967	595	
Approach Delay, s/veh	12.5			3.9	3.1	
Approach LOS	B			A	A	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		20.2		7.1		20.2
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		33.0		18.0		33.0
Max Q Clear Time (g_c+I1), s		7.4		2.8		4.3
Green Ext Time (p_c), s		7.7		0.2		3.7
Intersection Summary						
HCM 6th Ctrl Delay			4.2			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
33: Camino del Rio N & Ward Rd

HY Plus Project with Feasible Improvements
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑	↗	↗	↖	↖
Traffic Volume (veh/h)	138	50	650	790	389	410
Future Volume (veh/h)	138	50	650	790	389	410
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	142	52	670	613	401	349
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	175	2260	1748	763	447	554
Arrive On Green	0.10	0.64	0.49	0.49	0.25	0.25
Sat Flow, veh/h	1781	3647	3647	1551	1781	1585
Grp Volume(v), veh/h	142	52	670	613	401	349
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1551	1781	1585
Q Serve(g_s), s	7.5	0.5	11.4	32.0	21.0	17.7
Cycle Q Clear(g_c), s	7.5	0.5	11.4	32.0	21.0	17.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	175	2260	1748	763	447	554
V/C Ratio(X)	0.81	0.02	0.38	0.80	0.90	0.63
Avail Cap(c_a), veh/h	814	2583	2583	1127	814	880
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.5	6.5	15.3	20.6	34.9	26.1
Incr Delay (d2), s/veh	3.4	0.0	0.2	3.6	2.7	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	0.2	4.2	10.9	9.1	15.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.9	6.5	15.5	24.2	37.5	26.6
LnGrp LOS	D	A	B	C	D	C
Approach Vol, veh/h		194	1283		750	
Approach Delay, s/veh		35.3	19.7		32.4	
Approach LOS		D	B		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		67.2		29.1	13.9	53.4
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		2.5		23.0	9.5	34.0
Green Ext Time (p_c), s		0.5		1.2	0.2	13.4

Intersection Summary

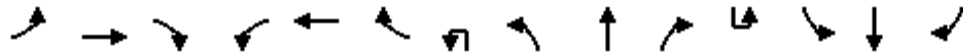
HCM 6th Ctrl Delay	25.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
34: Fairmount Ave & Mission Gorge Rd

HY Plus Project with Feasible Improvements
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↖	↕			↖	↕	
Traffic Volume (veh/h)	39	13	383	20	16	0	40	648	1184	30	10	10	670	37
Future Volume (veh/h)	39	13	383	20	16	0	40	648	1184	30	10	10	670	37
Initial Q (Qb), veh	0	0	15	0	15	0	0	0	0	0	0	0	15	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		1.00	1.00		0.99		1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	466	22	17	0	697	1273	31		11	720	37	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	323	537	126	151	0	822	2459	60		18	1592	77	
Arrive On Green	0.00	0.00	0.17	0.17	0.17	0.00	0.48	1.00	1.00		0.01	0.46	0.46	
Sat Flow, veh/h	0	1870	3029	614	622	0	3456	3545	86		1781	3438	177	
Grp Volume(v), veh/h	0	0	466	39	0	0	697	638	666		11	372	385	
Grp Sat Flow(s),veh/h/ln	0	1870	1515	1237	0	0	1728	1777	1854		1781	1777	1837	
Q Serve(g_s), s	0.0	0.0	17.4	0.8	0.0	0.0	20.2	0.0	0.0		0.7	16.4	16.4	
Cycle Q Clear(g_c), s	0.0	0.0	17.4	2.3	0.0	0.0	20.2	0.0	0.0		0.7	16.4	16.4	
Prop In Lane	0.00		1.00	0.56		0.00	1.00		0.05		1.00		0.10	
Lane Grp Cap(c), veh/h	0	323	537	268	0	0	822	1232	1286		18	820	849	
V/C Ratio(X)	0.00	0.00	0.87	0.15	0.00	0.00	0.85	0.52	0.52		0.60	0.45	0.45	
Avail Cap(c_a), veh/h	0	335	543	270	0	0	831	1237	1291		156	820	848	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00		1.00	1.00	1.00	
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.09	0.09	0.09		1.00	1.00	1.00	
Uniform Delay (d), s/veh	0.0	0.0	47.1	42.1	0.0	0.0	28.3	0.0	0.0		56.7	21.7	21.7	
Incr Delay (d2), s/veh	0.0	0.0	13.3	0.2	0.0	0.0	0.8	0.1	0.1		11.1	1.8	1.7	
Initial Q Delay(d3),s/veh	0.0	0.0	42.5	26.3	0.0	0.0	0.0	0.0	0.0		0.0	1.1	1.0	
%ile BackOfQ(50%),veh/ln	0.0	0.0	11.6	4.7	0.0	0.0	6.5	0.0	0.0		0.4	8.4	8.6	
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	102.9	68.6	0.0	0.0	29.1	0.1	0.1		67.8	24.6	24.5	
LnGrp LOS	A	A	F	E	A	A	C	A	A		E	C	C	
Approach Vol, veh/h		466			39			2001				768		
Approach Delay, s/veh		102.9			68.6			10.2				25.2		
Approach LOS		F			E			B				C		
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	5.6	85.0		24.5	32.5	58.0		24.5						
Change Period (Y+Rc), s	4.4	4.9		4.9	4.9	* 4.9		4.9						
Max Green Setting (Gmax), s	10.0	70.1		20.6	27.1	* 53		20.6						
Max Q Clear Time (g_c+1/2), s	10.0	2.0		19.4	22.2	18.4		4.3						
Green Ext Time (p_c), s	0.0	31.5		0.2	0.8	11.1		0.1						

Intersection Summary

HCM 6th Ctrl Delay	27.6
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis HY Plus Project with Feasible Improvements
 35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	33	456	490	807	395	583	1488	180	13	960	130
Future Volume (vph)	50	33	456	490	807	395	583	1488	180	13	960	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1749	1578	1610	3172	1424	1770	3477		3433	3539	1583
Flt Permitted	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1749	1578	1610	3172	1424	1770	3477		3433	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	35	480	516	849	416	614	1566	189	14	1011	137
RTOR Reduction (vph)	0	0	85	0	0	0	0	8	0	0	0	89
Lane Group Flow (vph)	42	46	395	464	943	374	614	1747	0	14	1011	48
Confl. Peds. (#/hr)							2		1			
Confl. Bikes (#/hr)			2			2						
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8	1	5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	8.0	8.0	35.0	25.0	25.0	33.0	27.0	53.0		8.0	34.0	34.0
Effective Green, g (s)	8.0	8.0	35.0	25.0	25.0	33.0	27.0	53.0		8.0	34.0	34.0
Actuated g/C Ratio	0.07	0.07	0.30	0.22	0.22	0.29	0.23	0.46		0.07	0.30	0.30
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	116	121	544	350	689	408	415	1602		238	1046	468
v/s Ratio Prot	0.02	0.03	c0.17	0.29	c0.30	0.06	c0.35	c0.50		0.00	c0.29	
v/s Ratio Perm			0.08			0.20						0.03
v/c Ratio	0.36	0.38	0.73	1.33	1.37	0.92	1.48	1.09		0.06	0.97	0.10
Uniform Delay, d1	51.1	51.1	35.7	45.0	45.0	39.7	44.0	31.0		50.0	39.9	29.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.63	0.77	1.35
Incremental Delay, d2	0.7	0.7	4.1	165.1	175.1	24.6	228.4	51.6		0.0	17.8	0.3
Delay (s)	51.8	51.9	39.8	210.1	220.1	64.2	272.4	82.6		31.4	48.7	40.2
Level of Service	D	D	D	F	F	E	F	F		C	D	D
Approach Delay (s)		41.7			184.8			131.8			47.5	
Approach LOS		D			F			F			D	
Intersection Summary												
HCM 2000 Control Delay			122.5									F
HCM 2000 Volume to Capacity ratio			1.25									
Actuated Cycle Length (s)			115.0							21.0		
Intersection Capacity Utilization			103.7%									G
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
36: Fairmount Ave & I-8E Off-Ramp

HY Plus Project with Feasible Improvements
AM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations	YY	YY	U		↑↑	↑↑↑	
Traffic Volume (veh/h)	833	863	300	0	1178	736	0
Future Volume (veh/h)	833	863	300	0	1178	736	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1826	1870		0	1856	1856	0
Adj Flow Rate, veh/h	1021	1022		0	1419	887	0
Peak Hour Factor	0.83	0.83		0.83	0.83	0.83	0.83
Percent Heavy Veh, %	5	2		0	3	3	0
Cap, veh/h	1324	1207		0	1716	2466	0
Arrive On Green	0.38	0.38		0.00	0.49	0.49	0.00
Sat Flow, veh/h	3478	3170		0	3711	5400	0
Grp Volume(v), veh/h	1021	1022		0	1419	887	0
Grp Sat Flow(s),veh/h/ln	1739	1585		0	1763	1689	0
Q Serve(g_s), s	21.6	24.7		0.0	29.0	9.1	0.0
Cycle Q Clear(g_c), s	21.6	24.7		0.0	29.0	9.1	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	1324	1207		0	1716	2466	0
V/C Ratio(X)	0.77	0.85		0.00	0.83	0.36	0.00
Avail Cap(c_a), veh/h	1826	1665		0	3227	3144	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.7	23.7		0.0	18.5	13.4	0.0
Incr Delay (d2), s/veh	0.9	2.3		0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	9.1		0.0	10.9	3.3	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	23.6	26.0		0.0	18.9	13.4	0.0
LnGrp LOS	C	C		A	B	B	A
Approach Vol, veh/h	2043				1419	887	
Approach Delay, s/veh	24.8				18.9	13.4	
Approach LOS	C				B	B	
Timer - Assigned Phs				4	6	8	
Phs Duration (G+Y+Rc), s				46.8	37.0	46.8	
Change Period (Y+Rc), s				6.0	5.1	6.0	
Max Green Setting (Gmax), s				52.0	44.0	76.7	
Max Q Clear Time (g_c+I1), s				11.1	26.7	31.0	
Green Ext Time (p_c), s				4.9	5.2	9.8	

Intersection Summary

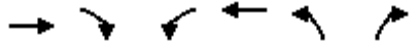
HCM 6th Ctrl Delay	20.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
37: Collwood Blvd & Montezuma Rd

HY Plus Project with Feasible Improvements
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑↑	↑↑	↑
Traffic Volume (veh/h)	497	491	70	1255	1184	60
Future Volume (veh/h)	497	491	70	1255	1184	60
Initial Q (Qb), veh	0	0	0	30	30	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1663	1870	1870	1618
Adj Flow Rate, veh/h	529	439	74	1335	1260	43
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	16	2	2	19
Cap, veh/h	1541	1276	91	2726	1341	527
Arrive On Green	0.44	0.44	0.06	0.53	0.38	0.38
Sat Flow, veh/h	3618	1538	1584	5274	3456	1372
Grp Volume(v), veh/h	529	439	74	1335	1260	43
Grp Sat Flow(s),veh/h/ln	1763	1538	1584	1702	1728	1372
Q Serve(g_s), s	12.4	9.0	5.8	20.8	44.9	2.5
Cycle Q Clear(g_c), s	12.4	9.0	5.8	20.8	44.9	2.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1541	1276	91	2726	1341	527
V/C Ratio(X)	0.34	0.34	0.81	0.49	0.94	0.08
Avail Cap(c_a), veh/h	1559	1276	158	2730	1341	532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.5	2.8	58.7	19.5	38.5	24.7
Incr Delay (d2), s/veh	0.6	0.7	6.3	0.6	12.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	1.7	53.3	0.0
%ile BackOfQ(50%),veh/ln	5.2	2.1	2.5	9.9	32.1	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.1	3.6	65.0	21.8	104.5	24.7
LnGrp LOS	C	A	E	C	F	C
Approach Vol, veh/h	968			1409	1303	
Approach Delay, s/veh	14.8			24.1	101.9	
Approach LOS	B			C	F	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	11.7	62.2		73.9	52.1	
Change Period (Y+Rc), s	4.4	* 6.5		6.5	4.4	
Max Green Setting (Gmax), s	12.6	* 50		66.2	48.9	
Max Q Clear Time (g_c+1), s	17.8	14.4		22.8	46.9	
Green Ext Time (p_c), s	0.0	9.7		22.5	0.8	

Intersection Summary

HCM 6th Ctrl Delay	49.2
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
38: Mission Village Dr & Shawn Ave

HY Plus Project with Feasible Improvements
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔		↔	↑↑	↔	↔	↔↔	
Traffic Volume (veh/h)	120	10	66	56	10	30	53	1250	13	10	733	40
Future Volume (veh/h)	120	10	66	56	10	30	53	1250	13	10	733	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	129	11	13	60	11	5	57	1344	6	11	788	39
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	354	110	130	346	172	78	497	2248	986	315	2178	108
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.63	0.63	0.63	0.63	0.63	0.63
Sat Flow, veh/h	1316	709	838	1264	1106	503	662	3554	1559	404	3443	170
Grp Volume(v), veh/h	129	0	24	60	0	16	57	1344	6	11	407	420
Grp Sat Flow(s),veh/h/ln	1316	0	1547	1264	0	1609	662	1777	1559	404	1777	1836
Q Serve(g_s), s	4.2	0.0	0.6	1.9	0.0	0.4	2.2	10.7	0.1	0.8	5.2	5.2
Cycle Q Clear(g_c), s	4.6	0.0	0.6	2.5	0.0	0.4	7.4	10.7	0.1	11.5	5.2	5.2
Prop In Lane	1.00		0.54	1.00		0.31	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	354	0	240	346	0	250	497	2248	986	315	1124	1162
V/C Ratio(X)	0.36	0.00	0.10	0.17	0.00	0.06	0.11	0.60	0.01	0.03	0.36	0.36
Avail Cap(c_a), veh/h	1297	0	1288	1282	0	1340	905	4438	1947	564	2219	2294
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.3	0.0	17.4	18.5	0.0	17.3	6.0	5.2	3.3	8.6	4.2	4.2
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.1	0.0	0.0	0.1	0.3	0.0	0.1	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3	0.0	0.2	0.6	0.0	0.1	0.2	1.8	0.0	0.1	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.5	0.0	17.5	18.6	0.0	17.4	6.1	5.5	3.3	8.7	4.5	4.4
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		153			76			1407			838	
Approach Delay, s/veh		19.2			18.3			5.5			4.5	
Approach LOS		B			B			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		35.7		12.4		35.7		12.4				
Change Period (Y+Rc), s		5.3		4.9		5.3		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		12.7		6.6		13.5		4.5				
Green Ext Time (p_c), s		17.6		0.6		7.7		0.3				

Intersection Summary

HCM 6th Ctrl Delay	6.4
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
 39: Mission Village Dr & Fermi Ave

HY Plus Project with Feasible Improvements
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕		↙	↕	
Traffic Volume (veh/h)	50	20	26	106	10	100	13	1323	113	70	660	10
Future Volume (veh/h)	50	20	26	106	10	100	13	1323	113	70	660	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	55	22	17	116	11	84	14	1454	121	77	725	11
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	195	76	45	204	24	107	24	1995	165	100	2309	35
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.01	0.60	0.60	0.06	0.64	0.64
Sat Flow, veh/h	743	442	262	805	140	625	1781	3315	274	1781	3582	54
Grp Volume(v), veh/h	94	0	0	211	0	0	14	775	800	77	360	376
Grp Sat Flow(s),veh/h/ln1447		0	0	1569	0	0	1781	1777	1813	1781	1777	1859
Q Serve(g_s), s	0.0	0.0	0.0	6.0	0.0	0.0	0.7	26.2	26.7	3.6	7.7	7.7
Cycle Q Clear(g_c), s	4.6	0.0	0.0	10.6	0.0	0.0	0.7	26.2	26.7	3.6	7.7	7.7
Prop In Lane	0.59		0.18	0.55		0.40	1.00		0.15	1.00		0.03
Lane Grp Cap(c), veh/h	315	0	0	335	0	0	24	1069	1091	100	1145	1198
V/C Ratio(X)	0.30	0.00	0.00	0.63	0.00	0.00	0.59	0.72	0.73	0.77	0.31	0.31
Avail Cap(c_a), veh/h	749	0	0	600	0	0	629	1256	1281	629	1256	1314
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh 30.9	0.0	0.0	0.0	33.3	0.0	0.0	41.7	11.9	12.1	39.5	6.7	6.7
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.7	0.0	0.0	8.5	2.4	2.5	4.6	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.7	0.0	0.0	0.0	4.2	0.0	0.0	0.3	9.1	9.5	1.7	2.5	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	0.0	0.0	34.0	0.0	0.0	50.2	14.3	14.5	44.1	7.0	7.0
LnGrp LOS	C	A	A	C	A	A	D	B	B	D	A	A
Approach Vol, veh/h		94			211			1589			813	
Approach Delay, s/veh		31.1			34.0			14.7			10.5	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s9.2	56.3			19.4	5.5	59.9		19.4				
Change Period (Y+Rc), s 4.4	5.2			4.9	4.4	5.2		4.9				
Max Green Setting (Gmax), s 30.0	60.0			40.0	30.0	60.0		30.0				
Max Q Clear Time (g_c+1), s 15.6	28.7			6.6	2.7	9.7		12.6				
Green Ext Time (p_c), s 0.1	22.4			0.4	0.0	10.0		0.8				

Intersection Summary

HCM 6th Ctrl Delay	15.5
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
40: Gramercy Dr/Mission Village Dr & Ruffin Rd

HY Plus Project with Feasible Improvements
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	330	30	42	525	916	20	10	23	377	20	50
Future Volume (veh/h)	70	330	30	42	525	916	20	10	23	377	20	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	80	375	31	48	597	889	23	11	0	428	23	41
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	84	1949	160	593	1043	914	157	313	0	638	105	187
Arrive On Green	0.59	0.59	0.59	0.59	0.59	0.59	0.09	0.09	0.00	0.18	0.18	0.18
Sat Flow, veh/h	355	3319	273	977	1777	1557	1781	3647	0	3563	586	1045
Grp Volume(v), veh/h	80	200	206	48	597	889	23	11	0	428	0	64
Grp Sat Flow(s),veh/h/ln	355	1777	1816	977	1777	1557	1781	1777	0	1781	0	1632
Q Serve(g_s), s	3.8	5.3	5.4	2.5	21.3	56.2	1.2	0.3	0.0	11.5	0.0	3.4
Cycle Q Clear(g_c), s	60.0	5.3	5.4	7.9	21.3	56.2	1.2	0.3	0.0	11.5	0.0	3.4
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.00	1.00		0.64
Lane Grp Cap(c), veh/h	84	1043	1066	593	1043	914	157	313	0	638	0	292
V/C Ratio(X)	0.96	0.19	0.19	0.08	0.57	0.97	0.15	0.04	0.00	0.67	0.00	0.22
Avail Cap(c_a), veh/h	84	1043	1066	593	1043	914	697	1391	0	1395	0	639
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.8	9.8	9.8	11.7	13.1	20.3	43.0	42.6	0.0	39.1	0.0	35.8
Incr Delay (d2), s/veh	83.5	0.1	0.1	0.1	0.9	23.3	0.2	0.0	0.0	0.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.1	2.1	0.5	8.4	24.7	0.5	0.1	0.0	4.9	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	134.2	9.9	9.9	11.7	14.0	43.6	43.2	42.6	0.0	39.6	0.0	36.0
LnGrp LOS	F	A	A	B	B	D	D	D	A	D	A	D
Approach Vol, veh/h		486			1534			34			492	
Approach Delay, s/veh		30.4			31.1			43.0			39.1	
Approach LOS		C			C			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.1		23.2		65.1		13.9				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		62.0		13.5		58.2		3.2				
Green Ext Time (p_c), s		0.0		1.0		1.6		0.1				

Intersection Summary

HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

HY Plus Project with Feasible Improvements
AM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	680	191	10	309	600	603	766
Future Volume (veh/h)	680	191	10	309	600	603	766
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	739	204		336	652	655	657
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1202	1205		385	1717	1493	685
Arrive On Green	0.34	0.34		0.11	0.48	0.43	0.43
Sat Flow, veh/h	3647	1538		3456	3647	3456	1585
Grp Volume(v), veh/h	739	204		336	652	655	657
Grp Sat Flow(s),veh/h/ln1777	1538			1728	1777	1728	1585
Q Serve(g_s), s	22.6	4.6		12.4	15.1	17.3	52.3
Cycle Q Clear(g_c), s	22.6	4.6		12.4	15.1	17.3	52.3
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1202	1205		385	1717	1493	685
V/C Ratio(X)	0.61	0.17		0.87	0.38	0.44	0.96
Avail Cap(c_a), veh/h	1202	1205		391	1717	1614	740
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.58	0.58
Uniform Delay (d), s/veh	35.9	4.0		56.9	21.3	25.9	35.8
Incr Delay (d2), s/veh	2.4	0.3		18.2	0.6	0.0	15.4
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	4.9		6.3	6.2	7.1	22.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	38.3	4.3		75.1	21.9	25.9	51.2
LnGrp LOS	D	A		E	C	C	D
Approach Vol, veh/h	943			988	1312		
Approach Delay, s/veh	30.9			40.0	38.6		
Approach LOS	C			D	D		
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+Rc), s	18.9	49.7			68.5		61.5
Change Period (Y+Rc), s	4.4	* 5.7			5.7		5.3
Max Green Setting (Gmax), s	14.7	* 40			58.3		60.7
Max Q Clear Time (g_c+14), s	14.4	24.6			17.1		54.3
Green Ext Time (p_c), s	0.0	7.8			6.5		1.9

Intersection Summary

HCM 6th Ctrl Delay	36.8
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mobley St & Gramercy Dr

HY Plus Project with Feasible Improvements
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	251	30	32	499	104	90	40	63	86	10	20
Future Volume (veh/h)	20	251	30	32	499	104	90	40	63	86	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1826	1841	1737	1870	1870	1870	1870	1870	1707	1707	1707
Adj Flow Rate, veh/h	21	264	13	34	525	88	95	42	47	91	11	13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	5	4	11	2	2	2	2	2	13	13	13
Cap, veh/h	492	1569	679	634	1370	228	318	131	97	442	53	38
Arrive On Green	0.45	0.45	0.45	0.45	0.45	0.45	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	804	3469	1502	1013	3028	505	626	544	402	1013	222	157
Grp Volume(v), veh/h	21	264	13	34	307	306	184	0	0	115	0	0
Grp Sat Flow(s),veh/h/ln	804	1735	1502	1013	1777	1757	1572	0	0	1393	0	0
Q Serve(g_s), s	0.6	1.5	0.2	0.7	3.7	3.8	1.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.3	1.5	0.2	2.1	3.7	3.8	3.0	0.0	0.0	1.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.29	0.52		0.26	0.79		0.11
Lane Grp Cap(c), veh/h	492	1569	679	634	804	794	546	0	0	533	0	0
V/C Ratio(X)	0.04	0.17	0.02	0.05	0.38	0.39	0.34	0.00	0.00	0.22	0.00	0.00
Avail Cap(c_a), veh/h	1612	6401	2771	2044	3278	3241	2036	0	0	1760	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.3	5.3	4.9	5.9	5.9	5.9	10.5	0.0	0.0	10.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.1	0.6	0.6	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	0.0	0.1	0.8	0.8	0.9	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.4	5.4	4.9	6.0	6.5	6.5	10.6	0.0	0.0	10.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		298			647			184			115	
Approach Delay, s/veh		5.5			6.4			10.6			10.2	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		19.8		12.7		19.8		12.7				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		6.3		3.9		5.8		5.0				
Green Ext Time (p_c), s		3.7		0.5		8.5		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				7.2								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary
43: Sandrock Rd & Greyling Dr/Gramercy Dr

HY Plus Project with Feasible Improvements
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕	↕	↕	↕
Traffic Volume (veh/h)	60	97	10	13	114	448	0	20	23	287	10	60
Future Volume (veh/h)	60	97	10	13	114	448	0	20	23	287	10	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.92	0.96		0.95	1.00		1.00	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1663	1870	1870	1870	1841	1870	1870
Adj Flow Rate, veh/h	65	105	8	14	124	239	0	22	0	320	0	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	2	2	16	2	2	2	4	2	2
Cap, veh/h	266	366	23	133	614	739	0	41	35	690	0	291
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.00	0.02	0.00	0.20	0.00	0.20
Sat Flow, veh/h	369	1056	67	64	1773	1332	0	1870	1585	3506	0	1480
Grp Volume(v), veh/h	178	0	0	138	0	239	0	22	0	320	0	17
Grp Sat Flow(s),veh/h/ln	1492	0	0	1837	0	1332	0	1870	1585	1753	0	1480
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.4	0.0	2.9	0.0	0.3
Cycle Q Clear(g_c), s	2.5	0.0	0.0	1.9	0.0	3.6	0.0	0.4	0.0	2.9	0.0	0.3
Prop In Lane	0.37		0.04	0.10		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	655	0	0	748	0	739	0	41	35	690	0	291
V/C Ratio(X)	0.27	0.00	0.00	0.18	0.00	0.32	0.00	0.54	0.00	0.46	0.00	0.06
Avail Cap(c_a), veh/h	1143	0	0	1378	0	1211	0	1050	889	2951	0	1246
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.4	0.0	0.0	8.2	0.0	4.5	0.0	17.2	0.0	12.7	0.0	11.6
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.1	0.0	4.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	0.5	0.0	1.0	0.0	0.2	0.0	1.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.5	0.0	0.0	8.3	0.0	4.6	0.0	21.2	0.0	12.8	0.0	11.7
LnGrp LOS	A	A	A	A	A	A	A	C	A	B	A	B
Approach Vol, veh/h		178			377			22			337	
Approach Delay, s/veh		8.5			6.0			21.2			12.8	
Approach LOS		A			A			C			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.6		12.3		17.6		5.7				
Change Period (Y+Rc), s		5.3		5.3		5.3		4.9				
Max Green Setting (Gmax), s		25.0		30.0		25.0		20.0				
Max Q Clear Time (g_c+1), s		4.5		4.9		5.6		2.4				
Green Ext Time (p_c), s		0.8		0.6		0.9		0.0				

Intersection Summary

HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

Arterial Level of Service: EB Friars Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SR-163 SB Ramps	II	45	27.1	44.5	71.6	0.26	13.1	E
SR-163 NB Ramps	II	45	23.7	13.3	37.0	0.22	21.2	D
Frazee Rd	II	45	14.8	22.0	36.8	0.14	13.2	E
River Run Dr	II	45	119.1	18.9	138.0	1.49	38.8	A
Fenton Pkwy	II	45	23.6	21.6	45.2	0.22	17.3	D
Northside Dr	II	45	28.6	30.2	58.8	0.29	17.7	D
Stadium Way	II	45	23.0	11.5	34.5	0.21	22.0	C
I-15 SB Ramps	II	45	46.1	38.3	84.4	0.58	24.6	C
I-15 NB Ramps	II	45	23.9	0.0	23.9	0.22	33.1	B
Rancho Mission Rd	II	45	19.6	26.9	46.5	0.18	13.9	E
Santo Rd	II	45	24.2	1.8	26.0	0.22	30.7	B
Riverdale St	II	45	31.8	18.0	49.8	0.32	23.2	C
Mission Gorge Rd	II	45	11.2	10.3	21.5	0.10	17.3	D
Total	II		416.7	257.3	674.0	4.44	23.7	C

Arterial Level of Service: WB Friars Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Riverdale St	II	45	11.2	64.2	75.4	0.10	4.9	F
Santo Rd	II	45	31.8	11.7	43.5	0.32	26.6	C
Rancho Mission Rd	II	45	24.2	26.5	50.7	0.22	15.7	E
I-15 NB Ramps	II	45	19.6	149.4	169.0	0.18	3.8	F
I-15 SB Ramps	II	45	23.9	224.7	248.6	0.22	3.2	F
Stadium Way	II	45	46.1	4.9	51.0	0.58	40.7	A
Northside Dr	II	45	23.0	20.8	43.8	0.21	17.3	D
Fenton Pkwy	II	45	28.6	30.9	59.5	0.29	17.5	D
	II	45	23.6	25.0	48.6	0.22	16.1	E
Frazee Rd	II	45	119.1	49.6	168.7	1.49	31.8	B
SR-163 NB Ramps	II	45	14.8	35.9	50.7	0.14	9.6	F
Ulric St	II	45	23.7	17.3	41.0	0.22	19.1	D
Total	II		389.6	660.9	1050.5	4.18	14.3	E

Arterial Level of Service: NB Rancho Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Ward Rd	III	30	22.9	16.5	39.4	0.18	16.5	D
San Diego Mission Rd	III	35	25.3	61.4	86.7	0.21	8.8	F
Friars Rd	III	35	48.3	48.9	97.2	0.40	14.9	D
Total	III		96.5	126.8	223.3	0.79	12.8	E

Arterial Level of Service: SB Rancho Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
San Diego Mission Rd	III	35	48.3	57.9	106.2	0.40	13.6	E
Rancho Mission Rd	III	35	25.3	0.0	25.3	0.21	30.0	B
Total	III		73.6	57.9	131.5	0.61	16.8	D

Arterial Level of Service: EB San Diego Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rancho Mission Rd	II	40	42.5	33.2	75.7	0.45	21.3	D
Fairmount Ave	II	40	50.6	41.4	92.0	0.56	22.0	C
Total	II		93.1	74.6	167.7	1.01	21.7	D

Arterial Level of Service: WB San Diego Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rancho Mission Rd	II	40	50.6	49.0	99.6	0.56	20.3	D
Road A	II	30	14.1	36.1	50.2	0.10	7.2	F
Total	II		64.7	85.1	149.8	0.66	15.9	E

Arterial Level of Service: NB Ward Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rancho Mission Rd	III	35	16.7	8.1	24.8	0.13	18.9	C
Total	III		16.7	8.1	24.8	0.13	18.9	C

Arterial Level of Service: SB Ward Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Camino del Rio N	III	35	16.7	57.4	74.1	0.13	6.3	F
Total	III		16.7	57.4	74.1	0.13	6.3	F

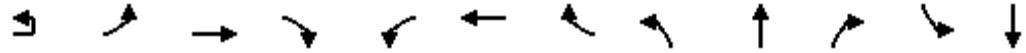
Arterial Level of Service: EB Camino del Rio S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Texas St	III	35	16.0	77.3	93.3	0.13	4.8	F
Total	III		16.0	77.3	93.3	0.13	4.8	F

Arterial Level of Service: WB Camino del Rio S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Texas St	III	35	19.7	68.8	88.5	0.15	6.3	F
Total	III		19.7	68.8	88.5	0.15	6.3	F

HCM Signalized Intersection Capacity Analysis HY Plus Project with Feasible Improvements
 1: SR-163 SB Ramps/Ulrir St & Friars Rd PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations		3		7	7	7	7	7	7	7	7	7	
Traffic Volume (vph)	10	170	1780	700	634	1208	827	320	30	769	690	0	
Future Volume (vph)	10	170	1780	700	634	1208	827	320	30	769	690	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.7	7.0	7.0	4.5	3.0	6.1	6.1	6.1	4.5	6.1	6.1	
Lane Util. Factor		1.00	0.86	1.00	0.97	0.91	0.88	0.97	1.00	0.88	0.95	0.95	
Frbp, ped/bikes		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (prot)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (perm)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	10	173	1816	714	647	1233	844	327	31	785	704	0	
RTOR Reduction (vph)	0	0	0	481	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	183	1816	233	647	1233	844	327	31	785	352	352	
Confl. Peds. (#/hr)				5									
Confl. Bikes (#/hr)				2									
Turn Type	Prot	Prot	NA	Perm	Prot	NA	custom	Split	NA	pm+ov	Split	NA	
Protected Phases	5	5	2		1	6 7	4 7	8	8	1	4	4	
Permitted Phases				2						8			
Actuated Green, G (s)		17.5	44.0	44.0	26.0	52.3	68.9	14.1	14.1	40.1	37.2	37.2	
Effective Green, g (s)		17.5	44.0	44.0	26.0	52.3	61.9	14.1	14.1	40.1	37.2	37.2	
Actuated g/C Ratio		0.12	0.30	0.30	0.18	0.36	0.43	0.10	0.10	0.28	0.26	0.26	
Clearance Time (s)		4.7	7.0	7.0	4.5			6.1	6.1	4.5	6.1	6.1	
Vehicle Extension (s)		2.0	2.0	2.0	3.0			3.0	3.0	3.0	2.0	2.0	
Lane Grp Cap (vph)		213	1944	469	615	1834	1189	333	181	770	431	431	
v/s Ratio Prot		0.10	c0.28		c0.19	0.24	0.30	0.10	0.02	c0.18	c0.21	0.21	
v/s Ratio Perm				0.15						0.10			
v/c Ratio		0.86	0.93	0.50	1.05	0.67	0.71	0.98	0.17	1.02	0.82	0.82	
Uniform Delay, d1		62.5	49.1	41.4	59.5	39.1	34.2	65.3	60.1	52.5	50.7	50.7	
Progression Factor		1.00	1.00	1.00	1.04	1.23	0.69	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		26.5	9.9	3.7	44.5	0.5	1.1	44.2	0.5	37.4	10.8	10.8	
Delay (s)		89.1	58.9	45.2	106.2	48.8	24.6	109.5	60.5	89.9	61.5	61.5	
Level of Service		F	E	D	F	D	C	F	E	F	E	E	
Approach Delay (s)			57.4			54.9			94.7			57.0	
Approach LOS			E			D			F			E	
Intersection Summary													
HCM 2000 Control Delay			62.1		HCM 2000 Level of Service					E			
HCM 2000 Volume to Capacity ratio			0.96										
Actuated Cycle Length (s)			145.0		Sum of lost time (s)					26.9			
Intersection Capacity Utilization			97.3%		ICU Level of Service					F			
Analysis Period (min)			15										
c Critical Lane Group													



Movement	SBR
Lane Configurations	7
Traffic Volume (vph)	210
Future Volume (vph)	210
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.1
Lane Util. Factor	1.00
Frbp, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1560
Flt Permitted	1.00
Satd. Flow (perm)	1560
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	214
RTOR Reduction (vph)	142
Lane Group Flow (vph)	72
Confl. Peds. (#/hr)	3
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	37.2
Effective Green, g (s)	37.2
Actuated g/C Ratio	0.26
Clearance Time (s)	6.1
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	400
v/s Ratio Prot	
v/s Ratio Perm	0.05
v/c Ratio	0.18
Uniform Delay, d1	42.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	42.1
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis HY Plus Project with Feasible Improvements
 2: Friars Rd & SR-163 NB Ramps

PM Peak Hour



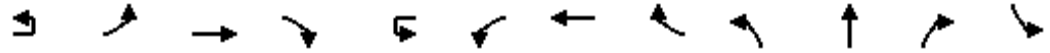
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	640	2478	1679	1038	1210	1010
Future Volume (vph)	640	2478	1679	1038	1210	1010
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.5	6.0	4.5	4.5	5.0
Lane Util. Factor	0.97	0.86	0.86	0.88	0.94	0.88
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	6408	6408	2787	4990	2787
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	6408	6408	2787	4990	2787
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	667	2581	1749	1081	1260	1052
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	667	2581	1749	1081	1260	1052
Turn Type	Prot	NA	NA	custom	Prot	pm+ov
Protected Phases	5	2	3	6	4	5
Permitted Phases						4
Actuated Green, G (s)	38.6	92.5	50.4	65.0	43.5	82.1
Effective Green, g (s)	38.6	92.5	50.4	65.0	43.5	82.1
Actuated g/C Ratio	0.27	0.64	0.35	0.45	0.30	0.57
Clearance Time (s)	5.0	4.5			4.5	5.0
Vehicle Extension (s)	2.0	3.0			3.0	2.0
Lane Grp Cap (vph)	913	4087	2227	1249	1497	1674
v/s Ratio Prot	c0.19	0.40	c0.27	c0.39	0.25	0.17
v/s Ratio Perm						0.21
v/c Ratio	0.73	0.63	0.79	0.87	0.84	0.63
Uniform Delay, d1	48.5	15.9	42.4	36.1	47.5	21.2
Progression Factor	0.96	0.75	1.19	1.47	1.00	1.00
Incremental Delay, d2	1.2	0.3	1.1	4.1	4.5	0.5
Delay (s)	47.6	12.3	51.7	57.0	52.0	21.7
Level of Service	D	B	D	E	D	C
Approach Delay (s)		19.5	53.7		38.2	
Approach LOS		B	D		D	

Intersection Summary

HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

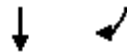
HCM Signalized Intersection Capacity Analysis HY Plus Project with Feasible Improvements
 3: Frazee Rd & Friars Rd PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		2 1	1 1 1 1	2 1		2 1	1 1 1 1	1	2 1	2 1		2 1
Traffic Volume (vph)	30	340	2629	670	10	121	1797	108	330	70	154	137
Future Volume (vph)	30	340	2629	670	10	121	1797	108	330	70	154	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.4	3.0	4.4		4.4	6.5	6.5	4.4	4.9		4.4
Lane Util. Factor		0.97	0.86	0.88		0.97	0.86	1.00	0.97	0.95		0.97
Frbp, ped/bikes		1.00	1.00	1.00		1.00	1.00	0.98	1.00	0.97		1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.90		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (prot)		3433	6408	2787		3433	6408	1546	3433	3067		3433
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (perm)		3433	6408	2787		3433	6408	1546	3433	3067		3433
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	34	382	2954	753	11	136	2019	121	371	79	173	154
RTOR Reduction (vph)	0	0	0	0	0	0	0	75	0	55	0	0
Lane Group Flow (vph)	0	416	2954	753	0	147	2019	46	371	197	0	154
Confl. Peds. (#/hr)				18				8			43	
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	custom	Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2 9	3 9	1	1	6		3	8		7
Permitted Phases							6					
Actuated Green, G (s)		20.1	69.7	65.8		6.5	55.1	55.1	20.6	42.3		7.3
Effective Green, g (s)		20.1	69.7	60.3		6.5	55.1	55.1	20.6	42.3		7.3
Actuated g/C Ratio		0.14	0.48	0.42		0.04	0.38	0.38	0.14	0.29		0.05
Clearance Time (s)		4.4				4.4	6.5	6.5	4.4	4.9		4.4
Vehicle Extension (s)		2.0				2.0	4.4	4.4	2.0	2.0		2.2
Lane Grp Cap (vph)		475	3080	1159		153	2435	587	487	894		172
v/s Ratio Prot		c0.12	c0.46	0.27		0.04	0.32		c0.11	0.06		0.04
v/s Ratio Perm							0.03					
v/c Ratio		0.88	0.96	0.65		0.96	0.83	0.08	0.76	0.22		0.90
Uniform Delay, d1		61.2	36.3	33.9		69.1	40.7	28.7	59.8	38.9		68.5
Progression Factor		1.09	0.80	1.12		1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		12.6	6.8	0.7		60.4	3.4	0.3	6.3	0.0		39.5
Delay (s)		79.2	35.9	38.8		129.6	44.1	29.0	66.1	38.9		107.9
Level of Service		E	D	D		F	D	C	E	D		F
Approach Delay (s)			40.8				48.8			55.1		
Approach LOS			D				D			E		
Intersection Summary												
HCM 2000 Control Delay			46.9				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			145.0				Sum of lost time (s)			22.2		
Intersection Capacity Utilization			94.9%				ICU Level of Service			F		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis HY Plus Project with Feasible Improvements
 3: Frazee Rd & Friars Rd PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑	↑↑
Traffic Volume (vph)	80	380
Future Volume (vph)	80	380
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.9	4.9
Lane Util. Factor	1.00	0.88
Frbp, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1863	2750
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1863	2750
Peak-hour factor, PHF	0.89	0.89
Adj. Flow (vph)	90	427
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	90	427
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		1
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	29.0	29.0
Effective Green, g (s)	29.0	29.0
Actuated g/C Ratio	0.20	0.20
Clearance Time (s)	4.9	4.9
Vehicle Extension (s)	2.3	2.3
Lane Grp Cap (vph)	372	550
v/s Ratio Prot	0.05	
v/s Ratio Perm		c0.16
v/c Ratio	0.24	0.78
Uniform Delay, d1	48.8	54.9
Progression Factor	1.00	1.00
Incremental Delay, d2	0.2	6.4
Delay (s)	49.0	61.3
Level of Service	D	E
Approach Delay (s)	70.4	
Approach LOS	E	
Intersection Summary		

HCM 6th Signalized Intersection Summary
4: Mission Center Rd & Friars Rd WB

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↘	↙	↗		↘	↙			↗	↘
Traffic Volume (veh/h)	0	0	0	239	10	295	10	230	880	0	0	1212	340
Future Volume (veh/h)	0	0	0	239	10	295	10	230	880	0	0	1212	340
Initial Q (Qb), veh				0	0	0		0	0			0	0
Ped-Bike Adj(A_pbT)				1.00		1.00		1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No				No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870		1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				256	0	179		240	917	0	0	1262	292
Peak Hour Factor				0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2		2	2	0	0	2	2
Cap, veh/h				488	0	217		303	2699	0	0	2242	966
Arrive On Green				0.27	0.00	0.27		0.18	1.00	0.00	0.00	0.63	0.63
Sat Flow, veh/h				3563	0	1585		3456	3647	0	0	3647	1530
Grp Volume(v), veh/h				256	0	179		240	917	0	0	1262	292
Grp Sat Flow(s),veh/h/ln				1781	0	1585		1728	1777	0	0	1777	1530
Q Serve(g_s), s				6.6	0.0	11.4		7.2	0.0	0.0	0.0	21.9	9.4
Cycle Q Clear(g_c), s				6.6	0.0	11.4		7.2	0.0	0.0	0.0	21.9	9.4
Prop In Lane				1.00		1.00		1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				488	0	217		303	2699	0	0	2242	966
V/C Ratio(X)				0.52	0.00	0.82		0.79	0.34	0.00	0.00	0.56	0.30
Avail Cap(c_a), veh/h				1013	0	451		579	2699	0	0	2242	966
HCM Platoon Ratio				2.00	2.00	2.00		2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00		0.55	0.55	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				36.2	0.0	38.0		43.6	0.0	0.0	0.0	11.4	9.1
Incr Delay (d2), s/veh				0.9	0.0	7.7		1.0	0.2	0.0	0.0	1.0	0.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.6	0.0	4.2		2.8	0.1	0.0	0.0	7.9	3.0
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh				37.1	0.0	45.7		44.6	0.2	0.0	0.0	12.4	9.9
LnGrp LOS				D	A	D		D	A	A	A	B	A
Approach Vol, veh/h						435				1157			1554
Approach Delay, s/veh						40.6				9.4			12.0
Approach LOS						D				A			B
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		88.3			13.9	74.5		19.7					
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9					
Max Green Setting (Gmax), s		* 67			18.1	43.6		30.7					
Max Q Clear Time (g_c+I1), s		2.0			9.2	23.9		13.4					
Green Ext Time (p_c), s		6.2			0.3	14.5		1.3					

Intersection Summary

HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Mission Center Rd & Friars Rd EB

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	10	310	0	0	0	0	730	471	562	889	0
Future Volume (veh/h)	380	10	310	0	0	0	0	730	471	562	889	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	408	0	204				0	768	412	592	936	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	570	0	254				0	757	404	1204	2633	0
Arrive On Green	0.16	0.00	0.16				0.00	0.34	0.34	0.70	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2298	1176	3456	3647	0
Grp Volume(v), veh/h	408	0	204				0	618	562	592	936	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1604	1728	1777	0
Q Serve(g_s), s	11.7	0.0	13.4				0.0	37.1	37.1	8.5	0.0	0.0
Cycle Q Clear(g_c), s	11.7	0.0	13.4				0.0	37.1	37.1	8.5	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.73	1.00		0.00
Lane Grp Cap(c), veh/h	570	0	254				0	610	551	1204	2633	0
V/C Ratio(X)	0.72	0.00	0.80				0.00	1.01	1.02	0.49	0.36	0.00
Avail Cap(c_a), veh/h	976	0	434				0	610	551	1204	2633	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.69	0.69	0.00
Uniform Delay (d), s/veh	43.0	0.0	43.7				0.0	35.5	35.5	12.0	0.0	0.0
Incr Delay (d2), s/veh	1.7	0.0	5.9				0.0	39.7	43.4	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	5.5				0.0	21.9	20.4	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.7	0.0	49.6				0.0	75.2	78.8	12.0	0.1	0.0
LnGrp LOS	D	A	D				A	F	F	B	A	A
Approach Vol, veh/h		612						1180			1528	
Approach Delay, s/veh		46.4						76.9			4.7	
Approach LOS		D						E			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	43.4	42.4	22.2	85.8								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	26.7	* 37	29.6	67.7								
Max Q Clear Time (g_c+110), s	11.5	39.1	15.4	2.0								
Green Ext Time (p_c), s	1.0	0.0	1.9	9.7								

Intersection Summary

HCM 6th Ctrl Delay	38.1
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
6: Qualcomm Way & Friars Rd WB

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷		↶	↷			↶	↷
Traffic Volume (veh/h)	0	0	0	532	10	80	670	110	0	0	237	20
Future Volume (veh/h)	0	0	0	532	10	80	670	110	0	0	237	20
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				621	0	0	698	115	0	0	247	2
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				733	385	0	1168	2378	0	0	959	416
Arrive On Green				0.21	0.00	0.00	0.34	0.67	0.00	0.00	0.27	0.27
Sat Flow, veh/h				3563	1870	0	3456	3647	0	0	3647	1541
Grp Volume(v), veh/h				621	0	0	698	115	0	0	247	2
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1728	1777	0	0	1777	1541
Q Serve(g_s), s				13.4	0.0	0.0	13.4	0.9	0.0	0.0	4.4	0.1
Cycle Q Clear(g_c), s				13.4	0.0	0.0	13.4	0.9	0.0	0.0	4.4	0.1
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				733	385	0	1168	2378	0	0	959	416
V/C Ratio(X)				0.85	0.00	0.00	0.60	0.05	0.00	0.00	0.26	0.00
Avail Cap(c_a), veh/h				1251	657	0	1168	2378	0	0	959	416
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.97	0.97	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				30.6	0.0	0.0	22.0	4.5	0.0	0.0	22.9	21.3
Incr Delay (d2), s/veh				1.1	0.0	0.0	0.9	0.0	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.5	0.0	0.0	5.2	0.3	0.0	0.0	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				31.6	0.0	0.0	22.8	4.6	0.0	0.0	23.1	21.4
LnGrp LOS				C	A	A	C	A	A	A	C	C
Approach Vol, veh/h					621			813			249	
Approach Delay, s/veh					31.6			20.3			23.0	
Approach LOS					C			C			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		58.6			32.1	26.5		21.4				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+11), s		2.9			15.4	6.4		15.4				
Green Ext Time (p_c), s		0.8			1.7	1.0		1.1				

Intersection Summary

HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
7: Qualcomm Way & Friars Rd EB

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	10	410	0	0	0	0	680	470	123	787	0
Future Volume (veh/h)	70	10	410	0	0	0	0	680	470	123	787	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	86	0	387				0	756	185	137	874	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	962	0	428				0	3147	774	210	2150	0
Arrive On Green	0.27	0.00	0.27				0.00	0.49	0.49	0.12	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	6696	1583	3456	3647	0
Grp Volume(v), veh/h	86	0	387				0	756	185	137	874	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1609	1583	1728	1777	0
Q Serve(g_s), s	1.4	0.0	18.9				0.0	5.4	5.4	3.0	0.0	0.0
Cycle Q Clear(g_c), s	1.4	0.0	18.9				0.0	5.4	5.4	3.0	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	962	0	428				0	3147	774	210	2150	0
V/C Ratio(X)	0.09	0.00	0.90				0.00	0.24	0.24	0.65	0.41	0.00
Avail Cap(c_a), veh/h	1519	0	676				0	3147	774	436	2150	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.81	0.81	0.72	0.72	0.00
Uniform Delay (d), s/veh	21.8	0.0	28.2				0.0	11.8	11.8	34.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	7.3				0.0	0.1	0.6	0.9	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	7.4				0.0	1.8	1.9	1.2	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.9	0.0	35.5				0.0	12.0	12.4	35.2	0.4	0.0
LnGrp LOS	C	A	D				A	B	B	D	A	A
Approach Vol, veh/h		473						941			1011	
Approach Delay, s/veh		33.0						12.1			5.1	
Approach LOS		C						B			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	9.3	44.2	26.5	53.5								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.5	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	15.0	7.4	20.9	2.0								
Green Ext Time (p_c), s	0.1	5.5	0.7	4.4								

Intersection Summary

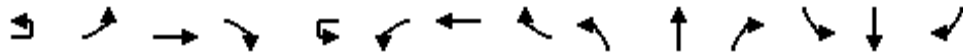
HCM 6th Ctrl Delay	13.3
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖ ↗	↖ ↗ ↘ ↙	↖		↖ ↗ ↘ ↙				↖ ↗	↖		↖ ↗	
Traffic Volume (veh/h)	20	20	2715	160	10	78	1771	28	80	10	152	225	20	90
Future Volume (veh/h)	20	20	2715	160	10	78	1771	28	80	10	152	225	20	90
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	1.00		0.97	0.98		0.97
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		21	2799	140		80	1826	28	82	10	87	232	21	85
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h		27	2898	897		207	3522	54	367	42	425	246	19	76
Arrive On Green		0.02	0.57	0.57		0.23	1.00	1.00	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h		1781	5106	1581		1781	5179	79	1178	154	1542	754	68	276
Grp Volume(v), veh/h		21	2799	140		80	1200	654	92	0	87	338	0	0
Grp Sat Flow(s),veh/h/ln		1781	1702	1581		1781	1702	1854	1332	0	1542	1098	0	0
Q Serve(g_s), s		1.9	84.0	6.7		6.1	0.0	0.0	0.0	0.0	6.9	35.6	0.0	0.0
Cycle Q Clear(g_c), s		1.9	84.0	6.7		6.1	0.0	0.0	8.5	0.0	6.9	44.1	0.0	0.0
Prop In Lane		1.00		1.00		1.00		0.04	0.89		1.00	0.69		0.25
Lane Grp Cap(c), veh/h		27	2898	897		207	2315	1261	410	0	425	341	0	0
V/C Ratio(X)		0.78	0.97	0.16		0.39	0.52	0.52	0.22	0.00	0.20	0.99	0.00	0.00
Avail Cap(c_a), veh/h		104	2898	897		207	2315	1261	410	0	425	341	0	0
HCM Platoon Ratio		1.00	1.00	1.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		0.80	0.80	0.80	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh		78.5	33.1	16.4		56.5	0.0	0.0	45.0	0.0	44.5	64.1	0.0	0.0
Incr Delay (d2), s/veh		16.1	10.5	0.4		0.3	0.7	1.2	0.2	0.0	0.2	46.5	0.0	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.0	35.2	2.5		2.6	0.2	0.4	2.9	0.0	2.7	18.5	0.0	0.0
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		94.6	43.6	16.8		56.9	0.7	1.2	45.2	0.0	44.7	110.6	0.0	0.0
LnGrp LOS		F	D	B		E	A	A	D	A	D	F	A	A
Approach Vol, veh/h			2960			1934			179		338			
Approach Delay, s/veh			42.7			3.2			45.0		110.6			
Approach LOS			D			A			D		F			
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	24.9	97.0	49.0	6.8	115.0	49.0								
Change Period (Y+Rc), s	6.2	* 6.2	4.9	4.4	6.2	4.9								
Max Green Setting (Gmax), s	91	* 91	44.1	9.3	91.1	44.1								
Max Q Clear Time (g_c+1), s	19.1	86.0	46.1	3.9	2.0	10.5								
Green Ext Time (p_c), s	0.0	4.8	0.0	0.0	74.7	0.7								

Intersection Summary

HCM 6th Ctrl Delay	32.9
HCM 6th LOS	C

Notes

- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
9: Fenton Pkwy & Friars Rd

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↔		↔↔	↑↑↑	↔	↔↔	↑	↔	↔↔	↔	↔
Traffic Volume (veh/h)	150	2750	372	10	250	1476	80	320	56	420	40	22	70
Future Volume (veh/h)	150	2750	372	10	250	1476	80	320	56	420	40	22	70
Initial Q (Qb), veh	15	25	15		0	0	0	0	0	15	15	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	2835	319		258	1522	45	330	58	354	41	23	9
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	488	2419	1021		207	2326	753	854	511	385	98	90	268
Arrive On Green	0.41	0.95	0.95		0.38	0.91	0.91	0.16	0.19	0.19	0.02	0.05	0.05
Sat Flow, veh/h	3456	5106	1585		3456	5106	1564	3456	1870	1580	3563	1870	1555
Grp Volume(v), veh/h	155	2835	319		258	1522	45	330	58	354	41	23	9
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1564	1728	1870	1580	1781	1870	1555
Q Serve(g_s), s	4.6	75.8	0.0		8.8	10.5	0.2	14.2	4.1	21.4	1.8	1.9	0.0
Cycle Q Clear(g_c), s	4.6	75.8	0.0		8.8	10.5	0.2	14.2	4.1	21.4	1.8	1.9	0.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	488	2419	1021		207	2326	753	854	511	385	98	90	268
V/C Ratio(X)	0.32	1.17	0.31		1.24	0.65	0.06	0.39	0.11	0.92	0.42	0.25	0.03
Avail Cap(c_a), veh/h	715	2419	1007		650	2326	746	559	587	496	98	491	736
HCM Platoon Ratio	2.00	2.00	2.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.24	0.24	0.24		0.83	0.83	0.83	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	53.3	4.2	3.3		70.4	4.3	1.6	50.5	43.9	33.9	77.8	73.4	55.8
Incr Delay (d2), s/veh	0.0	78.6	0.2		112.7	1.2	0.1	0.0	0.0	4.3	1.1	6.7	0.2
Initial Q Delay(d3),s/veh	9.9	37.2	2.3		0.0	0.0	0.0	0.0	0.0	104.4	289.5	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	27.6	3.9		7.2	2.0	0.1	5.6	1.8	23.3	6.0	1.1	0.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	63.3	120.0	5.7		183.1	5.5	1.7	50.5	43.9	142.6	368.4	80.0	56.0
LnGrp LOS	E	F	A		F	A	A	D	D	F	F	F	E
Approach Vol, veh/h		3309				1825			742			73	
Approach Delay, s/veh		106.3				30.5			93.9			239.0	
Approach LOS		F				C			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	34.5	82.1	30.8	12.6	37.5	79.1	7.8	35.6					
Change Period (Y+Rc), s	4.4	6.3	4.9	* 4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	9.6	75.8	12.6	* 42	12.6	72.9	4.4	50.2					
Max Q Clear Time (g_c+I), s	11.8	77.8	16.2	3.9	6.6	12.5	3.8	23.4					
Green Ext Time (p_c), s	0.0	0.0	0.0	0.4	0.1	45.6	0.0	6.4					

Intersection Summary

HCM 6th Ctrl Delay	83.2
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
10: Northside Dr & Friars Rd

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↔↔↔	↔	↔↔	↔↔↔	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	10	160	2650	250	545	1486	225	210	40	811	111	30	100
Future Volume (veh/h)	10	160	2650	250	545	1486	225	210	40	811	111	30	100
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		172	2849	269	586	1598	153	226	43	791	119	32	5
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		272	2269	693	575	2658	870	831	433	626	121	48	41
Arrive On Green		0.16	0.89	0.89	0.33	1.00	1.00	0.24	0.23	0.23	0.04	0.03	0.03
Sat Flow, veh/h		3456	5106	1560	3456	5106	1565	3456	1870	1569	3456	1870	1585
Grp Volume(v), veh/h		172	2849	269	586	1598	153	226	43	791	119	32	5
Grp Sat Flow(s),veh/h/ln		1728	1702	1560	1728	1702	1565	1728	1870	1569	1728	1870	1585
Q Serve(g_s), s		7.5	71.1	2.1	26.6	0.0	0.0	8.5	2.9	37.0	5.5	2.7	0.5
Cycle Q Clear(g_c), s		7.5	71.1	2.1	26.6	0.0	0.0	8.5	2.9	37.0	5.5	2.7	0.5
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		272	2269	693	575	2658	870	831	433	626	121	48	41
V/C Ratio(X)		0.63	1.26	0.39	1.02	0.60	0.18	0.27	0.10	1.26	0.98	0.67	0.12
Avail Cap(c_a), veh/h		307	2269	693	575	2658	870	831	433	626	121	300	255
HCM Platoon Ratio		2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.09	0.09	0.09	0.83	0.83	0.83	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		65.2	8.9	1.1	53.4	0.0	0.0	49.4	48.4	48.3	77.2	77.3	76.2
Incr Delay (d2), s/veh		0.2	115.4	0.1	39.3	0.8	0.4	0.1	0.0	130.9	76.4	54.7	6.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.1	27.8	1.2	12.8	0.2	0.1	3.8	1.4	47.8	3.8	2.1	0.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		65.4	124.3	1.2	92.7	0.8	0.4	49.4	48.4	179.1	153.6	132.0	82.3
LnGrp LOS		E	F	A	F	A	A	D	D	F	F	F	F
Approach Vol, veh/h			3290			2337			1060			156	
Approach Delay, s/veh			111.1			23.9			146.2			146.9	
Approach LOS			F			C			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	31.0	77.1	42.9	9.0	18.6	89.5	10.0	41.9					
Change Period (Y+Rc), s	4.4	6.0	4.4	4.9	6.0	* 6.2	4.4	4.9					
Max Green Setting (Gmax), s	26.6	71.1	16.9	25.7	14.2	* 83	5.6	37.0					
Max Q Clear Time (g_c+20.6), s	20.6	73.1	10.5	4.7	9.5	2.0	7.5	39.0					
Green Ext Time (p_c), s	0.0	0.0	0.2	0.4	0.1	52.7	0.0	0.0					

Intersection Summary

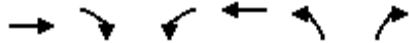
HCM 6th Ctrl Delay	87.6
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 11: Street A & Friars Rd

HY Plus Project with Feasible Improvements
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖↗	↑↑↑	↖↗	↗↖
Traffic Volume (veh/h)	3348	194	193	1999	266	614
Future Volume (veh/h)	3348	194	193	1999	266	614
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3524	163	203	2104	280	646
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	3810	1156	251	4340	302	447
Arrive On Green	1.00	1.00	0.07	0.85	0.09	0.09
Sat Flow, veh/h	5274	1550	3456	5274	3456	2790
Grp Volume(v), veh/h	3524	163	203	2104	280	646
Grp Sat Flow(s),veh/h/ln	1702	1550	1728	1702	1728	1395
Q Serve(g_s), s	0.0	0.0	9.3	16.8	12.9	14.0
Cycle Q Clear(g_c), s	0.0	0.0	9.3	16.8	12.9	14.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3810	1156	251	4340	302	447
V/C Ratio(X)	0.93	0.14	0.81	0.48	0.93	1.45
Avail Cap(c_a), veh/h	3810	1156	410	4340	302	447
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	73.1	3.1	72.5	67.2
Incr Delay (d2), s/veh	0.5	0.0	6.1	0.4	33.0	213.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	4.3	3.9	7.2	22.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.5	0.0	79.2	3.5	105.5	280.2
LnGrp LOS	A	A	E	A	F	F
Approach Vol, veh/h	3687			2307	926	
Approach Delay, s/veh	0.5			10.1	227.4	
Approach LOS	A			B	F	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	66.6	124.4		141.0	19.0	
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	
Max Green Setting (Gmax), s	119.6	112.0		136.0	14.0	
Max Q Clear Time (g_c+I1), s	11.3	2.0		18.8	16.0	
Green Ext Time (p_c), s	0.4	98.6		33.5	0.0	
Intersection Summary						
HCM 6th Ctrl Delay			34.1			
HCM 6th LOS			C			

HCM 6th Signalized Intersection Summary
 12: Mission Village Dr & Friars Rd WB

HY Plus Project with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↶	↶↷	↶↷			↶↷	↶
Traffic Volume (veh/h)	0	0	0	616	0	364	420	731	0	0	1511	563
Future Volume (veh/h)	0	0	0	616	0	364	420	731	0	0	1511	563
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				642	0	201	438	761	0	0	1574	483
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				702	0	311	647	2595	0	0	1751	769
Arrive On Green				0.39	0.00	0.39	0.37	1.00	0.00	0.00	0.49	0.49
Sat Flow, veh/h				3563	0	1578	3456	3647	0	0	3647	1561
Grp Volume(v), veh/h				642	0	201	438	761	0	0	1574	483
Grp Sat Flow(s),veh/h/ln				1781	0	1578	1728	1777	0	0	1777	1561
Q Serve(g_s), s				23.9	0.0	14.5	14.9	0.0	0.0	0.0	56.5	31.8
Cycle Q Clear(g_c), s				23.9	0.0	14.5	14.9	0.0	0.0	0.0	56.5	31.8
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				702	0	311	647	2595	0	0	1751	769
V/C Ratio(X)				0.92	0.00	0.65	0.68	0.29	0.00	0.00	0.90	0.63
Avail Cap(c_a), veh/h				893	0	396	647	2595	0	0	1751	769
HCM Platoon Ratio				2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.93	0.93	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				41.3	0.0	38.5	40.2	0.0	0.0	0.0	32.3	26.1
Incr Delay (d2), s/veh				10.5	0.0	1.0	2.2	0.3	0.0	0.0	7.8	3.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				9.3	0.0	4.7	5.4	0.1	0.0	0.0	24.7	12.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				51.8	0.0	39.5	42.4	0.3	0.0	0.0	40.1	29.9
LnGrp LOS				D	A	D	D	A	A	A	D	C
Approach Vol, veh/h					843			1199			2057	
Approach Delay, s/veh					48.9			15.6			37.7	
Approach LOS					D			B			D	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		107.5			31.5	76.0		32.5				
Change Period (Y+Rc), s		5.3			5.3	7.0		4.9				
Max Green Setting (Gmax), s		94.7			18.7	69.0		35.1				
Max Q Clear Time (g_c+I1), s		2.0			16.9	58.5		25.9				
Green Ext Time (p_c), s		3.3			0.2	8.9		1.3				

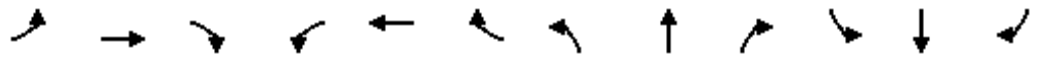
Intersection Summary

HCM 6th Ctrl Delay	33.6
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM Signalized Intersection Capacity Analysis HY Plus Project with Feasible Improvements
 13: Mission Village Dr/Street D & Friars Rd EB PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗↘					↑↑↑	↗↘	↗↘	↑↑	
Traffic Volume (vph)	339	10	642	0	0	0	0	834	1040	518	1619	0
Future Volume (vph)	339	10	642	0	0	0	0	834	1040	518	1619	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.2	5.2					4.9	4.9	6.2	6.2	
Lane Util. Factor		1.00	0.88					0.91	0.88	0.97	0.95	
Frbp, ped/bikes		1.00	0.99					1.00	0.96	1.00	1.00	
Flpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1777	2748					5085	2680	3433	3539	
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1777	2748					5085	2680	3433	3539	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	357	11	676	0	0	0	0	878	1095	545	1704	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	368	676	0	0	0	0	878	1095	545	1704	0
Confl. Peds. (#/hr)			1						4			4
Confl. Bikes (#/hr)			1									
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		37.6	37.6					62.4	62.4	23.7	91.0	
Effective Green, g (s)		37.6	37.6					62.4	62.4	23.7	91.0	
Actuated g/C Ratio		0.27	0.27					0.45	0.45	0.17	0.65	
Clearance Time (s)		5.2	5.2					4.9	4.9	6.2	6.2	
Vehicle Extension (s)		3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		477	738					2266	1194	581	2300	
v/s Ratio Prot		0.21						0.17		c0.16	0.48	
v/s Ratio Perm			c0.25						c0.41			
v/c Ratio		0.77	0.92					0.39	0.92	0.94	0.74	
Uniform Delay, d1		47.2	49.7					26.0	36.4	57.4	16.5	
Progression Factor		1.00	1.00					0.59	0.46	1.16	0.27	
Incremental Delay, d2		7.6	16.0					0.2	6.4	15.1	1.2	
Delay (s)		54.8	65.7					15.5	23.3	81.9	5.7	
Level of Service		D	E					B	C	F	A	
Approach Delay (s)		61.8			0.0			19.8			24.1	
Approach LOS		E			A			B			C	
Intersection Summary												
HCM 2000 Control Delay			30.0		HCM 2000 Level of Service					C		
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			140.0		Sum of lost time (s)				16.3			
Intersection Capacity Utilization			86.2%		ICU Level of Service				E			
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
14: Street D & Street 4

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	4	4	76	8	259	8	1579	193	1111	1084	66
Future Volume (veh/h)	44	4	4	76	8	259	8	1579	193	1111	1084	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.95	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	4	0	80	8	273	8	1662	192	1169	1141	47
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	156	0	64	160	1250	14	1719	198	1269	2596	1125
Arrive On Green	0.03	0.08	0.00	0.04	0.09	0.09	0.01	0.37	0.37	0.61	1.00	1.00
Sat Flow, veh/h	1781	1870	0	1781	1870	2640	1781	4631	533	3456	3554	1540
Grp Volume(v), veh/h	46	4	0	80	8	273	8	1220	634	1169	1141	47
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1781	1870	1320	1781	1702	1760	1728	1777	1540
Q Serve(g_s), s	3.6	0.3	0.0	5.0	0.5	8.8	0.6	49.2	49.5	42.1	0.0	0.0
Cycle Q Clear(g_c), s	3.6	0.3	0.0	5.0	0.5	8.8	0.6	49.2	49.5	42.1	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	59	156	0	64	160	1250	14	1263	653	1269	2596	1125
V/C Ratio(X)	0.77	0.03	0.00	1.26	0.05	0.22	0.59	0.97	0.97	0.92	0.44	0.04
Avail Cap(c_a), veh/h	115	468	0	64	414	1609	89	1264	654	1269	2596	1125
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.51	0.51	0.51
Uniform Delay (d), s/veh	67.1	59.0	0.0	67.5	58.8	23.4	69.2	43.2	43.3	25.3	0.0	0.0
Incr Delay (d2), s/veh	18.9	0.1	0.0	197.1	0.1	0.1	34.4	17.7	27.8	6.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.1	0.0	5.8	0.3	2.8	0.4	23.6	26.4	14.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.1	59.0	0.0	264.6	58.9	23.5	103.6	60.9	71.0	31.6	0.1	0.0
LnGrp LOS	F	E	A	F	E	C	F	E	E	C	A	A
Approach Vol, veh/h		50			361			1862			2357	
Approach Delay, s/veh		83.9			77.7			64.5			15.7	
Approach LOS		F			E			E			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	56.4	57.0	10.0	16.6	6.1	107.3	9.7	17.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	28.0	52.0	5.0	35.0	7.0	73.0	9.0	31.0				
Max Q Clear Time (g_c+Rc), s	44.1	51.5	7.0	2.3	2.6	2.0	5.6	10.8				
Green Ext Time (p_c), s	0.0	0.4	0.0	0.0	0.0	12.2	0.0	1.1				

Intersection Summary

HCM 6th Ctrl Delay	40.9
HCM 6th LOS	D

HCM Signalized Intersection Capacity Analysis HY Plus Project with Feasible Improvements
 15: Street F & Street 4

PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	1222	21	4	5	8	21	8	222	4	82	356	307	
Future Volume (vph)	1222	21	4	5	8	21	8	222	4	82	356	307	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	2.1	4.5	
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.88	
Frbp, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00		1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00	
Frt	1.00	0.98		1.00	0.89		1.00	1.00		1.00	1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	3433	1807		1770	1622		1770	1856		1770	1863	2787	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	3433	1807		1770	1622		1770	1856		1770	1863	2787	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	1328	23	4	5	9	23	9	241	4	89	387	334	
RTOR Reduction (vph)	0	2	0	0	20	0	0	1	0	0	0	0	
Lane Group Flow (vph)	1328	25	0	5	12	0	9	244	0	89	387	334	
Confl. Peds. (#/hr)			10			10			10				
Confl. Bikes (#/hr)			3			3			3			3	
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	custom	
Protected Phases	7	4		3	8		5	2		1	6 9	7 9	
Permitted Phases													
Actuated Green, G (s)	69.6	84.1		1.0	15.5		1.0	26.6		10.3	35.9	82.4	
Effective Green, g (s)	69.6	84.1		1.0	15.5		1.0	26.6		10.3	35.9	82.4	
Actuated g/C Ratio	0.50	0.60		0.01	0.11		0.01	0.19		0.07	0.26	0.59	
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5			
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0			
Lane Grp Cap (vph)	1706	1085		12	179		12	352		130	477	1640	
v/s Ratio Prot	c0.39	0.01		0.00	c0.01		0.01	0.13		c0.05	c0.21	0.12	
v/s Ratio Perm													
v/c Ratio	0.78	0.02		0.42	0.06		0.75	0.69		0.68	0.81	0.20	
Uniform Delay, d1	28.9	11.3		69.2	55.8		69.4	52.9		63.3	48.9	13.5	
Progression Factor	0.83	0.24		1.00	1.00		1.00	1.00		1.00	1.00	1.00	
Incremental Delay, d2	1.5	0.0		21.8	0.2		128.3	5.8		13.9	9.6	0.1	
Delay (s)	25.4	2.8		91.0	55.9		197.6	58.7		77.2	58.5	13.5	
Level of Service	C	A		F	E		F	E		E	E	B	
Approach Delay (s)		25.0			60.6			63.6			42.0		
Approach LOS		C			E			E			D		
Intersection Summary													
HCM 2000 Control Delay			35.1									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.72										
Actuated Cycle Length (s)			140.0									Sum of lost time (s)	20.1
Intersection Capacity Utilization			75.3%									ICU Level of Service	D
Analysis Period (min)			15										

c Critical Lane Group

Intersection					
Intersection Delay, s/veh 9.3					
Intersection LOS A					
Approach	EB		WB		NB
Entry Lanes	2		2		1
Conflicting Circle Lanes	2		2		2
Adj Approach Flow, veh/h	1593		759		149
Demand Flow Rate, veh/h	1625		774		152
Vehicles Circulating, veh/h	52		104		1525
Vehicles Exiting, veh/h	826		1573		152
Ped Vol Crossing Leg, #/h	0		0		0
Ped Cap Adj	1.000		1.000		1.000
Approach Delay, s/veh	10.2		5.7		17.4
Approach LOS	B		A		C
Lane	Left	Right	Left	Right	Left
Designated Moves	LT	TR	LT	TR	LR
Assumed Moves	LT	TR	LT	TR	LR
RT Channelized					
Lane Util	0.470	0.530	0.470	0.530	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328
Entry Flow, veh/h	764	861	364	410	152
Cap Entry Lane, veh/h	1287	1359	1227	1300	388
Entry HV Adj Factor	0.980	0.981	0.980	0.981	0.980
Flow Entry, veh/h	749	844	357	402	149
Cap Entry, veh/h	1261	1332	1202	1275	381
V/C Ratio	0.594	0.634	0.297	0.315	0.391
Control Delay, s/veh	9.9	10.4	5.7	5.7	17.4
LOS	A	B	A	A	C
95th %tile Queue, veh	4	5	1	1	2

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

HY Plus Project with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗ ↘	↑ ↑ ↑	↖		↖ ↗ ↘	↖ ↗ ↘	↖				↖ ↗ ↘	↖ ↗ ↘	↖ ↗ ↘
Traffic Volume (veh/h)	539	2666	1171	10	309	1680	390	0	0	0	1185	0	639
Future Volume (veh/h)	539	2666	1171	10	309	1680	390	0	0	0	1185	0	639
Initial Q (Qb), veh	20	0	20		20	0	20				0	0	20
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	561	2777	922		322	1750	0				1234	0	662
Peak Hour Factor	0.96	0.96	0.96		0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	784	3632	844		393	1246					1153	0	2338
Arrive On Green	0.40	0.47	0.47		0.19	0.24	0.00				0.32	0.00	0.32
Sat Flow, veh/h	1781	5106	1552		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	561	2777	922		322	1750	0				1234	0	662
Grp Sat Flow(s),veh/h/ln	1781	1702	1552		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	37.4	64.3	64.3		24.2	33.2	0.0				44.0	0.0	0.0
Cycle Q Clear(g_c), s	37.4	64.3	64.3		24.2	33.2	0.0				44.0	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	784	3632	844		393	1246					1153	0	2338
V/C Ratio(X)	0.72	0.76	1.09		0.82	1.40					1.07	0.00	0.28
Avail Cap(c_a), veh/h	716	2414	734		393	1246					1153	0	2300
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.48	0.48	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	33.3	17.0	31.0		53.0	51.4	0.0				46.0	0.0	6.4
Incr Delay (d2), s/veh	3.4	1.6	59.1		6.2	184.2	0.0				47.6	0.0	0.0
Initial Q Delay(d3),s/veh	16.5	0.0	85.3		102.0	0.0	0.0				0.0	0.0	0.7
%ile BackOfQ(50%),veh	20.1	11.9	52.9		24.9	35.0	0.0				27.1	0.0	13.9
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	53.3	18.5	175.3		161.2	235.6	0.0				93.6	0.0	7.1
LnGrp LOS	D	B	F		F	F					F	A	A
Approach Vol, veh/h		4260				2072	A					1896	
Approach Delay, s/veh		57.1				224.0						63.4	
Approach LOS		E				F						E	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	30.6	71.3		49.1	61.7	40.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	30	45.7		44.0	42.0	* 33							
Max Q Clear Time (g_c+20.2), s	20.2	66.3		46.0	39.4	35.2							
Green Ext Time (p_c), s	0.2	0.0		0.0	0.3	0.0							

Intersection Summary

HCM 6th Ctrl Delay	100.6
HCM 6th LOS	F

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

HY Plus Project with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖			↑↑↑		↗						
Traffic Volume (veh/h)	1055	2856	0	0	1278	961	0	0	1429	0	0	1071
Future Volume (veh/h)	1055	2856	0	0	1278	961	0	0	1429	0	0	1071
Initial Q (Qb), veh	40	0	0	0	20	40						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach	No			No								
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	1111	3006	0	0	1319	1029						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	660	0	0	0	1671	1453						
Arrive On Green	0.44	0.93	0.00	0.00	0.44	0.44						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	1111	0	0	0	1319	1029						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	45.0	0.0	0.0	0.0	31.3	27.6						
Cycle Q Clear(g_c), s	45.0	0.0	0.0	0.0	31.3	27.6						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	660	0	0	0	1671	1453						
V/C Ratio(X)	1.68	0.00	0.00	0.00	0.79	0.71						
Avail Cap(c_a), veh/h	787	0	0	0	2350	1992						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	1.00	1.00						
Uniform Delay (d), s/veh	38.3	0.0	0.0	0.0	25.5	25.2						
Incr Delay (d2), s/veh	314.4	0.0	0.0	0.0	0.8	0.3						
Initial Q Delay(d3),s/veh	218.3	0.0	0.0	0.0	4.9	18.7						
%ile BackOfQ(50%),veh/ln	116.1	0.0	0.0	0.0	15.6	16.4						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	570.9	0.0	0.0	0.0	31.2	44.3						
LnGrp LOS	F	A	A	A	C	D						
Approach Vol, veh/h	1111				2348							
Approach Delay, s/veh	570.9				36.9							
Approach LOS	F				D							
Timer - Assigned Phs	2				5		6					
Phs Duration (G+Y+Rc), s	101.9				50.5		51.4					
Change Period (Y+Rc), s	* 7				5.5		7.0					
Max Green Setting (Gmax), s	* 18				45.0		64.0					
Max Q Clear Time (g_c+I1), s	0.0				47.0		33.3					
Green Ext Time (p_c), s	0.0				0.0		11.0					

Intersection Summary

HCM 6th Ctrl Delay	208.4
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

HY Plus Project with Feasible Improvements
 PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↵	↑↑↑	↵↵	↑
Traffic Volume (veh/h)	3418	878	10	131	1746	483	263
Future Volume (veh/h)	3418	878	10	131	1746	483	263
Initial Q (Qb), veh	0	0		0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	3560	859		136	1819	503	123
Peak Hour Factor	0.96	0.96		0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	2857	1260		160	4870	603	300
Arrive On Green	0.64	0.64		0.09	0.76	0.16	0.16
Sat Flow, veh/h	5274	1583		1781	6696	3563	1585
Grp Volume(v), veh/h	3560	859		136	1819	503	123
Grp Sat Flow(s),veh/h/ln	1702	1583		1781	1609	1781	1585
Q Serve(g_s), s	86.5	32.9		10.2	13.0	18.8	9.6
Cycle Q Clear(g_c), s	86.5	32.9		10.2	13.0	18.8	9.6
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2857	1260		160	4870	603	300
V/C Ratio(X)	1.25	0.68		0.85	0.37	0.83	0.41
Avail Cap(c_a), veh/h	3247	1260		208	4878	843	375
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.88	0.88	0.48	0.48
Uniform Delay (d), s/veh	30.0	6.2		61.0	5.8	55.4	48.6
Incr Delay (d2), s/veh	113.9	3.0		16.4	0.2	1.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	12.0	0.0
%ile BackOfQ(50%),veh	58.4	22.3		5.3	4.0	10.2	3.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	143.8	9.2		77.4	6.0	69.1	48.7
LnGrp LOS	F	A		E	A	E	D
Approach Vol, veh/h	4419				1955	626	
Approach Delay, s/veh	117.7				11.0	65.1	
Approach LOS	F				B	E	
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	66.6	92.5			109.1	26.9	
Change Period (Y+Rc), s	4.4	* 6			6.0	5.1	
Max Green Setting (Gmax), s	15.9	* 73			92.7	32.2	
Max Q Clear Time (g_c+112), s	112.2	88.5			15.0	20.8	
Green Ext Time (p_c), s	0.1	0.0			48.5	1.0	

Intersection Summary

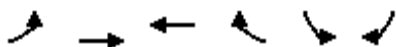
HCM 6th Ctrl Delay	83.2
HCM 6th LOS	F

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: Friars Rd & Santo Rd

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑↑		↔↔	↔
Traffic Volume (veh/h)	453	3308	1536	110	90	291
Future Volume (veh/h)	453	3308	1536	110	90	291
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1856	1870	1870
Adj Flow Rate, veh/h	472	3446	1600	109	94	297
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	3	3	2	2
Cap, veh/h	537	3752	3338	227	602	523
Arrive On Green	0.16	0.73	0.54	0.54	0.17	0.17
Sat Flow, veh/h	3456	5274	6409	419	3456	1585
Grp Volume(v), veh/h	472	3446	1246	463	94	297
Grp Sat Flow(s),veh/h/ln	1728	1702	1596	1780	1728	1585
Q Serve(g_s), s	16.0	66.0	19.3	19.3	2.8	18.5
Cycle Q Clear(g_c), s	16.0	66.0	19.3	19.3	2.8	18.5
Prop In Lane	1.00			0.24	1.00	1.00
Lane Grp Cap(c), veh/h	537	3752	2599	966	602	523
V/C Ratio(X)	0.88	0.92	0.48	0.48	0.16	0.57
Avail Cap(c_a), veh/h	737	3752	2599	966	734	583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.72	0.72	1.00	1.00
Uniform Delay (d), s/veh	49.6	13.0	16.9	17.0	42.0	33.2
Incr Delay (d2), s/veh	0.7	0.5	0.5	1.2	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	18.9	6.7	7.7	1.2	16.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.3	13.5	17.4	18.2	42.1	33.6
LnGrp LOS	D	B	B	B	D	C
Approach Vol, veh/h		3918	1709		391	
Approach Delay, s/veh		17.9	17.6		35.7	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		94.7		25.3	23.0	71.6
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		83.6		25.5	25.6	* 54
Max Q Clear Time (g_c+I1), s		68.0		20.5	18.0	21.3
Green Ext Time (p_c), s		15.3		0.4	0.6	16.6

Intersection Summary

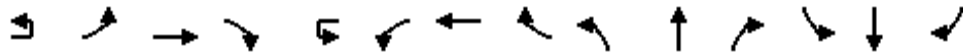
HCM 6th Ctrl Delay	19.0
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
21: Riverdale St & Friars Rd

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		☞ ↑↑↑	☞ ↑↑↑	☞ ↑		☞ ↑↑↑	☞ ↑↑↑	☞ ↑	☞ ↑	☞ ↑		☞ ↑	☞ ↑	
Traffic Volume (veh/h)	30	234	2909	244	10	50	1211	60	223	110	140	60	60	143
Future Volume (veh/h)	30	234	2909	244	10	50	1211	60	223	110	140	60	60	143
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	0.99		0.99	1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1856		1737	1856	1870	1870	1870	1870	1811	1870	1870
Adj Flow Rate, veh/h		241	2999	159		52	1248	25	230	113	92	62	62	51
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	3		11	3	2	2	2	2	6	2	2
Cap, veh/h		272	2832	870		65	2236	700	335	248	202	252	247	203
Arrive On Green		0.15	0.55	0.55		0.04	0.44	0.44	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h		1781	5106	1568		1654	5066	1585	1273	951	774	1135	946	778
Grp Volume(v), veh/h		241	2999	159		52	1248	25	230	0	205	62	0	113
Grp Sat Flow(s),veh/h/ln		1781	1702	1568		1654	1689	1585	1273	0	1725	1135	0	1724
Q Serve(g_s), s		13.9	58.2	5.3		3.3	19.2	0.9	18.3	0.0	10.5	5.1	0.0	5.4
Cycle Q Clear(g_c), s		13.9	58.2	5.3		3.3	19.2	0.9	23.7	0.0	10.5	15.5	0.0	5.4
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.45	1.00		0.45
Lane Grp Cap(c), veh/h		272	2832	870		65	2236	700	335	0	451	252	0	450
V/C Ratio(X)		0.89	1.06	0.18		0.80	0.56	0.04	0.69	0.00	0.45	0.25	0.00	0.25
Avail Cap(c_a), veh/h		324	2832	870		206	2236	700	455	0	613	359	0	612
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.51	0.51	0.51		0.92	0.92	0.92	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		43.6	23.4	11.6		50.0	21.7	16.6	40.0	0.0	32.5	39.0	0.0	30.7
Incr Delay (d2), s/veh		11.4	31.5	0.2		7.5	0.9	0.1	1.1	0.0	0.3	0.2	0.0	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		6.8	28.2	1.7		1.4	7.2	0.3	5.8	0.0	4.4	1.4	0.0	2.3
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		55.0	54.9	11.8		57.5	22.7	16.7	41.1	0.0	32.8	39.2	0.0	30.8
LnGrp LOS		E	F	B		E	C	B	D	A	C	D	A	C
Approach Vol, veh/h			3399				1325			435			175	
Approach Delay, s/veh			52.9				23.9			37.2			33.8	
Approach LOS			D				C			D			C	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	8.5	64.1		32.3	20.4	52.2		32.3						
Change Period (Y+Rc), s	4.4	* 5.9		4.9	4.4	5.9		4.9						
Max Green Setting (Gmax), s	13.5	* 40		37.3	19.1	33.4		37.3						
Max Q Clear Time (g_c+1/3), s	15.3	60.2		17.5	15.9	21.2		25.7						
Green Ext Time (p_c), s	0.0	0.0		0.5	0.1	6.3		1.0						

Intersection Summary

HCM 6th Ctrl Delay	43.8
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
22: Mission Gorge Rd & Friars Rd

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↔	↑↑↑		↔	↔
Traffic Volume (veh/h)	2611	288	280	1021	10	360	600
Future Volume (veh/h)	2611	288	280	1021	10	360	600
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	2778	0	298	1086		383	637
Peak Hour Factor	0.94	0.94	0.94	0.94		0.94	0.94
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2621		463	0		412	1018
Arrive On Green	0.51	0.00	0.13	0.00		0.23	0.23
Sat Flow, veh/h	5443	0	3456	298		1781	2790
Grp Volume(v), veh/h	2778	0	298	51.6		383	637
Grp Sat Flow(s),veh/h/ln	1702	0	1728	D		1781	1395
Q Serve(g_s), s	61.6	0.0	9.8			25.3	6.5
Cycle Q Clear(g_c), s	61.6	0.0	9.8			25.3	6.5
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2621		463			412	1018
V/C Ratio(X)	1.06		0.64			0.93	0.63
Avail Cap(c_a), veh/h	2621		463			425	1039
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.09	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	29.2	0.0	49.3			45.2	31.4
Incr Delay (d2), s/veh	28.0	0.0	2.4			26.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh	29.5	0.0	4.3			14.1	7.6
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	57.2	0.0	51.6			71.3	32.2
LnGrp LOS	F		D			E	C
Approach Vol, veh/h	2778	A				1020	
Approach Delay, s/veh	57.2					46.9	
Approach LOS	E					D	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	30.5	67.4					32.1
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	61.6					28.6
Max Q Clear Time (g_c+I1), s	11.8	63.6					27.3
Green Ext Time (p_c), s	0.2	0.0					0.5

Intersection Summary

HCM 6th Ctrl Delay	54.2
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
23: Qualcomm Way & Rio San Diego Dr

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗		↖↗	↑↑	↗	↖↗	↑↑↑	↗		↖↗	↑↑↑	
Traffic Volume (veh/h)	316	205	310	20	803	361	340	60	354	151	10	70	907	340
Future Volume (veh/h)	316	205	310	20	803	361	340	60	354	151	10	70	907	340
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		0.99	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	333	216	299		845	380	147	63	373	18		74	955	327
Peak Hour Factor	0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2		2	2	2
Cap, veh/h	396	401	383		820	1199	532	107	1846	571		121	1368	467
Arrive On Green	0.11	0.21	0.21		0.24	0.34	0.34	0.03	0.36	0.36		0.03	0.37	0.37
Sat Flow, veh/h	3456	1870	1556		3456	3554	1577	3456	5106	1580		3456	3741	1279
Grp Volume(v), veh/h	333	216	299		845	380	147	63	373	18		74	869	413
Grp Sat Flow(s),veh/h/ln	1728	1870	1556		1728	1777	1577	1728	1702	1580		1728	1702	1615
Q Serve(g_s), s	11.9	13.0	22.7		30.0	10.0	8.6	2.3	6.4	0.9		2.7	27.5	27.6
Cycle Q Clear(g_c), s	11.9	13.0	22.7		30.0	10.0	8.6	2.3	6.4	0.9		2.7	27.5	27.6
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.79
Lane Grp Cap(c), veh/h	396	401	383		820	1199	532	107	1846	571		121	1244	591
V/C Ratio(X)	0.84	0.54	0.78		1.03	0.32	0.28	0.59	0.20	0.03		0.61	0.70	0.70
Avail Cap(c_a), veh/h	820	591	541		820	1199	532	1639	2422	749		820	1615	766
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	54.9	44.1	44.6		48.2	31.1	30.6	60.5	27.8	26.1		60.2	34.2	34.2
Incr Delay (d2), s/veh	1.9	1.1	4.8		39.6	0.2	0.3	1.9	0.1	0.0		1.9	1.4	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	6.1	9.1		17.1	4.3	3.3	1.0	2.6	0.4		1.2	11.4	11.1
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	56.8	45.2	49.3		87.9	31.3	30.9	62.4	27.9	26.1		62.1	35.6	37.1
LnGrp LOS	E	D	D		F	C	C	E	C	C		E	D	D
Approach Vol, veh/h		848				1372			454				1356	
Approach Delay, s/veh		51.2				66.1			32.6				37.5	
Approach LOS		D				E			C				D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	8.8	50.8	34.4	32.4	8.3	51.3	18.9	48.0						
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3						
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0						
Max Q Clear Time (g_c+1/4), s	14.7	8.4	32.0	24.7	4.3	29.6	13.9	12.0						
Green Ext Time (p_c), s	0.1	4.0	0.0	2.0	0.1	16.7	0.5	2.9						

Intersection Summary

HCM 6th Ctrl Delay	49.6
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection														
Intersection Delay, s/veh	30.8													
Intersection LOS	D													

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↖	↕		↖	↕			↕				↕	
Traffic Vol, veh/h	20	170	576	20	15	504	60	20	22	20	20	130	28	110
Future Vol, veh/h	20	170	576	20	15	504	60	20	22	20	20	130	28	110
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	189	640	22	17	560	67	22	24	22	22	144	31	122
Number of Lanes	0	1	2	0	1	2	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	32.3	29.7	14.3	32.4
HCM LOS	D	D	B	D

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	32%	100%	0%	0%	100%	0%	0%	49%
Vol Thru, %	35%	0%	100%	91%	0%	100%	74%	10%
Vol Right, %	32%	0%	0%	9%	0%	0%	26%	41%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	62	190	384	212	15	336	228	288
LT Vol	20	190	0	0	15	0	0	140
Through Vol	22	0	384	192	0	336	168	30
RT Vol	20	0	0	20	0	0	60	118
Lane Flow Rate	69	211	427	236	17	373	253	320
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.182	0.475	0.898	0.491	0.039	0.817	0.541	0.748
Departure Headway (Hd)	9.502	8.093	7.575	7.506	8.399	7.88	7.689	8.41
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	380	443	478	478	425	459	466	429
Service Time	7.202	5.876	5.357	5.288	6.187	5.667	5.476	6.189
HCM Lane V/C Ratio	0.182	0.476	0.893	0.494	0.04	0.813	0.543	0.746
HCM Control Delay	14.3	18.1	47.6	17.4	11.5	37.5	19.3	32.4
HCM Lane LOS	B	C	E	C	B	E	C	D
HCM 95th-tile Q	0.7	2.5	9.9	2.7	0.1	7.7	3.2	6.1

HCM 6th Signalized Intersection Summary

HY Plus Project with Feasible Improvements

25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	10	200	280	146	20	320	270	169	166	13	30	370	133	80
Future Volume (veh/h)	10	200	280	146	20	320	270	169	166	13	30	370	133	80
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99	1.00		0.99	1.00		0.98		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No		No		No		No			No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h		206	289	61	21	330	202	174	171	10		381	137	22
Peak Hour Factor		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97		0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h		380	399	333	30	476	309	217	458	27		496	479	75
Arrive On Green		0.21	0.21	0.21	0.23	0.23	0.23	0.12	0.13	0.13		0.14	0.16	0.16
Sat Flow, veh/h		1781	1870	1565	128	2029	1318	1781	3409	198		3456	3071	483
Grp Volume(v), veh/h		206	289	61	306	0	247	174	89	92		381	78	81
Grp Sat Flow(s),veh/h/ln		1781	1870	1565	1864	0	1611	1781	1777	1830		1728	1777	1778
Q Serve(g_s), s		7.5	10.4	2.3	10.9	0.0	10.1	6.9	3.3	3.3		7.7	2.8	2.9
Cycle Q Clear(g_c), s		7.5	10.4	2.3	10.9	0.0	10.1	6.9	3.3	3.3		7.7	2.8	2.9
Prop In Lane		1.00		1.00	0.07		0.82	1.00		0.11		1.00		0.27
Lane Grp Cap(c), veh/h		380	399	333	437	0	378	217	239	246		496	277	277
V/C Ratio(X)		0.54	0.73	0.18	0.70	0.00	0.65	0.80	0.37	0.38		0.77	0.28	0.29
Avail Cap(c_a), veh/h		983	1032	863	1028	0	889	737	1470	1514		1430	1470	1471
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(l)		1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		25.4	26.6	23.4	25.4	0.0	25.1	31.0	28.6	28.6		29.9	27.0	27.1
Incr Delay (d2), s/veh		0.7	1.6	0.2	0.8	0.0	0.7	2.6	4.4	4.3		1.0	2.5	2.7
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.0	4.4	0.9	4.8	0.0	3.8	3.1	1.7	1.7		3.2	1.4	1.4
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		26.1	28.1	23.5	26.2	0.0	25.8	33.6	33.0	33.0		30.8	29.5	29.7
LnGrp LOS		C	C	C	C	A	C	C	C	C		C	C	C
Approach Vol, veh/h			556			553			355				540	
Approach Delay, s/veh			26.9			26.0			33.3				30.5	
Approach LOS			C			C			C				C	
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	14.8	15.1	20.7	13.2	16.7	21.9								
Change Period (Y+Rc), s	4.4	* 5.4	5.2	4.4	5.4	4.9								
Max Green Setting (Gmax), s	30.0	* 60	40.0	30.0	60.0	40.0								
Max Q Clear Time (g_c+1), s	19.7	5.3	12.4	8.9	4.9	12.9								
Green Ext Time (p_c), s	0.7	4.0	1.6	0.2	3.5	2.5								

Intersection Summary

HCM 6th Ctrl Delay	28.7
HCM 6th LOS	C

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 26: Rancho Mission Rd & San Diego Mission Rd

HY Plus Project with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	226	757	435	158	307	233	139	293	172	238	265	341
Future Volume (veh/h)	226	757	435	158	307	233	139	293	172	238	265	341
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	238	797	417	166	323	171	146	308	40	251	279	214
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	267	879	457	194	795	412	174	357	296	279	468	389
Arrive On Green	0.15	0.39	0.39	0.11	0.35	0.35	0.10	0.19	0.19	0.16	0.25	0.25
Sat Flow, veh/h	1781	2240	1165	1781	2260	1170	1781	1870	1547	1781	1870	1555
Grp Volume(v), veh/h	238	631	583	166	252	242	146	308	40	251	279	214
Grp Sat Flow(s),veh/h/ln	1781	1777	1628	1781	1777	1654	1781	1870	1547	1781	1870	1555
Q Serve(g_s), s	16.2	41.3	41.8	11.3	13.2	13.7	9.9	19.7	2.6	17.1	16.2	14.8
Cycle Q Clear(g_c), s	16.2	41.3	41.8	11.3	13.2	13.7	9.9	19.7	2.6	17.1	16.2	14.8
Prop In Lane	1.00		0.72	1.00		0.71	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	267	697	639	194	625	582	174	357	296	279	468	389
V/C Ratio(X)	0.89	0.91	0.91	0.85	0.40	0.42	0.84	0.86	0.14	0.90	0.60	0.55
Avail Cap(c_a), veh/h	506	721	660	506	793	738	434	759	628	434	759	631
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.4	35.3	35.4	54.0	30.2	30.3	54.7	48.3	41.4	51.0	40.7	40.2
Incr Delay (d2), s/veh	4.2	15.2	17.2	4.1	0.7	0.8	4.2	2.4	0.1	10.5	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	20.0	18.9	5.2	5.7	5.5	4.6	9.3	1.0	8.3	7.5	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.6	50.4	52.7	58.1	30.9	31.1	58.8	50.7	41.5	61.6	41.2	40.6
LnGrp LOS	E	D	D	E	C	C	E	D	D	E	D	D
Approach Vol, veh/h		1452			660			494			744	
Approach Delay, s/veh		52.2			37.8			52.4			47.9	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.4	53.9	16.0	36.0	22.4	48.9	23.3	28.6				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	* 5.5	4.0	* 5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	* 55	30.0	* 50				
Max Q Clear Time (g_c+1/3), s	11.3	43.8	11.9	18.2	18.2	15.7	19.1	21.7				
Green Ext Time (p_c), s	0.2	4.6	0.2	1.4	0.3	5.3	0.3	1.2				

Intersection Summary

HCM 6th Ctrl Delay	48.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave

HY Plus Project with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	167	570	438	70	238	30	245	90	80	30	150	131
Future Volume (veh/h)	167	570	438	70	238	30	245	90	80	30	150	131
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	186	633	328	78	264	26	272	100	66	33	167	122
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	224	725	881	101	1040	102	317	185	122	344	193	141
Arrive On Green	0.13	0.39	0.39	0.06	0.32	0.32	0.18	0.18	0.18	0.19	0.19	0.19
Sat Flow, veh/h	1781	1870	1547	1781	3270	319	1781	1040	686	1781	1002	732
Grp Volume(v), veh/h	186	633	328	78	142	148	272	0	166	33	0	289
Grp Sat Flow(s),veh/h/ln	1781	1870	1547	1781	1777	1812	1781	0	1726	1781	0	1735
Q Serve(g_s), s	9.9	30.4	11.4	4.2	5.8	5.9	14.4	0.0	8.5	1.5	0.0	15.7
Cycle Q Clear(g_c), s	9.9	30.4	11.4	4.2	5.8	5.9	14.4	0.0	8.5	1.5	0.0	15.7
Prop In Lane	1.00		1.00	1.00		0.18	1.00		0.40	1.00		0.42
Lane Grp Cap(c), veh/h	224	725	881	101	565	576	317	0	307	344	0	335
V/C Ratio(X)	0.83	0.87	0.37	0.78	0.25	0.26	0.86	0.00	0.54	0.10	0.00	0.86
Avail Cap(c_a), veh/h	475	1200	1275	178	844	861	523	0	507	578	0	563
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	41.4	27.5	11.6	45.2	24.5	24.6	38.7	0.0	36.3	32.2	0.0	37.9
Incr Delay (d2), s/veh	7.7	3.9	0.2	12.0	0.2	0.2	3.8	0.0	0.6	0.0	0.0	3.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	13.4	5.5	2.2	2.5	2.6	6.5	0.0	3.6	0.6	0.0	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.1	31.4	11.9	57.2	24.8	24.8	42.5	0.0	36.9	32.3	0.0	41.3
LnGrp LOS	D	C	B	E	C	C	D	A	D	C	A	D
Approach Vol, veh/h		1147			368			438			322	
Approach Delay, s/veh		28.7			31.6			40.4			40.4	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	40.0	42.1		23.2	16.7	35.4		21.8				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	40.0	62.3		31.5	25.9	46.1		28.5				
Max Q Clear Time (g_c+1/2), s	40.0	32.4		17.7	11.9	7.9		16.4				
Green Ext Time (p_c), s	0.0	5.2		1.0	0.4	1.8		0.9				

Intersection Summary

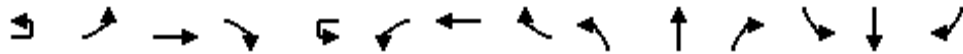
HCM 6th Ctrl Delay		33.1										
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary

HY Plus Project with Feasible Improvements

28: Qualcomm Way & Camino de la Reina/Camino del Rio N

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔	↔	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔	
Traffic Volume (veh/h)	10	138	457	320	10	485	212	142	183	636	321	303	1198	149	
Future Volume (veh/h)	10	138	457	320	10	485	212	142	183	636	321	303	1198	149	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.98	1.00		0.98	1.00		0.98	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1841	1870	1856	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		142	503	246		500	219	23	189	656	275	312	1235	146	
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %		2	2	2		2	4	2	3	2	2	2	2	2	
Cap, veh/h		159	498	310		524	683	303	225	2645	807	316	2512	297	
Arrive On Green		0.09	0.13	0.13		0.15	0.20	0.20	0.02	0.17	0.17	0.09	0.54	0.54	
Sat Flow, veh/h		1781	3741	1550		3456	3497	1549	3428	5106	1558	3456	4619	546	
Grp Volume(v), veh/h		142	503	246		500	219	23	189	656	275	312	910	471	
Grp Sat Flow(s),veh/h/ln		1781	1870	1550		1728	1749	1549	1714	1702	1558	1728	1702	1761	
Q Serve(g_s), s		15.8	26.6	26.6		28.7	10.8	2.4	11.0	22.2	31.1	18.0	33.3	33.3	
Cycle Q Clear(g_c), s		15.8	26.6	26.6		28.7	10.8	2.4	11.0	22.2	31.1	18.0	33.3	33.3	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.31	
Lane Grp Cap(c), veh/h		159	498	310		524	683	303	225	2645	807	316	1851	958	
V/C Ratio(X)		0.89	1.01	0.79		0.96	0.32	0.08	0.84	0.25	0.34	0.99	0.49	0.49	
Avail Cap(c_a), veh/h		190	498	310		524	683	303	314	2645	807	316	1851	958	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	0.83	0.83	0.83	0.09	0.09	0.09	
Uniform Delay (d), s/veh		90.2	86.7	76.3		84.2	69.1	65.7	96.8	49.2	52.8	90.7	28.4	28.4	
Incr Delay (d2), s/veh		31.1	43.1	12.7		28.1	0.1	0.0	8.3	0.2	1.0	12.2	0.1	0.2	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		8.7	16.0	13.1		14.8	4.8	1.0	5.4	10.3	13.3	8.7	13.8	14.3	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		121.3	129.8	89.1		112.2	69.2	65.8	105.1	49.4	53.8	102.9	28.5	28.6	
LnGrp LOS		F	F	F		F	E	E	F	D	D	F	C	C	
Approach Vol, veh/h		891				742				1120			1693		
Approach Delay, s/veh		117.2				98.1				59.9			42.2		
Approach LOS		F				F				E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8							
Phs Duration (G+Y+Rc), s	22.7	110.3	34.7	32.3	17.5	115.5	22.2	44.8							
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7							
Max Green Setting (Gmax), s	18.3	103.6	30.3	* 27	18.3	1.1E2	21.3	35.6							
Max Q Clear Time (g_c+Q), s	20.0	33.1	30.7	28.6	13.0	35.3	17.8	12.8							
Green Ext Time (p_c), s	0.0	5.7	0.0	0.0	0.2	34.7	0.1	0.8							

Intersection Summary

HCM 6th Ctrl Delay	71.0
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

HY Plus Project with Feasible Improvements

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔	↑↑↑			↑↑	↔
Traffic Volume (veh/h)	10	113	0	612	32	197	410	213	907	0	0	1132	771
Future Volume (veh/h)	10	113	0	612	32	197	410	213	907	0	0	1132	771
Initial Q (Qb), veh		0	0	20	0	20	20	20	20	0	0	20	20
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No			No			No		
Adj Sat Flow, veh/h/ln		1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h		120	0	395	34	210	272	227	965	0	0	1204	590
Peak Hour Factor		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h		0	0	0	22	329	317	178	3861	0	0	2245	976
Arrive On Green		0.00	0.00	0.00	0.18	0.18	0.18	0.10	0.76	0.00	0.00	1.00	1.00
Sat Flow, veh/h			0		259	1599	1582	1781	5274	0	0	3647	1551
Grp Volume(v), veh/h			0.0		244	0	272	227	965	0	0	1204	590
Grp Sat Flow(s),veh/h/ln					1857	0	1582	1781	1702	0	0	1777	1551
Q Serve(g_s), s					24.7	0.0	33.9	20.0	11.3	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s					24.7	0.0	33.9	20.0	11.3	0.0	0.0	0.0	0.0
Prop In Lane					0.14		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					361	0	317	178	3861	0	0	2245	976
V/C Ratio(X)					0.68	0.00	0.86	1.27	0.25	0.00	0.00	0.54	0.60
Avail Cap(c_a), veh/h					371	0	316	178	3864	0	0	2250	982
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)					1.00	0.00	1.00	0.63	0.63	0.00	0.00	0.72	0.72
Uniform Delay (d), s/veh					78.8	0.0	80.0	90.0	7.8	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh					3.8	0.0	19.7	148.1	0.1	0.0	0.0	0.7	2.0
Initial Q Delay(d3),s/veh					68.5	0.0	164.2	404.2	0.3	0.0	0.0	1.2	7.6
%ile BackOfQ(50%),veh/ln					23.5	0.0	32.3	36.6	5.7	0.0	0.0	0.6	2.6
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					151.0	0.0	263.8	642.3	8.2	0.0	0.0	1.9	9.6
LnGrp LOS					F	A	F	F	A	A	A	A	A
Approach Vol, veh/h						516			1192			1794	
Approach Delay, s/veh						210.5			128.9			4.4	
Approach LOS						F			F			A	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		158.3			24.7	133.6		41.7					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		107.8			* 20	83.1		40.0					
Max Q Clear Time (g_c+I1), s		13.3			22.0	2.0		35.9					
Green Ext Time (p_c), s		5.1			0.0	45.1		0.6					

Intersection Summary

HCM 6th Ctrl Delay	77.2
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

HY Plus Project with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	740	0	1361	1934	0
Future Volume (veh/h)	0	740	0	1361	1934	0
Initial Q (Qb), veh	0	10	0	0	50	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1870	0
Adj Flow Rate, veh/h	0	752	0	1389	1973	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	2	2	0
Cap, veh/h	0	0	0	2944	2944	0
Arrive On Green	0.00	0.00	0.00	0.82	0.82	0.00
Sat Flow, veh/h	0		0	3741	3741	0
Grp Volume(v), veh/h	0.0		0	1389	1973	0
Grp Sat Flow(s),veh/h/ln			0	1777	1777	0
Q Serve(g_s), s			0.0	3.5	6.9	0.0
Cycle Q Clear(g_c), s			0.0	3.5	6.9	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2944	2944	0
V/C Ratio(X)			0.00	0.47	0.67	0.00
Avail Cap(c_a), veh/h			0	5356	5356	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	0.8	1.4	0.0
Incr Delay (d2), s/veh			0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	6.3	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	2.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	0.8	7.8	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1389	1973	
Approach Delay, s/veh				0.8	7.8	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		29.9				29.9
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		45.0				45.0
Max Q Clear Time (g_c+I1), s		5.5				8.9
Green Ext Time (p_c), s		8.6				15.5
Intersection Summary						
HCM 6th Ctrl Delay			4.9			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
31: Texas St & Camino del Rio S

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↕	↕	↔	↕	↔
Traffic Volume (veh/h)	282	155	390	285	63	540	100	909	129	310	1787	197
Future Volume (veh/h)	282	155	390	285	63	540	100	909	129	310	1787	197
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	238	265	365	359	0	563	109	988	136	337	1942	180
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	265	278	347	504	0	539	125	1286	177	354	1913	853
Arrive On Green	0.15	0.15	0.15	0.14	0.00	0.14	0.07	0.41	0.41	0.20	0.54	0.54
Sat Flow, veh/h	1781	1870	1585	3563	0	1585	1781	3138	432	1781	3554	1585
Grp Volume(v), veh/h	238	265	365	359	0	563	109	559	565	337	1942	180
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1585	1781	1777	1793	1781	1777	1585
Q Serve(g_s), s	27.8	29.8	31.5	20.4	0.0	30.0	12.8	57.5	57.5	39.6	114.1	12.5
Cycle Q Clear(g_c), s	27.8	29.8	31.5	20.4	0.0	30.0	12.8	57.5	57.5	39.6	114.1	12.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	265	278	347	504	0	539	125	728	735	354	1913	853
V/C Ratio(X)	0.90	0.95	1.05	0.71	0.00	1.04	0.87	0.77	0.77	0.95	1.02	0.21
Avail Cap(c_a), veh/h	265	278	347	504	0	539	148	728	735	619	1913	853
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	88.7	89.5	82.8	86.9	0.0	69.9	97.6	53.9	53.9	83.9	48.9	25.5
Incr Delay (d2), s/veh	30.5	41.3	62.9	6.5	0.0	50.7	32.6	4.5	4.5	10.9	24.4	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.2	17.7	25.1	9.9	0.0	36.8	7.1	26.7	27.0	19.4	56.4	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	119.2	130.8	145.7	93.3	0.0	120.7	130.2	58.4	58.4	94.9	73.3	25.7
LnGrp LOS	F	F	F	F	A	F	F	E	E	F	F	C
Approach Vol, veh/h		868			922			1233			2459	
Approach Delay, s/veh		133.9			110.0			64.7			72.8	
Approach LOS		F			F			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	46.5	92.0		36.4	19.3	119.3		37.0				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0				
Max Green Setting (Gmax), s	73.6	57.8		31.5	17.6	* 1.1E2		30.0				
Max Q Clear Time (g_c+R1), s	41.6	59.5		33.5	14.8	116.1		32.0				
Green Ext Time (p_c), s	0.5	0.0		0.0	0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	86.9
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
32: Ward Rd & Rancho Mission Rd

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations									
Traffic Volume (veh/h)	10	55	305	10	248	493	10	597	88
Future Volume (veh/h)	10	55	305	10	248	493	10	597	88
Initial Q (Qb), veh		0	0		0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		0.99				0.96
Parking Bus, Adj		1.00	1.00		1.00	1.00		1.00	1.00
Work Zone On Approach		No			No		No		
Adj Sat Flow, veh/h/ln		1870	1870		1870	1870		1870	1870
Adj Flow Rate, veh/h		58	170		261	519		628	73
Peak Hour Factor		0.95	0.95		0.95	0.95		0.95	0.95
Percent Heavy Veh, %		2	2		2	2		2	2
Cap, veh/h		276	246		518	1054		1886	219
Arrive On Green		0.16	0.16		0.59	0.59		0.59	0.59
Sat Flow, veh/h		1781	1585		564	1869		3285	370
Grp Volume(v), veh/h		58	170		320	460		349	352
Grp Sat Flow(s),veh/h/ln		1781	1585		732	1617		1777	1785
Q Serve(g_s), s		1.0	3.6		9.6	5.8		3.5	3.6
Cycle Q Clear(g_c), s		1.0	3.6		13.2	5.8		3.5	3.6
Prop In Lane		1.00	1.00		0.82				0.21
Lane Grp Cap(c), veh/h		276	246		617	956		1050	1055
V/C Ratio(X)		0.21	0.69		0.52	0.48		0.33	0.33
Avail Cap(c_a), veh/h		905	805		900	1506		1654	1662
HCM Platoon Ratio		1.00	1.00		1.00	1.00		1.00	1.00
Upstream Filter(I)		1.00	1.00		1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh		13.1	14.2		6.4	4.1		3.7	3.7
Incr Delay (d2), s/veh		0.4	3.5		0.7	0.4		0.2	0.2
Initial Q Delay(d3),s/veh		0.0	0.0		0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln		0.4	1.3		0.9	0.7		0.5	0.5
Unsig. Movement Delay, s/veh									
LnGrp Delay(d),s/veh		13.5	17.6		7.1	4.5		3.9	3.9
LnGrp LOS		B	B		A	A		A	A
Approach Vol, veh/h		228				780		701	
Approach Delay, s/veh		16.6				5.6		3.9	
Approach LOS		B				A		A	
Timer - Assigned Phs		2		4		6			
Phs Duration (G+Y+Rc), s		25.4		10.0		25.4			
Change Period (Y+Rc), s		4.5		4.5		4.5			
Max Green Setting (Gmax), s		33.0		18.0		33.0			
Max Q Clear Time (g_c+I1), s		15.2		5.6		5.6			
Green Ext Time (p_c), s		5.8		0.5		4.5			

Intersection Summary

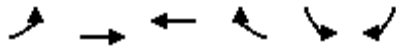
HCM 6th Ctrl Delay	6.3
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
33: Camino del Rio N & Ward Rd

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑	↑↑	↗	↖	↗
Traffic Volume (veh/h)	359	510	190	391	735	197
Future Volume (veh/h)	359	510	190	391	735	197
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	382	543	202	36	782	171
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	424	1459	429	190	820	1106
Arrive On Green	0.24	0.41	0.12	0.12	0.46	0.46
Sat Flow, veh/h	1781	3647	3647	1578	1781	1585
Grp Volume(v), veh/h	382	543	202	36	782	171
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1578	1781	1585
Q Serve(g_s), s	17.5	9.0	4.5	1.7	35.6	3.1
Cycle Q Clear(g_c), s	17.5	9.0	4.5	1.7	35.6	3.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	424	1459	429	190	820	1106
V/C Ratio(X)	0.90	0.37	0.47	0.19	0.95	0.15
Avail Cap(c_a), veh/h	930	2951	2951	1311	930	1204
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.2	17.3	34.6	33.4	21.9	4.3
Incr Delay (d2), s/veh	2.9	0.2	1.2	0.7	17.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	3.3	1.9	0.7	17.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.1	17.5	35.8	34.1	39.4	4.3
LnGrp LOS	C	B	D	C	D	A
Approach Vol, veh/h		925	238		953	
Approach Delay, s/veh		24.4	35.5		33.1	
Approach LOS		C	D		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		40.6		43.7	24.4	16.2
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		11.0		37.6	19.5	6.5
Green Ext Time (p_c), s		5.9		1.2	0.5	2.2

Intersection Summary

HCM 6th Ctrl Delay	29.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
34: Fairmount Ave & Mission Gorge Rd

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↖	↗			↖	↗	
Traffic Volume (veh/h)	67	17	621	30	14	10	40	370	904	40	10	10	930	38
Future Volume (veh/h)	67	17	621	30	14	10	40	370	904	40	10	10	930	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		0.98	1.00		0.98		1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No			No			No		No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	718	31	14	3	378	922	39		10	949	37	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	361	582	156	64	12	853	2389	101		17	1557	61	
Arrive On Green	0.00	0.00	0.19	0.19	0.19	0.19	0.49	1.00	1.00		0.01	0.45	0.45	
Sat Flow, veh/h	0	1870	3012	571	333	60	3456	3471	147		1781	3484	136	
Grp Volume(v), veh/h	0	0	718	48	0	0	378	472	489		10	484	502	
Grp Sat Flow(s),veh/h/ln	0	1870	1506	965	0	0	1728	1777	1841		1781	1777	1844	
Q Serve(g_s), s	0.0	0.0	25.1	3.5	0.0	0.0	9.2	0.0	0.0		0.7	26.9	26.9	
Cycle Q Clear(g_c), s	0.0	0.0	25.1	4.6	0.0	0.0	9.2	0.0	0.0		0.7	26.9	26.9	
Prop In Lane	0.00		1.00	0.65		0.06	1.00		0.08		1.00		0.07	
Lane Grp Cap(c), veh/h	0	361	582	232	0	0	853	1223	1267		17	794	824	
V/C Ratio(X)	0.00	0.00	1.23	0.21	0.00	0.00	0.44	0.39	0.39		0.60	0.61	0.61	
Avail Cap(c_a), veh/h	0	361	582	232	0	0	867	1223	1267		179	794	824	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00		1.00	1.00	1.00	
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.66	0.66	0.66		1.00	1.00	1.00	
Uniform Delay (d), s/veh	0.0	0.0	52.4	43.9	0.0	0.0	27.1	0.0	0.0		64.2	27.3	27.3	
Incr Delay (d2), s/veh	0.0	0.0	119.9	0.4	0.0	0.0	0.1	0.6	0.6		12.3	3.5	3.3	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.0	0.0	19.1	1.3	0.0	0.0	3.3	0.2	0.2		0.4	12.1	12.6	
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	172.3	44.3	0.0	0.0	27.2	0.6	0.6		76.5	30.8	30.7	
LnGrp LOS	A	A	F	D	A	A	C	A	A		E	C	C	
Approach Vol, veh/h		718		48				1339				996		
Approach Delay, s/veh		172.3		44.3				8.1				31.2		
Approach LOS		F		D				A				C		
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	5.6	94.4	30.0	37.0	63.0	30.0								
Change Period (Y+Rc), s	4.4	4.9	4.9	4.9	* 4.9	4.9								
Max Green Setting (Gmax), s	13.5	77.6	25.1	32.6	* 58	25.1								
Max Q Clear Time (g_c+1/2), s	12.5	2.0	27.1	11.2	28.9	6.6								
Green Ext Time (p_c), s	0.0	19.0	0.0	0.7	14.2	0.2								

Intersection Summary

HCM 6th Ctrl Delay	54.1
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis HY Plus Project with Feasible Improvements
 35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	153	961	810	283	384	308	800	190	13	1599	70
Future Volume (vph)	150	153	961	810	283	384	308	800	190	13	1599	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1762	1583	1610	3082	1425	1770	3428		3433	3539	1563
Flt Permitted	0.95	1.00	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1762	1583	1610	3082	1425	1770	3428		3433	3539	1563
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	152	155	971	818	286	388	311	808	192	13	1615	71
RTOR Reduction (vph)	0	0	78	0	0	0	0	16	0	0	0	45
Lane Group Flow (vph)	137	170	893	409	749	334	311	984	0	13	1615	26
Confl. Peds. (#/hr)						3			1			
Confl. Bikes (#/hr)									1			1
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8	1	5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	16.6	16.6	36.6	25.0	25.0	35.0	20.0	57.4		10.0	47.4	47.4
Effective Green, g (s)	16.6	16.6	36.6	25.0	25.0	35.0	20.0	57.4		10.0	47.4	47.4
Actuated g/C Ratio	0.13	0.13	0.28	0.19	0.19	0.27	0.15	0.44		0.08	0.36	0.36
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	214	224	502	309	592	383	272	1513		264	1290	569
v/s Ratio Prot	0.08	0.10	c0.27	c0.25	0.24	0.07	0.18	0.29		0.00	c0.46	
v/s Ratio Perm			0.29			0.17						0.02
v/c Ratio	0.64	0.76	1.78	1.32	1.32dl	0.87	1.14	0.65		0.05	1.25	0.05
Uniform Delay, d1	53.9	54.8	46.7	52.5	52.5	45.4	55.0	28.4		55.6	41.3	26.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.70	1.16	6.90
Incremental Delay, d2	4.8	12.3	358.9	166.5	132.4	18.6	98.9	2.2		0.0	116.8	0.1
Delay (s)	58.7	67.0	405.6	219.0	184.9	63.9	153.9	30.6		38.7	164.8	184.3
Level of Service	E	E	F	F	F	E	F	C		D	F	F
Approach Delay (s)		323.3			167.2			59.9			164.6	
Approach LOS		F			F			E			F	
Intersection Summary												
HCM 2000 Control Delay			176.6									F
HCM 2000 Volume to Capacity ratio			1.52									
Actuated Cycle Length (s)			130.0							21.0		
Intersection Capacity Utilization			141.2%									H
Analysis Period (min)			15									
dl Defacto Left Lane. Recode with 1 though lane as a left lane.												
c Critical Lane Group												

HCM 6th Signalized Intersection Summary
 36: Fairmount Ave & I-8 EB Off-Ramp

HY Plus Project with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations	TT	TT	T		TT	TTT	
Traffic Volume (veh/h)	731	2779	60	0	577	1557	0
Future Volume (veh/h)	731	2779	60	0	577	1557	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		0	1870	1870	0
Adj Flow Rate, veh/h	746	2836		0	589	1589	0
Peak Hour Factor	0.98	0.98		0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2		0	2	2	0
Cap, veh/h	987	2636		0	1275	1832	0
Arrive On Green	0.55	0.55		0.00	0.36	0.36	0.00
Sat Flow, veh/h	1781	4755		0	3741	5443	0
Grp Volume(v), veh/h	746	2836		0	589	1589	0
Grp Sat Flow(s),veh/h/ln	1781	1585		0	1777	1702	0
Q Serve(g_s), s	41.1	70.9		0.0	16.3	37.0	0.0
Cycle Q Clear(g_c), s	41.1	70.9		0.0	16.3	37.0	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	987	2636		0	1275	1832	0
V/C Ratio(X)	0.76	1.08		0.00	0.46	0.87	0.00
Avail Cap(c_a), veh/h	987	2636		0	2131	2076	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.9	28.5		0.0	31.5	38.2	0.0
Incr Delay (d2), s/veh	3.0	42.0		0.0	0.1	3.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	35.8		0.0	7.0	15.9	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	24.9	70.5		0.0	31.6	41.6	0.0
LnGrp LOS	C	F		A	C	D	A
Approach Vol, veh/h	3582				589	1589	
Approach Delay, s/veh	61.0				31.6	41.6	
Approach LOS	E				C	D	
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				51.9		76.0	51.9
Change Period (Y+Rc), s				6.0		5.1	6.0
Max Green Setting (Gmax), s				52.0		70.9	76.7
Max Q Clear Time (g_c+1), s				39.0		72.9	18.3
Green Ext Time (p_c), s				6.9		0.0	2.9

Intersection Summary

HCM 6th Ctrl Delay	52.7
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
37: Collwood Blvd & Montezuma Rd

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↵	↑↑	↵↵	↑
Traffic Volume (veh/h)	1520	1409	10	90	858	728	50
Future Volume (veh/h)	1520	1409	10	90	858	728	50
Initial Q (Qb), veh	20	20		0	0	0	0
Ped-Bike Adj(A_pbT)		0.98		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1737	1870	1870	1648
Adj Flow Rate, veh/h	1567	1325		93	885	751	26
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		11	2	2	17
Cap, veh/h	2079	1272		114	2440	802	324
Arrive On Green	0.58	0.58		0.07	0.69	0.23	0.23
Sat Flow, veh/h	3647	1546		1654	3647	3456	1397
Grp Volume(v), veh/h	1567	1325		93	885	751	26
Grp Sat Flow(s),veh/h/ln	1777	1546		1654	1777	1728	1397
Q Serve(g_s), s	43.9	78.4		7.4	13.9	28.6	2.0
Cycle Q Clear(g_c), s	43.9	78.4		7.4	13.9	28.6	2.0
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2079	1272		114	2440	802	324
V/C Ratio(X)	0.75	1.04		0.82	0.36	0.94	0.08
Avail Cap(c_a), veh/h	2079	1272		328	2440	848	343
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.8	12.5		61.6	8.8	50.5	40.3
Incr Delay (d2), s/veh	2.6	36.7		5.3	0.4	16.5	0.0
Initial Q Delay(d3),s/veh	2.7	56.6		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh	20.6	57.9		3.3	5.0	14.0	0.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	27.1	105.9		66.9	9.2	67.0	40.3
LnGrp LOS	C	F		E	A	E	D
Approach Vol, veh/h	2892			978	777		
Approach Delay, s/veh	63.2			14.7	66.1		
Approach LOS	E			B	E		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	13.6	84.9			98.5	35.5	
Change Period (Y+Rc), s	4.4	* 6.5			6.5	4.4	
Max Green Setting (Gmax), s	26.6	* 60			90.2	32.9	
Max Q Clear Time (g_c+1), s	19.4	80.4			15.9	30.6	
Green Ext Time (p_c), s	0.1	0.0			14.9	0.5	

Intersection Summary

HCM 6th Ctrl Delay	53.5
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
38: Mission Village Dr & Shawn Ave

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔				↔↔		↖	↑↑	↗	↖	↑↑	
Traffic Volume (veh/h)	80	10	84	10	54	10	30	76	716	36	50	2024	80
Future Volume (veh/h)	80	10	84	10	54	10	30	76	716	36	50	2024	80
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99		0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	11	86		57	11	3	81	762	27	53	2153	83
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	266	30	218		214	196	53	133	2573	1146	532	2527	97
Arrive On Green	0.15	0.15	0.15		0.15	0.15	0.15	0.72	0.72	0.72	0.72	0.72	0.72
Sat Flow, veh/h	1202	194	1425		829	1284	350	171	3554	1582	686	3489	134
Grp Volume(v), veh/h	96	0	86		57	0	14	81	762	27	53	1089	1147
Grp Sat Flow(s),veh/h/ln1396		0	1425		829	0	1634	171	1777	1582	686	1777	1846
Q Serve(g_s), s	4.7	0.0	4.5		3.5	0.0	0.6	22.5	6.2	0.4	2.4	36.2	37.5
Cycle Q Clear(g_c), s	5.4	0.0	4.5		8.0	0.0	0.6	60.0	6.2	0.4	8.7	36.2	37.5
Prop In Lane	0.89		1.00		1.00		0.21	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	295	0	218		214	0	250	133	2573	1146	532	1287	1337
V/C Ratio(X)	0.33	0.00	0.39		0.27	0.00	0.06	0.61	0.30	0.02	0.10	0.85	0.86
Avail Cap(c_a), veh/h	766	0	688		638	0	789	133	2573	1146	532	1287	1337
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00		1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	0.0	31.6		35.2	0.0	30.0	35.0	4.0	3.2	5.5	8.1	8.3
Incr Delay (d2), s/veh	0.2	0.0	0.4		0.2	0.0	0.0	8.4	0.1	0.0	0.1	5.5	5.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.8	0.0	0.0	1.6		1.1	0.0	0.2	1.9	1.5	0.1	0.3	10.5	11.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	32.3	0.0	32.1		35.5	0.0	30.0	43.4	4.1	3.2	5.6	13.7	14.2
LnGrp LOS	C	A	C		D	A	C	D	A	A	A	B	B
Approach Vol, veh/h		182				71			870			2289	
Approach Delay, s/veh		32.2				34.4			7.7			13.8	
Approach LOS		C				C			A			B	
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		65.3		17.6		65.3		17.6					
Change Period (Y+Rc), s		5.3		4.9		5.3		4.9					
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0					
Max Q Clear Time (g_c+1), s		62.0		7.4		39.5		10.0					
Green Ext Time (p_c), s		0.0		0.8		18.4		0.3					

Intersection Summary

HCM 6th Ctrl Delay	13.6
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
39: Mission Village Dr & Fermi Ave

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕			↙	↕	
Traffic Volume (veh/h)	40	10	14	54	10	50	16	782	46	10	30	2145	30
Future Volume (veh/h)	40	10	14	54	10	50	16	782	46	10	30	2145	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	42	10	6	56	10	28	17	815	45		31	2234	31
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	170	38	15	145	23	42	28	2436	134		44	2584	36
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.02	0.71	0.71		0.02	0.72	0.72
Sat Flow, veh/h	1074	428	173	856	264	475	1781	3424	189		1781	3587	50
Grp Volume(v), veh/h	58	0	0	94	0	0	17	423	437		31	1103	1162
Grp Sat Flow(s),veh/h/ln1675	0	0	0	1595	0	0	1781	1777	1836		1781	1777	1860
Q Serve(g_s), s	0.0	0.0	0.0	2.0	0.0	0.0	0.8	7.4	7.4		1.4	37.7	38.3
Cycle Q Clear(g_c), s	2.5	0.0	0.0	4.5	0.0	0.0	0.8	7.4	7.4		1.4	37.7	38.3
Prop In Lane	0.72		0.10	0.60		0.30	1.00		0.10		1.00		0.03
Lane Grp Cap(c), veh/h	222	0	0	210	0	0	28	1264	1306		44	1280	1340
V/C Ratio(X)	0.26	0.00	0.00	0.45	0.00	0.00	0.61	0.33	0.33		0.71	0.86	0.87
Avail Cap(c_a), veh/h	802	0	0	621	0	0	649	1295	1339		649	1295	1356
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	0.0	36.2	0.0	0.0	40.3	4.5	4.5		39.8	8.5	8.6
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.6	0.0	0.0	7.8	0.3	0.3		7.4	6.5	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.1	0.0	0.0	0.0	1.8	0.0	0.0	0.4	1.9	2.0		0.7	12.0	12.6
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	35.6	0.0	0.0	36.8	0.0	0.0	48.0	4.8	4.8		47.3	15.0	15.1
LnGrp LOS	D	A	A	D	A	A	D	A	A		D	B	B
Approach Vol, veh/h		58			94			877				2296	
Approach Delay, s/veh		35.6			36.8			5.6				15.5	
Approach LOS		D			D			A				B	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s6.4	63.7			12.1	5.7	64.5		12.1					
Change Period (Y+Rc), s 4.4	5.2			4.9	4.4	5.2		4.9					
Max Green Setting (Gmax), s 30.0	60.0			40.0	30.0	60.0		30.0					
Max Q Clear Time (g_c+1), s 13.4	9.4			4.5	2.8	40.3		6.5					
Green Ext Time (p_c), s 0.0	12.0			0.2	0.0	19.0		0.3					

Intersection Summary

HCM 6th Ctrl Delay	13.9
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
40: Gramercy Dr/Mission Village Dr & Ruffin Rd

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖↗	
Traffic Volume (veh/h)	60	642	20	13	390	477	20	10	22	1590	20	90
Future Volume (veh/h)	60	642	20	13	390	477	20	10	22	1590	20	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	655	19	13	398	323	20	10	1	1622	20	88
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	211	1254	36	240	659	529	43	79	8	1610	136	599
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.02	0.02	0.02	0.45	0.45	0.45
Sat Flow, veh/h	730	3524	102	762	1853	1488	1781	3262	320	3563	302	1327
Grp Volume(v), veh/h	61	330	344	13	382	339	20	5	6	1622	0	108
Grp Sat Flow(s),veh/h/ln	730	1777	1849	762	1777	1564	1781	1777	1805	1781	0	1628
Q Serve(g_s), s	6.6	13.0	13.0	1.2	15.6	15.8	1.0	0.3	0.3	40.0	0.0	3.4
Cycle Q Clear(g_c), s	22.5	13.0	13.0	14.2	15.6	15.8	1.0	0.3	0.3	40.0	0.0	3.4
Prop In Lane	1.00		0.06	1.00		0.95	1.00		0.18	1.00		0.81
Lane Grp Cap(c), veh/h	211	632	658	240	632	556	43	43	44	1610	0	736
V/C Ratio(X)	0.29	0.52	0.52	0.05	0.60	0.61	0.47	0.13	0.13	1.01	0.00	0.15
Avail Cap(c_a), veh/h	446	1204	1253	486	1204	1060	805	803	816	1610	0	736
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.7	22.6	22.6	28.2	23.4	23.5	42.6	42.3	42.3	24.3	0.0	14.2
Incr Delay (d2), s/veh	0.9	0.8	0.8	0.1	1.2	1.4	2.9	0.5	0.5	24.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	5.5	5.7	0.2	6.6	5.9	0.5	0.1	0.1	20.3	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.6	23.4	23.4	28.3	24.6	24.8	45.5	42.8	42.8	48.6	0.0	14.3
LnGrp LOS	C	C	C	C	C	C	D	D	D	F	A	B
Approach Vol, veh/h		735			734			31			1730	
Approach Delay, s/veh		24.2			24.7			44.6			46.5	
Approach LOS		C			C			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.6		44.9		36.6		7.0				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		24.5		42.0		17.8		3.0				
Green Ext Time (p_c), s		7.0		0.0		7.6		0.0				

Intersection Summary

HCM 6th Ctrl Delay	36.4
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	880	910	10	1042	810	260	378
Future Volume (veh/h)	880	910	10	1042	810	260	378
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	926	954		1097	853	274	107
Peak Hour Factor	0.95	0.95		0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1673	881		1079	2903	340	156
Arrive On Green	0.47	0.47		0.31	0.82	0.10	0.10
Sat Flow, veh/h	3647	1540		3456	3647	3456	1585
Grp Volume(v), veh/h	926	954		1097	853	274	107
Grp Sat Flow(s),veh/h/ln1777		1540		1728	1777	1728	1585
Q Serve(g_s), s	24.2	61.2		40.6	7.5	10.1	8.5
Cycle Q Clear(g_c), s	24.2	61.2		40.6	7.5	10.1	8.5
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1673	881		1079	2903	340	156
V/C Ratio(X)	0.55	1.08		1.02	0.29	0.81	0.69
Avail Cap(c_a), veh/h	1673	881		1079	2903	1055	484
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.86	0.86
Uniform Delay (d), s/veh	24.6	25.2		44.7	2.9	57.4	56.7
Incr Delay (d2), s/veh	1.3	55.3		31.6	0.3	1.5	1.7
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	42.2		21.4	1.8	4.5	3.5
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	25.9	80.6		76.3	3.1	58.9	58.4
LnGrp LOS	C	F		F	A	E	E
Approach Vol, veh/h	1880			1950	381		
Approach Delay, s/veh	53.7			44.3	58.7		
Approach LOS	D			D	E		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	45.0	66.9			111.9	18.1	
Change Period (Y+Rc), s	4.4	* 5.7			5.7	5.3	
Max Green Setting (Gmax), s	40.6	* 35			79.3	39.7	
Max Q Clear Time (g_c+Rc), s	42.6	63.2			9.5	12.1	
Green Ext Time (p_c), s	0.0	0.0			9.7	0.7	

Intersection Summary

HCM 6th Ctrl Delay	49.8
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mobley St & Gramercy Dr

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	664	90	63	360	57	50	30	43	86	20	20
Future Volume (veh/h)	20	664	90	63	360	57	50	30	43	86	20	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.96	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1826	1826	1826	1752	1752	1752
Adj Flow Rate, veh/h	21	685	71	65	371	47	52	31	21	89	21	13
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	10	10	10
Cap, veh/h	647	1822	803	496	1621	204	267	131	60	352	74	28
Arrive On Green	0.51	0.51	0.51	0.51	0.51	0.51	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	962	3554	1565	705	3162	397	563	700	320	887	394	151
Grp Volume(v), veh/h	21	685	71	65	207	211	104	0	0	123	0	0
Grp Sat Flow(s),veh/h/ln	962	1777	1565	705	1777	1782	1583	0	0	1432	0	0
Q Serve(g_s), s	0.4	3.9	0.8	2.0	2.1	2.2	0.0	0.0	0.0	0.5	0.0	0.0
Cycle Q Clear(g_c), s	2.6	3.9	0.8	5.9	2.1	2.2	1.7	0.0	0.0	2.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.22	0.50		0.20	0.72		0.11
Lane Grp Cap(c), veh/h	647	1822	803	496	911	914	458	0	0	454	0	0
V/C Ratio(X)	0.03	0.38	0.09	0.13	0.23	0.23	0.23	0.00	0.00	0.27	0.00	0.00
Avail Cap(c_a), veh/h	1886	6401	2819	1405	3200	3209	1962	0	0	1807	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.2	4.9	4.1	6.7	4.5	4.5	11.7	0.0	0.0	11.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.1	0.2	0.4	0.4	0.5	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.2	5.1	4.2	6.9	4.7	4.7	11.8	0.0	0.0	12.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		777			483			104			123	
Approach Delay, s/veh		5.1			5.0			11.8			12.0	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.2		11.1		22.2		11.1				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		5.9		4.2		7.9		3.7				
Green Ext Time (p_c), s		11.1		0.5		6.1		0.4				

Intersection Summary

HCM 6th Ctrl Delay	6.1
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
43: Sandrock Rd & Greyling Dr/Gramercy Dr

HY Plus Project with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕			↕	↕	↕	↕	↕
Traffic Volume (veh/h)	90	146	10	24	177	254	10	10	20	33	640	40	140
Future Volume (veh/h)	90	146	10	24	177	254	10	10	20	33	640	40	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.98		0.94	1.00		1.00	1.00			0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1574	1574	1870	1870	1856	1870	
Adj Flow Rate, veh/h	95	154	9	25	186	161	11	21	0	704	0	80	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	22	22	2	2	3	2	
Cap, veh/h	238	325	16	130	532	896	16	30	47	975	0	417	
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.03	0.03	0.00	0.27	0.00	0.27	
Sat Flow, veh/h	373	1051	51	95	1721	1494	532	1015	1585	3563	0	1523	
Grp Volume(v), veh/h	258	0	0	211	0	161	32	0	0	704	0	80	
Grp Sat Flow(s),veh/h/ln	1476	0	0	1817	0	1494	1547	0	1585	1781	0	1523	
Q Serve(g_s), s	2.0	0.0	0.0	0.0	0.0	2.0	0.8	0.0	0.0	7.2	0.0	1.6	
Cycle Q Clear(g_c), s	5.5	0.0	0.0	3.5	0.0	2.0	0.8	0.0	0.0	7.2	0.0	1.6	
Prop In Lane	0.37		0.03	0.12		1.00	0.34		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	579	0	0	662	0	896	46	0	47	975	0	417	
V/C Ratio(X)	0.45	0.00	0.00	0.32	0.00	0.18	0.69	0.00	0.00	0.72	0.00	0.19	
Avail Cap(c_a), veh/h	1026	0	0	1215	0	1367	773	0	792	1780	0	761	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh	11.3	0.0	0.0	10.8	0.0	3.9	19.2	0.0	0.0	13.2	0.0	11.1	
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	6.7	0.0	0.0	0.4	0.0	0.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	1.5	0.0	0.0	1.1	0.0	0.8	0.4	0.0	0.0	2.2	0.0	0.4	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	11.5	0.0	0.0	10.9	0.0	3.9	25.9	0.0	0.0	13.5	0.0	11.2	
LnGrp LOS	B	A	A	B	A	A	C	A	A	B	A	B	
Approach Vol, veh/h		258			372			32				784	
Approach Delay, s/veh		11.5			7.9			25.9				13.3	
Approach LOS		B			A			C				B	
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		17.7		16.3		17.7		6.1					
Change Period (Y+Rc), s		5.3		5.3		5.3		4.9					
Max Green Setting (Gmax), s		25.0		20.0		25.0		20.0					
Max Q Clear Time (g_c+1), s		7.5		9.2		5.5		2.8					
Green Ext Time (p_c), s		1.1		1.3		1.0		0.1					

Intersection Summary

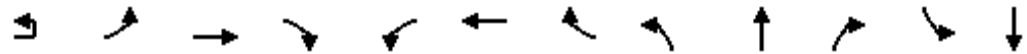
HCM 6th Ctrl Delay	11.9
HCM 6th LOS	B

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis HY+P Plus Event with Feasible Improvements
 1: SR-163 SB Ramps/Ulrir St & Friars Rd

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations		3		7	77	777	77	77	7	77	7	7	
Traffic Volume (vph)	10	170	1785	700	640	1209	838	320	30	896	695	0	
Future Volume (vph)	10	170	1785	700	640	1209	838	320	30	896	695	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.7	7.0	7.0	4.5	3.0	6.1	6.1	6.1	4.5	6.1	6.1	
Lane Util. Factor		1.00	0.86	1.00	0.97	0.91	0.88	0.97	1.00	0.88	0.95	0.95	
Frbp, ped/bikes		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (prot)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (perm)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	10	173	1821	714	653	1234	855	327	31	914	709	0	
RTOR Reduction (vph)	0	0	0	480	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	183	1821	234	653	1234	855	327	31	914	354	355	
Confl. Peds. (#/hr)				5									
Confl. Bikes (#/hr)				2									
Turn Type	Prot	Prot	NA	Perm	Prot	NA	custom	Split	NA	pm+ov	Split	NA	
Protected Phases	5	5	2		1	6 7	4 7	8	8		4	4	
Permitted Phases				2						8			
Actuated Green, G (s)		17.5	43.9	43.9	26.0	52.2	68.9	14.1	14.1	40.1	37.3	37.3	
Effective Green, g (s)		17.5	43.9	43.9	26.0	52.2	61.9	14.1	14.1	40.1	37.3	37.3	
Actuated g/C Ratio		0.12	0.30	0.30	0.18	0.36	0.43	0.10	0.10	0.28	0.26	0.26	
Clearance Time (s)		4.7	7.0	7.0	4.5			6.1	6.1	4.5	6.1	6.1	
Vehicle Extension (s)		2.0	2.0	2.0	3.0			3.0	3.0	3.0	2.0	2.0	
Lane Grp Cap (vph)		213	1940	468	615	1830	1189	333	181	770	432	432	
v/s Ratio Prot		0.10	c0.28		0.19	0.24	0.31	0.10	0.02	c0.21	0.21	c0.21	
v/s Ratio Perm				0.15						0.12			
v/c Ratio		0.86	0.94	0.50	1.06	0.67	0.72	0.98	0.17	1.19	0.82	0.82	
Uniform Delay, d1		62.5	49.2	41.5	59.5	39.2	34.4	65.3	60.1	52.5	50.7	50.7	
Progression Factor		1.00	1.00	1.00	1.04	1.24	0.68	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		26.5	10.3	3.8	47.5	0.5	1.2	44.2	0.5	97.0	11.0	11.4	
Delay (s)		89.1	59.6	45.3	109.2	49.1	24.7	109.5	60.5	149.5	61.6	62.1	
Level of Service		F	E	D	F	D	C	F	E	F	E	E	
Approach Delay (s)			57.8			55.8			137.0			57.3	
Approach LOS			E			E			F			E	
Intersection Summary													
HCM 2000 Control Delay			70.2		HCM 2000 Level of Service					E			
HCM 2000 Volume to Capacity ratio			1.01										
Actuated Cycle Length (s)			145.0		Sum of lost time (s)					26.9			
Intersection Capacity Utilization			97.6%		ICU Level of Service					F			
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis HY+P Plus Event with Feasible Improvements
 1: SR-163 SB Ramps/Ulríc St & Friars Rd

PM Peak Hour



Movement	SBR
Lane Configurations	7
Traffic Volume (vph)	210
Future Volume (vph)	210
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.1
Lane Util. Factor	1.00
Frbp, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1560
Flt Permitted	1.00
Satd. Flow (perm)	1560
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	214
RTOR Reduction (vph)	141
Lane Group Flow (vph)	73
Confl. Peds. (#/hr)	3
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	37.3
Effective Green, g (s)	37.3
Actuated g/C Ratio	0.26
Clearance Time (s)	6.1
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	401
v/s Ratio Prot	
v/s Ratio Perm	0.05
v/c Ratio	0.18
Uniform Delay, d1	42.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	42.0
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis HY+P Plus Event with Feasible Improvements

2: Friars Rd & SR-163 NB Ramps

PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	640	2615	1697	1052	1479	1010
Future Volume (vph)	640	2615	1697	1052	1479	1010
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.5	6.0	4.5	4.5	5.0
Lane Util. Factor	0.97	0.86	0.86	0.88	0.94	0.88
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	6408	6408	2787	4990	2787
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	6408	6408	2787	4990	2787
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	667	2724	1768	1096	1541	1052
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	667	2724	1768	1096	1541	1052
Turn Type	Prot	NA	NA	custom	Prot	pm+ov
Protected Phases	5	2	3	6	4	5
Permitted Phases						4
Actuated Green, G (s)	38.3	92.5	50.7	65.0	43.5	81.8
Effective Green, g (s)	38.3	92.5	50.7	65.0	43.5	81.8
Actuated g/C Ratio	0.26	0.64	0.35	0.45	0.30	0.56
Clearance Time (s)	5.0	4.5			4.5	5.0
Vehicle Extension (s)	2.0	3.0			3.0	2.0
Lane Grp Cap (vph)	906	4087	2240	1249	1497	1668
v/s Ratio Prot	c0.19	0.43	c0.28	c0.39	c0.31	0.17
v/s Ratio Perm						0.21
v/c Ratio	0.74	0.67	0.79	0.88	1.03	0.63
Uniform Delay, d1	48.7	16.5	42.4	36.4	50.8	21.4
Progression Factor	0.98	0.85	1.19	1.47	1.00	1.00
Incremental Delay, d2	1.0	0.3	1.1	4.5	31.1	0.6
Delay (s)	49.0	14.4	51.5	57.9	81.9	22.0
Level of Service	D	B	D	E	F	C
Approach Delay (s)		21.2	54.0		57.6	
Approach LOS		C	D		E	

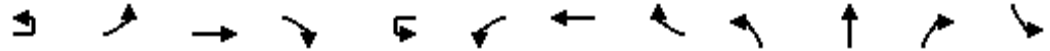
Intersection Summary

HCM 2000 Control Delay	42.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis HY+P Plus Event with Feasible Improvements
 3: Frazee Rd & Friars Rd

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		2T	3T	2T		2T	3T	2T	2T	2T		2T
Traffic Volume (vph)	30	340	3035	670	10	122	1829	108	330	70	159	138
Future Volume (vph)	30	340	3035	670	10	122	1829	108	330	70	159	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.4	3.0	4.4		4.4	6.5	6.5	4.4	4.9		4.4
Lane Util. Factor		0.97	0.86	0.88		0.97	0.86	1.00	0.97	0.95		0.97
Frbp, ped/bikes		1.00	1.00	1.00		1.00	1.00	0.98	1.00	0.97		1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.90		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (prot)		3433	6408	2787		3433	6408	1546	3433	3062		3433
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (perm)		3433	6408	2787		3433	6408	1546	3433	3062		3433
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	34	382	3410	753	11	137	2055	121	371	79	179	155
RTOR Reduction (vph)	0	0	0	0	0	0	0	75	0	55	0	0
Lane Group Flow (vph)	0	416	3410	753	0	148	2055	46	371	203	0	155
Confl. Peds. (#/hr)				18				8			43	
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	custom	Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2 9	3 9	1	1	6		3	8		7
Permitted Phases							6					
Actuated Green, G (s)		20.1	69.7	65.8		6.5	55.1	55.1	20.6	42.3		7.3
Effective Green, g (s)		20.1	69.7	60.3		6.5	55.1	55.1	20.6	42.3		7.3
Actuated g/C Ratio		0.14	0.48	0.42		0.04	0.38	0.38	0.14	0.29		0.05
Clearance Time (s)		4.4				4.4	6.5	6.5	4.4	4.9		4.4
Vehicle Extension (s)		2.0				2.0	4.4	4.4	2.0	2.0		2.2
Lane Grp Cap (vph)		475	3080	1159		153	2435	587	487	893		172
v/s Ratio Prot		c0.12	c0.53	0.27		0.04	0.32		c0.11	0.07		0.05
v/s Ratio Perm							0.03					
v/c Ratio		0.88	1.11	0.65		0.97	0.84	0.08	0.76	0.23		0.90
Uniform Delay, d1		61.2	37.6	33.9		69.1	41.0	28.7	59.8	39.0		68.5
Progression Factor		1.04	0.81	1.14		1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		11.1	51.9	0.6		62.0	3.8	0.3	6.3	0.0		41.1
Delay (s)		75.1	82.2	39.3		131.1	44.8	29.0	66.1	39.0		109.6
Level of Service		E	F	D		F	D	C	E	D		F
Approach Delay (s)			74.5				49.5			55.0		
Approach LOS			E				D			D		
Intersection Summary												
HCM 2000 Control Delay			65.6				HCM 2000 Level of Service		E			
HCM 2000 Volume to Capacity ratio			1.00									
Actuated Cycle Length (s)			145.0				Sum of lost time (s)		22.2			
Intersection Capacity Utilization			100.9%				ICU Level of Service		G			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis HY+P Plus Event with Feasible Improvements
 3: Frazee Rd & Friars Rd

PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑	↑↑
Traffic Volume (vph)	80	380
Future Volume (vph)	80	380
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.9	4.9
Lane Util. Factor	1.00	0.88
Frbp, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1863	2750
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1863	2750
Peak-hour factor, PHF	0.89	0.89
Adj. Flow (vph)	90	427
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	90	427
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		1
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	29.0	29.0
Effective Green, g (s)	29.0	29.0
Actuated g/C Ratio	0.20	0.20
Clearance Time (s)	4.9	4.9
Vehicle Extension (s)	2.3	2.3
Lane Grp Cap (vph)	372	550
v/s Ratio Prot	0.05	
v/s Ratio Perm		c0.16
v/c Ratio	0.24	0.78
Uniform Delay, d1	48.8	54.9
Progression Factor	1.00	1.00
Incremental Delay, d2	0.2	6.4
Delay (s)	49.0	61.3
Level of Service	D	E
Approach Delay (s)	70.8	
Approach LOS	E	
Intersection Summary		

HCM 6th Signalized Intersection Summary
4: Mission Center Rd & Friars Rd WB

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↘	↙	↘		↘	↙			↙	↘
Traffic Volume (veh/h)	0	0	0	240	10	295	10	230	880	0	0	1214	340
Future Volume (veh/h)	0	0	0	240	10	295	10	230	880	0	0	1214	340
Initial Q (Qb), veh				0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00		1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No			No
Adj Sat Flow, veh/h/ln				1870	1870	1870		1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				257	0	179		240	917	0	0	1265	292
Peak Hour Factor				0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2		2	2	0	0	2	2
Cap, veh/h				488	0	217		303	2699	0	0	2242	966
Arrive On Green				0.27	0.00	0.27		0.18	1.00	0.00	0.00	0.63	0.63
Sat Flow, veh/h				3563	0	1585		3456	3647	0	0	3647	1530
Grp Volume(v), veh/h				257	0	179		240	917	0	0	1265	292
Grp Sat Flow(s),veh/h/ln				1781	0	1585		1728	1777	0	0	1777	1530
Q Serve(g_s), s				6.6	0.0	11.4		7.2	0.0	0.0	0.0	22.0	9.4
Cycle Q Clear(g_c), s				6.6	0.0	11.4		7.2	0.0	0.0	0.0	22.0	9.4
Prop In Lane				1.00		1.00		1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				488	0	217		303	2699	0	0	2242	966
V/C Ratio(X)				0.53	0.00	0.82		0.79	0.34	0.00	0.00	0.56	0.30
Avail Cap(c_a), veh/h				1013	0	451		579	2699	0	0	2242	966
HCM Platoon Ratio				2.00	2.00	2.00		2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00		0.54	0.54	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				36.2	0.0	38.0		43.6	0.0	0.0	0.0	11.4	9.1
Incr Delay (d2), s/veh				0.9	0.0	7.7		1.0	0.2	0.0	0.0	1.0	0.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.7	0.0	4.2		2.8	0.1	0.0	0.0	7.9	3.0
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh				37.1	0.0	45.7		44.6	0.2	0.0	0.0	12.4	9.9
LnGrp LOS				D	A	D		D	A	A	A	B	A
Approach Vol, veh/h						436				1157			1557
Approach Delay, s/veh						40.6				9.4			12.0
Approach LOS						D				A			B
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		88.3			13.9	74.4		19.7					
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9					
Max Green Setting (Gmax), s		* 67			18.1	43.6		30.7					
Max Q Clear Time (g_c+I1), s		2.0			9.2	24.0		13.4					
Green Ext Time (p_c), s		6.2			0.3	14.5		1.3					

Intersection Summary

HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Mission Center Rd & Friars Rd EB

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	10	310	0	0	0	0	730	477	564	890	0
Future Volume (veh/h)	380	10	310	0	0	0	0	730	477	564	890	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	408	0	204				0	768	415	594	937	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	570	0	254				0	755	406	1204	2633	0
Arrive On Green	0.16	0.00	0.16				0.00	0.34	0.34	0.70	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2291	1181	3456	3647	0
Grp Volume(v), veh/h	408	0	204				0	620	563	594	937	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1602	1728	1777	0
Q Serve(g_s), s	11.7	0.0	13.4				0.0	37.1	37.1	8.6	0.0	0.0
Cycle Q Clear(g_c), s	11.7	0.0	13.4				0.0	37.1	37.1	8.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.74	1.00		0.00
Lane Grp Cap(c), veh/h	570	0	254				0	610	550	1204	2633	0
V/C Ratio(X)	0.72	0.00	0.80				0.00	1.02	1.02	0.49	0.36	0.00
Avail Cap(c_a), veh/h	976	0	434				0	610	550	1204	2633	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.69	0.69	0.00
Uniform Delay (d), s/veh	43.0	0.0	43.7				0.0	35.5	35.5	12.0	0.0	0.0
Incr Delay (d2), s/veh	1.7	0.0	5.9				0.0	40.5	44.2	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	5.5				0.0	22.1	20.5	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.7	0.0	49.6				0.0	75.9	79.7	12.1	0.1	0.0
LnGrp LOS	D	A	D				A	F	F	B	A	A
Approach Vol, veh/h		612						1183			1531	
Approach Delay, s/veh		46.4						77.7			4.7	
Approach LOS		D						E			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	43.4	42.4	22.2	85.8								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	26.7	* 37	29.6	67.7								
Max Q Clear Time (g_c+110), s	11.6	39.1	15.4	2.0								
Green Ext Time (p_c), s	1.1	0.0	1.9	9.8								

Intersection Summary

HCM 6th Ctrl Delay	38.3
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
6: Qualcomm Way & Friars Rd WB

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↵	↵		↵	↵			↵	↵
Traffic Volume (veh/h)	0	0	0	538	10	80	670	110	0	0	237	20
Future Volume (veh/h)	0	0	0	538	10	80	670	110	0	0	237	20
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				627	0	0	698	115	0	0	247	2
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				739	388	0	1168	2372	0	0	953	413
Arrive On Green				0.21	0.00	0.00	0.34	0.67	0.00	0.00	0.27	0.27
Sat Flow, veh/h				3563	1870	0	3456	3647	0	0	3647	1541
Grp Volume(v), veh/h				627	0	0	698	115	0	0	247	2
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1728	1777	0	0	1777	1541
Q Serve(g_s), s				13.5	0.0	0.0	13.4	0.9	0.0	0.0	4.4	0.1
Cycle Q Clear(g_c), s				13.5	0.0	0.0	13.4	0.9	0.0	0.0	4.4	0.1
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				739	388	0	1168	2372	0	0	953	413
V/C Ratio(X)				0.85	0.00	0.00	0.60	0.05	0.00	0.00	0.26	0.00
Avail Cap(c_a), veh/h				1251	657	0	1168	2372	0	0	953	413
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.97	0.97	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				30.5	0.0	0.0	22.0	4.6	0.0	0.0	23.0	21.4
Incr Delay (d2), s/veh				1.1	0.0	0.0	0.9	0.0	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.5	0.0	0.0	5.2	0.3	0.0	0.0	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				31.6	0.0	0.0	22.8	4.6	0.0	0.0	23.2	21.5
LnGrp LOS				C	A	A	C	A	A	A	C	C
Approach Vol, veh/h					627			813			249	
Approach Delay, s/veh					31.6			20.3			23.1	
Approach LOS					C			C			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		58.5			32.1	26.4		21.5				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+11), s		2.9			15.4	6.4		15.5				
Green Ext Time (p_c), s		0.8			1.7	1.0		1.1				

Intersection Summary

HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
7: Qualcomm Way & Friars Rd EB

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	10	410	0	0	0	0	680	480	123	793	0
Future Volume (veh/h)	70	10	410	0	0	0	0	680	480	123	793	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	86	0	387				0	756	189	137	881	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	962	0	428				0	3147	774	210	2150	0
Arrive On Green	0.27	0.00	0.27				0.00	0.49	0.49	0.12	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	6696	1583	3456	3647	0
Grp Volume(v), veh/h	86	0	387				0	756	189	137	881	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1609	1583	1728	1777	0
Q Serve(g_s), s	1.4	0.0	18.9				0.0	5.4	5.5	3.0	0.0	0.0
Cycle Q Clear(g_c), s	1.4	0.0	18.9				0.0	5.4	5.5	3.0	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	962	0	428				0	3147	774	210	2150	0
V/C Ratio(X)	0.09	0.00	0.90				0.00	0.24	0.24	0.65	0.41	0.00
Avail Cap(c_a), veh/h	1519	0	676				0	3147	774	436	2150	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.80	0.80	0.71	0.71	0.00
Uniform Delay (d), s/veh	21.8	0.0	28.2				0.0	11.8	11.9	34.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	7.3				0.0	0.1	0.6	0.9	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	7.4				0.0	1.8	1.9	1.2	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.9	0.0	35.5				0.0	12.0	12.5	35.2	0.4	0.0
LnGrp LOS	C	A	D				A	B	B	D	A	A
Approach Vol, veh/h		473						945			1018	
Approach Delay, s/veh		33.0						12.1			5.1	
Approach LOS		C						B			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	9.3	44.2	26.5	53.5								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.1	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	10.1	7.5	20.9	2.0								
Green Ext Time (p_c), s	0.1	5.5	0.7	4.4								

Intersection Summary

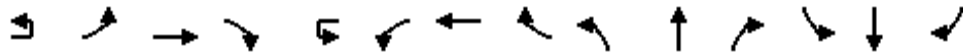
HCM 6th Ctrl Delay	13.2
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑↑↑	↑↑↑			↑	↑		↑↓	
Traffic Volume (veh/h)	20	20	3145	160	10	78	1811	28	80	10	152	225	20	90
Future Volume (veh/h)	20	20	3145	160	10	78	1811	28	80	10	152	225	20	90
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	1.00		0.97	0.98		0.97
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		21	3242	140		80	1867	28	82	10	87	232	21	85
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h		27	2898	897		207	3523	53	367	42	425	246	19	76
Arrive On Green		0.02	0.57	0.57		0.23	1.00	1.00	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h		1781	5106	1581		1781	5181	78	1178	154	1542	754	68	276
Grp Volume(v), veh/h		21	3242	140		80	1226	669	92	0	87	338	0	0
Grp Sat Flow(s),veh/h/ln		1781	1702	1581		1781	1702	1854	1332	0	1542	1098	0	0
Q Serve(g_s), s		1.9	90.8	6.7		6.1	0.0	0.0	0.0	0.0	6.9	35.6	0.0	0.0
Cycle Q Clear(g_c), s		1.9	90.8	6.7		6.1	0.0	0.0	8.5	0.0	6.9	44.1	0.0	0.0
Prop In Lane		1.00		1.00		1.00		0.04	0.89		1.00	0.69		0.25
Lane Grp Cap(c), veh/h		27	2898	897		207	2315	1261	410	0	425	341	0	0
V/C Ratio(X)		0.78	1.12	0.16		0.39	0.53	0.53	0.22	0.00	0.20	0.99	0.00	0.00
Avail Cap(c_a), veh/h		104	2898	897		207	2315	1261	410	0	425	341	0	0
HCM Platoon Ratio		1.00	1.00	1.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		0.79	0.79	0.79	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh		78.5	34.6	16.4		56.5	0.0	0.0	45.0	0.0	44.5	64.1	0.0	0.0
Incr Delay (d2), s/veh		16.1	58.8	0.4		0.3	0.7	1.3	0.2	0.0	0.2	46.5	0.0	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.0	50.7	2.5		2.6	0.2	0.4	2.9	0.0	2.7	18.5	0.0	0.0
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		94.6	93.4	16.8		56.9	0.7	1.3	45.2	0.0	44.7	110.6	0.0	0.0
LnGrp LOS		F	F	B		E	A	A	D	A	D	F	A	A
Approach Vol, veh/h			3403			1975			179		338			
Approach Delay, s/veh			90.2			3.2			45.0		110.6			
Approach LOS			F			A			D		F			
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	24.9	97.0	49.0	6.8	115.0	49.0								
Change Period (Y+Rc), s	6.2	* 6.2	4.9	4.4	6.2	4.9								
Max Green Setting (Gmax), s	91	* 91	44.1	9.3	91.1	44.1								
Max Q Clear Time (g_c+1), s	92.8	92.8	46.1	3.9	2.0	10.5								
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	76.0	0.7								

Intersection Summary

HCM 6th Ctrl Delay	60.9
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 9: Fenton Pkwy & Friars Rd

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↔		↔↔	↑↑↑	↔	↔↔	↑	↔	↔↔	↔	↔
Traffic Volume (veh/h)	150	3169	383	10	250	1516	80	320	56	420	40	23	70
Future Volume (veh/h)	150	3169	383	10	250	1516	80	320	56	420	40	23	70
Initial Q (Qb), veh	15	25	15		0	0	0	0	0	15	15	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	3267	337		258	1563	45	330	58	354	41	24	9
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	382	2419	1118		207	2326	753	936	550	443	98	91	235
Arrive On Green	0.29	0.95	0.95		0.25	0.91	0.91	0.23	0.26	0.26	0.02	0.05	0.05
Sat Flow, veh/h	3456	5106	1585		3456	5106	1564	3456	1870	1581	3563	1870	1556
Grp Volume(v), veh/h	155	3267	337		258	1563	45	330	58	354	41	24	9
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1564	1728	1870	1581	1781	1870	1556
Q Serve(g_s), s	5.6	75.8	0.0		10.5	11.2	0.0	13.1	3.8	34.4	1.8	2.0	0.0
Cycle Q Clear(g_c), s	5.6	75.8	0.0		10.5	11.2	0.0	13.1	3.8	34.4	1.8	2.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	382	2419	1118		207	2326	753	936	550	443	98	91	235
V/C Ratio(X)	0.41	1.35	0.30		1.24	0.67	0.06	0.35	0.11	0.80	0.42	0.26	0.04
Avail Cap(c_a), veh/h	497	2419	1111		433	2326	746	786	587	496	98	491	637
HCM Platoon Ratio	2.00	2.00	2.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.09	0.09	0.09		0.82	0.82	0.82	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.3	4.2	3.0		70.4	4.4	3.5	47.1	41.2	56.2	77.8	73.3	58.3
Incr Delay (d2), s/veh	0.0	158.0	0.1		118.6	1.3	0.1	0.0	0.0	1.4	1.1	6.9	0.3
Initial Q Delay(d3),s/veh	18.7	37.2	1.9		0.0	0.0	0.0	0.0	0.0	41.3	289.5	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	45.4	3.8		7.3	2.1	0.2	5.4	1.7	21.8	6.0	1.1	0.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	78.0	199.4	4.9		189.0	5.7	3.7	47.1	41.2	99.0	368.4	80.3	58.6
LnGrp LOS	E	F	A		F	A	A	D	D	F	F	F	E
Approach Vol, veh/h		3759				1866			742			74	
Approach Delay, s/veh		177.0				31.0			71.4			237.3	
Approach LOS		F				C			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	24.4	82.1	40.8	12.7	27.4	79.1	7.8	45.7					
Change Period (Y+Rc), s	4.4	6.3	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	9.6	75.8	12.6	42.0	12.6	72.9	4.4	50.2					
Max Q Clear Time (g_c+1/2), s	12.5	77.8	15.1	4.0	7.6	13.2	3.8	36.4					
Green Ext Time (p_c), s	0.0	0.0	0.0	0.4	0.1	46.3	0.0	4.4					

Intersection Summary

HCM 6th Ctrl Delay	123.2
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
10: Northside Dr & Friars Rd

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↔↔↔	↔	↔↔	↔↔↔	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	10	160	3069	250	545	1526	225	210	40	812	112	30	100
Future Volume (veh/h)	10	160	3069	250	545	1526	225	210	40	812	112	30	100
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		172	3300	269	586	1641	153	226	43	792	120	32	5
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		272	2269	693	575	2658	870	831	433	626	121	48	41
Arrive On Green		0.16	0.89	0.89	0.33	1.00	1.00	0.24	0.23	0.23	0.04	0.03	0.03
Sat Flow, veh/h		3456	5106	1560	3456	5106	1565	3456	1870	1569	3456	1870	1585
Grp Volume(v), veh/h		172	3300	269	586	1641	153	226	43	792	120	32	5
Grp Sat Flow(s),veh/h/ln		1728	1702	1560	1728	1702	1565	1728	1870	1569	1728	1870	1585
Q Serve(g_s), s		7.5	71.1	2.1	26.6	0.0	0.0	8.5	2.9	37.0	5.6	2.7	0.5
Cycle Q Clear(g_c), s		7.5	71.1	2.1	26.6	0.0	0.0	8.5	2.9	37.0	5.6	2.7	0.5
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		272	2269	693	575	2658	870	831	433	626	121	48	41
V/C Ratio(X)		0.63	1.45	0.39	1.02	0.62	0.18	0.27	0.10	1.26	0.99	0.67	0.12
Avail Cap(c_a), veh/h		307	2269	693	575	2658	870	831	433	626	121	300	255
HCM Platoon Ratio		2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.09	0.09	0.09	0.81	0.81	0.81	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		65.2	8.9	1.1	53.4	0.0	0.0	49.4	48.4	48.3	77.2	77.3	76.2
Incr Delay (d2), s/veh		0.2	204.7	0.1	38.9	0.9	0.4	0.1	0.0	131.5	79.2	54.7	6.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.1	46.5	1.2	12.8	0.2	0.1	3.8	1.4	47.9	3.8	2.1	0.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		65.4	213.6	1.2	92.3	0.9	0.4	49.4	48.4	179.8	156.4	132.0	82.3
LnGrp LOS		E	F	A	F	A	A	D	D	F	F	F	F
Approach Vol, veh/h			3741			2380			1061			157	
Approach Delay, s/veh			191.5			23.4			146.7			149.0	
Approach LOS			F			C			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	31.0	77.1	42.9	9.0	18.6	89.5	10.0	41.9					
Change Period (Y+Rc), s	4.4	6.0	4.4	4.9	6.0	* 6.2	4.4	4.9					
Max Green Setting (Gmax), s	26.6	71.1	16.9	25.7	14.2	* 83	5.6	37.0					
Max Q Clear Time (g_c+20.6), s	20.6	73.1	10.5	4.7	9.5	2.0	7.6	39.0					
Green Ext Time (p_c), s	0.0	0.0	0.2	0.4	0.1	54.5	0.0	0.0					

Intersection Summary

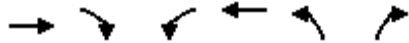
HCM 6th Ctrl Delay	129.6
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 11: Street A & Friars Rd

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖↗	↑↑↑	↖↗	↗↗
Traffic Volume (veh/h)	3368	595	1097	2016	289	614
Future Volume (veh/h)	3368	595	1097	2016	289	614
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3545	501	1155	2122	304	646
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	3574	1085	410	4340	302	575
Arrive On Green	1.00	1.00	0.12	0.85	0.09	0.09
Sat Flow, veh/h	5274	1549	3456	5274	3456	2790
Grp Volume(v), veh/h	3545	501	1155	2122	304	646
Grp Sat Flow(s),veh/h/ln	1702	1549	1728	1702	1728	1395
Q Serve(g_s), s	0.0	0.0	19.0	17.1	14.0	14.0
Cycle Q Clear(g_c), s	0.0	0.0	19.0	17.1	14.0	14.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3574	1085	410	4340	302	575
V/C Ratio(X)	0.99	0.46	2.81	0.49	1.01	1.12
Avail Cap(c_a), veh/h	3574	1085	410	4340	302	575
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	70.5	3.1	73.0	63.5
Incr Delay (d2), s/veh	3.0	0.1	823.3	0.4	53.1	76.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	55.2	3.9	8.5	17.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	3.0	0.1	893.8	3.5	126.1	139.5
LnGrp LOS	A	A	F	A	F	F
Approach Vol, veh/h	4046			3277	950	
Approach Delay, s/veh	2.7			317.3	135.2	
Approach LOS	A			F	F	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	24.0	117.0		141.0	19.0	
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	
Max Green Setting (Gmax), s	19.0	112.0		136.0	14.0	
Max Q Clear Time (g_c+D), s	21.0	2.0		19.1	16.0	
Green Ext Time (p_c), s	0.0	101.6		34.3	0.0	

Intersection Summary

HCM 6th Ctrl Delay		142.5				
HCM 6th LOS			F			

HCM 6th Signalized Intersection Summary
 12: Mission Village Dr & Friars Rd WB

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↶	↶	↶			↶	↶
Traffic Volume (veh/h)	0	0	0	693	0	364	439	740	0	0	1573	575
Future Volume (veh/h)	0	0	0	693	0	364	439	740	0	0	1573	575
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				722	0	224	457	771	0	0	1639	495
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				774	0	343	577	2523	0	0	1751	769
Arrive On Green				0.43	0.00	0.43	0.33	1.00	0.00	0.00	0.49	0.49
Sat Flow, veh/h				3563	0	1578	3456	3647	0	0	3647	1561
Grp Volume(v), veh/h				722	0	224	457	771	0	0	1639	495
Grp Sat Flow(s),veh/h/ln				1781	0	1578	1728	1777	0	0	1777	1561
Q Serve(g_s), s				27.0	0.0	15.7	16.8	0.0	0.0	0.0	60.8	33.0
Cycle Q Clear(g_c), s				27.0	0.0	15.7	16.8	0.0	0.0	0.0	60.8	33.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				774	0	343	577	2523	0	0	1751	769
V/C Ratio(X)				0.93	0.00	0.65	0.79	0.31	0.00	0.00	0.94	0.64
Avail Cap(c_a), veh/h				893	0	396	577	2523	0	0	1751	769
HCM Platoon Ratio				2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.92	0.92	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				38.6	0.0	35.4	44.4	0.0	0.0	0.0	33.4	26.4
Incr Delay (d2), s/veh				14.2	0.0	2.0	6.3	0.3	0.0	0.0	10.9	4.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				10.5	0.0	5.0	6.4	0.1	0.0	0.0	27.2	12.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				52.9	0.0	37.4	50.7	0.3	0.0	0.0	44.3	30.5
LnGrp LOS				D	A	D	D	A	A	A	D	C
Approach Vol, veh/h					946			1228			2134	
Approach Delay, s/veh					49.2			19.0			41.1	
Approach LOS					D			B			D	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		104.7			28.7	76.0		35.3				
Change Period (Y+Rc), s		5.3			5.3	7.0		4.9				
Max Green Setting (Gmax), s		94.7			18.7	69.0		35.1				
Max Q Clear Time (g_c+I1), s		2.0			18.8	62.8		29.0				
Green Ext Time (p_c), s		3.4			0.0	5.6		1.2				

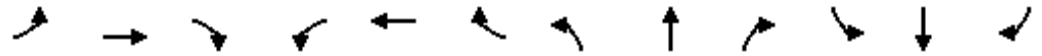
Intersection Summary

HCM 6th Ctrl Delay	36.6
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

HCM Signalized Intersection Capacity Analysis HY+P Plus Event with Feasible Improvements
 13: Mission Village Dr/Street D & Friars Rd EB PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕	↗↘					↑↑↑	↗↘	↗↘	↑↑		
Traffic Volume (vph)	344	10	653	0	0	0	0	857	1099	518	1758	0	
Future Volume (vph)	344	10	653	0	0	0	0	857	1099	518	1758	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		5.2	5.2					4.9	4.9	6.2	6.2		
Lane Util. Factor		1.00	0.88					0.91	0.88	0.97	0.95		
Frbp, ped/bikes		1.00	0.99					1.00	0.96	1.00	1.00		
Flpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00		
Frt		1.00	0.85					1.00	0.85	1.00	1.00		
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)		1777	2748					5085	2680	3433	3539		
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)		1777	2748					5085	2680	3433	3539		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	362	11	687	0	0	0	0	902	1157	545	1851	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	373	687	0	0	0	0	902	1157	545	1851	0	
Confl. Peds. (#/hr)			1						4			4	
Confl. Bikes (#/hr)			1										
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA		
Protected Phases	4	4						2		1	6		
Permitted Phases			4						2				
Actuated Green, G (s)		38.0	38.0					62.0	62.0	23.7	90.6		
Effective Green, g (s)		38.0	38.0					62.0	62.0	23.7	90.6		
Actuated g/C Ratio		0.27	0.27					0.44	0.44	0.17	0.65		
Clearance Time (s)		5.2	5.2					4.9	4.9	6.2	6.2		
Vehicle Extension (s)		3.0	3.0					3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)		482	745					2251	1186	581	2290		
v/s Ratio Prot		0.21						0.18		c0.16	0.52		
v/s Ratio Perm			c0.25						c0.43				
v/c Ratio		0.77	0.92					0.40	0.98	0.94	0.81		
Uniform Delay, d1		47.0	49.6					26.4	38.3	57.4	18.3		
Progression Factor		1.00	1.00					0.69	0.55	1.17	0.28		
Incremental Delay, d2		7.6	16.9					0.2	11.7	12.8	1.5		
Delay (s)		54.6	66.4					18.4	32.6	79.8	6.5		
Level of Service		D	E					B	C	E	A		
Approach Delay (s)		62.3			0.0			26.4			23.2		
Approach LOS		E			A			C			C		
Intersection Summary													
HCM 2000 Control Delay			31.9									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.95										
Actuated Cycle Length (s)			140.0									Sum of lost time (s)	16.3
Intersection Capacity Utilization			90.4%									ICU Level of Service	E
Analysis Period (min)			15										
c Critical Lane Group													

HCM 6th Signalized Intersection Summary
 14: Street D & Street 4

HY+P Plus Event with Feasible Improvements
 PM Peak Hour

































Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↑	↗	↖	↑↑↑		↖	↑↑	↗
Traffic Volume (veh/h)	126	27	4	499	46	259	8	1579	193	1111	1167	133
Future Volume (veh/h)	126	27	4	499	46	259	8	1579	193	1111	1167	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	133	28	1	525	48	273	8	1662	192	1169	1228	107
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	115	212	8	64	168	1164	14	1719	198	1147	2471	1071
Arrive On Green	0.06	0.12	0.12	0.01	0.03	0.03	0.01	0.37	0.37	0.55	1.00	1.00
Sat Flow, veh/h	1781	1792	64	1781	1870	2645	1781	4631	533	3456	3554	1540
Grp Volume(v), veh/h	133	0	29	525	48	273	8	1220	634	1169	1228	107
Grp Sat Flow(s),veh/h/ln	1781	0	1856	1781	1870	1323	1781	1702	1760	1728	1777	1540
Q Serve(g_s), s	9.0	0.0	2.0	5.0	3.5	9.2	0.6	49.2	49.5	46.5	0.0	0.0
Cycle Q Clear(g_c), s	9.0	0.0	2.0	5.0	3.5	9.2	0.6	49.2	49.5	46.5	0.0	0.0
Prop In Lane	1.00		0.03	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	115	0	220	64	168	1164	14	1263	653	1147	2471	1071
V/C Ratio(X)	1.16	0.00	0.13	8.25	0.29	0.23	0.59	0.97	0.97	1.02	0.50	0.10
Avail Cap(c_a), veh/h	115	0	464	64	414	1512	89	1264	654	1147	2471	1071
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.43	0.43	0.43
Uniform Delay (d), s/veh	65.5	0.0	55.3	69.2	63.5	27.8	69.2	43.2	43.3	31.2	0.0	0.0
Incr Delay (d2), s/veh	134.0	0.0	0.3	295.5	0.9	0.1	34.4	17.7	27.8	22.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	0.0	0.9	60.6	1.8	3.3	0.4	23.6	26.4	19.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	199.5	0.0	55.5	336.6	64.4	27.9	103.6	60.9	71.0	53.7	0.1	0.0
LnGrp LOS	F	A	E	F	E	C	F	E	E	F	A	A
Approach Vol, veh/h		162			846			1862			2504	
Approach Delay, s/veh		173.7			2100.6			64.5			25.1	
Approach LOS		F			F			E			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	51.5	57.0	10.0	21.6	6.1	102.3	14.0	17.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	28.0	52.0	5.0	35.0	7.0	73.0	9.0	31.0				
Max Q Clear Time (g_c+40), s	40.5	51.5	7.0	4.0	2.6	2.0	11.0	11.2				
Green Ext Time (p_c), s	0.0	0.4	0.0	0.1	0.0	14.2	0.0	1.4				

Intersection Summary

HCM 6th Ctrl Delay	370.0
HCM 6th LOS	F

HCM Signalized Intersection Capacity Analysis HY+P Plus Event with Feasible Improvements
 15: Street F& Street 4

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 			 	 		 	 		 	 	  
Traffic Volume (vph)	1245	21	4	5	8	21	8	222	4	82	356	768
Future Volume (vph)	1245	21	4	5	8	21	8	222	4	82	356	768
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	2.1	4.5
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.88
Frbp, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.89		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1807		1770	1622		1770	1856		1770	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	1807		1770	1622		1770	1856		1770	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1353	23	4	5	9	23	9	241	4	89	387	835
RTOR Reduction (vph)	0	2	0	0	20	0	0	1	0	0	0	0
Lane Group Flow (vph)	1353	25	0	5	12	0	9	244	0	89	387	835
Confl. Peds. (#/hr)			10			10			10			
Confl. Bikes (#/hr)			3			3			3			3
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	7	4		3	8		5	2		1	6 9	7 9
Permitted Phases												
Actuated Green, G (s)	69.6	84.1		1.0	15.5		1.0	26.6		10.3	35.9	82.4
Effective Green, g (s)	69.6	84.1		1.0	15.5		1.0	26.6		10.3	35.9	82.4
Actuated g/C Ratio	0.50	0.60		0.01	0.11		0.01	0.19		0.07	0.26	0.59
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)	1706	1085		12	179		12	352		130	477	1640
v/s Ratio Prot	c0.39	0.01		0.00	c0.01		0.01	0.13		c0.05	c0.21	c0.30
v/s Ratio Perm												
v/c Ratio	0.79	0.02		0.42	0.06		0.75	0.69		0.68	0.81	0.51
Uniform Delay, d1	29.2	11.3		69.2	55.8		69.4	52.9		63.3	48.9	16.9
Progression Factor	0.79	0.27		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.0	0.0		21.8	0.2		128.3	5.8		13.9	9.6	0.3
Delay (s)	24.1	3.0		91.0	55.9		197.6	58.7		77.2	58.5	17.2
Level of Service	C	A		F	E		F	E		E	E	B
Approach Delay (s)		23.7			60.6			63.6			33.4	
Approach LOS		C			E			E			C	
Intersection Summary												
HCM 2000 Control Delay			31.8									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			140.0									Sum of lost time (s) 20.1
Intersection Capacity Utilization			75.9%									ICU Level of Service D
Analysis Period (min)			15									

c Critical Lane Group

Intersection					
Intersection Delay, s/veh 13.3					
Intersection LOS B					
Approach	EB		WB		NB
Entry Lanes	2		2		1
Conflicting Circle Lanes	2		2		2
Adj Approach Flow, veh/h	1618		1108		301
Demand Flow Rate, veh/h	1650		1130		307
Vehicles Circulating, veh/h	52		259		1550
Vehicles Exiting, veh/h	1337		1598		152
Ped Vol Crossing Leg, #/h	0		0		0
Ped Cap Adj	1.000		1.000		1.000
Approach Delay, s/veh	10.4		9.4		43.8
Approach LOS	B		A		E
Lane	Left	Right	Left	Right	Left
Designated Moves	LT	TR	LT	TR	LR
Assumed Moves	LT	TR	LT	TR	LR
RT Channelized					
Lane Util	0.470	0.530	0.470	0.530	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328
Entry Flow, veh/h	776	874	531	599	307
Cap Entry Lane, veh/h	1287	1359	1064	1139	380
Entry HV Adj Factor	0.980	0.981	0.981	0.980	0.980
Flow Entry, veh/h	760	857	521	587	301
Cap Entry, veh/h	1261	1333	1043	1117	373
V/C Ratio	0.603	0.643	0.499	0.526	0.807
Control Delay, s/veh	10.1	10.6	9.3	9.4	43.8
LOS	B	B	A	A	E
95th %tile Queue, veh	4	5	3	3	7

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↗		↖	↑↑↑	↗				↖	↗	↘
Traffic Volume (veh/h)	567	2749	1186	10	311	2134	393	0	0	0	1185	0	1152
Future Volume (veh/h)	567	2749	1186	10	311	2134	393	0	0	0	1185	0	1152
Initial Q (Qb), veh	20	0	20		20	0	20				0	0	20
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	591	2864	943		324	2223	0				1234	0	1196
Peak Hour Factor	0.96	0.96	0.96		0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	859	3739	906		393	1246					1153	0	2483
Arrive On Green	0.45	0.52	0.52		0.20	0.24	0.00				0.32	0.00	0.32
Sat Flow, veh/h	1781	5106	1552		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	591	2864	943		324	2223	0				1234	0	1196
Grp Sat Flow(s),veh/h/ln	1781	1702	1552		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	37.4	70.2	70.2		24.3	33.2	0.0				44.0	0.0	0.0
Cycle Q Clear(g_c), s	37.4	70.2	70.2		24.3	33.2	0.0				44.0	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	859	3739	906		393	1246					1153	0	2483
V/C Ratio(X)	0.69	0.77	1.04		0.82	1.78					1.07	0.00	0.48
Avail Cap(c_a), veh/h	796	2637	802		393	1246					1153	0	2442
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.44	0.44	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	29.3	15.6	28.3		53.0	51.4	0.0				46.0	0.0	5.6
Incr Delay (d2), s/veh	2.4	1.6	41.2		6.0	354.0	0.0				47.6	0.0	0.1
Initial Q Delay(d3),s/veh	12.5	0.0	79.5		104.3	0.0	0.0				0.0	0.0	0.9
%ile BackOfQ(50%),veh/ln	19.1	12.6	50.6		25.1	54.6	0.0				27.1	0.0	24.0
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	44.2	17.1	149.0		163.3	405.4	0.0				93.6	0.0	6.6
LnGrp LOS	D	B	F		F	F					F	A	A
Approach Vol, veh/h		4398				2547	A					2430	
Approach Delay, s/veh		49.0				374.6						50.8	
Approach LOS		D				F						D	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	30.7	77.2		49.1	67.8	40.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	30	45.7		44.0	42.0	* 33							
Max Q Clear Time (g_c+20), s	20.3	72.2		46.0	39.4	35.2							
Green Ext Time (p_c), s	0.2	0.0		0.0	0.3	0.0							

Intersection Summary

HCM 6th Ctrl Delay	137.9
HCM 6th LOS	F

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖				↑↑↑	↗						
Traffic Volume (veh/h)	1101	2893	0	0	1407	970	0	0	1542	0	0	1401
Future Volume (veh/h)	1101	2893	0	0	1407	970	0	0	1542	0	0	1401
Initial Q (Qb), veh	40	0	0	0	20	40						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	1159	3045	0	0	1383	1086						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	660	0	0	0	1728	1497						
Arrive On Green	0.43	0.93	0.00	0.00	0.45	0.45						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	1159	0	0	0	1383	1086						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	45.0	0.0	0.0	0.0	33.7	30.0						
Cycle Q Clear(g_c), s	45.0	0.0	0.0	0.0	33.7	30.0						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	660	0	0	0	1728	1497						
V/C Ratio(X)	1.76	0.00	0.00	0.00	0.80	0.73						
Avail Cap(c_a), veh/h	764	0	0	0	2283	1935						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	1.00	1.00						
Uniform Delay (d), s/veh	38.3	0.0	0.0	0.0	25.5	25.3						
Incr Delay (d2), s/veh	346.8	0.0	0.0	0.0	1.1	0.6						
Initial Q Delay(d3),s/veh	218.3	0.0	0.0	0.0	4.8	18.7						
%ile BackOfQ(50%),veh/ln	22.1	0.0	0.0	0.0	16.7	17.4						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	603.3	0.0	0.0	0.0	31.5	44.6						
LnGrp LOS	F	A	A	A	C	D						
Approach Vol, veh/h		1159			2469							
Approach Delay, s/veh		603.3			37.3							
Approach LOS		F			D							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		104.9			50.5	54.4						
Change Period (Y+Rc), s		* 7			5.5	7.0						
Max Green Setting (Gmax), s		* 18			45.0	64.0						
Max Q Clear Time (g_c+I1), s		0.0			47.0	35.7						
Green Ext Time (p_c), s		0.0			0.0	11.6						

Intersection Summary

HCM 6th Ctrl Delay	218.1
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↵	↑↑↑	↵↵	↑
Traffic Volume (veh/h)	3428	1018	10	168	1854	513	268
Future Volume (veh/h)	3428	1018	10	168	1854	513	268
Initial Q (Qb), veh	0	0		0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	3571	1025		175	1931	534	130
Peak Hour Factor	0.96	0.96		0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	2746	1226		199	4815	633	309
Arrive On Green	0.61	0.61		0.11	0.75	0.17	0.17
Sat Flow, veh/h	5274	1582		1781	6696	3563	1585
Grp Volume(v), veh/h	3571	1025		175	1931	534	130
Grp Sat Flow(s),veh/h/ln	1702	1582		1781	1609	1781	1585
Q Serve(g_s), s	82.4	56.4		13.2	14.6	19.9	10.1
Cycle Q Clear(g_c), s	82.4	56.4		13.2	14.6	19.9	10.1
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2746	1226		199	4815	633	309
V/C Ratio(X)	1.30	0.84		0.88	0.40	0.84	0.42
Avail Cap(c_a), veh/h	3092	1226		208	4822	843	375
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.86	0.86	0.49	0.49
Uniform Delay (d), s/veh	31.4	9.8		59.5	6.4	54.8	48.1
Incr Delay (d2), s/veh	138.0	6.8		27.1	0.2	2.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.1	11.5	0.0
%ile BackOfQ(50%),veh	62.6	36.1		7.3	4.6	10.8	3.9
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	169.4	16.7		86.6	6.6	68.6	48.3
LnGrp LOS	F	B		F	A	E	D
Approach Vol, veh/h	4596			2106	664		
Approach Delay, s/veh	135.4			13.3	64.6		
Approach LOS	F			B	E		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	19.6	88.4			107.9	28.1	
Change Period (Y+Rc), s	4.4	* 6			6.0	5.1	
Max Green Setting (Gmax), s	15.9	* 73			92.7	32.2	
Max Q Clear Time (g_c+11.2), s	11.2	84.4			16.6	21.9	
Green Ext Time (p_c), s	0.0	0.0			52.0	1.1	

Intersection Summary

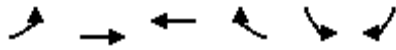
HCM 6th Ctrl Delay	94.1
HCM 6th LOS	F

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 20: Friars Rd & Santo Rd

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑↑		↔↔	↔
Traffic Volume (veh/h)	453	3323	1679	110	90	293
Future Volume (veh/h)	453	3323	1679	110	90	293
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1856	1870	1870
Adj Flow Rate, veh/h	472	3461	1749	110	94	301
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	3	3	2	2
Cap, veh/h	537	3742	3344	210	609	526
Arrive On Green	0.16	0.73	0.54	0.54	0.18	0.18
Sat Flow, veh/h	3456	5274	6444	389	3456	1585
Grp Volume(v), veh/h	472	3461	1354	505	94	301
Grp Sat Flow(s),veh/h/ln	1728	1702	1596	1786	1728	1585
Q Serve(g_s), s	16.0	67.5	21.7	21.7	2.8	18.8
Cycle Q Clear(g_c), s	16.0	67.5	21.7	21.7	2.8	18.8
Prop In Lane	1.00			0.22	1.00	1.00
Lane Grp Cap(c), veh/h	537	3742	2589	966	609	526
V/C Ratio(X)	0.88	0.92	0.52	0.52	0.15	0.57
Avail Cap(c_a), veh/h	737	3742	2589	966	734	583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.65	0.65	1.00	1.00
Uniform Delay (d), s/veh	49.6	13.3	17.6	17.6	41.8	33.1
Incr Delay (d2), s/veh	0.7	0.5	0.5	1.3	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	19.3	7.5	8.6	1.2	16.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.3	13.8	18.1	19.0	41.9	33.6
LnGrp LOS	D	B	B	B	D	C
Approach Vol, veh/h		3933	1859		395	
Approach Delay, s/veh		18.2	18.4		35.6	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		94.4		25.6	23.0	71.4
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		83.6		25.5	25.6	* 54
Max Q Clear Time (g_c+I1), s		69.5		20.8	18.0	23.7
Green Ext Time (p_c), s		14.0		0.4	0.6	17.7

Intersection Summary

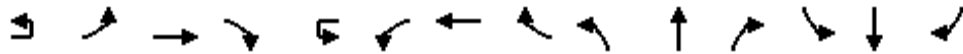
HCM 6th Ctrl Delay	19.4
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
21: Riverdale St & Friars Rd

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		3	3	3		3	3	3	3	3	3	3	3	3
Traffic Volume (veh/h)	30	234	2924	244	10	50	1354	60	223	110	140	60	60	143
Future Volume (veh/h)	30	234	2924	244	10	50	1354	60	223	110	140	60	60	143
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	0.99		0.99	1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1856		1737	1856	1870	1870	1870	1870	1811	1870	1870
Adj Flow Rate, veh/h		241	3014	159		52	1396	25	230	113	92	62	62	51
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	3		11	3	2	2	2	2	6	2	2
Cap, veh/h		272	2832	870		65	2236	700	335	248	202	252	247	203
Arrive On Green		0.15	0.55	0.55		0.04	0.44	0.44	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h		1781	5106	1568		1654	5066	1585	1273	951	774	1135	946	778
Grp Volume(v), veh/h		241	3014	159		52	1396	25	230	0	205	62	0	113
Grp Sat Flow(s),veh/h/ln		1781	1702	1568		1654	1689	1585	1273	0	1725	1135	0	1724
Q Serve(g_s), s		13.9	58.2	5.3		3.3	22.3	0.9	18.3	0.0	10.5	5.1	0.0	5.4
Cycle Q Clear(g_c), s		13.9	58.2	5.3		3.3	22.3	0.9	23.7	0.0	10.5	15.5	0.0	5.4
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.45	1.00		0.45
Lane Grp Cap(c), veh/h		272	2832	870		65	2236	700	335	0	451	252	0	450
V/C Ratio(X)		0.89	1.06	0.18		0.80	0.62	0.04	0.69	0.00	0.45	0.25	0.00	0.25
Avail Cap(c_a), veh/h		324	2832	870		206	2236	700	455	0	613	359	0	612
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.51	0.51	0.51		0.91	0.91	0.91	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		43.6	23.4	11.6		50.0	22.6	16.6	40.0	0.0	32.5	39.0	0.0	30.7
Incr Delay (d2), s/veh		11.4	33.6	0.2		7.4	1.2	0.1	1.1	0.0	0.3	0.2	0.0	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		6.8	28.8	1.7		1.4	8.4	0.3	5.8	0.0	4.4	1.4	0.0	2.3
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		55.0	57.0	11.8		57.4	23.8	16.7	41.1	0.0	32.8	39.2	0.0	30.8
LnGrp LOS		E	F	B		E	C	B	D	A	C	D	A	C
Approach Vol, veh/h			3414			1473			435		175			
Approach Delay, s/veh			54.7			24.9			37.2		33.8			
Approach LOS			D			C			D		C			
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	8.5	64.1	32.3	20.4	52.2	32.3								
Change Period (Y+Rc), s	4.4	* 5.9	4.9	4.4	5.9	4.9								
Max Green Setting (Gmax), s	13.5	* 40	37.3	19.1	33.4	37.3								
Max Q Clear Time (g_c+1/3), s	15.3	60.2	17.5	15.9	24.3	25.7								
Green Ext Time (p_c), s	0.0	0.0	0.5	0.1	5.7	1.0								

Intersection Summary

HCM 6th Ctrl Delay	44.7
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
22: Mission Gorge Rd & Friars Rd

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↔	↑↑↑		↔	↔
Traffic Volume (veh/h)	2626	288	280	1164	10	360	600
Future Volume (veh/h)	2626	288	280	1164	10	360	600
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	2794	0	298	1238		383	637
Peak Hour Factor	0.94	0.94	0.94	0.94		0.94	0.94
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2621		463	0		412	1018
Arrive On Green	0.51	0.00	0.13	0.00		0.23	0.23
Sat Flow, veh/h	5443	0	3456	298		1781	2790
Grp Volume(v), veh/h	2794	0	298	51.6		383	637
Grp Sat Flow(s),veh/h/ln	1702	0	1728	D		1781	1395
Q Serve(g_s), s	61.6	0.0	9.8			25.3	6.5
Cycle Q Clear(g_c), s	61.6	0.0	9.8			25.3	6.5
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2621		463			412	1018
V/C Ratio(X)	1.07		0.64			0.93	0.63
Avail Cap(c_a), veh/h	2621		463			425	1039
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.09	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	29.2	0.0	49.3			45.2	31.4
Incr Delay (d2), s/veh	30.6	0.0	2.4			26.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh	30.1	0.0	4.3			14.1	7.6
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	59.8	0.0	51.6			71.3	32.2
LnGrp LOS	F		D			E	C
Approach Vol, veh/h	2794	A				1020	
Approach Delay, s/veh	59.8					46.9	
Approach LOS	E					D	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	30.5	67.4					32.1
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	61.6					28.6
Max Q Clear Time (g_c+I1), s	11.8	63.6					27.3
Green Ext Time (p_c), s	0.2	0.0					0.5

Intersection Summary

HCM 6th Ctrl Delay	56.0
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 23: Qualcomm Way & Rio San Diego Dr

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↗		↖↗	↑↑	↗	↖↗	↑↑↑	↗		↖↗	↑↑↑	
Traffic Volume (veh/h)	321	210	310	20	807	362	340	60	359	164	10	70	913	340
Future Volume (veh/h)	321	210	310	20	807	362	340	60	359	164	10	70	913	340
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		0.99	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	338	221	299		849	381	147	63	378	19		74	961	327
Peak Hour Factor	0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2		2	2	2
Cap, veh/h	401	401	383		818	1192	529	107	1850	572		121	1373	466
Arrive On Green	0.12	0.21	0.21		0.24	0.34	0.34	0.03	0.36	0.36		0.03	0.37	0.37
Sat Flow, veh/h	3456	1870	1556		3456	3554	1577	3456	5106	1580		3456	3748	1273
Grp Volume(v), veh/h	338	221	299		849	381	147	63	378	19		74	873	415
Grp Sat Flow(s),veh/h/ln	1728	1870	1556		1728	1777	1577	1728	1702	1580		1728	1702	1616
Q Serve(g_s), s	12.2	13.3	22.7		30.0	10.1	8.7	2.3	6.5	1.0		2.7	27.7	27.8
Cycle Q Clear(g_c), s	12.2	13.3	22.7		30.0	10.1	8.7	2.3	6.5	1.0		2.7	27.7	27.8
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.79
Lane Grp Cap(c), veh/h	401	401	383		818	1192	529	107	1850	572		121	1247	592
V/C Ratio(X)	0.84	0.55	0.78		1.04	0.32	0.28	0.59	0.20	0.03		0.61	0.70	0.70
Avail Cap(c_a), veh/h	818	590	540		818	1192	529	1636	2417	748		818	1611	765
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	54.9	44.3	44.7		48.4	31.4	30.9	60.6	27.8	26.1		60.3	34.2	34.2
Incr Delay (d2), s/veh	1.9	1.2	4.8		41.8	0.2	0.3	1.9	0.1	0.0		1.9	1.4	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	6.2	9.1		17.4	4.3	3.3	1.0	2.6	0.4		1.2	11.5	11.2
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	56.8	45.5	49.5		90.2	31.5	31.2	62.6	27.9	26.1		62.2	35.6	37.2
LnGrp LOS	E	D	D		F	C	C	E	C	C		E	D	D
Approach Vol, veh/h		858				1377			460				1362	
Approach Delay, s/veh		51.3				67.7			32.6				37.6	
Approach LOS		D				E			C				D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	8.8	51.0	34.4	32.5	8.3	51.6	19.1	47.8						
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3						
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0						
Max Q Clear Time (g_c+1/4), s	14.7	8.5	32.0	24.7	4.3	29.8	14.2	12.1						
Green Ext Time (p_c), s	0.1	4.1	0.0	2.0	0.1	16.7	0.5	2.9						

Intersection Summary

HCM 6th Ctrl Delay	50.1
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection														
Intersection Delay, s/veh 32.7														
Intersection LOS D														

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↖	↕		↖	↕			↕				↕	
Traffic Vol, veh/h	20	170	594	20	15	509	60	20	22	20	20	130	28	110
Future Vol, veh/h	20	170	594	20	15	509	60	20	22	20	20	130	28	110
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	189	660	22	17	566	67	22	24	22	22	144	31	122
Number of Lanes	0	1	2	0	1	2	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	35.4	30.8	14.4	32.9
HCM LOS	E	D	B	D

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	32%	100%	0%	0%	100%	0%	0%	49%
Vol Thru, %	35%	0%	100%	91%	0%	100%	74%	10%
Vol Right, %	32%	0%	0%	9%	0%	0%	26%	41%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	62	190	396	218	15	339	230	288
LT Vol	20	190	0	0	15	0	0	140
Through Vol	22	0	396	198	0	339	170	30
RT Vol	20	0	0	20	0	0	60	118
Lane Flow Rate	69	211	440	242	17	377	255	320
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.183	0.476	0.929	0.507	0.039	0.83	0.548	0.752
Departure Headway (Hd)	9.566	8.121	7.602	7.536	8.445	7.926	7.736	8.464
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	378	441	475	477	422	456	464	426
Service Time	7.266	5.901	5.382	5.315	6.231	5.711	5.521	6.243
HCM Lane V/C Ratio	0.183	0.478	0.926	0.507	0.04	0.827	0.55	0.751
HCM Control Delay	14.4	18.1	53.3	17.9	11.6	39.2	19.6	32.9
HCM Lane LOS	B	C	F	C	B	E	C	D
HCM 95th-tile Q	0.7	2.5	10.9	2.8	0.1	8	3.2	6.2

HCM 6th Signalized Intersection Summary HY+P Plus Event with Feasible Improvements
 25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	10	200	280	164	20	320	270	174	166	13	30	370	145	80
Future Volume (veh/h)	10	200	280	164	20	320	270	174	166	13	30	370	145	80
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99	1.00		0.99	1.00		0.98		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No		No		No		No			No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h		206	289	69	21	330	202	179	171	10		381	149	33
Peak Hour Factor		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97		0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h		380	399	334	30	476	309	223	458	27		496	444	96
Arrive On Green		0.21	0.21	0.21	0.23	0.23	0.23	0.13	0.13	0.13		0.14	0.15	0.15
Sat Flow, veh/h		1781	1870	1565	128	2029	1318	1781	3409	198		3456	2901	626
Grp Volume(v), veh/h		206	289	69	306	0	247	179	89	92		381	90	92
Grp Sat Flow(s),veh/h/ln		1781	1870	1565	1864	0	1611	1781	1777	1830		1728	1777	1750
Q Serve(g_s), s		7.5	10.4	2.6	10.9	0.0	10.1	7.1	3.3	3.3		7.7	3.3	3.4
Cycle Q Clear(g_c), s		7.5	10.4	2.6	10.9	0.0	10.1	7.1	3.3	3.3		7.7	3.3	3.4
Prop In Lane		1.00		1.00	0.07		0.82	1.00		0.11		1.00		0.36
Lane Grp Cap(c), veh/h		380	399	334	437	0	378	223	239	246		496	272	268
V/C Ratio(X)		0.54	0.72	0.21	0.70	0.00	0.65	0.80	0.37	0.38		0.77	0.33	0.34
Avail Cap(c_a), veh/h		982	1031	863	1028	0	888	737	1470	1513		1429	1470	1448
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		25.4	26.6	23.5	25.4	0.0	25.1	30.9	28.6	28.6		29.9	27.4	27.5
Incr Delay (d2), s/veh		0.7	1.5	0.2	0.8	0.0	0.7	2.6	4.4	4.3		1.0	3.2	3.5
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.0	4.4	1.0	4.8	0.0	3.8	3.1	1.7	1.7		3.2	1.6	1.7
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		26.1	28.1	23.7	26.2	0.0	25.8	33.4	33.0	33.0		30.9	30.6	31.0
LnGrp LOS		C	C	C	C	A	C	C	C	C		C	C	C
Approach Vol, veh/h			564			553			360				563	
Approach Delay, s/veh			26.8			26.0			33.2				30.8	
Approach LOS			C			C			C				C	
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	14.8	15.2	20.7	13.5	16.5	21.9								
Change Period (Y+Rc), s	4.4	* 5.4	5.2	4.4	5.4	4.9								
Max Green Setting (Gmax), s	30.0	* 60	40.0	30.0	60.0	40.0								
Max Q Clear Time (g_c+1), s	19.7	5.3	12.4	9.1	5.4	12.9								
Green Ext Time (p_c), s	0.7	4.0	1.6	0.2	4.1	2.5								

Intersection Summary

HCM 6th Ctrl Delay	28.8
HCM 6th LOS	C

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary HY+P Plus Event with Feasible Improvements
 26: Rancho Mission Rd & San Diego Mission Rd PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖	↖↗	↖	↖	↖↗
Traffic Volume (veh/h)	241	760	440	158	457	252	165	293	172	254	282	486
Future Volume (veh/h)	241	760	440	158	457	252	165	293	172	254	282	486
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	254	800	421	166	481	224	174	308	42	267	297	318
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	282	868	454	194	798	369	202	356	294	294	453	376
Arrive On Green	0.16	0.39	0.39	0.11	0.34	0.34	0.11	0.19	0.19	0.17	0.24	0.24
Sat Flow, veh/h	1781	2236	1169	1781	2355	1090	1781	1870	1547	1781	1870	1554
Grp Volume(v), veh/h	254	635	586	166	362	343	174	308	42	267	297	318
Grp Sat Flow(s),veh/h/ln	1781	1777	1627	1781	1777	1668	1781	1870	1547	1781	1870	1554
Q Serve(g_s), s	17.6	42.8	43.4	11.5	21.3	21.6	12.1	20.1	2.8	18.5	18.0	24.6
Cycle Q Clear(g_c), s	17.6	42.8	43.4	11.5	21.3	21.6	12.1	20.1	2.8	18.5	18.0	24.6
Prop In Lane	1.00		0.72	1.00		0.65	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	282	690	632	194	602	565	202	356	294	294	453	376
V/C Ratio(X)	0.90	0.92	0.93	0.86	0.60	0.61	0.86	0.87	0.14	0.91	0.66	0.84
Avail Cap(c_a), veh/h	495	705	646	495	776	728	424	742	614	424	742	617
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	36.7	36.9	55.2	34.6	34.7	54.9	49.5	42.5	51.6	43.0	45.5
Incr Delay (d2), s/veh	5.4	17.5	19.9	4.2	1.6	1.7	4.2	2.5	0.1	14.2	0.6	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	21.2	20.0	5.3	9.3	8.8	5.6	9.6	1.1	9.4	8.3	9.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.5	54.2	56.8	59.4	36.2	36.4	59.1	52.0	42.5	65.9	43.6	48.2
LnGrp LOS	E	D	E	E	D	D	E	D	D	E	D	D
Approach Vol, veh/h		1475			871			524			882	
Approach Delay, s/veh		55.8			40.7			53.6			52.0	
Approach LOS		E			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.7	54.4	18.3	35.6	23.9	48.2	24.8	29.1				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	*5.5	4.0	*5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	*55	30.0	*50				
Max Q Clear Time (g_c+10), s	11.5	45.4	14.1	26.6	19.6	23.6	20.5	22.1				
Green Ext Time (p_c), s	0.2	3.5	0.2	1.6	0.3	7.7	0.3	1.2				

Intersection Summary

HCM 6th Ctrl Delay	51.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary HY+P Plus Event with Feasible Improvements
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave PM Peak Hour

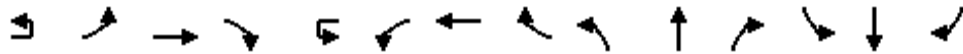


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	167	571	456	70	264	30	385	90	80	30	150	133
Future Volume (veh/h)	167	571	456	70	264	30	385	90	80	30	150	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	186	634	354	78	293	26	428	100	67	33	167	124
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	704	952	99	1026	90	416	241	162	334	186	138
Arrive On Green	0.12	0.38	0.38	0.06	0.31	0.31	0.23	0.23	0.23	0.19	0.19	0.19
Sat Flow, veh/h	1781	1870	1547	1781	3303	291	1781	1033	692	1781	995	739
Grp Volume(v), veh/h	186	634	354	78	157	162	428	0	167	33	0	291
Grp Sat Flow(s),veh/h/ln	1781	1870	1547	1781	1777	1817	1781	0	1726	1781	0	1733
Q Serve(g_s), s	12.5	39.1	14.2	5.3	8.1	8.3	28.5	0.0	10.0	1.9	0.0	20.0
Cycle Q Clear(g_c), s	12.5	39.1	14.2	5.3	8.1	8.3	28.5	0.0	10.0	1.9	0.0	20.0
Prop In Lane	1.00		1.00	1.00		0.16	1.00		0.40	1.00		0.43
Lane Grp Cap(c), veh/h	216	704	952	99	552	564	416	0	403	334	0	325
V/C Ratio(X)	0.86	0.90	0.37	0.79	0.28	0.29	1.03	0.00	0.41	0.10	0.00	0.90
Avail Cap(c_a), veh/h	378	954	1158	141	670	686	416	0	403	459	0	447
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.6	35.9	12.1	57.0	31.8	31.9	46.8	0.0	39.8	41.1	0.0	48.5
Incr Delay (d2), s/veh	9.5	8.9	0.2	16.9	0.3	0.3	52.1	0.0	0.3	0.0	0.0	13.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	18.8	8.2	2.9	3.6	3.7	18.5	0.0	4.3	0.8	0.0	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.2	44.8	12.3	73.9	32.1	32.1	98.9	0.0	40.0	41.2	0.0	61.9
LnGrp LOS	E	D	B	E	C	C	F	A	D	D	A	E
Approach Vol, veh/h		1174			397			595			324	
Approach Delay, s/veh		37.8			40.3			82.4			59.7	
Approach LOS		D			D			F			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	1.3	50.5		27.4	19.3	42.4		33.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	7	62.3		31.5	25.9	46.1		28.5				
Max Q Clear Time (g_c+1), s	7	41.1		22.0	14.5	10.3		30.5				
Green Ext Time (p_c), s	0.0	4.9		0.8	0.4	1.9		0.0				

Intersection Summary

HCM 6th Ctrl Delay	51.7
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary HY+P Plus Event with Feasible Improvements
 28: Qualcomm Way & Camino de la Reina/Camino del Rio N PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔	↔	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔	
Traffic Volume (veh/h)	10	143	458	320	10	485	212	142	183	649	326	304	1206	150	
Future Volume (veh/h)	10	143	458	320	10	485	212	142	183	649	326	304	1206	150	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.98	1.00		0.98	1.00		0.98	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1841	1870	1856	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		147	503	246		500	219	22	189	669	280	313	1243	147	
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %		2	2	2		2	4	2	3	2	2	2	2	2	
Cap, veh/h		164	498	310		524	674	298	225	2645	807	316	2512	297	
Arrive On Green		0.09	0.13	0.13		0.15	0.19	0.19	0.02	0.17	0.17	0.09	0.54	0.54	
Sat Flow, veh/h		1781	3741	1550		3456	3497	1548	3428	5106	1558	3456	4619	546	
Grp Volume(v), veh/h		147	503	246		500	219	22	189	669	280	313	916	474	
Grp Sat Flow(s),veh/h/ln		1781	1870	1550		1728	1749	1548	1714	1702	1558	1728	1702	1761	
Q Serve(g_s), s		16.3	26.6	26.6		28.7	10.8	2.3	11.0	22.7	31.7	18.1	33.6	33.6	
Cycle Q Clear(g_c), s		16.3	26.6	26.6		28.7	10.8	2.3	11.0	22.7	31.7	18.1	33.6	33.6	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.31	
Lane Grp Cap(c), veh/h		164	498	310		524	674	298	225	2645	807	316	1851	958	
V/C Ratio(X)		0.90	1.01	0.79		0.96	0.33	0.07	0.84	0.25	0.35	0.99	0.49	0.49	
Avail Cap(c_a), veh/h		190	498	310		524	674	298	314	2645	807	316	1851	958	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	0.83	0.83	0.83	0.09	0.09	0.09	
Uniform Delay (d), s/veh		89.9	86.7	76.3		84.2	69.5	66.1	96.8	49.4	53.1	90.8	28.5	28.5	
Incr Delay (d2), s/veh		33.0	43.1	12.7		28.1	0.1	0.0	8.3	0.2	1.0	12.9	0.1	0.2	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		9.1	16.0	13.1		14.8	4.8	0.9	5.4	10.5	13.6	8.7	14.0	14.5	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		122.8	129.8	89.1		112.2	69.7	66.2	105.1	49.6	54.1	103.6	28.6	28.6	
LnGrp LOS		F	F	F		F	E	E	F	D	D	F	C	C	
Approach Vol, veh/h		896				741				1138			1703		
Approach Delay, s/veh		117.5				98.3				59.9			42.4		
Approach LOS		F				F				E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8							
Phs Duration (G+Y+Rc), s	22.7	110.3	34.7	32.3	17.5	115.5	22.8	44.2							
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7							
Max Green Setting (Gmax), s	18.3	103.6	30.3	* 27	18.3	* 1.1E2	21.3	35.6							
Max Q Clear Time (g_c+20), s	20.1	33.7	30.7	28.6	13.0	35.6	18.3	12.8							
Green Ext Time (p_c), s	0.0	5.9	0.0	0.0	0.2	35.0	0.1	0.8							

Intersection Summary

HCM 6th Ctrl Delay	71.1
HCM 6th LOS	E

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary HY+P Plus Event with Feasible Improvements
 29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔	↑↑↑			↑↑	↔
Traffic Volume (veh/h)	10	113	0	612	32	197	410	213	925	0	0	1133	778
Future Volume (veh/h)	10	113	0	612	32	197	410	213	925	0	0	1133	778
Initial Q (Qb), veh		0	0	20	0	20	20	20	20	0	0	20	20
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No			No			No		
Adj Sat Flow, veh/h/ln		1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h		120	0	291	34	210	275	227	984	0	0	1205	558
Peak Hour Factor		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h		0	0	0	23	330	317	178	3853	0	0	2240	975
Arrive On Green		0.00	0.00	0.00	0.18	0.18	0.18	0.10	0.75	0.00	0.00	1.00	1.00
Sat Flow, veh/h			0		259	1599	1582	1781	5274	0	0	3647	1551
Grp Volume(v), veh/h			0.0		244	0	275	227	984	0	0	1205	558
Grp Sat Flow(s),veh/h/ln					1857	0	1582	1781	1702	0	0	1777	1551
Q Serve(g_s), s					24.7	0.0	34.3	20.0	11.7	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s					24.7	0.0	34.3	20.0	11.7	0.0	0.0	0.0	0.0
Prop In Lane					0.14		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					362	0	317	178	3853	0	0	2240	975
V/C Ratio(X)					0.67	0.00	0.87	1.27	0.26	0.00	0.00	0.54	0.57
Avail Cap(c_a), veh/h					371	0	316	178	3855	0	0	2244	980
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)					1.00	0.00	1.00	0.62	0.62	0.00	0.00	0.72	0.72
Uniform Delay (d), s/veh					78.7	0.0	80.0	90.0	8.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh					3.7	0.0	21.1	147.8	0.1	0.0	0.0	0.7	1.8
Initial Q Delay(d3),s/veh					67.5	0.0	168.4	404.2	0.3	0.0	0.0	1.2	7.1
%ile BackOfQ(50%),veh/ln					23.4	0.0	32.8	36.6	5.9	0.0	0.0	0.6	2.4
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					149.9	0.0	269.5	642.0	8.3	0.0	0.0	1.9	8.9
LnGrp LOS					F	A	F	F	A	A	A	A	A
Approach Vol, veh/h						519			1211			1763	
Approach Delay, s/veh						213.3			127.1			4.1	
Approach LOS						F			F			A	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		158.0			24.7	133.3		42.0					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		107.8			* 20	83.1		40.0					
Max Q Clear Time (g_c+I1), s		13.7			22.0	2.0		36.3					
Green Ext Time (p_c), s		5.2			0.0	44.1		0.5					

Intersection Summary

HCM 6th Ctrl Delay	77.8
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	740	0	1366	1935	0
Future Volume (veh/h)	0	740	0	1366	1935	0
Initial Q (Qb), veh	0	10	0	0	50	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1870	0
Adj Flow Rate, veh/h	0	752	0	1394	1974	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	2	2	0
Cap, veh/h	0	0	0	2944	2944	0
Arrive On Green	0.00	0.00	0.00	0.82	0.82	0.00
Sat Flow, veh/h	0		0	3741	3741	0
Grp Volume(v), veh/h	0.0		0	1394	1974	0
Grp Sat Flow(s),veh/h/ln			0	1777	1777	0
Q Serve(g_s), s			0.0	3.6	6.9	0.0
Cycle Q Clear(g_c), s			0.0	3.6	6.9	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2944	2944	0
V/C Ratio(X)			0.00	0.47	0.67	0.00
Avail Cap(c_a), veh/h			0	5352	5352	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	0.8	1.4	0.0
Incr Delay (d2), s/veh			0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	6.3	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	2.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	0.8	7.8	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1394	1974	
Approach Delay, s/veh				0.8	7.8	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		29.9				29.9
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		45.0				45.0
Max Q Clear Time (g_c+I1), s		5.6				8.9
Green Ext Time (p_c), s		8.7				15.5
Intersection Summary						
HCM 6th Ctrl Delay			4.9			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
 31: Texas St & Camino del Rio S

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↕	↕	↔	↕	↔
Traffic Volume (veh/h)	282	155	390	285	63	540	100	914	130	310	1788	197
Future Volume (veh/h)	282	155	390	285	63	540	100	914	130	310	1788	197
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	238	265	365	359	0	563	109	993	137	337	1943	180
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	265	278	347	504	0	539	125	1285	177	354	1913	853
Arrive On Green	0.15	0.15	0.15	0.14	0.00	0.14	0.07	0.41	0.41	0.20	0.54	0.54
Sat Flow, veh/h	1781	1870	1585	3563	0	1585	1781	3137	433	1781	3554	1585
Grp Volume(v), veh/h	238	265	365	359	0	563	109	562	568	337	1943	180
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1585	1781	1777	1793	1781	1777	1585
Q Serve(g_s), s	27.8	29.8	31.5	20.4	0.0	30.0	12.8	57.9	58.0	39.6	114.1	12.5
Cycle Q Clear(g_c), s	27.8	29.8	31.5	20.4	0.0	30.0	12.8	57.9	58.0	39.6	114.1	12.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	265	278	347	504	0	539	125	728	734	354	1913	853
V/C Ratio(X)	0.90	0.95	1.05	0.71	0.00	1.04	0.87	0.77	0.77	0.95	1.02	0.21
Avail Cap(c_a), veh/h	265	278	347	504	0	539	148	728	734	619	1913	853
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	88.7	89.5	82.8	86.9	0.0	69.9	97.6	54.0	54.0	83.9	48.9	25.5
Incr Delay (d2), s/veh	30.5	41.3	62.9	6.5	0.0	50.7	32.6	4.7	4.7	10.9	24.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.2	17.7	25.1	9.9	0.0	36.8	7.1	27.0	27.3	19.4	56.4	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	119.2	130.8	145.7	93.3	0.0	120.7	130.2	58.7	58.7	94.9	73.5	25.7
LnGrp LOS	F	F	F	F	A	F	F	E	E	F	F	C
Approach Vol, veh/h	868			922			1239			2460		
Approach Delay, s/veh	133.9			110.0			65.0			72.9		
Approach LOS	F			F			E			E		
Timer - Assigned Phs	1	2	4		5	6	8					
Phs Duration (G+Y+Rc), s	46.5	92.0	36.4		19.3	119.3	37.0					
Change Period (Y+Rc), s	4.4	5.2	4.9		4.4	* 5.2	7.0					
Max Green Setting (Gmax), s	73.6	57.8	31.5		17.6	* 1.1E2	30.0					
Max Q Clear Time (g_c+1), s	41.6	60.0	33.5		14.8	116.1	32.0					
Green Ext Time (p_c), s	0.5	0.0	0.0		0.0	0.0	0.0					

Intersection Summary

HCM 6th Ctrl Delay	87.0
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
32: Ward Rd & Rancho Mission Rd

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations									
Traffic Volume (veh/h)	10	55	305	10	388	517	10	620	88
Future Volume (veh/h)	10	55	305	10	388	517	10	620	88
Initial Q (Qb), veh		0	0		0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		0.99				0.96
Parking Bus, Adj		1.00	1.00		1.00	1.00		1.00	1.00
Work Zone On Approach		No			No		No		
Adj Sat Flow, veh/h/ln		1870	1870		1870	1870		1870	1870
Adj Flow Rate, veh/h		58	175		408	544		653	75
Peak Hour Factor		0.95	0.95		0.95	0.95		0.95	0.95
Percent Heavy Veh, %		2	2		2	2		2	2
Cap, veh/h		268	238		567	1080		2135	245
Arrive On Green		0.15	0.15		0.67	0.67		0.67	0.67
Sat Flow, veh/h		1781	1585		631	1702		3291	367
Grp Volume(v), veh/h		58	175		408	544		362	366
Grp Sat Flow(s),veh/h/ln		1781	1585		631	1617		1777	1787
Q Serve(g_s), s		1.4	5.2		26.7	8.3		4.2	4.2
Cycle Q Clear(g_c), s		1.4	5.2		30.9	8.3		4.2	4.2
Prop In Lane		1.00	1.00		1.00				0.21
Lane Grp Cap(c), veh/h		268	238		567	1080		1186	1193
V/C Ratio(X)		0.22	0.74		0.72	0.50		0.31	0.31
Avail Cap(c_a), veh/h		649	578		567	1080		1187	1194
HCM Platoon Ratio		1.00	1.00		1.00	1.00		1.00	1.00
Upstream Filter(I)		1.00	1.00		1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh		18.4	20.1		9.9	4.1		3.4	3.4
Incr Delay (d2), s/veh		0.4	4.4		4.4	0.4		0.1	0.1
Initial Q Delay(d3),s/veh		0.0	0.0		0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln		0.6	2.0		3.2	1.3		0.7	0.7
Unsig. Movement Delay, s/veh									
LnGrp Delay(d),s/veh		18.8	24.4		14.3	4.5		3.6	3.6
LnGrp LOS		B	C		B	A		A	A
Approach Vol, veh/h		233				952		728	
Approach Delay, s/veh		23.0				8.7		3.6	
Approach LOS		C				A		A	
Timer - Assigned Phs		2		4		6			
Phs Duration (G+Y+Rc), s		37.5		11.9		37.5			
Change Period (Y+Rc), s		4.5		4.5		4.5			
Max Green Setting (Gmax), s		33.0		18.0		33.0			
Max Q Clear Time (g_c+I1), s		32.9		7.2		6.2			
Green Ext Time (p_c), s		0.0		0.5		4.7			

Intersection Summary

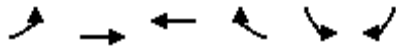
HCM 6th Ctrl Delay	8.5
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
33: Camino del Rio N & Ward Rd

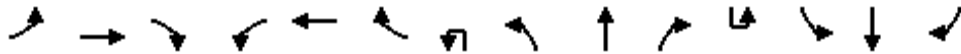
HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑	↗	↘	↗
Traffic Volume (veh/h)	365	510	190	549	758	197
Future Volume (veh/h)	365	510	190	549	758	197
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	388	543	202	51	806	172
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	428	1442	411	183	838	1126
Arrive On Green	0.24	0.41	0.12	0.12	0.47	0.47
Sat Flow, veh/h	1781	3647	3647	1578	1781	1585
Grp Volume(v), veh/h	388	543	202	51	806	172
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1578	1781	1585
Q Serve(g_s), s	18.6	9.4	4.7	2.6	38.5	3.1
Cycle Q Clear(g_c), s	18.6	9.4	4.7	2.6	38.5	3.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	428	1442	411	183	838	1126
V/C Ratio(X)	0.91	0.38	0.49	0.28	0.96	0.15
Avail Cap(c_a), veh/h	891	2829	2829	1256	891	1174
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	18.3	36.5	35.5	22.5	4.1
Incr Delay (d2), s/veh	3.1	0.2	1.4	1.3	20.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	3.6	2.0	1.0	19.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.5	18.6	37.8	36.8	43.0	4.2
LnGrp LOS	D	B	D	D	D	A
Approach Vol, veh/h		931	253		978	
Approach Delay, s/veh		25.6	37.6		36.2	
Approach LOS		C	D		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		41.7		46.3	25.5	16.2
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		11.4		40.5	20.6	6.7
Green Ext Time (p_c), s		5.9		0.8	0.5	2.3
Intersection Summary						
HCM 6th Ctrl Delay			31.8			
HCM 6th LOS			C			
Notes						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

HCM 6th Signalized Intersection Summary
 34: Fairmount Ave & Mission Gorge Rd

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↗	↕			↗	↕	
Traffic Volume (veh/h)	67	17	639	30	14	10	40	508	925	40	10	10	930	38
Future Volume (veh/h)	67	17	639	30	14	10	40	508	925	40	10	10	930	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		0.98	1.00		0.98	1.00		1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No			No			No		No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	736	31	14	4	518	944	39	10	949	37		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	361	582	152	63	15	853	2392	99	17	1557	61		
Arrive On Green	0.00	0.00	0.19	0.19	0.19	0.19	0.49	1.00	1.00	0.01	0.45	0.45		
Sat Flow, veh/h	0	1870	3012	555	329	79	3456	3475	144	1781	3484	136		
Grp Volume(v), veh/h	0	0	736	49	0	0	518	483	500	10	484	502		
Grp Sat Flow(s),veh/h/ln	0	1870	1506	962	0	0	1728	1777	1842	1781	1777	1844		
Q Serve(g_s), s	0.0	0.0	25.1	3.5	0.0	0.0	14.1	0.0	0.0	0.7	26.9	26.9		
Cycle Q Clear(g_c), s	0.0	0.0	25.1	4.7	0.0	0.0	14.1	0.0	0.0	0.7	26.9	26.9		
Prop In Lane	0.00		1.00	0.63		0.08	1.00		0.08	1.00		0.07		
Lane Grp Cap(c), veh/h	0	361	582	231	0	0	853	1223	1268	17	794	824		
V/C Ratio(X)	0.00	0.00	1.27	0.21	0.00	0.00	0.61	0.39	0.39	0.60	0.61	0.61		
Avail Cap(c_a), veh/h	0	361	582	231	0	0	867	1223	1268	179	794	824		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.57	0.57	0.57	1.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.0	52.4	43.9	0.0	0.0	28.3	0.0	0.0	64.2	27.3	27.3		
Incr Delay (d2), s/veh	0.0	0.0	132.7	0.5	0.0	0.0	0.5	0.5	0.5	12.3	3.5	3.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.0	20.2	1.4	0.0	0.0	4.8	0.2	0.2	0.4	12.1	12.6		
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	185.2	44.4	0.0	0.0	28.8	0.5	0.5	76.5	30.8	30.7		
LnGrp LOS	A	A	F	D	A	A	C	A	A	E	C	C		
Approach Vol, veh/h		736		49			1501			996				
Approach Delay, s/veh		185.2		44.4			10.3			31.2				
Approach LOS		F		D			B			C				
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	5.6	94.4	30.0	37.0	63.0	30.0								
Change Period (Y+Rc), s	4.4	4.9	4.9	4.9	* 4.9	4.9								
Max Green Setting (Gmax), s	13.5	77.6	25.1	32.6	* 58	25.1								
Max Q Clear Time (g_c+1/2), s	12.5	2.0	27.1	16.1	28.9	6.7								
Green Ext Time (p_c), s	0.0	19.8	0.0	1.0	14.2	0.2								

Intersection Summary

HCM 6th Ctrl Delay	56.4
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis HY+P Plus Event with Feasible Improvements
 35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	153	984	810	405	503	344	840	190	13	1617	70
Future Volume (vph)	150	153	984	810	405	503	344	840	190	13	1617	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	0.98	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1762	1583	1610	3074	1425	1770	3433		3433	3539	1563
Flt Permitted	0.95	1.00	1.00	0.95	0.98	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1762	1583	1610	3074	1425	1770	3433		3433	3539	1563
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	152	155	994	818	409	508	347	848	192	13	1633	71
RTOR Reduction (vph)	0	0	78	0	0	0	0	15	0	0	0	45
Lane Group Flow (vph)	137	170	916	442	897	396	347	1025	0	13	1633	26
Confl. Peds. (#/hr)						3			1			
Confl. Bikes (#/hr)									1			1
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8	1	5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	16.6	16.6	36.6	25.0	25.0	35.0	20.0	57.4		10.0	47.4	47.4
Effective Green, g (s)	16.6	16.6	36.6	25.0	25.0	35.0	20.0	57.4		10.0	47.4	47.4
Actuated g/C Ratio	0.13	0.13	0.28	0.19	0.19	0.27	0.15	0.44		0.08	0.36	0.36
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	214	224	502	309	591	383	272	1515		264	1290	569
v/s Ratio Prot	0.08	0.10	c0.28	0.27	c0.29	0.08	0.20	0.30		0.00	c0.46	
v/s Ratio Perm			0.30			0.20						0.02
v/c Ratio	0.64	0.76	1.83	1.43	1.52	1.03	1.28	0.68		0.05	1.27	0.05
Uniform Delay, d1	53.9	54.8	46.7	52.5	52.5	47.5	55.0	28.9		55.6	41.3	26.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.71	1.17	7.08
Incremental Delay, d2	4.8	12.3	379.2	211.4	241.6	55.0	149.5	2.4		0.0	122.7	0.1
Delay (s)	58.7	67.0	425.9	263.9	294.1	102.5	204.5	31.4		39.5	171.1	188.9
Level of Service	E	E	F	F	F	F	F	C		D	F	F
Approach Delay (s)		340.4			242.7			74.7			170.9	
Approach LOS		F			F			E			F	
Intersection Summary												
HCM 2000 Control Delay			205.4			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.59									
Actuated Cycle Length (s)			130.0			Sum of lost time (s)			21.0			
Intersection Capacity Utilization			146.0%			ICU Level of Service			H			
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 36: Fairmount Ave & I-8 EB Off-Ramp

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations	YY	YY	U		↑↑	↑↑↑	
Traffic Volume (veh/h)	742	2786	60	0	642	1563	0
Future Volume (veh/h)	742	2786	60	0	642	1563	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		0	1870	1870	0
Adj Flow Rate, veh/h	757	2843		0	655	1595	0
Peak Hour Factor	0.98	0.98		0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2		0	2	2	0
Cap, veh/h	986	2633		0	1278	1837	0
Arrive On Green	0.55	0.55		0.00	0.36	0.36	0.00
Sat Flow, veh/h	1781	4755		0	3741	5443	0
Grp Volume(v), veh/h	757	2843		0	655	1595	0
Grp Sat Flow(s),veh/h/ln	1781	1585		0	1777	1702	0
Q Serve(g_s), s	42.2	70.9		0.0	18.5	37.3	0.0
Cycle Q Clear(g_c), s	42.2	70.9		0.0	18.5	37.3	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	986	2633		0	1278	1837	0
V/C Ratio(X)	0.77	1.08		0.00	0.51	0.87	0.00
Avail Cap(c_a), veh/h	986	2633		0	2128	2073	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.2	28.6		0.0	32.2	38.2	0.0
Incr Delay (d2), s/veh	3.3	43.6		0.0	0.1	3.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	36.2		0.0	8.0	16.0	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	25.5	72.2		0.0	32.3	41.7	0.0
LnGrp LOS	C	F		A	C	D	A
Approach Vol, veh/h	3600				655	1595	
Approach Delay, s/veh	62.4				32.3	41.7	
Approach LOS	E				C	D	
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				52.1		76.0	52.1
Change Period (Y+Rc), s				6.0		5.1	6.0
Max Green Setting (Gmax), s				52.0		70.9	76.7
Max Q Clear Time (g_c+I1), s				39.3		72.9	20.5
Green Ext Time (p_c), s				6.8		0.0	3.3

Intersection Summary

HCM 6th Ctrl Delay	53.4
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
37: Collwood Blvd & Montezuma Rd

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↓	↑↑	↑↑	↑
Traffic Volume (veh/h)	1527	1415	10	90	931	783	50
Future Volume (veh/h)	1527	1415	10	90	931	783	50
Initial Q (Qb), veh	20	20		0	0	0	0
Ped-Bike Adj(A_pbT)		0.98		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1737	1870	1870	1648
Adj Flow Rate, veh/h	1574	1331		93	960	807	28
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		11	2	2	17
Cap, veh/h	2032	1273		114	2394	847	342
Arrive On Green	0.57	0.57		0.07	0.67	0.25	0.25
Sat Flow, veh/h	3647	1546		1654	3647	3456	1397
Grp Volume(v), veh/h	1574	1331		93	960	807	28
Grp Sat Flow(s),veh/h/ln	1777	1546		1654	1777	1728	1397
Q Serve(g_s), s	45.6	76.6		7.4	16.2	30.8	2.1
Cycle Q Clear(g_c), s	45.6	76.6		7.4	16.2	30.8	2.1
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2032	1273		114	2394	847	342
V/C Ratio(X)	0.77	1.05		0.82	0.40	0.95	0.08
Avail Cap(c_a), veh/h	2032	1273		328	2394	848	343
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.2	12.6		61.6	9.8	49.8	39.0
Incr Delay (d2), s/veh	3.0	38.1		5.3	0.5	20.1	0.0
Initial Q Delay(d3),s/veh	3.1	56.6		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.6	58.5		3.3	6.0	15.4	0.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	29.2	107.3		66.9	10.3	69.9	39.0
LnGrp LOS	C	F		E	B	E	D
Approach Vol, veh/h	2905			1053	835		
Approach Delay, s/veh	65.0			15.3	68.8		
Approach LOS	E			B	E		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	13.6	83.1			96.8	37.2	
Change Period (Y+Rc), s	4.4	* 6.5			6.5	4.4	
Max Green Setting (Gmax), s	26.6	* 60			90.2	32.9	
Max Q Clear Time (g_c+1), s	19.4	78.6			18.2	32.8	
Green Ext Time (p_c), s	0.1	0.0			16.9	0.0	

Intersection Summary

HCM 6th Ctrl Delay	54.7
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
38: Mission Village Dr & Shawn Ave

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔				↔		↗	↕	↖	↗	↕	↖
Traffic Volume (veh/h)	80	10	85	10	55	10	30	76	724	36	50	2094	80
Future Volume (veh/h)	80	10	85	10	55	10	30	76	724	36	50	2094	80
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99		0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	11	87		59	11	3	81	770	27	53	2228	84
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	268	30	220		215	198	54	122	2568	1143	527	2524	95
Arrive On Green	0.15	0.15	0.15		0.15	0.15	0.15	0.72	0.72	0.72	0.72	0.72	0.72
Sat Flow, veh/h	1203	193	1426		829	1284	350	158	3554	1582	681	3493	131
Grp Volume(v), veh/h	96	0	87		59	0	14	81	770	27	53	1126	1186
Grp Sat Flow(s),veh/h/ln1397		0	1426		829	0	1634	158	1777	1582	681	1777	1847
Q Serve(g_s), s	4.7	0.0	4.6		3.6	0.0	0.6	18.7	6.4	0.4	2.5	39.9	41.3
Cycle Q Clear(g_c), s	5.4	0.0	4.6		8.2	0.0	0.6	60.0	6.4	0.4	8.9	39.9	41.3
Prop In Lane	0.89		1.00		1.00		0.21	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	298	0	220		215	0	253	122	2568	1143	527	1284	1334
V/C Ratio(X)	0.32	0.00	0.39		0.27	0.00	0.06	0.66	0.30	0.02	0.10	0.88	0.89
Avail Cap(c_a), veh/h	764	0	687		636	0	787	122	2568	1143	527	1284	1334
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00		1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	0.0	31.6		35.3	0.0	29.9	37.4	4.1	3.3	5.6	8.7	8.9
Incr Delay (d2), s/veh	0.2	0.0	0.4		0.3	0.0	0.0	13.3	0.1	0.0	0.1	7.3	7.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.8	0.0	0.0	1.6		1.1	0.0	0.2	2.0	1.5	0.1	0.3	12.0	13.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	32.3	0.0	32.0		35.5	0.0	30.0	50.7	4.2	3.3	5.8	16.0	16.7
LnGrp LOS	C	A	C		D	A	C	D	A	A	A	B	B
Approach Vol, veh/h		183				73			878			2365	
Approach Delay, s/veh		32.2				34.5			8.4			16.1	
Approach LOS		C				C			A			B	
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		65.3		17.7		65.3		17.7					
Change Period (Y+Rc), s		5.3		4.9		5.3		4.9					
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0					
Max Q Clear Time (g_c+1), s		62.0		7.4		43.3		10.2					
Green Ext Time (p_c), s		0.0		0.8		15.4		0.3					

Intersection Summary

HCM 6th Ctrl Delay	15.4
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
39: Mission Village Dr & Fermi Ave

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕			↙	↕	
Traffic Volume (veh/h)	40	10	15	55	10	50	16	789	46	10	30	2213	30
Future Volume (veh/h)	40	10	15	55	10	50	16	789	46	10	30	2213	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	42	10	6	57	10	28	17	822	45		31	2305	31
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	169	37	15	146	23	41	28	2440	134		44	2589	35
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.02	0.71	0.71		0.02	0.72	0.72
Sat Flow, veh/h	1077	428	174	866	258	470	1781	3426	188		1781	3589	48
Grp Volume(v), veh/h	58	0	0	95	0	0	17	426	441		31	1138	1198
Grp Sat Flow(s),veh/h/ln1678	0	0	1595	0	0	1781	1777	1837			1781	1777	1860
Q Serve(g_s), s	0.0	0.0	0.0	2.1	0.0	0.0	0.8	7.5	7.5		1.4	41.0	41.7
Cycle Q Clear(g_c), s	2.5	0.0	0.0	4.6	0.0	0.0	0.8	7.5	7.5		1.4	41.0	41.7
Prop In Lane	0.72		0.10	0.60		0.29	1.00		0.10		1.00		0.03
Lane Grp Cap(c), veh/h	222	0	0	209	0	0	28	1266	1308		44	1282	1342
V/C Ratio(X)	0.26	0.00	0.00	0.45	0.00	0.00	0.61	0.34	0.34		0.71	0.89	0.89
Avail Cap(c_a), veh/h	799	0	0	618	0	0	647	1290	1334		647	1290	1351
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	35.5	0.0	0.0	36.4	0.0	0.0	40.4	4.5	4.5		40.0	8.9	9.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.6	0.0	0.0	7.8	0.3	0.3		7.5	8.2	8.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.1	0.0	0.0	0.0	1.9	0.0	0.0	0.4	1.9	2.0		0.7	13.4	14.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	35.8	0.0	0.0	37.0	0.0	0.0	48.2	4.8	4.8		47.5	17.1	17.3
LnGrp LOS	D	A	A	D	A	A	D	A	A		D	B	B
Approach Vol, veh/h		58			95			884				2367	
Approach Delay, s/veh		35.8			37.0			5.6				17.6	
Approach LOS		D			D			A				B	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s6.4	64.1			12.1	5.7	64.8		12.1					
Change Period (Y+Rc), s 4.4	5.2			4.9	4.4	5.2		4.9					
Max Green Setting (Gmax), s 30.0	60.0			40.0	30.0	60.0		30.0					
Max Q Clear Time (g_c+1), s 13.4	9.5			4.5	2.8	43.7		6.6					
Green Ext Time (p_c), s 0.0	12.2			0.2	0.0	15.9		0.3					

Intersection Summary

HCM 6th Ctrl Delay	15.3
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary HY+P Plus Event with Feasible Improvements
 40: Gramercy Dr/Mission Village Dr & Ruffin Rd PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖↗	
Traffic Volume (veh/h)	60	664	20	13	392	482	20	10	23	1634	20	90
Future Volume (veh/h)	60	664	20	13	392	482	20	10	23	1634	20	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	678	19	13	400	326	20	10	1	1667	20	88
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	212	1267	35	235	664	536	43	78	8	1601	136	596
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.02	0.02	0.02	0.45	0.45	0.45
Sat Flow, veh/h	727	3528	99	746	1849	1491	1781	3262	320	3563	302	1327
Grp Volume(v), veh/h	61	341	356	13	384	342	20	5	6	1667	0	108
Grp Sat Flow(s),veh/h/ln	727	1777	1850	746	1777	1563	1781	1777	1805	1781	0	1628
Q Serve(g_s), s	6.7	13.6	13.6	1.3	15.7	16.0	1.0	0.3	0.3	40.0	0.0	3.5
Cycle Q Clear(g_c), s	22.6	13.6	13.6	14.8	15.7	16.0	1.0	0.3	0.3	40.0	0.0	3.5
Prop In Lane	1.00		0.05	1.00		0.95	1.00		0.18	1.00		0.81
Lane Grp Cap(c), veh/h	212	638	664	235	638	561	43	43	43	1601	0	732
V/C Ratio(X)	0.29	0.53	0.54	0.06	0.60	0.61	0.47	0.13	0.13	1.04	0.00	0.15
Avail Cap(c_a), veh/h	440	1198	1247	470	1198	1054	801	799	811	1601	0	732
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.7	22.6	22.6	28.5	23.3	23.4	42.9	42.5	42.5	24.5	0.0	14.5
Incr Delay (d2), s/veh	0.9	0.9	0.8	0.1	1.1	1.3	2.9	0.5	0.5	34.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	5.7	6.0	0.2	6.7	6.0	0.5	0.1	0.1	22.5	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.6	23.5	23.5	28.6	24.5	24.7	45.8	43.0	43.0	58.5	0.0	14.5
LnGrp LOS	C	C	C	C	C	C	D	D	D	F	A	B
Approach Vol, veh/h		758			739			31			1775	
Approach Delay, s/veh		24.3			24.7			44.8			55.8	
Approach LOS		C			C			D			E	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		37.1		44.9		37.1		7.0				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		24.6		42.0		18.0		3.0				
Green Ext Time (p_c), s		7.3		0.0		7.7		0.0				

Intersection Summary

HCM 6th Ctrl Delay	41.5
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↖	↑↑	↖	↗
Traffic Volume (veh/h)	880	936	10	1058	810	263	380
Future Volume (veh/h)	880	936	10	1058	810	263	380
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	926	982		1114	853	277	107
Peak Hour Factor	0.95	0.95		0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1670	881		1079	2900	343	157
Arrive On Green	0.47	0.47		0.31	0.82	0.10	0.10
Sat Flow, veh/h	3647	1540		3456	3647	3456	1585
Grp Volume(v), veh/h	926	982		1114	853	277	107
Grp Sat Flow(s),veh/h/ln	1777	1540		1728	1777	1728	1585
Q Serve(g_s), s	24.3	61.1		40.6	7.5	10.2	8.5
Cycle Q Clear(g_c), s	24.3	61.1		40.6	7.5	10.2	8.5
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1670	881		1079	2900	343	157
V/C Ratio(X)	0.55	1.11		1.03	0.29	0.81	0.68
Avail Cap(c_a), veh/h	1670	881		1079	2900	1055	484
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.86	0.86
Uniform Delay (d), s/veh	24.7	25.2		44.7	2.9	57.3	56.6
Incr Delay (d2), s/veh	1.3	66.9		36.0	0.3	1.5	1.7
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	45.0		22.1	1.8	4.5	3.5
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	26.0	92.2		80.7	3.1	58.8	58.2
LnGrp LOS	C	F		F	A	E	E
Approach Vol, veh/h	1908			1967	384		
Approach Delay, s/veh	60.1			47.1	58.7		
Approach LOS	E			D	E		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	45.0	66.8			111.8	18.2	
Change Period (Y+Rc), s	4.4	* 5.7			5.7	5.3	
Max Green Setting (Gmax), s	40.6	* 35			79.3	39.7	
Max Q Clear Time (g_c+Rc), s	42.6	63.1			9.5	12.2	
Green Ext Time (p_c), s	0.0	0.0			9.7	0.7	

Intersection Summary

HCM 6th Ctrl Delay	53.9
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mobley St & Gramercy Dr

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	683	90	63	362	57	50	30	44	88	20	20
Future Volume (veh/h)	20	683	90	63	362	57	50	30	44	88	20	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.96	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1826	1826	1826	1752	1752	1752
Adj Flow Rate, veh/h	21	704	72	65	373	47	52	31	22	91	21	13
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	10	10	10
Cap, veh/h	647	1840	810	488	1638	205	263	131	62	352	72	28
Arrive On Green	0.52	0.52	0.52	0.52	0.52	0.52	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	960	3554	1565	692	3164	395	556	697	332	898	384	149
Grp Volume(v), veh/h	21	704	72	65	208	212	105	0	0	125	0	0
Grp Sat Flow(s),veh/h/ln	960	1777	1565	692	1777	1782	1584	0	0	1431	0	0
Q Serve(g_s), s	0.4	4.0	0.8	2.1	2.2	2.2	0.0	0.0	0.0	0.6	0.0	0.0
Cycle Q Clear(g_c), s	2.6	4.0	0.8	6.2	2.2	2.2	1.8	0.0	0.0	2.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.22	0.50		0.21	0.73		0.10
Lane Grp Cap(c), veh/h	647	1840	810	488	920	923	456	0	0	452	0	0
V/C Ratio(X)	0.03	0.38	0.09	0.13	0.23	0.23	0.23	0.00	0.00	0.28	0.00	0.00
Avail Cap(c_a), veh/h	1846	6278	2765	1353	3139	3148	1925	0	0	1771	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.2	4.9	4.1	6.8	4.5	4.5	11.9	0.0	0.0	12.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.1	0.2	0.4	0.4	0.4	0.6	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.2	5.2	4.2	7.0	4.7	4.7	12.0	0.0	0.0	12.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		797			485			105			125	
Approach Delay, s/veh		5.1			5.0			12.0			12.2	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.7		11.3		22.7		11.3				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		6.0		4.3		8.2		3.8				
Green Ext Time (p_c), s		11.5		0.5		6.1		0.4				

Intersection Summary

HCM 6th Ctrl Delay	6.1
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
43: Sandrock Rd & Greyling Dr/Grameracy Dr

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕			↕	↕	↕	↕	↕
Traffic Volume (veh/h)	90	148	10	24	177	256	10	10	20	34	655	40	140
Future Volume (veh/h)	90	148	10	24	177	256	10	10	20	34	655	40	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.98		0.94	1.00		1.00	1.00			0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1574	1574	1870	1870	1856	1870	
Adj Flow Rate, veh/h	95	156	9	25	186	163	11	21	0	719	0	80	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	22	22	2	2	3	2	
Cap, veh/h	236	326	16	129	532	901	16	30	47	987	0	422	
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.03	0.03	0.00	0.28	0.00	0.28	
Sat Flow, veh/h	371	1054	51	95	1721	1494	532	1015	1585	3563	0	1523	
Grp Volume(v), veh/h	260	0	0	211	0	163	32	0	0	719	0	80	
Grp Sat Flow(s),veh/h/ln1476	0	0	1816	0	1494	1547	0	1585	1781	0	1523		
Q Serve(g_s), s	2.1	0.0	0.0	0.0	0.0	2.0	0.8	0.0	0.0	7.4	0.0	1.6	
Cycle Q Clear(g_c), s	5.6	0.0	0.0	3.5	0.0	2.0	0.8	0.0	0.0	7.4	0.0	1.6	
Prop In Lane	0.37		0.03	0.12		1.00	0.34		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	578	0	0	662	0	901	46	0	47	987	0	422	
V/C Ratio(X)	0.45	0.00	0.00	0.32	0.00	0.18	0.69	0.00	0.00	0.73	0.00	0.19	
Avail Cap(c_a), veh/h	1017	0	0	1204	0	1364	766	0	785	1764	0	754	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh	11.4	0.0	0.0	10.9	0.0	3.9	19.4	0.0	0.0	13.2	0.0	11.1	
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	6.7	0.0	0.0	0.4	0.0	0.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln1.6	0.0	0.0	0.0	1.1	0.0	0.9	0.4	0.0	0.0	2.3	0.0	0.4	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	11.6	0.0	0.0	11.0	0.0	3.9	26.1	0.0	0.0	13.6	0.0	11.2	
LnGrp LOS	B	A	A	B	A	A	C	A	A	B	A	B	
Approach Vol, veh/h		260			374			32			799		
Approach Delay, s/veh		11.6			7.9			26.1			13.4		
Approach LOS		B			A			C			B		
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		17.8		16.5		17.8		6.1					
Change Period (Y+Rc), s		5.3		5.3		5.3		4.9					
Max Green Setting (Gmax), s		25.0		20.0		25.0		20.0					
Max Q Clear Time (g_c+11), s		7.6		9.4		5.5		2.8					
Green Ext Time (p_c), s		1.1		1.4		1.0		0.1					

Intersection Summary

HCM 6th Ctrl Delay	11.9
HCM 6th LOS	B

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

Arterial Level of Service: EB Friars Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
SR-163 SB Ramps	II	45	27.1	59.0	86.1	0.26	10.9	F
SR-163 NB Ramps	II	45	23.5	12.4	35.9	0.22	21.6	D
Frazee Rd	II	45	14.8	33.0	47.8	0.14	10.2	F
River Run Dr	II	45	119.1	44.4	163.5	1.49	32.8	B
Fenton Pkwy	II	45	23.6	55.1	78.7	0.22	9.9	F
Northside Dr	II	45	28.6	43.4	72.0	0.29	14.5	E
Stadium Way	II	45	23.0	12.5	35.5	0.21	21.4	D
I-15 SB Ramps	II	45	46.1	315.6	361.7	0.58	5.7	F
I-15 NB Ramps	II	45	23.9	0.0	23.9	0.22	33.1	B
Rancho Mission Rd	II	45	19.6	132.1	151.7	0.18	4.3	F
Santo Rd	II	45	24.1	6.6	30.7	0.22	26.0	C
Riverdale St	II	45	31.8	81.4	113.2	0.32	10.2	F
Mission Gorge Rd	II	45	11.2	115.3	126.5	0.10	2.9	F
Total	II		416.4	910.8	1327.2	4.44	12.0	F

Arterial Level of Service: WB Friars Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Riverdale St	II	45	11.2	26.7	37.9	0.10	9.7	F
Santo Rd	II	45	31.8	11.4	43.2	0.32	26.8	C
Rancho Mission Rd	II	45	24.1	8.1	32.2	0.22	24.8	C
I-15 NB Ramps	II	45	19.6	27.8	47.4	0.18	13.7	E
I-15 SB Ramps	II	45	23.9	227.6	251.5	0.22	3.1	F
Stadium Way	II	45	46.1	3.5	49.6	0.58	41.9	A
Northside Dr	II	45	23.0	18.0	41.0	0.21	18.6	D
Fenton Pkwy	II	45	28.6	13.7	42.3	0.29	24.6	C
	II	45	23.6	7.0	30.6	0.22	25.5	C
Frazee Rd	II	45	119.1	45.4	164.5	1.49	32.6	B
SR-163 NB Ramps	II	45	14.8	56.3	71.1	0.14	6.9	F
Ulric St	II	45	23.5	47.0	70.5	0.22	11.0	F
Total	II		389.3	492.5	881.8	4.18	17.1	D

Arterial Level of Service: NB Rancho Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Ward Rd	III	30	22.9	15.2	38.1	0.18	17.1	D
San Diego Mission Rd	III	35	25.3	73.3	98.6	0.21	7.7	F
Friars Rd	III	35	48.3	59.8	108.1	0.40	13.4	E
Total	III		96.5	148.3	244.8	0.79	11.7	E

Arterial Level of Service: SB Rancho Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
San Diego Mission Rd	III	35	48.3	51.4	99.7	0.40	14.5	D
Rancho Mission Rd	III	35	25.3	0.0	25.3	0.21	30.0	B
Total	III		73.6	51.4	125.0	0.61	17.7	D

Arterial Level of Service: EB San Diego Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rancho Mission Rd	II	40	42.5	76.0	118.5	0.45	13.6	E
Fairmount Ave	II	40	50.6	53.5	104.1	0.56	19.4	D
Total	II		93.1	129.5	222.6	1.01	16.3	E

Arterial Level of Service: WB San Diego Mission Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rancho Mission Rd	II	40	50.6	36.4	87.0	0.56	23.3	C
Street 2	II	25	21.7	56.9	78.6	0.10	4.5	F
Total	II		72.3	93.3	165.6	0.66	14.4	E

Arterial Level of Service: NB Ward Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Rancho Mission Rd	III	35	16.7	11.3	28.0	0.13	16.8	D
Total	III		16.7	11.3	28.0	0.13	16.8	D

Arterial Level of Service: SB Ward Rd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Camino del Rio N	III	35	16.7	64.0	80.7	0.13	5.8	F
Total	III		16.7	64.0	80.7	0.13	5.8	F

Arterial Level of Service: EB Camino del Rio S

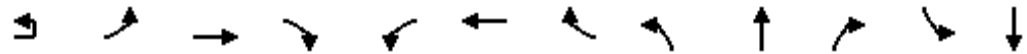
Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Texas St	III	35	16.1	132.0	148.1	0.13	3.1	F
Total	III		16.1	132.0	148.1	0.13	3.1	F

Arterial Level of Service: WB Camino del Rio S

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Texas St	III	35	20.1	118.9	139.0	0.16	4.1	F
Total	III		20.1	118.9	139.0	0.16	4.1	F

HCM Signalized Intersection Capacity Analysis HY+P Plus Event with Feasible Improvements
 1: SR-163 SB Ramps/Ulrir St & Friars Rd

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations		3		7	77	777	77	77	7	77	7	7	
Traffic Volume (vph)	10	170	1785	700	640	1209	838	320	30	896	695	0	
Future Volume (vph)	10	170	1785	700	640	1209	838	320	30	896	695	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.7	7.0	7.0	4.5	3.0	6.1	6.1	6.1	4.5	6.1	6.1	
Lane Util. Factor		1.00	0.86	1.00	0.97	0.91	0.88	0.97	1.00	0.88	0.95	0.95	
Frbp, ped/bikes		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (prot)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (perm)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	10	173	1821	714	653	1234	855	327	31	914	709	0	
RTOR Reduction (vph)	0	0	0	480	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	183	1821	234	653	1234	855	327	31	914	354	355	
Confl. Peds. (#/hr)				5									
Confl. Bikes (#/hr)				2									
Turn Type	Prot	Prot	NA	Perm	Prot	NA	custom	Split	NA	pm+ov	Split	NA	
Protected Phases	5	5	2		1	6 7	4 7	8	8		4	4	
Permitted Phases				2						8			
Actuated Green, G (s)		17.5	43.9	43.9	26.0	52.2	68.9	14.1	14.1	40.1	37.3	37.3	
Effective Green, g (s)		17.5	43.9	43.9	26.0	52.2	61.9	14.1	14.1	40.1	37.3	37.3	
Actuated g/C Ratio		0.12	0.30	0.30	0.18	0.36	0.43	0.10	0.10	0.28	0.26	0.26	
Clearance Time (s)		4.7	7.0	7.0	4.5			6.1	6.1	4.5	6.1	6.1	
Vehicle Extension (s)		2.0	2.0	2.0	3.0			3.0	3.0	3.0	2.0	2.0	
Lane Grp Cap (vph)		213	1940	468	615	1830	1189	333	181	770	432	432	
v/s Ratio Prot		0.10	c0.28		0.19	0.24	0.31	0.10	0.02	c0.21	0.21	c0.21	
v/s Ratio Perm				0.15						0.12			
v/c Ratio		0.86	0.94	0.50	1.06	0.67	0.72	0.98	0.17	1.19	0.82	0.82	
Uniform Delay, d1		62.5	49.2	41.5	59.5	39.2	34.4	65.3	60.1	52.5	50.7	50.7	
Progression Factor		1.00	1.00	1.00	1.04	1.24	0.68	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		26.5	10.3	3.8	47.5	0.5	1.2	44.2	0.5	97.0	11.0	11.4	
Delay (s)		89.1	59.6	45.3	109.2	49.1	24.7	109.5	60.5	149.5	61.6	62.1	
Level of Service		F	E	D	F	D	C	F	E	F	E	E	
Approach Delay (s)			57.8			55.8			137.0			57.3	
Approach LOS			E			E			F			E	
Intersection Summary													
HCM 2000 Control Delay			70.2		HCM 2000 Level of Service					E			
HCM 2000 Volume to Capacity ratio			1.01										
Actuated Cycle Length (s)			145.0	Sum of lost time (s)						26.9			
Intersection Capacity Utilization			97.6%	ICU Level of Service					F				
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis HY+P Plus Event with Feasible Improvements
 1: SR-163 SB Ramps/Ulríc St & Friars Rd

PM Peak Hour



Movement	SBR
Lane Configurations	7
Traffic Volume (vph)	210
Future Volume (vph)	210
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.1
Lane Util. Factor	1.00
Frbp, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1560
Flt Permitted	1.00
Satd. Flow (perm)	1560
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	214
RTOR Reduction (vph)	141
Lane Group Flow (vph)	73
Confl. Peds. (#/hr)	3
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	37.3
Effective Green, g (s)	37.3
Actuated g/C Ratio	0.26
Clearance Time (s)	6.1
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	401
v/s Ratio Prot	
v/s Ratio Perm	0.05
v/c Ratio	0.18
Uniform Delay, d1	42.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	42.0
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis HY+P Plus Event with Feasible Improvements

2: Friars Rd & SR-163 NB Ramps

PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	640	2615	1697	1052	1479	1010
Future Volume (vph)	640	2615	1697	1052	1479	1010
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.5	6.0	4.5	4.5	5.0
Lane Util. Factor	0.97	0.86	0.86	0.88	0.94	0.88
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	6408	6408	2787	4990	2787
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	6408	6408	2787	4990	2787
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	667	2724	1768	1096	1541	1052
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	667	2724	1768	1096	1541	1052
Turn Type	Prot	NA	NA	custom	Prot	pm+ov
Protected Phases	5	2	3	6	4	3
Permitted Phases						4
Actuated Green, G (s)	38.3	92.5	50.7	65.0	43.5	81.8
Effective Green, g (s)	38.3	92.5	50.7	65.0	43.5	81.8
Actuated g/C Ratio	0.26	0.64	0.35	0.45	0.30	0.56
Clearance Time (s)	5.0	4.5			4.5	5.0
Vehicle Extension (s)	2.0	3.0			3.0	2.0
Lane Grp Cap (vph)	906	4087	2240	1249	1497	1668
v/s Ratio Prot	c0.19	0.43	c0.28	c0.39	c0.31	0.17
v/s Ratio Perm						0.21
v/c Ratio	0.74	0.67	0.79	0.88	1.03	0.63
Uniform Delay, d1	48.7	16.5	42.4	36.4	50.8	21.4
Progression Factor	0.98	0.85	1.19	1.47	1.00	1.00
Incremental Delay, d2	1.0	0.3	1.1	4.5	31.1	0.6
Delay (s)	49.0	14.4	51.5	57.9	81.9	22.0
Level of Service	D	B	D	E	F	C
Approach Delay (s)		21.2	54.0		57.6	
Approach LOS		C	D		E	

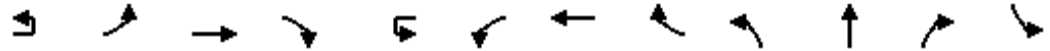
Intersection Summary

HCM 2000 Control Delay	42.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	83.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis HY+P Plus Event with Feasible Improvements
 3: Frazee Rd & Friars Rd

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		2 1	1 1 1 1	2 1		2 1	1 1 1 1	1	2 1	1 1		2 1
Traffic Volume (vph)	30	340	3035	670	10	122	1829	108	330	70	159	138
Future Volume (vph)	30	340	3035	670	10	122	1829	108	330	70	159	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.4	3.0	4.4		4.4	6.5	6.5	4.4	4.9		4.4
Lane Util. Factor		0.97	0.86	0.88		0.97	0.86	1.00	0.97	0.95		0.97
Frbp, ped/bikes		1.00	1.00	1.00		1.00	1.00	0.98	1.00	0.97		1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.90		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (prot)		3433	6408	2787		3433	6408	1546	3433	3062		3433
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (perm)		3433	6408	2787		3433	6408	1546	3433	3062		3433
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	34	382	3410	753	11	137	2055	121	371	79	179	155
RTOR Reduction (vph)	0	0	0	0	0	0	0	75	0	55	0	0
Lane Group Flow (vph)	0	416	3410	753	0	148	2055	46	371	203	0	155
Confl. Peds. (#/hr)				18				8			43	
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	custom	Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2 9	3 9	1	1	6		3	8		7
Permitted Phases							6					
Actuated Green, G (s)		20.1	69.7	65.8		6.5	55.1	55.1	20.6	42.3		7.3
Effective Green, g (s)		20.1	69.7	60.3		6.5	55.1	55.1	20.6	42.3		7.3
Actuated g/C Ratio		0.14	0.48	0.42		0.04	0.38	0.38	0.14	0.29		0.05
Clearance Time (s)		4.4				4.4	6.5	6.5	4.4	4.9		4.4
Vehicle Extension (s)		2.0				2.0	4.4	4.4	2.0	2.0		2.2
Lane Grp Cap (vph)		475	3080	1159		153	2435	587	487	893		172
v/s Ratio Prot		c0.12	c0.53	0.27		0.04	0.32		c0.11	0.07		0.05
v/s Ratio Perm							0.03					
v/c Ratio		0.88	1.11	0.65		0.97	0.84	0.08	0.76	0.23		0.90
Uniform Delay, d1		61.2	37.6	33.9		69.1	41.0	28.7	59.8	39.0		68.5
Progression Factor		1.04	0.81	1.14		1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		11.1	51.9	0.6		62.0	3.8	0.3	6.3	0.0		41.1
Delay (s)		75.1	82.2	39.3		131.1	44.8	29.0	66.1	39.0		109.6
Level of Service		E	F	D		F	D	C	E	D		F
Approach Delay (s)			74.5				49.5			55.0		
Approach LOS			E				D			D		
Intersection Summary												
HCM 2000 Control Delay			65.6				HCM 2000 Level of Service		E			
HCM 2000 Volume to Capacity ratio			1.00									
Actuated Cycle Length (s)			145.0				Sum of lost time (s)		22.2			
Intersection Capacity Utilization			100.9%				ICU Level of Service		G			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis HY+P Plus Event with Feasible Improvements
 3: Frazee Rd & Friars Rd

PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑	↑↑
Traffic Volume (vph)	80	380
Future Volume (vph)	80	380
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.9	4.9
Lane Util. Factor	1.00	0.88
Frbp, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1863	2750
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1863	2750
Peak-hour factor, PHF	0.89	0.89
Adj. Flow (vph)	90	427
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	90	427
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		1
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	29.0	29.0
Effective Green, g (s)	29.0	29.0
Actuated g/C Ratio	0.20	0.20
Clearance Time (s)	4.9	4.9
Vehicle Extension (s)	2.3	2.3
Lane Grp Cap (vph)	372	550
v/s Ratio Prot	0.05	
v/s Ratio Perm		c0.16
v/c Ratio	0.24	0.78
Uniform Delay, d1	48.8	54.9
Progression Factor	1.00	1.00
Incremental Delay, d2	0.2	6.4
Delay (s)	49.0	61.3
Level of Service	D	E
Approach Delay (s)	70.8	
Approach LOS	E	
Intersection Summary		

HCM 6th Signalized Intersection Summary
4: Mission Center Rd & Friars Rd WB

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↶		↶	↷			↶	↷
Traffic Volume (veh/h)	0	0	0	240	10	295	10	230	880	0	0	1214	340
Future Volume (veh/h)	0	0	0	240	10	295	10	230	880	0	0	1214	340
Initial Q (Qb), veh				0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00		1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No			No
Adj Sat Flow, veh/h/ln				1870	1870	1870		1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				257	0	179		240	917	0	0	1265	292
Peak Hour Factor				0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2		2	2	0	0	2	2
Cap, veh/h				488	0	217		303	2699	0	0	2242	966
Arrive On Green				0.27	0.00	0.27		0.18	1.00	0.00	0.00	0.63	0.63
Sat Flow, veh/h				3563	0	1585		3456	3647	0	0	3647	1530
Grp Volume(v), veh/h				257	0	179		240	917	0	0	1265	292
Grp Sat Flow(s),veh/h/ln				1781	0	1585		1728	1777	0	0	1777	1530
Q Serve(g_s), s				6.6	0.0	11.4		7.2	0.0	0.0	0.0	22.0	9.4
Cycle Q Clear(g_c), s				6.6	0.0	11.4		7.2	0.0	0.0	0.0	22.0	9.4
Prop In Lane				1.00		1.00		1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				488	0	217		303	2699	0	0	2242	966
V/C Ratio(X)				0.53	0.00	0.82		0.79	0.34	0.00	0.00	0.56	0.30
Avail Cap(c_a), veh/h				1013	0	451		579	2699	0	0	2242	966
HCM Platoon Ratio				2.00	2.00	2.00		2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00		0.54	0.54	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				36.2	0.0	38.0		43.6	0.0	0.0	0.0	11.4	9.1
Incr Delay (d2), s/veh				0.9	0.0	7.7		1.0	0.2	0.0	0.0	1.0	0.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.7	0.0	4.2		2.8	0.1	0.0	0.0	7.9	3.0
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh				37.1	0.0	45.7		44.6	0.2	0.0	0.0	12.4	9.9
LnGrp LOS				D	A	D		D	A	A	A	B	A
Approach Vol, veh/h						436				1157			1557
Approach Delay, s/veh						40.6				9.4			12.0
Approach LOS						D				A			B
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		88.3			13.9	74.4		19.7					
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9					
Max Green Setting (Gmax), s		* 67			18.1	43.6		30.7					
Max Q Clear Time (g_c+I1), s		2.0			9.2	24.0		13.4					
Green Ext Time (p_c), s		6.2			0.3	14.5		1.3					

Intersection Summary

HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Mission Center Rd & Friars Rd EB

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	10	310	0	0	0	0	730	477	564	890	0
Future Volume (veh/h)	380	10	310	0	0	0	0	730	477	564	890	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	408	0	204				0	768	415	594	937	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	570	0	254				0	755	406	1204	2633	0
Arrive On Green	0.16	0.00	0.16				0.00	0.34	0.34	0.70	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2291	1181	3456	3647	0
Grp Volume(v), veh/h	408	0	204				0	620	563	594	937	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1602	1728	1777	0
Q Serve(g_s), s	11.7	0.0	13.4				0.0	37.1	37.1	8.6	0.0	0.0
Cycle Q Clear(g_c), s	11.7	0.0	13.4				0.0	37.1	37.1	8.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.74	1.00		0.00
Lane Grp Cap(c), veh/h	570	0	254				0	610	550	1204	2633	0
V/C Ratio(X)	0.72	0.00	0.80				0.00	1.02	1.02	0.49	0.36	0.00
Avail Cap(c_a), veh/h	976	0	434				0	610	550	1204	2633	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.69	0.69	0.00
Uniform Delay (d), s/veh	43.0	0.0	43.7				0.0	35.5	35.5	12.0	0.0	0.0
Incr Delay (d2), s/veh	1.7	0.0	5.9				0.0	40.5	44.2	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	5.5				0.0	22.1	20.5	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.7	0.0	49.6				0.0	75.9	79.7	12.1	0.1	0.0
LnGrp LOS	D	A	D				A	F	F	B	A	A
Approach Vol, veh/h		612						1183			1531	
Approach Delay, s/veh		46.4						77.7			4.7	
Approach LOS		D						E			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	43.4	42.4	22.2	85.8								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	26.7	* 37	29.6	67.7								
Max Q Clear Time (g_c+110), s	11.6	39.1	15.4	2.0								
Green Ext Time (p_c), s	1.1	0.0	1.9	9.8								

Intersection Summary

HCM 6th Ctrl Delay	38.3
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
6: Qualcomm Way & Friars Rd WB

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷		↶	↷			↶	↷
Traffic Volume (veh/h)	0	0	0	538	10	80	670	110	0	0	237	20
Future Volume (veh/h)	0	0	0	538	10	80	670	110	0	0	237	20
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				627	0	0	698	115	0	0	247	2
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				739	388	0	1168	2372	0	0	953	413
Arrive On Green				0.21	0.00	0.00	0.34	0.67	0.00	0.00	0.27	0.27
Sat Flow, veh/h				3563	1870	0	3456	3647	0	0	3647	1541
Grp Volume(v), veh/h				627	0	0	698	115	0	0	247	2
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1728	1777	0	0	1777	1541
Q Serve(g_s), s				13.5	0.0	0.0	13.4	0.9	0.0	0.0	4.4	0.1
Cycle Q Clear(g_c), s				13.5	0.0	0.0	13.4	0.9	0.0	0.0	4.4	0.1
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				739	388	0	1168	2372	0	0	953	413
V/C Ratio(X)				0.85	0.00	0.00	0.60	0.05	0.00	0.00	0.26	0.00
Avail Cap(c_a), veh/h				1251	657	0	1168	2372	0	0	953	413
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.97	0.97	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				30.5	0.0	0.0	22.0	4.6	0.0	0.0	23.0	21.4
Incr Delay (d2), s/veh				1.1	0.0	0.0	0.9	0.0	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.5	0.0	0.0	5.2	0.3	0.0	0.0	1.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				31.6	0.0	0.0	22.8	4.6	0.0	0.0	23.2	21.5
LnGrp LOS				C	A	A	C	A	A	A	C	C
Approach Vol, veh/h					627			813			249	
Approach Delay, s/veh					31.6			20.3			23.1	
Approach LOS					C			C			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		58.5			32.1	26.4		21.5				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+11), s		2.9			15.4	6.4		15.5				
Green Ext Time (p_c), s		0.8			1.7	1.0		1.1				

Intersection Summary

HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
7: Qualcomm Way & Friars Rd EB

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	10	410	0	0	0	0	680	480	123	793	0
Future Volume (veh/h)	70	10	410	0	0	0	0	680	480	123	793	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	86	0	387				0	756	189	137	881	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	962	0	428				0	3147	774	210	2150	0
Arrive On Green	0.27	0.00	0.27				0.00	0.49	0.49	0.12	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	6696	1583	3456	3647	0
Grp Volume(v), veh/h	86	0	387				0	756	189	137	881	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1609	1583	1728	1777	0
Q Serve(g_s), s	1.4	0.0	18.9				0.0	5.4	5.5	3.0	0.0	0.0
Cycle Q Clear(g_c), s	1.4	0.0	18.9				0.0	5.4	5.5	3.0	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	962	0	428				0	3147	774	210	2150	0
V/C Ratio(X)	0.09	0.00	0.90				0.00	0.24	0.24	0.65	0.41	0.00
Avail Cap(c_a), veh/h	1519	0	676				0	3147	774	436	2150	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.80	0.80	0.71	0.71	0.00
Uniform Delay (d), s/veh	21.8	0.0	28.2				0.0	11.8	11.9	34.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	7.3				0.0	0.1	0.6	0.9	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	7.4				0.0	1.8	1.9	1.2	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.9	0.0	35.5				0.0	12.0	12.5	35.2	0.4	0.0
LnGrp LOS	C	A	D				A	B	B	D	A	A
Approach Vol, veh/h		473						945			1018	
Approach Delay, s/veh		33.0						12.1			5.1	
Approach LOS		C						B			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	9.3	44.2	26.5	53.5								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.5	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	15.0	7.5	20.9	2.0								
Green Ext Time (p_c), s	0.1	5.5	0.7	4.4								

Intersection Summary

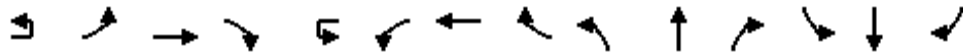
HCM 6th Ctrl Delay	13.2
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑↑↑	↑↑↑			↑	↑		↑↓	
Traffic Volume (veh/h)	20	20	3145	160	10	78	1811	28	80	10	152	225	20	90
Future Volume (veh/h)	20	20	3145	160	10	78	1811	28	80	10	152	225	20	90
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	1.00		0.97	0.98		0.97
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		21	3242	140		80	1867	28	82	10	87	232	21	85
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h		27	2898	897		207	3523	53	367	42	425	246	19	76
Arrive On Green		0.02	0.57	0.57		0.23	1.00	1.00	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h		1781	5106	1581		1781	5181	78	1178	154	1542	754	68	276
Grp Volume(v), veh/h		21	3242	140		80	1226	669	92	0	87	338	0	0
Grp Sat Flow(s),veh/h/ln		1781	1702	1581		1781	1702	1854	1332	0	1542	1098	0	0
Q Serve(g_s), s		1.9	90.8	6.7		6.1	0.0	0.0	0.0	0.0	6.9	35.6	0.0	0.0
Cycle Q Clear(g_c), s		1.9	90.8	6.7		6.1	0.0	0.0	8.5	0.0	6.9	44.1	0.0	0.0
Prop In Lane		1.00		1.00		1.00		0.04	0.89		1.00	0.69		0.25
Lane Grp Cap(c), veh/h		27	2898	897		207	2315	1261	410	0	425	341	0	0
V/C Ratio(X)		0.78	1.12	0.16		0.39	0.53	0.53	0.22	0.00	0.20	0.99	0.00	0.00
Avail Cap(c_a), veh/h		104	2898	897		207	2315	1261	410	0	425	341	0	0
HCM Platoon Ratio		1.00	1.00	1.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		0.79	0.79	0.79	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh		78.5	34.6	16.4		56.5	0.0	0.0	45.0	0.0	44.5	64.1	0.0	0.0
Incr Delay (d2), s/veh		16.1	58.8	0.4		0.3	0.7	1.3	0.2	0.0	0.2	46.5	0.0	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.0	50.7	2.5		2.6	0.2	0.4	2.9	0.0	2.7	18.5	0.0	0.0
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		94.6	93.4	16.8		56.9	0.7	1.3	45.2	0.0	44.7	110.6	0.0	0.0
LnGrp LOS		F	F	B		E	A	A	D	A	D	F	A	A
Approach Vol, veh/h			3403			1975			179		338			
Approach Delay, s/veh			90.2			3.2			45.0		110.6			
Approach LOS			F			A			D		F			
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	24.9	97.0	49.0	6.8	115.0	49.0								
Change Period (Y+Rc), s	6.2	* 6.2	4.9	4.4	6.2	4.9								
Max Green Setting (Gmax), s	91	* 91	44.1	9.3	91.1	44.1								
Max Q Clear Time (g_c+1), s	92.8	92.8	46.1	3.9	2.0	10.5								
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	76.0	0.7								

Intersection Summary

HCM 6th Ctrl Delay	60.9
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 9: Fenton Pkwy & Friars Rd

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↔		↔↔	↑↑↑	↔	↔↔	↑	↔	↔↔	↔	↔
Traffic Volume (veh/h)	150	3169	383	10	250	1516	80	320	56	420	40	23	70
Future Volume (veh/h)	150	3169	383	10	250	1516	80	320	56	420	40	23	70
Initial Q (Qb), veh	15	25	15		0	0	0	0	0	15	15	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	3267	337		258	1563	45	330	58	354	41	24	9
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	382	2419	1118		207	2326	753	936	550	443	98	91	235
Arrive On Green	0.29	0.95	0.95		0.25	0.91	0.91	0.23	0.26	0.26	0.02	0.05	0.05
Sat Flow, veh/h	3456	5106	1585		3456	5106	1564	3456	1870	1581	3563	1870	1556
Grp Volume(v), veh/h	155	3267	337		258	1563	45	330	58	354	41	24	9
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1564	1728	1870	1581	1781	1870	1556
Q Serve(g_s), s	5.6	75.8	0.0		10.5	11.2	0.0	13.1	3.8	34.4	1.8	2.0	0.0
Cycle Q Clear(g_c), s	5.6	75.8	0.0		10.5	11.2	0.0	13.1	3.8	34.4	1.8	2.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	382	2419	1118		207	2326	753	936	550	443	98	91	235
V/C Ratio(X)	0.41	1.35	0.30		1.24	0.67	0.06	0.35	0.11	0.80	0.42	0.26	0.04
Avail Cap(c_a), veh/h	497	2419	1111		433	2326	746	786	587	496	98	491	637
HCM Platoon Ratio	2.00	2.00	2.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09		0.82	0.82	0.82	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.3	4.2	3.0		70.4	4.4	3.5	47.1	41.2	56.2	77.8	73.3	58.3
Incr Delay (d2), s/veh	0.0	158.0	0.1		118.6	1.3	0.1	0.0	0.0	1.4	1.1	6.9	0.3
Initial Q Delay(d3),s/veh	18.7	37.2	1.9		0.0	0.0	0.0	0.0	0.0	41.3	289.5	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	45.4	3.8		7.3	2.1	0.2	5.4	1.7	21.8	6.0	1.1	0.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	78.0	199.4	4.9		189.0	5.7	3.7	47.1	41.2	99.0	368.4	80.3	58.6
LnGrp LOS	E	F	A		F	A	A	D	D	F	F	F	E
Approach Vol, veh/h		3759				1866			742			74	
Approach Delay, s/veh		177.0				31.0			71.4			237.3	
Approach LOS		F				C			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	24.4	82.1	40.8	12.7	27.4	79.1	7.8	45.7					
Change Period (Y+Rc), s	4.4	6.3	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	9.6	75.8	12.6	42.0	12.6	72.9	4.4	50.2					
Max Q Clear Time (g_c+1/2), s	12.5	77.8	15.1	4.0	7.6	13.2	3.8	36.4					
Green Ext Time (p_c), s	0.0	0.0	0.0	0.4	0.1	46.3	0.0	4.4					

Intersection Summary

HCM 6th Ctrl Delay	123.2
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
10: Northside Dr & Friars Rd

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↑↑↑	↔	↔↔	↑↑↑	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	10	160	3069	250	545	1526	225	210	40	812	112	30	100
Future Volume (veh/h)	10	160	3069	250	545	1526	225	210	40	812	112	30	100
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		172	3300	269	586	1641	153	226	43	792	120	32	5
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		272	2269	693	575	2658	870	831	433	626	121	48	41
Arrive On Green		0.16	0.89	0.89	0.33	1.00	1.00	0.24	0.23	0.23	0.04	0.03	0.03
Sat Flow, veh/h		3456	5106	1560	3456	5106	1565	3456	1870	1569	3456	1870	1585
Grp Volume(v), veh/h		172	3300	269	586	1641	153	226	43	792	120	32	5
Grp Sat Flow(s),veh/h/ln		1728	1702	1560	1728	1702	1565	1728	1870	1569	1728	1870	1585
Q Serve(g_s), s		7.5	71.1	2.1	26.6	0.0	0.0	8.5	2.9	37.0	5.6	2.7	0.5
Cycle Q Clear(g_c), s		7.5	71.1	2.1	26.6	0.0	0.0	8.5	2.9	37.0	5.6	2.7	0.5
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		272	2269	693	575	2658	870	831	433	626	121	48	41
V/C Ratio(X)		0.63	1.45	0.39	1.02	0.62	0.18	0.27	0.10	1.26	0.99	0.67	0.12
Avail Cap(c_a), veh/h		307	2269	693	575	2658	870	831	433	626	121	300	255
HCM Platoon Ratio		2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.09	0.09	0.09	0.81	0.81	0.81	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		65.2	8.9	1.1	53.4	0.0	0.0	49.4	48.4	48.3	77.2	77.3	76.2
Incr Delay (d2), s/veh		0.2	204.7	0.1	38.9	0.9	0.4	0.1	0.0	131.5	79.2	54.7	6.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.1	46.5	1.2	12.8	0.2	0.1	3.8	1.4	47.9	3.8	2.1	0.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		65.4	213.6	1.2	92.3	0.9	0.4	49.4	48.4	179.8	156.4	132.0	82.3
LnGrp LOS		E	F	A	F	A	A	D	D	F	F	F	F
Approach Vol, veh/h			3741			2380			1061			157	
Approach Delay, s/veh			191.5			23.4			146.7			149.0	
Approach LOS			F			C			F			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	31.0	77.1	42.9	9.0	18.6	89.5	10.0	41.9					
Change Period (Y+Rc), s	4.4	6.0	4.4	4.9	6.0	* 6.2	4.4	4.9					
Max Green Setting (Gmax), s	26.6	71.1	16.9	25.7	14.2	* 83	5.6	37.0					
Max Q Clear Time (g_c+20.6), s	20.6	73.1	10.5	4.7	9.5	2.0	7.6	39.0					
Green Ext Time (p_c), s	0.0	0.0	0.2	0.4	0.1	54.5	0.0	0.0					

Intersection Summary

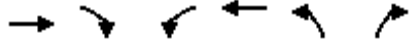
HCM 6th Ctrl Delay	129.6
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 11: Stadium Way (Street A) & Friars Rd

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑↑↑	↑↑	↑↑
Traffic Volume (veh/h)	3368	595	1097	2016	289	614
Future Volume (veh/h)	3368	595	1097	2016	289	614
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3545	501	1155	2122	304	646
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	3574	1085	410	4340	302	575
Arrive On Green	1.00	1.00	0.12	0.85	0.09	0.09
Sat Flow, veh/h	5274	1549	3456	5274	3456	2790
Grp Volume(v), veh/h	3545	501	1155	2122	304	646
Grp Sat Flow(s),veh/h/ln	1702	1549	1728	1702	1728	1395
Q Serve(g_s), s	0.0	0.0	19.0	17.1	14.0	14.0
Cycle Q Clear(g_c), s	0.0	0.0	19.0	17.1	14.0	14.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3574	1085	410	4340	302	575
V/C Ratio(X)	0.99	0.46	2.81	0.49	1.01	1.12
Avail Cap(c_a), veh/h	3574	1085	410	4340	302	575
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	70.5	3.1	73.0	63.5
Incr Delay (d2), s/veh	3.0	0.1	823.3	0.4	53.1	76.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	55.2	3.9	8.5	17.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	3.0	0.1	893.8	3.5	126.1	139.5
LnGrp LOS	A	A	F	A	F	F
Approach Vol, veh/h	4046			3277	950	
Approach Delay, s/veh	2.7			317.3	135.2	
Approach LOS	A			F	F	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	24.0	117.0		141.0	19.0	
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	
Max Green Setting (Gmax), s	119.0	112.0		136.0	14.0	
Max Q Clear Time (g_c+Y), s	21.0	2.0		19.1	16.0	
Green Ext Time (p_c), s	0.0	101.6		34.3	0.0	

Intersection Summary

HCM 6th Ctrl Delay		142.5				
HCM 6th LOS			F			

HCM 6th Signalized Intersection Summary
 12: Mission Village Dr & Friars Rd WB

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶ ↷	↶ ↷	↶ ↷	↶ ↷	↶ ↷			↶ ↷	↶ ↷
Traffic Volume (veh/h)	0	0	0	693	0	364	439	740	0	0	1573	575
Future Volume (veh/h)	0	0	0	693	0	364	439	740	0	0	1573	575
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				No
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				722	0	224	457	771	0	0	1639	495
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				774	0	343	577	2523	0	0	1751	769
Arrive On Green				0.43	0.00	0.43	0.33	1.00	0.00	0.00	0.49	0.49
Sat Flow, veh/h				3563	0	1578	3456	3647	0	0	3647	1561
Grp Volume(v), veh/h				722	0	224	457	771	0	0	1639	495
Grp Sat Flow(s),veh/h/ln				1781	0	1578	1728	1777	0	0	1777	1561
Q Serve(g_s), s				27.0	0.0	15.7	16.8	0.0	0.0	0.0	60.8	33.0
Cycle Q Clear(g_c), s				27.0	0.0	15.7	16.8	0.0	0.0	0.0	60.8	33.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				774	0	343	577	2523	0	0	1751	769
V/C Ratio(X)				0.93	0.00	0.65	0.79	0.31	0.00	0.00	0.94	0.64
Avail Cap(c_a), veh/h				893	0	396	577	2523	0	0	1751	769
HCM Platoon Ratio				2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.92	0.92	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				38.6	0.0	35.4	44.4	0.0	0.0	0.0	33.4	26.4
Incr Delay (d2), s/veh				14.2	0.0	2.0	6.3	0.3	0.0	0.0	10.9	4.1
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				10.5	0.0	5.0	6.4	0.1	0.0	0.0	27.2	12.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				52.9	0.0	37.4	50.7	0.3	0.0	0.0	44.3	30.5
LnGrp LOS				D	A	D	D	A	A	A	D	C
Approach Vol, veh/h					946			1228			2134	
Approach Delay, s/veh					49.2			19.0			41.1	
Approach LOS					D			B			D	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		104.7			28.7	76.0		35.3				
Change Period (Y+Rc), s		5.3			5.3	7.0		4.9				
Max Green Setting (Gmax), s		94.7			18.7	69.0		35.1				
Max Q Clear Time (g_c+I1), s		2.0			18.8	62.8		29.0				
Green Ext Time (p_c), s		3.4			0.0	5.6		1.2				

Intersection Summary

HCM 6th Ctrl Delay	36.6
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
 13: Mission Village Dr/Street D & Friars Rd EB

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗					↕↕↕	↗	↘	↕	
Traffic Volume (veh/h)	344	10	653	0	0	0	0	857	1099	518	1758	0
Future Volume (veh/h)	344	10	653	0	0	0	0	857	1099	518	1758	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	362	11	687				0	902	1157	545	1851	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	464	14	737				0	2238	1217	580	2312	0
Arrive On Green	0.27	0.27	0.27				0.00	0.73	0.73	0.34	1.00	0.00
Sat Flow, veh/h	1731	53	2751				0	5274	2777	3456	3647	0
Grp Volume(v), veh/h	373	0	687				0	902	1157	545	1851	0
Grp Sat Flow(s),veh/h/ln	1784	0	1375				0	1702	1388	1728	1777	0
Q Serve(g_s), s	27.1	0.0	34.1				0.0	9.4	51.4	21.4	0.0	0.0
Cycle Q Clear(g_c), s	27.1	0.0	34.1				0.0	9.4	51.4	21.4	0.0	0.0
Prop In Lane	0.97		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	478	0	737				0	2238	1217	580	2312	0
V/C Ratio(X)	0.78	0.00	0.93				0.00	0.40	0.95	0.94	0.80	0.00
Avail Cap(c_a), veh/h	494	0	762				0	2238	1217	587	2312	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.67	1.67	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.28	0.28	0.29	0.29	0.00
Uniform Delay (d), s/veh	47.4	0.0	50.0				0.0	11.8	17.4	45.8	0.0	0.0
Incr Delay (d2), s/veh	7.6	0.0	17.9				0.0	0.2	6.2	9.2	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.8	0.0	13.2				0.0	3.0	11.7	8.5	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.1	0.0	67.9				0.0	11.9	23.6	55.0	0.9	0.0
LnGrp LOS	E	A	E				A	B	C	D	A	A
Approach Vol, veh/h		1060						2059			2396	
Approach Delay, s/veh		63.4						18.5			13.2	
Approach LOS		E						B			B	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	29.7	67.6	42.7	97.3								
Change Period (Y+Rc), s	6.2	* 6.2	5.2	6.2								
Max Green Setting (Gmax), s	23.8	* 61	38.8	89.8								
Max Q Clear Time (g_c+20), s	23.4	53.4	36.1	2.0								
Green Ext Time (p_c), s	0.1	5.9	1.4	30.1								

Intersection Summary

HCM 6th Ctrl Delay	24.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 14: Street D & Street 4

HY+P Plus Event with Feasible Improvements
 PM Peak Hour
























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↑	↗	↖	↑↑↑		↖	↑↑	↗
Traffic Volume (veh/h)	126	27	4	499	46	259	8	1579	193	1111	1167	133
Future Volume (veh/h)	126	27	4	499	46	259	8	1579	193	1111	1167	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		0.95	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	133	28	1	525	48	273	8	1662	192	1169	1228	107
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	115	212	8	64	168	1164	14	1719	198	1147	2471	1071
Arrive On Green	0.06	0.12	0.12	0.01	0.03	0.03	0.01	0.37	0.37	0.55	1.00	1.00
Sat Flow, veh/h	1781	1792	64	1781	1870	2645	1781	4631	533	3456	3554	1540
Grp Volume(v), veh/h	133	0	29	525	48	273	8	1220	634	1169	1228	107
Grp Sat Flow(s),veh/h/ln	1781	0	1856	1781	1870	1323	1781	1702	1760	1728	1777	1540
Q Serve(g_s), s	9.0	0.0	2.0	5.0	3.5	9.2	0.6	49.2	49.5	46.5	0.0	0.0
Cycle Q Clear(g_c), s	9.0	0.0	2.0	5.0	3.5	9.2	0.6	49.2	49.5	46.5	0.0	0.0
Prop In Lane	1.00		0.03	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	115	0	220	64	168	1164	14	1263	653	1147	2471	1071
V/C Ratio(X)	1.16	0.00	0.13	8.25	0.29	0.23	0.59	0.97	0.97	1.02	0.50	0.10
Avail Cap(c_a), veh/h	115	0	464	64	414	1512	89	1264	654	1147	2471	1071
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.43	0.43	0.43
Uniform Delay (d), s/veh	65.5	0.0	55.3	69.2	63.5	27.8	69.2	43.2	43.3	31.2	0.0	0.0
Incr Delay (d2), s/veh	134.0	0.0	0.3	295.5	0.9	0.1	34.4	17.7	27.8	22.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.4	0.0	0.9	60.6	1.8	3.3	0.4	23.6	26.4	19.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	199.5	0.0	55.5	336.6	64.4	27.9	103.6	60.9	71.0	53.7	0.1	0.0
LnGrp LOS	F	A	E	F	E	C	F	E	E	F	A	A
Approach Vol, veh/h		162			846			1862			2504	
Approach Delay, s/veh		173.7			2100.6			64.5			25.1	
Approach LOS		F			F			E			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	51.5	57.0	10.0	21.6	6.1	102.3	14.0	17.6				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	28.0	52.0	5.0	35.0	7.0	73.0	9.0	31.0				
Max Q Clear Time (g_c+40), s	40.5	51.5	7.0	4.0	2.6	2.0	11.0	11.2				
Green Ext Time (p_c), s	0.0	0.4	0.0	0.1	0.0	14.2	0.0	1.4				

Intersection Summary

HCM 6th Ctrl Delay		370.0										
HCM 6th LOS			F									

HCM Signalized Intersection Capacity Analysis HY+P Plus Event with Feasible Improvements
 15: Street F & Street 4

PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	1245	21	4	5	8	21	8	222	4	82	356	768
Future Volume (vph)	1245	21	4	5	8	21	8	222	4	82	356	768
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	2.1	4.5
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.88
Frbp, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.89		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1807		1770	1622		1770	1856		1770	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	1807		1770	1622		1770	1856		1770	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1353	23	4	5	9	23	9	241	4	89	387	835
RTOR Reduction (vph)	0	2	0	0	20	0	0	1	0	0	0	0
Lane Group Flow (vph)	1353	25	0	5	12	0	9	244	0	89	387	835
Confl. Peds. (#/hr)			10			10			10			
Confl. Bikes (#/hr)			3			3			3			3
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	7	4		3	8		5	2		1	6	9
Permitted Phases												
Actuated Green, G (s)	69.6	84.1		1.0	15.5		1.0	26.6		10.3	35.9	82.4
Effective Green, g (s)	69.6	84.1		1.0	15.5		1.0	26.6		10.3	35.9	82.4
Actuated g/C Ratio	0.50	0.60		0.01	0.11		0.01	0.19		0.07	0.26	0.59
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)	1706	1085		12	179		12	352		130	477	1640
v/s Ratio Prot	c0.39	0.01		0.00	c0.01		0.01	0.13		c0.05	c0.21	c0.30
v/s Ratio Perm												
v/c Ratio	0.79	0.02		0.42	0.06		0.75	0.69		0.68	0.81	0.51
Uniform Delay, d1	29.2	11.3		69.2	55.8		69.4	52.9		63.3	48.9	16.9
Progression Factor	0.79	0.27		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.0	0.0		21.8	0.2		128.3	5.8		13.9	9.6	0.3
Delay (s)	24.1	3.0		91.0	55.9		197.6	58.7		77.2	58.5	17.2
Level of Service	C	A		F	E		F	E		E	E	B
Approach Delay (s)		23.7			60.6			63.6			33.4	
Approach LOS		C			E			E			C	
Intersection Summary												
HCM 2000 Control Delay			31.8									C
HCM 2000 Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			140.0						20.1			
Intersection Capacity Utilization			75.9%									D
Analysis Period (min)			15									
c Critical Lane Group												

Intersection					
Intersection Delay, s/veh 13.3					
Intersection LOS B					
Approach	EB		WB		NB
Entry Lanes	2		2		1
Conflicting Circle Lanes	2		2		2
Adj Approach Flow, veh/h	1618		1108		301
Demand Flow Rate, veh/h	1650		1130		307
Vehicles Circulating, veh/h	52		259		1550
Vehicles Exiting, veh/h	1337		1598		152
Ped Vol Crossing Leg, #/h	0		0		0
Ped Cap Adj	1.000		1.000		1.000
Approach Delay, s/veh	10.4		9.4		43.8
Approach LOS	B		A		E
Lane	Left	Right	Left	Right	Left
Designated Moves	LT	TR	LT	TR	LR
Assumed Moves	LT	TR	LT	TR	LR
RT Channelized					
Lane Util	0.470	0.530	0.470	0.530	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328
Entry Flow, veh/h	776	874	531	599	307
Cap Entry Lane, veh/h	1287	1359	1064	1139	380
Entry HV Adj Factor	0.980	0.981	0.981	0.980	0.980
Flow Entry, veh/h	760	857	521	587	301
Cap Entry, veh/h	1261	1333	1043	1117	373
V/C Ratio	0.603	0.643	0.499	0.526	0.807
Control Delay, s/veh	10.1	10.6	9.3	9.4	43.8
LOS	B	B	A	A	E
95th %tile Queue, veh	4	5	3	3	7

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	567	2749	1186	10	311	2134	393	0	0	0	1185	0	1152
Future Volume (veh/h)	567	2749	1186	10	311	2134	393	0	0	0	1185	0	1152
Initial Q (Qb), veh	20	0	20		20	0	20				0	0	20
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	591	2864	943		324	2223	0				1234	0	1196
Peak Hour Factor	0.96	0.96	0.96		0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	859	3739	906		393	1246					1153	0	2483
Arrive On Green	0.45	0.52	0.52		0.20	0.24	0.00				0.32	0.00	0.32
Sat Flow, veh/h	1781	5106	1552		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	591	2864	943		324	2223	0				1234	0	1196
Grp Sat Flow(s),veh/h/ln	1781	1702	1552		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	37.4	70.2	70.2		24.3	33.2	0.0				44.0	0.0	0.0
Cycle Q Clear(g_c), s	37.4	70.2	70.2		24.3	33.2	0.0				44.0	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	859	3739	906		393	1246					1153	0	2483
V/C Ratio(X)	0.69	0.77	1.04		0.82	1.78					1.07	0.00	0.48
Avail Cap(c_a), veh/h	796	2637	802		393	1246					1153	0	2442
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.44	0.44	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	29.3	15.6	28.3		53.0	51.4	0.0				46.0	0.0	5.6
Incr Delay (d2), s/veh	2.4	1.6	41.2		6.0	354.0	0.0				47.6	0.0	0.1
Initial Q Delay(d3),s/veh	12.5	0.0	79.5		104.3	0.0	0.0				0.0	0.0	0.9
%ile BackOfQ(50%),veh/ln	19.1	12.6	50.6		25.1	54.6	0.0				27.1	0.0	24.0
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	44.2	17.1	149.0		163.3	405.4	0.0				93.6	0.0	6.6
LnGrp LOS	D	B	F		F	F					F	A	A
Approach Vol, veh/h		4398				2547	A					2430	
Approach Delay, s/veh		49.0				374.6						50.8	
Approach LOS		D				F						D	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	30.7	77.2		49.1	67.8	40.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	30	45.7		44.0	42.0	* 33							
Max Q Clear Time (g_c+20), s	20.3	72.2		46.0	39.4	35.2							
Green Ext Time (p_c), s	0.2	0.0		0.0	0.3	0.0							

Intersection Summary

HCM 6th Ctrl Delay	137.9
HCM 6th LOS	F

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖				↑↑↑	↗						
Traffic Volume (veh/h)	1101	2893	0	0	1407	970	0	0	1542	0	0	1401
Future Volume (veh/h)	1101	2893	0	0	1407	970	0	0	1542	0	0	1401
Initial Q (Qb), veh	40	0	0	0	20	40						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	1159	3045	0	0	1383	1086						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	660	0	0	0	1728	1497						
Arrive On Green	0.43	0.93	0.00	0.00	0.45	0.45						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	1159	0	0	0	1383	1086						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	45.0	0.0	0.0	0.0	33.7	30.0						
Cycle Q Clear(g_c), s	45.0	0.0	0.0	0.0	33.7	30.0						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	660	0	0	0	1728	1497						
V/C Ratio(X)	1.76	0.00	0.00	0.00	0.80	0.73						
Avail Cap(c_a), veh/h	764	0	0	0	2283	1935						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	1.00	1.00						
Uniform Delay (d), s/veh	38.3	0.0	0.0	0.0	25.5	25.3						
Incr Delay (d2), s/veh	346.8	0.0	0.0	0.0	1.1	0.6						
Initial Q Delay(d3),s/veh	218.3	0.0	0.0	0.0	4.8	18.7						
%ile BackOfQ(50%),veh/ln	22.1	0.0	0.0	0.0	16.7	17.4						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	603.3	0.0	0.0	0.0	31.5	44.6						
LnGrp LOS	F	A	A	A	C	D						
Approach Vol, veh/h		1159			2469							
Approach Delay, s/veh		603.3			37.3							
Approach LOS		F			D							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		104.9			50.5	54.4						
Change Period (Y+Rc), s		* 7			5.5	7.0						
Max Green Setting (Gmax), s		* 18			45.0	64.0						
Max Q Clear Time (g_c+I1), s		0.0			47.0	35.7						
Green Ext Time (p_c), s		0.0			0.0	11.6						

Intersection Summary

HCM 6th Ctrl Delay	218.1
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↓	↑↑↑	↓	↑
Traffic Volume (veh/h)	3428	1018	10	168	1854	513	268
Future Volume (veh/h)	3428	1018	10	168	1854	513	268
Initial Q (Qb), veh	0	0		0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	3571	1025		175	1931	534	130
Peak Hour Factor	0.96	0.96		0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	2746	1226		199	4815	633	309
Arrive On Green	0.61	0.61		0.11	0.75	0.17	0.17
Sat Flow, veh/h	5274	1582		1781	6696	3563	1585
Grp Volume(v), veh/h	3571	1025		175	1931	534	130
Grp Sat Flow(s),veh/h/ln	1702	1582		1781	1609	1781	1585
Q Serve(g_s), s	82.4	56.4		13.2	14.6	19.9	10.1
Cycle Q Clear(g_c), s	82.4	56.4		13.2	14.6	19.9	10.1
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2746	1226		199	4815	633	309
V/C Ratio(X)	1.30	0.84		0.88	0.40	0.84	0.42
Avail Cap(c_a), veh/h	3092	1226		208	4822	843	375
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.86	0.86	0.49	0.49
Uniform Delay (d), s/veh	31.4	9.8		59.5	6.4	54.8	48.1
Incr Delay (d2), s/veh	138.0	6.8		27.1	0.2	2.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.1	11.5	0.0
%ile BackOfQ(50%),veh	62.6	36.1		7.3	4.6	10.8	3.9
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	169.4	16.7		86.6	6.6	68.6	48.3
LnGrp LOS	F	B		F	A	E	D
Approach Vol, veh/h	4596			2106	664		
Approach Delay, s/veh	135.4			13.3	64.6		
Approach LOS	F			B	E		
Timer - Assigned Phs	1	2		6	8		
Phs Duration (G+Y+Rc), s	19.6	88.4		107.9	28.1		
Change Period (Y+Rc), s	4.4	* 6		6.0	5.1		
Max Green Setting (Gmax), s	15.9	* 73		92.7	32.2		
Max Q Clear Time (g_c+11.2), s	11.2	84.4		16.6	21.9		
Green Ext Time (p_c), s	0.0	0.0		52.0	1.1		

Intersection Summary

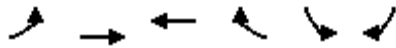
HCM 6th Ctrl Delay	94.1
HCM 6th LOS	F

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: Friars Rd & Santo Rd

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑↑		↔↔	↔
Traffic Volume (veh/h)	453	3323	1679	110	90	293
Future Volume (veh/h)	453	3323	1679	110	90	293
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1856	1870	1870
Adj Flow Rate, veh/h	472	3461	1749	110	94	301
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	3	3	2	2
Cap, veh/h	537	3742	3344	210	609	526
Arrive On Green	0.16	0.73	0.54	0.54	0.18	0.18
Sat Flow, veh/h	3456	5274	6444	389	3456	1585
Grp Volume(v), veh/h	472	3461	1354	505	94	301
Grp Sat Flow(s),veh/h/ln	1728	1702	1596	1786	1728	1585
Q Serve(g_s), s	16.0	67.5	21.7	21.7	2.8	18.8
Cycle Q Clear(g_c), s	16.0	67.5	21.7	21.7	2.8	18.8
Prop In Lane	1.00			0.22	1.00	1.00
Lane Grp Cap(c), veh/h	537	3742	2589	966	609	526
V/C Ratio(X)	0.88	0.92	0.52	0.52	0.15	0.57
Avail Cap(c_a), veh/h	737	3742	2589	966	734	583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.65	0.65	1.00	1.00
Uniform Delay (d), s/veh	49.6	13.3	17.6	17.6	41.8	33.1
Incr Delay (d2), s/veh	0.7	0.5	0.5	1.3	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	19.3	7.5	8.6	1.2	16.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.3	13.8	18.1	19.0	41.9	33.6
LnGrp LOS	D	B	B	B	D	C
Approach Vol, veh/h		3933	1859		395	
Approach Delay, s/veh		18.2	18.4		35.6	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		94.4		25.6	23.0	71.4
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		83.6		25.5	25.6	* 54
Max Q Clear Time (g_c+I1), s		69.5		20.8	18.0	23.7
Green Ext Time (p_c), s		14.0		0.4	0.6	17.7

Intersection Summary

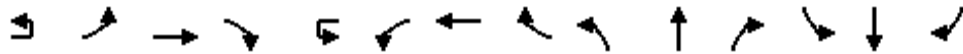
HCM 6th Ctrl Delay	19.4
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
21: Riverdale St & Friars Rd

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		3	3	3					3	3	3			
Traffic Volume (veh/h)	30	234	2924	244	10	50	1354	60	223	110	140	60	60	143
Future Volume (veh/h)	30	234	2924	244	10	50	1354	60	223	110	140	60	60	143
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	0.99		0.99	1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No			No	
Adj Sat Flow, veh/h/ln		1870	1870	1856		1737	1856	1870	1870	1870	1870	1811	1870	1870
Adj Flow Rate, veh/h		241	3014	159		52	1396	25	230	113	92	62	62	51
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	3		11	3	2	2	2	2	6	2	2
Cap, veh/h		272	2832	870		65	2236	700	335	248	202	252	247	203
Arrive On Green		0.15	0.55	0.55		0.04	0.44	0.44	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h		1781	5106	1568		1654	5066	1585	1273	951	774	1135	946	778
Grp Volume(v), veh/h		241	3014	159		52	1396	25	230	0	205	62	0	113
Grp Sat Flow(s),veh/h/ln		1781	1702	1568		1654	1689	1585	1273	0	1725	1135	0	1724
Q Serve(g_s), s		13.9	58.2	5.3		3.3	22.3	0.9	18.3	0.0	10.5	5.1	0.0	5.4
Cycle Q Clear(g_c), s		13.9	58.2	5.3		3.3	22.3	0.9	23.7	0.0	10.5	15.5	0.0	5.4
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.45	1.00		0.45
Lane Grp Cap(c), veh/h		272	2832	870		65	2236	700	335	0	451	252	0	450
V/C Ratio(X)		0.89	1.06	0.18		0.80	0.62	0.04	0.69	0.00	0.45	0.25	0.00	0.25
Avail Cap(c_a), veh/h		324	2832	870		206	2236	700	455	0	613	359	0	612
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.51	0.51	0.51		0.91	0.91	0.91	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		43.6	23.4	11.6		50.0	22.6	16.6	40.0	0.0	32.5	39.0	0.0	30.7
Incr Delay (d2), s/veh		11.4	33.6	0.2		7.4	1.2	0.1	1.1	0.0	0.3	0.2	0.0	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		6.8	28.8	1.7		1.4	8.4	0.3	5.8	0.0	4.4	1.4	0.0	2.3
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		55.0	57.0	11.8		57.4	23.8	16.7	41.1	0.0	32.8	39.2	0.0	30.8
LnGrp LOS		E	F	B		E	C	B	D	A	C	D	A	C
Approach Vol, veh/h			3414				1473			435			175	
Approach Delay, s/veh			54.7				24.9			37.2			33.8	
Approach LOS			D				C			D			C	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	8.5	64.1		32.3	20.4	52.2		32.3						
Change Period (Y+Rc), s	4.4	* 5.9		4.9	4.4	5.9		4.9						
Max Green Setting (Gmax), s	13	* 40		37.3	19.1	33.4		37.3						
Max Q Clear Time (g_c+1), s	15	3		60.2	17.5	15.9		24.3						
Green Ext Time (p_c), s	0.0	0.0		0.5	0.1	5.7		1.0						

Intersection Summary

HCM 6th Ctrl Delay	44.7
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
22: Mission Gorge Rd & Friars Rd

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↵↵	↑↑↑		↵	↵↵
Traffic Volume (veh/h)	2626	288	280	1164	10	360	600
Future Volume (veh/h)	2626	288	280	1164	10	360	600
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	2794	0	298	1238		383	637
Peak Hour Factor	0.94	0.94	0.94	0.94		0.94	0.94
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2621		463	0		412	1018
Arrive On Green	0.51	0.00	0.13	0.00		0.23	0.23
Sat Flow, veh/h	5443	0	3456	298		1781	2790
Grp Volume(v), veh/h	2794	0	298	51.6		383	637
Grp Sat Flow(s),veh/h/ln	1702	0	1728	D		1781	1395
Q Serve(g_s), s	61.6	0.0	9.8			25.3	6.5
Cycle Q Clear(g_c), s	61.6	0.0	9.8			25.3	6.5
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2621		463			412	1018
V/C Ratio(X)	1.07		0.64			0.93	0.63
Avail Cap(c_a), veh/h	2621		463			425	1039
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.09	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	29.2	0.0	49.3			45.2	31.4
Incr Delay (d2), s/veh	30.6	0.0	2.4			26.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh/ln	30.1	0.0	4.3			14.1	7.6
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	59.8	0.0	51.6			71.3	32.2
LnGrp LOS	F		D			E	C
Approach Vol, veh/h	2794	A				1020	
Approach Delay, s/veh	59.8					46.9	
Approach LOS	E					D	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	30.5	67.4					32.1
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	61.6					28.6
Max Q Clear Time (g_c+I1), s	11.8	63.6					27.3
Green Ext Time (p_c), s	0.2	0.0					0.5

Intersection Summary

HCM 6th Ctrl Delay	56.0
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 23: Qualcomm Way & Rio San Diego Dr

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations	↔	↑	↗		↔	↑↑	↗	↔	↑↑↑	↗		↔	↑↑↑	
Traffic Volume (veh/h)	321	210	310	20	807	362	340	60	359	164	10	70	913	340
Future Volume (veh/h)	321	210	310	20	807	362	340	60	359	164	10	70	913	340
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		0.99	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	338	221	299		849	381	147	63	378	19		74	961	327
Peak Hour Factor	0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2		2	2	2
Cap, veh/h	401	401	383		818	1192	529	107	1850	572		121	1373	466
Arrive On Green	0.12	0.21	0.21		0.24	0.34	0.34	0.03	0.36	0.36		0.03	0.37	0.37
Sat Flow, veh/h	3456	1870	1556		3456	3554	1577	3456	5106	1580		3456	3748	1273
Grp Volume(v), veh/h	338	221	299		849	381	147	63	378	19		74	873	415
Grp Sat Flow(s),veh/h/ln	1728	1870	1556		1728	1777	1577	1728	1702	1580		1728	1702	1616
Q Serve(g_s), s	12.2	13.3	22.7		30.0	10.1	8.7	2.3	6.5	1.0		2.7	27.7	27.8
Cycle Q Clear(g_c), s	12.2	13.3	22.7		30.0	10.1	8.7	2.3	6.5	1.0		2.7	27.7	27.8
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.79
Lane Grp Cap(c), veh/h	401	401	383		818	1192	529	107	1850	572		121	1247	592
V/C Ratio(X)	0.84	0.55	0.78		1.04	0.32	0.28	0.59	0.20	0.03		0.61	0.70	0.70
Avail Cap(c_a), veh/h	818	590	540		818	1192	529	1636	2417	748		818	1611	765
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	54.9	44.3	44.7		48.4	31.4	30.9	60.6	27.8	26.1		60.3	34.2	34.2
Incr Delay (d2), s/veh	1.9	1.2	4.8		41.8	0.2	0.3	1.9	0.1	0.0		1.9	1.4	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	6.2	9.1		17.4	4.3	3.3	1.0	2.6	0.4		1.2	11.5	11.2
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	56.8	45.5	49.5		90.2	31.5	31.2	62.6	27.9	26.1		62.2	35.6	37.2
LnGrp LOS	E	D	D		F	C	C	E	C	C		E	D	D
Approach Vol, veh/h		858				1377			460				1362	
Approach Delay, s/veh		51.3				67.7			32.6				37.6	
Approach LOS		D				E			C				D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	8.8	51.0	34.4	32.5	8.3	51.6	19.1	47.8						
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3						
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0						
Max Q Clear Time (g_c+1/4), s	14.7	8.5	32.0	24.7	4.3	29.8	14.2	12.1						
Green Ext Time (p_c), s	0.1	4.1	0.0	2.0	0.1	16.7	0.5	2.9						

Intersection Summary

HCM 6th Ctrl Delay	50.1
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection														
Intersection Delay, s/veh	32.7													
Intersection LOS	D													

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↖	↕		↖	↕			↕				↕	
Traffic Vol, veh/h	20	170	594	20	15	509	60	20	22	20	20	130	28	110
Future Vol, veh/h	20	170	594	20	15	509	60	20	22	20	20	130	28	110
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	189	660	22	17	566	67	22	24	22	22	144	31	122
Number of Lanes	0	1	2	0	1	2	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	35.4	30.8	14.4	32.9
HCM LOS	E	D	B	D

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	32%	100%	0%	0%	100%	0%	0%	49%
Vol Thru, %	35%	0%	100%	91%	0%	100%	74%	10%
Vol Right, %	32%	0%	0%	9%	0%	0%	26%	41%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	62	190	396	218	15	339	230	288
LT Vol	20	190	0	0	15	0	0	140
Through Vol	22	0	396	198	0	339	170	30
RT Vol	20	0	0	20	0	0	60	118
Lane Flow Rate	69	211	440	242	17	377	255	320
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.183	0.476	0.929	0.507	0.039	0.83	0.548	0.752
Departure Headway (Hd)	9.566	8.121	7.602	7.536	8.445	7.926	7.736	8.464
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	378	441	475	477	422	456	464	426
Service Time	7.266	5.901	5.382	5.315	6.231	5.711	5.521	6.243
HCM Lane V/C Ratio	0.183	0.478	0.926	0.507	0.04	0.827	0.55	0.751
HCM Control Delay	14.4	18.1	53.3	17.9	11.6	39.2	19.6	32.9
HCM Lane LOS	B	C	F	C	B	E	C	D
HCM 95th-tile Q	0.7	2.5	10.9	2.8	0.1	8	3.2	6.2

HCM 6th Signalized Intersection Summary HY+P Plus Event with Feasible Improvements
 25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	10	200	280	164	20	320	270	174	166	13	30	370	145	80
Future Volume (veh/h)	10	200	280	164	20	320	270	174	166	13	30	370	145	80
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99	1.00		0.99	1.00		0.98		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No		No		No		No			No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h		206	289	69	21	330	202	179	171	10		381	149	33
Peak Hour Factor		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97		0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h		380	399	334	30	476	309	223	458	27		496	444	96
Arrive On Green		0.21	0.21	0.21	0.23	0.23	0.23	0.13	0.13	0.13		0.14	0.15	0.15
Sat Flow, veh/h		1781	1870	1565	128	2029	1318	1781	3409	198		3456	2901	626
Grp Volume(v), veh/h		206	289	69	306	0	247	179	89	92		381	90	92
Grp Sat Flow(s),veh/h/ln		1781	1870	1565	1864	0	1611	1781	1777	1830		1728	1777	1750
Q Serve(g_s), s		7.5	10.4	2.6	10.9	0.0	10.1	7.1	3.3	3.3		7.7	3.3	3.4
Cycle Q Clear(g_c), s		7.5	10.4	2.6	10.9	0.0	10.1	7.1	3.3	3.3		7.7	3.3	3.4
Prop In Lane		1.00		1.00	0.07		0.82	1.00		0.11		1.00		0.36
Lane Grp Cap(c), veh/h		380	399	334	437	0	378	223	239	246		496	272	268
V/C Ratio(X)		0.54	0.72	0.21	0.70	0.00	0.65	0.80	0.37	0.38		0.77	0.33	0.34
Avail Cap(c_a), veh/h		982	1031	863	1028	0	888	737	1470	1513		1429	1470	1448
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		25.4	26.6	23.5	25.4	0.0	25.1	30.9	28.6	28.6		29.9	27.4	27.5
Incr Delay (d2), s/veh		0.7	1.5	0.2	0.8	0.0	0.7	2.6	4.4	4.3		1.0	3.2	3.5
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.0	4.4	1.0	4.8	0.0	3.8	3.1	1.7	1.7		3.2	1.6	1.7
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		26.1	28.1	23.7	26.2	0.0	25.8	33.4	33.0	33.0		30.9	30.6	31.0
LnGrp LOS		C	C	C	C	A	C	C	C	C		C	C	C
Approach Vol, veh/h			564			553			360				563	
Approach Delay, s/veh			26.8			26.0			33.2				30.8	
Approach LOS			C			C			C				C	
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	14.8	15.2	20.7	13.5	16.5	21.9								
Change Period (Y+Rc), s	4.4	* 5.4	5.2	4.4	5.4	4.9								
Max Green Setting (Gmax), s	30.0	* 60	40.0	30.0	60.0	40.0								
Max Q Clear Time (g_c+1), s	19.7	5.3	12.4	9.1	5.4	12.9								
Green Ext Time (p_c), s	0.7	4.0	1.6	0.2	4.1	2.5								

Intersection Summary

HCM 6th Ctrl Delay	28.8
HCM 6th LOS	C

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary HY+P Plus Event with Feasible Improvements
 26: Rancho Mission Rd & San Diego Mission Rd PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗	↖	↗	↖	↗
Traffic Volume (veh/h)	241	760	440	158	457	252	165	293	172	254	282	486
Future Volume (veh/h)	241	760	440	158	457	252	165	293	172	254	282	486
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	254	800	421	166	481	224	174	308	42	267	297	318
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	282	868	454	194	798	369	202	356	294	294	453	376
Arrive On Green	0.16	0.39	0.39	0.11	0.34	0.34	0.11	0.19	0.19	0.17	0.24	0.24
Sat Flow, veh/h	1781	2236	1169	1781	2355	1090	1781	1870	1547	1781	1870	1554
Grp Volume(v), veh/h	254	635	586	166	362	343	174	308	42	267	297	318
Grp Sat Flow(s),veh/h/ln	1781	1777	1627	1781	1777	1668	1781	1870	1547	1781	1870	1554
Q Serve(g_s), s	17.6	42.8	43.4	11.5	21.3	21.6	12.1	20.1	2.8	18.5	18.0	24.6
Cycle Q Clear(g_c), s	17.6	42.8	43.4	11.5	21.3	21.6	12.1	20.1	2.8	18.5	18.0	24.6
Prop In Lane	1.00		0.72	1.00		0.65	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	282	690	632	194	602	565	202	356	294	294	453	376
V/C Ratio(X)	0.90	0.92	0.93	0.86	0.60	0.61	0.86	0.87	0.14	0.91	0.66	0.84
Avail Cap(c_a), veh/h	495	705	646	495	776	728	424	742	614	424	742	617
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.1	36.7	36.9	55.2	34.6	34.7	54.9	49.5	42.5	51.6	43.0	45.5
Incr Delay (d2), s/veh	5.4	17.5	19.9	4.2	1.6	1.7	4.2	2.5	0.1	14.2	0.6	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	21.2	20.0	5.3	9.3	8.8	5.6	9.6	1.1	9.4	8.3	9.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.5	54.2	56.8	59.4	36.2	36.4	59.1	52.0	42.5	65.9	43.6	48.2
LnGrp LOS	E	D	E	E	D	D	E	D	D	E	D	D
Approach Vol, veh/h		1475			871			524			882	
Approach Delay, s/veh		55.8			40.7			53.6			52.0	
Approach LOS		E			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.7	54.4	18.3	35.6	23.9	48.2	24.8	29.1				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	* 5.5	4.0	* 5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	* 55	30.0	* 50				
Max Q Clear Time (g_c+1/3), s	17.5	45.4	14.1	26.6	19.6	23.6	20.5	22.1				
Green Ext Time (p_c), s	0.2	3.5	0.2	1.6	0.3	7.7	0.3	1.2				

Intersection Summary

HCM 6th Ctrl Delay	51.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary HY+P Plus Event with Feasible Improvements
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave PM Peak Hour

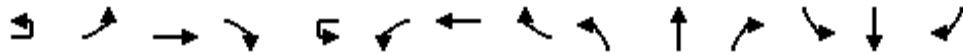


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	167	571	456	70	264	30	385	90	80	30	150	133
Future Volume (veh/h)	167	571	456	70	264	30	385	90	80	30	150	133
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	186	634	354	78	293	26	428	100	67	33	167	124
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	216	704	952	99	1026	90	416	241	162	334	186	138
Arrive On Green	0.12	0.38	0.38	0.06	0.31	0.31	0.23	0.23	0.23	0.19	0.19	0.19
Sat Flow, veh/h	1781	1870	1547	1781	3303	291	1781	1033	692	1781	995	739
Grp Volume(v), veh/h	186	634	354	78	157	162	428	0	167	33	0	291
Grp Sat Flow(s),veh/h/ln	1781	1870	1547	1781	1777	1817	1781	0	1726	1781	0	1733
Q Serve(g_s), s	12.5	39.1	14.2	5.3	8.1	8.3	28.5	0.0	10.0	1.9	0.0	20.0
Cycle Q Clear(g_c), s	12.5	39.1	14.2	5.3	8.1	8.3	28.5	0.0	10.0	1.9	0.0	20.0
Prop In Lane	1.00		1.00	1.00		0.16	1.00		0.40	1.00		0.43
Lane Grp Cap(c), veh/h	216	704	952	99	552	564	416	0	403	334	0	325
V/C Ratio(X)	0.86	0.90	0.37	0.79	0.28	0.29	1.03	0.00	0.41	0.10	0.00	0.90
Avail Cap(c_a), veh/h	378	954	1158	141	670	686	416	0	403	459	0	447
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	52.6	35.9	12.1	57.0	31.8	31.9	46.8	0.0	39.8	41.1	0.0	48.5
Incr Delay (d2), s/veh	9.5	8.9	0.2	16.9	0.3	0.3	52.1	0.0	0.3	0.0	0.0	13.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	18.8	8.2	2.9	3.6	3.7	18.5	0.0	4.3	0.8	0.0	9.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.2	44.8	12.3	73.9	32.1	32.1	98.9	0.0	40.0	41.2	0.0	61.9
LnGrp LOS	E	D	B	E	C	C	F	A	D	D	A	E
Approach Vol, veh/h		1174			397			595			324	
Approach Delay, s/veh		37.8			40.3			82.4			59.7	
Approach LOS		D			D			F			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	1.3	50.5		27.4	19.3	42.4		33.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	7	62.3		31.5	25.9	46.1		28.5				
Max Q Clear Time (g_c+1), s	7	41.1		22.0	14.5	10.3		30.5				
Green Ext Time (p_c), s	0.0	4.9		0.8	0.4	1.9		0.0				

Intersection Summary

HCM 6th Ctrl Delay	51.7
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary HY+P Plus Event with Feasible Improvements
 28: Qualcomm Way & Camino de la Reina/Camino del Rio N PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	10	143	458	320	10	485	212	142	183	649	326	304	1206	150
Future Volume (veh/h)	10	143	458	320	10	485	212	142	183	649	326	304	1206	150
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1841	1870	1856	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		147	503	246		500	219	22	189	669	280	313	1243	147
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2		2	4	2	3	2	2	2	2	2
Cap, veh/h		164	498	310		524	674	298	225	2645	807	316	2512	297
Arrive On Green		0.09	0.13	0.13		0.15	0.19	0.19	0.02	0.17	0.17	0.09	0.54	0.54
Sat Flow, veh/h		1781	3741	1550		3456	3497	1548	3428	5106	1558	3456	4619	546
Grp Volume(v), veh/h		147	503	246		500	219	22	189	669	280	313	916	474
Grp Sat Flow(s),veh/h/ln		1781	1870	1550		1728	1749	1548	1714	1702	1558	1728	1702	1761
Q Serve(g_s), s		16.3	26.6	26.6		28.7	10.8	2.3	11.0	22.7	31.7	18.1	33.6	33.6
Cycle Q Clear(g_c), s		16.3	26.6	26.6		28.7	10.8	2.3	11.0	22.7	31.7	18.1	33.6	33.6
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.31
Lane Grp Cap(c), veh/h		164	498	310		524	674	298	225	2645	807	316	1851	958
V/C Ratio(X)		0.90	1.01	0.79		0.96	0.33	0.07	0.84	0.25	0.35	0.99	0.49	0.49
Avail Cap(c_a), veh/h		190	498	310		524	674	298	314	2645	807	316	1851	958
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	0.83	0.83	0.83	0.09	0.09	0.09
Uniform Delay (d), s/veh		89.9	86.7	76.3		84.2	69.5	66.1	96.8	49.4	53.1	90.8	28.5	28.5
Incr Delay (d2), s/veh		33.0	43.1	12.7		28.1	0.1	0.0	8.3	0.2	1.0	12.9	0.1	0.2
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		9.1	16.0	13.1		14.8	4.8	0.9	5.4	10.5	13.6	8.7	14.0	14.5
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		122.8	129.8	89.1		112.2	69.7	66.2	105.1	49.6	54.1	103.6	28.6	28.6
LnGrp LOS		F	F	F		F	E	E	F	D	D	F	C	C
Approach Vol, veh/h			896				741			1138			1703	
Approach Delay, s/veh			117.5				98.3			59.9			42.4	
Approach LOS			F				F			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	22.7	110.3	34.7	32.3	17.5	115.5	22.8	44.2						
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7						
Max Green Setting (Gmax), s	10.3	103.6	30.3	* 27	18.3	* 1.1E2	21.3	35.6						
Max Q Clear Time (g_c+20), s	20.1	33.7	30.7	28.6	13.0	35.6	18.3	12.8						
Green Ext Time (p_c), s	0.0	5.9	0.0	0.0	0.2	35.0	0.1	0.8						

Intersection Summary

HCM 6th Ctrl Delay	71.1
HCM 6th LOS	E

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary HY+P Plus Event with Feasible Improvements
 29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔	↑↑↑			↑↑	↔
Traffic Volume (veh/h)	10	113	0	612	32	197	410	213	925	0	0	1133	778
Future Volume (veh/h)	10	113	0	612	32	197	410	213	925	0	0	1133	778
Initial Q (Qb), veh		0	0	20	0	20	20	20	20	0	0	20	20
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No			No			No		
Adj Sat Flow, veh/h/ln		1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h		120	0	291	34	210	275	227	984	0	0	1205	558
Peak Hour Factor		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h		0	0	0	23	330	317	178	3853	0	0	2240	975
Arrive On Green		0.00	0.00	0.00	0.18	0.18	0.18	0.10	0.75	0.00	0.00	1.00	1.00
Sat Flow, veh/h			0		259	1599	1582	1781	5274	0	0	3647	1551
Grp Volume(v), veh/h			0.0		244	0	275	227	984	0	0	1205	558
Grp Sat Flow(s),veh/h/ln					1857	0	1582	1781	1702	0	0	1777	1551
Q Serve(g_s), s					24.7	0.0	34.3	20.0	11.7	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s					24.7	0.0	34.3	20.0	11.7	0.0	0.0	0.0	0.0
Prop In Lane					0.14		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					362	0	317	178	3853	0	0	2240	975
V/C Ratio(X)					0.67	0.00	0.87	1.27	0.26	0.00	0.00	0.54	0.57
Avail Cap(c_a), veh/h					371	0	316	178	3855	0	0	2244	980
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)					1.00	0.00	1.00	0.62	0.62	0.00	0.00	0.72	0.72
Uniform Delay (d), s/veh					78.7	0.0	80.0	90.0	8.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh					3.7	0.0	21.1	147.8	0.1	0.0	0.0	0.7	1.8
Initial Q Delay(d3),s/veh					67.5	0.0	168.4	404.2	0.3	0.0	0.0	1.2	7.1
%ile BackOfQ(50%),veh/ln					23.4	0.0	32.8	36.6	5.9	0.0	0.0	0.6	2.4
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					149.9	0.0	269.5	642.0	8.3	0.0	0.0	1.9	8.9
LnGrp LOS					F	A	F	F	A	A	A	A	A
Approach Vol, veh/h						519			1211			1763	
Approach Delay, s/veh						213.3			127.1			4.1	
Approach LOS						F			F			A	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		158.0			24.7	133.3		42.0					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		107.8			* 20	83.1		40.0					
Max Q Clear Time (g_c+I1), s		13.7			22.0	2.0		36.3					
Green Ext Time (p_c), s		5.2			0.0	44.1		0.5					

Intersection Summary

HCM 6th Ctrl Delay	77.8
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	740	0	1366	1935	0
Future Volume (veh/h)	0	740	0	1366	1935	0
Initial Q (Qb), veh	0	10	0	0	50	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1870	0
Adj Flow Rate, veh/h	0	752	0	1394	1974	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	2	2	0
Cap, veh/h	0	0	0	2944	2944	0
Arrive On Green	0.00	0.00	0.00	0.82	0.82	0.00
Sat Flow, veh/h	0		0	3741	3741	0
Grp Volume(v), veh/h	0.0		0	1394	1974	0
Grp Sat Flow(s),veh/h/ln			0	1777	1777	0
Q Serve(g_s), s			0.0	3.6	6.9	0.0
Cycle Q Clear(g_c), s			0.0	3.6	6.9	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2944	2944	0
V/C Ratio(X)			0.00	0.47	0.67	0.00
Avail Cap(c_a), veh/h			0	5352	5352	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	0.8	1.4	0.0
Incr Delay (d2), s/veh			0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	6.3	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	2.6	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	0.8	7.8	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1394	1974	
Approach Delay, s/veh				0.8	7.8	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		29.9				29.9
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		45.0				45.0
Max Q Clear Time (g_c+I1), s		5.6				8.9
Green Ext Time (p_c), s		8.7				15.5
Intersection Summary						
HCM 6th Ctrl Delay			4.9			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
 31: Texas St & Camino del Rio S

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↕	↕	↔	↕	↔
Traffic Volume (veh/h)	282	155	390	285	63	540	100	914	130	310	1788	197
Future Volume (veh/h)	282	155	390	285	63	540	100	914	130	310	1788	197
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	238	265	365	359	0	563	109	993	137	337	1943	180
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	265	278	347	504	0	539	125	1285	177	354	1913	853
Arrive On Green	0.15	0.15	0.15	0.14	0.00	0.14	0.07	0.41	0.41	0.20	0.54	0.54
Sat Flow, veh/h	1781	1870	1585	3563	0	1585	1781	3137	433	1781	3554	1585
Grp Volume(v), veh/h	238	265	365	359	0	563	109	562	568	337	1943	180
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1585	1781	1777	1793	1781	1777	1585
Q Serve(g_s), s	27.8	29.8	31.5	20.4	0.0	30.0	12.8	57.9	58.0	39.6	114.1	12.5
Cycle Q Clear(g_c), s	27.8	29.8	31.5	20.4	0.0	30.0	12.8	57.9	58.0	39.6	114.1	12.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	265	278	347	504	0	539	125	728	734	354	1913	853
V/C Ratio(X)	0.90	0.95	1.05	0.71	0.00	1.04	0.87	0.77	0.77	0.95	1.02	0.21
Avail Cap(c_a), veh/h	265	278	347	504	0	539	148	728	734	619	1913	853
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	88.7	89.5	82.8	86.9	0.0	69.9	97.6	54.0	54.0	83.9	48.9	25.5
Incr Delay (d2), s/veh	30.5	41.3	62.9	6.5	0.0	50.7	32.6	4.7	4.7	10.9	24.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.2	17.7	25.1	9.9	0.0	36.8	7.1	27.0	27.3	19.4	56.4	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	119.2	130.8	145.7	93.3	0.0	120.7	130.2	58.7	58.7	94.9	73.5	25.7
LnGrp LOS	F	F	F	F	A	F	F	E	E	F	F	C
Approach Vol, veh/h		868			922			1239			2460	
Approach Delay, s/veh		133.9			110.0			65.0			72.9	
Approach LOS		F			F			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	46.5	92.0		36.4	19.3	119.3		37.0				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0				
Max Green Setting (Gmax), s	73.6	57.8		31.5	17.6	* 1.1E2		30.0				
Max Q Clear Time (g_c+1), s	41.6	60.0		33.5	14.8	116.1		32.0				
Green Ext Time (p_c), s	0.5	0.0		0.0	0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	87.0
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
32: Ward Rd & Rancho Mission Rd

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations									
Traffic Volume (veh/h)	10	55	305	10	388	517	10	620	88
Future Volume (veh/h)	10	55	305	10	388	517	10	620	88
Initial Q (Qb), veh		0	0		0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		0.99				0.96
Parking Bus, Adj		1.00	1.00		1.00	1.00		1.00	1.00
Work Zone On Approach		No			No		No		
Adj Sat Flow, veh/h/ln		1870	1870		1870	1870		1870	1870
Adj Flow Rate, veh/h		58	175		408	544		653	75
Peak Hour Factor		0.95	0.95		0.95	0.95		0.95	0.95
Percent Heavy Veh, %		2	2		2	2		2	2
Cap, veh/h		268	238		567	1080		2135	245
Arrive On Green		0.15	0.15		0.67	0.67		0.67	0.67
Sat Flow, veh/h		1781	1585		631	1702		3291	367
Grp Volume(v), veh/h		58	175		408	544		362	366
Grp Sat Flow(s),veh/h/ln		1781	1585		631	1617		1777	1787
Q Serve(g_s), s		1.4	5.2		26.7	8.3		4.2	4.2
Cycle Q Clear(g_c), s		1.4	5.2		30.9	8.3		4.2	4.2
Prop In Lane		1.00	1.00		1.00				0.21
Lane Grp Cap(c), veh/h		268	238		567	1080		1186	1193
V/C Ratio(X)		0.22	0.74		0.72	0.50		0.31	0.31
Avail Cap(c_a), veh/h		649	578		567	1080		1187	1194
HCM Platoon Ratio		1.00	1.00		1.00	1.00		1.00	1.00
Upstream Filter(I)		1.00	1.00		1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh		18.4	20.1		9.9	4.1		3.4	3.4
Incr Delay (d2), s/veh		0.4	4.4		4.4	0.4		0.1	0.1
Initial Q Delay(d3),s/veh		0.0	0.0		0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln		0.6	2.0		3.2	1.3		0.7	0.7
Unsig. Movement Delay, s/veh									
LnGrp Delay(d),s/veh		18.8	24.4		14.3	4.5		3.6	3.6
LnGrp LOS		B	C		B	A		A	A
Approach Vol, veh/h		233				952		728	
Approach Delay, s/veh		23.0				8.7		3.6	
Approach LOS		C				A		A	
Timer - Assigned Phs		2		4		6			
Phs Duration (G+Y+Rc), s		37.5		11.9		37.5			
Change Period (Y+Rc), s		4.5		4.5		4.5			
Max Green Setting (Gmax), s		33.0		18.0		33.0			
Max Q Clear Time (g_c+I1), s		32.9		7.2		6.2			
Green Ext Time (p_c), s		0.0		0.5		4.7			

Intersection Summary

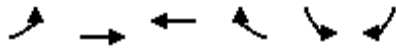
HCM 6th Ctrl Delay	8.5
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
33: Camino del Rio N & Ward Rd

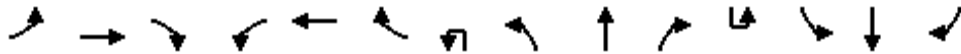
HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	365	510	190	549	758	197
Future Volume (veh/h)	365	510	190	549	758	197
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	388	543	202	51	806	172
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	428	1442	411	183	838	1126
Arrive On Green	0.24	0.41	0.12	0.12	0.47	0.47
Sat Flow, veh/h	1781	3647	3647	1578	1781	1585
Grp Volume(v), veh/h	388	543	202	51	806	172
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1578	1781	1585
Q Serve(g_s), s	18.6	9.4	4.7	2.6	38.5	3.1
Cycle Q Clear(g_c), s	18.6	9.4	4.7	2.6	38.5	3.1
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	428	1442	411	183	838	1126
V/C Ratio(X)	0.91	0.38	0.49	0.28	0.96	0.15
Avail Cap(c_a), veh/h	891	2829	2829	1256	891	1174
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	18.3	36.5	35.5	22.5	4.1
Incr Delay (d2), s/veh	3.1	0.2	1.4	1.3	20.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	3.6	2.0	1.0	19.2	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.5	18.6	37.8	36.8	43.0	4.2
LnGrp LOS	D	B	D	D	D	A
Approach Vol, veh/h		931	253		978	
Approach Delay, s/veh		25.6	37.6		36.2	
Approach LOS		C	D		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		41.7		46.3	25.5	16.2
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		11.4		40.5	20.6	6.7
Green Ext Time (p_c), s		5.9		0.8	0.5	2.3
Intersection Summary						
HCM 6th Ctrl Delay			31.8			
HCM 6th LOS			C			
Notes						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

HCM 6th Signalized Intersection Summary
 34: Fairmount Ave & Mission Gorge Rd

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↗	↕			↗	↕	
Traffic Volume (veh/h)	67	17	639	30	14	10	40	508	925	40	10	10	930	38
Future Volume (veh/h)	67	17	639	30	14	10	40	508	925	40	10	10	930	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		0.98	1.00		0.98		1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No			No			No		No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	736	31	14	4	518	944	39	10	949	37		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	361	582	152	63	15	853	2392	99	17	1557	61		
Arrive On Green	0.00	0.00	0.19	0.19	0.19	0.19	0.49	1.00	1.00	0.01	0.45	0.45		
Sat Flow, veh/h	0	1870	3012	555	329	79	3456	3475	144	1781	3484	136		
Grp Volume(v), veh/h	0	0	736	49	0	0	518	483	500	10	484	502		
Grp Sat Flow(s),veh/h/ln	0	1870	1506	962	0	0	1728	1777	1842	1781	1777	1844		
Q Serve(g_s), s	0.0	0.0	25.1	3.5	0.0	0.0	14.1	0.0	0.0	0.7	26.9	26.9		
Cycle Q Clear(g_c), s	0.0	0.0	25.1	4.7	0.0	0.0	14.1	0.0	0.0	0.7	26.9	26.9		
Prop In Lane	0.00		1.00	0.63		0.08	1.00		0.08	1.00		0.07		
Lane Grp Cap(c), veh/h	0	361	582	231	0	0	853	1223	1268	17	794	824		
V/C Ratio(X)	0.00	0.00	1.27	0.21	0.00	0.00	0.61	0.39	0.39	0.60	0.61	0.61		
Avail Cap(c_a), veh/h	0	361	582	231	0	0	867	1223	1268	179	794	824		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.57	0.57	0.57	1.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.0	52.4	43.9	0.0	0.0	28.3	0.0	0.0	64.2	27.3	27.3		
Incr Delay (d2), s/veh	0.0	0.0	132.7	0.5	0.0	0.0	0.5	0.5	0.5	12.3	3.5	3.3		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.0	20.2	1.4	0.0	0.0	4.8	0.2	0.2	0.4	12.1	12.6		
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	185.2	44.4	0.0	0.0	28.8	0.5	0.5	76.5	30.8	30.7		
LnGrp LOS	A	A	F	D	A	A	C	A	A	E	C	C		
Approach Vol, veh/h		736		49			1501			996				
Approach Delay, s/veh		185.2		44.4			10.3			31.2				
Approach LOS		F		D			B			C				
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	5.6	94.4	30.0	37.0	63.0	30.0								
Change Period (Y+Rc), s	4.4	4.9	4.9	4.9	* 4.9	4.9								
Max Green Setting (Gmax), s	13.5	77.6	25.1	32.6	* 58	25.1								
Max Q Clear Time (g_c+1/2), s	12.5	2.0	27.1	16.1	28.9	6.7								
Green Ext Time (p_c), s	0.0	19.8	0.0	1.0	14.2	0.2								

Intersection Summary

HCM 6th Ctrl Delay	56.4
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis HY+P Plus Event with Feasible Improvements
 35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↔	↖	↖	↕		↖	↕	↖
Traffic Volume (vph)	150	153	984	810	405	503	344	840	190	13	1617	70
Future Volume (vph)	150	153	984	810	405	503	344	840	190	13	1617	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	0.98	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1762	1583	1610	3074	1425	1770	3433		3433	3539	1563
Flt Permitted	0.95	1.00	1.00	0.95	0.98	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1762	1583	1610	3074	1425	1770	3433		3433	3539	1563
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	152	155	994	818	409	508	347	848	192	13	1633	71
RTOR Reduction (vph)	0	0	78	0	0	0	0	15	0	0	0	45
Lane Group Flow (vph)	137	170	916	442	897	396	347	1025	0	13	1633	26
Confl. Peds. (#/hr)						3			1			
Confl. Bikes (#/hr)									1			1
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8	1	5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	16.6	16.6	36.6	25.0	25.0	35.0	20.0	57.4		10.0	47.4	47.4
Effective Green, g (s)	16.6	16.6	36.6	25.0	25.0	35.0	20.0	57.4		10.0	47.4	47.4
Actuated g/C Ratio	0.13	0.13	0.28	0.19	0.19	0.27	0.15	0.44		0.08	0.36	0.36
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	214	224	502	309	591	383	272	1515		264	1290	569
v/s Ratio Prot	0.08	0.10	c0.28	0.27	c0.29	0.08	0.20	0.30		0.00	c0.46	
v/s Ratio Perm			0.30			0.20						0.02
v/c Ratio	0.64	0.76	1.83	1.43	1.52	1.03	1.28	0.68		0.05	1.27	0.05
Uniform Delay, d1	53.9	54.8	46.7	52.5	52.5	47.5	55.0	28.9		55.6	41.3	26.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.71	1.17	7.08
Incremental Delay, d2	4.8	12.3	379.2	211.4	241.6	55.0	149.5	2.4		0.0	122.7	0.1
Delay (s)	58.7	67.0	425.9	263.9	294.1	102.5	204.5	31.4		39.5	171.1	188.9
Level of Service	E	E	F	F	F	F	F	C		D	F	F
Approach Delay (s)		340.4			242.7			74.7			170.9	
Approach LOS		F			F			E			F	

Intersection Summary		
HCM 2000 Control Delay	205.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.59	F
Actuated Cycle Length (s)	130.0	Sum of lost time (s)
Intersection Capacity Utilization	146.0%	21.0
Analysis Period (min)	15	ICU Level of Service
		H

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 36: Fairmount Ave & I-8 EB Off-Ramp

HY+P Plus Event with Feasible Improvements
 PM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations	YY	YY	U		↑↑	↑↑↑	
Traffic Volume (veh/h)	742	2786	60	0	642	1563	0
Future Volume (veh/h)	742	2786	60	0	642	1563	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		0	1870	1870	0
Adj Flow Rate, veh/h	757	2843		0	655	1595	0
Peak Hour Factor	0.98	0.98		0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2		0	2	2	0
Cap, veh/h	986	2633		0	1278	1837	0
Arrive On Green	0.55	0.55		0.00	0.36	0.36	0.00
Sat Flow, veh/h	1781	4755		0	3741	5443	0
Grp Volume(v), veh/h	757	2843		0	655	1595	0
Grp Sat Flow(s),veh/h/ln	1781	1585		0	1777	1702	0
Q Serve(g_s), s	42.2	70.9		0.0	18.5	37.3	0.0
Cycle Q Clear(g_c), s	42.2	70.9		0.0	18.5	37.3	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	986	2633		0	1278	1837	0
V/C Ratio(X)	0.77	1.08		0.00	0.51	0.87	0.00
Avail Cap(c_a), veh/h	986	2633		0	2128	2073	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.2	28.6		0.0	32.2	38.2	0.0
Incr Delay (d2), s/veh	3.3	43.6		0.0	0.1	3.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	36.2		0.0	8.0	16.0	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	25.5	72.2		0.0	32.3	41.7	0.0
LnGrp LOS	C	F		A	C	D	A
Approach Vol, veh/h	3600				655	1595	
Approach Delay, s/veh	62.4				32.3	41.7	
Approach LOS	E				C	D	
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				52.1		76.0	52.1
Change Period (Y+Rc), s				6.0		5.1	6.0
Max Green Setting (Gmax), s				52.0		70.9	76.7
Max Q Clear Time (g_c+I1), s				39.3		72.9	20.5
Green Ext Time (p_c), s				6.8		0.0	3.3

Intersection Summary

HCM 6th Ctrl Delay	53.4
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
37: Collwood Blvd & Montezuma Rd

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↔	↑↑	↔	↑
Traffic Volume (veh/h)	1527	1415	10	90	931	783	50
Future Volume (veh/h)	1527	1415	10	90	931	783	50
Initial Q (Qb), veh	20	20		0	0	0	0
Ped-Bike Adj(A_pbT)		0.98		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1737	1870	1870	1648
Adj Flow Rate, veh/h	1574	1331		93	960	807	28
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		11	2	2	17
Cap, veh/h	2032	1273		114	2394	847	342
Arrive On Green	0.57	0.57		0.07	0.67	0.25	0.25
Sat Flow, veh/h	3647	1546		1654	3647	3456	1397
Grp Volume(v), veh/h	1574	1331		93	960	807	28
Grp Sat Flow(s),veh/h/ln	1777	1546		1654	1777	1728	1397
Q Serve(g_s), s	45.6	76.6		7.4	16.2	30.8	2.1
Cycle Q Clear(g_c), s	45.6	76.6		7.4	16.2	30.8	2.1
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2032	1273		114	2394	847	342
V/C Ratio(X)	0.77	1.05		0.82	0.40	0.95	0.08
Avail Cap(c_a), veh/h	2032	1273		328	2394	848	343
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.2	12.6		61.6	9.8	49.8	39.0
Incr Delay (d2), s/veh	3.0	38.1		5.3	0.5	20.1	0.0
Initial Q Delay(d3),s/veh	3.1	56.6		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.6	58.5		3.3	6.0	15.4	0.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	29.2	107.3		66.9	10.3	69.9	39.0
LnGrp LOS	C	F		E	B	E	D
Approach Vol, veh/h	2905			1053	835		
Approach Delay, s/veh	65.0			15.3	68.8		
Approach LOS	E			B	E		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	13.6	83.1			96.8	37.2	
Change Period (Y+Rc), s	4.4	* 6.5			6.5	4.4	
Max Green Setting (Gmax), s	26.6	* 60			90.2	32.9	
Max Q Clear Time (g_c+1), s	19.4	78.6			18.2	32.8	
Green Ext Time (p_c), s	0.1	0.0			16.9	0.0	

Intersection Summary

HCM 6th Ctrl Delay	54.7
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
38: Mission Village Dr & Shawn Ave

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔				↔		↔	↑↑	↔	↔	↔	
Traffic Volume (veh/h)	80	10	85	10	55	10	30	76	724	36	50	2094	80
Future Volume (veh/h)	80	10	85	10	55	10	30	76	724	36	50	2094	80
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99		0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	11	87		59	11	3	81	770	27	53	2228	84
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	268	30	220		215	198	54	122	2568	1143	527	2524	95
Arrive On Green	0.15	0.15	0.15		0.15	0.15	0.15	0.72	0.72	0.72	0.72	0.72	0.72
Sat Flow, veh/h	1203	193	1426		829	1284	350	158	3554	1582	681	3493	131
Grp Volume(v), veh/h	96	0	87		59	0	14	81	770	27	53	1126	1186
Grp Sat Flow(s),veh/h/ln1397		0	1426		829	0	1634	158	1777	1582	681	1777	1847
Q Serve(g_s), s	4.7	0.0	4.6		3.6	0.0	0.6	18.7	6.4	0.4	2.5	39.9	41.3
Cycle Q Clear(g_c), s	5.4	0.0	4.6		8.2	0.0	0.6	60.0	6.4	0.4	8.9	39.9	41.3
Prop In Lane	0.89		1.00		1.00		0.21	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	298	0	220		215	0	253	122	2568	1143	527	1284	1334
V/C Ratio(X)	0.32	0.00	0.39		0.27	0.00	0.06	0.66	0.30	0.02	0.10	0.88	0.89
Avail Cap(c_a), veh/h	764	0	687		636	0	787	122	2568	1143	527	1284	1334
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00		1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	0.0	31.6		35.3	0.0	29.9	37.4	4.1	3.3	5.6	8.7	8.9
Incr Delay (d2), s/veh	0.2	0.0	0.4		0.3	0.0	0.0	13.3	0.1	0.0	0.1	7.3	7.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.8	0.0	0.0	1.6		1.1	0.0	0.2	2.0	1.5	0.1	0.3	12.0	13.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	32.3	0.0	32.0		35.5	0.0	30.0	50.7	4.2	3.3	5.8	16.0	16.7
LnGrp LOS	C	A	C		D	A	C	D	A	A	A	B	B
Approach Vol, veh/h		183				73			878			2365	
Approach Delay, s/veh		32.2				34.5			8.4			16.1	
Approach LOS		C				C			A			B	
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		65.3		17.7		65.3		17.7					
Change Period (Y+Rc), s		5.3		4.9		5.3		4.9					
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0					
Max Q Clear Time (g_c+1), s		62.0		7.4		43.3		10.2					
Green Ext Time (p_c), s		0.0		0.8		15.4		0.3					

Intersection Summary

HCM 6th Ctrl Delay	15.4
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
39: Mission Village Dr & Fermi Ave

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕			↙	↕	
Traffic Volume (veh/h)	40	10	15	55	10	50	16	789	46	10	30	2213	30
Future Volume (veh/h)	40	10	15	55	10	50	16	789	46	10	30	2213	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	42	10	6	57	10	28	17	822	45		31	2305	31
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	169	37	15	146	23	41	28	2440	134		44	2589	35
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.02	0.71	0.71		0.02	0.72	0.72
Sat Flow, veh/h	1077	428	174	866	258	470	1781	3426	188		1781	3589	48
Grp Volume(v), veh/h	58	0	0	95	0	0	17	426	441		31	1138	1198
Grp Sat Flow(s),veh/h/ln1678	0	0	1595	0	0	1781	1777	1837			1781	1777	1860
Q Serve(g_s), s	0.0	0.0	0.0	2.1	0.0	0.0	0.8	7.5	7.5		1.4	41.0	41.7
Cycle Q Clear(g_c), s	2.5	0.0	0.0	4.6	0.0	0.0	0.8	7.5	7.5		1.4	41.0	41.7
Prop In Lane	0.72		0.10	0.60		0.29	1.00		0.10		1.00		0.03
Lane Grp Cap(c), veh/h	222	0	0	209	0	0	28	1266	1308		44	1282	1342
V/C Ratio(X)	0.26	0.00	0.00	0.45	0.00	0.00	0.61	0.34	0.34		0.71	0.89	0.89
Avail Cap(c_a), veh/h	799	0	0	618	0	0	647	1290	1334		647	1290	1351
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	35.5	0.0	0.0	36.4	0.0	0.0	40.4	4.5	4.5		40.0	8.9	9.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.6	0.0	0.0	7.8	0.3	0.3		7.5	8.2	8.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.1	0.0	0.0	0.0	1.9	0.0	0.0	0.4	1.9	2.0		0.7	13.4	14.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	35.8	0.0	0.0	37.0	0.0	0.0	48.2	4.8	4.8		47.5	17.1	17.3
LnGrp LOS	D	A	A	D	A	A	D	A	A		D	B	B
Approach Vol, veh/h		58			95			884				2367	
Approach Delay, s/veh		35.8			37.0			5.6				17.6	
Approach LOS		D			D			A				B	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s6.4	64.1			12.1	5.7	64.8		12.1					
Change Period (Y+Rc), s 4.4	5.2			4.9	4.4	5.2		4.9					
Max Green Setting (Gmax), s 30.0	60.0			40.0	30.0	60.0		30.0					
Max Q Clear Time (g_c+1), s 13.4	9.5			4.5	2.8	43.7		6.6					
Green Ext Time (p_c), s 0.0	12.2			0.2	0.0	15.9		0.3					

Intersection Summary

HCM 6th Ctrl Delay	15.3
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary HY+P Plus Event with Feasible Improvements
 40: Gramercy Dr/Mission Village Dr & Ruffin Rd PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↕		↖	↕		↗	↕		↖	↕	
Traffic Volume (veh/h)	60	664	20	13	392	482	20	10	23	1634	20	90
Future Volume (veh/h)	60	664	20	13	392	482	20	10	23	1634	20	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	678	19	13	400	326	20	10	1	1667	20	88
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	212	1267	35	235	664	536	43	78	8	1601	136	596
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.02	0.02	0.02	0.45	0.45	0.45
Sat Flow, veh/h	727	3528	99	746	1849	1491	1781	3262	320	3563	302	1327
Grp Volume(v), veh/h	61	341	356	13	384	342	20	5	6	1667	0	108
Grp Sat Flow(s),veh/h/ln	727	1777	1850	746	1777	1563	1781	1777	1805	1781	0	1628
Q Serve(g_s), s	6.7	13.6	13.6	1.3	15.7	16.0	1.0	0.3	0.3	40.0	0.0	3.5
Cycle Q Clear(g_c), s	22.6	13.6	13.6	14.8	15.7	16.0	1.0	0.3	0.3	40.0	0.0	3.5
Prop In Lane	1.00		0.05	1.00		0.95	1.00		0.18	1.00		0.81
Lane Grp Cap(c), veh/h	212	638	664	235	638	561	43	43	43	1601	0	732
V/C Ratio(X)	0.29	0.53	0.54	0.06	0.60	0.61	0.47	0.13	0.13	1.04	0.00	0.15
Avail Cap(c_a), veh/h	440	1198	1247	470	1198	1054	801	799	811	1601	0	732
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.7	22.6	22.6	28.5	23.3	23.4	42.9	42.5	42.5	24.5	0.0	14.5
Incr Delay (d2), s/veh	0.9	0.9	0.8	0.1	1.1	1.3	2.9	0.5	0.5	34.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	5.7	6.0	0.2	6.7	6.0	0.5	0.1	0.1	22.5	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.6	23.5	23.5	28.6	24.5	24.7	45.8	43.0	43.0	58.5	0.0	14.5
LnGrp LOS	C	C	C	C	C	C	D	D	D	F	A	B
Approach Vol, veh/h		758			739			31			1775	
Approach Delay, s/veh		24.3			24.7			44.8			55.8	
Approach LOS		C			C			D			E	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		37.1		44.9		37.1		7.0				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		24.6		42.0		18.0		3.0				
Green Ext Time (p_c), s		7.3		0.0		7.7		0.0				

Intersection Summary

HCM 6th Ctrl Delay	41.5
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	880	936	10	1058	810	263	380
Future Volume (veh/h)	880	936	10	1058	810	263	380
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	926	982		1114	853	277	107
Peak Hour Factor	0.95	0.95		0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1670	881		1079	2900	343	157
Arrive On Green	0.47	0.47		0.31	0.82	0.10	0.10
Sat Flow, veh/h	3647	1540		3456	3647	3456	1585
Grp Volume(v), veh/h	926	982		1114	853	277	107
Grp Sat Flow(s),veh/h/ln	1777	1540		1728	1777	1728	1585
Q Serve(g_s), s	24.3	61.1		40.6	7.5	10.2	8.5
Cycle Q Clear(g_c), s	24.3	61.1		40.6	7.5	10.2	8.5
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1670	881		1079	2900	343	157
V/C Ratio(X)	0.55	1.11		1.03	0.29	0.81	0.68
Avail Cap(c_a), veh/h	1670	881		1079	2900	1055	484
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.86	0.86
Uniform Delay (d), s/veh	24.7	25.2		44.7	2.9	57.3	56.6
Incr Delay (d2), s/veh	1.3	66.9		36.0	0.3	1.5	1.7
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	45.0		22.1	1.8	4.5	3.5
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	26.0	92.2		80.7	3.1	58.8	58.2
LnGrp LOS	C	F		F	A	E	E
Approach Vol, veh/h	1908			1967	384		
Approach Delay, s/veh	60.1			47.1	58.7		
Approach LOS	E			D	E		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	45.0	66.8			111.8	18.2	
Change Period (Y+Rc), s	4.4	* 5.7			5.7	5.3	
Max Green Setting (Gmax), s	40.6	* 35			79.3	39.7	
Max Q Clear Time (g_c+Rc), s	42.6	63.1			9.5	12.2	
Green Ext Time (p_c), s	0.0	0.0			9.7	0.7	

Intersection Summary

HCM 6th Ctrl Delay	53.9
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mobley St & Gramercy Dr

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	683	90	63	362	57	50	30	44	88	20	20
Future Volume (veh/h)	20	683	90	63	362	57	50	30	44	88	20	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.96	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1826	1826	1826	1752	1752	1752
Adj Flow Rate, veh/h	21	704	72	65	373	47	52	31	22	91	21	13
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	10	10	10
Cap, veh/h	647	1840	810	488	1638	205	263	131	62	352	72	28
Arrive On Green	0.52	0.52	0.52	0.52	0.52	0.52	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	960	3554	1565	692	3164	395	556	697	332	898	384	149
Grp Volume(v), veh/h	21	704	72	65	208	212	105	0	0	125	0	0
Grp Sat Flow(s),veh/h/ln	960	1777	1565	692	1777	1782	1584	0	0	1431	0	0
Q Serve(g_s), s	0.4	4.0	0.8	2.1	2.2	2.2	0.0	0.0	0.0	0.6	0.0	0.0
Cycle Q Clear(g_c), s	2.6	4.0	0.8	6.2	2.2	2.2	1.8	0.0	0.0	2.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.22	0.50		0.21	0.73		0.10
Lane Grp Cap(c), veh/h	647	1840	810	488	920	923	456	0	0	452	0	0
V/C Ratio(X)	0.03	0.38	0.09	0.13	0.23	0.23	0.23	0.00	0.00	0.28	0.00	0.00
Avail Cap(c_a), veh/h	1846	6278	2765	1353	3139	3148	1925	0	0	1771	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.2	4.9	4.1	6.8	4.5	4.5	11.9	0.0	0.0	12.1	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.1	0.2	0.4	0.4	0.4	0.6	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.2	5.2	4.2	7.0	4.7	4.7	12.0	0.0	0.0	12.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		797			485			105			125	
Approach Delay, s/veh		5.1			5.0			12.0			12.2	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.7		11.3		22.7		11.3				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		6.0		4.3		8.2		3.8				
Green Ext Time (p_c), s		11.5		0.5		6.1		0.4				

Intersection Summary

HCM 6th Ctrl Delay	6.1
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
43: Sandrock Rd & Greyling Dr/Gramercy Dr

HY+P Plus Event with Feasible Improvements
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕			↕	↕	↕	↕	↕
Traffic Volume (veh/h)	90	148	10	24	177	256	10	10	20	34	655	40	140
Future Volume (veh/h)	90	148	10	24	177	256	10	10	20	34	655	40	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.98		0.94	1.00		1.00	1.00			0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1574	1574	1870	1870	1856	1870	
Adj Flow Rate, veh/h	95	156	9	25	186	163	11	21	0	719	0	80	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	22	22	2	2	3	2	
Cap, veh/h	236	326	16	129	532	901	16	30	47	987	0	422	
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.03	0.03	0.00	0.28	0.00	0.28	
Sat Flow, veh/h	371	1054	51	95	1721	1494	532	1015	1585	3563	0	1523	
Grp Volume(v), veh/h	260	0	0	211	0	163	32	0	0	719	0	80	
Grp Sat Flow(s),veh/h/ln1476	0	0	1816	0	1494		1547	0	1585	1781	0	1523	
Q Serve(g_s), s	2.1	0.0	0.0	0.0	0.0	2.0	0.8	0.0	0.0	7.4	0.0	1.6	
Cycle Q Clear(g_c), s	5.6	0.0	0.0	3.5	0.0	2.0	0.8	0.0	0.0	7.4	0.0	1.6	
Prop In Lane	0.37		0.03	0.12		1.00	0.34		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	578	0	0	662	0	901	46	0	47	987	0	422	
V/C Ratio(X)	0.45	0.00	0.00	0.32	0.00	0.18	0.69	0.00	0.00	0.73	0.00	0.19	
Avail Cap(c_a), veh/h	1017	0	0	1204	0	1364	766	0	785	1764	0	754	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh	11.4	0.0	0.0	10.9	0.0	3.9	19.4	0.0	0.0	13.2	0.0	11.1	
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	6.7	0.0	0.0	0.4	0.0	0.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln1.6	0.0	0.0	0.0	1.1	0.0	0.9	0.4	0.0	0.0	2.3	0.0	0.4	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	11.6	0.0	0.0	11.0	0.0	3.9	26.1	0.0	0.0	13.6	0.0	11.2	
LnGrp LOS	B	A	A	B	A	A	C	A	A	B	A	B	
Approach Vol, veh/h		260			374			32				799	
Approach Delay, s/veh		11.6			7.9			26.1				13.4	
Approach LOS		B			A			C				B	
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		17.8		16.5		17.8		6.1					
Change Period (Y+Rc), s		5.3		5.3		5.3		4.9					
Max Green Setting (Gmax), s		25.0		20.0		25.0		20.0					
Max Q Clear Time (g_c+11), s		7.6		9.4		5.5		2.8					
Green Ext Time (p_c), s		1.1		1.4		1.0		0.1					

Intersection Summary

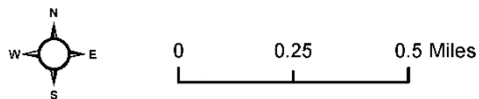
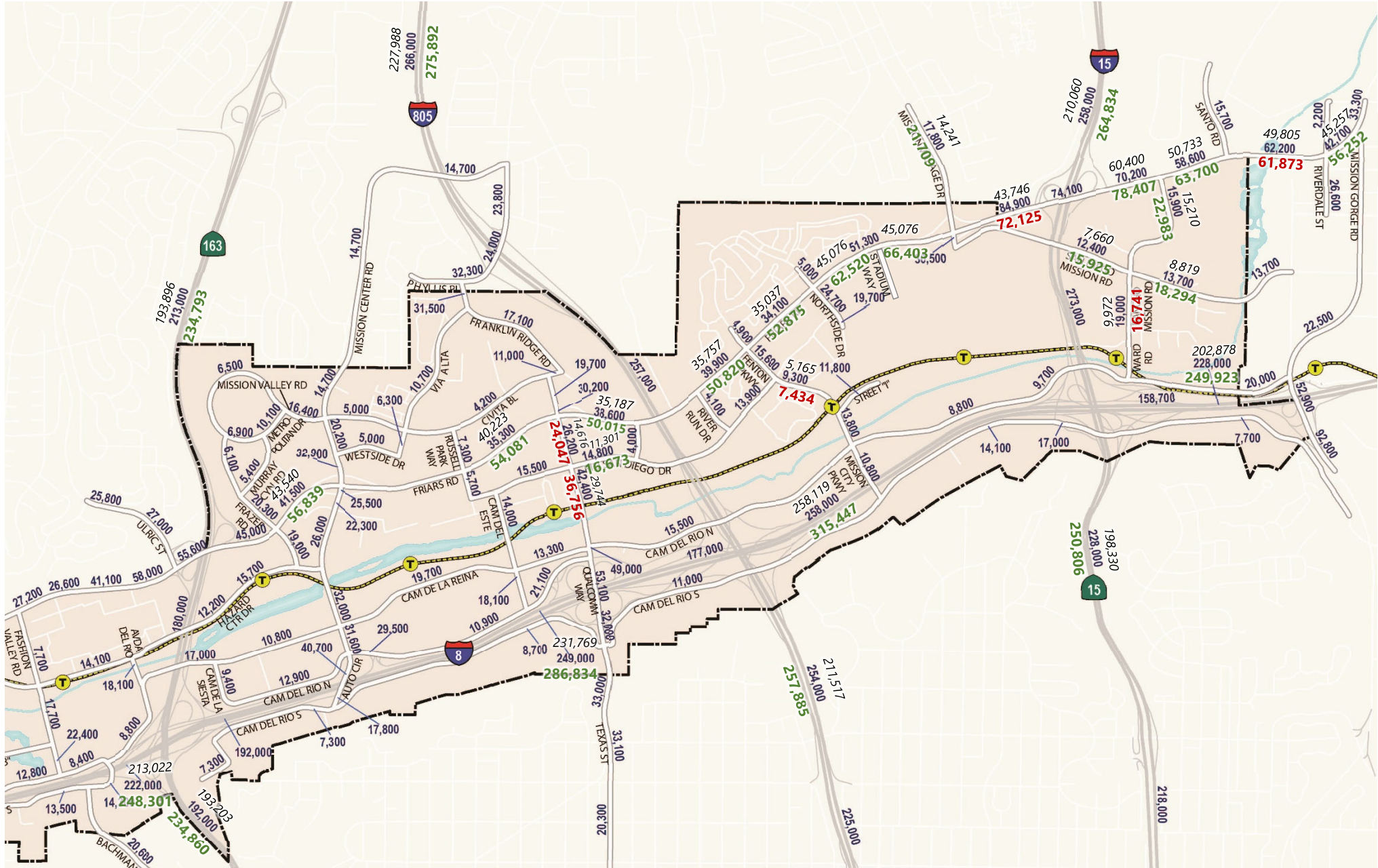
HCM 6th Ctrl Delay	11.9
HCM 6th LOS	B

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

**APPENDIX F: FORECAST COMPARISON WITH THE MISSION VALLEY
COMMUNITY PLAN UPDATE FEIR (MAY 2019)**





- xx,xxx MVCP 2050 forecast (*Mission Valley Community Plan Update Technical Report, 2019*)
- xx,xxx SDSU Mission Valley 2037 daily volumes that are greater than MVCP forecast
- xx,xxx SDSU Mission Valley 2037 daily volumes that are less than MVCP forecast
- xx,xxx Existing (2018) daily volumes



Forecast Comparison with Mission Valley Community Plan Update

























**APPENDIX G: HORIZON YEAR (2037) CONDITIONS WITH 4-LANE
FENTON PARKWAY BRIDGE**

Technical Analysis



HCM Signalized Intersection Capacity Analysis
 1: SR-163 SB Ramps/Ulríc St & Friars Rd

Horizon Year No Project With 4-Ln Bridge
 AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	70	610	270	590	900	720	310	60	840	410	0	100	
Future Volume (vph)	70	610	270	590	900	720	310	60	840	410	0	100	
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.7	7.0	7.0	4.5	3.0	6.1	6.1	6.1	4.5	6.1	6.1	6.1	
Lane Util. Factor	1.00	0.86	1.00	0.97	0.91	0.88	0.97	1.00	0.88	0.95	0.95	1.00	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	
Satd. Flow (prot)	1770	6408	1557	3433	5085	2787	3433	1863	2787	1681	1681	1561	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	
Satd. Flow (perm)	1770	6408	1557	3433	5085	2787	3433	1863	2787	1681	1681	1561	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	73	635	281	615	938	750	323	62	875	427	0	104	
RTOR Reduction (vph)	0	0	192	0	0	0	0	0	0	0	0	85	
Lane Group Flow (vph)	73	635	89	615	938	750	323	63	875	213	214	19	
Confl. Peds. (#/hr)			2									2	
Confl. Bikes (#/hr)			1										
Turn Type	Prot	NA	Perm	Prot	NA	custom	Split	NA	pm+ov	Split	NA	Perm	
Protected Phases	5	2		1	6	4	8	8	1	4	4		
Permitted Phases			2						8			4	
Actuated Green, G (s)	10.3	47.3	47.3	32.9	69.7	80.8	18.7	18.7	51.6	27.4	27.4	27.4	
Effective Green, g (s)	10.3	47.3	47.3	32.9	69.7	73.8	18.7	18.7	51.6	27.4	27.4	27.4	
Actuated g/C Ratio	0.07	0.32	0.32	0.22	0.46	0.49	0.12	0.12	0.34	0.18	0.18	0.18	
Clearance Time (s)	4.7	7.0	7.0	4.5			6.1	6.1	4.5	6.1	6.1	6.1	
Vehicle Extension (s)	2.0	2.0	2.0	3.0			3.0	3.0	3.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	121	2020	490	752	2362	1371	427	232	958	307	307	285	
v/s Ratio Prot	0.04	0.10		0.18	c0.18	c0.27	0.09	0.03	c0.20	0.13	c0.13		
v/s Ratio Perm			0.06						0.11			0.01	
v/c Ratio	0.60	0.31	0.18	0.82	0.40	0.55	0.76	0.27	0.91	0.69	0.70	0.07	
Uniform Delay, d1	67.9	39.0	37.3	55.7	26.4	26.5	63.4	59.5	47.1	57.4	57.4	50.7	
Progression Factor	1.00	1.00	1.00	1.04	0.52	0.93	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.7	0.4	0.8	6.0	0.0	0.2	7.5	0.6	12.8	5.4	5.5	0.0	
Delay (s)	73.6	39.4	38.1	64.0	13.7	24.7	70.9	60.1	59.8	62.8	62.9	50.8	
Level of Service	E	D	D	E	B	C	E	E	E	E	E	D	
Approach Delay (s)		41.6			30.7			62.7			60.5		
Approach LOS		D			C			E			E		
Intersection Summary													
HCM 2000 Control Delay			43.9		HCM 2000 Level of Service					D			
HCM 2000 Volume to Capacity ratio			0.75										
Actuated Cycle Length (s)			150.0		Sum of lost time (s)					26.9			
Intersection Capacity Utilization			74.4%		ICU Level of Service					D			
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Friars Rd & SR-163 NB Ramps

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour

























Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	500	1340	1370	820	1170	800
Future Volume (vph)	500	1340	1370	820	1170	800
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	6.0	4.5	4.5	5.0
Lane Util. Factor	0.97	0.86	0.86	0.88	0.94	0.88
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	6408	6408	2787	4990	2770
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	6408	6408	2787	4990	2770
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	521	1396	1427	854	1219	833
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	521	1396	1427	854	1219	833
Confl. Peds. (#/hr)						1
Confl. Bikes (#/hr)				1		
Turn Type	Prot	NA	NA	custom	Prot	pm+ov
Protected Phases	5	2	3	6	4	3
Permitted Phases						4
Actuated Green, G (s)	45.9	96.2	47.3	74.0	44.3	90.2
Effective Green, g (s)	45.9	96.2	47.3	74.0	44.3	90.2
Actuated g/C Ratio	0.31	0.64	0.32	0.49	0.30	0.60
Clearance Time (s)	5.0	5.0			4.5	5.0
Vehicle Extension (s)	2.0	2.0			3.0	2.0
Lane Grp Cap (vph)	1050	4109	2020	1374	1473	1758
v/s Ratio Prot	0.15	0.22	c0.22	0.31	c0.24	c0.15
v/s Ratio Perm						0.16
v/c Ratio	0.50	0.34	0.71	0.62	0.83	0.47
Uniform Delay, d1	42.6	12.3	45.2	27.8	49.3	16.7
Progression Factor	0.92	0.78	0.51	0.69	1.00	1.00
Incremental Delay, d2	0.1	0.2	0.6	0.6	4.0	0.1
Delay (s)	39.5	9.9	23.7	19.8	53.3	16.7
Level of Service	D	A	C	B	D	B
Approach Delay (s)		17.9	22.3		38.4	
Approach LOS		B	C		D	

Intersection Summary			
HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Frazee Rd & Friars Rd

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour

												
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	20	780	1170	520	10	50	1820	140	140	70	40	30
Future Volume (vph)	20	780	1170	520	10	50	1820	140	140	70	40	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.4	3.0	4.4		4.4	6.5	6.5	4.4	4.9		4.4
Lane Util. Factor		0.97	0.86	0.88		0.97	0.86	1.00	0.97	0.95		0.97
Frbp, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.98		1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.95		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (prot)		3433	6408	2787		3433	6408	1583	3433	3290		3433
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (perm)		3433	6408	2787		3433	6408	1583	3433	3290		3433
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	21	812	1219	542	10	52	1896	146	146	73	42	31
RTOR Reduction (vph)	0	0	0	0	0	0	0	92	0	31	0	0
Lane Group Flow (vph)	0	834	1219	542	0	62	1896	54	146	84	0	31
Confl. Peds. (#/hr)				3							37	
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	custom	Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2 9	3 9	1	1	6		3	8		7
Permitted Phases							6					
Actuated Green, G (s)		33.8	82.2	75.9		5.2	52.6	52.6	11.0	39.8		3.6
Effective Green, g (s)		33.8	82.2	70.4		5.2	52.6	52.6	11.0	39.8		3.6
Actuated g/C Ratio		0.23	0.55	0.47		0.03	0.35	0.35	0.07	0.27		0.02
Clearance Time (s)		4.4				4.4	6.5	6.5	4.4	4.9		4.4
Vehicle Extension (s)		2.0				2.0	4.4	4.4	2.2	2.0		2.2
Lane Grp Cap (vph)		773	3511	1308		119	2247	555	251	872		82
v/s Ratio Prot		c0.24	0.19	0.19		0.02	c0.30		c0.04	0.03		0.01
v/s Ratio Perm							0.03					
v/c Ratio		1.08	0.35	0.41		0.52	0.84	0.10	0.58	0.10		0.38
Uniform Delay, d1		58.1	18.9	26.2		71.2	44.9	32.7	67.3	41.5		72.1
Progression Factor		1.17	0.61	0.66		1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		53.4	0.0	0.1		1.9	4.1	0.3	2.5	0.0		1.5
Delay (s)		121.5	11.5	17.4		73.1	49.0	33.1	69.7	41.6		73.6
Level of Service		F	B	B		E	D	C	E	D		E
Approach Delay (s)			48.1				48.6			57.3		
Approach LOS			D				D			E		
Intersection Summary												
HCM 2000 Control Delay			49.0				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			150.0				Sum of lost time (s)		22.2			
Intersection Capacity Utilization			94.1%				ICU Level of Service		F			
Analysis Period (min)			15									

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations	↑	↑↑
Traffic Volume (vph)	20	210
Future Volume (vph)	20	210
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.9	4.9
Lane Util. Factor	1.00	0.88
Frbp, ped/bikes	1.00	1.00
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1863	2787
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1863	2787
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	21	219
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	21	219
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	32.4	32.4
Effective Green, g (s)	32.4	32.4
Actuated g/C Ratio	0.22	0.22
Clearance Time (s)	4.9	4.9
Vehicle Extension (s)	2.3	2.3
Lane Grp Cap (vph)	402	601
v/s Ratio Prot	0.01	
v/s Ratio Perm		c0.08
v/c Ratio	0.05	0.36
Uniform Delay, d1	46.6	50.0
Progression Factor	1.00	1.00
Incremental Delay, d2	0.0	0.2
Delay (s)	46.7	50.3
Level of Service	D	D
Approach Delay (s)	52.6	
Approach LOS	D	
Intersection Summary		

HCM 6th Signalized Intersection Summary
4: Mission Center Rd & Friars Rd WB

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↘	↙	↘	↘↙	↘↙			↘↙	↘
Traffic Volume (veh/h)	0	0	0	180	10	370	110	540	0	0	440	330
Future Volume (veh/h)	0	0	0	180	10	370	110	540	0	0	440	330
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				199	0	162	117	574	0	0	468	192
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				463	0	206	183	2650	0	0	2288	995
Arrive On Green				0.26	0.00	0.26	0.11	1.00	0.00	0.00	0.64	0.64
Sat Flow, veh/h				3563	0	1585	3456	3647	0	0	3647	1546
Grp Volume(v), veh/h				199	0	162	117	574	0	0	468	192
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1728	1777	0	0	1777	1546
Q Serve(g_s), s				4.2	0.0	8.6	2.9	0.0	0.0	0.0	4.9	4.5
Cycle Q Clear(g_c), s				4.2	0.0	8.6	2.9	0.0	0.0	0.0	4.9	4.5
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				463	0	206	183	2650	0	0	2288	995
V/C Ratio(X)				0.43	0.00	0.79	0.64	0.22	0.00	0.00	0.20	0.19
Avail Cap(c_a), veh/h				1215	0	541	580	2650	0	0	2288	995
HCM Platoon Ratio				2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.96	0.96	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				30.5	0.0	32.2	39.4	0.0	0.0	0.0	6.6	6.5
Incr Delay (d2), s/veh				0.6	0.0	6.5	1.3	0.2	0.0	0.0	0.2	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.7	0.0	3.2	1.2	0.1	0.0	0.0	1.6	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				31.2	0.0	38.7	40.7	0.2	0.0	0.0	6.8	7.0
LnGrp LOS				C	A	D	D	A	A	A	A	A
Approach Vol, veh/h					361			691			660	
Approach Delay, s/veh					34.5			7.0			6.8	
Approach LOS					C			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		73.4			9.2	64.2		16.6				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 49			15.1	28.6		30.7				
Max Q Clear Time (g_c+I1), s		2.0			4.9	6.9		10.6				
Green Ext Time (p_c), s		3.4			0.1	6.3		1.1				

Intersection Summary

HCM 6th Ctrl Delay	12.8
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Mission Center Rd & Friars Rd EB

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	10	200	0	0	0	0	440	100	140	480	0
Future Volume (veh/h)	210	10	200	0	0	0	0	440	100	140	480	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	236	0	15				0	478	94	152	522	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	395	0	176				0	1149	224	1110	2737	0
Arrive On Green	0.11	0.00	0.11				0.00	0.39	0.39	0.43	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	3039	575	3456	3647	0
Grp Volume(v), veh/h	236	0	15				0	287	285	152	522	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1743	1728	1777	0
Q Serve(g_s), s	5.7	0.0	0.8				0.0	10.6	10.7	2.4	0.0	0.0
Cycle Q Clear(g_c), s	5.7	0.0	0.8				0.0	10.6	10.7	2.4	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.33	1.00		0.00
Lane Grp Cap(c), veh/h	395	0	176				0	693	680	1110	2737	0
V/C Ratio(X)	0.60	0.00	0.09				0.00	0.41	0.42	0.14	0.19	0.00
Avail Cap(c_a), veh/h	1013	0	451				0	693	680	1110	2737	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.33	1.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.98	0.98	0.00
Uniform Delay (d), s/veh	38.1	0.0	35.9				0.0	20.0	20.0	18.2	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.0	0.2				0.0	1.8	1.9	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.3				0.0	4.4	4.4	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.5	0.0	36.1				0.0	21.8	21.9	18.2	0.0	0.0
LnGrp LOS	D	A	D				A	C	C	B	A	A
Approach Vol, veh/h		251						572			674	
Approach Delay, s/veh		39.3						21.9			4.1	
Approach LOS		D						C			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	34.7	40.4	14.9	75.1								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	14.7	* 35	25.6	53.7								
Max Q Clear Time (g_c+I), s	14.4	12.7	7.7	2.0								
Green Ext Time (p_c), s	0.2	4.7	0.7	4.5								

Intersection Summary

HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
6: Qualcomm Way & Friars Rd WB

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↔		↖	↕			↕	↗
Traffic Volume (veh/h)	0	0	0	155	0	50	361	140	0	0	100	40
Future Volume (veh/h)	0	0	0	155	0	50	361	140	0	0	100	40
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				184	0	0	406	157	0	0	112	9
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				273	143	0	1196	2837	0	0	1390	620
Arrive On Green				0.13	0.00	0.00	0.58	1.00	0.00	0.00	0.39	0.39
Sat Flow, veh/h				3563	1870	0	3456	3647	0	0	3647	1585
Grp Volume(v), veh/h				184	0	0	406	157	0	0	112	9
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1728	1777	0	0	1777	1585
Q Serve(g_s), s				3.9	0.0	0.0	4.9	0.0	0.0	0.0	1.6	0.3
Cycle Q Clear(g_c), s				3.9	0.0	0.0	4.9	0.0	0.0	0.0	1.6	0.3
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				273	143	0	1196	2837	0	0	1390	620
V/C Ratio(X)				0.67	0.00	0.00	0.34	0.06	0.00	0.00	0.08	0.01
Avail Cap(c_a), veh/h				1251	657	0	1196	2837	0	0	1390	620
HCM Platoon Ratio				1.67	1.67	1.67	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				33.9	0.0	0.0	12.1	0.0	0.0	0.0	15.3	14.9
Incr Delay (d2), s/veh				1.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.6	0.0	0.0	1.7	0.0	0.0	0.0	0.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				35.0	0.0	0.0	12.3	0.0	0.0	0.0	15.3	14.9
LnGrp LOS				D	A	A	B	A	A	A	B	B
Approach Vol, veh/h					184			563			121	
Approach Delay, s/veh					35.0			8.9			15.3	
Approach LOS					D			A			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		69.0			32.8	36.2		11.0				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+I1), s		2.0			6.9	3.6		5.9				
Green Ext Time (p_c), s		1.2			1.5	0.4		0.3				

Intersection Summary

HCM 6th Ctrl Delay	15.3
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
7: Qualcomm Way & Friars Rd EB

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	0	81	0	0	0	0	401	250	50	285	0
Future Volume (veh/h)	60	0	81	0	0	0	0	401	250	50	285	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	68	0	1				0	456	168	57	324	0
Peak Hour Factor	0.88	0.88	0.88				0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	170	0	75				0	4737	1142	124	2939	0
Arrive On Green	0.05	0.00	0.05				0.00	0.74	0.74	0.07	1.00	0.00
Sat Flow, veh/h	3563	0	1566				0	6696	1551	3456	3647	0
Grp Volume(v), veh/h	68	0	1				0	456	168	57	324	0
Grp Sat Flow(s),veh/h/ln	1781	0	1566				0	1609	1551	1728	1777	0
Q Serve(g_s), s	1.5	0.0	0.0				0.0	1.6	2.6	1.3	0.0	0.0
Cycle Q Clear(g_c), s	1.5	0.0	0.0				0.0	1.6	2.6	1.3	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	170	0	75				0	4737	1142	124	2939	0
V/C Ratio(X)	0.40	0.00	0.01				0.00	0.10	0.15	0.46	0.11	0.00
Avail Cap(c_a), veh/h	1519	0	668				0	4737	1142	436	2939	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.98	0.98	0.95	0.95	0.00
Uniform Delay (d), s/veh	37.0	0.0	36.3				0.0	3.0	3.1	36.4	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0				0.0	0.0	0.3	0.9	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0				0.0	0.4	0.6	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	0.0	36.3				0.0	3.0	3.4	37.3	0.1	0.0
LnGrp LOS	D	A	D				A	A	A	D	A	A
Approach Vol, veh/h		69						624			381	
Approach Delay, s/veh		37.5						3.1			5.6	
Approach LOS		D						A			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	7.3	64.0	8.7	71.3								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.1	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	13.3	4.6	3.5	2.0								
Green Ext Time (p_c), s	0.0	3.8	0.1	1.4								

Intersection Summary

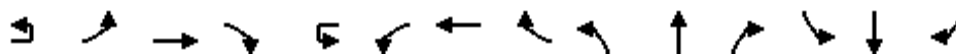
HCM 6th Ctrl Delay	6.2
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↖ ↗ ↘ ↙		↖		↖ ↗ ↘ ↙				↖ ↗	↖ ↗		↖ ↗		
Traffic Volume (veh/h)	10	110	759	40	10	170	2024	180	130	60	60	20	10	10	
Future Volume (veh/h)	10	110	759	40	10	170	2024	180	130	60	60	20	10	10	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	0.98		0.97	0.98		0.97	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		116	799	21		179	2131	184	137	63	9	21	11	2	
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2	
Cap, veh/h		145	2657	825		211	2666	228	260	95	334	123	56	8	
Arrive On Green		0.08	0.52	0.52		0.12	0.56	0.56	0.22	0.22	0.22	0.22	0.22	0.22	
Sat Flow, veh/h		1781	5106	1585		1781	4782	408	937	437	1543	317	259	36	
Grp Volume(v), veh/h		116	799	21		179	1510	805	200	0	9	34	0	0	
Grp Sat Flow(s),veh/h/ln		1781	1702	1585		1781	1702	1787	1374	0	1543	612	0	0	
Q Serve(g_s), s		6.9	9.5	0.7		10.6	37.8	38.9	0.0	0.0	0.5	0.8	0.0	0.0	
Cycle Q Clear(g_c), s		6.9	9.5	0.7		10.6	37.8	38.9	15.1	0.0	0.5	15.8	0.0	0.0	
Prop In Lane		1.00		1.00		1.00		0.23	0.68		1.00	0.62		0.06	
Lane Grp Cap(c), veh/h		145	2657	825		211	1898	996	354	0	334	187	0	0	
V/C Ratio(X)		0.80	0.30	0.03		0.85	0.80	0.81	0.56	0.00	0.03	0.18	0.00	0.00	
Avail Cap(c_a), veh/h		665	2858	887		499	1905	1000	449	0	432	416	0	0	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	
Uniform Delay (d), s/veh		48.4	14.6	12.5		46.3	18.9	19.1	38.8	0.0	33.1	36.8	0.0	0.0	
Incr Delay (d2), s/veh		3.9	0.3	0.1		3.6	3.6	7.0	1.1	0.0	0.0	0.6	0.0	0.0	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		3.1	3.5	0.2		4.7	14.0	16.1	5.0	0.0	0.2	0.9	0.0	0.0	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		52.2	14.9	12.6		50.0	22.4	26.1	39.8	0.0	33.1	37.4	0.0	0.0	
LnGrp LOS		D	B	B		D	C	C	D	A	C	D	A	A	
Approach Vol, veh/h		936				2494				209				34	
Approach Delay, s/veh		19.5				25.6				39.5				37.4	
Approach LOS		B				C				D				D	
Timer - Assigned Phs	1	2	4		5	6	8								
Phs Duration (G+Y+Rc), s	7.1	62.0	28.1		13.1	66.0	28.1								
Change Period (Y+Rc), s	4.4	6.2	4.9		4.4	6.2	4.9								
Max Green Setting (Gmax), s	30.0	60.0	40.0		40.0	60.0	30.0								
Max Q Clear Time (g_c+1/2g), s	11.5	11.5	17.8		8.9	40.9	17.1								
Green Ext Time (p_c), s	0.2	21.0	0.1		0.1	18.9	0.8								

Intersection Summary

HCM 6th Ctrl Delay	24.9
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
9: Fenton Pkwy & Friars Rd

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↔		↔↔	↑↑↑	↔	↔↔	↑	↔	↔↔	↔	↔
Traffic Volume (veh/h)	60	695	224	10	165	1580	30	534	10	140	90	20	190
Future Volume (veh/h)	60	695	224	10	165	1580	30	534	10	140	90	20	190
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	755	134		179	1717	19	580	11	15	98	22	20
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	110	3006	1093		245	3204	1064	349	216	182	155	100	134
Arrive On Green	0.03	0.59	0.59		0.02	0.21	0.21	0.10	0.12	0.12	0.04	0.05	0.05
Sat Flow, veh/h	3456	5106	1585		3456	5106	1585	3456	1870	1581	3563	1870	1570
Grp Volume(v), veh/h	65	755	134		179	1717	19	580	11	15	98	22	20
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1585	1728	1870	1581	1781	1870	1570
Q Serve(g_s), s	2.0	7.9	1.1		5.7	33.0	0.9	11.1	0.6	0.9	3.0	1.2	1.0
Cycle Q Clear(g_c), s	2.0	7.9	1.1		5.7	33.0	0.9	11.1	0.6	0.9	3.0	1.2	1.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	110	3006	1093		245	3204	1064	349	216	182	155	100	134
V/C Ratio(X)	0.59	0.25	0.12		0.73	0.54	0.02	1.66	0.05	0.08	0.63	0.22	0.15
Avail Cap(c_a), veh/h	286	3006	1093		459	3204	1064	349	537	454	347	531	496
HCM Platoon Ratio	1.00	1.00	1.00		0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.97		0.83	0.83	0.83	0.76	0.76	0.76	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	10.9	1.3		52.7	29.3	13.0	49.5	43.3	43.5	51.7	49.9	27.3
Incr Delay (d2), s/veh	1.8	0.2	0.2		1.3	0.5	0.0	308.0	0.3	0.7	1.6	5.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	2.7	0.6		2.5	15.0	0.3	19.7	0.3	0.4	1.4	0.7	0.5
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	54.3	11.1	1.5		54.0	29.9	13.0	357.4	43.7	44.1	53.3	54.9	29.6
LnGrp LOS	D	B	A		D	C	B	F	D	D	D	D	C
Approach Vol, veh/h		954				1915			606			140	
Approach Delay, s/veh		12.7				31.9			344.0			50.2	
Approach LOS		B				C			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	12.2	71.0	16.0	10.8	7.9	75.3	9.2	17.6					
Change Period (Y+Rc), s	4.4	6.3	4.9	*4.9	4.4	*6.3	4.4	4.9					
Max Green Setting (Gmax), s	14.6	33.1	11.1	*31	9.1	*39	10.7	31.6					
Max Q Clear Time (g_c+1), s	17.5	9.9	13.1	3.2	4.0	35.0	5.0	2.9					
Green Ext Time (p_c), s	0.2	11.8	0.0	0.4	0.0	3.6	0.1	0.2					

Intersection Summary

HCM 6th Ctrl Delay	79.9
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
10: Northside Dr & Friars Rd

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↔↔↔	↔	↔↔	↔↔↔	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	10	40	605	270	570	1465	70	120	10	250	200	40	190
Future Volume (veh/h)	10	40	605	270	570	1465	70	120	10	250	200	40	190
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		42	637	284	600	1542	51	126	11	203	211	42	47
Peak Hour Factor		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		91	2166	671	600	2919	1021	185	264	497	276	313	266
Arrive On Green		0.01	0.14	0.14	0.17	0.57	0.57	0.05	0.14	0.14	0.08	0.17	0.17
Sat Flow, veh/h		3456	5106	1582	3456	5106	1565	3456	1870	1568	3456	1870	1585
Grp Volume(v), veh/h		42	637	284	600	1542	51	126	11	203	211	42	47
Grp Sat Flow(s),veh/h/ln		1728	1702	1582	1728	1702	1565	1728	1870	1568	1728	1870	1585
Q Serve(g_s), s		1.3	12.3	18.1	19.1	20.4	1.3	3.9	0.6	11.2	6.6	2.1	2.8
Cycle Q Clear(g_c), s		1.3	12.3	18.1	19.1	20.4	1.3	3.9	0.6	11.2	6.6	2.1	2.8
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		91	2166	671	600	2919	1021	185	264	497	276	313	266
V/C Ratio(X)		0.46	0.29	0.42	1.00	0.53	0.05	0.68	0.04	0.41	0.76	0.13	0.18
Avail Cap(c_a), veh/h		254	2166	671	600	2919	1021	346	452	654	471	520	441
HCM Platoon Ratio		0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.95	0.95	0.95	0.90	0.90	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		53.7	32.5	35.0	45.4	14.5	6.9	51.1	40.8	29.6	49.6	39.0	39.3
Incr Delay (d2), s/veh		1.3	0.3	1.9	34.8	0.6	0.1	1.6	0.2	1.6	1.7	0.9	1.5
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.6	5.5	8.0	10.8	7.2	0.4	1.8	0.3	4.5	2.9	1.1	1.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		55.0	32.9	36.9	80.3	15.1	7.0	52.8	41.0	31.2	51.3	39.9	40.7
LnGrp LOS		E	C	D	F	B	A	D	D	C	D	D	D
Approach Vol, veh/h			963			2193			340			300	
Approach Delay, s/veh			35.0			32.7			39.5			48.0	
Approach LOS			C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	23.5	52.9	10.3	23.3	7.3	69.1	13.2	20.4					
Change Period (Y+Rc), s	4.4	* 6.2	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	19.5	* 30	11.0	30.6	8.1	40.4	15.0	26.6					
Max Q Clear Time (g_c+D1), s	19.5	20.1	5.9	4.8	3.3	22.4	8.6	13.2					
Green Ext Time (p_c), s	0.0	5.8	0.1	1.3	0.0	15.3	0.2	1.5					

Intersection Summary

HCM 6th Ctrl Delay	35.1
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 12: Mission Village Dr & Friars Rd WB

Horizon Year No Project With 4-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕	↕	↕↕			↕↕	↕
Traffic Volume (veh/h)	0	0	0	90	0	540	25	830	0	0	530	280
Future Volume (veh/h)	0	0	0	90	0	540	25	830	0	0	530	280
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				No
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				97	0	581	27	892	0	0	570	200
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				716	0	637	64	1424	0	0	983	438
Arrive On Green				0.40	0.00	0.40	0.04	0.40	0.00	0.00	0.28	0.28
Sat Flow, veh/h				1781	0	1584	1781	3647	0	0	3647	1585
Grp Volume(v), veh/h				97	0	581	27	892	0	0	570	200
Grp Sat Flow(s),veh/h/ln				1781	0	1584	1781	1777	0	0	1777	1585
Q Serve(g_s), s				2.1	0.0	20.9	0.9	12.1	0.0	0.0	8.3	6.3
Cycle Q Clear(g_c), s				2.1	0.0	20.9	0.9	12.1	0.0	0.0	8.3	6.3
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				716	0	637	64	1424	0	0	983	438
V/C Ratio(X)				0.14	0.00	0.91	0.42	0.63	0.00	0.00	0.58	0.46
Avail Cap(c_a), veh/h				1182	0	1051	1773	7533	0	0	3536	1577
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				11.4	0.0	17.0	28.4	14.5	0.0	0.0	18.8	18.1
Incr Delay (d2), s/veh				0.0	0.0	4.7	1.6	0.5	0.0	0.0	0.7	1.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.7	0.0	6.7	0.4	4.0	0.0	0.0	3.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				11.4	0.0	21.7	30.0	14.9	0.0	0.0	19.5	19.0
LnGrp LOS				B	A	C	C	B	A	A	B	B
Approach Vol, veh/h					678			919			770	
Approach Delay, s/veh					20.2			15.4			19.4	
Approach LOS					C			B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		31.2			7.5	23.7		29.1				
Change Period (Y+Rc), s		* 7			5.3	7.0		4.9				
Max Green Setting (Gmax), s* 1.3E2					60.0	60.0		40.0				
Max Q Clear Time (g_c+I1), s		14.1			2.9	10.3		22.9				
Green Ext Time (p_c), s		6.9			0.0	6.3		1.3				

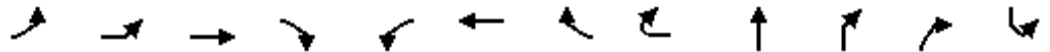
Intersection Summary

HCM 6th Ctrl Delay	18.1
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis Horizon Year No Project With 4-Ln Bridge
 13: Mission Village Dr & Friars Rd EB & San Diego Mission Rd AM Peak Hour



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBT	NBR	NBR2	SBL2
Lane Configurations		↔	↔			↔	↔		↕			
Traffic Volume (vph)	210	0	5	20	10	0	625	140	20	10	10	390
Future Volume (vph)	210	0	5	20	10	0	625	140	20	10	10	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.2	5.2			5.4	5.4		4.9			
Lane Util. Factor		1.00	1.00			0.95	0.95		0.95			
Frbp, ped/bikes		1.00	0.99			1.00	1.00		0.99			
Flpb, ped/bikes		1.00	1.00			1.00	1.00		1.00			
Frt		1.00	0.88			0.85	0.85		0.93			
Flt Protected		0.95	1.00			1.00	1.00		1.00			
Satd. Flow (prot)		1770	1621			1509	1504		3248			
Flt Permitted		0.95	1.00			1.00	1.00		1.00			
Satd. Flow (perm)		1770	1621			1509	1504		3248			
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	236	0	6	22	11	0	702	157	22	11	11	438
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	10	0	0	0
Lane Group Flow (vph)	0	236	28	0	0	432	438	0	34	0	0	0
Confl. Peds. (#/hr)				2	2					1	1	
Confl. Bikes (#/hr)				1								
Turn Type	Split	Split	NA		Split	NA	Perm		NA			Split
Protected Phases	4	4	4		3	3			2			1
Permitted Phases							3					
Actuated Green, G (s)		25.9	25.9			40.4	40.4		8.2			
Effective Green, g (s)		25.9	25.9			40.4	40.4		8.2			
Actuated g/C Ratio		0.17	0.17			0.26	0.26		0.05			
Clearance Time (s)		5.2	5.2			5.4	5.4		4.9			
Vehicle Extension (s)		3.0	3.0			3.0	3.0		3.0			
Lane Grp Cap (vph)		292	267			388	387		169			
v/s Ratio Prot		c0.13	0.02			0.29			c0.01			
v/s Ratio Perm							c0.29					
v/c Ratio		0.81	0.10			1.11	1.13		0.20			
Uniform Delay, d1		63.1	55.6			58.2	58.2		71.2			
Progression Factor		1.00	1.00			1.00	1.00		1.00			
Incremental Delay, d2		15.0	0.2			80.1	86.6		0.6			
Delay (s)		78.1	55.8			138.3	144.8		71.7			
Level of Service		E	E			F	F		E			
Approach Delay (s)			75.7			141.6			71.7			
Approach LOS			E			F			E			
Intersection Summary												
HCM 2000 Control Delay			93.5			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			156.8			Sum of lost time (s)			21.7			
Intersection Capacity Utilization			78.6%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis Horizon Year No Project With 4-Ln Bridge
 13: Mission Village Dr & Friars Rd EB & San Diego Mission Rd AM Peak Hour



Movement	SBL	SBT
Lane Configurations		
Traffic Volume (vph)	140	80
Future Volume (vph)	140	80
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.2	6.2
Lane Util. Factor	0.91	0.91
Frpb, ped/bikes	1.00	1.00
Flpb, ped/bikes	1.00	1.00
Frt	1.00	1.00
Flt Protected	0.95	0.97
Satd. Flow (prot)	1610	3290
Flt Permitted	0.95	0.97
Satd. Flow (perm)	1610	3290
Peak-hour factor, PHF	0.89	0.89
Adj. Flow (vph)	157	90
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	454	231
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Turn Type	Split	NA
Protected Phases	1	1
Permitted Phases		
Actuated Green, G (s)	60.6	60.6
Effective Green, g (s)	60.6	60.6
Actuated g/C Ratio	0.39	0.39
Clearance Time (s)	6.2	6.2
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	622	1271
v/s Ratio Prot	c0.28	0.07
v/s Ratio Perm		
v/c Ratio	0.73	0.18
Uniform Delay, d1	41.1	31.7
Progression Factor	1.00	1.00
Incremental Delay, d2	4.3	0.1
Delay (s)	45.4	31.8
Level of Service	D	C
Approach Delay (s)		40.8
Approach LOS		D
Intersection Summary		

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

Horizon Year No Project With 4-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↗		↖	↑↑↑	↗				↖	↗	↖↗
Traffic Volume (veh/h)	250	800	300	60	330	1630	520	0	0	0	770	10	810
Future Volume (veh/h)	250	800	300	60	330	1630	520	0	0	0	770	10	810
Initial Q (Qb), veh	0	0	0		0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	266	851	87		351	1734	0				827	0	856
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	447	1972	612		374	1634					910	0	1605
Arrive On Green	0.25	0.39	0.39		0.42	0.64	0.00				0.26	0.00	0.26
Sat Flow, veh/h	1781	5106	1585		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	266	851	87		351	1734	0				827	0	856
Grp Sat Flow(s),veh/h/ln	1781	1702	1585		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	14.5	13.5	3.9		20.7	35.2	0.0				24.8	0.0	0.0
Cycle Q Clear(g_c), s	14.5	13.5	3.9		20.7	35.2	0.0				24.8	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	447	1972	612		374	1634					910	0	1605
V/C Ratio(X)	0.60	0.43	0.14		0.94	1.06					0.91	0.00	0.53
Avail Cap(c_a), veh/h	447	1972	612		534	1634					1069	0	1747
HCM Platoon Ratio	1.00	1.00	1.00		2.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.09	0.09	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	36.3	24.9	21.9		31.2	19.8	0.0				39.7	0.0	18.4
Incr Delay (d2), s/veh	1.5	0.7	0.5		2.2	29.2	0.0				9.4	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.2	5.3	1.5		6.4	10.4	0.0				12.0	0.0	13.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	37.8	25.5	22.4		33.4	49.0	0.0				49.1	0.0	18.5
LnGrp LOS	D	C	C		C	F					D	A	B
Approach Vol, veh/h		1204				2085	A					1683	
Approach Delay, s/veh		28.0				46.4						33.5	
Approach LOS		C				D						C	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	37.3	49.5		33.2	34.6	42.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	33	27.7		33.0	25.0	* 35							
Max Q Clear Time (g_c+20), s	20.7	15.5		26.8	16.5	37.2							
Green Ext Time (p_c), s	0.4	3.1		1.3	0.2	0.0							

Intersection Summary

HCM 6th Ctrl Delay	37.6
HCM 6th LOS	D

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

Horizon Year No Project With 4-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖				↑↑↑							↗
Traffic Volume (veh/h)	520	1140	0	0	2250	1740	0	0	300	0	0	270
Future Volume (veh/h)	520	1140	0	0	2250	1740	0	0	300	0	0	270
Initial Q (Qb), veh	20	0	0	0	0	20						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	547	1200	0	0	2361	1837						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	567	0	0	0	2125	1801						
Arrive On Green	0.32	0.95	0.00	0.00	0.57	0.57						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	547	0	0	0	2361	1837						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	33.2	0.0	0.0	0.0	62.5	62.5						
Cycle Q Clear(g_c), s	33.2	0.0	0.0	0.0	62.5	62.5						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	567	0	0	0	2125	1801						
V/C Ratio(X)	0.97	0.00	0.00	0.00	1.11	1.02						
Avail Cap(c_a), veh/h	567	0	0	0	2125	1801						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.71	0.00	0.00	0.00	0.38	0.38						
Uniform Delay (d), s/veh	37.5	0.0	0.0	0.0	23.7	23.8						
Incr Delay (d2), s/veh	23.4	0.0	0.0	0.0	52.9	18.4						
Initial Q Delay(d3),s/veh	11.3	0.0	0.0	0.0	0.0	40.0						
%ile BackOfQ(50%),veh/ln	35.6	0.0	0.0	0.0	39.3	34.7						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	172.3	0.0	0.0	0.0	76.7	82.1						
LnGrp LOS	F	A	A	A	F	F						
Approach Vol, veh/h		547			4198							
Approach Delay, s/veh		172.3			79.1							
Approach LOS		F			E							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		110.0			40.5	69.5						
Change Period (Y+Rc), s		5.5			5.5	7.0						
Max Green Setting (Gmax), s		104.5			35.0	62.5						
Max Q Clear Time (g_c+I1), s		0.0			35.2	64.5						
Green Ext Time (p_c), s		0.0			0.0	0.0						

Intersection Summary

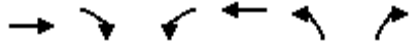
HCM 6th Ctrl Delay	89.8
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

Horizon Year No Project With 4-Ln Bridge
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↘	↙
Traffic Volume (veh/h)	1130	320	30	3200	800	30
Future Volume (veh/h)	1130	320	30	3200	800	30
Initial Q (Qb), veh	0	0	0	20	20	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1202	258	32	3404	851	10
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1945	1052	326	3945	995	448
Arrive On Green	0.13	0.13	0.20	0.64	0.26	0.26
Sat Flow, veh/h	5274	1585	1781	6696	3563	1585
Grp Volume(v), veh/h	1202	258	32	3404	851	10
Grp Sat Flow(s),veh/h/ln	1702	1585	1781	1609	1781	1585
Q Serve(g_s), s	24.5	9.5	1.6	44.9	25.5	0.5
Cycle Q Clear(g_c), s	24.5	9.5	1.6	44.9	25.5	0.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1945	1052	326	3945	995	448
V/C Ratio(X)	0.62	0.25	0.10	0.86	0.86	0.02
Avail Cap(c_a), veh/h	1945	1020	361	4095	1185	527
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.59	0.59	0.80	0.80
Uniform Delay (d), s/veh	40.5	11.0	37.5	18.2	38.7	28.5
Incr Delay (d2), s/veh	1.5	0.6	0.0	1.4	3.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	1.3	20.1	0.0
%ile BackOfQ(50%),veh/ln	1.3	7.1	0.7	16.6	15.2	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.0	11.6	37.5	20.9	62.6	28.5
LnGrp LOS	D	B	D	C	E	C
Approach Vol, veh/h	1460			3436	861	
Approach Delay, s/veh	36.6			21.1	62.2	
Approach LOS	D			C	E	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	28.3	47.7			76.0	34.0
Change Period (Y+Rc), s	6.0	* 5.8			6.0	5.1
Max Green Setting (Gmax), s	16.2	* 42			62.3	36.6
Max Q Clear Time (g_c+1), s	13.6	26.5			46.9	27.5
Green Ext Time (p_c), s	0.0	10.0			15.3	1.4

Intersection Summary

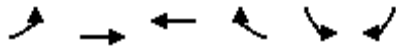
HCM 6th Ctrl Delay		31.2	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: Friars Rd & Santo Rd

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↗	↑↑↑	↑↑↑		↖↗	↖
Traffic Volume (veh/h)	130	990	2790	70	80	380
Future Volume (veh/h)	130	990	2790	70	80	380
Initial Q (Qb), veh	0	0	80	0	50	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1811	1826	1826	1870	1870
Adj Flow Rate, veh/h	131	1000	2818	69	81	384
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	6	5	5	2	2
Cap, veh/h	188	3166	3471	58	885	512
Arrive On Green	0.05	0.66	0.57	0.57	0.25	0.25
Sat Flow, veh/h	3456	5107	6609	155	3456	1585
Grp Volume(v), veh/h	131	1000	2088	799	81	384
Grp Sat Flow(s),veh/h/ln	1728	1648	1570	1798	1728	1585
Q Serve(g_s), s	4.5	10.2	40.8	41.0	2.2	26.9
Cycle Q Clear(g_c), s	4.5	10.2	40.8	41.0	2.2	26.9
Prop In Lane	1.00			0.09	1.00	1.00
Lane Grp Cap(c), veh/h	188	3166	2546	986	885	512
V/C Ratio(X)	0.70	0.32	0.82	0.81	0.09	0.75
Avail Cap(c_a), veh/h	449	3282	2699	1030	1022	555
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	55.8	9.8	25.4	24.5	36.5	36.3
Incr Delay (d2), s/veh	1.6	0.2	0.3	0.7	0.0	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	22.2	15.7	25.3	0.0
%ile BackOfQ(50%),veh/ln	1.9	3.6	23.7	24.8	7.0	22.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	57.3	10.0	47.9	40.9	61.9	40.7
LnGrp LOS	E	B	D	D	E	D
Approach Vol, veh/h		1131	2887		465	
Approach Delay, s/veh		15.5	46.0		44.4	
Approach LOS		B	D		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		86.2		33.8	10.9	75.3
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		73.6		35.5	15.6	* 54
Max Q Clear Time (g_c+I1), s		12.2		28.9	6.5	43.0
Green Ext Time (p_c), s		9.6		0.6	0.1	10.6

Intersection Summary

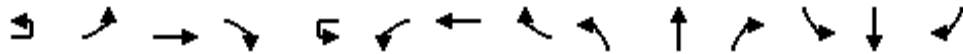
HCM 6th Ctrl Delay	38.1
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 21: Riverdale St & Friars Rd

Horizon Year No Project With 4-Ln Bridge
 AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		3 ↑↑↑	3 ↑↑↑	↑		3 ↑↑↑	↑	↑	↑	↑		↑	↑	
Traffic Volume (veh/h)	10	70	680	250	20	130	2630	30	130	30	30	20	140	170
Future Volume (veh/h)	10	70	680	250	20	130	2630	30	130	30	30	20	140	170
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		0.99	0.99		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1781	1826		1826	1841	1841	1781	1870	1870	1781	1870	1870
Adj Flow Rate, veh/h		73	708	124		135	2740	16	135	31	7	21	146	135
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		2	8	5		5	4	4	8	2	2	8	2	2
Cap, veh/h		94	2442	776		162	2728	845	193	393	89	390	237	220
Arrive On Green		0.05	0.50	0.50		0.09	0.54	0.54	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h		1781	4863	1546		1739	5025	1557	1042	1475	333	1296	891	824
Grp Volume(v), veh/h		73	708	124		135	2740	16	135	0	38	21	0	281
Grp Sat Flow(s),veh/h/ln		1781	1621	1546		1739	1675	1557	1042	0	1808	1296	0	1715
Q Serve(g_s), s		4.5	9.3	4.8		8.4	59.7	0.5	13.5	0.0	1.7	1.4	0.0	15.8
Cycle Q Clear(g_c), s		4.5	9.3	4.8		8.4	59.7	0.5	29.3	0.0	1.7	3.1	0.0	15.8
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.18	1.00		0.48
Lane Grp Cap(c), veh/h		94	2442	776		162	2728	845	193	0	482	390	0	457
V/C Ratio(X)		0.78	0.29	0.16		0.83	1.00	0.02	0.70	0.00	0.08	0.05	0.00	0.61
Avail Cap(c_a), veh/h		228	2442	776		223	2728	845	193	0	482	390	0	457
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.98	0.98	0.98		0.80	0.80	0.80	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		51.5	16.0	14.8		49.0	25.1	11.6	48.6	0.0	30.2	31.4	0.0	35.4
Incr Delay (d2), s/veh		5.0	0.3	0.4		10.5	16.5	0.0	9.0	0.0	0.0	0.0	0.0	1.8
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.1	3.3	1.7		4.0	24.9	0.2	4.2	0.0	0.8	0.4	0.0	6.8
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		56.5	16.3	15.3		59.5	41.6	11.6	57.6	0.0	30.3	31.4	0.0	37.2
LnGrp LOS		E	B	B		E	F	B	E	A	C	C	A	D
Approach Vol, veh/h			905				2891			173			302	
Approach Delay, s/veh			19.4				42.3			51.6			36.8	
Approach LOS			B				D			D			D	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	4.7	61.1		34.2	10.2	65.6		34.2						
Change Period (Y+Rc), s	4.4	* 5.9		4.9	4.4	5.9		4.9						
Max Green Setting (Gmax), s	14.1	* 52		29.3	14.1	51.4		29.3						
Max Q Clear Time (g_c+10), s	11.0	11.3		17.8	6.5	61.7		31.3						
Green Ext Time (p_c), s	0.1	7.4		0.9	0.0	0.0		0.0						

Intersection Summary

HCM 6th Ctrl Delay	37.4
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 22: Mission Gorge Rd & Friars Rd

Horizon Year No Project With 4-Ln Bridge
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↔	↑↑↑		↔	↔
Traffic Volume (veh/h)	550	170	560	2690	30	170	270
Future Volume (veh/h)	550	170	560	2690	30	170	270
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	567	0	577	2773		185	63
Peak Hour Factor	0.97	0.97	0.97	0.97		0.92	0.92
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2962		615	0		215	832
Arrive On Green	0.58	0.00	0.18	0.00		0.12	0.12
Sat Flow, veh/h	5443	0	3456	577		1781	2790
Grp Volume(v), veh/h	567	0	577	70.7		185	63
Grp Sat Flow(s),veh/h/ln	1702	0	1728	E		1781	1395
Q Serve(g_s), s	6.3	0.0	19.8			12.2	0.0
Cycle Q Clear(g_c), s	6.3	0.0	19.8			12.2	0.0
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2962		615			215	832
V/C Ratio(X)	0.19		0.94			0.86	0.08
Avail Cap(c_a), veh/h	2962		615			306	975
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.97	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	11.9	0.0	48.7			51.8	30.2
Incr Delay (d2), s/veh	0.1	0.0	22.1			12.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	10.1			6.2	0.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	12.0	0.0	70.7			63.8	30.2
LnGrp LOS	B		E			E	C
Approach Vol, veh/h	567	A				248	
Approach Delay, s/veh	12.0					55.3	
Approach LOS	B					E	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	25.7	75.4					18.9
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	69.6					20.6
Max Q Clear Time (g_c+D), s	11.8	8.3					14.2
Green Ext Time (p_c), s	0.0	4.5					0.2

Intersection Summary

HCM 6th Ctrl Delay	44.1
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
23: Qualcomm Way & Rio San Diego Dr

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↗		↔	↑↑	↗	↔	↑↑↑	↗	↔	↑↑↑	
Traffic Volume (veh/h)	120	79	141	20	330	81	70	59	331	810	90	245	60
Future Volume (veh/h)	120	79	141	20	330	81	70	59	331	810	90	245	60
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	130	86	24		359	88	13	64	360	447	98	266	47
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	223	175	214		491	607	265	150	2034	620	183	1791	305
Arrive On Green	0.06	0.09	0.09		0.14	0.17	0.17	0.04	0.40	0.40	0.05	0.41	0.41
Sat Flow, veh/h	3456	1870	1560		3456	3554	1554	3456	5106	1555	3456	4389	748
Grp Volume(v), veh/h	130	86	24		359	88	13	64	360	447	98	204	109
Grp Sat Flow(s),veh/h/ln	1728	1870	1560		1728	1777	1554	1728	1702	1555	1728	1702	1733
Q Serve(g_s), s	2.2	2.7	0.8		6.1	1.3	0.4	1.1	2.8	14.9	1.7	2.3	2.4
Cycle Q Clear(g_c), s	2.2	2.7	0.8		6.1	1.3	0.4	1.1	2.8	14.9	1.7	2.3	2.4
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.43
Lane Grp Cap(c), veh/h	223	175	214		491	607	265	150	2034	620	183	1389	707
V/C Ratio(X)	0.58	0.49	0.11		0.73	0.15	0.05	0.43	0.18	0.72	0.54	0.15	0.15
Avail Cap(c_a), veh/h	1692	1221	1087		1692	2320	1015	3384	5000	1522	1692	3333	1697
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.9	26.4	23.2		25.2	21.6	21.2	28.6	11.9	15.6	28.3	11.4	11.5
Incr Delay (d2), s/veh	0.9	2.1	0.2		0.8	0.1	0.1	0.7	0.1	2.3	0.9	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.2	0.3		2.3	0.5	0.1	0.4	0.9	4.7	0.7	0.8	0.8
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	28.8	28.5	23.4		26.0	21.7	21.3	29.3	12.0	17.8	29.2	11.5	11.6
LnGrp LOS	C	C	C		C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		240				460			871			411	
Approach Delay, s/veh		28.1				25.0			16.3			15.8	
Approach LOS		C				C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	7.6	29.5	13.1	11.0	7.1	30.1	8.4	15.8					
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3					
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0					
Max Q Clear Time (g_c+1), s	13.7	16.9	8.1	4.7	3.1	4.4	4.2	3.3					
Green Ext Time (p_c), s	0.1	7.1	0.6	0.5	0.1	3.6	0.2	0.5					

Intersection Summary

HCM 6th Ctrl Delay		19.6		
HCM 6th LOS		B		

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection															
Intersection Delay, s/veh	13.5														
Intersection LOS	B														

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↖	↕		↖	↕				↕				↕	
Traffic Vol, veh/h	20	120	179	20	0	421	110	10	10	10	10	10	20	0	230
Future Vol, veh/h	20	120	179	20	0	421	110	10	10	10	10	10	20	0	230
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	128	190	21	0	448	117	11	11	11	11	11	21	0	245
Number of Lanes	0	1	2	0	1	2	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	11.4	14.3	10.9	14.9
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	33%	100%	0%	0%	0%	0%	0%	8%
Vol Thru, %	33%	0%	100%	75%	100%	100%	56%	0%
Vol Right, %	33%	0%	0%	25%	0%	0%	44%	92%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	140	119	80	0	281	250	260
LT Vol	13	140	0	0	0	0	0	21
Through Vol	13	0	119	60	0	281	140	0
RT Vol	13	0	0	20	0	0	110	239
Lane Flow Rate	43	149	127	85	0	299	266	277
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.087	0.286	0.226	0.147	0	0.513	0.434	0.483
Departure Headway (Hd)	7.381	6.92	6.411	6.232	6.181	6.181	5.868	6.291
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	482	517	557	573	0	582	610	570
Service Time	5.177	4.691	4.182	4.002	3.944	3.944	3.63	4.059
HCM Lane V/C Ratio	0.089	0.288	0.228	0.148	0	0.514	0.436	0.486
HCM Control Delay	10.9	12.5	11.1	10.1	8.9	15.3	13.1	14.9
HCM Lane LOS	B	B	B	B	N	C	B	B
HCM 95th-tile Q	0.3	1.2	0.9	0.5	0	2.9	2.2	2.6

HCM 6th Signalized Intersection Summary

Horizon Year No Project With 4-Ln Bridge

25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy

AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	66	90	130	50	140	80	148	618	49	30	41	245	83
Future Volume (veh/h)	66	90	130	50	140	80	148	618	49	30	41	245	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	76	103	4	57	161	62	170	710	53		47	282	73
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87		0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	164	172	145	95	275	110	213	1550	116		117	1056	268
Arrive On Green	0.09	0.09	0.09	0.14	0.14	0.14	0.12	0.46	0.46		0.03	0.38	0.38
Sat Flow, veh/h	1781	1870	1575	702	2036	811	1781	3352	250		3456	2803	713
Grp Volume(v), veh/h	76	103	4	149	0	131	170	376	387		47	177	178
Grp Sat Flow(s),veh/h/ln	1781	1870	1575	1835	0	1714	1781	1777	1825		1728	1777	1739
Q Serve(g_s), s	2.9	3.8	0.2	5.5	0.0	5.1	6.7	10.4	10.4		1.0	5.0	5.1
Cycle Q Clear(g_c), s	2.9	3.8	0.2	5.5	0.0	5.1	6.7	10.4	10.4		1.0	5.0	5.1
Prop In Lane	1.00		1.00	0.38		0.47	1.00		0.14		1.00		0.41
Lane Grp Cap(c), veh/h	164	172	145	248	0	231	213	822	844		117	669	655
V/C Ratio(X)	0.46	0.60	0.03	0.60	0.00	0.57	0.80	0.46	0.46		0.40	0.26	0.27
Avail Cap(c_a), veh/h	991	1040	876	1021	0	953	743	1482	1522		1441	1482	1451
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	31.0	31.4	29.7	29.3	0.0	29.1	30.8	13.2	13.2		34.0	15.5	15.6
Incr Delay (d2), s/veh	1.2	2.0	0.0	0.9	0.0	0.8	2.6	1.8	1.8		0.8	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.7	0.1	2.4	0.0	2.1	3.0	4.3	4.4		0.4	2.1	2.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	32.2	33.4	29.8	30.2	0.0	29.9	33.4	15.0	15.0		34.9	16.5	16.6
LnGrp LOS	C	C	C	C	A	C	C	B	B		C	B	B
Approach Vol, veh/h		183			280			933				402	
Approach Delay, s/veh		32.8			30.1			18.4				18.7	
Approach LOS		C			C			B				B	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	6.8	38.7		11.8	13.0	32.5		14.6					
Change Period (Y+Rc), s	4.4	* 5.4		5.2	4.4	5.4		4.9					
Max Green Setting (Gmax), s	30.0	* 60		40.0	30.0	60.0		40.0					
Max Q Clear Time (g_c+1/3), s	13.0	12.4		5.8	8.7	7.1		7.5					
Green Ext Time (p_c), s	0.1	20.9		0.5	0.2	8.5		1.2					

Intersection Summary

HCM 6th Ctrl Delay	21.7
HCM 6th LOS	C

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 26: Rancho Mission Rd & San Diego Mission Rd

Horizon Year No Project With 4-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	41	64	190	411	280	224	250	50	100	80	80
Future Volume (veh/h)	50	41	64	190	411	280	224	250	50	100	80	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	46	8	213	462	249	252	281	9	112	90	2
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	738	125	267	783	419	309	381	321	146	211	172
Arrive On Green	0.04	0.24	0.24	0.15	0.35	0.35	0.17	0.20	0.20	0.08	0.11	0.11
Sat Flow, veh/h	1781	3030	512	1781	2223	1190	1781	1870	1573	1781	1870	1526
Grp Volume(v), veh/h	56	26	28	213	369	342	252	281	9	112	90	2
Grp Sat Flow(s),veh/h/ln	1781	1777	1765	1781	1777	1636	1781	1870	1573	1781	1870	1526
Q Serve(g_s), s	1.8	0.7	0.7	6.7	9.8	9.9	7.9	8.2	0.3	3.6	2.6	0.1
Cycle Q Clear(g_c), s	1.8	0.7	0.7	6.7	9.8	9.9	7.9	8.2	0.3	3.6	2.6	0.1
Prop In Lane	1.00		0.29	1.00		0.73	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	73	433	430	267	626	576	309	381	321	146	211	172
V/C Ratio(X)	0.77	0.06	0.06	0.80	0.59	0.59	0.82	0.74	0.03	0.77	0.43	0.01
Avail Cap(c_a), veh/h	1075	1532	1521	1075	1685	1551	921	1612	1356	921	1612	1315
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.5	16.8	16.9	23.8	15.4	15.4	23.1	21.6	18.5	26.1	24.0	22.9
Incr Delay (d2), s/veh	6.2	0.1	0.1	2.1	1.5	1.6	2.0	1.0	0.0	3.1	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.2	0.3	2.7	3.5	3.3	3.2	3.3	0.1	1.5	1.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	16.9	17.0	25.9	16.8	17.0	25.1	22.7	18.5	29.2	24.5	22.9
LnGrp LOS	C	B	B	C	B	B	C	C	B	C	C	C
Approach Vol, veh/h		110		924		542		204				
Approach Delay, s/veh		25.5		19.0		23.7		27.1				
Approach LOS		C		B		C		C				
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.7	19.6	14.1	11.6	6.4	25.9	8.8	16.9				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	*5.5	4.0	*5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	*55	30.0	*50				
Max Q Clear Time (g_c+1), s	10.7	2.7	9.9	4.6	3.8	11.9	5.6	10.2				
Green Ext Time (p_c), s	0.3	0.4	0.3	0.3	0.1	8.4	0.1	1.1				

Intersection Summary

HCM 6th Ctrl Delay	21.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave

Horizon Year No Project With 4-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	40	103	78	70	561	30	130	130	40	10	90	230
Future Volume (veh/h)	40	103	78	70	561	30	130	130	40	10	90	230
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	47	120	43	81	652	33	151	151	39	12	105	208
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	156	363	878	142	1081	59	274	219	57	421	131	260
Arrive On Green	0.40	0.40	0.40	0.40	0.40	0.40	0.15	0.15	0.15	0.24	0.24	0.24
Sat Flow, veh/h	213	903	1577	187	2687	148	1781	1426	368	1781	555	1100
Grp Volume(v), veh/h	167	0	43	391	0	375	151	0	190	12	0	313
Grp Sat Flow(s),veh/h/ln	115	0	1577	1347	0	1675	1781	0	1794	1781	0	1656
Q Serve(g_s), s	0.9	0.0	0.8	6.5	0.0	11.2	5.1	0.0	6.5	0.3	0.0	11.6
Cycle Q Clear(g_c), s	12.1	0.0	0.8	18.6	0.0	11.2	5.1	0.0	6.5	0.3	0.0	11.6
Prop In Lane	0.28		1.00	0.21		0.09	1.00		0.21	1.00		0.66
Lane Grp Cap(c), veh/h	519	0	878	609	0	674	274	0	276	421	0	391
V/C Ratio(X)	0.32	0.00	0.05	0.64	0.00	0.56	0.55	0.00	0.69	0.03	0.00	0.80
Avail Cap(c_a), veh/h	1348	0	1867	1587	0	1646	1286	0	1295	1204	0	1119
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.1	0.0	6.6	17.0	0.0	15.0	25.5	0.0	26.1	19.1	0.0	23.4
Incr Delay (d2), s/veh	0.3	0.0	0.0	1.0	0.0	0.7	0.6	0.0	1.1	0.0	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4	0.0	0.3	5.1	0.0	4.1	2.1	0.0	2.7	0.1	0.0	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.4	0.0	6.6	18.0	0.0	15.6	26.1	0.0	27.2	19.1	0.0	24.9
LnGrp LOS	B	A	A	B	A	B	C	A	C	B	A	C
Approach Vol, veh/h		210			766			341			325	
Approach Delay, s/veh		12.0			16.8			26.7			24.6	
Approach LOS		B			B			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		30.7		19.9		30.7		14.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		67.0		44.0		64.0		47.0				
Max Q Clear Time (g_c+I1), s		14.1		13.6		20.6		8.5				
Green Ext Time (p_c), s		1.2		1.4		5.6		0.9				
Intersection Summary												
HCM 6th Ctrl Delay												19.8
HCM 6th LOS												B

HCM 6th Signalized Intersection Summary

Horizon Year No Project With 4-Ln Bridge

28: Qualcomm Way & Camino de la Reina/Camino del Rio N

AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↔	↔	↔		↔	↔	↔	↔	↔	↔		↔	↔	↔
Traffic Volume (veh/h)	10	40	110	100	10	310	260	40	120	940	490	10	45	445	40
Future Volume (veh/h)	10	40	110	100	10	310	260	40	120	940	490	10	45	445	40
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.97	1.00		0.98		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No				No			No				No	
Adj Sat Flow, veh/h/ln		1781	1870	1870		1870	1870	1870	1841	1856	1870		1870	1811	1811
Adj Flow Rate, veh/h		44	122	25		344	289	4	133	1044	484		50	494	38
Peak Hour Factor		0.90	0.90	0.90		0.90	0.90	0.90	0.90	0.90	0.90		0.90	0.90	0.90
Percent Heavy Veh, %		8	2	2		2	2	2	4	3	2		2	6	6
Cap, veh/h		56	353	249		458	690	297	219	2196	672		123	1894	144
Arrive On Green		0.03	0.09	0.09		0.13	0.19	0.19	0.06	0.43	0.43		0.04	0.40	0.40
Sat Flow, veh/h		1697	3741	1555		3456	3554	1531	3401	5066	1550		3456	4681	356
Grp Volume(v), veh/h		44	122	25		344	289	4	133	1044	484		50	346	186
Grp Sat Flow(s),veh/h/ln		1697	1870	1555		1728	1777	1531	1700	1689	1550		1728	1648	1741
Q Serve(g_s), s		1.8	2.1	1.0		6.7	5.0	0.1	2.7	10.3	17.9		1.0	4.9	5.0
Cycle Q Clear(g_c), s		1.8	2.1	1.0		6.7	5.0	0.1	2.7	10.3	17.9		1.0	4.9	5.0
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.20
Lane Grp Cap(c), veh/h		56	353	249		458	690	297	219	2196	672		123	1334	704
V/C Ratio(X)		0.79	0.35	0.10		0.75	0.42	0.01	0.61	0.48	0.72		0.41	0.26	0.26
Avail Cap(c_a), veh/h		729	1608	771		1485	1528	658	1462	3629	1111		1485	2361	1247
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		33.5	29.6	25.1		29.2	24.7	22.7	31.8	14.1	16.3		32.9	13.8	13.8
Incr Delay (d2), s/veh		8.8	0.4	0.1		0.9	0.2	0.0	1.0	0.1	1.3		0.8	0.3	0.5
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.9	0.9	0.3		2.6	1.9	0.0	1.1	3.5	5.5		0.4	1.7	1.9
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		42.3	30.0	25.2		30.1	24.8	22.7	32.8	14.2	17.6		33.7	14.1	14.4
LnGrp LOS		D	C	C		C	C	C	C	B	B		C	B	B
Approach Vol, veh/h			191			637			1661				582		
Approach Delay, s/veh			32.2			27.7			16.7				15.9		
Approach LOS			C			C			B				B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8							
Phs Duration (G+Y+Rc), s	6.9	37.0	13.7	12.3	8.9	34.9	6.7	19.3							
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7							
Max Green Setting (Gmax), s	30.0	50.0	30.0	* 30	30.0	* 50	30.0	30.0							
Max Q Clear Time (g_c+1), s	13.0	19.9	8.7	4.1	4.7	7.0	3.8	7.0							
Green Ext Time (p_c), s	0.1	10.2	0.6	0.6	0.2	8.2	0.0	1.0							

Intersection Summary

HCM 6th Ctrl Delay	19.8
HCM 6th LOS	B

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary

Horizon Year No Project With 4-Ln Bridge

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔	↑↑↑			↑↑	↔
Traffic Volume (veh/h)	10	50	0	110	20	190	660	130	1160	0	0	355	480
Future Volume (veh/h)	10	50	0	110	20	190	660	130	1160	0	0	355	480
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1722	0	1796	1870	1870	1870	1870	1870	0	0	1826	1870
Adj Flow Rate, veh/h		54	0	18	22	204	542	140	1247	0	0	382	73
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		12	0	7	2	2	2	2	2	0	0	5	2
Cap, veh/h		0	0	0	68	632	596	321	2340	0	0	741	328
Arrive On Green		0.00	0.00	0.00	0.38	0.38	0.38	0.18	0.46	0.00	0.00	0.21	0.21
Sat Flow, veh/h			0		181	1680	1584	1781	5274	0	0	3561	1537
Grp Volume(v), veh/h			0.0		226	0	542	140	1247	0	0	382	73
Grp Sat Flow(s),veh/h/ln					1861	0	1584	1781	1702	0	0	1735	1537
Q Serve(g_s), s					6.3	0.0	23.7	5.1	12.8	0.0	0.0	7.1	2.9
Cycle Q Clear(g_c), s					6.3	0.0	23.7	5.1	12.8	0.0	0.0	7.1	2.9
Prop In Lane					0.10		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					700	0	596	321	2340	0	0	741	328
V/C Ratio(X)					0.32	0.00	0.91	0.44	0.53	0.00	0.00	0.52	0.22
Avail Cap(c_a), veh/h					1146	0	975	829	3983	0	0	2753	1220
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)					1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh					16.2	0.0	21.6	26.6	14.2	0.0	0.0	25.4	23.7
Incr Delay (d2), s/veh					0.1	0.0	5.0	0.3	0.1	0.0	0.0	1.2	0.7
Initial Q Delay(d3),s/veh					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln					2.4	0.0	8.3	2.1	4.3	0.0	0.0	2.9	1.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					16.3	0.0	26.6	27.0	14.3	0.0	0.0	26.6	24.5
LnGrp LOS					B	A	C	C	B	A	A	C	C
Approach Vol, veh/h						768			1387			455	
Approach Delay, s/veh						23.6			15.5			26.2	
Approach LOS						C			B			C	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		40.5			17.9	22.6		32.6					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		57.0			* 34	58.0		45.0					
Max Q Clear Time (g_c+I1), s		14.8			7.1	9.1		25.7					
Green Ext Time (p_c), s		7.1			0.1	6.0		1.7					

Intersection Summary

HCM 6th Ctrl Delay	19.8
HCM 6th LOS	B

Notes

- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Horizon Year No Project With 4-Ln Bridge
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	620	0	1250	865	0
Future Volume (veh/h)	0	620	0	1250	865	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1856	0
Adj Flow Rate, veh/h	0	576	0	1289	892	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	2	0	2	3	0
Cap, veh/h	0	0	0	2600	2580	0
Arrive On Green	0.00	0.00	0.00	0.73	0.73	0.00
Sat Flow, veh/h	0		0	3741	3711	0
Grp Volume(v), veh/h	0.0		0	1289	892	0
Grp Sat Flow(s),veh/h/ln			0	1777	1763	0
Q Serve(g_s), s			0.0	3.1	1.9	0.0
Cycle Q Clear(g_c), s			0.0	3.1	1.9	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2600	2580	0
V/C Ratio(X)			0.00	0.50	0.35	0.00
Avail Cap(c_a), veh/h			0	6067	6019	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	1.2	1.0	0.0
Incr Delay (d2), s/veh			0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	1.2	1.0	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1289	892	
Approach Delay, s/veh				1.2	1.0	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		20.5				20.5
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		35.0				35.0
Max Q Clear Time (g_c+I1), s		5.1				3.9
Green Ext Time (p_c), s		7.3				4.5
Intersection Summary						
HCM 6th Ctrl Delay			1.1			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
31: Texas St & Camino del Rio S

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↖	↗	↖	↖	↗	↗	↖	↗	↖
Traffic Volume (veh/h)	10	100	50	60	105	90	120	150	1300	230	480	535	290
Future Volume (veh/h)	10	100	50	60	105	90	120	150	1300	230	480	535	290
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.98	1.00		0.96	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1811	1663	1870	1841	1870	1796	1841	1870	1870	1870	1870	1826
Adj Flow Rate, veh/h		104	52	12	109	94	52	156	1354	234	500	557	172
Peak Hour Factor		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		6	16	2	4	2	7	4	2	2	2	2	5
Cap, veh/h		141	136	294	190	203	613	183	1022	174	529	1888	805
Arrive On Green		0.08	0.08	0.08	0.11	0.11	0.11	0.10	0.34	0.34	0.30	0.53	0.53
Sat Flow, veh/h		1725	1663	1579	1753	1870	1493	1753	3016	514	1781	3554	1515
Grp Volume(v), veh/h		104	52	12	109	94	52	156	789	799	500	557	172
Grp Sat Flow(s),veh/h/ln		1725	1663	1579	1753	1870	1493	1753	1777	1753	1781	1777	1515
Q Serve(g_s), s		7.3	3.7	0.8	7.3	5.8	2.6	10.8	41.8	41.8	33.8	10.7	7.4
Cycle Q Clear(g_c), s		7.3	3.7	0.8	7.3	5.8	2.6	10.8	41.8	41.8	33.8	10.7	7.4
Prop In Lane		1.00		1.00	1.00		1.00	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h		141	136	294	190	203	613	183	602	594	529	1888	805
V/C Ratio(X)		0.74	0.38	0.04	0.57	0.46	0.08	0.85	1.31	1.34	0.95	0.30	0.21
Avail Cap(c_a), veh/h		420	405	550	401	428	793	355	602	594	1049	2594	1106
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		55.3	53.7	41.2	52.3	51.6	22.6	54.3	40.8	40.8	42.4	16.1	15.3
Incr Delay (d2), s/veh		7.4	1.8	0.1	7.3	4.5	0.2	4.3	151.3	165.9	4.1	0.2	0.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.4	1.6	0.3	3.6	3.0	1.0	4.9	43.1	45.0	15.2	4.3	2.6
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		62.7	55.5	41.2	59.6	56.1	22.8	58.5	192.1	206.7	46.5	16.2	15.6
LnGrp LOS		E	E	D	E	E	C	E	F	F	D	B	B
Approach Vol, veh/h			168			255			1744			1229	
Approach Delay, s/veh			58.9			50.8			186.8			28.5	
Approach LOS			E			D			F			C	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	41.0	47.0		15.0	17.3	70.7		20.4					
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0					
Max Green Setting (Gmax), s	72.6	41.8		30.0	25.0	* 90		28.2					
Max Q Clear Time (g_c+Rc), s	35.8	43.8		9.3	12.8	12.7		9.3					
Green Ext Time (p_c), s	0.7	0.0		0.5	0.2	10.8		2.1					

Intersection Summary

HCM 6th Ctrl Delay	113.0
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	1.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	80	30	484	414	20
Future Vol, veh/h	40	80	30	484	414	20
Conflicting Peds, #/hr	32	33	33	0	0	32
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	65	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	83	31	504	431	21

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	821	292	485	0	-	0
Stage 1	475	-	-	-	-	-
Stage 2	346	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	313	704	1074	-	-	-
Stage 1	592	-	-	-	-	-
Stage 2	688	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	282	660	1040	-	-	-
Mov Cap-2 Maneuver	282	-	-	-	-	-
Stage 1	550	-	-	-	-	-
Stage 2	667	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	14.1	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1040	-	282	660	-	-
HCM Lane V/C Ratio	0.03	-	0.148	0.126	-	-
HCM Control Delay (s)	8.6	0.2	20	11.2	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	0.4	-	-

HCM 6th Signalized Intersection Summary
33: Camino del Rio N & Ward Rd

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑	↗	↑	↙	↘
Traffic Volume (veh/h)	20	175	975	494	194	310
Future Volume (veh/h)	20	175	975	494	194	310
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	21	180	1005	416	200	294
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	35	2169	1853	809	388	376
Arrive On Green	0.02	0.61	0.52	0.52	0.22	0.22
Sat Flow, veh/h	1781	3647	3647	1551	1781	1585
Grp Volume(v), veh/h	21	180	1005	416	200	294
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1551	1781	1585
Q Serve(g_s), s	0.7	1.3	12.0	11.1	6.3	11.0
Cycle Q Clear(g_c), s	0.7	1.3	12.0	11.1	6.3	11.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	35	2169	1853	809	388	376
V/C Ratio(X)	0.60	0.08	0.54	0.51	0.52	0.78
Avail Cap(c_a), veh/h	1236	3924	3924	1713	1236	1131
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.8	5.1	10.1	9.9	21.9	22.6
Incr Delay (d2), s/veh	6.1	0.0	0.4	0.8	0.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.3	3.5	2.9	2.4	9.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	37.0	5.1	10.5	10.7	22.2	24.0
LnGrp LOS	D	A	B	B	C	C
Approach Vol, veh/h		201	1421		494	
Approach Delay, s/veh		8.4	10.6		23.3	
Approach LOS		A	B		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		44.7		18.7	5.6	39.1
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		3.3		13.0	2.7	14.0
Green Ext Time (p_c), s		1.7		0.8	0.0	19.1

Intersection Summary

HCM 6th Ctrl Delay	13.3
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
34: Fairmount Ave & Mission Gorge Rd

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↖	↕			↖	↕	
Traffic Volume (veh/h)	20	10	288	20	10	0	40	502	1197	30	10	10	811	20
Future Volume (veh/h)	20	10	288	20	10	0	40	502	1197	30	10	10	811	20
Initial Q (Qb), veh	0	0	15	0	15	0	0	0	0	0	0	0	15	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		1.00	1.00		0.99		1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	341	22	11	0	540	1287	31	11	872	20		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	262	441	125	100	0	934	2574	62	18	1642	36		
Arrive On Green	0.00	0.00	0.13	0.13	0.13	0.00	0.56	1.00	1.00	0.01	0.46	0.46		
Sat Flow, veh/h	0	1870	3007	754	500	0	3456	3546	85	1781	3551	81		
Grp Volume(v), veh/h	0	0	341	33	0	0	540	645	673	11	436	456		
Grp Sat Flow(s),veh/h/ln	0	1870	1504	1254	0	0	1728	1777	1854	1781	1777	1855		
Q Serve(g_s), s	0.0	0.0	12.8	1.2	0.0	0.0	11.6	0.0	0.0	0.7	20.2	20.2		
Cycle Q Clear(g_c), s	0.0	0.0	12.8	2.2	0.0	0.0	11.6	0.0	0.0	0.7	20.2	20.2		
Prop In Lane	0.00		1.00	0.67		0.00	1.00		0.05	1.00		0.04		
Lane Grp Cap(c), veh/h	0	262	441	236	0	0	934	1290	1346	18	820	857		
V/C Ratio(X)	0.00	0.00	0.77	0.14	0.00	0.00	0.58	0.50	0.50	0.60	0.53	0.53		
Avail Cap(c_a), veh/h	0	335	539	275	0	0	961	1304	1361	156	820	857		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.15	0.15	0.15	1.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.0	48.3	44.9	0.0	0.0	22.1	0.0	0.0	56.7	22.8	22.7		
Incr Delay (d2), s/veh	0.0	0.0	4.3	0.3	0.0	0.0	0.1	0.2	0.2	11.1	2.5	2.4		
Initial Q Delay(d3),s/veh	0.0	0.0	36.7	33.7	0.0	0.0	0.0	0.0	0.0	0.0	1.3	1.2		
%ile BackOfQ(50%),veh/ln	0.0	0.0	8.2	4.8	0.0	0.0	3.9	0.1	0.1	0.4	10.2	10.5		
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	89.4	78.8	0.0	0.0	22.2	0.2	0.2	67.8	26.5	26.3		
LnGrp LOS	A	A	F	E	A	A	C	A	A	E	C	C		
Approach Vol, veh/h		341			33			1858				903		
Approach Delay, s/veh		89.4			78.8			6.6				26.9		
Approach LOS		F			E			A				C		
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	5.6	89.3		20.1	36.9	58.0		20.1						
Change Period (Y+Rc), s	4.4	4.9		4.9	4.9	* 4.9		4.9						
Max Green Setting (Gmax), s	10.5	70.1		20.6	27.1	* 53		20.6						
Max Q Clear Time (g_c+1/2), s	12.5	2.0		14.8	13.6	22.2		4.2						
Green Ext Time (p_c), s	0.0	32.1		0.5	1.0	12.9		0.1						

Intersection Summary

HCM 6th Ctrl Delay	22.2
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis Horizon Year No Project With 4-Ln Bridge
 35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	67	30	372	490	700	280	578	1452	180	10	868	271		
Future Volume (vph)	67	30	372	490	700	280	578	1452	180	10	868	271		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1		
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00		
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00		
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.98		1.00	1.00	0.85		
Flt Protected	0.95	0.98	1.00	0.95	0.99	1.00	0.95	1.00		0.95	1.00	1.00		
Satd. Flow (prot)	1681	1735	1578	1610	3168	1424	1770	3476		3433	3539	1583		
Flt Permitted	0.95	0.98	1.00	0.95	0.99	1.00	0.95	1.00		0.95	1.00	1.00		
Satd. Flow (perm)	1681	1735	1578	1610	3168	1424	1770	3476		3433	3539	1583		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95		
Adj. Flow (vph)	71	32	392	516	737	295	608	1528	189	11	914	285		
RTOR Reduction (vph)	0	0	85	0	0	0	0	8	0	0	0	120		
Lane Group Flow (vph)	50	53	307	418	865	265	608	1709	0	11	914	165		
Confl. Peds. (#/hr)							2		1					
Confl. Bikes (#/hr)			2			2								
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm		
Protected Phases	7	7	5	8	8	1	5	2		1	6			
Permitted Phases			7			8						6		
Actuated Green, G (s)	8.0	8.0	35.0	25.0	25.0	33.0	27.0	53.0		8.0	34.0	34.0		
Effective Green, g (s)	8.0	8.0	35.0	25.0	25.0	33.0	27.0	53.0		8.0	34.0	34.0		
Actuated g/C Ratio	0.07	0.07	0.30	0.22	0.22	0.29	0.23	0.46		0.07	0.30	0.30		
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1		
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0		
Lane Grp Cap (vph)	116	120	544	350	688	408	415	1601		238	1046	468		
v/s Ratio Prot	0.03	0.03	c0.13	0.26	c0.27	0.05	c0.34	c0.49		0.00	c0.26			
v/s Ratio Perm			0.06			0.14						0.10		
v/c Ratio	0.43	0.44	0.56	1.19	1.26	0.65	1.47	1.07		0.05	0.87	0.35		
Uniform Delay, d1	51.3	51.4	33.6	45.0	45.0	35.9	44.0	31.0		49.9	38.5	31.9		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.69	0.72	0.84		
Incremental Delay, d2	0.9	0.9	0.8	112.1	127.4	2.7	222.1	42.9		0.0	8.7	1.8		
Delay (s)	52.3	52.3	34.4	157.1	172.4	38.6	266.1	73.9		34.5	36.4	28.4		
Level of Service	D	D	C	F	F	D	F	E		C	D	C		
Approach Delay (s)		38.1			145.4			124.2			34.5			
Approach LOS		D			F			F			C			
Intersection Summary														
HCM 2000 Control Delay			103.0									HCM 2000 Level of Service	F	
HCM 2000 Volume to Capacity ratio			1.18											
Actuated Cycle Length (s)			115.0								21.0		Sum of lost time (s)	
Intersection Capacity Utilization			99.4%										ICU Level of Service	F
Analysis Period (min)			15											

c Critical Lane Group

HCM 6th Signalized Intersection Summary
36: Fairmount Ave & I-8 EB Off-Ramp

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	820	860	300	0	1150	710	0
Future Volume (veh/h)	820	860	300	0	1150	710	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1826	1870		0	1856	1856	0
Adj Flow Rate, veh/h	1010	1012		0	1386	855	0
Peak Hour Factor	0.83	0.83		0.83	0.83	0.83	0.83
Percent Heavy Veh, %	5	2		0	3	3	0
Cap, veh/h	1325	1208		0	1693	2433	0
Arrive On Green	0.38	0.38		0.00	0.48	0.48	0.00
Sat Flow, veh/h	3478	3170		0	3711	5400	0
Grp Volume(v), veh/h	1010	1012		0	1386	855	0
Grp Sat Flow(s),veh/h/ln	1739	1585		0	1763	1689	0
Q Serve(g_s), s	20.3	23.2		0.0	26.9	8.4	0.0
Cycle Q Clear(g_c), s	20.3	23.2		0.0	26.9	8.4	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	1325	1208		0	1693	2433	0
V/C Ratio(X)	0.76	0.84		0.00	0.82	0.35	0.00
Avail Cap(c_a), veh/h	1913	1744		0	3380	3293	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.6	22.5		0.0	17.8	13.0	0.0
Incr Delay (d2), s/veh	0.6	1.7		0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	8.4		0.0	10.0	3.0	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	22.2	24.2		0.0	18.2	13.0	0.0
LnGrp LOS	C	C		A	B	B	A
Approach Vol, veh/h	2022				1386	855	
Approach Delay, s/veh	23.2				18.2	13.0	
Approach LOS	C				B	B	
Timer - Assigned Phs				4	6	8	
Phs Duration (G+Y+Rc), s				44.4	35.6	44.4	
Change Period (Y+Rc), s				6.0	5.1	6.0	
Max Green Setting (Gmax), s				52.0	44.0	76.7	
Max Q Clear Time (g_c+I1), s				10.4	25.2	28.9	
Green Ext Time (p_c), s				4.6	5.3	9.5	

Intersection Summary

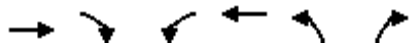
HCM 6th Ctrl Delay	19.5
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
37: Collwood Blvd & Montezuma Rd

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵↵	↵
Traffic Volume (veh/h)	520	470	70	1290	1150	60
Future Volume (veh/h)	520	470	70	1290	1150	60
Initial Q (Qb), veh	0	0	0	30	30	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1663	1870	1870	1618
Adj Flow Rate, veh/h	553	417	74	1372	1223	42
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	16	2	2	19
Cap, veh/h	1550	1276	91	1914	1341	523
Arrive On Green	0.45	0.45	0.06	0.54	0.37	0.37
Sat Flow, veh/h	3618	1538	1584	3647	3456	1372
Grp Volume(v), veh/h	553	417	74	1372	1223	42
Grp Sat Flow(s),veh/h/ln	1763	1538	1584	1777	1728	1372
Q Serve(g_s), s	12.9	8.4	5.8	36.2	43.4	2.5
Cycle Q Clear(g_c), s	12.9	8.4	5.8	36.2	43.4	2.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1550	1276	91	1914	1341	523
V/C Ratio(X)	0.36	0.33	0.81	0.72	0.91	0.08
Avail Cap(c_a), veh/h	1588	1275	158	1929	1341	532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.5	2.8	58.7	23.5	38.5	24.9
Incr Delay (d2), s/veh	0.6	0.7	6.3	2.3	9.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	6.2	40.9	0.0
%ile BackOfQ(50%),veh/ln	5.5	1.9	2.5	19.3	29.2	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.1	3.5	65.0	32.1	88.8	24.9
LnGrp LOS	C	A	E	C	F	C
Approach Vol, veh/h	970			1446	1265	
Approach Delay, s/veh	15.2			33.8	86.7	
Approach LOS	B			C	F	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	11.7	63.3		74.9	51.1	
Change Period (Y+Rc), s	4.4	* 6.5		6.5	4.4	
Max Green Setting (Gmax), s	12.6	* 50		66.2	48.9	
Max Q Clear Time (g_c+1), s	17.8	14.9		38.2	45.4	
Green Ext Time (p_c), s	0.0	9.8		18.5	1.2	

Intersection Summary

HCM 6th Ctrl Delay	47.1
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
38: Mission Village Dr & Shawn Ave

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔		↗	↕↕	↗	↗	↕↕	
Traffic Volume (veh/h)	120	10	60	50	10	30	50	1110	10	10	510	40
Future Volume (veh/h)	120	10	60	50	10	30	50	1110	10	10	510	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	129	11	12	54	11	6	54	1194	6	11	548	37
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	379	118	129	373	164	90	603	2128	933	355	2021	136
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	1312	743	810	1273	1034	564	829	3554	1559	466	3375	227
Grp Volume(v), veh/h	129	0	23	54	0	17	54	1194	6	11	288	297
Grp Sat Flow(s),veh/h/ln	1312	0	1553	1273	0	1598	829	1777	1559	466	1777	1825
Q Serve(g_s), s	3.7	0.0	0.5	1.5	0.0	0.4	1.4	8.5	0.1	0.6	3.3	3.3
Cycle Q Clear(g_c), s	4.0	0.0	0.5	2.0	0.0	0.4	4.7	8.5	0.1	9.2	3.3	3.3
Prop In Lane	1.00		0.52	1.00		0.35	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	379	0	247	373	0	254	603	2128	933	355	1064	1093
V/C Ratio(X)	0.34	0.00	0.09	0.14	0.00	0.07	0.09	0.56	0.01	0.03	0.27	0.27
Avail Cap(c_a), veh/h	1479	0	1475	1467	0	1518	1288	5063	2220	740	2531	2600
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.8	0.0	15.1	16.0	0.0	15.1	5.2	5.1	3.4	7.9	4.0	4.0
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.1	0.0	0.0	0.1	0.3	0.0	0.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.2	0.4	0.0	0.1	0.1	1.3	0.0	0.0	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.0	0.0	15.2	16.0	0.0	15.1	5.2	5.4	3.4	7.9	4.2	4.2
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		152			71			1254			596	
Approach Delay, s/veh		16.7			15.8			5.4			4.3	
Approach LOS		B			B			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		30.5		11.6		30.5		11.6				
Change Period (Y+Rc), s		5.3		4.9		5.3		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		10.5		6.0		11.2		4.0				
Green Ext Time (p_c), s		14.6		0.6		5.0		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				6.2								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary
39: Mission Village Dr & Fermi Ave

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (veh/h)	50	20	20	100	10	100	10	1190	110	70	450	10
Future Volume (veh/h)	50	20	20	100	10	100	10	1190	110	70	450	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	55	22	13	110	11	83	11	1308	117	77	495	10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	209	79	36	203	27	109	19	1929	172	100	2247	45
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.01	0.59	0.59	0.06	0.63	0.63
Sat Flow, veh/h	785	463	211	772	156	637	1781	3292	293	1781	3560	72
Grp Volume(v), veh/h	90	0	0	204	0	0	11	704	721	77	247	258
Grp Sat Flow(s),veh/h/ln1458		0	0	1565	0	0	1781	1777	1809	1781	1777	1855
Q Serve(g_s), s	0.0	0.0	0.0	5.4	0.0	0.0	0.5	21.1	21.3	3.3	4.6	4.6
Cycle Q Clear(g_c), s	4.0	0.0	0.0	9.4	0.0	0.0	0.5	21.1	21.3	3.3	4.6	4.6
Prop In Lane	0.61		0.14	0.54		0.41	1.00		0.16	1.00		0.04
Lane Grp Cap(c), veh/h	324	0	0	339	0	0	19	1041	1060	100	1122	1171
V/C Ratio(X)	0.28	0.00	0.00	0.60	0.00	0.00	0.57	0.68	0.68	0.77	0.22	0.22
Avail Cap(c_a), veh/h	820	0	0	655	0	0	688	1373	1398	688	1373	1434
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.2	0.0	0.0	30.3	0.0	0.0	38.2	11.0	11.1	36.1	6.1	6.1
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.6	0.0	0.0	9.3	1.5	1.5	4.6	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.5	0.0	0.0	0.0	3.6	0.0	0.0	0.2	6.9	7.2	1.5	1.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.4	0.0	0.0	31.0	0.0	0.0	47.5	12.5	12.6	40.7	6.3	6.3
LnGrp LOS	C	A	A	C	A	A	D	B	B	D	A	A
Approach Vol, veh/h		90			204			1436			582	
Approach Delay, s/veh		28.4			31.0			12.8			10.9	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.8	50.7		18.2	5.2	54.2		18.2				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	5.2		4.9				
Max Green Setting (Gmax), s	30.0	60.0		40.0	30.0	60.0		30.0				
Max Q Clear Time (g_c+1), s	15.3	23.3		6.0	2.5	6.6		11.4				
Green Ext Time (p_c), s	0.1	22.2		0.4	0.0	6.2		0.8				

Intersection Summary

HCM 6th Ctrl Delay	14.5
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
40: Gramercy Dr/Mission Village Dr & Ruffin Rd

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	260	30	40	480	830	20	10	20	240	20	50
Future Volume (veh/h)	70	260	30	40	480	830	20	10	20	240	20	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	80	295	31	45	545	803	23	11	0	273	23	29
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	155	1988	207	677	1090	955	158	316	0	519	106	134
Arrive On Green	0.61	0.61	0.61	0.61	0.61	0.61	0.09	0.09	0.00	0.15	0.15	0.15
Sat Flow, veh/h	405	3242	338	1051	1777	1557	1781	3647	0	3563	731	922
Grp Volume(v), veh/h	80	161	165	45	545	803	23	11	0	273	0	52
Grp Sat Flow(s),veh/h/ln	405	1777	1803	1051	1777	1557	1781	1777	0	1781	0	1652
Q Serve(g_s), s	19.2	3.8	3.8	1.9	16.7	40.3	1.2	0.3	0.0	6.9	0.0	2.7
Cycle Q Clear(g_c), s	59.6	3.8	3.8	5.7	16.7	40.3	1.2	0.3	0.0	6.9	0.0	2.7
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.00	1.00		0.56
Lane Grp Cap(c), veh/h	155	1090	1105	677	1090	955	158	316	0	519	0	241
V/C Ratio(X)	0.52	0.15	0.15	0.07	0.50	0.84	0.15	0.03	0.00	0.53	0.00	0.22
Avail Cap(c_a), veh/h	155	1090	1105	677	1090	955	728	1453	0	1456	0	676
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.9	8.0	8.1	9.3	10.6	15.1	41.1	40.7	0.0	38.7	0.0	36.9
Incr Delay (d2), s/veh	3.6	0.1	0.1	0.1	0.4	7.0	0.2	0.0	0.0	0.3	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	1.4	1.5	0.4	6.3	14.9	0.5	0.1	0.0	3.0	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.5	8.1	8.1	9.3	11.0	22.1	41.3	40.8	0.0	39.0	0.0	37.0
LnGrp LOS	D	A	A	A	B	C	D	D	A	D	A	D
Approach Vol, veh/h		406			1393			34			325	
Approach Delay, s/veh		14.9			17.3			41.1			38.7	
Approach LOS		B			B			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.1		19.1		65.1		13.6				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		61.6		8.9		42.3		3.2				
Green Ext Time (p_c), s		0.0		0.7		11.7		0.1				

Intersection Summary

HCM 6th Ctrl Delay	20.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗		↖↗	↑↑	↖↗	↗
Traffic Volume (veh/h)	680	120	10	250	600	560	730
Future Volume (veh/h)	680	120	10	250	600	560	730
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	739	120		272	652	609	610
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1361	1231		324	1815	1398	641
Arrive On Green	0.38	0.38		0.09	0.51	0.40	0.40
Sat Flow, veh/h	3647	1540		3456	3647	3456	1585
Grp Volume(v), veh/h	739	120		272	652	609	610
Grp Sat Flow(s),veh/h/ln1777	1540			1728	1777	1728	1585
Q Serve(g_s), s	21.1	2.3		10.1	14.3	16.6	48.4
Cycle Q Clear(g_c), s	21.1	2.3		10.1	14.3	16.6	48.4
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1361	1231		324	1815	1398	641
V/C Ratio(X)	0.54	0.10		0.84	0.36	0.44	0.95
Avail Cap(c_a), veh/h	1361	1231		391	1815	1614	740
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.88	0.88
Uniform Delay (d), s/veh	31.2	3.2		57.9	19.1	28.0	37.5
Incr Delay (d2), s/veh	1.6	0.2		11.0	0.6	0.1	17.9
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.5		4.8	5.8	6.9	21.6
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	32.8	3.3		69.0	19.6	28.0	55.4
LnGrp LOS	C	A		E	B	C	E
Approach Vol, veh/h	859			924	1219		
Approach Delay, s/veh	28.7			34.1	41.7		
Approach LOS	C			C	D		
Timer - Assigned Phs	1	2		6	8		
Phs Duration (G+Y+Rc), s	66.6	55.5		72.1	57.9		
Change Period (Y+Rc), s	4.4	* 5.7		5.7	5.3		
Max Green Setting (Gmax), s	44.7	* 40		58.3	60.7		
Max Q Clear Time (g_c+I), s	112.1	23.1		16.3	50.4		
Green Ext Time (p_c), s	0.1	7.8		6.5	2.2		

Intersection Summary

HCM 6th Ctrl Delay	35.7
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mobley St & Gramercy Dr

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	190	30	30	460	100	90	40	60	80	10	20
Future Volume (veh/h)	20	190	30	30	460	100	90	40	60	80	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1826	1841	1737	1870	1870	1870	1870	1870	1707	1707	1707
Adj Flow Rate, veh/h	21	200	13	32	484	80	95	42	45	84	11	13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	5	4	11	2	2	2	2	2	13	13	13
Cap, veh/h	508	1515	655	663	1325	218	329	133	94	444	58	41
Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	841	3469	1501	1072	3036	499	631	549	388	987	241	168
Grp Volume(v), veh/h	21	200	13	32	282	282	182	0	0	108	0	0
Grp Sat Flow(s),veh/h/ln	841	1735	1501	1072	1777	1758	1567	0	0	1396	0	0
Q Serve(g_s), s	0.5	1.1	0.2	0.6	3.3	3.3	1.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.9	1.1	0.2	1.6	3.3	3.3	2.9	0.0	0.0	1.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.28	0.52		0.25	0.78		0.12
Lane Grp Cap(c), veh/h	508	1515	655	663	776	767	555	0	0	543	0	0
V/C Ratio(X)	0.04	0.13	0.02	0.05	0.36	0.37	0.33	0.00	0.00	0.20	0.00	0.00
Avail Cap(c_a), veh/h	1765	6701	2900	2265	3432	3395	2130	0	0	1846	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.2	5.2	5.0	5.7	5.9	5.9	10.0	0.0	0.0	9.6	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.1	0.5	0.5	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.2	0.0	0.1	0.7	0.7	0.8	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.2	5.3	5.0	5.8	6.4	6.4	10.1	0.0	0.0	9.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	A	A	A
Approach Vol, veh/h		234			596			182			108	
Approach Delay, s/veh		5.5			6.4			10.1			9.6	
Approach LOS		A			A			B			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		18.7		12.4		18.7		12.4				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		5.9		3.7		5.3		4.9				
Green Ext Time (p_c), s		3.0		0.5		7.6		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				7.1								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary
43: Sandrock Rd & Greyling Dr/Gramercy Dr

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕	↕	↕	↕
Traffic Volume (veh/h)	60	90	10	10	110	420	0	20	20	240	10	60
Future Volume (veh/h)	60	90	10	10	110	420	0	20	20	240	10	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.92	0.96		0.94	1.00		1.00	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1663	1870	1870	1870	1841	1870	1870
Adj Flow Rate, veh/h	65	98	8	11	120	207	0	22	0	269	0	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	2	2	16	2	2	2	4	2	2
Cap, veh/h	278	355	24	131	614	712	0	41	35	638	0	268
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.00	0.02	0.00	0.18	0.00	0.18
Sat Flow, veh/h	388	1039	70	50	1795	1331	0	1870	1585	3506	0	1472
Grp Volume(v), veh/h	171	0	0	131	0	207	0	22	0	269	0	15
Grp Sat Flow(s),veh/h/ln1497	0	0	1845	0	1331	0	1870	1585	1753	0	1472	
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.4	0.0	2.3	0.0	0.3
Cycle Q Clear(g_c), s	2.3	0.0	0.0	1.7	0.0	3.0	0.0	0.4	0.0	2.3	0.0	0.3
Prop In Lane	0.38		0.05	0.08		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	657	0	0	745	0	712	0	41	35	638	0	268
V/C Ratio(X)	0.26	0.00	0.00	0.18	0.00	0.29	0.00	0.53	0.00	0.42	0.00	0.06
Avail Cap(c_a), veh/h	1197	0	0	1445	0	1231	0	1096	929	3081	0	1293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.2	0.0	0.0	7.9	0.0	4.6	0.0	16.5	0.0	12.4	0.0	11.5
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.1	0.0	3.9	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln0.7	0.0	0.0	0.4	0.0	0.8	0.0	0.2	0.0	0.7	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.2	0.0	0.0	8.0	0.0	4.7	0.0	20.4	0.0	12.5	0.0	11.6
LnGrp LOS	A	A	A	A	A	A	A	C	A	B	A	B
Approach Vol, veh/h		171			338			22			284	
Approach Delay, s/veh		8.2			6.0			20.4			12.5	
Approach LOS		A			A			C			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.0		11.5		17.0		5.7				
Change Period (Y+Rc), s		5.3		5.3		5.3		4.9				
Max Green Setting (Gmax), s		25.0		30.0		25.0		20.0				
Max Q Clear Time (g_c+I1), s		4.3		4.3		5.0		2.4				
Green Ext Time (p_c), s		0.7		0.5		0.8		0.0				

Intersection Summary

HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
 44: Mission City Pkwy/Fenton Pkwy & Camino del Rio N

Horizon Year No Project With 4-Ln Bridge
 AM Peak Hour



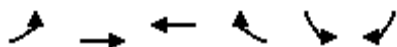
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	1	60	146	344	545	510	166	44	200	99	56
Future Volume (veh/h)	44	1	60	146	344	545	510	166	44	200	99	56
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	1	16	159	374	556	554	180	41	217	108	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	62	799	1107	188	338	503	483	268	61	248	181	2
Arrive On Green	0.03	0.43	0.43	0.11	0.50	0.50	0.27	0.18	0.18	0.14	0.05	0.05
Sat Flow, veh/h	1781	1870	1585	1781	679	1010	1781	1474	336	1781	3608	33
Grp Volume(v), veh/h	48	1	16	159	0	930	554	0	221	217	53	56
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1689	1781	0	1810	1781	1777	1864
Q Serve(g_s), s	3.3	0.0	0.4	10.8	0.0	61.5	33.5	0.0	14.0	14.7	3.6	3.6
Cycle Q Clear(g_c), s	3.3	0.0	0.4	10.8	0.0	61.5	33.5	0.0	14.0	14.7	3.6	3.6
Prop In Lane	1.00		1.00	1.00		0.60	1.00		0.19	1.00		0.02
Lane Grp Cap(c), veh/h	62	799	1107	188	0	841	483	0	329	248	89	93
V/C Ratio(X)	0.78	0.00	0.01	0.84	0.00	1.11	1.15	0.00	0.67	0.87	0.60	0.60
Avail Cap(c_a), veh/h	72	799	1107	330	0	841	483	0	534	420	461	483
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.1	20.3	5.7	54.2	0.0	31.0	45.0	0.0	47.1	52.1	57.4	57.4
Incr Delay (d2), s/veh	35.7	0.0	0.0	9.9	0.0	64.1	87.7	0.0	2.4	10.3	6.2	6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	0.1	5.4	0.0	39.0	26.6	0.0	6.6	7.3	1.8	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	94.8	20.3	5.7	64.1	0.0	95.1	132.7	0.0	49.4	62.3	63.7	63.4
LnGrp LOS	F	C	A	E	A	F	F	A	D	E	E	E
Approach Vol, veh/h		65			1089			775			326	
Approach Delay, s/veh		71.7			90.6			108.9			62.7	
Approach LOS		E			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.7	27.0	17.5	57.2	38.0	10.7	8.8	66.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	29.1	36.4	22.9	43.6	33.5	32.0	5.0	61.5				
Max Q Clear Time (g_c+10), s	16.0	16.0	12.8	2.4	35.5	5.6	5.3	63.5				
Green Ext Time (p_c), s	0.5	1.3	0.3	0.0	0.0	0.6	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	92.3
HCM 6th LOS	F

HCM 6th Signalized Intersection Summary
45: Camino del Rio S & Mission City Pkwy

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	100	210	530	530	140	185	
Future Volume (veh/h)	100	210	530	530	140	185	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	109	228	576	510	152	31	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	158	1205	823	896	222	198	
Arrive On Green	0.09	0.64	0.44	0.44	0.12	0.12	
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585	
Grp Volume(v), veh/h	109	228	576	510	152	31	
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1781	1585	
Q Serve(g_s), s	2.3	1.9	9.7	8.0	3.2	0.7	
Cycle Q Clear(g_c), s	2.3	1.9	9.7	8.0	3.2	0.7	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	158	1205	823	896	222	198	
V/C Ratio(X)	0.69	0.19	0.70	0.57	0.68	0.16	
Avail Cap(c_a), veh/h	251	1822	1342	1335	1050	934	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	17.3	2.8	8.8	5.4	16.3	15.2	
Incr Delay (d2), s/veh	5.2	0.1	1.1	0.6	3.7	0.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.0	0.3	2.9	2.5	1.4	0.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	22.5	2.9	9.9	6.0	20.0	15.6	
LnGrp LOS	C	A	A	A	C	B	
Approach Vol, veh/h		337	1086		183		
Approach Delay, s/veh		9.2	8.1		19.3		
Approach LOS		A	A		B		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				29.6	9.4	8.0	21.7
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				38.0	23.0	5.5	28.0
Max Q Clear Time (g_c+1), s				3.9	5.2	4.3	11.7
Green Ext Time (p_c), s				1.4	0.5	0.0	5.5
Intersection Summary							
HCM 6th Ctrl Delay			9.6				
HCM 6th LOS			A				

HCM 6th Signalized Intersection Summary
46: Camino del Rio S & I-15 SB Off-Ramp

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



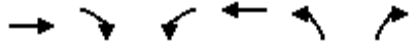
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑			↕		↖		↗
Traffic Volume (veh/h)	0	200	20	30	990	0	10	0	10	70	20	530
Future Volume (veh/h)	0	200	20	30	990	0	10	0	10	70	20	530
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	217	17	33	1076	0	11	0	2	76	22	472
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	0	1781	138	47	1109	0	21	0	4	522	0	464
Arrive On Green	0.00	0.53	0.53	0.03	0.59	0.00	0.01	0.00	0.01	0.29	0.29	0.29
Sat Flow, veh/h	0	3434	260	1781	1870	0	1479	0	269	1781	0	1585
Grp Volume(v), veh/h	0	115	119	33	1076	0	13	0	0	76	0	472
Grp Sat Flow(s),veh/h/ln	0	1777	1824	1781	1870	0	1748	0	0	1781	0	1585
Q Serve(g_s), s	0.0	4.4	4.4	2.5	74.5	0.0	1.0	0.0	0.0	4.3	0.0	39.6
Cycle Q Clear(g_c), s	0.0	4.4	4.4	2.5	74.5	0.0	1.0	0.0	0.0	4.3	0.0	39.6
Prop In Lane	0.00		0.14	1.00		0.00	0.85		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	0	947	972	47	1109	0	25	0	0	522	0	464
V/C Ratio(X)	0.00	0.12	0.12	0.70	0.97	0.00	0.52	0.00	0.00	0.15	0.00	1.02
Avail Cap(c_a), veh/h	0	947	972	91	1133	0	65	0	0	522	0	464
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	15.7	15.8	65.3	26.4	0.0	66.1	0.0	0.0	35.3	0.0	47.8
Incr Delay (d2), s/veh	0.0	0.1	0.1	17.5	19.8	0.0	15.8	0.0	0.0	0.1	0.0	45.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.8	1.9	1.4	37.5	0.0	0.6	0.0	0.0	1.9	0.0	21.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.8	15.8	82.8	46.1	0.0	81.9	0.0	0.0	35.4	0.0	93.7
LnGrp LOS	A	B	B	F	D	A	F	A	A	D	A	F
Approach Vol, veh/h		234		1109			13			548		
Approach Delay, s/veh		15.8		47.2			81.9			85.6		
Approach LOS		B		D			F			F		
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	76.6			44.1		84.6		6.4				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	70.5			39.6		81.9		5.0				
Max Q Clear Time (g_c+1), s	6.4			41.6		76.5		3.0				
Green Ext Time (p_c), s	0.0	1.5		0.0		3.6		0.0				

Intersection Summary

HCM 6th Ctrl Delay	54.6
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary
47: I-15 SB On-Ramp & Camino del Rio S

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑		
Traffic Volume (veh/h)	170	110	30	1020	0	0
Future Volume (veh/h)	170	110	30	1020	0	0
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		
Adj Flow Rate, veh/h	185	80	33	1109		
Peak Hour Factor	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2		
Cap, veh/h	1453	605	73	1529		
Arrive On Green	0.59	0.59	0.04	0.82		
Sat Flow, veh/h	2540	1018	1781	1870		
Grp Volume(v), veh/h	132	133	33	1109		
Grp Sat Flow(s),veh/h/ln	1777	1687	1781	1870		
Q Serve(g_s), s	0.8	0.9	0.4	6.6		
Cycle Q Clear(g_c), s	0.8	0.9	0.4	6.6		
Prop In Lane		0.60	1.00			
Lane Grp Cap(c), veh/h	1056	1002	73	1529		
V/C Ratio(X)	0.13	0.13	0.45	0.73		
Avail Cap(c_a), veh/h	1873	1778	361	2692		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	2.2	2.2	11.6	1.0		
Incr Delay (d2), s/veh	0.1	0.1	4.3	0.7		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	0.3		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	2.2	2.3	15.9	1.7		
LnGrp LOS	A	A	B	A		
Approach Vol, veh/h	265			1142		
Approach Delay, s/veh	2.3			2.1		
Approach LOS	A			A		
Timer - Assigned Phs			3	4		8
Phs Duration (G+Y+Rc), s			5.5	19.2		24.7
Change Period (Y+Rc), s			4.5	4.5		4.5
Max Green Setting (Gmax), s			5.0	26.0		35.5
Max Q Clear Time (g_c+I1), s			2.4	2.9		8.6
Green Ext Time (p_c), s			0.0	1.5		11.6
Intersection Summary						
HCM 6th Ctrl Delay			2.1			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
48: I-15 NB Ramps & Camino del Rio S

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	140	0	0	330	70	720	10	130	0	0	0
Future Volume (veh/h)	40	140	0	0	330	70	720	10	130	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	43	152	0	0	359	14	783	11	64			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	77	668	0	0	442	374	868	116	674			
Arrive On Green	0.04	0.36	0.00	0.00	0.24	0.24	0.49	0.49	0.49			
Sat Flow, veh/h	1781	1870	0	0	1870	1585	1781	238	1384			
Grp Volume(v), veh/h	43	152	0	0	359	14	783	0	75			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1870	1585	1781	0	1621			
Q Serve(g_s), s	1.4	3.3	0.0	0.0	10.5	0.4	23.2	0.0	1.4			
Cycle Q Clear(g_c), s	1.4	3.3	0.0	0.0	10.5	0.4	23.2	0.0	1.4			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.85			
Lane Grp Cap(c), veh/h	77	668	0	0	442	374	868	0	790			
V/C Ratio(X)	0.56	0.23	0.00	0.00	0.81	0.04	0.90	0.00	0.09			
Avail Cap(c_a), veh/h	154	922	0	0	615	521	1156	0	1052			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	27.1	13.0	0.0	0.0	20.9	17.0	13.6	0.0	8.0			
Incr Delay (d2), s/veh	6.2	0.2	0.0	0.0	5.8	0.0	8.0	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.7	1.3	0.0	0.0	4.9	0.1	9.4	0.0	0.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.3	13.2	0.0	0.0	26.6	17.1	21.6	0.0	8.0			
LnGrp LOS	C	B	A	A	C	B	C	A	A			
Approach Vol, veh/h		195			373			858				
Approach Delay, s/veh		17.6			26.3			20.4				
Approach LOS		B			C			C				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		25.1			7.0	18.1		32.7				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		28.5			5.0	19.0		37.5				
Max Q Clear Time (g_c+I1), s		5.3			3.4	12.5		25.2				
Green Ext Time (p_c), s		0.8			0.0	1.2		2.9				
Intersection Summary												
HCM 6th Ctrl Delay					21.5							
HCM 6th LOS					C							

Queues

Horizon Year No Project With 4-Ln Bridge

1: SR-163 SB Ramps/Ulric St & Friars Rd

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	73	635	281	615	938	750	323	63	875	213	214	104
v/c Ratio	0.60	0.31	0.41	0.82	0.38	0.50	0.76	0.27	0.82	0.70	0.70	0.26
Control Delay	88.0	42.7	7.4	65.9	13.8	22.9	75.2	61.8	47.8	68.1	68.3	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.0	42.7	7.4	65.9	13.8	22.9	75.2	61.8	47.8	68.1	68.3	3.7
Queue Length 50th (ft)	71	137	0	237	68	331	159	57	428	209	210	0
Queue Length 95th (ft)	126	204	86	246	344	452	211	104	487	270	271	20
Internal Link Dist (ft)		1296			1065			834			622	
Turn Bay Length (ft)	300		350	400		200	300		215			200
Base Capacity (vph)	149	2021	683	867	2500	1775	482	262	1164	471	471	538
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.31	0.41	0.71	0.38	0.42	0.67	0.24	0.75	0.45	0.45	0.19

Intersection Summary

Queues
2: Friars Rd & SR-163 NB Ramps

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour

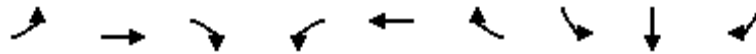


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	521	1396	1427	854	1219	833
v/c Ratio	0.50	0.34	0.76	0.61	0.83	0.50
Control Delay	41.8	10.1	26.5	20.1	54.6	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	10.1	26.5	20.1	54.6	16.1
Queue Length 50th (ft)	243	165	269	148	387	223
Queue Length 95th (ft)	229	109	347	198	444	305
Internal Link Dist (ft)		1065	635		521	
Turn Bay Length (ft)	500			200	500	400
Base Capacity (vph)	1051	4107	2527	1396	1546	1657
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.34	0.56	0.61	0.79	0.50

Intersection Summary

Queues
17: I-15 SB Ramps & Friars Rd

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



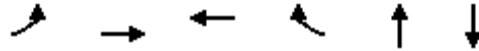
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	266	851	319	415	1734	553	418	412	862
v/c Ratio	0.66	0.53	0.44	0.89	0.98	0.35	0.91	0.90	0.57
Control Delay	47.7	34.0	5.9	44.7	38.5	0.1	64.4	61.7	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.7	34.0	5.9	44.7	38.5	0.1	64.4	61.7	17.5
Queue Length 50th (ft)	172	190	0	234	~478	0	290	285	201
Queue Length 95th (ft)	263	245	69	m141	m245	m0	#460	#449	257
Internal Link Dist (ft)		844			1079			723	
Turn Bay Length (ft)	380		200	350			520		520
Base Capacity (vph)	402	1607	718	531	1770	1583	504	506	1525
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.53	0.44	0.78	0.98	0.35	0.83	0.81	0.57

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
18: I-15 NB Ramps & Friars Rd

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	547	1200	3247	953	316	284
v/c Ratio	0.97	no cap	1.24	1.23	3.36	3.02
Control Delay	69.6		134.7	135.6	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	69.6	Error	134.7	135.6	0.0	0.0
Queue Length 50th (ft)	415	0	~1120	~981	0	0
Queue Length 95th (ft)	m#606	0	#1218	m#1243	0	0
Internal Link Dist (ft)		1079	869		797	677
Turn Bay Length (ft)	515					
Base Capacity (vph)	563	1	2618	773	94	94
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.97	1200.00	1.24	1.23	3.36	3.02

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues

Horizon Year No Project With 4-Ln Bridge

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

AM Peak Hour



Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	65	118	226	710	140	1247	382	516
v/c Ratio	0.41	0.26	0.30	0.91	0.58	0.65	0.55	0.72
Control Delay	60.1	7.5	27.3	38.5	59.1	30.9	44.4	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2
Total Delay	60.1	7.5	27.3	38.5	59.1	30.9	44.5	9.9
Queue Length 50th (ft)	46	0	112	340	99	278	133	0
Queue Length 95th (ft)	102	46	215	#718	182	343	199	104
Internal Link Dist (ft)			656			1041	147	
Turn Bay Length (ft)				150	110			
Base Capacity (vph)	584	693	741	783	537	4347	1782	1042
Starvation Cap Reductn	0	0	0	0	0	0	370	108
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.17	0.30	0.91	0.26	0.29	0.27	0.55

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Horizon Year No Project With 4-Ln Bridge
 AM Peak Hour



Lane Group	EBR	NBT	SBT
Lane Group Flow (vph)	639	1289	892
v/c Ratio	0.71	0.73	0.51
Control Delay	20.4	14.1	10.8
Queue Delay	0.0	0.2	0.0
Total Delay	20.4	14.2	10.8
Queue Length 50th (ft)	92	158	93
Queue Length 95th (ft)	167	278	167
Internal Link Dist (ft)		285	1041
Turn Bay Length (ft)			
Base Capacity (vph)	2287	2295	2273
Starvation Cap Reductn	0	293	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.28	0.64	0.39
Intersection Summary			

Queues

Horizon Year No Project With 4-Ln Bridge

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	50	53	392	418	865	265	608	1717	11	914	285
v/c Ratio	0.34	0.35	0.69	1.19	1.26	0.62	1.47	1.05	0.05	0.85	0.47
Control Delay	56.4	56.6	27.8	152.0	165.6	38.5	255.6	66.9	35.0	35.8	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.6	0.0	4.2	0.7
Total Delay	56.4	56.6	27.8	152.0	165.6	38.5	255.6	79.5	35.0	40.0	14.6
Queue Length 50th (ft)	36	40	160	~412	~466	173	~617	~764	3	361	127
Queue Length 95th (ft)	80	83	265	#627	#607	269	#839	#905	m6	#477	m210
Internal Link Dist (ft)		2741			1304			835		254	
Turn Bay Length (ft)	105					200	215		65		140
Base Capacity (vph)	146	150	569	350	688	425	415	1639	238	1077	600
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	104	107
Spillback Cap Reductn	0	0	0	0	0	0	0	48	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.35	0.69	1.19	1.26	0.62	1.47	1.08	0.05	0.94	0.58

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
36: Fairmount Ave & I-8 EB Off-Ramp

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Lane Group	EBL	EBR	NBU	NBT	SBT
Lane Group Flow (vph)	1092	932	361	1386	855
v/c Ratio	0.80	0.85	1.14	0.81	0.64
Control Delay	35.7	40.6	136.1	31.2	40.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	35.7	40.6	136.1	31.2	40.3
Queue Length 50th (ft)	343	342	~305	437	201
Queue Length 95th (ft)	496	505	#664	634	278
Internal Link Dist (ft)	970			972	835
Turn Bay Length (ft)	550		350		
Base Capacity (vph)	2123	1718	318	2423	2360
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.54	1.14	0.57	0.36

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
46: Camino del Rio S & I-15 SB Off-Ramp

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



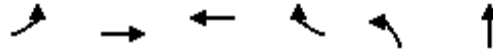
Lane Group	EBT	WBL	WBT	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	239	33	1076	22	76	22	576
v/c Ratio	0.12	0.38	0.97	0.16	0.15	no cap	1.03
Control Delay	15.7	77.2	46.9	2.4	37.7		81.7
Queue Delay	0.0	103.6	45.3	0.0	0.0		0.0
Total Delay	15.7	180.8	92.2	2.4	37.7	Error	81.7
Queue Length 50th (ft)	56	30	922	0	52	0	~482
Queue Length 95th (ft)	82	67	#1266	0	95	0	#716
Internal Link Dist (ft)	323		47	78		212	
Turn Bay Length (ft)		50					
Base Capacity (vph)	1921	90	1134	141	521	1	560
Starvation Cap Reductn	0	59	409	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	1.06	1.48	0.16	0.15	22.00	1.03

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
48: I-15 NB Ramps & Camino del Rio S

Horizon Year No Project With 4-Ln Bridge
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	43	152	359	76	783	152
v/c Ratio	0.29	0.24	0.74	0.16	0.86	0.17
Control Delay	38.2	17.0	35.0	5.7	27.5	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	17.0	35.0	5.7	27.5	3.1
Queue Length 50th (ft)	20	47	154	0	308	2
Queue Length 95th (ft)	50	86	#278	26	#542	29
Internal Link Dist (ft)		251	398			464
Turn Bay Length (ft)				90	175	
Base Capacity (vph)	149	892	595	564	1116	1063
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.17	0.60	0.13	0.70	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

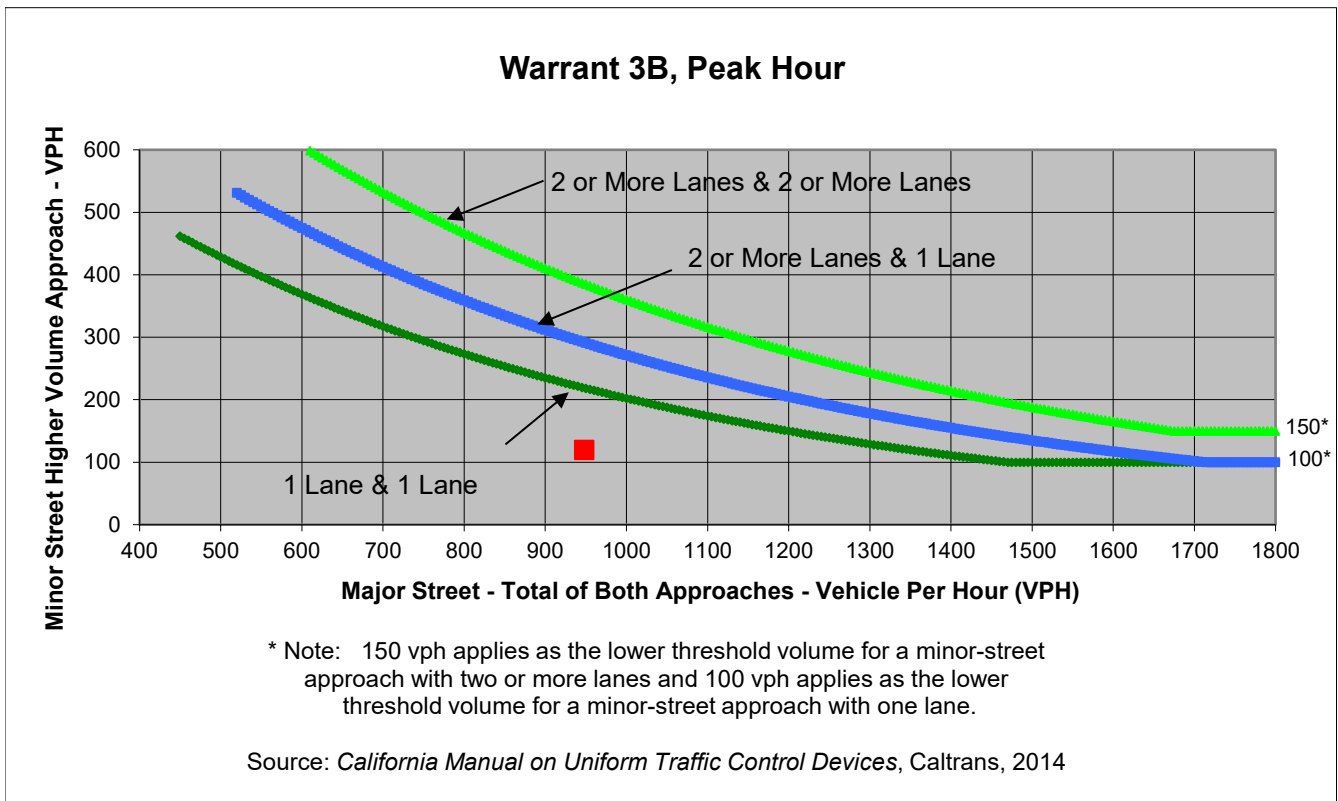
Project SDSU Mission Valley
 Scenario Horizon Year w/4-Ln Bridge
 Peak Hour AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	30	0	40	0
Through	484	414	0	0
Right	0	20	80	0
Total	514	434	120	0

Major Street Direction

x	North/South
	East/West



	Major Street	Minor Street	Warrant Met
	Ward Rd	Rancho Mission Rd	
Number of Approach Lanes	2	1	<u>NO</u>
Traffic Volume (VPH) *	948	120	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
 Traffic Volume for Minor Street is the Volume of High Volume Approach.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

Project SDSU Mission Valley
 Scenario Horizon Year w/4-Ln Bridge
 Peak Hour AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	30	0	40	0
Through	484	414	0	0
Right	0	20	80	0
Total	514	434	120	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

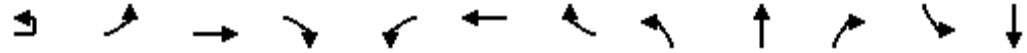
Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	20
Approach with Worst Case Delay	EB
Total Vehicles on Approach	120

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Horizon Year w/4-Ln Bridge	0.7	120	1,068
Limiting Value	4	100	650
Condition Satisfied?	Not Met	Met	Met
Warrant Met	<u>NO</u>		

HCM Signalized Intersection Capacity Analysis
 1: SR-163 SB Ramps/Ulríc St & Friars Rd

Horizon Year No Project With 4-Ln Bridge
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		3		7	77	777	77	77	7	77	7	7
Traffic Volume (vph)	10	170	1730	700	610	1140	750	320	30	750	670	0
Future Volume (vph)	10	170	1730	700	610	1140	750	320	30	750	670	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.7	7.0	7.0	4.5	3.0	6.1	6.1	6.1	4.5	6.1	6.1
Lane Util. Factor		1.00	0.86	1.00	0.97	0.91	0.88	0.97	1.00	0.88	0.95	0.95
Frbp, ped/bikes		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Satd. Flow (prot)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Satd. Flow (perm)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	10	173	1765	714	622	1163	765	327	31	765	684	0
RTOR Reduction (vph)	0	0	0	491	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	183	1765	223	622	1163	765	327	31	765	342	342
Confl. Peds. (#/hr)				5								
Confl. Bikes (#/hr)				2								
Turn Type	Prot	Prot	NA	Perm	Prot	NA	custom	Split	NA	pm+ov	Split	NA
Protected Phases	5	5	2		1	6 7	4 7	8	8	1	4	4
Permitted Phases				2						8		
Actuated Green, G (s)		17.5	44.7	44.7	26.0	53.0	69.5	14.1	14.1	40.1	36.5	36.5
Effective Green, g (s)		17.5	44.7	44.7	26.0	53.0	62.5	14.1	14.1	40.1	36.5	36.5
Actuated g/C Ratio		0.12	0.31	0.31	0.18	0.37	0.43	0.10	0.10	0.28	0.25	0.25
Clearance Time (s)		4.7	7.0	7.0	4.5			6.1	6.1	4.5	6.1	6.1
Vehicle Extension (s)		2.0	2.0	2.0	3.0			3.0	3.0	3.0	2.0	2.0
Lane Grp Cap (vph)		213	1975	476	615	1858	1201	333	181	770	423	423
v/s Ratio Prot		0.10	c0.28		c0.18	0.23	0.27	0.10	0.02	c0.18	c0.20	0.20
v/s Ratio Perm				0.14						0.10		
v/c Ratio		0.86	0.89	0.47	1.01	0.63	0.64	0.98	0.17	0.99	0.81	0.81
Uniform Delay, d1		62.5	47.9	40.5	59.5	37.8	32.4	65.3	60.1	52.3	51.0	51.0
Progression Factor		1.00	1.00	1.00	1.24	0.67	0.67	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		26.5	6.7	3.3	34.1	0.4	0.6	44.2	0.5	30.6	10.3	10.3
Delay (s)		89.1	54.6	43.8	107.8	25.6	22.2	109.5	60.5	83.0	61.2	61.2
Level of Service		F	D	D	F	C	C	F	E	F	E	E
Approach Delay (s)			54.1			44.6			90.1			56.8
Approach LOS			D			D			F			E
Intersection Summary												
HCM 2000 Control Delay			56.7		HCM 2000 Level of Service				E			
HCM 2000 Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			145.0		Sum of lost time (s)				26.9			
Intersection Capacity Utilization			96.1%		ICU Level of Service				F			
Analysis Period (min)			15									
c Critical Lane Group												

Movement	SBR
Lane Configurations	7
Traffic Volume (vph)	210
Future Volume (vph)	210
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.1
Lane Util. Factor	1.00
Frbp, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1560
Flt Permitted	1.00
Satd. Flow (perm)	1560
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	214
RTOR Reduction (vph)	147
Lane Group Flow (vph)	67
Confl. Peds. (#/hr)	3
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	36.5
Effective Green, g (s)	36.5
Actuated g/C Ratio	0.25
Clearance Time (s)	6.1
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	392
v/s Ratio Prot	
v/s Ratio Perm	0.04
v/c Ratio	0.17
Uniform Delay, d1	42.4
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	42.5
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
2: Friars Rd & SR-163 NB Ramps

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	640	2390	1510	1020	1130	1010
Future Volume (vph)	640	2390	1510	1020	1130	1010
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.5	6.0	4.5	4.5	5.0
Lane Util. Factor	0.97	0.86	0.86	0.88	0.94	0.88
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	6408	6408	2787	4990	2787
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	6408	6408	2787	4990	2787
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	667	2490	1573	1062	1177	1052
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	667	2490	1573	1063	1177	1052
Turn Type	Prot	NA	NA	custom	Prot	pm+ov
Protected Phases	5	2	3	6	4	3
Permitted Phases						4
Actuated Green, G (s)	42.0	92.5	47.0	65.0	43.5	85.5
Effective Green, g (s)	42.0	92.5	47.0	65.0	43.5	85.5
Actuated g/C Ratio	0.29	0.64	0.32	0.45	0.30	0.59
Clearance Time (s)	5.0	4.5			4.5	5.0
Vehicle Extension (s)	2.0	3.0			3.0	2.0
Lane Grp Cap (vph)	994	4087	2077	1249	1497	1739
v/s Ratio Prot	c0.19	0.39	c0.25	c0.38	0.24	0.18
v/s Ratio Perm						0.20
v/c Ratio	0.67	0.61	0.76	0.85	0.79	0.60
Uniform Delay, d1	45.4	15.5	43.9	35.7	46.5	19.0
Progression Factor	0.81	0.50	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.3	1.4	5.8	2.8	0.4
Delay (s)	37.3	8.1	45.3	41.4	49.3	19.4
Level of Service	D	A	D	D	D	B
Approach Delay (s)		14.2	43.8		35.2	
Approach LOS		B	D		D	

Intersection Summary

HCM 2000 Control Delay	29.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Frazee Rd & Friars Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	30	340	2460	670	10	90	1610	100	330	70	130	130
Future Volume (vph)	30	340	2460	670	10	90	1610	100	330	70	130	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.4	3.0	4.4		4.4	6.5	6.5	4.4	4.9		4.4
Lane Util. Factor		0.97	0.86	0.88		0.97	0.86	1.00	0.97	0.95		0.97
Frbp, ped/bikes		1.00	1.00	1.00		1.00	1.00	0.98	1.00	0.97		1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.90		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (prot)		3433	6408	2787		3433	6408	1547	3433	3097		3433
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (perm)		3433	6408	2787		3433	6408	1547	3433	3097		3433
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	34	382	2764	753	11	101	1809	112	371	79	146	146
RTOR Reduction (vph)	0	0	0	0	0	0	0	71	0	55	0	0
Lane Group Flow (vph)	0	416	2764	753	0	112	1809	41	371	170	0	146
Confl. Peds. (#/hr)				18				8			43	
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	custom	Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2 9	3 9	1	1	6		3	8		7
Permitted Phases							6					
Actuated Green, G (s)		19.2	63.4	58.4		6.5	49.7	49.7	19.7	40.0		7.3
Effective Green, g (s)		19.2	63.4	52.9		6.5	49.7	49.7	19.7	40.0		7.3
Actuated g/C Ratio		0.14	0.46	0.39		0.05	0.36	0.36	0.14	0.29		0.05
Clearance Time (s)		4.4				4.4	6.5	6.5	4.4	4.9		4.4
Vehicle Extension (s)		2.0				2.0	4.4	4.4	2.0	2.0		2.2
Lane Grp Cap (vph)		483	2978	1080		163	2334	563	495	908		183
v/s Ratio Prot		c0.12	c0.43	0.27		0.03	0.28		c0.11	0.05		0.04
v/s Ratio Perm							0.03					
v/c Ratio		0.86	0.93	0.70		0.69	0.78	0.07	0.75	0.19		0.80
Uniform Delay, d1		57.3	34.4	35.0		63.9	38.4	28.3	56.0	36.0		63.8
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		14.1	5.7	1.6		9.2	1.9	0.1	5.4	0.0		20.0
Delay (s)		71.4	40.0	36.6		73.1	40.3	28.4	61.4	36.1		83.8
Level of Service		E	D	D		E	D	C	E	D		F
Approach Delay (s)			42.7				41.4			51.8		
Approach LOS			D				D			D		
Intersection Summary												
HCM 2000 Control Delay			44.8				HCM 2000 Level of Service		D			
HCM 2000 Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			136.4				Sum of lost time (s)		22.2			
Intersection Capacity Utilization			91.8%				ICU Level of Service		F			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Frazee Rd & Friars Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑	↑↑
Traffic Volume (vph)	80	380
Future Volume (vph)	80	380
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.9	4.9
Lane Util. Factor	1.00	0.88
Frbp, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1863	2750
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1863	2750
Peak-hour factor, PHF	0.89	0.89
Adj. Flow (vph)	90	427
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	90	427
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		1
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	27.6	27.6
Effective Green, g (s)	27.6	27.6
Actuated g/C Ratio	0.20	0.20
Clearance Time (s)	4.9	4.9
Vehicle Extension (s)	2.3	2.3
Lane Grp Cap (vph)	376	556
v/s Ratio Prot	0.05	
v/s Ratio Perm		c0.16
v/c Ratio	0.24	0.77
Uniform Delay, d1	45.6	51.4
Progression Factor	1.00	1.00
Incremental Delay, d2	0.2	5.9
Delay (s)	45.8	57.3
Level of Service	D	E
Approach Delay (s)	61.6	
Approach LOS	E	
Intersection Summary		

HCM 6th Signalized Intersection Summary
4: Mission Center Rd & Friars Rd WB

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↶		↶	↷			↶	↷
Traffic Volume (veh/h)	0	0	0	180	10	280	10	230	880	0	0	1200	340
Future Volume (veh/h)	0	0	0	180	10	280	10	230	880	0	0	1200	340
Initial Q (Qb), veh				0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00		1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No			No
Adj Sat Flow, veh/h/ln				1870	1870	1870		1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				195	0	163		240	917	0	0	1250	292
Peak Hour Factor				0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2		2	2	0	0	2	2
Cap, veh/h				447	0	199		303	2739	0	0	2283	983
Arrive On Green				0.25	0.00	0.25		0.18	1.00	0.00	0.00	0.64	0.64
Sat Flow, veh/h				3563	0	1585		3456	3647	0	0	3647	1531
Grp Volume(v), veh/h				195	0	163		240	917	0	0	1250	292
Grp Sat Flow(s),veh/h/ln				1781	0	1585		1728	1777	0	0	1777	1531
Q Serve(g_s), s				5.0	0.0	10.5		7.2	0.0	0.0	0.0	21.0	9.1
Cycle Q Clear(g_c), s				5.0	0.0	10.5		7.2	0.0	0.0	0.0	21.0	9.1
Prop In Lane				1.00		1.00		1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				447	0	199		303	2739	0	0	2283	983
V/C Ratio(X)				0.44	0.00	0.82		0.79	0.33	0.00	0.00	0.55	0.30
Avail Cap(c_a), veh/h				1013	0	451		579	2739	0	0	2283	983
HCM Platoon Ratio				2.00	2.00	2.00		2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00		0.59	0.59	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				37.2	0.0	39.3		43.6	0.0	0.0	0.0	10.7	8.5
Incr Delay (d2), s/veh				0.7	0.0	8.0		1.1	0.2	0.0	0.0	0.9	0.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.0	0.0	3.9		2.8	0.1	0.0	0.0	7.4	2.9
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh				37.9	0.0	47.3		44.7	0.2	0.0	0.0	11.6	9.3
LnGrp LOS				D	A	D		D	A	A	A	B	A
Approach Vol, veh/h				358				1157			1542		
Approach Delay, s/veh				42.2				9.4			11.2		
Approach LOS				D				A			B		
Timer - Assigned Phs		2			5	6			8				
Phs Duration (G+Y+Rc), s		89.5			13.9	75.7			18.5				
Change Period (Y+Rc), s		* 6.3			4.4	6.3			4.9				
Max Green Setting (Gmax), s		* 67			18.1	43.6			30.7				
Max Q Clear Time (g_c+I1), s		2.0			9.2	23.0			12.5				
Green Ext Time (p_c), s		6.2			0.3	15.0			1.1				

Intersection Summary

HCM 6th Ctrl Delay	14.1
HCM 6th LOS	B

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Mission Center Rd & Friars Rd EB

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	10	310	0	0	0	0	730	430	550	830	0
Future Volume (veh/h)	380	10	310	0	0	0	0	730	430	550	830	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	408	0	185				0	768	386	579	874	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	528	0	235				0	776	389	1244	2675	0
Arrive On Green	0.15	0.00	0.15				0.00	0.34	0.34	0.72	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2353	1131	3456	3647	0
Grp Volume(v), veh/h	408	0	185				0	603	551	579	874	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1614	1728	1777	0
Q Serve(g_s), s	11.9	0.0	12.2				0.0	36.5	36.7	7.6	0.0	0.0
Cycle Q Clear(g_c), s	11.9	0.0	12.2				0.0	36.5	36.7	7.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.70	1.00		0.00
Lane Grp Cap(c), veh/h	528	0	235				0	610	554	1244	2675	0
V/C Ratio(X)	0.77	0.00	0.79				0.00	0.99	0.99	0.47	0.33	0.00
Avail Cap(c_a), veh/h	976	0	434				0	610	554	1244	2675	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.72	0.72	0.00
Uniform Delay (d), s/veh	44.2	0.0	44.3				0.0	35.2	35.3	10.7	0.0	0.0
Incr Delay (d2), s/veh	2.4	0.0	5.8				0.0	33.7	36.6	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	0.0	5.0				0.0	20.7	19.3	2.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.7	0.0	50.1				0.0	69.0	71.9	10.8	0.1	0.0
LnGrp LOS	D	A	D				A	E	E	B	A	A
Approach Vol, veh/h		593						1154			1453	
Approach Delay, s/veh		47.7						70.4			4.3	
Approach LOS		D						E			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	44.7	42.4	20.9	87.1								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	26.7	* 37	29.6	67.7								
Max Q Clear Time (g_c+I), s	19.6	38.7	14.2	2.0								
Green Ext Time (p_c), s	1.0	0.0	1.9	8.8								

Intersection Summary

HCM 6th Ctrl Delay	36.2
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
6: Qualcomm Way & Friars Rd WB

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷		↶	↷			↶	↷
Traffic Volume (veh/h)	0	0	0	380	10	50	601	110	0	0	210	20
Future Volume (veh/h)	0	0	0	380	10	50	601	110	0	0	210	20
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				435	0	0	626	115	0	0	219	2
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				542	285	0	1169	2569	0	0	1148	499
Arrive On Green				0.15	0.00	0.00	0.34	0.72	0.00	0.00	0.32	0.32
Sat Flow, veh/h				3563	1870	0	3456	3647	0	0	3647	1543
Grp Volume(v), veh/h				435	0	0	626	115	0	0	219	2
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1728	1777	0	0	1777	1543
Q Serve(g_s), s				9.4	0.0	0.0	11.7	0.7	0.0	0.0	3.6	0.1
Cycle Q Clear(g_c), s				9.4	0.0	0.0	11.7	0.7	0.0	0.0	3.6	0.1
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				542	285	0	1169	2569	0	0	1148	499
V/C Ratio(X)				0.80	0.00	0.00	0.54	0.04	0.00	0.00	0.19	0.00
Avail Cap(c_a), veh/h				1251	657	0	1169	2569	0	0	1148	499
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.99	0.99	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				32.8	0.0	0.0	21.4	3.2	0.0	0.0	19.5	18.3
Incr Delay (d2), s/veh				1.1	0.0	0.0	0.5	0.0	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.9	0.0	0.0	4.5	0.2	0.0	0.0	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				33.8	0.0	0.0	21.9	3.2	0.0	0.0	19.6	18.4
LnGrp LOS				C	A	A	C	A	A	A	B	B
Approach Vol, veh/h					435			741			221	
Approach Delay, s/veh					33.8			19.0			19.6	
Approach LOS					C			B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		62.9			32.2	30.8		17.1				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+11), s		2.7			13.7	5.6		11.4				
Green Ext Time (p_c), s		0.8			1.8	0.9		0.7				

Intersection Summary

HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
7: Qualcomm Way & Friars Rd EB

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	10	308	0	0	0	0	611	336	90	640	0
Future Volume (veh/h)	70	10	308	0	0	0	0	611	336	90	640	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	86	0	228				0	679	175	100	711	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	607	0	270				0	3872	953	165	2504	0
Arrive On Green	0.17	0.00	0.17				0.00	0.60	0.60	0.10	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	6696	1584	3456	3647	0
Grp Volume(v), veh/h	86	0	228				0	679	175	100	711	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1609	1584	1728	1777	0
Q Serve(g_s), s	1.6	0.0	11.1				0.0	3.8	4.0	2.2	0.0	0.0
Cycle Q Clear(g_c), s	1.6	0.0	11.1				0.0	3.8	4.0	2.2	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	607	0	270				0	3872	953	165	2504	0
V/C Ratio(X)	0.14	0.00	0.84				0.00	0.18	0.18	0.61	0.28	0.00
Avail Cap(c_a), veh/h	1519	0	676				0	3872	953	436	2504	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.83	0.83	0.81	0.81	0.00
Uniform Delay (d), s/veh	28.2	0.0	32.1				0.0	7.1	7.1	35.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	2.8				0.0	0.1	0.4	1.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	4.2				0.0	1.1	1.2	0.9	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.2	0.0	34.9				0.0	7.2	7.5	36.5	0.2	0.0
LnGrp LOS	C	A	C				A	A	A	D	A	A
Approach Vol, veh/h		314						854			811	
Approach Delay, s/veh		33.1						7.2			4.7	
Approach LOS		C						A			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	8.2	53.2	18.5	61.5								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.1	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	14.2	6.0	13.1	2.0								
Green Ext Time (p_c), s	0.1	5.2	0.5	3.4								

Intersection Summary

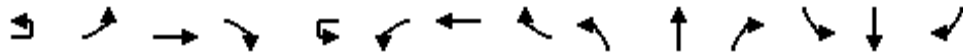
HCM 6th Ctrl Delay	10.3
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖ ↗ ↘ ↙		↖		↖ ↗ ↘ ↙				↖ ↗	↖ ↗		↖ ↗	
Traffic Volume (veh/h)	20	20	2398	160	10	70	1359	20	80	10	140	220	20	90
Future Volume (veh/h)	20	20	2398	160	10	70	1359	20	80	10	140	220	20	90
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	1.00		0.98	0.98		0.98
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No			No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		21	2472	138		72	1401	20	82	10	38	227	21	82
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h		243	2273	703		243	2308	33	409	47	469	289	23	88
Arrive On Green		0.14	0.45	0.45		0.14	0.45	0.45	0.30	0.30	0.30	0.30	0.30	0.30
Sat Flow, veh/h		1781	5106	1580		1781	5185	74	1180	155	1546	805	74	291
Grp Volume(v), veh/h		21	2472	138		72	920	501	92	0	38	330	0	0
Grp Sat Flow(s),veh/h/ln		1781	1702	1580		1781	1702	1855	1335	0	1546	1170	0	0
Q Serve(g_s), s		1.4	60.1	7.2		4.9	27.7	27.7	0.0	0.0	2.4	31.0	0.0	0.0
Cycle Q Clear(g_c), s		1.4	60.1	7.2		4.9	27.7	27.7	6.9	0.0	2.4	37.8	0.0	0.0
Prop In Lane		1.00		1.00		1.00		0.04	0.89		1.00	0.69		0.25
Lane Grp Cap(c), veh/h		243	2273	703		243	1515	826	456	0	469	400	0	0
V/C Ratio(X)		0.09	1.09	0.20		0.30	0.61	0.61	0.20	0.00	0.08	0.82	0.00	0.00
Avail Cap(c_a), veh/h		243	2273	703		243	1515	826	502	0	522	448	0	0
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		0.80	0.80	0.80	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh		50.9	37.5	22.8		52.4	28.5	28.5	35.1	0.0	33.6	49.3	0.0	0.0
Incr Delay (d2), s/veh		0.1	47.5	0.6		0.2	1.5	2.7	0.2	0.0	0.1	11.3	0.0	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.6	33.6	2.7		2.2	11.2	12.5	2.3	0.0	0.9	12.1	0.0	0.0
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		51.0	85.0	23.4		52.6	29.9	31.1	35.3	0.0	33.6	60.6	0.0	0.0
LnGrp LOS		D	F	C		D	C	C	D	A	C	E	A	A
Approach Vol, veh/h			2631			1493			130		330			
Approach Delay, s/veh			81.5			31.4			34.8		60.6			
Approach LOS			F			C			C		E			
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	22.8	66.3	45.9	22.8	66.3	45.9								
Change Period (Y+Rc), s	4.4	6.2	4.9	4.4	6.2	4.9								
Max Green Setting (Gmax), s	13.8	60.1	45.6	13.8	60.1	45.6								
Max Q Clear Time (g_c+10), s	10.9	62.1	39.8	3.4	29.7	8.9								
Green Ext Time (p_c), s	0.0	0.0	1.1	0.0	25.0	0.6								

Intersection Summary

HCM 6th Ctrl Delay	62.3
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
9: Fenton Pkwy & Friars Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗		↔↔	↑↑↑	↗	↔↔	↑	↗	↔↔	↗	↗
Traffic Volume (veh/h)	150	1922	866	10	295	790	80	579	50	467	40	20	70
Future Volume (veh/h)	150	1922	866	10	295	790	80	579	50	467	40	20	70
Initial Q (Qb), veh	15	25	15		0	0	0	0	0	15	15	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	1981	658		304	814	43	597	52	286	41	21	9
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	253	2194	1124		333	2527	842	823	460	387	132	88	197
Arrive On Green	0.06	0.51	0.51		0.19	1.00	1.00	0.19	0.22	0.22	0.02	0.05	0.05
Sat Flow, veh/h	3456	5106	1585		3456	5106	1565	3456	1870	1581	3563	1870	1557
Grp Volume(v), veh/h	155	1981	658		304	814	43	597	52	286	41	21	9
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1565	1728	1870	1581	1781	1870	1557
Q Serve(g_s), s	6.0	42.0	12.4		11.7	0.0	0.0	22.9	3.0	23.4	1.5	1.5	0.5
Cycle Q Clear(g_c), s	6.0	42.0	12.4		11.7	0.0	0.0	22.9	3.0	23.4	1.5	1.5	0.5
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	253	2194	1124		333	2527	842	823	460	387	132	88	197
V/C Ratio(X)	0.61	0.90	0.59		0.91	0.32	0.05	0.73	0.11	0.74	0.31	0.24	0.05
Avail Cap(c_a), veh/h	384	2620	1119		333	2807	897	666	545	460	280	470	486
HCM Platoon Ratio	1.00	1.00	1.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.22	0.22	0.22		0.93	0.93	0.93	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.3	37.6	3.1		54.3	3.3	2.3	48.0	39.9	49.7	64.9	62.5	25.8
Incr Delay (d2), s/veh	0.2	1.6	0.5		26.5	0.3	0.1	0.4	0.0	1.2	0.5	6.3	0.4
Initial Q Delay(d3),s/veh	65.6	9.6	3.1		0.0	0.0	0.0	0.0	0.0	41.5	134.6	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	23.5	4.4		5.7	0.8	0.1	9.5	1.4	16.1	4.2	0.9	0.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	128.0	48.8	6.7		80.9	3.6	2.4	48.4	39.9	92.4	200.0	68.7	26.2
LnGrp LOS	F	D	A		F	A	A	D	D	F	F	E	C
Approach Vol, veh/h		2794				1161			935			71	
Approach Delay, s/veh		43.3				23.8			61.4			139.1	
Approach LOS		D				C			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	7.5	76.1	31.1	11.3	12.5	81.1	7.6	34.9					
Change Period (Y+Rc), s	4.4	6.3	4.9	*4.9	4.4	*6.3	4.4	4.9					
Max Green Setting (Gmax), s	13.1	52.6	16.1	*34	15.1	*51	10.7	39.6					
Max Q Clear Time (g_c+1/3), s	11.7	44.0	24.9	3.5	8.0	2.0	3.5	25.4					
Green Ext Time (p_c), s	0.0	8.5	0.0	0.3	0.1	20.0	0.0	3.6					

Intersection Summary

HCM 6th Ctrl Delay	43.5
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
10: Northside Dr & Friars Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↔↔↔	↔	↔↔	↔↔↔	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	10	160	1906	250	530	845	210	210	40	800	100	30	100
Future Volume (veh/h)	10	160	1906	250	530	845	210	210	40	800	100	30	100
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		172	2049	269	570	909	140	226	43	771	108	32	5
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		220	2410	737	409	2690	897	280	407	529	158	341	289
Arrive On Green		0.13	0.94	0.94	0.12	0.53	0.53	0.08	0.22	0.22	0.05	0.18	0.18
Sat Flow, veh/h		3456	5106	1561	3456	5106	1565	3456	1870	1568	3456	1870	1585
Grp Volume(v), veh/h		172	2049	269	570	909	140	226	43	771	108	32	5
Grp Sat Flow(s),veh/h/ln		1728	1702	1561	1728	1702	1565	1728	1870	1568	1728	1870	1585
Q Serve(g_s), s		6.6	15.5	2.0	16.1	13.9	5.7	8.7	2.5	29.6	4.2	1.9	0.4
Cycle Q Clear(g_c), s		6.6	15.5	2.0	16.1	13.9	5.7	8.7	2.5	29.6	4.2	1.9	0.4
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		220	2410	737	409	2690	897	280	407	529	158	341	289
V/C Ratio(X)		0.78	0.85	0.37	1.39	0.34	0.16	0.81	0.11	1.46	0.68	0.09	0.02
Avail Cap(c_a), veh/h		307	2410	737	409	2690	897	483	407	529	483	407	345
HCM Platoon Ratio		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.47	0.47	0.47	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		58.5	2.4	2.1	60.0	18.5	13.6	61.4	42.6	45.2	63.9	46.3	45.6
Incr Delay (d2), s/veh		2.6	1.9	0.7	190.7	0.3	0.4	2.1	0.3	216.4	2.0	0.5	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.8	1.7	0.6	17.7	5.4	2.2	4.0	1.2	49.6	1.9	1.0	0.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		61.0	4.4	2.7	250.7	18.8	14.0	63.6	42.9	261.6	65.9	46.8	45.7
LnGrp LOS		E	A	A	F	B	B	E	D	F	E	D	D
Approach Vol, veh/h			2490			1619			1040			145	
Approach Delay, s/veh			8.1			100.0			209.5			61.0	
Approach LOS			A			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	20.5	70.4	15.4	29.7	13.0	77.8	10.6	34.5					
Change Period (Y+Rc), s	4.4	* 6.2	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	10.5	* 52	19.0	29.6	12.1	55.4	19.0	29.6					
Max Q Clear Time (g_c+1/3), s	17.5	17.5	10.7	3.9	8.6	15.9	6.2	31.6					
Green Ext Time (p_c), s	0.0	31.4	0.3	0.4	0.1	18.1	0.1	0.0					

Intersection Summary

HCM 6th Ctrl Delay	77.2
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 12: Mission Village Dr & Friars Rd WB

Horizon Year No Project With 4-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕	↕	↕↕			↕↕	↕
Traffic Volume (veh/h)	0	0	0	50	0	380	10	430	0	0	1320	550
Future Volume (veh/h)	0	0	0	50	0	380	10	430	0	0	1320	550
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				52	0	0	10	448	0	0	1375	495
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				86	0		26	1558	0	0	1318	572
Arrive On Green				0.05	0.00	0.00	0.01	0.44	0.00	0.00	0.37	0.37
Sat Flow, veh/h				1781	0	1585	1781	3647	0	0	3647	1542
Grp Volume(v), veh/h				52	0	0	10	448	0	0	1375	495
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	1777	0	0	1777	1542
Q Serve(g_s), s				2.9	0.0	0.0	0.6	8.1	0.0	0.0	37.1	29.7
Cycle Q Clear(g_c), s				2.9	0.0	0.0	0.6	8.1	0.0	0.0	37.1	29.7
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				86	0		26	1558	0	0	1318	572
V/C Ratio(X)				0.60	0.00		0.39	0.29	0.00	0.00	1.04	0.87
Avail Cap(c_a), veh/h				588	0		226	1958	0	0	1318	572
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.95	0.95	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				46.6	0.0	0.0	48.8	18.0	0.0	0.0	31.4	29.1
Incr Delay (d2), s/veh				2.5	0.0	0.0	3.3	0.1	0.0	0.0	36.7	16.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.3	0.0	0.0	0.3	3.1	0.0	0.0	21.3	12.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				49.1	0.0	0.0	52.1	18.2	0.0	0.0	68.2	45.1
LnGrp LOS				D	A		D	B	A	A	F	D
Approach Vol, veh/h				52	A		458				1870	
Approach Delay, s/veh				49.1			18.9				62.1	
Approach LOS				D			B				E	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		50.9			6.8	44.1		9.8				
Change Period (Y+Rc), s		7.0			5.3	7.0		4.9				
Max Green Setting (Gmax), s		55.1			12.7	37.1		33.0				
Max Q Clear Time (g_c+I1), s		10.1			2.6	39.1		4.9				
Green Ext Time (p_c), s		3.9			0.0	0.0		0.1				

Intersection Summary

HCM 6th Ctrl Delay	53.5
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis Horizon Year No Project With 4-Ln Bridge
 13: Mission Village Dr & Friars Rd EB & San Diego Mission Rd PM Peak Hour



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBT	NBR	NBR2	SBL2
Lane Configurations												
Traffic Volume (vph)	310	10	31	10	10	0	100	40	40	20	20	540
Future Volume (vph)	310	10	31	10	10	0	100	40	40	20	20	540
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.2	5.2			5.4	5.4		4.9			
Lane Util. Factor		1.00	1.00			0.95	0.95		0.95			
Frbp, ped/bikes		1.00	1.00			1.00	1.00		0.99			
Flpb, ped/bikes		1.00	1.00			1.00	1.00		1.00			
Frt		1.00	0.96			0.87	0.85		0.93			
Flt Protected		0.95	1.00			0.99	1.00		1.00			
Satd. Flow (prot)		1770	1786			1530	1504		3239			
Flt Permitted		0.95	1.00			0.99	1.00		1.00			
Satd. Flow (perm)		1770	1786			1530	1504		3239			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	326	11	33	11	11	0	105	42	42	21	21	568
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	19	0	0	0
Lane Group Flow (vph)	0	337	44	0	0	79	79	0	65	0	0	0
Confl. Peds. (#/hr)				1	1					4	3	
Confl. Bikes (#/hr)				1								
Turn Type	Split	Split	NA		Split	NA	Perm		NA			Split
Protected Phases	4	4	4		3	3			2			1
Permitted Phases							3					
Actuated Green, G (s)		14.1	14.1			11.3	11.3		9.0			
Effective Green, g (s)		14.1	14.1			11.3	11.3		9.0			
Actuated g/C Ratio		0.14	0.14			0.11	0.11		0.09			
Clearance Time (s)		5.2	5.2			5.4	5.4		4.9			
Vehicle Extension (s)		3.0	3.0			3.0	3.0		3.0			
Lane Grp Cap (vph)		249	251			172	169		291			
v/s Ratio Prot		c0.19	0.02			0.05			c0.02			
v/s Ratio Perm							c0.05					
v/c Ratio		1.35	0.18			0.46	0.47		0.22			
Uniform Delay, d1		43.0	37.8			41.5	41.5		42.3			
Progression Factor		1.00	1.00			1.00	1.00		1.00			
Incremental Delay, d2		183.1	0.3			1.9	2.0		0.4			
Delay (s)		226.0	38.2			43.4	43.6		42.6			
Level of Service		F	D			D	D		D			
Approach Delay (s)			204.3			43.5			42.6			
Approach LOS			F			D			D			
Intersection Summary												
HCM 2000 Control Delay			69.8			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			21.7			
Intersection Capacity Utilization			76.8%			ICU Level of Service			D			
Analysis Period (min)			15									
dl Defacto Left Lane. Recode with 1 though lane as a left lane.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis Horizon Year No Project With 4-Ln Bridge
 13: Mission Village Dr & Friars Rd EB & San Diego Mission Rd PM Peak Hour



Movement	SBL	SBT
Lane Configurations		
Traffic Volume (vph)	800	40
Future Volume (vph)	800	40
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.2	6.2
Lane Util. Factor	0.91	0.91
Frbp, ped/bikes	1.00	1.00
Flpb, ped/bikes	1.00	1.00
Frt	1.00	1.00
Flt Protected	0.95	0.95
Satd. Flow (prot)	1610	3237
Flt Permitted	0.95	0.95
Satd. Flow (perm)	1610	3237
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	842	42
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	703	749
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Turn Type	Split	NA
Protected Phases	1	1
Permitted Phases		
Actuated Green, G (s)	43.9	43.9
Effective Green, g (s)	43.9	43.9
Actuated g/C Ratio	0.44	0.44
Clearance Time (s)	6.2	6.2
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	706	1421
v/s Ratio Prot	c0.44	0.23
v/s Ratio Perm		
v/c Ratio	1.00	0.92dl
Uniform Delay, d1	28.0	20.5
Progression Factor	0.95	0.98
Incremental Delay, d2	31.0	1.3
Delay (s)	57.7	21.3
Level of Service	E	C
Approach Delay (s)		38.9
Approach LOS		D
Intersection Summary		

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

Horizon Year No Project With 4-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	353	2070	562	10	300	1195	360	0	0	0	1120	0	330
Future Volume (veh/h)	353	2070	562	10	300	1195	360	0	0	0	1120	0	330
Initial Q (Qb), veh	20	0	20		20	0	20				0	0	20
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	368	2156	401		312	1245	0				1167	0	340
Peak Hour Factor	0.96	0.96	0.96		0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	590	3075	638		392	1246					1153	0	1993
Arrive On Green	0.29	0.37	0.37		0.19	0.24	0.00				0.32	0.00	0.32
Sat Flow, veh/h	1781	5106	1552		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	368	2156	401		312	1245	0				1167	0	340
Grp Sat Flow(s),veh/h/ln	1781	1702	1552		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	25.1	50.1	29.9		23.4	33.1	0.0				44.0	0.0	0.0
Cycle Q Clear(g_c), s	25.1	50.1	29.9		23.4	33.1	0.0				44.0	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	590	3075	638		392	1246					1153	0	1993
V/C Ratio(X)	0.62	0.70	0.63		0.80	1.00					1.01	0.00	0.17
Avail Cap(c_a), veh/h	550	1879	571		393	1246					1153	0	1951
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.82	0.82	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	40.7	24.8	34.2		53.0	51.4	0.0				46.0	0.0	11.0
Incr Delay (d2), s/veh	2.0	1.4	4.7		8.3	22.8	0.0				29.6	0.0	0.0
Initial Q Delay(d3),s/veh	22.0	0.0	19.1		91.5	0.0	0.0				0.0	0.0	0.9
%ile BackOfQ(50%),veh/ln	15.1	11.8	14.3		23.9	16.3	0.0				24.2	0.0	7.9
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	64.7	26.2	57.9		152.8	74.2	0.0				75.6	0.0	11.9
LnGrp LOS	E	C	E		F	E					F	A	B
Approach Vol, veh/h		2925				1557	A					1507	
Approach Delay, s/veh		35.4				89.9						61.3	
Approach LOS		D				F						E	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	29.8	57.1		49.1	46.7	40.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	30	45.7		44.0	42.0	* 33							
Max Q Clear Time (g_c+2p_c), s	25.4	52.1		46.0	27.1	35.1							
Green Ext Time (p_c), s	0.2	0.0		0.0	0.5	0.0							

Intersection Summary

HCM 6th Ctrl Delay	56.1
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

Horizon Year No Project With 4-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖				↑↑↑	↗						
Traffic Volume (veh/h)	570	2680	0	0	1235	940	0	0	1260	0	0	590
Future Volume (veh/h)	570	2680	0	0	1235	940	0	0	1260	0	0	590
Initial Q (Qb), veh	40	0	0	0	20	40						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	600	2821	0	0	1283	1000						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	660	0	0	0	1763	1518						
Arrive On Green	0.36	0.90	0.00	0.00	0.46	0.46						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	600	0	0	0	1283	1000						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	23.4	0.0	0.0	0.0	20.2	17.8						
Cycle Q Clear(g_c), s	23.4	0.0	0.0	0.0	20.2	17.8						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	660	0	0	0	1763	1518						
V/C Ratio(X)	0.91	0.00	0.00	0.00	0.73	0.66						
Avail Cap(c_a), veh/h	1110	0	0	0	3315	2809						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	1.00	1.00						
Uniform Delay (d), s/veh	38.3	0.0	0.0	0.0	17.3	18.4						
Incr Delay (d2), s/veh	3.9	0.0	0.0	0.0	0.2	0.2						
Initial Q Delay(d3),s/veh	177.5	0.0	0.0	0.0	3.4	14.6						
%ile BackOfQ(50%),veh/ln	11.8	0.0	0.0	0.0	10.1	12.3						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	219.6	0.0	0.0	0.0	20.9	33.2						
LnGrp LOS	F	A	A	A	C	C						
Approach Vol, veh/h		600			2283							
Approach Delay, s/veh		219.6			26.3							
Approach LOS		F			C							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		72.2			31.7	40.5						
Change Period (Y+Rc), s		* 7			5.5	7.0						
Max Green Setting (Gmax), s		* 18			45.0	64.0						
Max Q Clear Time (g_c+I1), s		0.0			25.4	22.2						
Green Ext Time (p_c), s		0.0			0.9	11.3						

Intersection Summary

HCM 6th Ctrl Delay	66.6
HCM 6th LOS	E

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

Horizon Year No Project With 4-Ln Bridge
 PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↵	↑↑↑	↵↵	↑
Traffic Volume (veh/h)	3460	490	10	35	1735	430	70
Future Volume (veh/h)	3460	490	10	35	1735	430	70
Initial Q (Qb), veh	0	0		0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	3604	392		36	1807	448	15
Peak Hour Factor	0.96	0.96		0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	3183	1362		46	3348	545	283
Arrive On Green	0.72	0.72		0.03	0.77	0.14	0.14
Sat Flow, veh/h	5274	1583		1781	5125	3563	1585
Grp Volume(v), veh/h	3604	392		36	1807	448	15
Grp Sat Flow(s),veh/h/ln	1702	1583		1781	1085	1781	1585
Q Serve(g_s), s	92.5	6.3		2.7	21.9	16.8	1.1
Cycle Q Clear(g_c), s	92.5	6.3		2.7	21.9	16.8	1.1
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3183	1362		46	3348	545	283
V/C Ratio(X)	1.13	0.29		0.78	0.54	0.82	0.05
Avail Cap(c_a), veh/h	3659	1362		208	3362	843	375
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.90	0.90	0.84	0.84
Uniform Delay (d), s/veh	25.6	1.8		65.8	6.5	56.5	46.4
Incr Delay (d2), s/veh	64.1	0.5		9.1	0.6	1.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.1	13.6	0.0
%ile BackOfQ(50%),veh/ln	49.0	4.6		1.3	4.5	9.3	0.4
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	89.7	2.3		74.9	7.2	71.9	46.5
LnGrp LOS	F	A		E	A	E	D
Approach Vol, veh/h	3996				1843	463	
Approach Delay, s/veh	81.1				8.5	71.0	
Approach LOS	F				A	E	
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	7.9	103.4			111.4	24.6	
Change Period (Y+Rc), s	4.4	* 6			6.0	5.1	
Max Green Setting (Gmax), s	15.9	* 73			92.7	32.2	
Max Q Clear Time (g_c+14), s	14.7	94.5			23.9	18.8	
Green Ext Time (p_c), s	0.0	0.0			44.6	0.8	

Intersection Summary

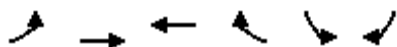
HCM 6th Ctrl Delay	59.1
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: Friars Rd & Santo Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑↑		↔↔	↔
Traffic Volume (veh/h)	410	3200	1460	110	90	260
Future Volume (veh/h)	410	3200	1460	110	90	260
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1856	1870	1870
Adj Flow Rate, veh/h	427	3333	1521	109	94	262
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	3	3	2	2
Cap, veh/h	492	3833	3501	251	548	477
Arrive On Green	0.14	0.75	0.57	0.57	0.16	0.16
Sat Flow, veh/h	3456	5274	6385	439	3456	1585
Grp Volume(v), veh/h	427	3333	1188	442	94	262
Grp Sat Flow(s),veh/h/ln	1728	1702	1596	1777	1728	1585
Q Serve(g_s), s	14.5	56.2	17.0	17.0	2.8	16.6
Cycle Q Clear(g_c), s	14.5	56.2	17.0	17.0	2.8	16.6
Prop In Lane	1.00			0.25	1.00	1.00
Lane Grp Cap(c), veh/h	492	3833	2737	1016	548	477
V/C Ratio(X)	0.87	0.87	0.43	0.43	0.17	0.55
Avail Cap(c_a), veh/h	737	3833	2737	1016	734	563
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.76	0.76	1.00	1.00
Uniform Delay (d), s/veh	50.3	10.7	14.6	14.7	43.7	35.1
Incr Delay (d2), s/veh	0.5	0.3	0.4	1.0	0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	15.3	5.8	6.6	1.2	14.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.8	11.0	15.0	15.7	43.7	35.5
LnGrp LOS	D	B	B	B	D	D
Approach Vol, veh/h		3760	1630		356	
Approach Delay, s/veh		15.5	15.2		37.7	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		96.6		23.4	21.5	75.1
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		83.6		25.5	25.6	* 54
Max Q Clear Time (g_c+I1), s		58.2		18.6	16.5	19.0
Green Ext Time (p_c), s		24.6		0.4	0.6	16.1

Intersection Summary

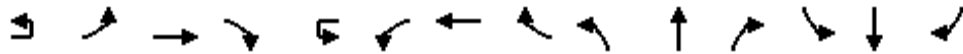
HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
21: Riverdale St & Friars Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		🚗 🚗 🚗	🚗 🚗 🚗	🚗		🚗 🚗 🚗	🚗	🚗	🚗	🚗	🚗	🚗	🚗	🚗
Traffic Volume (veh/h)	30	230	2810	240	10	50	1140	60	220	110	140	60	60	140
Future Volume (veh/h)	30	230	2810	240	10	50	1140	60	220	110	140	60	60	140
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	0.99		0.99	1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1856		1737	1856	1870	1870	1870	1870	1811	1870	1870
Adj Flow Rate, veh/h		237	2897	153		52	1175	25	227	113	92	62	62	49
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	3		11	3	2	2	2	2	6	2	2
Cap, veh/h		268	2822	867		65	2237	700	340	250	204	255	254	201
Arrive On Green		0.15	0.55	0.55		0.04	0.44	0.44	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h		1781	5106	1568		1654	5066	1585	1275	951	774	1135	965	762
Grp Volume(v), veh/h		237	2897	153		52	1175	25	227	0	205	62	0	111
Grp Sat Flow(s),veh/h/ln		1781	1702	1568		1654	1689	1585	1275	0	1725	1135	0	1727
Q Serve(g_s), s		13.7	58.0	5.1		3.3	17.7	0.9	17.9	0.0	10.4	5.1	0.0	5.3
Cycle Q Clear(g_c), s		13.7	58.0	5.1		3.3	17.7	0.9	23.2	0.0	10.4	15.5	0.0	5.3
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.45	1.00		0.44
Lane Grp Cap(c), veh/h		268	2822	867		65	2237	700	340	0	454	255	0	455
V/C Ratio(X)		0.88	1.03	0.18		0.80	0.53	0.04	0.67	0.00	0.45	0.24	0.00	0.24
Avail Cap(c_a), veh/h		324	2822	867		206	2237	700	457	0	613	359	0	613
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.55	0.55	0.55		0.92	0.92	0.92	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		43.7	23.5	11.6		50.0	21.3	16.6	39.6	0.0	32.3	38.8	0.0	30.5
Incr Delay (d2), s/veh		11.7	20.1	0.2		7.5	0.8	0.1	0.9	0.0	0.3	0.2	0.0	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		6.7	25.2	1.7		1.4	6.7	0.3	5.6	0.0	4.4	1.4	0.0	2.2
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		55.4	43.6	11.9		57.5	22.1	16.7	40.4	0.0	32.6	39.0	0.0	30.6
LnGrp LOS		E	F	B		E	C	B	D	A	C	D	A	C
Approach Vol, veh/h			3287			1252			432		173			
Approach Delay, s/veh			43.0			23.5			36.7		33.6			
Approach LOS			D			C			D		C			
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	8.5	63.9	32.5	20.2	52.3	32.5								
Change Period (Y+Rc), s	4.4	* 5.9	4.9	4.4	5.9	4.9								
Max Green Setting (Gmax), s	13.5	* 40	37.3	19.1	33.4	37.3								
Max Q Clear Time (g_c+1/3), s	15.3	60.0	17.5	15.7	19.7	25.2								
Green Ext Time (p_c), s	0.0	0.0	0.5	0.1	6.4	1.0								

Intersection Summary

HCM 6th Ctrl Delay	37.4
HCM 6th LOS	D

Notes

- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 22: Mission Gorge Rd & Friars Rd

Horizon Year No Project With 4-Ln Bridge
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↖↗	↑↑↑		↘↙	↑↑
Traffic Volume (veh/h)	2530	270	280	960	10	350	600
Future Volume (veh/h)	2530	270	280	960	10	350	600
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	2691	0	298	1021		372	637
Peak Hour Factor	0.94	0.94	0.94	0.94		0.94	0.94
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2621		479	0		403	1018
Arrive On Green	0.51	0.00	0.14	0.00		0.23	0.23
Sat Flow, veh/h	5443	0	3456	298		1781	2790
Grp Volume(v), veh/h	2691	0	298	50.6		372	637
Grp Sat Flow(s),veh/h/ln	1702	0	1728	D		1781	1395
Q Serve(g_s), s	61.6	0.0	9.8			24.5	5.9
Cycle Q Clear(g_c), s	61.6	0.0	9.8			24.5	5.9
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2621		479			403	1018
V/C Ratio(X)	1.03		0.62			0.92	0.63
Avail Cap(c_a), veh/h	2621		479			425	1051
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.09	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	29.2	0.0	48.7			45.4	31.4
Incr Delay (d2), s/veh	14.0	0.0	1.9			24.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh	26.1	0.0	4.2			13.5	7.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	43.2	0.0	50.6			69.6	32.2
LnGrp LOS	F		D			E	C
Approach Vol, veh/h	2691	A				1009	
Approach Delay, s/veh	43.2					46.0	
Approach LOS	D					D	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	31.0	67.4					31.6
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	61.6					28.6
Max Q Clear Time (g_c+I1), s	11.8	63.6					26.5
Green Ext Time (p_c), s	0.2	0.0					0.7

Intersection Summary

HCM 6th Ctrl Delay		44.5
HCM 6th LOS		D

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 23: Qualcomm Way & Rio San Diego Dr

Horizon Year No Project With 4-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations	↔↔	↑	↗		↔↔	↑↑	↗	↔↔	↑↑↑	↗		↔↔	↑↑↑	
Traffic Volume (veh/h)	290	369	233	20	770	391	340	9	177	150	10	70	688	310
Future Volume (veh/h)	290	369	233	20	770	391	340	9	177	150	10	70	688	310
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		1.00	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	305	388	221		811	412	195	9	186	10		74	724	285
Peak Hour Factor	0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2		2	2	2
Cap, veh/h	377	457	395		874	1380	613	30	1492	461		124	1150	446
Arrive On Green	0.11	0.24	0.24		0.25	0.39	0.39	0.01	0.29	0.29		0.04	0.32	0.32
Sat Flow, veh/h	3456	1870	1557		3456	3554	1578	3456	5106	1579		3456	3598	1397
Grp Volume(v), veh/h	305	388	221		811	412	195	9	186	10		74	685	324
Grp Sat Flow(s),veh/h/ln	1728	1870	1557		1728	1777	1578	1728	1702	1579		1728	1702	1591
Q Serve(g_s), s	9.5	21.8	13.6		25.2	8.8	9.5	0.3	2.9	0.5		2.3	18.9	19.2
Cycle Q Clear(g_c), s	9.5	21.8	13.6		25.2	8.8	9.5	0.3	2.9	0.5		2.3	18.9	19.2
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.88
Lane Grp Cap(c), veh/h	377	457	395		874	1380	613	30	1492	461		124	1088	508
V/C Ratio(X)	0.81	0.85	0.56		0.93	0.30	0.32	0.30	0.12	0.02		0.59	0.63	0.64
Avail Cap(c_a), veh/h	941	679	580		941	1380	613	1883	2782	860		941	1855	867
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	47.9	39.7	35.8		40.1	23.3	23.5	54.2	28.6	27.8		52.3	31.9	32.0
Incr Delay (d2), s/veh	1.6	6.6	1.2		13.8	0.1	0.3	2.0	0.1	0.0		1.7	1.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	10.5	5.2		12.0	3.6	3.5	0.1	1.2	0.2		1.0	7.7	7.5
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	49.6	46.3	37.0		54.0	23.4	23.8	56.3	28.7	27.8		54.0	33.0	34.3
LnGrp LOS	D	D	D		D	C	C	E	C	C		D	C	C
Approach Vol, veh/h		914				1418			205				1083	
Approach Delay, s/veh		45.1				40.9			29.8				34.8	
Approach LOS		D				D			C				C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	8.4	37.3	32.3	32.2	5.4	40.3	16.4	48.1						
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3						
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0						
Max Q Clear Time (g_c+1), s	14.3	4.9	27.2	23.8	2.3	21.2	11.5	11.5						
Green Ext Time (p_c), s	0.1	1.9	0.6	2.7	0.0	14.0	0.5	3.3						

Intersection Summary

HCM 6th Ctrl Delay	39.5
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Intersection Delay, s/veh	48
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↖	↕		↖	↕			↕				↕	
Traffic Vol, veh/h	20	170	739	20	10	501	60	20	10	20	20	130	20	110
Future Vol, veh/h	20	170	739	20	10	501	60	20	10	20	20	130	20	110
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	189	821	22	11	557	67	22	11	22	22	144	22	122
Number of Lanes	0	1	2	0	1	2	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	66.1	29.1	14	31.1
HCM LOS	F	D	B	D

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	40%	100%	0%	0%	100%	0%	0%	50%
Vol Thru, %	20%	0%	100%	92%	0%	100%	74%	8%
Vol Right, %	40%	0%	0%	8%	0%	0%	26%	42%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	190	493	266	10	334	227	280
LT Vol	20	190	0	0	10	0	0	140
Through Vol	10	0	493	246	0	334	167	22
RT Vol	20	0	0	20	0	0	60	118
Lane Flow Rate	56	211	547	296	11	371	252	311
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.144	0.468	1.134	0.609	0.026	0.804	0.533	0.726
Departure Headway (Hd)	9.669	7.976	7.459	7.404	8.593	8.074	7.882	8.641
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	373	452	487	488	419	453	462	420
Service Time	7.369	5.721	5.203	5.148	6.293	5.774	5.582	6.341
HCM Lane V/C Ratio	0.15	0.467	1.123	0.607	0.026	0.819	0.545	0.74
HCM Control Delay	14	17.6	109.2	21.1	11.5	36.4	19.2	31.1
HCM Lane LOS	B	C	F	C	B	E	C	D
HCM 95th-tile Q	0.5	2.4	18.9	4	0.1	7.4	3.1	5.7

HCM 6th Signalized Intersection Summary

Horizon Year No Project With 4-Ln Bridge

25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	10	156	280	309	10	320	210	175	538	64	30	306	826	66
Future Volume (veh/h)	10	156	280	309	10	320	210	175	538	64	30	306	826	66
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99	1.00		0.98	1.00		0.99		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No		No		No		No			No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h		161	289	105	10	330	159	180	555	61		315	852	65
Peak Hour Factor		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97		0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h		326	343	286	12	413	209	206	1221	134		375	1243	95
Arrive On Green		0.18	0.18	0.18	0.18	0.18	0.18	0.12	0.38	0.38		0.11	0.37	0.37
Sat Flow, veh/h		1781	1870	1562	68	2280	1156	1781	3224	353		3456	3345	255
Grp Volume(v), veh/h		161	289	105	274	0	225	180	305	311		315	453	464
Grp Sat Flow(s),veh/h/ln		1781	1870	1562	1867	0	1637	1781	1777	1800		1728	1777	1823
Q Serve(g_s), s		10.9	20.0	7.9	18.9	0.0	17.5	13.3	17.3	17.4		12.0	28.8	28.8
Cycle Q Clear(g_c), s		10.9	20.0	7.9	18.9	0.0	17.5	13.3	17.3	17.4		12.0	28.8	28.8
Prop In Lane		1.00		1.00	0.04		0.71	1.00		0.20		1.00		0.14
Lane Grp Cap(c), veh/h		326	343	286	338	0	297	206	673	682		375	660	677
V/C Ratio(X)		0.49	0.84	0.37	0.81	0.00	0.76	0.87	0.45	0.46		0.84	0.69	0.69
Avail Cap(c_a), veh/h		531	558	466	557	0	488	398	795	805		773	795	816
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		49.2	52.9	48.0	52.7	0.0	52.1	58.3	31.2	31.3		58.7	35.5	35.5
Incr Delay (d2), s/veh		0.7	4.4	0.5	1.8	0.0	1.5	4.5	2.2	2.2		2.0	5.7	5.6
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		4.9	9.7	3.2	9.1	0.0	7.4	6.3	8.0	8.1		5.4	13.6	14.0
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		49.9	57.3	48.4	54.5	0.0	53.7	62.8	33.4	33.5		60.6	41.3	41.1
LnGrp LOS		D	E	D	D	A	D	E	C	C		E	D	D
Approach Vol, veh/h			555			499			796				1232	
Approach Delay, s/veh			53.5			54.1			40.1				46.2	
Approach LOS			D			D			D				D	
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	18.9	56.2	29.8	19.9	55.2	29.2								
Change Period (Y+Rc), s	4.4	* 5.4	5.2	4.4	5.4	4.9								
Max Green Setting (Gmax), s	30.0	* 60	40.0	30.0	60.0	40.0								
Max Q Clear Time (g_c+1/4), s	14.0	19.4	22.0	15.3	30.8	20.9								
Green Ext Time (p_c), s	0.6	15.0	1.5	0.2	19.0	2.1								

Intersection Summary

HCM 6th Ctrl Delay	47.2
HCM 6th LOS	D

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 26: Rancho Mission Rd & San Diego Mission Rd

Horizon Year No Project With 4-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	296	375	140	80	170	90	140	160	130	145	70
Future Volume (veh/h)	180	296	375	140	80	170	90	140	160	130	145	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	189	312	267	147	84	40	95	147	22	137	153	15
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	241	579	482	191	692	309	124	249	205	179	307	253
Arrive On Green	0.14	0.32	0.32	0.11	0.29	0.29	0.07	0.13	0.13	0.10	0.16	0.16
Sat Flow, veh/h	1781	1816	1512	1781	2381	1064	1781	1870	1539	1781	1870	1539
Grp Volume(v), veh/h	189	305	274	147	61	63	95	147	22	137	153	15
Grp Sat Flow(s),veh/h/ln	1781	1777	1551	1781	1777	1668	1781	1870	1539	1781	1870	1539
Q Serve(g_s), s	5.6	7.7	8.0	4.4	1.4	1.5	2.9	4.0	0.7	4.1	4.1	0.4
Cycle Q Clear(g_c), s	5.6	7.7	8.0	4.4	1.4	1.5	2.9	4.0	0.7	4.1	4.1	0.4
Prop In Lane	1.00		0.97	1.00		0.64	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	241	566	494	191	516	485	124	249	205	179	307	253
V/C Ratio(X)	0.78	0.54	0.55	0.77	0.12	0.13	0.77	0.59	0.11	0.77	0.50	0.06
Avail Cap(c_a), veh/h	1141	1626	1419	1141	1788	1679	978	1711	1408	978	1711	1408
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.8	15.3	15.4	23.7	14.2	14.3	25.0	22.3	20.8	24.0	20.8	19.3
Incr Delay (d2), s/veh	2.1	1.2	1.5	2.5	0.2	0.2	3.7	0.8	0.1	2.6	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	2.8	2.5	1.8	0.5	0.5	1.2	1.7	0.2	1.7	1.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.0	16.5	16.9	26.2	14.4	14.5	28.7	23.1	20.9	26.6	21.3	19.3
LnGrp LOS	C	B	B	C	B	B	C	C	C	C	C	B
Approach Vol, veh/h		768			271			264			305	
Approach Delay, s/veh		18.7			20.8			24.9			23.5	
Approach LOS		B			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.9	22.9	7.8	14.1	11.4	21.4	9.5	12.4				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	* 5.5	4.0	* 5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	* 55	30.0	* 50				
Max Q Clear Time (g_c+1), s	10.4	10.0	4.9	6.1	7.6	3.5	6.1	6.0				
Green Ext Time (p_c), s	0.2	6.1	0.1	0.6	0.2	1.2	0.2	0.5				

Intersection Summary

HCM 6th Ctrl Delay	21.0
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave

Horizon Year No Project With 4-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↖	↗	↖	↖	↗	↖	↗	↖
Traffic Volume (veh/h)	140	343	123	70	138	30	72	90	80	30	150	110
Future Volume (veh/h)	140	343	123	70	138	30	72	90	80	30	150	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	156	381	84	78	153	26	80	100	62	33	167	102
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	254	509	884	220	647	119	241	144	89	358	218	133
Arrive On Green	0.43	0.43	0.43	0.43	0.43	0.43	0.14	0.14	0.14	0.20	0.20	0.20
Sat Flow, veh/h	404	1175	1547	255	1496	276	1781	1068	662	1781	1085	663
Grp Volume(v), veh/h	537	0	84	101	0	156	80	0	162	33	0	269
Grp Sat Flow(s),veh/h/ln1580	0	1547	375	0	1652	1781	0	1730	1781	0	1748	
Q Serve(g_s), s	13.9	0.0	1.4	4.2	0.0	3.5	2.4	0.0	5.2	0.9	0.0	8.5
Cycle Q Clear(g_c), s	17.3	0.0	1.4	21.5	0.0	3.5	2.4	0.0	5.2	0.9	0.0	8.5
Prop In Lane	0.29		1.00	0.77		0.17	1.00		0.38	1.00		0.38
Lane Grp Cap(c), veh/h	763	0	884	272	0	715	241	0	234	358	0	352
V/C Ratio(X)	0.70	0.00	0.10	0.37	0.00	0.22	0.33	0.00	0.69	0.09	0.00	0.77
Avail Cap(c_a), veh/h	1721	0	1804	895	0	1697	1220	0	1185	1220	0	1197
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.4	0.0	5.8	20.0	0.0	10.4	22.9	0.0	24.1	19.0	0.0	22.0
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.8	0.0	0.1	0.3	0.0	1.4	0.0	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln5.1	0.0	0.0	0.5	1.3	0.0	1.2	1.0	0.0	2.1	0.3	0.0	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.5	0.0	5.8	20.8	0.0	10.5	23.2	0.0	25.5	19.0	0.0	23.3
LnGrp LOS	B	A	A	C	A	B	C	A	C	B	A	C
Approach Vol, veh/h		621			257			242			302	
Approach Delay, s/veh		14.2			14.5			24.7			22.9	
Approach LOS		B			B			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		29.8		16.2		29.8		12.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		19.3		10.5		23.5		7.2				
Green Ext Time (p_c), s		3.7		1.1		1.8		0.7				

Intersection Summary

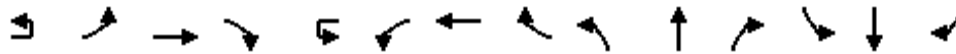
HCM 6th Ctrl Delay	17.9
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary

Horizon Year No Project With 4-Ln Bridge

28: Qualcomm Way & Camino de la Reina/Camino del Rio N

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↕	↔		↔	↕	↔	↔	↕	↔	↔	↕	↔
Traffic Volume (veh/h)	10	130	450	320	10	470	210	20	180	536	310	111	1080	130
Future Volume (veh/h)	10	130	450	320	10	470	210	20	180	536	310	111	1080	130
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No			No		
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1841	1870	1856	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		134	498	243		485	216	3	186	553	261	114	1113	127
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2		2	4	2	3	2	2	2	2	2
Cap, veh/h		151	498	309		516	691	306	222	2903	887	149	2538	289
Arrive On Green		0.08	0.13	0.13		0.15	0.20	0.20	0.02	0.19	0.19	0.04	0.55	0.55
Sat Flow, veh/h		1781	3741	1550		3456	3497	1549	3428	5106	1559	3456	4640	529
Grp Volume(v), veh/h		134	498	243		485	216	3	186	553	261	114	816	424
Grp Sat Flow(s),veh/h/ln		1781	1870	1550		1728	1749	1549	1714	1702	1559	1728	1702	1765
Q Serve(g_s), s		14.9	26.6	26.6		27.8	10.6	0.3	10.8	18.2	28.8	6.5	28.6	28.6
Cycle Q Clear(g_c), s		14.9	26.6	26.6		27.8	10.6	0.3	10.8	18.2	28.8	6.5	28.6	28.6
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.30
Lane Grp Cap(c), veh/h		151	498	309		516	691	306	222	2903	887	149	1862	965
V/C Ratio(X)		0.89	1.00	0.79		0.94	0.31	0.01	0.84	0.19	0.29	0.76	0.44	0.44
Avail Cap(c_a), veh/h		190	498	309		524	691	306	314	2903	887	316	1862	965
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	0.85	0.85	0.85	0.09	0.09	0.09
Uniform Delay (d), s/veh		90.6	86.7	76.3		84.2	68.6	64.5	96.8	42.5	46.7	94.7	27.0	27.0
Incr Delay (d2), s/veh		28.0	40.6	12.2		24.7	0.1	0.0	8.0	0.1	0.7	0.3	0.1	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		8.1	15.8	12.9		14.1	4.7	0.1	5.3	8.5	12.3	3.0	11.9	12.3
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		118.5	127.3	88.5		108.9	68.7	64.5	104.8	42.6	47.5	95.0	27.1	27.1
LnGrp LOS		F	F	F		F	E	E	F	D	D	F	C	C
Approach Vol, veh/h			875			704			1000			1354		
Approach Delay, s/veh			115.2			96.4			55.4			32.8		
Approach LOS			F			F			E			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	13.0	120.4	34.3	32.3	17.4	116.1	21.3	45.2						
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7						
Max Green Setting (Gmax), s	10.3	103.6	30.3	* 27	18.3*	1.1E2	21.3	35.6						
Max Q Clear Time (g_c+1), s	10.5	30.8	29.8	28.6	12.8	30.6	16.9	12.6						
Green Ext Time (p_c), s	0.1	4.8	0.1	0.0	0.2	30.0	0.1	0.7						

Intersection Summary

HCM 6th Ctrl Delay	68.3
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

Horizon Year No Project With 4-Ln Bridge

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔	↑↑↑			↑↑	↔
Traffic Volume (veh/h)	10	100	0	610	30	190	410	210	806	0	0	1050	720
Future Volume (veh/h)	10	100	0	610	30	190	410	210	806	0	0	1050	720
Initial Q (Qb), veh		0	0	20	0	20	20	20	20	0	0	20	20
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h		106	0	382	32	202	235	223	857	0	0	1117	547
Peak Hour Factor		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h		0	0	0	21	310	315	178	3968	0	0	2316	1004
Arrive On Green		0.00	0.00	0.00	0.16	0.16	0.16	0.10	0.78	0.00	0.00	1.00	1.00
Sat Flow, veh/h			0		254	1604	1582	1781	5274	0	0	3647	1551
Grp Volume(v), veh/h			0.0		234	0	235	223	857	0	0	1117	547
Grp Sat Flow(s),veh/h/ln					1858	0	1582	1781	1702	0	0	1777	1551
Q Serve(g_s), s					24.2	0.0	29.3	20.0	8.9	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s					24.2	0.0	29.3	20.0	8.9	0.0	0.0	0.0	0.0
Prop In Lane					0.14		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					342	0	315	178	3968	0	0	2316	1004
V/C Ratio(X)					0.68	0.00	0.75	1.25	0.22	0.00	0.00	0.48	0.54
Avail Cap(c_a), veh/h					372	0	316	178	3973	0	0	2326	1016
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)					1.00	0.00	1.00	0.70	0.70	0.00	0.00	0.76	0.76
Uniform Delay (d), s/veh					80.2	0.0	80.0	90.0	6.5	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh					3.5	0.0	8.2	141.5	0.1	0.0	0.0	0.5	1.6
Initial Q Delay(d3),s/veh					77.9	0.0	113.6	404.2	0.2	0.0	0.0	1.0	6.3
%ile BackOfQ(50%),veh/ln					23.6	0.0	26.8	36.3	4.7	0.0	0.0	0.5	2.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					161.6	0.0	201.9	635.7	6.8	0.0	0.0	1.6	7.9
LnGrp LOS					F	A	F	F	A	A	A	A	A
Approach Vol, veh/h						469			1080			1664	
Approach Delay, s/veh						181.8			136.6			3.7	
Approach LOS						F			F			A	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		162.6			24.7	137.9		37.4					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		107.8			* 20	83.1		40.0					
Max Q Clear Time (g_c+I1), s		10.9			22.0	2.0		31.3					
Green Ext Time (p_c), s		4.4			0.0	39.7		0.8					

Intersection Summary

HCM 6th Ctrl Delay	74.4
HCM 6th LOS	E

Notes

- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Horizon Year No Project With 4-Ln Bridge
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	740	0	1266	1840	0
Future Volume (veh/h)	0	740	0	1266	1840	0
Initial Q (Qb), veh	0	10	0	0	50	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1870	0
Adj Flow Rate, veh/h	0	752	0	1292	1878	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	2	2	0
Cap, veh/h	0	0	0	2903	2903	0
Arrive On Green	0.00	0.00	0.00	0.80	0.80	0.00
Sat Flow, veh/h	0		0	3741	3741	0
Grp Volume(v), veh/h	0.0		0	1292	1878	0
Grp Sat Flow(s),veh/h/ln			0	1777	1777	0
Q Serve(g_s), s			0.0	3.1	6.2	0.0
Cycle Q Clear(g_c), s			0.0	3.1	6.2	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2903	2903	0
V/C Ratio(X)			0.00	0.45	0.65	0.00
Avail Cap(c_a), veh/h			0	5720	5720	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	0.8	1.4	0.0
Incr Delay (d2), s/veh			0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	6.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	2.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	0.8	7.5	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1292	1878	
Approach Delay, s/veh				0.8	7.5	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		28.0				28.0
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		45.0				45.0
Max Q Clear Time (g_c+I1), s		5.1				8.2
Green Ext Time (p_c), s		7.7				14.3
Intersection Summary						
HCM 6th Ctrl Delay			4.8			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
31: Texas St & Camino del Rio S

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	280	150	390	340	60	540	100	816	194	310	1700	190
Future Volume (veh/h)	280	150	390	340	60	540	100	816	194	310	1700	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	286	153	346	347	61	506	102	833	190	316	1735	159
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	351	368	417	247	259	515	119	1059	242	334	1748	774
Arrive On Green	0.20	0.20	0.20	0.14	0.14	0.14	0.07	0.37	0.37	0.19	0.49	0.49
Sat Flow, veh/h	1781	1870	1580	1781	1870	1571	1781	2852	651	1781	3554	1574
Grp Volume(v), veh/h	286	153	346	347	61	506	102	519	504	316	1735	159
Grp Sat Flow(s),veh/h/ln	1781	1870	1580	1781	1870	1571	1781	1777	1726	1781	1777	1574
Q Serve(g_s), s	31.2	14.5	40.0	28.2	5.9	28.2	11.5	52.7	52.7	35.6	98.5	11.6
Cycle Q Clear(g_c), s	31.2	14.5	40.0	28.2	5.9	28.2	11.5	52.7	52.7	35.6	98.5	11.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	351	368	417	247	259	515	119	660	641	334	1748	774
V/C Ratio(X)	0.82	0.42	0.83	1.40	0.24	0.98	0.86	0.79	0.79	0.95	0.99	0.21
Avail Cap(c_a), veh/h	351	368	417	247	259	515	219	660	641	636	1748	774
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	78.1	71.4	70.6	87.5	77.9	68.0	93.9	56.7	56.7	81.6	51.3	29.2
Incr Delay (d2), s/veh	13.9	0.7	13.2	204.4	1.3	35.4	6.7	5.7	5.9	6.2	19.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.7	7.1	18.6	27.1	3.0	31.1	5.6	24.8	24.1	17.0	48.1	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.0	72.2	83.8	291.9	79.2	103.4	100.6	62.5	62.6	87.8	71.0	29.5
LnGrp LOS	F	E	F	F	E	F	F	E	E	F	E	C
Approach Vol, veh/h		785			914			1125			2210	
Approach Delay, s/veh		84.5			173.3			66.0			70.4	
Approach LOS		F			F			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	42.5	80.7		44.9	18.0	105.2		35.2				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0				
Max Green Setting (Gmax), s	72.6	51.8		40.0	25.0	* 1E2		28.2				
Max Q Clear Time (g_c+R), s	77.6	54.7		42.0	13.5	100.5		30.2				
Green Ext Time (p_c), s	0.4	0.0		0.0	0.1	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	90.3
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection									
Int Delay, s/veh	2.4								
Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations		↖	↗			↕		↕	
Traffic Vol, veh/h	10	40	40	10	50	320	10	440	70
Future Vol, veh/h	10	40	40	10	50	320	10	440	70
Conflicting Peds, #/hr	21	24	24	3	24	0	3	0	24
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	0	65	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	0	-
Grade, %	-	0	-	-	-	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	42	42	11	53	337	11	463	74

Major/Minor	Minor2	Major1			Major2				
Conflicting Flow All	0	867	317	537	561	0	337	-	0
Stage 1	0	546	-	-	-	-	-	-	-
Stage 2	0	321	-	-	-	-	-	-	-
Critical Hdwy	-	6.84	6.94	6.44	4.14	-	6.44	-	-
Critical Hdwy Stg 1	-	5.84	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.84	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.52	3.32	2.52	2.22	-	2.52	-	-
Pot Cap-1 Maneuver	0	292	679	656	1006	-	878	-	-
Stage 1	0	544	-	-	-	-	-	-	-
Stage 2	0	708	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	0	250	648	894	894	-	878	-	-
Mov Cap-2 Maneuver	0	250	-	-	-	-	-	-	-
Stage 1	0	485	-	-	-	-	-	-	-
Stage 2	0	680	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.6	2	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	894	-	250	648	-	-
HCM Lane V/C Ratio	0.059	-	0.168	0.065	-	-
HCM Control Delay (s)	9.3	0.6	22.3	10.9	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.6	0.2	-	-

HCM 6th Signalized Intersection Summary
33: Camino del Rio N & Ward Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	170	816	299	210	445	65
Future Volume (veh/h)	170	816	299	210	445	65
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	181	868	318	39	473	41
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	235	1621	816	363	550	699
Arrive On Green	0.13	0.46	0.23	0.23	0.31	0.31
Sat Flow, veh/h	1781	3647	3647	1582	1781	1585
Grp Volume(v), veh/h	181	868	318	39	473	41
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1582	1781	1585
Q Serve(g_s), s	4.6	8.2	3.5	0.9	11.6	0.7
Cycle Q Clear(g_c), s	4.6	8.2	3.5	0.9	11.6	0.7
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	235	1621	816	363	550	699
V/C Ratio(X)	0.77	0.54	0.39	0.11	0.86	0.06
Avail Cap(c_a), veh/h	1688	5357	5357	2384	1688	1711
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.5	9.1	15.1	14.1	15.1	7.4
Incr Delay (d2), s/veh	2.0	0.4	0.5	0.2	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	2.1	1.2	0.3	4.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.5	9.5	15.6	14.3	16.7	7.5
LnGrp LOS	C	A	B	B	B	A
Approach Vol, veh/h		1049	357		514	
Approach Delay, s/veh		11.6	15.5		15.9	
Approach LOS		B	B		B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		27.2		19.3	10.5	16.7
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		10.2		13.6	6.6	5.5
Green Ext Time (p_c), s		11.0		0.8	0.2	3.4

Intersection Summary

HCM 6th Ctrl Delay	13.5
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 34: Fairmount Ave & Mission Gorge Rd

Horizon Year No Project With 4-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↗	↕			↗	↕	
Traffic Volume (veh/h)	20	10	454	30	10	10	40	303	989	40	10	10	956	20
Future Volume (veh/h)	20	10	454	30	10	10	40	303	989	40	10	10	956	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		0.98	1.00		0.98		1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	491	31	10	3	309	1009	39		10	976	19	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	331	532	174	52	13	908	2455	95		17	1593	31	
Arrive On Green	0.00	0.00	0.18	0.18	0.18	0.18	0.53	1.00	1.00		0.01	0.45	0.45	
Sat Flow, veh/h	0	1870	3004	714	293	74	3456	3486	135		1781	3564	69	
Grp Volume(v), veh/h	0	0	491	44	0	0	309	514	534		10	487	508	
Grp Sat Flow(s),veh/h/ln	0	1870	1502	1081	0	0	1728	1777	1844		1781	1777	1857	
Q Serve(g_s), s	0.0	0.0	20.9	3.2	0.0	0.0	6.7	0.0	0.0		0.7	27.1	27.1	
Cycle Q Clear(g_c), s	0.0	0.0	20.9	4.0	0.0	0.0	6.7	0.0	0.0		0.7	27.1	27.1	
Prop In Lane	0.00		1.00	0.70		0.07	1.00		0.07		1.00		0.04	
Lane Grp Cap(c), veh/h	0	331	532	239	0	0	908	1251	1298		17	794	830	
V/C Ratio(X)	0.00	0.00	0.92	0.18	0.00	0.00	0.34	0.41	0.41		0.60	0.61	0.61	
Avail Cap(c_a), veh/h	0	340	545	243	0	0	908	1251	1298		179	794	830	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00		1.00	1.00	1.00	
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.60	0.60	0.60		1.00	1.00	1.00	
Uniform Delay (d), s/veh	0.0	0.0	52.6	45.5	0.0	0.0	24.3	0.0	0.0		64.2	27.4	27.4	
Incr Delay (d2), s/veh	0.0	0.0	20.7	0.4	0.0	0.0	0.0	0.6	0.6		12.3	3.5	3.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.0	0.0	9.4	1.2	0.0	0.0	2.5	0.2	0.2		0.4	12.2	12.7	
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	73.3	45.8	0.0	0.0	24.4	0.6	0.6		76.5	30.9	30.7	
LnGrp LOS	A	A	E	D	A	A	C	A	A		E	C	C	
Approach Vol, veh/h		491			44			1357				1005		
Approach Delay, s/veh		73.3			45.8			6.0				31.3		
Approach LOS		E			D			A				C		
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	5.6	96.5		27.9	39.1	63.0		27.9						
Change Period (Y+Rc), s	4.4	4.9		4.9	4.9	* 4.9		4.9						
Max Green Setting (Gmax), s	13.1	79.1		23.6	34.1	* 58		23.6						
Max Q Clear Time (g_c+1/2), s	12.7	2.0		22.9	8.7	29.1		6.0						
Green Ext Time (p_c), s	0.0	22.2		0.1	0.6	14.3		0.2						

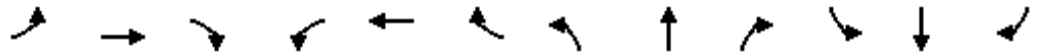
Intersection Summary

HCM 6th Ctrl Delay	26.8
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis Horizon Year No Project With 4-Ln Bridge
 35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	398	150	733	810	180	290	287	752	190	10	1434	150
Future Volume (vph)	398	150	733	810	180	290	287	752	190	10	1434	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	0.98	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1730	1583	1610	3078	1425	1770	3423		3433	3539	1563
Flt Permitted	0.95	0.98	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1730	1583	1610	3078	1425	1770	3423		3433	3539	1563
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	402	152	740	818	182	293	290	760	192	10	1448	152
RTOR Reduction (vph)	0	0	76	0	0	0	0	17	0	0	0	73
Lane Group Flow (vph)	273	281	664	409	620	264	290	935	0	10	1448	79
Confl. Peds. (#/hr)						3			1			
Confl. Bikes (#/hr)									1			1
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	7	5	8	8	1	5	2		1	6	
Permitted Phases			7			8						6
Actuated Green, G (s)	19.0	19.0	39.0	25.0	25.0	35.0	20.0	55.0		10.0	45.0	45.0
Effective Green, g (s)	19.0	19.0	39.0	25.0	25.0	35.0	20.0	55.0		10.0	45.0	45.0
Actuated g/C Ratio	0.15	0.15	0.30	0.19	0.19	0.27	0.15	0.42		0.08	0.35	0.35
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	245	252	532	309	591	383	272	1448		264	1225	541
v/s Ratio Prot	0.16	0.16	c0.19	c0.25	0.20	0.05	0.16	0.27		0.00	c0.41	
v/s Ratio Perm			0.23			0.13						0.05
v/c Ratio	1.11	1.12	1.25	1.32	1.32dl	0.69	1.07	0.65		0.04	1.18	0.15
Uniform Delay, d1	55.5	55.5	45.5	52.5	52.5	42.6	55.0	29.8		55.5	42.5	29.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.69	1.12	1.74
Incremental Delay, d2	91.6	91.1	127.0	166.5	50.5	4.1	73.2	2.2		0.0	88.3	0.4
Delay (s)	147.1	146.6	172.5	219.0	103.0	46.7	128.2	32.0		38.4	135.8	51.4
Level of Service	F	F	F	F	F	D	F	C		D	F	D
Approach Delay (s)		161.5			128.2			54.5			127.3	
Approach LOS		F			F			D			F	

Intersection Summary		
HCM 2000 Control Delay	119.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.29	F
Actuated Cycle Length (s)	130.0	Sum of lost time (s)
Intersection Capacity Utilization	121.4%	21.0
Analysis Period (min)	15	ICU Level of Service
		H

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
 c Critical Lane Group

HCM 6th Signalized Intersection Summary
 36: Fairmount Ave & I-8 EB Off-Ramp

Horizon Year No Project With 4-Ln Bridge
 PM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	720	2770	60	0	519	1447	0
Future Volume (veh/h)	720	2770	60	0	519	1447	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		0	1870	1870	0
Adj Flow Rate, veh/h	735	2827		0	530	1477	0
Peak Hour Factor	0.98	0.98		0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2		0	2	2	0
Cap, veh/h	1013	2704		0	1216	1748	0
Arrive On Green	0.57	0.57		0.00	0.34	0.34	0.00
Sat Flow, veh/h	1781	4755		0	3741	5443	0
Grp Volume(v), veh/h	735	2827		0	530	1477	0
Grp Sat Flow(s),veh/h/ln	1781	1585		0	1777	1702	0
Q Serve(g_s), s	37.8	70.9		0.0	14.4	33.4	0.0
Cycle Q Clear(g_c), s	37.8	70.9		0.0	14.4	33.4	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	1013	2704		0	1216	1748	0
V/C Ratio(X)	0.73	1.05		0.00	0.44	0.85	0.00
Avail Cap(c_a), veh/h	1013	2704		0	2186	2130	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.7	26.9		0.0	31.7	37.9	0.0
Incr Delay (d2), s/veh	2.3	30.6		0.0	0.1	2.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.7	32.9		0.0	6.2	14.2	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	22.0	57.5		0.0	31.8	40.3	0.0
LnGrp LOS	C	F		A	C	D	A
Approach Vol, veh/h	3562				530	1477	
Approach Delay, s/veh	50.2				31.8	40.3	
Approach LOS	D				C	D	
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				48.7		76.0	48.7
Change Period (Y+Rc), s				6.0		5.1	6.0
Max Green Setting (Gmax), s				52.0		70.9	76.7
Max Q Clear Time (g_c+I1), s				35.4		72.9	16.4
Green Ext Time (p_c), s				7.3		0.0	2.6

Intersection Summary

HCM 6th Ctrl Delay	45.8
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
37: Collwood Blvd & Montezuma Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↓	↑↑	↑↑	↑
Traffic Volume (veh/h)	1497	1370	10	90	839	700	50
Future Volume (veh/h)	1497	1370	10	90	839	700	50
Initial Q (Qb), veh	20	20		0	0	0	0
Ped-Bike Adj(A_pbT)		0.98		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1737	1870	1870	1648
Adj Flow Rate, veh/h	1543	1284		93	865	722	25
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		11	2	2	17
Cap, veh/h	2105	1272		114	2466	777	314
Arrive On Green	0.59	0.59		0.07	0.69	0.22	0.22
Sat Flow, veh/h	3647	1546		1654	3647	3456	1397
Grp Volume(v), veh/h	1543	1284		93	865	722	25
Grp Sat Flow(s),veh/h/ln	1777	1546		1654	1777	1728	1397
Q Serve(g_s), s	41.9	79.4		7.4	13.2	27.4	1.9
Cycle Q Clear(g_c), s	41.9	79.4		7.4	13.2	27.4	1.9
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2105	1272		114	2466	777	314
V/C Ratio(X)	0.73	1.01		0.82	0.35	0.93	0.08
Avail Cap(c_a), veh/h	2105	1272		328	2466	848	343
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.8	12.5		61.6	8.3	50.9	41.0
Incr Delay (d2), s/veh	2.3	27.6		5.3	0.4	15.1	0.0
Initial Q Delay(d3),s/veh	2.4	56.6		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.6	54.7		3.3	4.7	13.3	0.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	25.5	96.7		66.9	8.7	66.0	41.0
LnGrp LOS	C	F		E	A	E	D
Approach Vol, veh/h	2827			958	747		
Approach Delay, s/veh	57.9			14.3	65.2		
Approach LOS	E			B	E		
Timer - Assigned Phs	1	2		6	8		
Phs Duration (G+Y+Rc), s	13.6	85.9		99.5	34.5		
Change Period (Y+Rc), s	4.4	* 6.5		6.5	4.4		
Max Green Setting (Gmax), s	26.6	* 60		90.2	32.9		
Max Q Clear Time (g_c+1), s	19.4	81.4		15.2	29.4		
Green Ext Time (p_c), s	0.1	0.0		14.4	0.7		

Intersection Summary

HCM 6th Ctrl Delay	49.9
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
38: Mission Village Dr & Shawn Ave

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔				↔		↔	↑↑	↔	↔	↔	
Traffic Volume (veh/h)	80	10	80	10	50	10	30	70	460	30	50	1830	80
Future Volume (veh/h)	80	10	80	10	50	10	30	70	460	30	50	1830	80
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99		0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	11	78		53	11	3	74	489	22	53	1947	83
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	259	29	208		214	188	51	167	2589	1153	697	2531	107
Arrive On Green	0.15	0.15	0.15		0.15	0.15	0.15	0.73	0.73	0.73	0.73	0.73	0.73
Sat Flow, veh/h	1199	196	1425		857	1284	350	209	3554	1582	888	3473	147
Grp Volume(v), veh/h	96	0	78		53	0	14	74	489	22	53	989	1041
Grp Sat Flow(s),veh/h/ln1394		0	1425		857	0	1634	209	1777	1582	888	1777	1844
Q Serve(g_s), s	4.7	0.0	4.0		3.1	0.0	0.6	27.8	3.5	0.3	1.6	27.7	28.7
Cycle Q Clear(g_c), s	5.3	0.0	4.0		7.2	0.0	0.6	56.5	3.5	0.3	5.1	27.7	28.7
Prop In Lane	0.89		1.00		1.00		0.21	1.00		1.00	1.00		0.08
Lane Grp Cap(c), veh/h	287	0	208		214	0	239	167	2589	1153	697	1294	1343
V/C Ratio(X)	0.33	0.00	0.37		0.25	0.00	0.06	0.44	0.19	0.02	0.08	0.76	0.78
Avail Cap(c_a), veh/h	780	0	700		662	0	803	169	2621	1167	705	1310	1359
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00		1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	0.0	31.4		34.6	0.0	29.9	24.5	3.5	3.0	4.3	6.8	6.9
Incr Delay (d2), s/veh	0.3	0.0	0.4		0.2	0.0	0.0	2.2	0.0	0.0	0.1	2.8	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.7	0.0	0.0	1.4		1.0	0.0	0.2	1.3	0.8	0.1	0.2	7.2	7.8
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	32.3	0.0	31.8		34.8	0.0	30.0	26.7	3.5	3.0	4.3	9.6	9.8
LnGrp LOS	C	A	C		C	A	C	C	A	A	A	A	A
Approach Vol, veh/h		174				67			585			2083	
Approach Delay, s/veh		32.1				33.8			6.4			9.6	
Approach LOS		C				C			A			A	
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		64.6		16.8		64.6		16.8					
Change Period (Y+Rc), s		5.3		4.9		5.3		4.9					
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0					
Max Q Clear Time (g_c+1), s		58.5		7.3		30.7		9.2					
Green Ext Time (p_c), s		0.8		0.7		23.1		0.2					

Intersection Summary

HCM 6th Ctrl Delay	10.8
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
39: Mission Village Dr & Fermi Ave

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕			↙	↕	
Traffic Volume (veh/h)	40	10	10	50	10	50	10	540	40	10	30	1960	30
Future Volume (veh/h)	40	10	10	50	10	50	10	540	40	10	30	1960	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	42	10	4	52	10	26	10	562	39		31	2042	31
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	178	38	11	145	26	42	18	2376	165		44	2578	39
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.01	0.70	0.70		0.02	0.72	0.72
Sat Flow, veh/h	1112	424	118	825	296	470	1781	3372	234		1781	3582	54
Grp Volume(v), veh/h	56	0	0	88	0	0	10	296	305		31	1010	1063
Grp Sat Flow(s),veh/h/ln1654	0	0	0	1591	0	0	1781	1777	1828		1781	1777	1859
Q Serve(g_s), s	0.0	0.0	0.0	1.7	0.0	0.0	0.4	4.7	4.7		1.4	29.6	30.0
Cycle Q Clear(g_c), s	2.3	0.0	0.0	4.1	0.0	0.0	0.4	4.7	4.7		1.4	29.6	30.0
Prop In Lane	0.75		0.07	0.59		0.30	1.00		0.13		1.00		0.03
Lane Grp Cap(c), veh/h	226	0	0	214	0	0	18	1252	1289		44	1279	1338
V/C Ratio(X)	0.25	0.00	0.00	0.41	0.00	0.00	0.56	0.24	0.24		0.70	0.79	0.79
Avail Cap(c_a), veh/h	822	0	0	639	0	0	667	1331	1370		667	1331	1393
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	0.0	0.0	35.0	0.0	0.0	39.5	4.2	4.2		38.7	7.3	7.3
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.5	0.0	0.0	10.0	0.2	0.2		7.2	3.6	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.0	0.0	0.0	0.0	1.7	0.0	0.0	0.2	1.2	1.2		0.7	8.6	9.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	34.5	0.0	0.0	35.5	0.0	0.0	49.5	4.4	4.4		45.9	10.9	10.9
LnGrp LOS	C	A	A	D	A	A	D	A	A		D	B	B
Approach Vol, veh/h		56			88			611				2104	
Approach Delay, s/veh		34.5			35.5			5.1				11.4	
Approach LOS		C			D			A				B	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s6.4	61.6			12.0	5.2	62.8		12.0					
Change Period (Y+Rc), s 4.4	5.2			4.9	4.4	5.2		4.9					
Max Green Setting (Gmax), s 30.0	60.0			40.0	30.0	60.0		30.0					
Max Q Clear Time (g_c+1), s 13.4	6.7			4.3	2.4	32.0		6.1					
Green Ext Time (p_c), s 0.0	7.4			0.2	0.0	25.7		0.3					

Intersection Summary

HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
40: Gramercy Dr/Mission Village Dr & Ruffin Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	60	580	20	10	310	320	20	10	20	1470	20	90
Future Volume (veh/h)	60	580	20	10	310	320	20	10	20	1470	20	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	592	18	10	316	175	20	10	2	1500	20	88
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	265	1086	33	230	682	368	70	116	22	1630	138	607
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.04	0.04	0.04	0.46	0.46	0.46
Sat Flow, veh/h	902	3518	107	808	2208	1191	1781	2961	571	3563	302	1327
Grp Volume(v), veh/h	61	299	311	10	253	238	20	6	6	1500	0	108
Grp Sat Flow(s),veh/h/ln	902	1777	1848	808	1777	1623	1781	1777	1756	1781	0	1628
Q Serve(g_s), s	4.5	10.7	10.7	0.8	8.8	9.1	0.8	0.2	0.3	30.2	0.0	3.0
Cycle Q Clear(g_c), s	13.6	10.7	10.7	11.5	8.8	9.1	0.8	0.2	0.3	30.2	0.0	3.0
Prop In Lane	1.00		0.06	1.00		0.73	1.00		0.33	1.00		0.81
Lane Grp Cap(c), veh/h	265	548	570	230	548	501	70	70	69	1630	0	745
V/C Ratio(X)	0.23	0.54	0.55	0.04	0.46	0.48	0.29	0.08	0.09	0.92	0.00	0.14
Avail Cap(c_a), veh/h	693	1392	1448	614	1392	1271	930	928	917	1861	0	851
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.0	22.0	22.0	26.8	21.3	21.5	35.7	35.5	35.5	19.5	0.0	12.1
Incr Delay (d2), s/veh	0.5	1.1	1.0	0.1	0.8	0.9	0.8	0.2	0.2	6.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0	4.5	4.7	0.2	3.7	3.5	0.4	0.1	0.1	12.2	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.5	23.1	23.0	26.9	22.1	22.3	36.6	35.7	35.7	26.3	0.0	12.1
LnGrp LOS	C	C	C	C	C	C	D	D	D	C	A	B
Approach Vol, veh/h		671			501			32				1608
Approach Delay, s/veh		23.4			22.3			36.2				25.4
Approach LOS		C			C			D				C
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		28.7		39.9		28.7		7.9				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		15.6		32.2		13.5		2.8				
Green Ext Time (p_c), s		6.3		2.8		4.7		0.1				

Intersection Summary

HCM 6th Ctrl Delay	24.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	880	850	10	990	810	180	310
Future Volume (veh/h)	880	850	10	990	810	180	310
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	926	894		1042	853	189	91
Peak Hour Factor	0.95	0.95		0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1943	963		896	2984	261	120
Arrive On Green	0.55	0.55		0.26	0.84	0.08	0.08
Sat Flow, veh/h	3647	1542		3456	3647	3456	1585
Grp Volume(v), veh/h	926	894		1042	853	189	91
Grp Sat Flow(s),veh/h/ln	1777	1542		1728	1777	1728	1585
Q Serve(g_s), s	20.8	67.8		33.7	6.6	7.0	7.3
Cycle Q Clear(g_c), s	20.8	67.8		33.7	6.6	7.0	7.3
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1943	963		896	2984	261	120
V/C Ratio(X)	0.48	0.93		1.16	0.29	0.72	0.76
Avail Cap(c_a), veh/h	1943	963		896	2984	1135	521
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.90	0.90
Uniform Delay (d), s/veh	18.1	22.1		48.2	2.2	58.8	58.9
Incr Delay (d2), s/veh	0.8	16.2		85.7	0.2	1.3	3.3
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	31.6		24.7	1.4	3.1	3.1
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	18.9	38.3		133.8	2.4	60.1	62.3
LnGrp LOS	B	D		F	A	E	E
Approach Vol, veh/h	1820			1895	280		
Approach Delay, s/veh	28.4			74.7	60.8		
Approach LOS	C			E	E		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	38.1	76.8			114.9	15.1	
Change Period (Y+Rc), s	4.4	* 5.7			5.7	5.3	
Max Green Setting (Gmax), s	33.7	* 39			76.3	42.7	
Max Q Clear Time (g_c+Y), s	33.7	69.8			8.6	9.3	
Green Ext Time (p_c), s	0.0	0.0			9.6	0.5	

Intersection Summary

HCM 6th Ctrl Delay	52.6
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mobley St & Gramercy Dr

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	610	90	60	290	50	50	30	40	80	20	20
Future Volume (veh/h)	20	610	90	60	290	50	50	30	40	80	20	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.96	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1826	1826	1826	1752	1752	1752
Adj Flow Rate, veh/h	21	629	69	62	299	38	52	31	20	82	21	13
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	10	10	10
Cap, veh/h	695	1804	794	522	1604	202	273	127	56	346	78	29
Arrive On Green	0.51	0.51	0.51	0.51	0.51	0.51	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1035	3554	1565	744	3161	397	577	695	306	851	426	161
Grp Volume(v), veh/h	21	629	69	62	167	170	103	0	0	116	0	0
Grp Sat Flow(s),veh/h/ln	1035	1777	1565	744	1777	1782	1578	0	0	1439	0	0
Q Serve(g_s), s	0.4	3.4	0.7	1.8	1.6	1.7	0.0	0.0	0.0	0.4	0.0	0.0
Cycle Q Clear(g_c), s	2.0	3.4	0.7	5.2	1.6	1.7	1.6	0.0	0.0	2.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.22	0.50		0.19	0.71		0.11
Lane Grp Cap(c), veh/h	695	1804	794	522	902	904	456	0	0	453	0	0
V/C Ratio(X)	0.03	0.35	0.09	0.12	0.18	0.19	0.23	0.00	0.00	0.26	0.00	0.00
Avail Cap(c_a), veh/h	2094	6607	2909	1528	3303	3312	2023	0	0	1870	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.9	4.8	4.1	6.3	4.3	4.3	11.5	0.0	0.0	11.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.7	0.1	0.2	0.3	0.3	0.5	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.9	5.0	4.2	6.5	4.5	4.5	11.5	0.0	0.0	11.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		719			399			103			116	
Approach Delay, s/veh		4.9			4.8			11.5			11.7	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		21.5		10.8		21.5		10.8				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		5.4		4.0		7.2		3.6				
Green Ext Time (p_c), s		10.8		0.5		4.9		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				6.0								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary
43: Sandrock Rd & Greyling Dr/Gramercy Dr

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕			↕	↕	↕	↕	↕
Traffic Volume (veh/h)	90	140	10	20	170	200	10	10	20	30	600	40	140
Future Volume (veh/h)	90	140	10	20	170	200	10	10	20	30	600	40	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.98		0.94	1.00		1.00	1.00			0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1574	1574	1870	1870	1856	1870	
Adj Flow Rate, veh/h	95	147	10	21	179	129	11	21	0	662	0	75	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	22	22	2	2	3	2	
Cap, veh/h	247	321	18	126	533	879	16	31	48	952	0	407	
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.03	0.03	0.00	0.27	0.00	0.27	
Sat Flow, veh/h	393	1050	60	80	1746	1493	532	1015	1585	3563	0	1522	
Grp Volume(v), veh/h	252	0	0	200	0	129	32	0	0	662	0	75	
Grp Sat Flow(s),veh/h/ln1503	0	0	1826	0	1493		1547	0	1585	1781	0	1522	
Q Serve(g_s), s	1.8	0.0	0.0	0.0	0.0	1.6	0.8	0.0	0.0	6.5	0.0	1.5	
Cycle Q Clear(g_c), s	5.1	0.0	0.0	3.2	0.0	1.6	0.8	0.0	0.0	6.5	0.0	1.5	
Prop In Lane	0.38		0.04	0.10		1.00	0.34		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	586	0	0	659	0	879	46	0	48	952	0	407	
V/C Ratio(X)	0.43	0.00	0.00	0.30	0.00	0.15	0.69	0.00	0.00	0.70	0.00	0.18	
Avail Cap(c_a), veh/h	1067	0	0	1252	0	1381	793	0	813	2740	0	1171	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh	11.0	0.0	0.0	10.5	0.0	3.9	18.7	0.0	0.0	12.9	0.0	11.0	
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	6.6	0.0	0.0	0.3	0.0	0.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln1.4	0.0	0.0	0.0	1.0	0.0	0.6	0.3	0.0	0.0	2.0	0.0	0.4	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	11.2	0.0	0.0	10.6	0.0	3.9	25.3	0.0	0.0	13.2	0.0	11.1	
LnGrp LOS	B	A	A	B	A	A	C	A	A	B	A	B	
Approach Vol, veh/h		252		329			32			737			
Approach Delay, s/veh		11.2		8.0			25.3			13.0			
Approach LOS		B		A			C			B			
Timer - Assigned Phs		2		4		6	8						
Phs Duration (G+Y+Rc), s		17.2		15.7		17.2	6.1						
Change Period (Y+Rc), s		5.3		5.3		5.3	4.9						
Max Green Setting (Gmax), s		25.0		30.0		25.0	20.0						
Max Q Clear Time (g_c+1), s		7.1		8.5		5.2	2.8						
Green Ext Time (p_c), s		1.1		1.4		0.9	0.1						

Intersection Summary

HCM 6th Ctrl Delay	11.7
HCM 6th LOS	B

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
44: Fenton Pkwy & Camino del Rio N

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



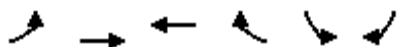
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	74	367	640	92	143	229	120	331	54	485	336	37
Future Volume (veh/h)	74	367	640	92	143	229	120	331	54	485	336	37
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	80	399	553	100	155	191	130	360	54	527	365	32
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	97	476	547	112	200	247	161	360	54	521	1418	124
Arrive On Green	0.05	0.25	0.25	0.06	0.26	0.26	0.09	0.23	0.23	0.29	0.43	0.43
Sat Flow, veh/h	1781	1870	1585	1781	762	939	1781	1589	238	1781	3307	288
Grp Volume(v), veh/h	80	399	553	100	0	346	130	0	414	527	195	202
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1701	1781	0	1827	1781	1777	1818
Q Serve(g_s), s	4.9	22.2	28.0	6.1	0.0	20.7	7.9	0.0	24.9	32.2	7.8	7.8
Cycle Q Clear(g_c), s	4.9	22.2	28.0	6.1	0.0	20.7	7.9	0.0	24.9	32.2	7.8	7.8
Prop In Lane	1.00		1.00	1.00		0.55	1.00		0.13	1.00		0.16
Lane Grp Cap(c), veh/h	97	476	547	112	0	447	161	0	414	521	762	780
V/C Ratio(X)	0.82	0.84	1.01	0.89	0.00	0.77	0.81	0.00	1.00	1.01	0.26	0.26
Avail Cap(c_a), veh/h	97	476	547	112	0	447	374	0	414	521	762	780
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.5	38.9	36.0	51.2	0.0	37.5	49.1	0.0	42.6	38.9	20.2	20.2
Incr Delay (d2), s/veh	41.1	12.5	41.4	53.7	0.0	8.2	9.2	0.0	44.4	42.1	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	11.7	20.6	4.4	0.0	9.5	3.9	0.0	16.3	20.1	3.3	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.6	51.3	77.4	104.9	0.0	45.8	58.2	0.0	87.0	81.0	20.3	20.4
LnGrp LOS	F	D	F	F	A	D	E	A	F	F	C	C
Approach Vol, veh/h		1032			446			544			924	
Approach Delay, s/veh		68.5			59.0			80.1			54.9	
Approach LOS		E			E			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	36.7	29.4	11.4	32.5	14.4	51.7	10.5	33.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	32.2	24.9	6.9	28.0	23.1	34.0	6.0	28.9				
Max Q Clear Time (g_c+R), s	34.2	26.9	8.1	30.0	9.9	9.8	6.9	22.7				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.3	2.5	0.0	1.1				

Intersection Summary

HCM 6th Ctrl Delay	65.0
HCM 6th LOS	E

HCM 6th Signalized Intersection Summary
45: Camino del Rio S & Fenton Pkwy

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↖	↑	↑	↗	↖	↗	
Traffic Volume (veh/h)	204	610	250	311	928	180	
Future Volume (veh/h)	204	610	250	311	928	180	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	222	663	272	311	1009	132	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	229	692	387	1215	997	888	
Arrive On Green	0.13	0.37	0.21	0.21	0.56	0.56	
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585	
Grp Volume(v), veh/h	222	663	272	311	1009	132	
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1781	1585	
Q Serve(g_s), s	16.0	44.5	17.4	7.3	72.0	5.1	
Cycle Q Clear(g_c), s	16.0	44.5	17.4	7.3	72.0	5.1	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	229	692	387	1215	997	888	
V/C Ratio(X)	0.97	0.96	0.70	0.26	1.01	0.15	
Avail Cap(c_a), veh/h	229	713	407	1233	997	888	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	55.8	39.5	47.3	4.4	28.3	13.6	
Incr Delay (d2), s/veh	51.2	23.5	5.1	0.1	31.4	0.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	10.4	24.7	8.6	9.9	38.3	6.8	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	107.0	63.0	52.4	4.5	59.7	13.7	
LnGrp LOS	F	E	D	A	F	B	
Approach Vol, veh/h		885	583		1141		
Approach Delay, s/veh		74.1	26.8		54.3		
Approach LOS		E	C		D		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				52.1	76.5	21.0	31.1
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				49.0	72.0	16.5	28.0
Max Q Clear Time (g_c+1), s				46.5	74.0	18.0	19.4
Green Ext Time (p_c), s				1.1	0.0	0.0	1.9
Intersection Summary							
HCM 6th Ctrl Delay			54.9				
HCM 6th LOS			D				

HCM 6th Signalized Intersection Summary
46: Camino del Rio S & I-15 SB Off-Ramp

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



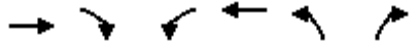
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑			↕		↖		↗
Traffic Volume (veh/h)	0	2118	30	40	361	0	30	0	50	210	30	110
Future Volume (veh/h)	0	2118	30	40	361	0	30	0	50	210	30	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	2302	32	43	392	0	33	0	0	228	33	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	0	2411	33	55	1376	0	47	0	0	248	0	221
Arrive On Green	0.00	0.67	0.67	0.03	0.74	0.00	0.03	0.00	0.00	0.14	0.14	0.14
Sat Flow, veh/h	0	3682	50	1781	1870	0	1781	0	0	1781	0	1585
Grp Volume(v), veh/h	0	1137	1197	43	392	0	33	0	0	228	0	7
Grp Sat Flow(s),veh/h/ln	0	1777	1861	1781	1870	0	1781	0	0	1781	0	1585
Q Serve(g_s), s	0.0	79.6	80.7	3.3	9.6	0.0	2.5	0.0	0.0	17.2	0.0	0.5
Cycle Q Clear(g_c), s	0.0	79.6	80.7	3.3	9.6	0.0	2.5	0.0	0.0	17.2	0.0	0.5
Prop In Lane	0.00		0.03	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	1194	1250	55	1376	0	47	0	0	248	0	221
V/C Ratio(X)	0.00	0.95	0.96	0.78	0.28	0.00	0.71	0.00	0.00	0.92	0.00	0.03
Avail Cap(c_a), veh/h	0	1203	1260	69	1400	0	69	0	0	248	0	221
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	20.4	20.6	65.7	6.0	0.0	65.9	0.0	0.0	58.0	0.0	50.8
Incr Delay (d2), s/veh	0.0	15.9	16.1	34.4	0.1	0.0	17.9	0.0	0.0	36.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	35.5	37.7	2.0	3.6	0.0	1.4	0.0	0.0	10.3	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	36.3	36.8	100.1	6.1	0.0	83.8	0.0	0.0	94.2	0.0	50.9
LnGrp LOS	A	D	D	F	A	A	F	A	A	F	A	D
Approach Vol, veh/h		2334		435		33		235				
Approach Delay, s/veh		36.5		15.4		83.8		92.9				
Approach LOS		D		B		F		F				
Timer - Assigned Phs	1	2	4	6	8							
Phs Duration (G+Y+Rc), s	8.7	96.2	23.5	104.9	8.1							
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5							
Max Green Setting (Gmax), s	5.3	92.4	19.0	102.2	5.3							
Max Q Clear Time (g_c+I), s	15.3	82.7	19.2	11.6	4.5							
Green Ext Time (p_c), s	0.0	9.0	0.0	2.7	0.0							

Intersection Summary

HCM 6th Ctrl Delay	38.4
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary
47: I-15 SB On-Ramp & Camino del Rio S

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑		
Traffic Volume (veh/h)	1530	888	40	391	0	0
Future Volume (veh/h)	1530	888	40	391	0	0
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		
Adj Flow Rate, veh/h	1663	885	43	425		
Peak Hour Factor	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2		
Cap, veh/h	1951	952	70	1760		
Arrive On Green	0.84	0.84	0.04	0.94		
Sat Flow, veh/h	2408	1129	1781	1870		
Grp Volume(v), veh/h	1241	1307	43	425		
Grp Sat Flow(s),veh/h/ln	1777	1667	1781	1870		
Q Serve(g_s), s	27.8	43.5	1.8	1.3		
Cycle Q Clear(g_c), s	27.8	43.5	1.8	1.3		
Prop In Lane		0.68	1.00			
Lane Grp Cap(c), veh/h	1498	1405	70	1760		
V/C Ratio(X)	0.83	0.93	0.62	0.24		
Avail Cap(c_a), veh/h	1528	1433	124	1848		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.1	4.4	36.1	0.2		
Incr Delay (d2), s/veh	3.9	10.9	8.5	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	8.5	6.9	0.9	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.0	15.2	44.7	0.2		
LnGrp LOS	A	B	D	A		
Approach Vol, veh/h	2548			468		
Approach Delay, s/veh	11.2			4.3		
Approach LOS	B			A		
Timer - Assigned Phs	1	2			6	
Phs Duration (G+Y+Rc), s	7.5	68.9			76.4	
Change Period (Y+Rc), s	4.5	4.5			4.5	
Max Green Setting (Gmax), s	5.3	65.7			75.5	
Max Q Clear Time (g_c+I), s	13.8	45.5			3.3	
Green Ext Time (p_c), s	0.0	18.9			3.0	
Intersection Summary						
HCM 6th Ctrl Delay			10.2			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary
48: I-15 NB Ramps & Camino del Rio S

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	450	1090	0	0	120	50	321	10	140	0	0	0
Future Volume (veh/h)	450	1090	0	0	120	50	321	10	140	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	489	1185	0	0	130	7	349	11	64			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	544	1245	0	0	565	479	389	52	302			
Arrive On Green	0.31	0.67	0.00	0.00	0.30	0.30	0.22	0.22	0.22			
Sat Flow, veh/h	1781	1870	0	0	1870	1585	1781	238	1384			
Grp Volume(v), veh/h	489	1185	0	0	130	7	349	0	75			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1870	1585	1781	0	1621			
Q Serve(g_s), s	20.4	44.8	0.0	0.0	4.0	0.2	14.8	0.0	2.9			
Cycle Q Clear(g_c), s	20.4	44.8	0.0	0.0	4.0	0.2	14.8	0.0	2.9			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.85			
Lane Grp Cap(c), veh/h	544	1245	0	0	565	479	389	0	354			
V/C Ratio(X)	0.90	0.95	0.00	0.00	0.23	0.01	0.90	0.00	0.21			
Avail Cap(c_a), veh/h	779	1291	0	0	565	479	402	0	366			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	25.8	11.8	0.0	0.0	20.3	18.9	29.5	0.0	24.8			
Incr Delay (d2), s/veh	10.0	14.8	0.0	0.0	0.2	0.0	21.9	0.0	0.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	9.6	19.0	0.0	0.0	1.7	0.1	8.4	0.0	1.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.8	26.6	0.0	0.0	20.5	19.0	51.4	0.0	25.1			
LnGrp LOS	D	C	A	A	C	B	D	A	C			
Approach Vol, veh/h		1674			137			424				
Approach Delay, s/veh		29.3			20.4			46.7				
Approach LOS		C			C			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		56.1			28.2	27.9		21.4				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		53.5			33.9	15.1		17.5				
Max Q Clear Time (g_c+1), s		46.8			22.4	6.0		16.8				
Green Ext Time (p_c), s		4.8			1.3	0.4		0.1				
Intersection Summary												
HCM 6th Ctrl Delay					32.0							
HCM 6th LOS					C							

Queues
3: Frazee Rd & Friars Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	416	2764	753	112	1809	112	371	225	146	90	427
v/c Ratio	0.86	0.89	0.63	0.69	0.78	0.17	0.75	0.23	0.79	0.24	0.77
Control Delay	76.2	38.0	33.9	87.2	43.0	2.6	66.6	23.2	93.7	47.8	61.7
Queue Delay	0.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.2	40.6	33.9	87.2	43.0	2.6	66.6	23.2	93.7	47.8	61.7
Queue Length 50th (ft)	200	721	323	55	466	0	175	51	71	68	206
Queue Length 95th (ft)	#271	759	372	#101	506	20	221	83	#132	123	281
Internal Link Dist (ft)		635			873			694		764	
Turn Bay Length (ft)	175		250	140		300	200		110		700
Base Capacity (vph)	534	3095	1403	164	2333	656	754	1167	184	414	611
Starvation Cap Reductn	0	226	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.96	0.54	0.68	0.78	0.17	0.49	0.19	0.79	0.22	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
4: Mission Center Rd & Friars Rd WB

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Lane Group	WBL	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	100	98	292	250	917	1250	354
v/c Ratio	0.37	0.36	0.77	1.88	0.35	0.67	0.42
Control Delay	41.7	41.4	33.9	445.0	1.2	22.7	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.4	0.0	0.0
Total Delay	41.7	41.4	33.9	445.0	1.6	22.7	13.0
Queue Length 50th (ft)	66	65	98	~140	4	310	85
Queue Length 95th (ft)	103	101	168	m#208	87	504	203
Internal Link Dist (ft)		574			283	959	
Turn Bay Length (ft)	400			100			80
Base Capacity (vph)	477	481	555	133	2637	1867	835
Starvation Cap Reductn	0	0	0	0	1088	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.20	0.53	1.88	0.59	0.67	0.42

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
5: Mission Center Rd & Friars Rd EB

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Lane Group	EBL	EBT	EBR	NBT	SBL	SBT
Lane Group Flow (vph)	204	207	326	1221	579	874
v/c Ratio	0.65	0.65	0.76	0.76	0.82	0.35
Control Delay	49.0	49.2	30.7	27.0	39.3	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.2
Total Delay	49.0	49.2	30.7	27.0	39.6	2.7
Queue Length 50th (ft)	138	141	107	325	201	25
Queue Length 95th (ft)	197	201	188	#576	252	20
Internal Link Dist (ft)		359		1384		283
Turn Bay Length (ft)	220				120	
Base Capacity (vph)	460	463	553	1606	848	2521
Starvation Cap Reductn	0	0	0	0	33	829
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.45	0.59	0.76	0.71	0.52

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
6: Qualcomm Way & Friars Rd WB

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Lane Group	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	234	224	626	115	219	21
v/c Ratio	0.66	0.62	0.39	0.05	0.45	0.07
Control Delay	36.9	32.0	7.8	2.2	34.8	0.5
Queue Delay	0.0	0.0	0.1	0.0	0.2	0.0
Total Delay	36.9	32.0	8.0	2.2	34.9	0.5
Queue Length 50th (ft)	115	98	106	3	54	0
Queue Length 95th (ft)	155	138	24	5	85	0
Internal Link Dist (ft)		573		224	464	
Turn Bay Length (ft)	290					200
Base Capacity (vph)	590	592	1609	2350	712	384
Starvation Cap Reductn	0	0	259	0	0	0
Spillback Cap Reductn	0	0	0	0	100	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.38	0.46	0.05	0.36	0.05
Intersection Summary						

Queues
7: Qualcomm Way & Friars Rd EB

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	44	45	342	679	373	100	711
v/c Ratio	0.12	0.12	0.75	0.20	0.37	0.35	0.31
Control Delay	21.0	21.0	26.1	12.8	3.6	33.2	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.7
Total Delay	21.0	21.0	26.1	12.8	3.6	33.2	9.3
Queue Length 50th (ft)	18	20	100	47	0	20	112
Queue Length 95th (ft)	32	33	136	103	61	46	220
Internal Link Dist (ft)		530		644			224
Turn Bay Length (ft)	350					165	
Base Capacity (vph)	716	727	751	3423	1001	433	2309
Starvation Cap Reductn	0	0	0	0	0	0	1173
Spillback Cap Reductn	0	0	0	73	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.06	0.46	0.20	0.37	0.23	0.63
Intersection Summary							

Queues
8: River Run Dr & Friars Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	42	2472	165	82	1422	92	144	341
v/c Ratio	0.67	0.98	0.21	1.58	0.54	0.27	0.27	0.89
Control Delay	104.2	48.1	15.2	371.4	24.4	37.6	6.1	69.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.2	48.1	15.2	371.4	24.4	37.6	6.1	69.2
Queue Length 50th (ft)	36	~787	54	~102	319	62	0	272
Queue Length 95th (ft)	#95	#982	109	#213	397	104	47	#386
Internal Link Dist (ft)		1033			1065	769		330
Turn Bay Length (ft)	210		50	235			120	
Base Capacity (vph)	69	2518	786	52	2650	393	606	446
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	0.98	0.21	1.58	0.54	0.23	0.24	0.76

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
9: Fenton Pkwy & Friars Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	155	1981	893	314	814	82	597	52	481	41	48	45
v/c Ratio	0.58	0.81	0.69	2.96	0.32	0.09	0.94	0.12	0.87	0.27	0.23	0.14
Control Delay	69.4	35.1	6.0	929.4	17.1	2.3	77.4	38.1	39.5	66.7	28.9	2.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.4	35.1	6.0	929.4	17.1	2.3	77.4	38.1	39.5	66.7	28.9	2.6
Queue Length 50th (ft)	69	543	30	~254	90	3	264	36	212	18	18	0
Queue Length 95th (ft)	104	#764	195	#355	113	10	#492	66	330	38	50	10
Internal Link Dist (ft)		1065			1446			631			385	
Turn Bay Length (ft)	250		250	270		270	210			208		208
Base Capacity (vph)	381	2436	1293	106	2537	961	635	550	637	270	424	370
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.81	0.69	2.96	0.32	0.09	0.94	0.09	0.76	0.15	0.11	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.













Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues
10: Northside Dr & Friars Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour

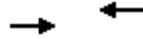
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	183	2049	269	570	909	226	226	43	860	108	32	108
v/c Ratio	1.73	0.76	0.33	1.40	0.32	0.20	0.67	0.18	1.87	0.34	0.16	0.41
Control Delay	383.7	25.9	23.4	238.7	17.3	1.8	69.2	50.7	425.0	62.9	54.9	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	383.7	25.9	23.4	238.7	17.3	1.8	69.2	50.7	425.0	62.9	54.9	13.7
Queue Length 50th (ft)	~124	306	103	~346	146	0	101	34	~901	48	27	0
Queue Length 95th (ft)	m#168	476	m196	#464	225	34	141	64	#1042	78	55	52
Internal Link Dist (ft)		1446			1036			791			532	
Turn Bay Length (ft)	255		255	265		265	200			170		300
Base Capacity (vph)	106	2708	827	406	2850	1195	479	405	460	508	405	429
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.73	0.76	0.33	1.40	0.32	0.19	0.47	0.11	1.87	0.21	0.08	0.25

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
11: Stadium Way & Friars Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Lane Group	EBT	WBT
Lane Group Flow (vph)	2922	1679
v/c Ratio	0.57	0.33
Control Delay	0.5	0.2
Queue Delay	0.0	0.0
Total Delay	0.5	0.2
Queue Length 50th (ft)	0	0
Queue Length 95th (ft)	0	0
Internal Link Dist (ft)	1036	806
Turn Bay Length (ft)		
Base Capacity (vph)	5085	5085
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.57	0.33
Intersection Summary		

Queues
 12: Mission Village Dr & Friars Rd WB

Horizon Year No Project With 4-Ln Bridge
 PM Peak Hour



Lane Group	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	52	396	10	448	1375	573
v/c Ratio	0.27	0.25	0.09	0.16	0.50	0.46
Control Delay	40.3	0.4	18.0	13.2	8.8	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.3	0.4	18.0	13.2	8.8	6.0
Queue Length 50th (ft)	32	0	5	148	109	36
Queue Length 95th (ft)	53	0	m9	m134	478	267
Internal Link Dist (ft)	555			374	220	
Turn Bay Length (ft)		110	125			120
Base Capacity (vph)	584	1563	224	2839	2757	1244
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.25	0.04	0.16	0.50	0.46

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues

13: Mission Village Dr & Friars Rd EB & San Diego Mission Rd



Lane Group	EBL	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	337	44	79	79	84	703	749
v/c Ratio	1.35	0.18	0.41	0.42	0.24	0.95	0.92dl
Control Delay	218.4	39.9	44.4	44.8	31.1	51.4	25.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	218.4	39.9	44.4	44.8	31.1	51.4	25.5
Queue Length 50th (ft)	~283	25	50	50	20	461	175
Queue Length 95th (ft)	#455	58	84	84	36	#1072	#469
Internal Link Dist (ft)		532	3124		280		374
Turn Bay Length (ft)						160	
Base Capacity (vph)	249	251	379	372	786	739	1486
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.35	0.18	0.21	0.21	0.11	0.95	0.50

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Queues
14: Mission Village Dr & Road A

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour

Lane Group
Lane Group Flow (vph)
v/c Ratio
Control Delay
Queue Delay
Total Delay
Queue Length 50th (ft)
Queue Length 95th (ft)
Internal Link Dist (ft)
Turn Bay Length (ft)
Base Capacity (vph)
Starvation Cap Reductn
Spillback Cap Reductn
Storage Cap Reductn
Reduced v/c Ratio
Intersection Summary

Lane Group
Lane Group Flow (vph)
v/c Ratio
Control Delay
Queue Delay
Total Delay
Queue Length 50th (ft)
Queue Length 95th (ft)
Internal Link Dist (ft)
Turn Bay Length (ft)
Base Capacity (vph)
Starvation Cap Reductn
Spillback Cap Reductn
Storage Cap Reductn
Reduced v/c Ratio
Intersection Summary

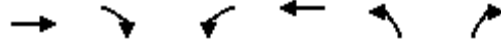
Queues
16: Road A

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour

Lane Group
Lane Group Flow (vph)
v/c Ratio
Control Delay
Queue Delay
Total Delay
Queue Length 50th (ft)
Queue Length 95th (ft)
Internal Link Dist (ft)
Turn Bay Length (ft)
Base Capacity (vph)
Starvation Cap Reductn
Spillback Cap Reductn
Storage Cap Reductn
Reduced v/c Ratio
Intersection Summary

Queues
19: Rancho Mission Rd & Friars Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



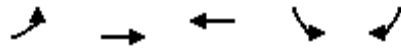
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	3604	510	46	1807	455	66
v/c Ratio	1.17	0.38	0.85	0.56	0.77	0.22
Control Delay	106.3	1.1	143.7	8.9	62.3	11.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	106.3	1.1	143.7	8.9	62.3	11.5
Queue Length 50th (ft)	~1386	0	40	255	201	0
Queue Length 95th (ft)	#1572	18	#117	394	240	43
Internal Link Dist (ft)	869			1089	2046	
Turn Bay Length (ft)		365	165		160	160
Base Capacity (vph)	3085	1397	58	3226	814	391
Starvation Cap Reductn	75	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.20	0.37	0.79	0.56	0.56	0.17

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
20: Friars Rd & Santo Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour

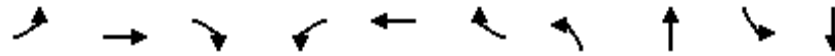


Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	427	3333	1636	94	271
v/c Ratio	0.78	0.78	0.40	0.43	0.64
Control Delay	58.2	6.0	10.5	59.6	44.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	58.2	6.0	10.5	59.6	44.4
Queue Length 50th (ft)	165	311	157	36	180
Queue Length 95th (ft)	211	417	216	63	251
Internal Link Dist (ft)		1089	1618	1397	
Turn Bay Length (ft)	260			100	
Base Capacity (vph)	732	4296	4111	729	504
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.58	0.78	0.40	0.13	0.54

Intersection Summary

Queues
21: Riverdale St & Friars Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	268	2897	247	62	1175	62	227	257	62	206
v/c Ratio	0.88	1.06	0.27	0.47	0.55	0.08	0.92	0.53	0.32	0.40
Control Delay	72.2	64.2	6.0	57.2	25.7	1.0	77.2	26.6	32.8	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.2	64.2	6.0	57.2	25.7	1.0	77.2	26.6	32.8	13.8
Queue Length 50th (ft)	175	~815	18	41	217	0	148	107	34	43
Queue Length 95th (ft)	#312	#1073	78	81	309	6	222	162	64	92
Internal Link Dist (ft)		1618			459			1186		803
Turn Bay Length (ft)	150		350			75			100	
Base Capacity (vph)	321	2721	906	205	2133	734	336	644	268	665
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	1.06	0.27	0.30	0.55	0.08	0.68	0.40	0.23	0.31

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
22: Mission Gorge Rd & Friars Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2978	298	1021	383	638
v/c Ratio	1.14	0.69	0.20	0.94	0.58
Control Delay	95.0	59.1	0.1	77.9	31.0
Queue Delay	0.3	0.0	0.0	0.0	0.0
Total Delay	95.3	59.1	0.1	77.9	31.0
Queue Length 50th (ft)	~997	115	0	290	214
Queue Length 95th (ft)	#1084	164	0	#471	280
Internal Link Dist (ft)	459		1123	2242	
Turn Bay Length (ft)		230		150	
Base Capacity (vph)	2621	434	5085	421	1097
Starvation Cap Reductn	361	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.32	0.69	0.20	0.91	0.58

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
23: Qualcomm Way & Rio San Diego Dr

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	305	388	245	832	412	358	9	186	158	85	1050
v/c Ratio	0.73	0.70	0.44	7.70	0.29	0.46	0.07	0.34	0.51	0.79	0.72
Control Delay	67.7	50.3	30.1	3056.3	29.4	11.1	66.4	56.3	13.6	94.6	42.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.7	50.3	30.1	3056.3	29.4	11.1	66.4	56.3	13.6	94.6	42.9
Queue Length 50th (ft)	129	287	126	~668	120	51	3	55	0	35	284
Queue Length 95th (ft)	200	484	245	#920	211	172	14	80	62	#99	334
Internal Link Dist (ft)		875			2837			1281			644
Turn Bay Length (ft)	120		120	120		160	350		100	170	
Base Capacity (vph)	771	557	1195	108	1421	777	1541	3422	1095	108	2193
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.70	0.21	7.70	0.29	0.46	0.01	0.05	0.14	0.79	0.48

Intersection Summary

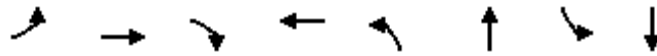
- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

Horizon Year No Project With 4-Ln Bridge

25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	155	305	319	556	180	621	346	920
v/c Ratio	3.60	0.70	0.54	0.85	0.79	0.67	3.93	0.82
Control Delay	1259.5	69.1	14.2	71.0	95.3	57.2	1369.9	59.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Total Delay	1259.5	69.1	14.2	71.0	95.3	57.2	1369.9	59.8
Queue Length 50th (ft)	~315	321	37	274	191	313	~349	484
Queue Length 95th (ft)	#507	#547	155	382	308	405	#523	651
Internal Link Dist (ft)		1111		199		1770		631
Turn Bay Length (ft)	255				165		290	
Base Capacity (vph)	43	435	587	862	327	1293	88	1297
Starvation Cap Reductn	0	0	0	0	0	0	0	47
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	3.60	0.70	0.54	0.65	0.55	0.48	3.93	0.74

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues

Horizon Year No Project With 4-Ln Bridge

26: Rancho Mission Rd & San Diego Mission Rd

PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	189	707	147	263	95	147	168	137	153	74
v/c Ratio	0.57	0.69	0.52	0.28	0.43	0.47	0.42	0.51	0.42	0.21
Control Delay	42.3	25.4	44.0	11.1	46.9	39.9	9.4	44.5	36.2	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.3	25.4	44.0	11.1	46.9	39.9	9.4	44.5	36.2	11.0
Queue Length 50th (ft)	85	121	67	16	44	66	0	62	67	2
Queue Length 95th (ft)	218	275	180	62	129	165	58	170	164	41
Internal Link Dist (ft)		3124		262		1033			2046	
Turn Bay Length (ft)	80		210		85		160	115		115
Base Capacity (vph)	793	2275	793	2230	679	1197	1051	679	1192	993
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.31	0.19	0.12	0.14	0.12	0.16	0.20	0.13	0.07

Intersection Summary

Queues
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave

Horizon Year No Project With 4-Ln Bridge
 PM Peak Hour



Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	537	137	264	80	189	33	289
v/c Ratio	0.72	0.13	0.23	0.30	0.67	0.09	0.75
Control Delay	28.9	1.4	16.1	45.2	49.1	36.3	49.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.9	1.4	16.1	45.2	49.1	36.3	49.0
Queue Length 50th (ft)	256	0	45	47	100	17	163
Queue Length 95th (ft)	534	20	98	107	205	50	305
Internal Link Dist (ft)	701		855		1177		697
Turn Bay Length (ft)				100		85	
Base Capacity (vph)	936	1291	1433	733	725	733	731
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.11	0.18	0.11	0.26	0.05	0.40

Intersection Summary

Queues

28: Qualcomm Way & Camino de la Reina/Camino del Rio N



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	144	553	241	495	216	21	186	553	320	114	1247
v/c Ratio	0.85	1.24	0.68	0.96	0.34	0.06	0.73	0.19	0.35	0.60	0.46
Control Delay	126.2	190.2	59.0	113.9	73.2	0.3	100.0	30.9	24.4	105.5	27.8
Queue Delay	0.0	0.1	0.5	52.9	0.0	0.0	7.1	3.1	6.8	0.0	0.1
Total Delay	126.2	190.3	59.5	166.7	73.2	0.3	107.1	34.0	31.3	105.5	27.9
Queue Length 50th (ft)	188	~489	229	338	133	0	127	159	184	77	354
Queue Length 95th (ft)	#302	#628	341	#456	182	0	m164	m198	m266	114	406
Internal Link Dist (ft)		661			1207			147			1281
Turn Bay Length (ft)	250		150	250		200			30	200	
Base Capacity (vph)	188	456	377	520	644	338	311	2841	919	314	2740
Starvation Cap Reductn	0	0	0	0	0	0	84	2154	541	0	0
Spillback Cap Reductn	0	5	17	324	0	0	0	0	0	0	502
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	1.23	0.67	2.53	0.34	0.06	0.82	0.80	0.85	0.36	0.56

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
31: Texas St & Camino del Rio S

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	286	153	398	347	61	551	102	1031	316	1735	194
v/c Ratio	0.91	0.46	0.86	1.40	0.23	0.88	0.71	0.84	0.82	0.99	0.25
Control Delay	112.4	79.8	74.4	261.1	82.5	50.0	117.1	66.7	92.1	68.8	20.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9	40.2	2.2
Total Delay	112.4	79.8	74.4	261.1	82.5	50.0	117.1	66.7	94.0	109.0	22.8
Queue Length 50th (ft)	378	185	419	~630	75	395	138	668	420	~1249	96
Queue Length 95th (ft)	#570	280	562	#905	136	412	213	#993	500	#1521	170
Internal Link Dist (ft)		575			748			539		285	
Turn Bay Length (ft)	90		40	60		250	100		250		150
Base Capacity (vph)	350	369	526	247	260	839	219	1221	636	1753	783
Starvation Cap Reductn	0	0	0	0	0	0	0	0	183	645	459
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.41	0.76	1.40	0.23	0.66	0.47	0.84	0.70	1.57	0.60

Intersection Summary

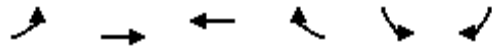
- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

Horizon Year No Project With 4-Ln Bridge

33: Camino del Rio N & Ward Rd

PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	181	868	318	223	473	69
v/c Ratio	0.62	0.59	0.47	0.47	0.58	0.07
Control Delay	42.3	19.9	32.2	8.7	22.0	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.3	19.9	32.2	8.7	22.0	1.8
Queue Length 50th (ft)	82	162	73	4	168	0
Queue Length 95th (ft)	172	238	127	62	349	14
Internal Link Dist (ft)		148	2741		609	
Turn Bay Length (ft)	95			90	100	
Base Capacity (vph)	952	3539	3028	1366	952	1462
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.25	0.11	0.16	0.50	0.05

Intersection Summary

Queues
34: Fairmount Ave & Mission Gorge Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



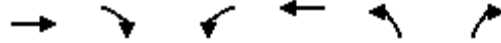
Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	248	245	51	350	1050	20	996
v/c Ratio	0.95	0.94	0.33	1.29	0.43	0.20	0.63
Control Delay	96.8	93.6	46.4	180.7	8.1	59.8	29.5
Queue Delay	2.7	2.3	0.2	0.0	1.7	0.0	65.5
Total Delay	99.5	95.9	46.5	180.7	9.8	59.8	95.0
Queue Length 50th (ft)	218	215	32	~196	118	16	333
Queue Length 95th (ft)	#390	#382	74	m#254	m257	42	406
Internal Link Dist (ft)	110		160		254		1543
Turn Bay Length (ft)				170		100	
Base Capacity (vph)	268	269	159	272	2437	148	1593
Starvation Cap Reductn	0	0	0	0	1152	0	0
Spillback Cap Reductn	5	5	6	0	0	0	1401
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.93	0.33	1.29	0.82	0.14	5.19

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
37: Collwood Blvd & Montezuma Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1543	1412	103	865	722	52
v/c Ratio	0.80	1.03	0.66	0.36	0.86	0.14
Control Delay	29.0	42.4	77.4	10.0	59.6	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.0	42.4	77.4	10.0	59.6	18.9
Queue Length 50th (ft)	546	~82	88	158	311	11
Queue Length 95th (ft)	711	#1605	145	193	#396	47
Internal Link Dist (ft)	1513			947	2234	
Turn Bay Length (ft)		600	150		550	150
Base Capacity (vph)	1938	1366	325	2382	842	365
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.80	1.03	0.32	0.36	0.86	0.14

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
38: Mission Village Dr & Shawn Ave

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Lane Group	EBT	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	181	107	74	489	32	53	2032
v/c Ratio	0.47	0.28	0.84	0.19	0.03	0.08	0.79
Control Delay	34.1	23.1	81.5	4.8	2.4	5.5	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	23.1	81.5	4.8	2.4	5.5	12.4
Queue Length 50th (ft)	43	18	19	29	0	6	246
Queue Length 95th (ft)	72	39	#96	94	11	30	#812
Internal Link Dist (ft)	544	352		2558			2129
Turn Bay Length (ft)			100		125	100	
Base Capacity (vph)	1227	1183	88	2580	1144	642	2565
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.09	0.84	0.19	0.03	0.08	0.79

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
39: Mission Village Dr & Fermi Ave

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



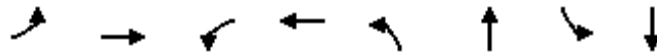
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	62	114	10	605	41	2073
v/c Ratio	0.34	0.50	0.09	0.37	0.41	0.81
Control Delay	34.8	33.2	43.9	19.5	39.5	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	34.8	33.2	43.9	19.5	39.5	14.1
Queue Length 50th (ft)	26	40	5	110	16	241
Queue Length 95th (ft)	66	97	24	225	60	#953
Internal Link Dist (ft)	1032	931		2129		722
Turn Bay Length (ft)			75		75	
Base Capacity (vph)	634	731	639	2535	134	2552
Starvation Cap Reductn	0	0	0	0	0	45
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.16	0.02	0.24	0.31	0.83

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
40: Gramercy Dr/Mission Village Dr & Ruffin Rd

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	61	612	10	643	20	30	750	862
v/c Ratio	0.62	0.70	0.09	0.67	0.10	0.08	0.92	0.88dl
Control Delay	59.6	34.2	31.1	24.1	34.9	19.1	41.2	19.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.6	34.2	31.1	24.1	34.9	19.1	41.2	19.7
Queue Length 50th (ft)	27	146	4	105	10	2	360	150
Queue Length 95th (ft)	#105	288	21	228	31	15	#1128	421
Internal Link Dist (ft)		1864		722		418		2941
Turn Bay Length (ft)	55		65		70		80	
Base Capacity (vph)	304	2679	338	2517	898	1609	817	1623
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.23	0.03	0.26	0.02	0.02	0.92	0.53

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Queues
41: Ruffin Rd & Aero Dr

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	926	895	1053	853	189	326
v/c Ratio	0.85	0.91	9.49	0.40	0.17	0.45
Control Delay	50.9	33.9	3843.2	14.7	32.2	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.9	33.9	3843.2	14.7	32.2	5.4
Queue Length 50th (ft)	391	533	~867	195	58	0
Queue Length 95th (ft)	#501	#960	#1003	241	87	66
Internal Link Dist (ft)	2225			2310	2941	
Turn Bay Length (ft)		65	250		100	
Base Capacity (vph)	1095	1001	111	2122	1127	738
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.89	9.49	0.40	0.17	0.44

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
42: Mobley St & Gramercy Dr

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	21	629	93	62	351	124	124
v/c Ratio	0.04	0.32	0.11	0.15	0.19	0.36	0.39
Control Delay	6.0	6.4	4.0	7.1	5.4	11.7	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.0	6.4	4.0	7.1	5.4	11.7	13.7
Queue Length 50th (ft)	2	32	4	5	14	12	14
Queue Length 95th (ft)	9	66	20	22	35	43	47
Internal Link Dist (ft)		1139			1864	1970	374
Turn Bay Length (ft)	75		30	75			
Base Capacity (vph)	984	3539	1500	760	3430	1395	1293
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.18	0.06	0.08	0.10	0.09	0.10

Intersection Summary

Queues
43: Sandrock Rd & Greyling Dr/Gramercy Dr

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour

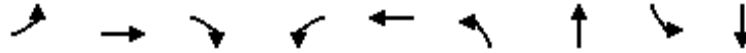


Lane Group	EBT	WBT	WBR	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	253	200	211	43	32	335	339	147
v/c Ratio	0.56	0.37	0.19	0.20	0.11	0.58	0.59	0.25
Control Delay	23.7	19.6	0.9	30.5	0.8	20.9	20.9	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.7	19.6	0.9	30.5	0.8	20.9	20.9	7.7
Queue Length 50th (ft)	70	52	0	13	0	95	96	10
Queue Length 95th (ft)	175	132	12	50	0	215	217	50
Internal Link Dist (ft)	993	1139		655			1028	
Turn Bay Length (ft)					50	110		75
Base Capacity (vph)	826	993	1336	746	754	1078	1085	1007
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.20	0.16	0.06	0.04	0.31	0.31	0.15

Intersection Summary

Queues
44: Fenton Pkwy & Camino del Rio N

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



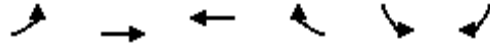
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	80	399	696	100	404	130	419	527	405
v/c Ratio	0.82	0.89	0.86	0.88	0.86	0.49	0.98	1.00	0.31
Control Delay	103.2	63.3	29.7	110.0	50.1	47.0	81.6	77.8	25.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	103.2	63.3	29.7	110.0	50.1	47.0	81.6	77.8	25.5
Queue Length 50th (ft)	57	268	308	71	224	85	~294	~384	103
Queue Length 95th (ft)	#147	#429	441	#176	#382	136	#503	#604	157
Internal Link Dist (ft)		560			911		1005		1770
Turn Bay Length (ft)	100			75				100	
Base Capacity (vph)	98	483	893	113	505	378	426	528	1325
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.83	0.78	0.88	0.80	0.34	0.98	1.00	0.31

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
45: Camino del Rio S & Fenton Pkwy

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	222	663	272	338	1009	196
v/c Ratio	0.98	0.96	0.71	0.26	1.02	0.21
Control Delay	110.9	66.1	58.3	2.6	62.2	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	110.9	66.1	58.3	2.6	62.2	5.5
Queue Length 50th (ft)	190	536	212	37	~908	24
Queue Length 95th (ft)	#357	#781	312	59	#1166	61
Internal Link Dist (ft)		992	2017		1005	
Turn Bay Length (ft)	150			225		
Base Capacity (vph)	227	710	405	1290	991	945
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.93	0.67	0.26	1.02	0.21

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
47: I-15 SB On-Ramp & Camino del Rio S

Horizon Year No Project With 4-Ln Bridge
PM Peak Hour



Lane Group	EBT	WBL	WBT
Lane Group Flow (vph)	2628	43	425
v/c Ratio	0.87	0.34	0.23
Control Delay	8.0	43.1	0.3
Queue Delay	13.1	0.0	0.0
Total Delay	21.1	43.1	0.3
Queue Length 50th (ft)	258	21	0
Queue Length 95th (ft)	#540	53	0
Internal Link Dist (ft)	47		568
Turn Bay Length (ft)		350	
Base Capacity (vph)	3037	126	1863
Starvation Cap Reductn	452	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	1.02	0.34	0.23

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Major Street Ward Rd
 Minor Street Rancho Mission Rd

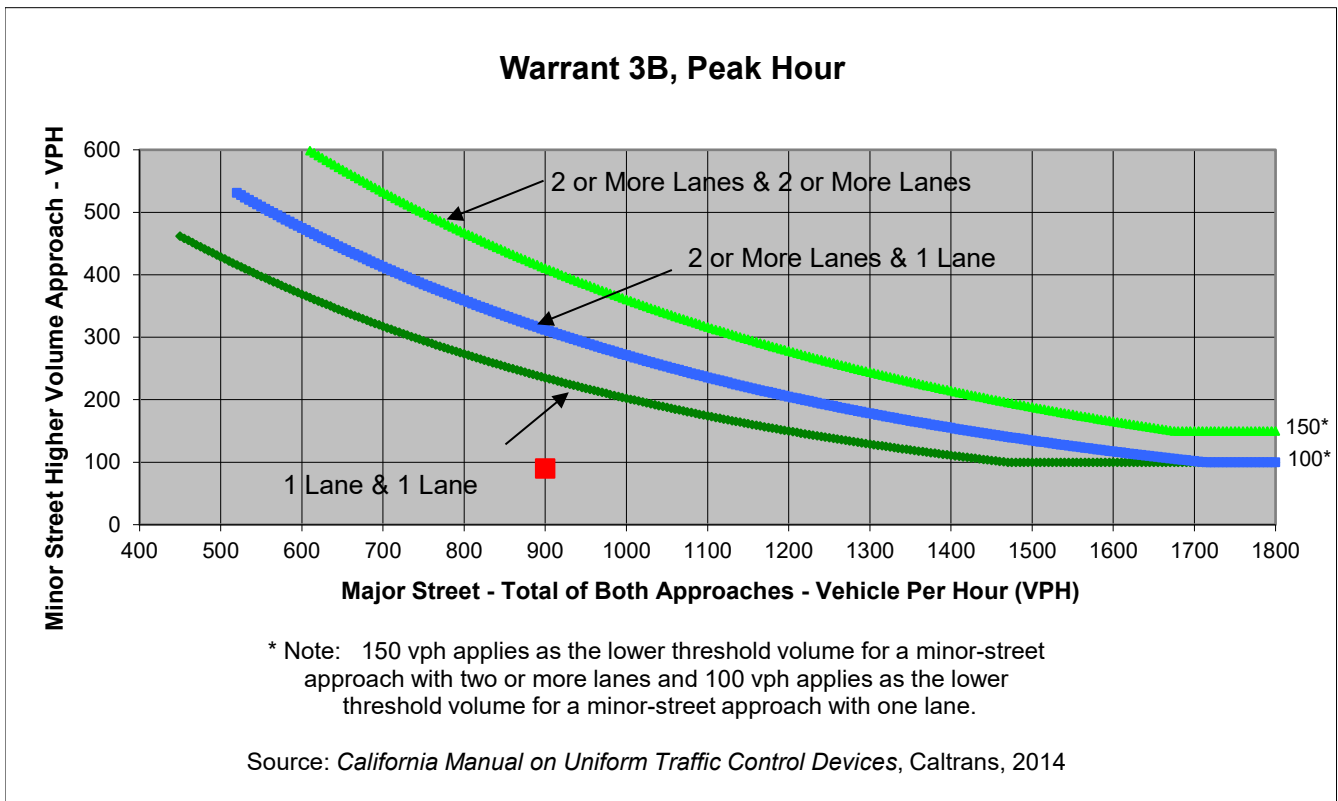
Project SDSU Mission Valley
 Scenario Horizon Year w/4-Ln Bridge
 Peak Hour PM

Turn Movement Volumes

	NB	SB	EB	WB
Left/U-turns	60	10	50	0
Through	320	440	0	0
Right	0	70	40	0
Total	380	520	90	0

Major Street Direction

x	North/South
	East/West



	Major Street	Minor Street	Warrant Met
	Ward Rd	Rancho Mission Rd	
Number of Approach Lanes	2	1	<u>NO</u>
Traffic Volume (VPH) *	900	90	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
 Traffic Volume for Minor Street is the Volume of High Volume Approach.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

Project SDSU Mission Valley
 Scenario Horizon Year w/4-Ln Bridge
 Peak Hour PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	60	10	50	0
Through	320	440	0	0
Right	0	70	40	0
Total	380	520	90	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

























Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	22.3
Approach with Worst Case Delay	EB
Total Vehicles on Approach	90

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Horizon Year w/4-Ln Bridge	0.6	90	990
Limiting Value	4	100	650
Condition Satisfied?	Not Met	Not Met	Met
Warrant Met	<u>NO</u>		

HCM Signalized Intersection Capacity Analysis
 1: SR-163 SB Ramps/Ulríc St & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
 AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	70	666	270	599	938	764	310	60	858	434	0	100	
Future Volume (vph)	70	666	270	599	938	764	310	60	858	434	0	100	
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.7	7.0	7.0	4.5	3.0	6.1	6.1	6.1	4.5	6.1	6.1	6.1	
Lane Util. Factor	1.00	0.86	1.00	0.97	0.91	0.88	0.97	1.00	0.88	0.95	0.95	1.00	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	
Satd. Flow (prot)	1770	6408	1557	3433	5085	2787	3433	1863	2787	1681	1681	1561	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	
Satd. Flow (perm)	1770	6408	1557	3433	5085	2787	3433	1863	2787	1681	1681	1561	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	73	694	281	624	977	796	323	62	894	452	0	104	
RTOR Reduction (vph)	0	0	196	0	0	0	0	0	0	0	0	84	
Lane Group Flow (vph)	73	694	85	624	977	796	323	63	894	226	226	20	
Confl. Peds. (#/hr)			2									2	
Confl. Bikes (#/hr)			1										
Turn Type	Prot	NA	Perm	Prot	NA	custom	Split	NA	pm+ov	Split	NA	Perm	
Protected Phases	5	2		1	6	4	7	8	8	1	4	4	
Permitted Phases			2						8			4	
Actuated Green, G (s)	10.3	45.5	45.5	33.4	68.4	80.2	18.7	18.7	52.1	28.7	28.7	28.7	
Effective Green, g (s)	10.3	45.5	45.5	33.4	68.4	73.2	18.7	18.7	52.1	28.7	28.7	28.7	
Actuated g/C Ratio	0.07	0.30	0.30	0.22	0.46	0.49	0.12	0.12	0.35	0.19	0.19	0.19	
Clearance Time (s)	4.7	7.0	7.0	4.5			6.1	6.1	4.5	6.1	6.1	6.1	
Vehicle Extension (s)	2.0	2.0	2.0	3.0			3.0	3.0	3.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	121	1943	472	764	2318	1360	427	232	968	321	321	298	
v/s Ratio Prot	0.04	0.11		0.18	c0.19	c0.29	0.09	0.03	c0.21	c0.13	0.13		
v/s Ratio Perm			0.05						0.12			0.01	
v/c Ratio	0.60	0.36	0.18	0.82	0.42	0.59	0.76	0.27	0.92	0.70	0.70	0.07	
Uniform Delay, d1	67.9	40.8	38.5	55.4	27.5	27.5	63.4	59.5	47.0	56.7	56.7	49.7	
Progression Factor	1.00	1.00	1.00	1.37	0.62	0.52	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.7	0.5	0.8	5.7	0.0	0.3	7.5	0.6	13.9	5.6	5.6	0.0	
Delay (s)	73.6	41.3	39.3	81.8	17.2	14.6	70.9	60.1	61.0	62.3	62.3	49.7	
Level of Service	E	D	D	F	B	B	E	E	E	E	E	D	
Approach Delay (s)		43.0			33.1			63.4			60.0		
Approach LOS		D			C			E			E		
Intersection Summary													
HCM 2000 Control Delay			45.3		HCM 2000 Level of Service					D			
HCM 2000 Volume to Capacity ratio			0.77										
Actuated Cycle Length (s)			150.0		Sum of lost time (s)					26.9			
Intersection Capacity Utilization			75.7%		ICU Level of Service					D			
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Friars Rd & SR-163 NB Ramps

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	500	1438	1460	833	1295	800
Future Volume (vph)	500	1438	1460	833	1295	800
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.5	6.0	6.0	4.5	5.0
Lane Util. Factor	0.97	0.86	0.86	0.88	0.94	0.88
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	6408	6408	2787	4990	2769
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	6408	6408	2787	4990	2769
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	521	1498	1521	868	1349	833
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	521	1498	1521	868	1349	833
Confl. Peds. (#/hr)						1
Confl. Bikes (#/hr)				1		
Turn Type	Prot	NA	NA	custom	Prot	pm+ov
Protected Phases	5	2	3	6	3	4
Permitted Phases						4
Actuated Green, G (s)	43.7	95.2	48.0	74.0	45.8	89.5
Effective Green, g (s)	43.7	95.2	48.0	69.5	45.8	89.5
Actuated g/C Ratio	0.29	0.63	0.32	0.46	0.31	0.60
Clearance Time (s)	5.0	4.5			4.5	5.0
Vehicle Extension (s)	2.0	3.0			3.0	2.0
Lane Grp Cap (vph)	1000	4066	2050	1291	1523	1744
v/s Ratio Prot	c0.15	0.23	c0.24	0.31	c0.27	0.14
v/s Ratio Perm						0.16
v/c Ratio	0.52	0.37	0.74	0.67	0.89	0.48
Uniform Delay, d1	44.4	13.1	45.5	31.4	49.6	17.1
Progression Factor	1.04	0.99	0.70	0.37	1.00	1.00
Incremental Delay, d2	0.2	0.2	0.8	0.9	6.6	0.1
Delay (s)	46.2	13.2	32.8	12.4	56.2	17.1
Level of Service	D	B	C	B	E	B
Approach Delay (s)		21.7	25.4		41.3	
Approach LOS		C	C		D	
Intersection Summary						
HCM 2000 Control Delay			29.5		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.75			
Actuated Cycle Length (s)			150.0		Sum of lost time (s)	18.5
Intersection Capacity Utilization			73.0%		ICU Level of Service	C
Analysis Period (min)			15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Frazee Rd & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	20	780	1393	520	10	69	1923	144	140	70	65	37
Future Volume (vph)	20	780	1393	520	10	69	1923	144	140	70	65	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.4	3.0	4.4		4.4	6.5	6.5	4.4	4.9		4.4
Lane Util. Factor		0.97	0.86	0.88		0.97	0.86	1.00	0.97	0.95		0.97
Frbp, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.98		1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.93		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (prot)		3433	6408	2787		3433	6408	1583	3433	3211		3433
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (perm)		3433	6408	2787		3433	6408	1583	3433	3211		3433
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	21	812	1451	542	10	72	2003	150	146	73	68	39
RTOR Reduction (vph)	0	0	0	0	0	0	0	91	0	51	0	0
Lane Group Flow (vph)	0	834	1451	542	0	82	2003	59	146	90	0	39
Confl. Peds. (#/hr)				3							37	
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	custom	Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2 9	3 9	1	1	6		3	8		7
Permitted Phases							6					
Actuated Green, G (s)		33.8	84.5	73.1		6.3	53.5	53.5	11.0	37.7		4.8
Effective Green, g (s)		33.8	84.5	70.1		6.3	53.5	53.5	11.0	37.7		4.8
Actuated g/C Ratio		0.23	0.56	0.47		0.04	0.36	0.36	0.07	0.25		0.03
Clearance Time (s)		4.4				4.4	6.5	6.5	4.4	4.9		4.4
Vehicle Extension (s)		2.0				2.0	4.4	4.4	2.2	2.0		2.2
Lane Grp Cap (vph)		773	3609	1302		144	2285	564	251	807		109
v/s Ratio Prot		c0.24	c0.23	0.19		0.02	c0.31		c0.04	0.03		0.01
v/s Ratio Perm							0.04					
v/c Ratio		1.08	0.40	0.42		0.57	0.88	0.10	0.58	0.11		0.36
Uniform Delay, d1		58.1	18.5	26.4		70.5	45.2	32.2	67.3	43.3		71.1
Progression Factor		1.15	1.06	0.95		1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		52.6	0.0	0.1		3.1	5.1	0.4	2.5	0.0		1.0
Delay (s)		119.7	19.7	25.1		73.6	50.3	32.6	69.7	43.3		72.1
Level of Service		F	B	C		E	D	C	E	D		E
Approach Delay (s)			50.2			50.0			56.7			
Approach LOS			D			D			E			
Intersection Summary												
HCM 2000 Control Delay			50.6			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)				20.2		
Intersection Capacity Utilization			95.6%			ICU Level of Service				F		
Analysis Period (min)			15									

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations	↑	↑↑
Traffic Volume (vph)	20	210
Future Volume (vph)	20	210
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.9	4.9
Lane Util. Factor	1.00	0.88
Frbp, ped/bikes	1.00	1.00
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1863	2787
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1863	2787
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	21	219
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	21	219
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	31.5	31.5
Effective Green, g (s)	31.5	31.5
Actuated g/C Ratio	0.21	0.21
Clearance Time (s)	4.9	4.9
Vehicle Extension (s)	2.3	2.3
Lane Grp Cap (vph)	391	585
v/s Ratio Prot	0.01	
v/s Ratio Perm		c0.08
v/c Ratio	0.05	0.37
Uniform Delay, d1	47.3	50.8
Progression Factor	1.00	1.00
Incremental Delay, d2	0.0	0.2
Delay (s)	47.4	51.0
Level of Service	D	D
Approach Delay (s)	53.7	
Approach LOS	D	
Intersection Summary		

HCM 6th Signalized Intersection Summary
4: Mission Center Rd & Friars Rd WB

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↖	↖	↖↖	↖↖			↖↖	↖
Traffic Volume (veh/h)	0	0	0	220	10	380	110	540	0	0	454	330
Future Volume (veh/h)	0	0	0	220	10	380	110	540	0	0	454	330
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				242	0	174	117	574	0	0	483	195
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				494	0	220	183	2619	0	0	2257	982
Arrive On Green				0.28	0.00	0.28	0.11	1.00	0.00	0.00	0.64	0.64
Sat Flow, veh/h				3563	0	1585	3456	3647	0	0	3647	1546
Grp Volume(v), veh/h				242	0	174	117	574	0	0	483	195
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1728	1777	0	0	1777	1546
Q Serve(g_s), s				5.1	0.0	9.2	2.9	0.0	0.0	0.0	5.2	4.7
Cycle Q Clear(g_c), s				5.1	0.0	9.2	2.9	0.0	0.0	0.0	5.2	4.7
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				494	0	220	183	2619	0	0	2257	982
V/C Ratio(X)				0.49	0.00	0.79	0.64	0.22	0.00	0.00	0.21	0.20
Avail Cap(c_a), veh/h				1215	0	541	580	2619	0	0	2257	982
HCM Platoon Ratio				2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.95	0.95	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				29.9	0.0	31.3	39.4	0.0	0.0	0.0	6.9	6.9
Incr Delay (d2), s/veh				0.8	0.0	6.3	1.3	0.2	0.0	0.0	0.2	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.0	0.0	3.3	1.2	0.1	0.0	0.0	1.7	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				30.6	0.0	37.7	40.7	0.2	0.0	0.0	7.2	7.3
LnGrp LOS				C	A	D	D	A	A	A	A	A
Approach Vol, veh/h						416		691			678	
Approach Delay, s/veh						33.6		7.0			7.2	
Approach LOS						C		A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		72.6			9.2	63.5		17.4				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 49			15.1	28.6		30.7				
Max Q Clear Time (g_c+I1), s		2.0			4.9	7.2		11.2				
Green Ext Time (p_c), s		3.4			0.1	6.4		1.3				

Intersection Summary

HCM 6th Ctrl Delay	13.3
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Mission Center Rd & Friars Rd EB

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	10	200	0	0	0	0	440	147	153	520	0
Future Volume (veh/h)	210	10	200	0	0	0	0	440	147	153	520	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	236	0	15				0	478	134	166	565	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	395	0	176				0	1062	295	1110	2737	0
Arrive On Green	0.11	0.00	0.11				0.00	0.39	0.39	0.43	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2816	757	3456	3647	0
Grp Volume(v), veh/h	236	0	15				0	311	301	166	565	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1703	1728	1777	0
Q Serve(g_s), s	5.7	0.0	0.8				0.0	11.6	11.8	2.6	0.0	0.0
Cycle Q Clear(g_c), s	5.7	0.0	0.8				0.0	11.6	11.8	2.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.44	1.00		0.00
Lane Grp Cap(c), veh/h	395	0	176				0	693	664	1110	2737	0
V/C Ratio(X)	0.60	0.00	0.09				0.00	0.45	0.45	0.15	0.21	0.00
Avail Cap(c_a), veh/h	1013	0	451				0	693	664	1110	2737	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.33	1.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	38.1	0.0	35.9				0.0	20.3	20.3	18.2	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.0	0.2				0.0	2.1	2.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.3				0.0	4.9	4.8	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.5	0.0	36.1				0.0	22.4	22.6	18.3	0.0	0.0
LnGrp LOS	D	A	D				A	C	C	B	A	A
Approach Vol, veh/h		251						612			731	
Approach Delay, s/veh		39.3						22.5			4.2	
Approach LOS		D						C			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	34.7	40.4	14.9	75.1								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	14.7	* 35	25.6	53.7								
Max Q Clear Time (g_c+I), s	14.6	13.8	7.7	2.0								
Green Ext Time (p_c), s	0.2	5.0	0.7	4.9								

Intersection Summary

HCM 6th Ctrl Delay	16.7
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
6: Qualcomm Way & Friars Rd WB

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷		↶	↷			↶	↷
Traffic Volume (veh/h)	0	0	0	209	0	65	361	140	0	0	133	40
Future Volume (veh/h)	0	0	0	209	0	65	361	140	0	0	133	40
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				249	0	0	406	157	0	0	149	9
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				343	180	0	1179	2768	0	0	1337	597
Arrive On Green				0.16	0.00	0.00	0.57	1.00	0.00	0.00	0.38	0.38
Sat Flow, veh/h				3563	1870	0	3456	3647	0	0	3647	1585
Grp Volume(v), veh/h				249	0	0	406	157	0	0	149	9
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1728	1777	0	0	1777	1585
Q Serve(g_s), s				5.3	0.0	0.0	5.0	0.0	0.0	0.0	2.2	0.3
Cycle Q Clear(g_c), s				5.3	0.0	0.0	5.0	0.0	0.0	0.0	2.2	0.3
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				343	180	0	1179	2768	0	0	1337	597
V/C Ratio(X)				0.73	0.00	0.00	0.34	0.06	0.00	0.00	0.11	0.02
Avail Cap(c_a), veh/h				1251	657	0	1179	2768	0	0	1337	597
HCM Platoon Ratio				1.67	1.67	1.67	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				32.6	0.0	0.0	12.4	0.0	0.0	0.0	16.2	15.6
Incr Delay (d2), s/veh				1.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.1	0.0	0.0	1.7	0.0	0.0	0.0	0.8	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				33.7	0.0	0.0	12.6	0.0	0.0	0.0	16.3	15.7
LnGrp LOS				C	A	A	B	A	A	A	B	B
Approach Vol, veh/h					249			563			158	
Approach Delay, s/veh					33.7			9.1			16.2	
Approach LOS					C			A			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		67.4			32.4	35.0		12.6				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+I1), s		2.0			7.0	4.2		7.3				
Green Ext Time (p_c), s		1.2			1.5	0.6		0.4				

Intersection Summary

HCM 6th Ctrl Delay	16.6
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
7: Qualcomm Way & Friars Rd EB

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	0	81	0	0	0	0	401	275	83	339	0
Future Volume (veh/h)	60	0	81	0	0	0	0	401	275	83	339	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No						No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	68	0	1				0	456	177	94	385	0
Peak Hour Factor	0.88	0.88	0.88				0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	170	0	74				0	4676	1127	157	2939	0
Arrive On Green	0.05	0.00	0.05				0.00	0.73	0.73	0.09	1.00	0.00
Sat Flow, veh/h	3563	0	1553				0	6696	1551	3456	3647	0
Grp Volume(v), veh/h	68	0	1				0	456	177	94	385	0
Grp Sat Flow(s),veh/h/ln	1781	0	1553				0	1609	1551	1728	1777	0
Q Serve(g_s), s	1.5	0.0	0.0				0.0	1.7	2.8	2.1	0.0	0.0
Cycle Q Clear(g_c), s	1.5	0.0	0.0				0.0	1.7	2.8	2.1	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	170	0	74				0	4676	1127	157	2939	0
V/C Ratio(X)	0.40	0.00	0.01				0.00	0.10	0.16	0.60	0.13	0.00
Avail Cap(c_a), veh/h	1519	0	662				0	4676	1127	436	2939	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.98	0.98	0.91	0.91	0.00
Uniform Delay (d), s/veh	37.0	0.0	36.3				0.0	3.2	3.4	35.7	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0				0.0	0.0	0.3	1.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0				0.0	0.4	0.7	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	0.0	36.3				0.0	3.3	3.7	36.9	0.1	0.0
LnGrp LOS	D	A	D				A	A	A	D	A	A
Approach Vol, veh/h	69						633			479		
Approach Delay, s/veh	37.5						3.4			7.3		
Approach LOS	D						A			A		
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	8.0	63.2	8.7	71.3								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.5	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	14.5	4.8	3.5	2.0								
Green Ext Time (p_c), s	0.1	3.8	0.1	1.7								

Intersection Summary

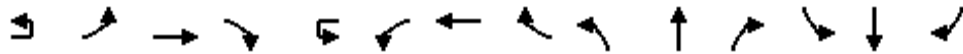
HCM 6th Ctrl Delay	7.0
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↖ ↗ ↘ ↙		↖		↖ ↗ ↘ ↙				↖ ↗	↖ ↗		↖ ↗		
Traffic Volume (veh/h)	10	110	1132	40	10	179	2270	184	130	60	62	28	10	10	
Future Volume (veh/h)	10	110	1132	40	10	179	2270	184	130	60	62	28	10	10	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	0.98		0.97	0.98		0.97	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		116	1192	21		188	2389	190	137	63	9	29	11	4	
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2	
Cap, veh/h		145	2629	816		220	2686	210	266	98	336	135	46	13	
Arrive On Green		0.08	0.51	0.51		0.12	0.56	0.56	0.22	0.22	0.22	0.22	0.22	0.22	
Sat Flow, veh/h		1781	5106	1585		1781	4820	377	964	449	1544	367	213	58	
Grp Volume(v), veh/h		116	1192	21		188	1675	904	200	0	9	44	0	0	
Grp Sat Flow(s),veh/h/ln		1781	1702	1585		1781	1702	1793	1414	0	1544	637	0	0	
Q Serve(g_s), s		6.9	15.9	0.7		11.1	46.2	48.5	0.0	0.0	0.5	1.8	0.0	0.0	
Cycle Q Clear(g_c), s		6.9	15.9	0.7		11.1	46.2	48.5	14.3	0.0	0.5	16.1	0.0	0.0	
Prop In Lane		1.00		1.00		1.00		0.21	0.68		1.00	0.66		0.09	
Lane Grp Cap(c), veh/h		145	2629	816		220	1896	999	364	0	336	194	0	0	
V/C Ratio(X)		0.80	0.45	0.03		0.85	0.88	0.91	0.55	0.00	0.03	0.23	0.00	0.00	
Avail Cap(c_a), veh/h		662	2846	884		496	1897	1000	456	0	430	415	0	0	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	
Uniform Delay (d), s/veh		48.6	16.5	12.8		46.2	20.8	21.3	38.5	0.0	33.1	40.0	0.0	0.0	
Incr Delay (d2), s/veh		3.9	0.6	0.1		3.7	6.4	13.1	1.0	0.0	0.0	0.7	0.0	0.0	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		3.1	5.8	0.2		5.0	17.6	21.3	5.0	0.0	0.2	1.1	0.0	0.0	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		52.5	17.1	12.9		49.9	27.2	34.4	39.5	0.0	33.2	40.7	0.0	0.0	
LnGrp LOS		D	B	B		D	C	C	D	A	C	D	A	A	
Approach Vol, veh/h		1329				2767				209			44		
Approach Delay, s/veh		20.1				31.1				39.2			40.7		
Approach LOS		C				C				D			D		
Timer - Assigned Phs	1	2	4		5	6	8								
Phs Duration (G+Y+Rc), s	17.7	61.6	28.3		13.1	66.2	28.3								
Change Period (Y+Rc), s	4.4	6.2	4.9		4.4	6.2	4.9								
Max Green Setting (Gmax), s	30.0	60.0	40.0		40.0	60.0	30.0								
Max Q Clear Time (g_c+11), s	17.9	17.9	18.1		8.9	50.5	16.3								
Green Ext Time (p_c), s	0.2	29.5	0.2		0.1	9.5	0.8								

Intersection Summary

HCM 6th Ctrl Delay	28.2
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 9: Fenton Pkwy & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↔		↔↔	↑↑↑	↔	↔↔	↑	↔	↔↔	↔	↔
Traffic Volume (veh/h)	60	1076	226	10	165	1839	30	534	13	140	90	24	190
Future Volume (veh/h)	60	1076	226	10	165	1839	30	534	13	140	90	24	190
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	1170	135		179	1999	18	580	14	15	98	26	20
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	110	2996	1090		245	3194	1061	349	219	185	155	103	137
Arrive On Green	0.03	0.59	0.59		0.02	0.21	0.21	0.10	0.12	0.12	0.04	0.06	0.06
Sat Flow, veh/h	3456	5106	1585		3456	5106	1585	3456	1870	1581	3563	1870	1570
Grp Volume(v), veh/h	65	1170	135		179	1999	18	580	14	15	98	26	20
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1585	1728	1870	1581	1781	1870	1570
Q Serve(g_s), s	2.0	13.5	1.1		5.7	39.2	0.9	11.1	0.7	0.9	3.0	1.5	1.0
Cycle Q Clear(g_c), s	2.0	13.5	1.1		5.7	39.2	0.9	11.1	0.7	0.9	3.0	1.5	1.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	110	2996	1090		245	3194	1061	349	219	185	155	103	137
V/C Ratio(X)	0.59	0.39	0.12		0.73	0.63	0.02	1.66	0.06	0.08	0.63	0.25	0.15
Avail Cap(c_a), veh/h	286	2996	1090		459	3194	1061	349	537	454	347	531	496
HCM Platoon Ratio	1.00	1.00	1.00		0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.90		0.74	0.74	0.74	0.75	0.75	0.75	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	12.2	1.3		52.7	31.9	13.1	49.5	43.2	43.3	51.7	49.8	27.2
Incr Delay (d2), s/veh	1.7	0.3	0.2		1.2	0.7	0.0	307.9	0.4	0.6	1.6	5.8	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	4.7	0.6		2.5	17.9	0.3	19.7	0.4	0.4	1.4	0.9	0.5
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	54.2	12.5	1.5		53.9	32.6	13.1	357.3	43.6	43.9	53.3	55.5	29.4
LnGrp LOS	D	B	A		D	C	B	F	D	D	D	E	C
Approach Vol, veh/h		1370				2196			609			144	
Approach Delay, s/veh		13.4				34.2			342.4			50.4	
Approach LOS		B				C			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	12.2	70.8	16.0	11.0	7.9	75.1	9.2	17.8					
Change Period (Y+Rc), s	4.4	6.3	4.9	*4.9	4.4	*6.3	4.4	4.9					
Max Green Setting (Gmax), s	14.6	33.1	11.1	*31	9.1	*39	10.7	31.6					
Max Q Clear Time (g_c+1), s	17.5	15.5	13.1	3.5	4.0	41.2	5.0	2.9					
Green Ext Time (p_c), s	0.2	13.4	0.0	0.5	0.0	0.0	0.1	0.3					

Intersection Summary

HCM 6th Ctrl Delay	71.6
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
10: Northside Dr & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↔↔↔	↔	↔↔	↔↔↔	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	10	40	986	270	578	1724	74	120	10	262	212	40	190
Future Volume (veh/h)	10	40	986	270	578	1724	74	120	10	262	212	40	190
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		42	1038	284	608	1815	54	126	11	216	223	42	48
Peak Hour Factor		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		91	2115	655	600	2868	1011	185	277	507	288	332	282
Arrive On Green		0.01	0.14	0.14	0.35	1.00	1.00	0.05	0.15	0.15	0.08	0.18	0.18
Sat Flow, veh/h		3456	5106	1582	3456	5106	1565	3456	1870	1569	3456	1870	1585
Grp Volume(v), veh/h		42	1038	284	608	1815	54	126	11	216	223	42	48
Grp Sat Flow(s),veh/h/ln		1728	1702	1582	1728	1702	1565	1728	1870	1569	1728	1870	1585
Q Serve(g_s), s		1.3	20.7	18.1	19.1	0.0	0.0	3.9	0.6	11.9	7.0	2.1	2.8
Cycle Q Clear(g_c), s		1.3	20.7	18.1	19.1	0.0	0.0	3.9	0.6	11.9	7.0	2.1	2.8
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		91	2115	655	600	2868	1011	185	277	507	288	332	282
V/C Ratio(X)		0.46	0.49	0.43	1.01	0.63	0.05	0.68	0.04	0.43	0.77	0.13	0.17
Avail Cap(c_a), veh/h		254	2115	655	600	2868	1011	346	452	655	471	520	441
HCM Platoon Ratio		0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.89	0.89	0.89	0.81	0.81	0.81	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		53.7	36.7	35.6	35.9	0.0	0.0	51.1	40.2	29.4	49.4	38.1	38.4
Incr Delay (d2), s/veh		1.2	0.7	1.9	36.4	0.9	0.1	1.6	0.2	1.6	1.7	0.8	1.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.6	9.5	8.0	9.0	0.2	0.0	1.8	0.3	4.8	3.1	1.0	1.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		55.0	37.5	37.5	72.3	0.9	0.1	52.8	40.3	31.0	51.1	38.8	39.7
LnGrp LOS		D	D	D	F	A	A	D	D	C	D	D	D
Approach Vol, veh/h			1364			2477			353			313	
Approach Delay, s/veh			38.0			18.4			39.1			47.7	
Approach LOS			D			B			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	23.5	51.8	10.3	24.4	7.3	68.0	13.6	21.2					
Change Period (Y+Rc), s	4.4	* 6.2	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	19.5	* 30	11.0	30.6	8.1	40.4	15.0	26.6					
Max Q Clear Time (g_c+D1), s	19.5	22.7	5.9	4.8	3.3	2.0	9.0	13.9					
Green Ext Time (p_c), s	0.0	5.6	0.1	1.3	0.0	32.4	0.2	1.5					

Intersection Summary

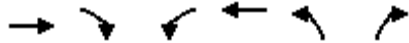
HCM 6th Ctrl Delay	28.0
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 11: Stadium Way (Street A) & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖↗	↑↑↑	↖↗	↗↖
Traffic Volume (veh/h)	1212	248	602	2282	123	10
Future Volume (veh/h)	1212	248	602	2282	123	10
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1262	135	627	2377	128	10
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	3040	942	735	4358	192	155
Arrive On Green	1.00	1.00	0.21	0.85	0.06	0.06
Sat Flow, veh/h	5274	1582	3456	5274	3456	2790
Grp Volume(v), veh/h	1262	135	627	2377	128	10
Grp Sat Flow(s),veh/h/ln	1702	1582	1728	1702	1728	1395
Q Serve(g_s), s	0.0	0.0	19.2	14.0	4.0	0.4
Cycle Q Clear(g_c), s	0.0	0.0	19.2	14.0	4.0	0.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3040	942	735	4358	192	155
V/C Ratio(X)	0.42	0.14	0.85	0.55	0.67	0.06
Avail Cap(c_a), veh/h	3040	942	1319	4358	408	330
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.86	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	41.7	2.2	50.9	49.2
Incr Delay (d2), s/veh	0.4	0.3	2.9	0.5	3.9	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	8.1	1.6	1.8	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.4	0.3	44.6	2.7	54.9	49.4
LnGrp LOS	A	A	D	A	D	D
Approach Vol, veh/h	1397			3004	138	
Approach Delay, s/veh	0.4			11.4	54.5	
Approach LOS	A			B	D	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	28.4	70.5		98.9	11.1	
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	
Max Green Setting (Gmax), s	42.0	40.0		87.0	13.0	
Max Q Clear Time (g_c+Y), s	21.2	2.0		16.0	6.0	
Green Ext Time (p_c), s	2.2	11.3		38.0	0.2	
Intersection Summary						
HCM 6th Ctrl Delay			9.3			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
 12: Mission Village Dr & Friars Rd WB

Horizon Year Plus Project w/4-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↶	↶↷	↶↷			↶↷	↶
Traffic Volume (veh/h)	0	0	0	461	0	510	178	986	0	0	747	298
Future Volume (veh/h)	0	0	0	461	0	510	178	986	0	0	747	298
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		No
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				496	0	481	191	1060	0	0	803	169
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1121	0	498	823	2106	0	0	1034	461
Arrive On Green				0.63	0.00	0.63	0.24	0.59	0.00	0.00	0.29	0.29
Sat Flow, veh/h				3563	0	1584	3456	3647	0	0	3647	1585
Grp Volume(v), veh/h				496	0	481	191	1060	0	0	803	169
Grp Sat Flow(s),veh/h/ln				1781	0	1584	1728	1777	0	0	1777	1585
Q Serve(g_s), s				7.9	0.0	31.6	4.9	19.0	0.0	0.0	22.8	9.3
Cycle Q Clear(g_c), s				7.9	0.0	31.6	4.9	19.0	0.0	0.0	22.8	9.3
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1121	0	498	823	2106	0	0	1034	461
V/C Ratio(X)				0.44	0.00	0.97	0.23	0.50	0.00	0.00	0.78	0.37
Avail Cap(c_a), veh/h				1234	0	548	823	2106	0	0	1034	461
HCM Platoon Ratio				2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.93	0.93	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				15.4	0.0	19.8	33.8	13.0	0.0	0.0	35.7	31.0
Incr Delay (d2), s/veh				0.1	0.0	28.0	0.0	0.8	0.0	0.0	5.7	2.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.5	0.0	9.3	2.0	6.9	0.0	0.0	10.2	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				15.5	0.0	47.8	33.8	13.8	0.0	0.0	41.5	33.2
LnGrp LOS				B	A	D	C	B	A	A	D	C
Approach Vol, veh/h					977			1251			972	
Approach Delay, s/veh					31.4			16.9			40.0	
Approach LOS					C			B			D	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		70.5			31.5	39.0		39.5				
Change Period (Y+Rc), s		* 5.3			5.3	7.0		4.9				
Max Green Setting (Gmax), s		* 63			22.7	32.0		38.1				
Max Q Clear Time (g_c+I1), s		21.0			6.9	24.8		33.6				
Green Ext Time (p_c), s		8.6			0.3	3.8		1.0				

Intersection Summary



















HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
 13: Mission Village Dr/Street D & Friars Rd EB

Horizon Year Plus Project w/4-Ln Bridge
 AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	205	0	247	0	0	0	0	941	713	369	829	0	
Future Volume (vph)	205	0	247	0	0	0	0	941	713	369	829	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		5.2	5.2					4.9	4.9	6.2	6.2		
Lane Util. Factor		1.00	0.88					0.91	0.88	0.97	0.95		
Frbp, ped/bikes		1.00	0.98					1.00	0.98	1.00	1.00		
Flpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00		
Frt		1.00	0.85					1.00	0.85	1.00	1.00		
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)		1770	2740					5085	2721	3433	3539		
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)		1770	2740					5085	2721	3433	3539		
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	
Adj. Flow (vph)	230	0	278	0	0	0	0	1057	801	415	931	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	230	278	0	0	0	0	1057	801	415	931	0	
Confl. Peds. (#/hr)			2						1				
Confl. Bikes (#/hr)			1										
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA		
Protected Phases	4	4						2		1	6		
Permitted Phases			4						2				
Actuated Green, G (s)		18.6	18.6					58.7	58.7	16.4	80.0		
Effective Green, g (s)		18.6	18.6					58.7	58.7	16.4	80.0		
Actuated g/C Ratio		0.17	0.17					0.53	0.53	0.15	0.73		
Clearance Time (s)		5.2	5.2					4.9	4.9	6.2	6.2		
Vehicle Extension (s)		3.0	3.0					3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)		299	463					2713	1452	511	2573		
v/s Ratio Prot		c0.13						0.21		c0.12	0.26		
v/s Ratio Perm			0.10						c0.29				
v/c Ratio		0.77	0.60					0.39	0.55	0.81	0.36		
Uniform Delay, d1		43.7	42.3					15.1	17.0	45.3	5.6		
Progression Factor		1.00	1.00					0.48	0.48	1.02	0.10		
Incremental Delay, d2		11.3	2.2					0.3	1.2	7.8	0.3		
Delay (s)		54.9	44.5					7.7	9.4	54.0	0.9		
Level of Service		D	D					A	A	D	A		
Approach Delay (s)		49.2			0.0			8.4			17.3		
Approach LOS		D			A			A			B		
Intersection Summary													
HCM 2000 Control Delay			17.2									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.64										
Actuated Cycle Length (s)			110.0									Sum of lost time (s)	16.3
Intersection Capacity Utilization			66.8%									ICU Level of Service	C
Analysis Period (min)			15										

c Critical Lane Group

HCM 6th Signalized Intersection Summary
14: Street D & Road 4

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	4	4	249	11	827	8	758	29	164	866	47
Future Volume (veh/h)	32	4	4	249	11	827	8	758	29	164	866	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	35	4	0	271	12	899	9	824	28	178	941	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	53	8	0	480	464	1664	19	1018	35	1204	1913	853
Arrive On Green	0.03	0.00	0.00	0.27	0.25	0.25	0.01	0.20	0.20	0.70	1.00	1.00
Sat Flow, veh/h	1781	1870	0	1781	1870	2790	1781	5071	172	3456	3554	1585
Grp Volume(v), veh/h	35	4	0	271	12	899	9	553	299	178	941	28
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1781	1870	1395	1781	1702	1839	1728	1777	1585
Q Serve(g_s), s	2.1	0.2	0.0	14.4	0.5	21.1	0.6	17.0	17.1	1.9	0.0	0.0
Cycle Q Clear(g_c), s	2.1	0.2	0.0	14.4	0.5	21.1	0.6	17.0	17.1	1.9	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	53	8	0	480	464	1664	19	683	369	1204	1913	853
V/C Ratio(X)	0.66	0.51	0.00	0.56	0.03	0.54	0.46	0.81	0.81	0.15	0.49	0.03
Avail Cap(c_a), veh/h	100	595	0	480	774	2126	81	826	446	1204	1913	853
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91
Uniform Delay (d), s/veh	52.8	54.7	0.0	34.6	31.3	13.2	54.1	41.9	42.0	11.2	0.0	0.0
Incr Delay (d2), s/veh	13.0	43.4	0.0	1.5	0.0	0.3	16.1	5.0	9.1	0.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.2	0.0	6.4	0.2	6.3	0.3	7.4	8.4	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.8	98.1	0.0	36.2	31.3	13.5	70.2	47.0	51.1	11.2	0.2	0.0
LnGrp LOS	E	F	A	D	C	B	E	D	D	B	A	A
Approach Vol, veh/h		39			1182			861			1147	
Approach Delay, s/veh		69.1			18.9			48.7			1.9	
Approach LOS		E			B			D			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	42.8	27.1	34.6	5.5	5.7	64.2	7.8	32.3				
Change Period (Y+Rc), s	4.5	5.0	5.0	* 5	4.5	5.0	4.5	5.0				
Max Green Setting (Gmax), s	12.6	26.7	16.7	* 35	5.0	34.3	6.2	45.5				
Max Q Clear Time (g_c+1), s	13.9	19.1	16.4	2.2	2.6	2.0	4.1	23.1				
Green Ext Time (p_c), s	0.3	3.0	0.0	0.0	0.0	7.1	0.0	4.2				

Intersection Summary






























HCM 6th Ctrl Delay	21.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
15: Street F & Street 4

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 			 	 		 	 		 	 	 
Traffic Volume (vph)	176	9	15	4	39	15	54	179	9	38	94	992
Future Volume (vph)	176	9	15	4	39	15	54	179	9	38	94	992
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	2.1	4.5
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.88
Frt	1.00	0.91		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1691		1770	1786		1770	1849		1770	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	1691		1770	1786		1770	1849		1770	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	191	10	16	4	42	16	59	195	10	41	102	1078
RTOR Reduction (vph)	0	6	0	0	14	0	0	2	0	0	0	0
Lane Group Flow (vph)	191	20	0	4	44	0	59	203	0	41	102	1078
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	7	4		3	8		5	2		1	6	9
Permitted Phases												
Actuated Green, G (s)	54.1	65.8		1.0	12.7		4.0	20.1		5.1	21.2	66.7
Effective Green, g (s)	54.1	65.8		1.0	12.7		4.0	20.1		5.1	21.2	66.7
Actuated g/C Ratio	0.49	0.60		0.01	0.12		0.04	0.18		0.05	0.19	0.61
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)	1688	1011		16	206		64	337		82	359	1689
v/s Ratio Prot	0.06	0.01		0.00	c0.02		c0.03	c0.11		0.02	0.05	c0.39
v/s Ratio Perm												
v/c Ratio	0.11	0.02		0.25	0.21		0.92	0.60		0.50	0.28	0.64
Uniform Delay, d1	15.0	9.0		54.1	44.1		52.8	41.3		51.2	37.9	13.9
Progression Factor	1.13	0.49		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.1	0.0		8.1	0.5		84.8	3.0		4.7	0.2	0.8
Delay (s)	17.1	4.4		62.2	44.6		137.7	44.3		55.9	38.1	14.7
Level of Service	B	A		E	D		F	D		E	D	B
Approach Delay (s)		15.6			45.8			65.2			18.0	
Approach LOS		B			D			E			B	
Intersection Summary												
HCM 2000 Control Delay			25.8				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			110.0				Sum of lost time (s)			20.1		
Intersection Capacity Utilization			54.3%				ICU Level of Service			A		
Analysis Period (min)			15									

c Critical Lane Group

Intersection					
Intersection Delay, s/veh 6.7					
Intersection LOS A					
Approach	EB		WB		NB
Entry Lanes	2		2		1
Conflicting Circle Lanes	2		2		2
Adj Approach Flow, veh/h	403		1215		113
Demand Flow Rate, veh/h	412		1239		115
Vehicles Circulating, veh/h	68		75		331
Vehicles Exiting, veh/h	1246		371		148
Ped Vol Crossing Leg, #/h	0		0		0
Ped Cap Adj	1.000		1.000		1.000
Approach Delay, s/veh	4.1		7.8		4.4
Approach LOS	A		A		A
Lane	Left	Right	Left	Right	Left
Designated Moves	LT	TR	LT	TR	LR
Assumed Moves	LT	TR	LT	TR	LR
RT Channelized					
Lane Util	0.471	0.529	0.470	0.530	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328
Entry Flow, veh/h	194	218	582	657	115
Cap Entry Lane, veh/h	1268	1340	1260	1332	1072
Entry HV Adj Factor	0.978	0.981	0.981	0.980	0.983
Flow Entry, veh/h	190	214	571	644	113
Cap Entry, veh/h	1239	1315	1236	1306	1053
V/C Ratio	0.153	0.163	0.462	0.493	0.107
Control Delay, s/veh	4.2	4.1	7.7	7.9	4.4
LOS	A	A	A	A	A
95th %tile Queue, veh	1	1	3	3	0

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↗		↖	↑↑↑	↗				↖	↗	↖↗
Traffic Volume (veh/h)	339	1139	403	60	330	2055	520	0	0	0	794	10	1221
Future Volume (veh/h)	339	1139	403	60	330	2055	520	0	0	0	794	10	1221
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	361	1212	150		351	2186	0				853	0	1293
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	430	1922	597		374	1634					945	0	1605
Arrive On Green	0.24	0.38	0.38		0.42	0.64	0.00				0.27	0.00	0.27
Sat Flow, veh/h	1781	5106	1585		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	361	1212	150		351	2186	0				853	0	1293
Grp Sat Flow(s),veh/h/ln	1781	1702	1585		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	21.2	21.3	7.2		20.7	35.2	0.0				25.4	0.0	10.9
Cycle Q Clear(g_c), s	21.2	21.3	7.2		20.7	35.2	0.0				25.4	0.0	10.9
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	430	1922	597		374	1634					945	0	1605
V/C Ratio(X)	0.84	0.63	0.25		0.94	1.34					0.90	0.00	0.81
Avail Cap(c_a), veh/h	430	1922	597		534	1634					1069	0	1715
HCM Platoon Ratio	1.00	1.00	1.00		2.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.09	0.09	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	39.7	28.0	23.6		31.2	19.8	0.0				39.0	0.0	22.6
Incr Delay (d2), s/veh	13.2	1.6	1.0		2.2	152.4	0.0				9.2	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.5	8.5	2.7		6.4	29.0	0.0				12.3	0.0	23.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	52.9	29.6	24.6		33.4	172.2	0.0				48.2	0.0	25.1
LnGrp LOS	D	C	C		C	F					D	A	C
Approach Vol, veh/h		1723			2537	A					2146		
Approach Delay, s/veh		34.1			153.0						34.3		
Approach LOS		C			F						C		
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	37.3	48.4		34.3	33.5	42.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	33	27.7		33.0	25.0	* 35							
Max Q Clear Time (g_c+Rc), s	20.7	23.3		27.4	23.2	37.2							
Green Ext Time (p_c), s	0.4	2.3		1.7	0.1	0.0							

Intersection Summary

HCM 6th Ctrl Delay	81.3
HCM 6th LOS	F

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖				↑↑↑	↗						
Traffic Volume (veh/h)	789	1234	0	0	2471	1743	0	0	380	0	0	474
Future Volume (veh/h)	789	1234	0	0	2471	1743	0	0	380	0	0	474
Initial Q (Qb), veh	20	0	0	0	0	20						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	831	1299	0	0	2460	1929						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	567	0	0	0	2125	1801						
Arrive On Green	0.32	0.95	0.00	0.00	0.57	0.57						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	831	0	0	0	2460	1929						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	35.0	0.0	0.0	0.0	62.5	62.5						
Cycle Q Clear(g_c), s	35.0	0.0	0.0	0.0	62.5	62.5						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	567	0	0	0	2125	1801						
V/C Ratio(X)	1.47	0.00	0.00	0.00	1.16	1.07						
Avail Cap(c_a), veh/h	567	0	0	0	2125	1801						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.49	0.00	0.00	0.00	0.24	0.24						
Uniform Delay (d), s/veh	37.5	0.0	0.0	0.0	23.7	23.8						
Incr Delay (d2), s/veh	214.6	0.0	0.0	0.0	72.3	35.2						
Initial Q Delay(d3),s/veh	127.0	0.0	0.0	0.0	0.0	40.0						
%ile BackOfQ(50%),veh/ln	68.1	0.0	0.0	0.0	45.0	38.9						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	379.1	0.0	0.0	0.0	96.1	98.9						
LnGrp LOS	F	A	A	A	F	F						
Approach Vol, veh/h		831			4389							
Approach Delay, s/veh		379.1			97.3							
Approach LOS		F			F							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		110.0			40.5	69.5						
Change Period (Y+Rc), s		5.5			5.5	7.0						
Max Green Setting (Gmax), s		104.5			35.0	62.5						
Max Q Clear Time (g_c+I1), s		0.0			37.0	64.5						
Green Ext Time (p_c), s		0.0			0.0	0.0						

Intersection Summary

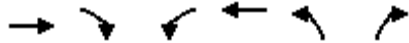
HCM 6th Ctrl Delay	142.2
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↘	↙
Traffic Volume (veh/h)	1201	423	38	3303	922	39
Future Volume (veh/h)	1201	423	38	3303	922	39
Initial Q (Qb), veh	0	0	0	20	20	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1278	341	40	3514	981	14
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1945	1103	268	3733	1108	499
Arrive On Green	0.13	0.13	0.17	0.60	0.30	0.30
Sat Flow, veh/h	5274	1585	1781	6696	3563	1585
Grp Volume(v), veh/h	1278	341	40	3514	981	14
Grp Sat Flow(s),veh/h/ln	1702	1585	1781	1609	1781	1585
Q Serve(g_s), s	26.2	11.6	2.1	52.7	29.4	0.7
Cycle Q Clear(g_c), s	26.2	11.6	2.1	52.7	29.4	0.7
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1945	1103	268	3733	1108	499
V/C Ratio(X)	0.66	0.31	0.15	0.94	0.89	0.03
Avail Cap(c_a), veh/h	1945	1074	300	3874	1185	527
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.54	0.54	0.60	0.60
Uniform Delay (d), s/veh	41.2	9.6	40.6	22.1	37.2	26.1
Incr Delay (d2), s/veh	1.8	0.7	0.1	3.3	4.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	3.5	20.5	0.0
%ile BackOfQ(50%),veh/ln	12.2	9.6	0.9	20.7	17.5	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.0	10.3	40.7	28.9	62.4	26.1
LnGrp LOS	D	B	D	C	E	C
Approach Vol, veh/h	1619			3554	995	
Approach Delay, s/veh	36.1			29.1	61.9	
Approach LOS	D			C	E	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	24.5	47.7			72.2	37.8
Change Period (Y+Rc), s	6.0	* 5.8			6.0	5.1
Max Green Setting (Gmax), s	16.2	* 42			62.3	36.6
Max Q Clear Time (g_c+I), s	14.1	28.2			54.7	31.4
Green Ext Time (p_c), s	0.0	9.8			7.6	1.3

Intersection Summary

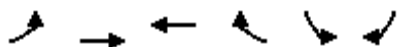
HCM 6th Ctrl Delay	36.2
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: Friars Rd & Santo Rd

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑↑		↔↔	↔
Traffic Volume (veh/h)	153	1047	2872	70	80	408
Future Volume (veh/h)	153	1047	2872	70	80	408
Initial Q (Qb), veh	0	0	80	0	50	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1811	1826	1826	1870	1870
Adj Flow Rate, veh/h	155	1058	2901	69	81	412
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	6	5	5	2	2
Cap, veh/h	213	3105	3354	46	923	543
Arrive On Green	0.06	0.65	0.55	0.55	0.26	0.26
Sat Flow, veh/h	3456	5107	6614	151	3456	1585
Grp Volume(v), veh/h	155	1058	2147	823	81	412
Grp Sat Flow(s),veh/h/ln	1728	1648	1570	1798	1728	1585
Q Serve(g_s), s	5.3	11.4	45.1	45.4	2.1	28.6
Cycle Q Clear(g_c), s	5.3	11.4	45.1	45.4	2.1	28.6
Prop In Lane	1.00			0.08	1.00	1.00
Lane Grp Cap(c), veh/h	213	3105	2451	951	923	543
V/C Ratio(X)	0.73	0.34	0.88	0.87	0.09	0.76
Avail Cap(c_a), veh/h	449	3213	2598	992	1022	567
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.84	0.84	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	55.3	10.6	28.1	27.2	35.5	35.1
Incr Delay (d2), s/veh	1.5	0.3	0.5	1.1	0.0	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	34.8	23.7	23.2	0.0
%ile BackOfQ(50%),veh/ln	2.3	4.0	28.2	28.9	6.8	23.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	56.8	10.8	63.4	51.9	58.7	40.0
LnGrp LOS	E	B	E	D	E	D
Approach Vol, veh/h		1213	2970		493	
Approach Delay, s/veh		16.7	60.2		43.1	
Approach LOS		B	E		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		84.5		35.5	11.8	72.7
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		73.6		35.5	15.6	* 54
Max Q Clear Time (g_c+I1), s		13.4		30.6	7.3	47.4
Green Ext Time (p_c), s		10.4		0.5	0.1	6.6

Intersection Summary

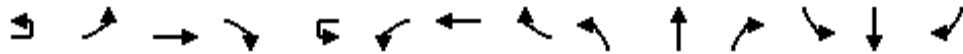
HCM 6th Ctrl Delay	47.1
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
21: Riverdale St & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		3	↑↑↑	↑		3	↑↑↑	↑	↑	↑		↑	↑	
Traffic Volume (veh/h)	10	73	732	253	20	130	2707	30	133	30	30	20	140	173
Future Volume (veh/h)	10	73	732	253	20	130	2707	30	133	30	30	20	140	173
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		0.99	0.99		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No			No		
Adj Sat Flow, veh/h/ln		1870	1781	1826		1826	1841	1841	1781	1870	1870	1781	1870	1870
Adj Flow Rate, veh/h		76	762	123		135	2820	15	139	31	7	21	146	137
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		2	8	5		5	4	4	8	2	2	8	2	2
Cap, veh/h		97	2442	776		162	2717	842	192	393	89	390	236	221
Arrive On Green		0.05	0.50	0.50		0.09	0.54	0.54	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h		1781	4863	1546		1739	5025	1557	1041	1475	333	1296	884	830
Grp Volume(v), veh/h		76	762	123		135	2820	15	139	0	38	21	0	283
Grp Sat Flow(s),veh/h/ln		1781	1621	1546		1739	1675	1557	1041	0	1808	1296	0	1714
Q Serve(g_s), s		4.6	10.2	4.7		8.4	59.5	0.5	13.3	0.0	1.7	1.4	0.0	16.0
Cycle Q Clear(g_c), s		4.6	10.2	4.7		8.4	59.5	0.5	29.3	0.0	1.7	3.1	0.0	16.0
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.18	1.00		0.48
Lane Grp Cap(c), veh/h		97	2442	776		162	2717	842	192	0	482	390	0	457
V/C Ratio(X)		0.78	0.31	0.16		0.83	1.04	0.02	0.73	0.00	0.08	0.05	0.00	0.62
Avail Cap(c_a), veh/h		228	2442	776		223	2717	842	192	0	482	390	0	457
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.98	0.98	0.98		0.79	0.79	0.79	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		51.3	16.2	14.8		49.0	25.3	11.7	48.9	0.0	30.2	31.4	0.0	35.5
Incr Delay (d2), s/veh		4.9	0.3	0.4		10.4	26.3	0.0	11.2	0.0	0.0	0.0	0.0	1.9
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.1	3.6	1.7		4.0	27.3	0.2	4.4	0.0	0.8	0.4	0.0	6.9
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		56.2	16.5	15.2		59.4	51.5	11.7	60.2	0.0	30.3	31.4	0.0	37.4
LnGrp LOS		E	B	B		E	F	B	E	A	C	C	A	D
Approach Vol, veh/h			961			2970			177		304			
Approach Delay, s/veh			19.5			51.7			53.7		37.0			
Approach LOS			B			D			D		D			
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	4.7	61.1		34.2	10.4	65.4		34.2						
Change Period (Y+Rc), s	4.4	* 5.9		4.9	4.4	5.9		4.9						
Max Green Setting (Gmax), s	14.1	* 52		29.3	14.1	51.4		29.3						
Max Q Clear Time (g_c+10), s	11.0	12.2		18.0	6.6	61.5		31.3						
Green Ext Time (p_c), s	0.1	8.0		0.9	0.0	0.0		0.0						

Intersection Summary

HCM 6th Ctrl Delay	43.8
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 22: Mission Gorge Rd & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↵↵	↑↑↑		↵	↵↵
Traffic Volume (veh/h)	595	178	560	2758	30	179	270
Future Volume (veh/h)	595	178	560	2758	30	179	270
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	613	0	577	2843		195	64
Peak Hour Factor	0.97	0.97	0.97	0.97		0.92	0.92
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2962		596	0		224	832
Arrive On Green	0.58	0.00	0.17	0.00		0.13	0.13
Sat Flow, veh/h	5443	0	3456	577		1781	2790
Grp Volume(v), veh/h	613	0	577	78.2		195	64
Grp Sat Flow(s),veh/h/ln1702		0	1728	E		1781	1395
Q Serve(g_s), s	6.9	0.0	19.9			12.9	0.0
Cycle Q Clear(g_c), s	6.9	0.0	19.9			12.9	0.0
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2962		596			224	832
V/C Ratio(X)	0.21		0.97			0.87	0.08
Avail Cap(c_a), veh/h	2962		596			306	960
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.96	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	12.0	0.0	49.3			51.5	30.2
Incr Delay (d2), s/veh	0.2	0.0	28.8			14.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	10.7			6.6	0.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	12.2	0.0	78.2			65.8	30.2
LnGrp LOS	B		E			E	C
Approach Vol, veh/h	613	A				259	
Approach Delay, s/veh	12.2					57.0	
Approach LOS	B					E	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	25.1	75.4					19.5
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	69.6					20.6
Max Q Clear Time (g_c+D), s	11.9	8.9					14.9
Green Ext Time (p_c), s	0.0	4.9					0.2

Intersection Summary

HCM 6th Ctrl Delay	46.5
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 23: Qualcomm Way & Rio San Diego Dr

Horizon Year Plus Project w/4-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑	↗		↔↔	↑↑	↗	↔↔	↑↑↑	↗	↔↔	↑↑↑	↗
Traffic Volume (veh/h)	133	113	141	20	331	84	70	59	343	850	90	282	77
Future Volume (veh/h)	133	113	141	20	331	84	70	59	343	850	90	282	77
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99		1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	145	123	21		360	91	12	64	373	573	98	307	64
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	231	211	238		466	643	281	134	2311	705	169	1972	396
Arrive On Green	0.07	0.11	0.11		0.13	0.18	0.18	0.04	0.45	0.45	0.05	0.46	0.46
Sat Flow, veh/h	3456	1870	1564		3456	3554	1556	3456	5106	1556	3456	4262	856
Grp Volume(v), veh/h	145	123	21		360	91	12	64	373	573	98	243	128
Grp Sat Flow(s),veh/h/ln	1728	1870	1564		1728	1777	1556	1728	1702	1556	1728	1702	1714
Q Serve(g_s), s	3.1	4.8	0.9		7.7	1.6	0.5	1.4	3.3	24.4	2.1	3.2	3.3
Cycle Q Clear(g_c), s	3.1	4.8	0.9		7.7	1.6	0.5	1.4	3.3	24.4	2.1	3.2	3.3
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.50
Lane Grp Cap(c), veh/h	231	211	238		466	643	281	134	2311	705	169	1575	793
V/C Ratio(X)	0.63	0.58	0.09		0.77	0.14	0.04	0.48	0.16	0.81	0.58	0.15	0.16
Avail Cap(c_a), veh/h	1354	977	879		1354	1857	813	2708	4002	1220	1354	2668	1343
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.8	32.2	27.9		32.0	26.4	25.9	36.0	12.4	18.1	35.6	11.9	11.9
Incr Delay (d2), s/veh	1.1	2.5	0.2		1.0	0.1	0.1	1.0	0.0	3.3	1.2	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3	2.2	0.3		3.1	0.7	0.2	0.6	1.2	8.2	0.9	1.1	1.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	35.8	34.8	28.1		33.0	26.5	25.9	37.0	12.4	21.4	36.8	12.0	12.1
LnGrp LOS	D	C	C		C	C	C	D	B	C	D	B	B
Approach Vol, veh/h		289			463			1010		469			
Approach Delay, s/veh		34.8			31.6			19.1		17.2			
Approach LOS		C			C			B		B			
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	39.8	14.7	13.9	7.4	40.5	9.5	19.1						
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3					
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0					
Max Q Clear Time (g_c+14), s	14.1	26.4	9.7	6.8	3.4	5.3	5.1	3.6					
Green Ext Time (p_c), s	0.1	8.2	0.6	0.7	0.1	4.3	0.2	0.5					

Intersection Summary

HCM 6th Ctrl Delay	23.3
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection															
Intersection Delay, s/veh	14.3														
Intersection LOS	B														

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↖	↕		↖	↕				↕				↕	
Traffic Vol, veh/h	20	120	253	20	1	426	110	10	10	12	19	10	20	9	230
Future Vol, veh/h	20	120	253	20	1	426	110	10	10	12	19	10	20	9	230
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	128	269	21	1	453	117	11	11	13	20	11	21	10	245
Number of Lanes	0	1	2	0	1	2	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	12.2	15.4	11.3	16.1
HCM LOS	B	C	B	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	24%	100%	0%	0%	100%	0%	0%	8%
Vol Thru, %	29%	0%	100%	81%	0%	100%	56%	3%
Vol Right, %	46%	0%	0%	19%	0%	0%	44%	89%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	51	140	169	104	1	284	252	269
LT Vol	12	140	0	0	1	0	0	21
Through Vol	15	0	169	84	0	284	142	9
RT Vol	24	0	0	20	0	0	110	239
Lane Flow Rate	54	149	179	111	1	302	268	286
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.114	0.293	0.328	0.198	0.002	0.539	0.455	0.516
Departure Headway (Hd)	7.579	7.083	6.572	6.434	6.93	6.419	6.107	6.488
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	476	503	542	553	513	559	584	552
Service Time	5.279	4.88	4.368	4.23	4.72	4.208	3.896	4.278
HCM Lane V/C Ratio	0.113	0.296	0.33	0.201	0.002	0.54	0.459	0.518
HCM Control Delay	11.3	12.8	12.6	10.8	9.7	16.6	14	16.1
HCM Lane LOS	B	B	B	B	A	C	B	C
HCM 95th-tile Q	0.4	1.2	1.4	0.7	0	3.2	2.4	2.9

HCM 6th Signalized Intersection Summary

Horizon Year Plus Project w/4-Ln Bridge

25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy

AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	66	90	213	62	140	80	154	621	57	30	41	251	83
Future Volume (veh/h)	66	90	213	62	140	80	154	621	57	30	41	251	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	76	103	7	71	161	66	177	714	63		47	289	73
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87		0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	163	172	144	115	268	114	220	1533	135		116	1054	262
Arrive On Green	0.09	0.09	0.09	0.14	0.14	0.14	0.12	0.46	0.46		0.03	0.37	0.37
Sat Flow, veh/h	1781	1870	1575	819	1913	811	1781	3303	291		3456	2819	700
Grp Volume(v), veh/h	76	103	7	159	0	139	177	384	393		47	180	182
Grp Sat Flow(s),veh/h/ln	1781	1870	1575	1829	0	1714	1781	1777	1817		1728	1777	1742
Q Serve(g_s), s	3.0	3.9	0.3	6.0	0.0	5.6	7.1	10.9	10.9		1.0	5.2	5.4
Cycle Q Clear(g_c), s	3.0	3.9	0.3	6.0	0.0	5.6	7.1	10.9	10.9		1.0	5.2	5.4
Prop In Lane	1.00		1.00	0.45		0.47	1.00		0.16		1.00		0.40
Lane Grp Cap(c), veh/h	163	172	144	256	0	240	220	824	843		116	664	651
V/C Ratio(X)	0.47	0.60	0.05	0.62	0.00	0.58	0.80	0.47	0.47		0.41	0.27	0.28
Avail Cap(c_a), veh/h	969	1017	857	995	0	932	727	1450	1483		1410	1450	1421
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	31.7	32.1	30.5	29.8	0.0	29.6	31.4	13.5	13.5		34.8	16.0	16.1
Incr Delay (d2), s/veh	1.3	2.1	0.1	0.9	0.0	0.8	2.6	1.9	1.8		0.8	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.8	0.1	2.7	0.0	2.3	3.2	4.5	4.6		0.4	2.2	2.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	32.9	34.2	30.6	30.7	0.0	30.4	34.0	15.4	15.3		35.7	17.0	17.2
LnGrp LOS	C	C	C	C	A	C	C	B	B		D	B	B
Approach Vol, veh/h		186			298			954				409	
Approach Delay, s/veh		33.5			30.6			18.8				19.2	
Approach LOS		C			C			B				B	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	6.9	39.5		11.9	13.5	32.9		15.2					
Change Period (Y+Rc), s	4.4	* 5.4		5.2	4.4	5.4		4.9					
Max Green Setting (Gmax), s	30.0	* 60		40.0	30.0	60.0		40.0					
Max Q Clear Time (g_c+1), s	13.0	12.9		5.9	9.1	7.4		8.0					
Green Ext Time (p_c), s	0.1	21.2		0.5	0.2	8.7		1.3					

Intersection Summary

HCM 6th Ctrl Delay	22.3
HCM 6th LOS	C

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 26: Rancho Mission Rd & San Diego Mission Rd

Horizon Year Plus Project w/4-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	179	90	205	592	338	272	325	60	112	85	193
Future Volume (veh/h)	66	179	90	205	592	338	272	325	60	112	85	193
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	201	65	230	665	341	306	365	15	126	96	5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	96	828	259	270	927	475	346	434	365	159	238	195
Arrive On Green	0.05	0.31	0.31	0.15	0.41	0.41	0.19	0.23	0.23	0.09	0.13	0.13
Sat Flow, veh/h	1781	2649	829	1781	2260	1159	1781	1870	1575	1781	1870	1533
Grp Volume(v), veh/h	74	133	133	230	523	483	306	365	15	126	96	5
Grp Sat Flow(s),veh/h/ln	1781	1777	1702	1781	1777	1642	1781	1870	1575	1781	1870	1533
Q Serve(g_s), s	3.6	4.8	5.1	10.9	21.3	21.3	14.5	16.2	0.6	6.0	4.1	0.2
Cycle Q Clear(g_c), s	3.6	4.8	5.1	10.9	21.3	21.3	14.5	16.2	0.6	6.0	4.1	0.2
Prop In Lane	1.00		0.49	1.00		0.71	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	96	556	532	270	729	674	346	434	365	159	238	195
V/C Ratio(X)	0.77	0.24	0.25	0.85	0.72	0.72	0.88	0.84	0.04	0.79	0.40	0.03
Avail Cap(c_a), veh/h	718	1024	980	718	1126	1041	616	1077	907	616	1077	883
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	22.2	22.2	35.9	21.4	21.4	34.0	31.8	25.8	38.7	34.9	33.2
Incr Delay (d2), s/veh	4.8	0.3	0.4	2.9	2.2	2.4	3.0	1.7	0.0	3.3	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	1.9	2.0	4.7	8.5	7.9	6.3	7.2	0.2	2.7	1.8	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.3	22.5	22.6	38.8	23.6	23.8	37.0	33.5	25.9	42.0	35.3	33.2
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	D	C
Approach Vol, veh/h		340			1236			686			227	
Approach Delay, s/veh		27.5			26.5			34.9			39.0	
Approach LOS		C			C			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.2	32.6	20.9	16.1	8.7	41.1	11.8	25.2				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	* 5.5	4.0	* 5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	* 55	30.0	* 50				
Max Q Clear Time (g_c+1/2g), s	11.0	7.1	16.5	6.1	5.6	23.3	8.0	18.2				
Green Ext Time (p_c), s	0.3	2.4	0.4	0.3	0.1	12.3	0.1	1.4				

Intersection Summary

HCM 6th Ctrl Delay	30.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave

Horizon Year Plus Project w/4-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↕	↗		↕	↗	
Traffic Volume (veh/h)	55	125	196	70	614	30	296	130	40	10	90	253
Future Volume (veh/h)	55	125	196	70	614	30	296	130	40	10	90	253
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	64	145	131	81	714	33	344	151	39	12	105	225
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	147	317	1074	100	1098	62	378	303	78	391	115	247
Arrive On Green	0.47	0.47	0.47	0.47	0.47	0.47	0.21	0.21	0.21	0.22	0.22	0.22
Sat Flow, veh/h	240	678	1578	146	2349	133	1781	1428	369	1781	525	1125
Grp Volume(v), veh/h	209	0	131	413	0	415	344	0	190	12	0	330
Grp Sat Flow(s),veh/h/ln	918	0	1578	951	0	1677	1781	0	1797	1781	0	1650
Q Serve(g_s), s	10.9	0.0	3.9	24.9	0.0	23.4	25.3	0.0	12.5	0.7	0.0	26.1
Cycle Q Clear(g_c), s	34.3	0.0	3.9	59.2	0.0	23.4	25.3	0.0	12.5	0.7	0.0	26.1
Prop In Lane	0.31		1.00	0.20		0.08	1.00		0.21	1.00		0.68
Lane Grp Cap(c), veh/h	464	0	1074	477	0	784	378	0	381	391	0	362
V/C Ratio(X)	0.45	0.00	0.12	0.87	0.00	0.53	0.91	0.00	0.50	0.03	0.00	0.91
Avail Cap(c_a), veh/h	505	0	1126	494	0	801	625	0	630	585	0	542
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.3	0.0	7.5	41.3	0.0	25.2	51.5	0.0	46.5	41.1	0.0	51.0
Incr Delay (d2), s/veh	0.6	0.0	0.0	14.6	0.0	0.6	7.1	0.0	0.4	0.0	0.0	11.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	2.4	15.4	0.0	9.6	12.0	0.0	5.7	0.3	0.0	11.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.0	0.0	7.5	55.9	0.0	25.8	58.6	0.0	46.9	41.1	0.0	62.1
LnGrp LOS	C	A	A	E	A	C	E	A	D	D	A	E
Approach Vol, veh/h		340		828		534		342				
Approach Delay, s/veh		21.3		40.9		54.4		61.4				
Approach LOS		C		D		D		E				
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		67.1		33.9		67.1		32.9				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		67.0		44.0		64.0		47.0				
Max Q Clear Time (g_c+I1), s		36.3		28.1		61.2		27.3				
Green Ext Time (p_c), s		1.8		1.3		1.4		1.2				
Intersection Summary												
HCM 6th Ctrl Delay				44.6								
HCM 6th LOS				D								

HCM 6th Signalized Intersection Summary

Horizon Year Plus Project w/4-Ln Bridge

28: Qualcomm Way & Camino de la Reina/Camino del Rio N

AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations															
Traffic Volume (veh/h)	10	62	116	102	10	316	262	49	122	960	499	10	51	467	50
Future Volume (veh/h)	10	62	116	102	10	316	262	49	122	960	499	10	51	467	50
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.94	1.00		0.98		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No			No			No				No		
Adj Sat Flow, veh/h/ln		1781	1870	1870		1870	1870	1870	1841	1900	1870		1870	1811	1811
Adj Flow Rate, veh/h		69	129	26		351	291	4	136	1067	496		57	519	49
Peak Hour Factor		0.90	0.90	0.90		0.90	0.90	0.90	0.90	0.90	0.90		0.90	0.90	0.90
Percent Heavy Veh, %		8	2	2		2	2	2	4	0	2		2	6	6
Cap, veh/h		88	350	249		463	625	262	222	2271	679		131	1885	176
Arrive On Green		0.05	0.09	0.09		0.13	0.18	0.18	0.07	0.44	0.44		0.04	0.41	0.41
Sat Flow, veh/h		1697	3741	1555		3456	3554	1490	3401	5187	1550		3456	4594	428
Grp Volume(v), veh/h		69	129	26		351	291	4	136	1067	496		57	370	198
Grp Sat Flow(s),veh/h/ln		1697	1870	1555		1728	1777	1490	1700	1729	1550		1728	1648	1726
Q Serve(g_s), s		2.9	2.3	1.0		7.0	5.3	0.2	2.8	10.4	18.9		1.2	5.3	5.4
Cycle Q Clear(g_c), s		2.9	2.3	1.0		7.0	5.3	0.2	2.8	10.4	18.9		1.2	5.3	5.4
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.25
Lane Grp Cap(c), veh/h		88	350	249		463	625	262	222	2271	679		131	1353	708
V/C Ratio(X)		0.79	0.37	0.10		0.76	0.47	0.02	0.61	0.47	0.73		0.43	0.27	0.28
Avail Cap(c_a), veh/h		713	1571	757		1451	1493	626	1428	3631	1085		1451	2307	1209
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		33.5	30.4	25.7		29.8	26.4	24.3	32.5	14.2	16.6		33.6	14.0	14.0
Incr Delay (d2), s/veh		5.8	0.5	0.1		1.0	0.2	0.0	1.0	0.1	1.4		0.8	0.3	0.6
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.3	1.0	0.4		2.7	2.0	0.1	1.1	3.6	5.8		0.5	1.8	2.0
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		39.2	30.9	25.8		30.8	26.6	24.3	33.5	14.4	18.0		34.5	14.3	14.6
LnGrp LOS		D	C	C		C	C	C	C	B	B		C	B	B
Approach Vol, veh/h			224			646			1699				625		
Approach Delay, s/veh			32.9			28.9			16.9				16.2		
Approach LOS			C			C			B				B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8							
Phs Duration (G+Y+Rc), s	7.1	38.0	14.0	12.4	9.1	36.0	8.1	18.3							
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7							
Max Green Setting (Gmax), s	30.0	50.0	30.0	* 30	30.0	* 50	30.0	30.0							
Max Q Clear Time (g_c+1), s	13.2	20.9	9.0	4.3	4.8	7.4	4.9	7.3							
Green Ext Time (p_c), s	0.1	10.4	0.6	0.7	0.2	8.9	0.1	1.0							

Intersection Summary

HCM 6th Ctrl Delay	20.3
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary

Horizon Year Plus Project w/4-Ln Bridge

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	10	69	0	112	22	194	660	134	1172	0	0	366	499
Future Volume (veh/h)	10	69	0	112	22	194	660	134	1172	0	0	366	499
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1722	0	1796	1870	1870	1870	1870	1870	0	0	1826	1870
Adj Flow Rate, veh/h		74	0	21	24	209	557	144	1260	0	0	394	76
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		12	0	7	2	2	2	2	2	0	0	5	2
Cap, veh/h		0	0	0	74	642	609	315	2324	0	0	749	332
Arrive On Green		0.00	0.00	0.00	0.38	0.38	0.38	0.18	0.46	0.00	0.00	0.22	0.22
Sat Flow, veh/h			0		192	1669	1584	1781	5274	0	0	3561	1537
Grp Volume(v), veh/h			0.0		233	0	557	144	1260	0	0	394	76
Grp Sat Flow(s),veh/h/ln					1861	0	1584	1781	1702	0	0	1735	1537
Q Serve(g_s), s					6.6	0.0	25.2	5.5	13.5	0.0	0.0	7.6	3.1
Cycle Q Clear(g_c), s					6.6	0.0	25.2	5.5	13.5	0.0	0.0	7.6	3.1
Prop In Lane					0.10		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					715	0	609	315	2324	0	0	749	332
V/C Ratio(X)					0.33	0.00	0.91	0.46	0.54	0.00	0.00	0.53	0.23
Avail Cap(c_a), veh/h					1111	0	946	804	3862	0	0	2670	1183
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)					1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh					16.3	0.0	22.0	27.8	14.9	0.0	0.0	26.1	24.4
Incr Delay (d2), s/veh					0.1	0.0	6.6	0.4	0.1	0.0	0.0	1.2	0.7
Initial Q Delay(d3),s/veh					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln					2.5	0.0	9.1	2.2	4.6	0.0	0.0	3.1	1.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					16.4	0.0	28.6	28.2	14.9	0.0	0.0	27.3	25.1
LnGrp LOS					B	A	C	C	B	A	A	C	C
Approach Vol, veh/h						790			1404			470	
Approach Delay, s/veh						25.0			16.3			27.0	
Approach LOS						C			B			C	
Timer - Assigned Phs		2			5	6			8				
Phs Duration (G+Y+Rc), s		41.3			18.0	23.3			34.1				
Change Period (Y+Rc), s		7.0			* 4.7	7.0			5.1				
Max Green Setting (Gmax), s		57.0			* 34	58.0			45.0				
Max Q Clear Time (g_c+I1), s		15.5			7.5	9.6			27.2				
Green Ext Time (p_c), s		7.2			0.1	6.3			1.7				

Intersection Summary

HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Horizon Year Plus Project w/4-Ln Bridge
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	620	0	1259	880	0
Future Volume (veh/h)	0	620	0	1259	880	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1856	0
Adj Flow Rate, veh/h	0	580	0	1298	907	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	2	0	2	3	0
Cap, veh/h	0	0	0	2600	2580	0
Arrive On Green	0.00	0.00	0.00	0.73	0.73	0.00
Sat Flow, veh/h	0		0	3741	3711	0
Grp Volume(v), veh/h	0.0		0	1298	907	0
Grp Sat Flow(s),veh/h/ln			0	1777	1763	0
Q Serve(g_s), s			0.0	3.2	1.9	0.0
Cycle Q Clear(g_c), s			0.0	3.2	1.9	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2600	2580	0
V/C Ratio(X)			0.00	0.50	0.35	0.00
Avail Cap(c_a), veh/h			0	6067	6019	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	1.2	1.0	0.0
Incr Delay (d2), s/veh			0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	1.2	1.0	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1298	907	
Approach Delay, s/veh				1.2	1.0	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		20.5				20.5
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		35.0				35.0
Max Q Clear Time (g_c+I1), s		5.2				3.9
Green Ext Time (p_c), s		7.4				4.6
Intersection Summary						
HCM 6th Ctrl Delay			1.1			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
31: Texas St & Camino del Rio S

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↘	↗	↗	↘	↗	↗	↘	↗	↗	↘	↗	↗
Traffic Volume (veh/h)	10	103	53	60	120	92	120	150	1319	247	480	546	293
Future Volume (veh/h)	10	103	53	60	120	92	120	150	1319	247	480	546	293
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.98	1.00		0.96	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1811	1663	1870	1841	1870	1796	1841	1870	1870	1870	1870	1826
Adj Flow Rate, veh/h		107	55	12	125	96	53	156	1374	250	500	569	175
Peak Hour Factor		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		6	16	2	4	2	7	4	2	2	2	2	5
Cap, veh/h		143	138	296	203	217	625	183	996	178	528	1867	796
Arrive On Green		0.08	0.08	0.08	0.12	0.12	0.12	0.10	0.33	0.33	0.30	0.53	0.53
Sat Flow, veh/h		1725	1663	1579	1753	1870	1495	1753	2990	535	1781	3554	1515
Grp Volume(v), veh/h		107	55	12	125	96	53	156	807	817	500	569	175
Grp Sat Flow(s),veh/h/ln		1725	1663	1579	1753	1870	1495	1753	1777	1748	1781	1777	1515
Q Serve(g_s), s		7.6	3.9	0.8	8.5	6.0	2.7	11.0	41.8	41.8	34.5	11.4	7.8
Cycle Q Clear(g_c), s		7.6	3.9	0.8	8.5	6.0	2.7	11.0	41.8	41.8	34.5	11.4	7.8
Prop In Lane		1.00		1.00	1.00		1.00	1.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h		143	138	296	203	217	625	183	592	582	528	1867	796
V/C Ratio(X)		0.75	0.40	0.04	0.61	0.44	0.08	0.85	1.36	1.40	0.95	0.30	0.22
Avail Cap(c_a), veh/h		412	398	543	394	420	787	349	592	582	1031	2549	1087
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		56.2	54.6	41.8	52.8	51.7	22.5	55.3	41.8	41.8	43.2	16.8	16.0
Incr Delay (d2), s/veh		7.5	1.8	0.1	8.0	3.9	0.2	4.3	174.0	192.0	4.2	0.2	0.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.6	1.7	0.3	4.2	3.0	1.0	5.0	46.5	48.6	15.5	4.6	2.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		63.7	56.4	41.8	60.8	55.5	22.6	59.6	215.9	233.9	47.3	17.0	16.3
LnGrp LOS		E	E	D	E	E	C	E	F	F	D	B	B
Approach Vol, veh/h			174			274			1780			1244	
Approach Delay, s/veh			59.9			51.6			210.4			29.1	
Approach LOS			E			D			F			C	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	41.6	47.0		15.3	17.5	71.1		21.6					
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0					
Max Green Setting (Gmax), s	72.6	41.8		30.0	25.0	* 90		28.2					
Max Q Clear Time (g_c+Rc), s	30.5	43.8		9.6	13.0	13.4		10.5					
Green Ext Time (p_c), s	0.7	0.0		0.5	0.2	11.1		2.2					

Intersection Summary

HCM 6th Ctrl Delay	125.4
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	50	215	162	582	428	34
Future Vol, veh/h	50	215	162	582	428	34
Conflicting Peds, #/hr	32	33	33	0	0	32
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	65	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	52	224	169	606	446	35

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1170	307	514	0	-	0
Stage 1	497	-	-	-	-	-
Stage 2	673	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	186	689	1048	-	-	-
Stage 1	577	-	-	-	-	-
Stage 2	468	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	131	646	1015	-	-	-
Mov Cap-2 Maneuver	131	-	-	-	-	-
Stage 1	419	-	-	-	-	-
Stage 2	453	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.3	2.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1015	-	131	646	-	-
HCM Lane V/C Ratio	0.166	-	0.398	0.347	-	-
HCM Control Delay (s)	9.3	0.7	49.5	13.5	-	-
HCM Lane LOS	A	A	E	B	-	-
HCM 95th %tile Q(veh)	0.6	-	1.7	1.5	-	-

HCM 6th Signalized Intersection Summary
33: Camino del Rio N & Ward Rd

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑	↗	↑	↙	↘
Traffic Volume (veh/h)	46	216	1021	698	327	326
Future Volume (veh/h)	46	216	1021	698	327	326
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	47	223	1053	617	337	314
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	60	2315	2011	878	392	402
Arrive On Green	0.03	0.65	0.57	0.57	0.22	0.22
Sat Flow, veh/h	1781	3647	3647	1551	1781	1585
Grp Volume(v), veh/h	47	223	1053	617	337	314
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1551	1781	1585
Q Serve(g_s), s	2.2	2.0	15.5	24.3	15.4	15.6
Cycle Q Clear(g_c), s	2.2	2.0	15.5	24.3	15.4	15.6
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	60	2315	2011	878	392	402
V/C Ratio(X)	0.78	0.10	0.52	0.70	0.86	0.78
Avail Cap(c_a), veh/h	924	2932	2932	1280	924	875
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.7	5.5	11.4	13.3	31.8	29.5
Incr Delay (d2), s/veh	8.0	0.0	0.3	1.6	2.2	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.6	5.1	7.2	6.6	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	48.7	5.5	11.7	14.9	34.0	30.7
LnGrp LOS	D	A	B	B	C	C
Approach Vol, veh/h		270	1670		651	
Approach Delay, s/veh		13.0	12.9		32.4	
Approach LOS		B	B		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		61.3		23.6	7.3	54.0
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		4.0		17.6	4.2	26.3
Green Ext Time (p_c), s		2.2		1.0	0.0	21.7

Intersection Summary

HCM 6th Ctrl Delay	17.8
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
34: Fairmount Ave & Mission Gorge Rd

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↖	↕			↖	↕	
Traffic Volume (veh/h)	39	13	371	20	16	0	40	630	1201	30	10	10	811	37
Future Volume (veh/h)	39	13	371	20	16	0	40	630	1201	30	10	10	811	37
Initial Q (Qb), veh	0	0	15	0	15	0	0	0	0	0	0	0	15	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		1.00	1.00		0.99		1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	453	22	17	0	677	1291	31		11	872	37	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	317	530	124	147	0	832	2470	59		18	1608	64	
Arrive On Green	0.00	0.00	0.17	0.17	0.17	0.00	0.49	1.00	1.00		0.01	0.46	0.46	
Sat Flow, veh/h	0	1870	3027	618	629	0	3456	3546	85		1781	3472	147	
Grp Volume(v), veh/h	0	0	453	39	0	0	677	647	675		11	446	463	
Grp Sat Flow(s),veh/h/ln	0	1870	1514	1247	0	0	1728	1777	1854		1781	1777	1843	
Q Serve(g_s), s	0.0	0.0	16.9	0.8	0.0	0.0	19.0	0.0	0.0		0.7	20.8	20.8	
Cycle Q Clear(g_c), s	0.0	0.0	16.9	2.3	0.0	0.0	19.0	0.0	0.0		0.7	20.8	20.8	
Prop In Lane	0.00		1.00	0.56		0.00	1.00		0.05		1.00		0.08	
Lane Grp Cap(c), veh/h	0	317	530	266	0	0	832	1238	1292		18	820	852	
V/C Ratio(X)	0.00	0.00	0.85	0.15	0.00	0.00	0.81	0.52	0.52		0.60	0.54	0.54	
Avail Cap(c_a), veh/h	0	335	542	272	0	0	844	1244	1298		156	820	851	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00		1.00	1.00	1.00	
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.09	0.09	0.09		1.00	1.00	1.00	
Uniform Delay (d), s/veh	0.0	0.0	47.1	42.3	0.0	0.0	27.6	0.0	0.0		56.7	22.9	22.9	
Incr Delay (d2), s/veh	0.0	0.0	11.8	0.3	0.0	0.0	0.5	0.1	0.1		11.1	2.6	2.5	
Initial Q Delay(d3),s/veh	0.0	0.0	39.7	26.8	0.0	0.0	0.0	0.0	0.0		0.0	1.3	1.2	
%ile BackOfQ(50%),veh/ln	0.0	0.0	11.0	4.7	0.0	0.0	6.1	0.0	0.0		0.4	10.5	10.8	
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	98.7	69.4	0.0	0.0	28.2	0.1	0.1		67.8	26.8	26.6	
LnGrp LOS	A	A	F	E	A	A	C	A	A		E	C	C	
Approach Vol, veh/h		453			39			1999					920	
Approach Delay, s/veh		98.7			69.4			9.6					27.2	
Approach LOS		F			E			A					C	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	5.6	85.4		24.0	33.0	58.0		24.0						
Change Period (Y+Rc), s	4.4	4.9		4.9	4.9	* 4.9		4.9						
Max Green Setting (Gmax), s	10.1	70.1		20.6	27.1	* 53		20.6						
Max Q Clear Time (g_c+1/2), s	12.5	2.0		18.9	21.0	22.8		4.3						
Green Ext Time (p_c), s	0.0	32.2		0.3	0.9	13.1		0.1						

Intersection Summary

HCM 6th Ctrl Delay	26.9
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis

Horizon Year Plus Project w/4-Ln Bridge

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	67	33	543	490	807	395	721	1470	180	13	948	271	
Future Volume (vph)	67	33	543	490	807	395	721	1470	180	13	948	271	
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1	
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.98		1.00	1.00	0.85	
Flt Protected	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	1681	1743	1578	1610	3172	1424	1770	3477		3433	3539	1583	
Flt Permitted	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	1681	1743	1578	1610	3172	1424	1770	3477		3433	3539	1583	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	71	35	572	516	849	416	759	1547	189	14	998	285	
RTOR Reduction (vph)	0	0	85	0	0	0	0	8	0	0	0	109	
Lane Group Flow (vph)	56	50	487	464	943	374	759	1728	0	14	998	176	
Confl. Peds. (#/hr)						2			1				
Confl. Bikes (#/hr)			2			2							
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm	
Protected Phases	4	4	5	8	8	1	5	2		1	6		
Permitted Phases			4			8						6	
Actuated Green, G (s)	8.0	8.0	35.0	25.0	25.0	33.0	27.0	53.0		8.0	34.0	34.0	
Effective Green, g (s)	8.0	8.0	35.0	25.0	25.0	33.0	27.0	53.0		8.0	34.0	34.0	
Actuated g/C Ratio	0.07	0.07	0.30	0.22	0.22	0.29	0.23	0.46		0.07	0.30	0.30	
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1	
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0	
Lane Grp Cap (vph)	116	121	544	350	689	408	415	1602		238	1046	468	
v/s Ratio Prot	0.03	0.03	c0.21	0.29	c0.30	0.06	c0.43	c0.50		0.00	c0.28		
v/s Ratio Perm			0.10			0.20						0.11	
v/c Ratio	0.48	0.41	0.90	1.33	1.37	0.92	1.83	1.08		0.06	0.95	0.38	
Uniform Delay, d1	51.5	51.3	38.3	45.0	45.0	39.7	44.0	31.0		50.0	39.7	32.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.70	0.71	0.79	
Incremental Delay, d2	1.2	0.8	16.8	165.1	175.1	24.6	382.3	47.0		0.0	15.4	1.7	
Delay (s)	52.7	52.1	55.0	210.1	220.1	64.2	426.3	78.0		34.8	43.8	27.0	
Level of Service	D	D	E	F	F	E	F	E		C	D	C	
Approach Delay (s)		54.6			184.8			184.0			40.0		
Approach LOS		D			F			F			D		
Intersection Summary													
HCM 2000 Control Delay			140.3									HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			1.37										
Actuated Cycle Length (s)			115.0									Sum of lost time (s)	21.0
Intersection Capacity Utilization			111.0%									ICU Level of Service	H
Analysis Period (min)			15										

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 36: Fairmount Ave & I-8E Off-Ramp

Horizon Year Plus Project w/4-Ln Bridge
 AM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations	YY	YY	U		↑↑	↑↑↑	
Traffic Volume (veh/h)	833	863	300	0	1298	811	0
Future Volume (veh/h)	833	863	300	0	1298	811	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1826	1870		0	1856	1856	0
Adj Flow Rate, veh/h	1021	1022		0	1564	977	0
Peak Hour Factor	0.83	0.83		0.83	0.83	0.83	0.83
Percent Heavy Veh, %	5	2		0	3	3	0
Cap, veh/h	1281	1168		0	1828	2626	0
Arrive On Green	0.37	0.37		0.00	0.52	0.52	0.00
Sat Flow, veh/h	3478	3170		0	3711	5400	0
Grp Volume(v), veh/h	1021	1022		0	1564	977	0
Grp Sat Flow(s),veh/h/ln	1739	1585		0	1763	1689	0
Q Serve(g_s), s	25.7	29.5		0.0	37.6	11.3	0.0
Cycle Q Clear(g_c), s	25.7	29.5		0.0	37.6	11.3	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	1281	1168		0	1828	2626	0
V/C Ratio(X)	0.80	0.88		0.00	0.86	0.37	0.00
Avail Cap(c_a), veh/h	1562	1423		0	2759	2688	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	27.7	28.9		0.0	20.4	14.1	0.0
Incr Delay (d2), s/veh	2.0	4.8		0.0	1.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.7	11.6		0.0	14.7	4.1	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	29.6	33.6		0.0	21.6	14.1	0.0
LnGrp LOS	C	C		A	C	B	A
Approach Vol, veh/h	2043				1564	977	
Approach Delay, s/veh	31.6				21.6	14.1	
Approach LOS	C				C	B	
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				56.8		41.2	56.8
Change Period (Y+Rc), s				6.0		5.1	6.0
Max Green Setting (Gmax), s				52.0		44.0	76.7
Max Q Clear Time (g_c+1), s				13.3		31.5	39.6
Green Ext Time (p_c), s				5.5		4.6	11.2

Intersection Summary

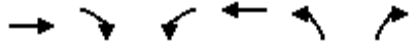
HCM 6th Ctrl Delay	24.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
37: Collwood Blvd & Montezuma Rd

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑↑	↵↵	↵
Traffic Volume (veh/h)	572	491	70	1375	1184	60
Future Volume (veh/h)	572	491	70	1375	1184	60
Initial Q (Qb), veh	0	0	0	30	30	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1663	1870	1870	1618
Adj Flow Rate, veh/h	609	439	74	1463	1260	43
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	16	2	2	19
Cap, veh/h	1541	1276	91	2725	1341	527
Arrive On Green	0.44	0.44	0.06	0.53	0.38	0.38
Sat Flow, veh/h	3618	1538	1584	5274	3456	1372
Grp Volume(v), veh/h	609	439	74	1463	1260	43
Grp Sat Flow(s),veh/h/ln	1763	1538	1584	1702	1728	1372
Q Serve(g_s), s	14.7	9.0	5.8	23.5	44.9	2.5
Cycle Q Clear(g_c), s	14.7	9.0	5.8	23.5	44.9	2.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1541	1276	91	2725	1341	527
V/C Ratio(X)	0.40	0.34	0.81	0.54	0.94	0.08
Avail Cap(c_a), veh/h	1559	1276	158	2730	1341	532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.1	2.8	58.7	20.2	38.5	24.7
Incr Delay (d2), s/veh	0.8	0.7	6.3	0.8	12.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	1.9	53.3	0.0
%ile BackOfQ(50%),veh/ln	6.2	2.1	2.5	11.1	32.1	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.9	3.6	65.0	22.8	104.5	24.7
LnGrp LOS	C	A	E	C	F	C
Approach Vol, veh/h	1048			1537	1303	
Approach Delay, s/veh	16.0			24.9	101.9	
Approach LOS	B			C	F	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	11.7	62.2		73.9	52.1	
Change Period (Y+Rc), s	4.4	* 6.5		6.5	4.4	
Max Green Setting (Gmax), s	12.6	* 50		66.2	48.9	
Max Q Clear Time (g_c+1), s	17.8	16.7		25.5	46.9	
Green Ext Time (p_c), s	0.0	10.7		24.2	0.8	

Intersection Summary

HCM 6th Ctrl Delay	48.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
38: Mission Village Dr & Shawn Ave

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔		↖	↕↕	↗	↖	↕↕	
Traffic Volume (veh/h)	120	10	66	56	10	30	53	1250	13	10	733	40
Future Volume (veh/h)	120	10	66	56	10	30	53	1250	13	10	733	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	129	11	13	60	11	5	57	1344	6	11	788	39
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	354	110	130	346	172	78	497	2248	986	315	2178	108
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.63	0.63	0.63	0.63	0.63	0.63
Sat Flow, veh/h	1316	709	838	1264	1106	503	662	3554	1559	404	3443	170
Grp Volume(v), veh/h	129	0	24	60	0	16	57	1344	6	11	407	420
Grp Sat Flow(s),veh/h/ln	1316	0	1547	1264	0	1609	662	1777	1559	404	1777	1836
Q Serve(g_s), s	4.2	0.0	0.6	1.9	0.0	0.4	2.2	10.7	0.1	0.8	5.2	5.2
Cycle Q Clear(g_c), s	4.6	0.0	0.6	2.5	0.0	0.4	7.4	10.7	0.1	11.5	5.2	5.2
Prop In Lane	1.00		0.54	1.00		0.31	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	354	0	240	346	0	250	497	2248	986	315	1124	1162
V/C Ratio(X)	0.36	0.00	0.10	0.17	0.00	0.06	0.11	0.60	0.01	0.03	0.36	0.36
Avail Cap(c_a), veh/h	1297	0	1288	1282	0	1340	905	4438	1947	564	2219	2294
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.3	0.0	17.4	18.5	0.0	17.3	6.0	5.2	3.3	8.6	4.2	4.2
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.1	0.0	0.0	0.1	0.3	0.0	0.1	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3	0.0	0.2	0.6	0.0	0.1	0.2	1.8	0.0	0.1	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.5	0.0	17.5	18.6	0.0	17.4	6.1	5.5	3.3	8.7	4.5	4.4
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		153			76			1407			838	
Approach Delay, s/veh		19.2			18.3			5.5			4.5	
Approach LOS		B			B			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		35.7		12.4		35.7		12.4				
Change Period (Y+Rc), s		5.3		4.9		5.3		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		12.7		6.6		13.5		4.5				
Green Ext Time (p_c), s		17.6		0.6		7.7		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				6.4								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary
 39: Mission Village Dr & Fermi Ave

Horizon Year Plus Project w/4-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (veh/h)	50	20	26	106	10	100	13	1323	113	70	660	10
Future Volume (veh/h)	50	20	26	106	10	100	13	1323	113	70	660	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	55	22	17	116	11	84	14	1454	121	77	725	11
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	195	76	45	204	24	107	24	1995	165	100	2309	35
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.01	0.60	0.60	0.06	0.64	0.64
Sat Flow, veh/h	743	442	262	805	140	625	1781	3315	274	1781	3582	54
Grp Volume(v), veh/h	94	0	0	211	0	0	14	775	800	77	360	376
Grp Sat Flow(s),veh/h/ln1447	0	0	0	1569	0	0	1781	1777	1813	1781	1777	1859
Q Serve(g_s), s	0.0	0.0	0.0	6.0	0.0	0.0	0.7	26.2	26.7	3.6	7.7	7.7
Cycle Q Clear(g_c), s	4.6	0.0	0.0	10.6	0.0	0.0	0.7	26.2	26.7	3.6	7.7	7.7
Prop In Lane	0.59		0.18	0.55		0.40	1.00		0.15	1.00		0.03
Lane Grp Cap(c), veh/h	315	0	0	335	0	0	24	1069	1091	100	1145	1198
V/C Ratio(X)	0.30	0.00	0.00	0.63	0.00	0.00	0.59	0.72	0.73	0.77	0.31	0.31
Avail Cap(c_a), veh/h	749	0	0	600	0	0	629	1256	1281	629	1256	1314
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.9	0.0	0.0	33.3	0.0	0.0	41.7	11.9	12.1	39.5	6.7	6.7
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.7	0.0	0.0	8.5	2.4	2.5	4.6	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.7	0.0	0.0	0.0	4.2	0.0	0.0	0.3	9.1	9.5	1.7	2.5	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	0.0	0.0	34.0	0.0	0.0	50.2	14.3	14.5	44.1	7.0	7.0
LnGrp LOS	C	A	A	C	A	A	D	B	B	D	A	A
Approach Vol, veh/h		94			211			1589			813	
Approach Delay, s/veh		31.1			34.0			14.7			10.5	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	56.3		19.4	5.5	59.9		19.4				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	5.2		4.9				
Max Green Setting (Gmax), s	30.0	60.0		40.0	30.0	60.0		30.0				
Max Q Clear Time (g_c+1), s	15.6	28.7		6.6	2.7	9.7		12.6				
Green Ext Time (p_c), s	0.1	22.4		0.4	0.0	10.0		0.8				

Intersection Summary

HCM 6th Ctrl Delay	15.5
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
 40: Gramercy Dr/Mission Village Dr & Ruffin Rd

Horizon Year Plus Project w/4-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	70	330	30	42	525	916	20	10	23	377	20	50
Future Volume (veh/h)	70	330	30	42	525	916	20	10	23	377	20	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	80	375	31	48	597	889	23	11	0	428	23	41
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	84	1949	160	593	1043	914	157	313	0	638	105	187
Arrive On Green	0.59	0.59	0.59	0.59	0.59	0.59	0.09	0.09	0.00	0.18	0.18	0.18
Sat Flow, veh/h	355	3319	273	977	1777	1557	1781	3647	0	3563	586	1045
Grp Volume(v), veh/h	80	200	206	48	597	889	23	11	0	428	0	64
Grp Sat Flow(s),veh/h/ln	355	1777	1816	977	1777	1557	1781	1777	0	1781	0	1632
Q Serve(g_s), s	3.8	5.3	5.4	2.5	21.3	56.2	1.2	0.3	0.0	11.5	0.0	3.4
Cycle Q Clear(g_c), s	60.0	5.3	5.4	7.9	21.3	56.2	1.2	0.3	0.0	11.5	0.0	3.4
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.00	1.00		0.64
Lane Grp Cap(c), veh/h	84	1043	1066	593	1043	914	157	313	0	638	0	292
V/C Ratio(X)	0.96	0.19	0.19	0.08	0.57	0.97	0.15	0.04	0.00	0.67	0.00	0.22
Avail Cap(c_a), veh/h	84	1043	1066	593	1043	914	697	1391	0	1395	0	639
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.8	9.8	9.8	11.7	13.1	20.3	43.0	42.6	0.0	39.1	0.0	35.8
Incr Delay (d2), s/veh	83.5	0.1	0.1	0.1	0.9	23.3	0.2	0.0	0.0	0.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.1	2.1	0.5	8.4	24.7	0.5	0.1	0.0	4.9	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	134.2	9.9	9.9	11.7	14.0	43.6	43.2	42.6	0.0	39.6	0.0	36.0
LnGrp LOS	F	A	A	B	B	D	D	D	A	D	A	D
Approach Vol, veh/h		486			1534			34			492	
Approach Delay, s/veh		30.4			31.1			43.0			39.1	
Approach LOS		C			C			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.1		23.2		65.1		13.9				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		62.0		13.5		58.2		3.2				
Green Ext Time (p_c), s		0.0		1.0		1.6		0.1				

Intersection Summary

HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	680	191	10	309	600	603	766
Future Volume (veh/h)	680	191	10	309	600	603	766
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	739	204		336	652	655	657
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1202	1205		385	1717	1493	685
Arrive On Green	0.34	0.34		0.11	0.48	0.43	0.43
Sat Flow, veh/h	3647	1538		3456	3647	3456	1585
Grp Volume(v), veh/h	739	204		336	652	655	657
Grp Sat Flow(s),veh/h/ln1777		1538		1728	1777	1728	1585
Q Serve(g_s), s	22.6	4.6		12.4	15.1	17.3	52.3
Cycle Q Clear(g_c), s	22.6	4.6		12.4	15.1	17.3	52.3
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1202	1205		385	1717	1493	685
V/C Ratio(X)	0.61	0.17		0.87	0.38	0.44	0.96
Avail Cap(c_a), veh/h	1202	1205		391	1717	1614	740
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.58	0.58
Uniform Delay (d), s/veh	35.9	4.0		56.9	21.3	25.9	35.8
Incr Delay (d2), s/veh	2.4	0.3		18.2	0.6	0.0	15.4
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	4.9		6.3	6.2	7.1	22.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	38.3	4.3		75.1	21.9	25.9	51.2
LnGrp LOS	D	A		E	C	C	D
Approach Vol, veh/h	943			988	1312		
Approach Delay, s/veh	30.9			40.0	38.6		
Approach LOS	C			D	D		
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+Rc), s	48.9	49.7			68.5		61.5
Change Period (Y+Rc), s	4.4	* 5.7			5.7		5.3
Max Green Setting (Gmax), s	41.5	* 40			58.3		60.7
Max Q Clear Time (g_c+1/4), s	14.4	24.6			17.1		54.3
Green Ext Time (p_c), s	0.0	7.8			6.5		1.9

Intersection Summary

HCM 6th Ctrl Delay	36.8
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mobley St & Gramercy Dr

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	251	30	32	499	104	90	40	63	86	10	20
Future Volume (veh/h)	20	251	30	32	499	104	90	40	63	86	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1826	1841	1737	1870	1870	1870	1870	1870	1707	1707	1707
Adj Flow Rate, veh/h	21	264	13	34	525	88	95	42	47	91	11	13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	5	4	11	2	2	2	2	2	13	13	13
Cap, veh/h	492	1569	679	634	1370	228	318	131	97	442	53	38
Arrive On Green	0.45	0.45	0.45	0.45	0.45	0.45	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	804	3469	1502	1013	3028	505	626	544	402	1013	222	157
Grp Volume(v), veh/h	21	264	13	34	307	306	184	0	0	115	0	0
Grp Sat Flow(s),veh/h/ln	804	1735	1502	1013	1777	1757	1572	0	0	1393	0	0
Q Serve(g_s), s	0.6	1.5	0.2	0.7	3.7	3.8	1.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.3	1.5	0.2	2.1	3.7	3.8	3.0	0.0	0.0	1.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.29	0.52		0.26	0.79		0.11
Lane Grp Cap(c), veh/h	492	1569	679	634	804	794	546	0	0	533	0	0
V/C Ratio(X)	0.04	0.17	0.02	0.05	0.38	0.39	0.34	0.00	0.00	0.22	0.00	0.00
Avail Cap(c_a), veh/h	1612	6401	2771	2044	3278	3241	2036	0	0	1760	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.3	5.3	4.9	5.9	5.9	5.9	10.5	0.0	0.0	10.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.1	0.6	0.6	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	0.0	0.1	0.8	0.8	0.9	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.4	5.4	4.9	6.0	6.5	6.5	10.6	0.0	0.0	10.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		298			647			184			115	
Approach Delay, s/veh		5.5			6.4			10.6			10.2	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		19.8		12.7		19.8		12.7				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		6.3		3.9		5.8		5.0				
Green Ext Time (p_c), s		3.7		0.5		8.5		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				7.2								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary
43: Sandrock Rd & Greyling Dr/Gramercy Dr

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕	↕	↕	↕
Traffic Volume (veh/h)	60	97	10	13	114	448	0	20	23	287	10	60
Future Volume (veh/h)	60	97	10	13	114	448	0	20	23	287	10	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.92	0.96		0.95	1.00		1.00	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1663	1870	1870	1870	1841	1870	1870
Adj Flow Rate, veh/h	65	105	8	14	124	239	0	22	0	320	0	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	2	2	16	2	2	2	4	2	2
Cap, veh/h	266	366	23	133	614	739	0	41	35	690	0	291
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.00	0.02	0.00	0.20	0.00	0.20
Sat Flow, veh/h	369	1056	67	64	1773	1332	0	1870	1585	3506	0	1480
Grp Volume(v), veh/h	178	0	0	138	0	239	0	22	0	320	0	17
Grp Sat Flow(s),veh/h/ln1492	0	0	0	1837	0	1332	0	1870	1585	1753	0	1480
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.4	0.0	2.9	0.0	0.3
Cycle Q Clear(g_c), s	2.5	0.0	0.0	1.9	0.0	3.6	0.0	0.4	0.0	2.9	0.0	0.3
Prop In Lane	0.37		0.04	0.10		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	655	0	0	748	0	739	0	41	35	690	0	291
V/C Ratio(X)	0.27	0.00	0.00	0.18	0.00	0.32	0.00	0.54	0.00	0.46	0.00	0.06
Avail Cap(c_a), veh/h	1143	0	0	1378	0	1211	0	1050	889	2951	0	1246
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.4	0.0	0.0	8.2	0.0	4.5	0.0	17.2	0.0	12.7	0.0	11.6
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.1	0.0	4.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln0.8	0.0	0.0	0.5	0.0	1.0	0.0	0.0	0.2	0.0	1.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.5	0.0	0.0	8.3	0.0	4.6	0.0	21.2	0.0	12.8	0.0	11.7
LnGrp LOS	A	A	A	A	A	A	A	C	A	B	A	B
Approach Vol, veh/h		178			377			22			337	
Approach Delay, s/veh		8.5			6.0			21.2			12.8	
Approach LOS		A			A			C			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.6		12.3		17.6		5.7				
Change Period (Y+Rc), s		5.3		5.3		5.3		4.9				
Max Green Setting (Gmax), s		25.0		30.0		25.0		20.0				
Max Q Clear Time (g_c+I1), s		4.5		4.9		5.6		2.4				
Green Ext Time (p_c), s		0.8		0.6		0.9		0.0				

Intersection Summary

HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
 44: Mission City Pkwy/Fenton Pkwy & Camino del Rio N

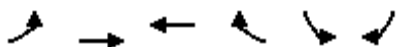
Horizon Year Plus Project w/4-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	7	60	156	354	591	510	349	72	241	217	65
Future Volume (veh/h)	66	7	60	156	354	591	510	349	72	241	217	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	72	8	13	170	385	600	554	379	73	262	236	50
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	66	657	894	194	279	434	380	401	77	276	600	125
Arrive On Green	0.04	0.35	0.35	0.11	0.42	0.42	0.21	0.26	0.26	0.15	0.20	0.20
Sat Flow, veh/h	1781	1870	1585	1781	659	1027	1781	1524	294	1781	2928	609
Grp Volume(v), veh/h	72	8	13	170	0	985	554	0	452	262	142	144
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1686	1781	0	1818	1781	1777	1761
Q Serve(g_s), s	5.5	0.4	0.5	13.9	0.0	62.5	31.5	0.0	36.0	21.5	10.2	10.5
Cycle Q Clear(g_c), s	5.5	0.4	0.5	13.9	0.0	62.5	31.5	0.0	36.0	21.5	10.2	10.5
Prop In Lane	1.00		1.00	1.00		0.61	1.00		0.16	1.00		0.35
Lane Grp Cap(c), veh/h	66	657	894	194	0	713	380	0	478	276	364	361
V/C Ratio(X)	1.09	0.01	0.01	0.87	0.00	1.38	1.46	0.00	0.95	0.95	0.39	0.40
Avail Cap(c_a), veh/h	66	657	894	288	0	713	380	0	506	276	391	387
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	71.1	31.2	14.1	64.8	0.0	42.6	58.1	0.0	53.4	61.9	50.8	50.9
Incr Delay (d2), s/veh	136.1	0.0	0.0	17.6	0.0	180.4	220.6	0.0	26.3	40.4	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	0.2	0.2	7.1	0.0	60.6	37.4	0.0	19.8	12.9	4.7	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	207.2	31.2	14.1	82.4	0.0	223.0	278.7	0.0	79.7	102.3	51.4	51.6
LnGrp LOS	F	C	B	F	A	F	F	A	E	F	D	D
Approach Vol, veh/h		93			1155			1006			548	
Approach Delay, s/veh		165.1			202.3			189.3			75.8	
Approach LOS		F			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	27.4	43.4	20.6	56.4	36.0	34.8	10.0	67.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	22.5	41.1	23.9	44.1	31.5	32.5	5.5	62.5				
Max Q Clear Time (g_c+Y), s	20.5	38.0	15.9	2.5	33.5	12.5	7.5	64.5				
Green Ext Time (p_c), s	0.0	0.8	0.3	0.0	0.0	1.6	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay				171.7								
HCM 6th LOS				F								

HCM 6th Signalized Intersection Summary
45: Camino del Rio S & Mission City Pkwy

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↖	↑	↗	↘	↙	↘	
Traffic Volume (veh/h)	136	210	530	705	240	220	
Future Volume (veh/h)	136	210	530	705	240	220	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	148	228	576	733	261	51	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	188	1188	828	1003	339	302	
Arrive On Green	0.11	0.64	0.44	0.44	0.19	0.19	
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585	
Grp Volume(v), veh/h	148	228	576	733	261	51	
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1781	1585	
Q Serve(g_s), s	4.2	2.6	12.8	16.3	7.2	1.4	
Cycle Q Clear(g_c), s	4.2	2.6	12.8	16.3	7.2	1.4	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	188	1188	828	1003	339	302	
V/C Ratio(X)	0.79	0.19	0.70	0.73	0.77	0.17	
Avail Cap(c_a), veh/h	190	1376	1014	1161	793	706	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	22.5	3.9	11.6	6.5	19.8	17.5	
Incr Delay (d2), s/veh	19.4	0.1	1.6	2.0	3.7	0.3	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	2.6	0.6	4.0	6.6	2.9	0.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	41.9	4.0	13.2	8.5	23.5	17.7	
LnGrp LOS	D	A	B	A	C	B	
Approach Vol, veh/h		376	1309		312		
Approach Delay, s/veh		18.9	10.5		22.6		
Approach LOS		B	B		C		
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			37.3		14.3	9.9	27.4
Change Period (Y+Rc), s			4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s			38.0		23.0	5.5	28.0
Max Q Clear Time (g_c+1), s			4.6		9.2	6.2	18.3
Green Ext Time (p_c), s			1.3		0.8	0.0	4.6
Intersection Summary							
HCM 6th Ctrl Delay			14.0				
HCM 6th LOS			B				

HCM 6th Signalized Intersection Summary
46: Camino del Rio S & I-15 SB Off-Ramp

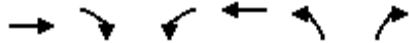
Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑			↑			↑	↗
Traffic Volume (veh/h)	0	300	20	30	1165	0	10	0	10	70	20	530
Future Volume (veh/h)	0	300	20	30	1165	0	10	0	10	70	20	530
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	326	19	33	1266	0	11	0	2	76	22	490
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	0	1968	114	45	1183	0	21	0	4	366	106	415
Arrive On Green	0.00	0.58	0.58	0.03	0.63	0.00	0.01	0.00	0.01	0.26	0.26	0.26
Sat Flow, veh/h	0	3507	198	1781	1870	0	1479	0	269	1396	404	1585
Grp Volume(v), veh/h	0	169	176	33	1266	0	13	0	0	98	0	490
Grp Sat Flow(s),veh/h/ln	0	1777	1835	1781	1870	0	1748	0	0	1801	0	1585
Q Serve(g_s), s	0.0	6.5	6.6	2.7	93.0	0.0	1.1	0.0	0.0	6.2	0.0	38.5
Cycle Q Clear(g_c), s	0.0	6.5	6.6	2.7	93.0	0.0	1.1	0.0	0.0	6.2	0.0	38.5
Prop In Lane	0.00		0.11	1.00		0.00	0.85		0.15	0.78		1.00
Lane Grp Cap(c), veh/h	0	1025	1058	45	1183	0	24	0	0	471	0	415
V/C Ratio(X)	0.00	0.16	0.17	0.74	1.07	0.00	0.53	0.00	0.00	0.21	0.00	1.18
Avail Cap(c_a), veh/h	0	1025	1058	85	1183	0	59	0	0	471	0	415
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	14.6	14.6	71.2	27.0	0.0	72.0	0.0	0.0	42.4	0.0	54.3
Incr Delay (d2), s/veh	0.0	0.1	0.1	20.6	47.2	0.0	16.7	0.0	0.0	0.2	0.0	103.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.6	2.7	1.5	52.4	0.0	0.6	0.0	0.0	2.9	0.0	27.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	14.6	14.7	91.8	74.2	0.0	88.7	0.0	0.0	42.6	0.0	157.9
LnGrp LOS	A	B	B	F	F	A	F	A	A	D	A	F
Approach Vol, veh/h		345			1299			13				588
Approach Delay, s/veh		14.6			74.7			88.7				138.7
Approach LOS		B			E			F				F
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.2	89.3		43.0		97.5		6.6				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	8.2	81.5		38.5		93.0		5.0				
Max Q Clear Time (g_c+1/4), s	8.2	8.6		40.5		95.0		3.1				
Green Ext Time (p_c), s	0.0	1.9		0.0		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay												82.3
HCM 6th LOS												F

HCM 6th Signalized Intersection Summary
 47: I-15 SB On-Ramp & Camino del Rio S

Horizon Year Plus Project w/4-Ln Bridge
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑		
Traffic Volume (veh/h)	170	210	30	1195	0	0
Future Volume (veh/h)	170	210	30	1195	0	0
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		
Adj Flow Rate, veh/h	185	158	33	1299		
Peak Hour Factor	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2		
Cap, veh/h	1226	987	72	1586		
Arrive On Green	0.66	0.66	0.04	0.85		
Sat Flow, veh/h	1964	1506	1781	1870		
Grp Volume(v), veh/h	175	168	33	1299		
Grp Sat Flow(s),veh/h/ln	1777	1599	1781	1870		
Q Serve(g_s), s	1.1	1.2	0.5	10.2		
Cycle Q Clear(g_c), s	1.1	1.2	0.5	10.2		
Prop In Lane		0.94	1.00			
Lane Grp Cap(c), veh/h	1165	1049	72	1586		
V/C Ratio(X)	0.15	0.16	0.46	0.82		
Avail Cap(c_a), veh/h	1562	1406	301	2245		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	1.9	2.0	13.9	1.1		
Incr Delay (d2), s/veh	0.1	0.1	4.6	1.7		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	0.8		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	2.0	2.0	18.5	2.8		
LnGrp LOS	A	A	B	A		
Approach Vol, veh/h	343			1332		
Approach Delay, s/veh	2.0			3.2		
Approach LOS	A			A		
Timer - Assigned Phs	1	2			6	
Phs Duration (G+Y+Rc), s	5.7	23.9			29.6	
Change Period (Y+Rc), s	4.5	4.5			4.5	
Max Green Setting (Gmax), s	5.0	26.0			35.5	
Max Q Clear Time (g_c+I), s	12.5	3.2			12.2	
Green Ext Time (p_c), s	0.0	1.8			12.9	
Intersection Summary						
HCM 6th Ctrl Delay			3.0			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
48: I-15 NB Ramps & Camino del Rio S

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	140	0	0	330	70	895	10	130	0	0	0
Future Volume (veh/h)	40	140	0	0	330	70	895	10	130	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	43	152	0	0	359	11	973	11	80			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	66	556	0	0	392	332	1070	117	853			
Arrive On Green	0.04	0.30	0.00	0.00	0.21	0.21	0.60	0.60	0.60			
Sat Flow, veh/h	1781	1870	0	0	1870	1585	1781	195	1420			
Grp Volume(v), veh/h	43	152	0	0	359	11	973	0	91			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1870	1585	1781	0	1615			
Q Serve(g_s), s	2.1	5.5	0.0	0.0	16.6	0.5	42.4	0.0	2.1			
Cycle Q Clear(g_c), s	2.1	5.5	0.0	0.0	16.6	0.5	42.4	0.0	2.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.88			
Lane Grp Cap(c), veh/h	66	556	0	0	392	332	1070	0	970			
V/C Ratio(X)	0.65	0.27	0.00	0.00	0.92	0.03	0.91	0.00	0.09			
Avail Cap(c_a), veh/h	101	593	0	0	392	332	1070	0	970			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	41.9	23.7	0.0	0.0	34.1	27.8	15.5	0.0	7.5			
Incr Delay (d2), s/veh	10.5	0.3	0.0	0.0	25.8	0.0	12.9	0.0	0.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.1	2.3	0.0	0.0	9.8	0.2	18.6	0.0	0.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.4	24.0	0.0	0.0	59.9	27.8	28.4	0.0	7.7			
LnGrp LOS	D	C	A	A	E	C	C	A	A			
Approach Vol, veh/h		195			370			1064				
Approach Delay, s/veh		30.2			58.9			26.6				
Approach LOS		C			E			C				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		57.5		30.8			7.8	23.0				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		53.0		28.0			5.0	18.5				
Max Q Clear Time (g_c+I1), s		44.4		7.5			4.1	18.6				
Green Ext Time (p_c), s		3.2		0.6			0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay				34.4								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary
49: Fenton Pkwy & River Park Rd

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



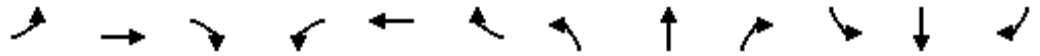
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	168	19	755	251	118	355
Future Volume (veh/h)	168	19	755	251	118	355
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	183	3	821	232	128	386
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	256	228	1475	417	359	1056
Arrive On Green	0.14	0.14	0.54	0.54	0.54	0.54
Sat Flow, veh/h	1781	1585	2829	773	287	2044
Grp Volume(v), veh/h	183	3	533	520	210	304
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1731	628	1617
Q Serve(g_s), s	2.8	0.0	5.6	5.6	2.9	3.0
Cycle Q Clear(g_c), s	2.8	0.0	5.6	5.6	8.5	3.0
Prop In Lane	1.00	1.00		0.45	0.61	
Lane Grp Cap(c), veh/h	256	228	958	933	543	872
V/C Ratio(X)	0.72	0.01	0.56	0.56	0.39	0.35
Avail Cap(c_a), veh/h	1758	1564	1754	1709	876	1596
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.6	10.4	4.3	4.3	4.5	3.7
Incr Delay (d2), s/veh	3.7	0.0	0.5	0.5	0.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.9	0.9	0.3	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.3	10.4	4.8	4.8	5.0	3.9
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	186		1053			514
Approach Delay, s/veh	15.2		4.8			4.4
Approach LOS	B		A			A
Timer - Assigned Phs		2			6	8
Phs Duration (G+Y+Rc), s		19.8			19.8	8.6
Change Period (Y+Rc), s		4.5			4.5	4.5
Max Green Setting (Gmax), s		28.0			28.0	28.0
Max Q Clear Time (g_c+I1), s		7.6			10.5	4.8
Green Ext Time (p_c), s		7.7			4.1	0.5
Intersection Summary						
HCM 6th Ctrl Delay			5.8			
HCM 6th LOS			A			

Queues

Horizon Year Plus Project w/4-Ln Bridge

1: SR-163 SB Ramps/Ulric St & Friars Rd

AM Peak Hour

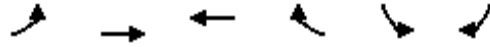


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	73	694	281	624	977	796	323	63	894	226	226	104
v/c Ratio	0.60	0.36	0.42	0.82	0.40	0.53	0.76	0.27	0.83	0.70	0.70	0.25
Control Delay	88.0	44.5	7.6	83.6	17.3	13.8	75.2	61.8	48.2	67.3	67.3	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.0	44.5	7.6	83.6	17.3	13.8	75.2	61.8	48.2	67.3	67.3	3.6
Queue Length 50th (ft)	71	157	0	323	119	134	159	57	434	221	221	0
Queue Length 95th (ft)	126	223	86	313	152	418	211	104	502	286	286	20
Internal Link Dist (ft)		1296			1069			834			622	
Turn Bay Length (ft)	300		350	400		200	300		215			200
Base Capacity (vph)	149	1943	667	867	2454	1739	482	262	1164	471	471	538
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.36	0.42	0.72	0.40	0.46	0.67	0.24	0.77	0.48	0.48	0.19

Intersection Summary

Queues
2: Friars Rd & SR-163 NB Ramps

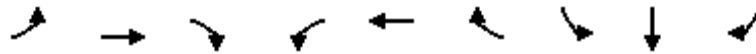
Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	521	1498	1521	868	1349	833
v/c Ratio	0.52	0.37	0.79	0.63	0.89	0.51
Control Delay	48.8	13.3	35.9	11.8	57.7	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	13.3	35.9	11.8	57.7	16.8
Queue Length 50th (ft)	244	229	426	50	443	232
Queue Length 95th (ft)	315	159	461	60	505	318
Internal Link Dist (ft)		1069	635		521	
Turn Bay Length (ft)	500			200	500	400
Base Capacity (vph)	999	4068	2466	1365	1546	1642
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.37	0.62	0.64	0.87	0.51
Intersection Summary						

Queues
17: I-15 SB Ramps & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



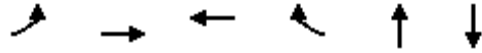
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	361	1212	429	415	2186	553	431	425	1299
v/c Ratio	0.90	0.77	0.57	0.89	1.25	0.71	0.93	0.91	0.84
Control Delay	67.6	39.8	9.0	44.2	146.2	11.8	65.8	63.0	26.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.6	39.8	9.0	44.2	146.2	11.8	65.8	63.0	26.5
Queue Length 50th (ft)	249	298	26	236	~732	109	301	294	388
Queue Length 95th (ft)	#420	#402	125	m125	m311	m47	#482	#470	500
Internal Link Dist (ft)		844			1079			723	
Turn Bay Length (ft)	380		200	350			520		520
Base Capacity (vph)	402	1582	754	531	1744	782	504	506	1539
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.77	0.57	0.78	1.25	0.71	0.86	0.84	0.84

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
18: I-15 NB Ramps & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	831	1299	3427	1009	400	499
v/c Ratio	1.48	no cap	1.30	1.31	4.26	5.31
Control Delay	250.0		161.0	165.0	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	250.0	Error	161.0	165.0	0.0	0.0
Queue Length 50th (ft)	~840	0	~1222	~1081	0	0
Queue Length 95th (ft)	m#1077	0	#1316	m#1233	0	0
Internal Link Dist (ft)		1079	869		797	677
Turn Bay Length (ft)	515					
Base Capacity (vph)	563	1	2632	773	94	94
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.48	1299.00	1.30	1.31	4.26	5.31

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.



Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	85	120	233	710	144	1260	394	537
v/c Ratio	0.52	0.24	0.33	0.96	0.62	0.67	0.57	0.73
Control Delay	64.0	7.0	29.6	51.0	62.7	32.9	46.5	9.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
Total Delay	64.0	7.0	29.6	51.0	62.7	32.9	46.5	10.2
Queue Length 50th (ft)	61	0	120	378	104	286	140	0
Queue Length 95th (ft)	127	46	232	#786	192	358	211	107
Internal Link Dist (ft)			657			1041	147	
Turn Bay Length (ft)				150	110			
Base Capacity (vph)	552	720	702	737	510	4165	1689	1025
Starvation Cap Reductn	0	0	0	0	0	0	382	110
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.17	0.33	0.96	0.28	0.30	0.30	0.59

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Horizon Year Plus Project w/4-Ln Bridge
 AM Peak Hour



Lane Group	EBR	NBT	SBT
Lane Group Flow (vph)	639	1298	907
v/c Ratio	0.71	0.72	0.51
Control Delay	20.3	13.6	10.4
Queue Delay	0.0	0.2	0.0
Total Delay	20.3	13.8	10.4
Queue Length 50th (ft)	92	156	93
Queue Length 95th (ft)	166	274	166
Internal Link Dist (ft)		285	1041
Turn Bay Length (ft)			
Base Capacity (vph)	2324	2312	2290
Starvation Cap Reductn	0	297	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.27	0.64	0.40
Intersection Summary			

Queues

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	56	50	572	464	943	374	759	1736	14	998	285
v/c Ratio	0.38	0.33	1.01	1.33	1.37	0.88	1.83	1.06	0.06	0.93	0.48
Control Delay	57.8	55.9	68.3	201.9	210.9	57.9	410.4	70.3	35.2	41.7	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	17.7	0.0	17.7	0.8
Total Delay	57.8	55.9	68.3	201.9	210.9	57.9	410.4	88.0	35.2	59.4	15.3
Queue Length 50th (ft)	42	36	320	~490	~536	269	~850	~778	4	~417	136
Queue Length 95th (ft)	87	80	#465	#713	#680	#394	#1086	#920	m7	m#547	m197
Internal Link Dist (ft)		2741			1304			808		254	
Turn Bay Length (ft)	105					200	215		65		140
Base Capacity (vph)	146	151	569	350	689	425	415	1641	238	1077	589
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	105	111
Spillback Cap Reductn	0	0	0	0	0	0	0	204	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.33	1.01	1.33	1.37	0.88	1.83	1.21	0.06	1.03	0.60

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
36: Fairmount Ave & I-8E Off-Ramp

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



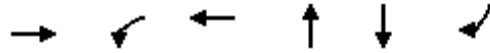
Lane Group	EBL	EBR	NBU	NBT	SBT
Lane Group Flow (vph)	1108	936	361	1564	977
v/c Ratio	0.82	0.86	1.27	0.89	0.64
Control Delay	40.5	45.4	189.0	36.9	40.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	40.5	45.4	189.0	36.9	40.7
Queue Length 50th (ft)	438	429	~407	601	255
Queue Length 95th (ft)	505	508	#667	771	323
Internal Link Dist (ft)	721			683	808
Turn Bay Length (ft)	550		350		
Base Capacity (vph)	1897	1535	285	2165	2110
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.58	0.61	1.27	0.72	0.46

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
46: Camino del Rio S & I-15 SB Off-Ramp

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



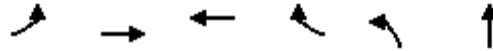
Lane Group	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	348	33	1266	22	98	576
v/c Ratio	0.17	0.41	1.07	0.17	0.21	1.16
Control Delay	14.8	84.6	73.0	2.8	44.3	132.2
Queue Delay	0.0	120.4	14.7	0.0	0.0	0.0
Total Delay	14.8	205.0	87.7	2.8	44.3	132.2
Queue Length 50th (ft)	86	32	~1397	0	76	~597
Queue Length 95th (ft)	115	70	#1664	0	129	#835
Internal Link Dist (ft)	323		47	78	212	
Turn Bay Length (ft)						
Base Capacity (vph)	2074	84	1186	131	472	495
Starvation Cap Reductn	0	57	317	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.17	1.22	1.46	0.17	0.21	1.16

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
48: I-15 NB Ramps & Camino del Rio S

Horizon Year Plus Project w/4-Ln Bridge
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	43	152	359	76	973	152
v/c Ratio	0.42	0.30	0.91	0.19	0.89	0.15
Control Delay	53.4	25.7	62.5	9.0	27.6	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.4	25.7	62.5	9.0	27.6	2.2
Queue Length 50th (ft)	24	64	202	0	466	2
Queue Length 95th (ft)	#59	113	#369	35	#773	26
Internal Link Dist (ft)		251	398			470
Turn Bay Length (ft)						
Base Capacity (vph)	103	608	402	401	1094	1045
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.25	0.89	0.19	0.89	0.15

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

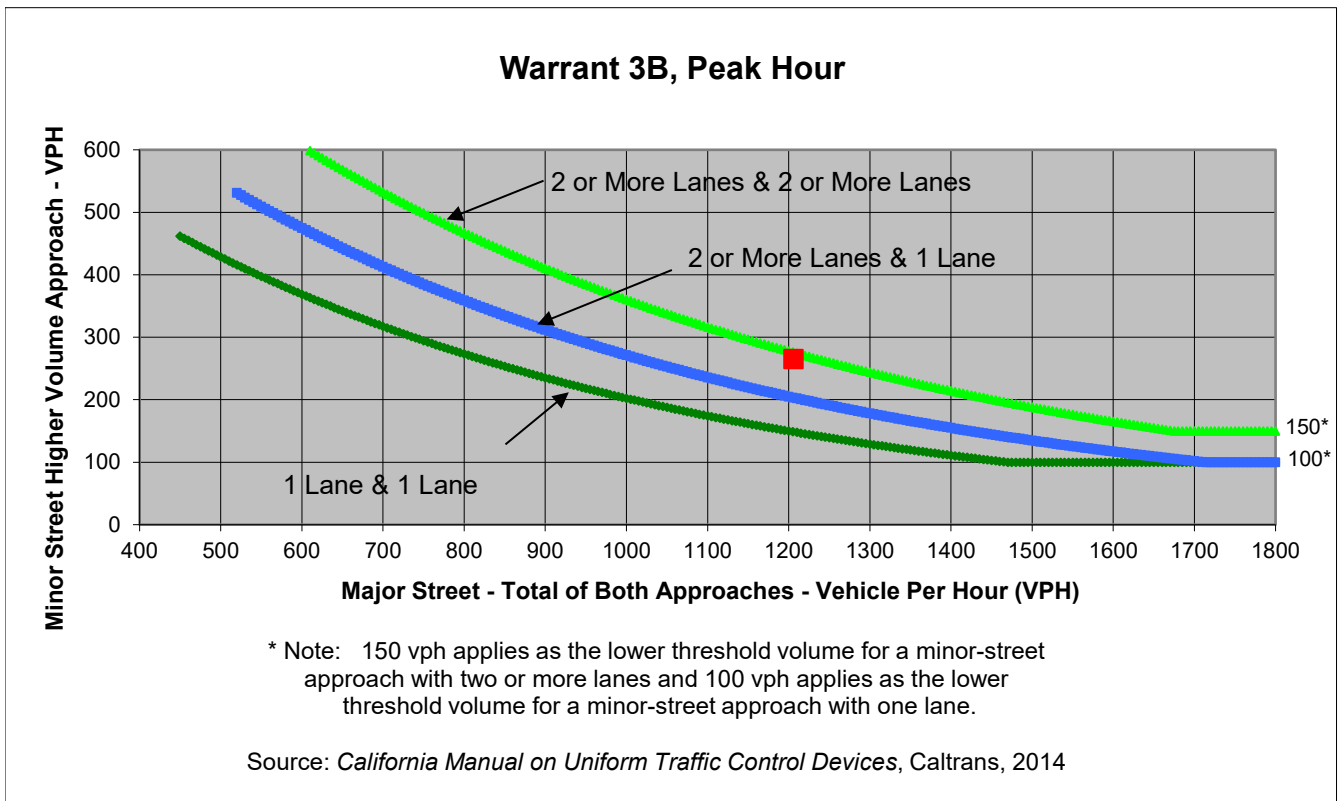
Project SDSU Mission Valley
 Scenario HY + Project w/4-Ln bridge
 Peak Hour AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	162	0	50	0
Through	582	428	0	0
Right	0	34	215	0
Total	744	462	265	0

Major Street Direction

x	North/South
	East/West



	Major Street	Minor Street	Warrant Met
	Ward Rd	Rancho Mission Rd	
Number of Approach Lanes	2	1	<u>YES</u>
Traffic Volume (VPH) *	1,206	265	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
 Traffic Volume for Minor Street is the Volume of High Volume Approach.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

Project SDSU Mission Valley
 Scenario HY + Project w/4-Ln bridge
 Peak Hour AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	217	0	50	0
Through	754	546	0	0
Right	0	34	273	0
Total	971	580	323	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

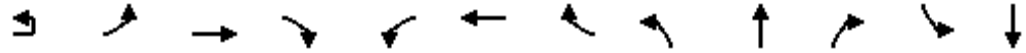
Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	49.5
Approach with Worst Case Delay	EB
Total Vehicles on Approach	265

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
HY + Project w/4-Ln bridge	3.6	323	1,874
Limiting Value	4	100	650
Condition Satisfied?	Not Met	Met	Met
Warrant Met	<u>NO</u>		

HCM Signalized Intersection Capacity Analysis
 1: SR-163 SB Ramps/Ulríc St & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations		3		7	7	7	7	7	7	7	7	7	
Traffic Volume (vph)	10	170	1780	700	634	1208	827	320	30	769	690	0	
Future Volume (vph)	10	170	1780	700	634	1208	827	320	30	769	690	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.7	7.0	7.0	4.5	3.0	6.1	6.1	6.1	4.5	6.1	6.1	
Lane Util. Factor		1.00	0.86	1.00	0.97	0.91	0.88	0.97	1.00	0.88	0.95	0.95	
Frbp, ped/bikes		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (prot)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (perm)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	10	173	1816	714	647	1233	844	327	31	785	704	0	
RTOR Reduction (vph)	0	0	0	481	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	183	1816	233	647	1233	844	327	31	785	352	352	
Confl. Peds. (#/hr)				5									
Confl. Bikes (#/hr)				2									
Turn Type	Prot	Prot	NA	Perm	Prot	NA	custom	Split	NA	pm+ov	Split	NA	
Protected Phases	5	5	2		1	6 7	4 7	8	8	1	4	4	
Permitted Phases				2						8			
Actuated Green, G (s)		17.5	44.0	44.0	26.0	52.3	68.9	14.1	14.1	40.1	37.2	37.2	
Effective Green, g (s)		17.5	44.0	44.0	26.0	52.3	61.9	14.1	14.1	40.1	37.2	37.2	
Actuated g/C Ratio		0.12	0.30	0.30	0.18	0.36	0.43	0.10	0.10	0.28	0.26	0.26	
Clearance Time (s)		4.7	7.0	7.0	4.5			6.1	6.1	4.5	6.1	6.1	
Vehicle Extension (s)		2.0	2.0	2.0	3.0			3.0	3.0	3.0	2.0	2.0	
Lane Grp Cap (vph)		213	1944	469	615	1834	1189	333	181	770	431	431	
v/s Ratio Prot		0.10	c0.28		c0.19	0.24	0.30	0.10	0.02	c0.18	c0.21	0.21	
v/s Ratio Perm				0.15						0.10			
v/c Ratio		0.86	0.93	0.50	1.05	0.67	0.71	0.98	0.17	1.02	0.82	0.82	
Uniform Delay, d1		62.5	49.1	41.4	59.5	39.1	34.2	65.3	60.1	52.5	50.7	50.7	
Progression Factor		1.00	1.00	1.00	1.04	1.23	0.69	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		26.5	9.9	3.7	44.5	0.5	1.1	44.2	0.5	37.4	10.8	10.8	
Delay (s)		89.1	58.9	45.2	106.2	48.8	24.6	109.5	60.5	89.9	61.5	61.5	
Level of Service		F	E	D	F	D	C	F	E	F	E	E	
Approach Delay (s)			57.4			54.9			94.7			57.0	
Approach LOS			E			D			F			E	
Intersection Summary													
HCM 2000 Control Delay			62.1		HCM 2000 Level of Service					E			
HCM 2000 Volume to Capacity ratio			0.96										
Actuated Cycle Length (s)			145.0		Sum of lost time (s)					26.9			
Intersection Capacity Utilization			97.3%		ICU Level of Service					F			
Analysis Period (min)			15										
c Critical Lane Group													

Movement	SBR
Lane Configurations	7
Traffic Volume (vph)	210
Future Volume (vph)	210
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.1
Lane Util. Factor	1.00
Frbp, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1560
Flt Permitted	1.00
Satd. Flow (perm)	1560
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	214
RTOR Reduction (vph)	142
Lane Group Flow (vph)	72
Confl. Peds. (#/hr)	3
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	37.2
Effective Green, g (s)	37.2
Actuated g/C Ratio	0.26
Clearance Time (s)	6.1
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	400
v/s Ratio Prot	
v/s Ratio Perm	0.05
v/c Ratio	0.18
Uniform Delay, d1	42.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	42.1
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
2: Friars Rd & SR-163 NB Ramps

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	640	2478	1679	1038	1210	1010
Future Volume (vph)	640	2478	1679	1038	1210	1010
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.5	6.0	4.5	4.5	5.0
Lane Util. Factor	0.97	0.86	0.86	0.88	0.94	0.88
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	6408	6408	2787	4990	2787
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	6408	6408	2787	4990	2787
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	667	2581	1749	1081	1260	1052
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	667	2581	1749	1081	1260	1052
Turn Type	Prot	NA	NA	custom	Prot	pm+ov
Protected Phases	5	2	3	6	4	5
Permitted Phases						4
Actuated Green, G (s)	38.6	92.5	50.4	65.0	43.5	82.1
Effective Green, g (s)	38.6	92.5	50.4	65.0	43.5	82.1
Actuated g/C Ratio	0.27	0.64	0.35	0.45	0.30	0.57
Clearance Time (s)	5.0	4.5			4.5	5.0
Vehicle Extension (s)	2.0	3.0			3.0	2.0
Lane Grp Cap (vph)	913	4087	2227	1249	1497	1674
v/s Ratio Prot	c0.19	0.40	c0.27	c0.39	0.25	0.17
v/s Ratio Perm						0.21
v/c Ratio	0.73	0.63	0.79	0.87	0.84	0.63
Uniform Delay, d1	48.5	15.9	42.4	36.1	47.5	21.2
Progression Factor	0.96	0.75	1.19	1.47	1.00	1.00
Incremental Delay, d2	1.2	0.3	1.1	4.1	4.5	0.5
Delay (s)	47.6	12.3	51.7	57.0	52.0	21.7
Level of Service	D	B	D	E	D	C
Approach Delay (s)		19.5	53.7		38.2	
Approach LOS		B	D		D	

Intersection Summary

HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		

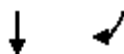
c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Frazee Rd & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	30	340	2629	670	10	121	1797	108	330	70	154	137
Future Volume (vph)	30	340	2629	670	10	121	1797	108	330	70	154	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.4	3.0	4.4		4.4	6.5	6.5	4.4	4.9		4.4
Lane Util. Factor		0.97	0.86	0.88		0.97	0.86	1.00	0.97	0.95		0.97
Frbp, ped/bikes		1.00	1.00	1.00		1.00	1.00	0.98	1.00	0.97		1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.90		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (prot)		3433	6408	2787		3433	6408	1546	3433	3067		3433
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (perm)		3433	6408	2787		3433	6408	1546	3433	3067		3433
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	34	382	2954	753	11	136	2019	121	371	79	173	154
RTOR Reduction (vph)	0	0	0	0	0	0	0	75	0	55	0	0
Lane Group Flow (vph)	0	416	2954	753	0	147	2019	46	371	197	0	154
Confl. Peds. (#/hr)				18				8			43	
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	custom	Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2 9	3 9	1	1	6		3	8		7
Permitted Phases							6					
Actuated Green, G (s)		20.1	69.7	65.8		6.5	55.1	55.1	20.6	42.3		7.3
Effective Green, g (s)		20.1	69.7	60.3		6.5	55.1	55.1	20.6	42.3		7.3
Actuated g/C Ratio		0.14	0.48	0.42		0.04	0.38	0.38	0.14	0.29		0.05
Clearance Time (s)		4.4				4.4	6.5	6.5	4.4	4.9		4.4
Vehicle Extension (s)		2.0				2.0	4.4	4.4	2.0	2.0		2.2
Lane Grp Cap (vph)		475	3080	1159		153	2435	587	487	894		172
v/s Ratio Prot		c0.12	c0.46	0.27		0.04	0.32		c0.11	0.06		0.04
v/s Ratio Perm							0.03					
v/c Ratio		0.88	0.96	0.65		0.96	0.83	0.08	0.76	0.22		0.90
Uniform Delay, d1		61.2	36.3	33.9		69.1	40.7	28.7	59.8	38.9		68.5
Progression Factor		1.09	0.80	1.12		1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		12.6	6.8	0.7		60.4	3.4	0.3	6.3	0.0		39.5
Delay (s)		79.2	35.9	38.8		129.6	44.1	29.0	66.1	38.9		107.9
Level of Service		E	D	D		F	D	C	E	D		F
Approach Delay (s)			40.8				48.8			55.1		
Approach LOS			D				D			E		
Intersection Summary												
HCM 2000 Control Delay			46.9				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			145.0				Sum of lost time (s)			22.2		
Intersection Capacity Utilization			94.9%				ICU Level of Service			F		
Analysis Period (min)			15									

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations	↑	↑↑
Traffic Volume (vph)	80	380
Future Volume (vph)	80	380
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.9	4.9
Lane Util. Factor	1.00	0.88
Frbp, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1863	2750
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1863	2750
Peak-hour factor, PHF	0.89	0.89
Adj. Flow (vph)	90	427
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	90	427
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		1
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	29.0	29.0
Effective Green, g (s)	29.0	29.0
Actuated g/C Ratio	0.20	0.20
Clearance Time (s)	4.9	4.9
Vehicle Extension (s)	2.3	2.3
Lane Grp Cap (vph)	372	550
v/s Ratio Prot	0.05	
v/s Ratio Perm		c0.16
v/c Ratio	0.24	0.78
Uniform Delay, d1	48.8	54.9
Progression Factor	1.00	1.00
Incremental Delay, d2	0.2	6.4
Delay (s)	49.0	61.3
Level of Service	D	E
Approach Delay (s)	70.4	
Approach LOS	E	
Intersection Summary		

HCM 6th Signalized Intersection Summary
4: Mission Center Rd & Friars Rd WB

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↶		↶	↷			↶	↷
Traffic Volume (veh/h)	0	0	0	239	10	295	10	230	880	0	0	1212	340
Future Volume (veh/h)	0	0	0	239	10	295	10	230	880	0	0	1212	340
Initial Q (Qb), veh				0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00		1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No			No
Adj Sat Flow, veh/h/ln				1870	1870	1870		1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				256	0	179		240	917	0	0	1262	292
Peak Hour Factor				0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2		2	2	0	0	2	2
Cap, veh/h				488	0	217		303	2699	0	0	2242	966
Arrive On Green				0.27	0.00	0.27		0.18	1.00	0.00	0.00	0.63	0.63
Sat Flow, veh/h				3563	0	1585		3456	3647	0	0	3647	1530
Grp Volume(v), veh/h				256	0	179		240	917	0	0	1262	292
Grp Sat Flow(s),veh/h/ln				1781	0	1585		1728	1777	0	0	1777	1530
Q Serve(g_s), s				6.6	0.0	11.4		7.2	0.0	0.0	0.0	21.9	9.4
Cycle Q Clear(g_c), s				6.6	0.0	11.4		7.2	0.0	0.0	0.0	21.9	9.4
Prop In Lane				1.00		1.00		1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				488	0	217		303	2699	0	0	2242	966
V/C Ratio(X)				0.52	0.00	0.82		0.79	0.34	0.00	0.00	0.56	0.30
Avail Cap(c_a), veh/h				1013	0	451		579	2699	0	0	2242	966
HCM Platoon Ratio				2.00	2.00	2.00		2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00		0.55	0.55	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				36.2	0.0	38.0		43.6	0.0	0.0	0.0	11.4	9.1
Incr Delay (d2), s/veh				0.9	0.0	7.7		1.0	0.2	0.0	0.0	1.0	0.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.6	0.0	4.2		2.8	0.1	0.0	0.0	7.9	3.0
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh				37.1	0.0	45.7		44.6	0.2	0.0	0.0	12.4	9.9
LnGrp LOS				D	A	D		D	A	A	A	B	A
Approach Vol, veh/h						435				1157			1554
Approach Delay, s/veh						40.6				9.4			12.0
Approach LOS						D				A			B
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		88.3			13.9	74.5		19.7					
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9					
Max Green Setting (Gmax), s		* 67			18.1	43.6		30.7					
Max Q Clear Time (g_c+I1), s		2.0			9.2	23.9		13.4					
Green Ext Time (p_c), s		6.2			0.3	14.5		1.3					

Intersection Summary

HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Mission Center Rd & Friars Rd EB

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	10	310	0	0	0	0	730	471	562	889	0
Future Volume (veh/h)	380	10	310	0	0	0	0	730	471	562	889	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	408	0	206				0	768	405	592	936	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	574	0	256				0	762	400	1200	2629	0
Arrive On Green	0.16	0.00	0.16				0.00	0.34	0.34	0.69	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2312	1164	3456	3647	0
Grp Volume(v), veh/h	408	0	206				0	614	559	592	936	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1606	1728	1777	0
Q Serve(g_s), s	11.7	0.0	13.5				0.0	37.1	37.1	8.6	0.0	0.0
Cycle Q Clear(g_c), s	11.7	0.0	13.5				0.0	37.1	37.1	8.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.72	1.00		0.00
Lane Grp Cap(c), veh/h	574	0	256				0	610	552	1200	2629	0
V/C Ratio(X)	0.71	0.00	0.81				0.00	1.01	1.01	0.49	0.36	0.00
Avail Cap(c_a), veh/h	976	0	434				0	610	552	1200	2629	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.69	0.69	0.00
Uniform Delay (d), s/veh	42.9	0.0	43.7				0.0	35.5	35.5	12.1	0.0	0.0
Incr Delay (d2), s/veh	1.6	0.0	5.9				0.0	38.0	41.5	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	5.6				0.0	21.7	20.1	2.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.5	0.0	49.6				0.0	73.5	76.9	12.2	0.1	0.0
LnGrp LOS	D	A	D				A	F	F	B	A	A
Approach Vol, veh/h		614						1173			1528	
Approach Delay, s/veh		46.2						75.1			4.8	
Approach LOS		D						E			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	43.3	42.4	22.3	85.7								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	26.7	* 37	29.6	67.7								
Max Q Clear Time (g_c+110), s	11.6	39.1	15.5	2.0								
Green Ext Time (p_c), s	1.0	0.0	1.9	9.7								

Intersection Summary

HCM 6th Ctrl Delay	37.3
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
6: Qualcomm Way & Friars Rd WB

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↔		↖	↕			↕	↗
Traffic Volume (veh/h)	0	0	0	448	10	80	601	110	0	0	237	20
Future Volume (veh/h)	0	0	0	448	10	80	601	110	0	0	237	20
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				529	0	0	626	115	0	0	247	2
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				639	336	0	1168	2472	0	0	1053	457
Arrive On Green				0.18	0.00	0.00	0.34	0.70	0.00	0.00	0.30	0.30
Sat Flow, veh/h				3563	1870	0	3456	3647	0	0	3647	1542
Grp Volume(v), veh/h				529	0	0	626	115	0	0	247	2
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1728	1777	0	0	1777	1542
Q Serve(g_s), s				11.4	0.0	0.0	11.7	0.8	0.0	0.0	4.2	0.1
Cycle Q Clear(g_c), s				11.4	0.0	0.0	11.7	0.8	0.0	0.0	4.2	0.1
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				639	336	0	1168	2472	0	0	1053	457
V/C Ratio(X)				0.83	0.00	0.00	0.54	0.05	0.00	0.00	0.23	0.00
Avail Cap(c_a), veh/h				1251	657	0	1168	2472	0	0	1053	457
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.99	0.99	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				31.6	0.0	0.0	21.4	3.8	0.0	0.0	21.3	19.8
Incr Delay (d2), s/veh				1.1	0.0	0.0	0.5	0.0	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.7	0.0	0.0	4.5	0.2	0.0	0.0	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				32.7	0.0	0.0	21.9	3.9	0.0	0.0	21.4	19.8
LnGrp LOS				C	A	A	C	A	A	A	C	B
Approach Vol, veh/h					529			741			249	
Approach Delay, s/veh					32.7			19.1			21.4	
Approach LOS					C			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		60.7			32.1	28.6		19.3				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+11), s		2.8			13.7	6.2		13.4				
Green Ext Time (p_c), s		0.8			1.8	1.0		0.9				

Intersection Summary

HCM 6th Ctrl Delay	24.2
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
7: Qualcomm Way & Friars Rd EB

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	10	308	0	0	0	0	611	382	123	703	0
Future Volume (veh/h)	70	10	308	0	0	0	0	611	382	123	703	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	86	0	251				0	679	183	137	781	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	659	0	293				0	3694	909	210	2452	0
Arrive On Green	0.18	0.00	0.18				0.00	0.57	0.57	0.12	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	6696	1584	3456	3647	0
Grp Volume(v), veh/h	86	0	251				0	679	183	137	781	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1609	1584	1728	1777	0
Q Serve(g_s), s	1.6	0.0	12.3				0.0	4.0	4.5	3.0	0.0	0.0
Cycle Q Clear(g_c), s	1.6	0.0	12.3				0.0	4.0	4.5	3.0	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	659	0	293				0	3694	909	210	2452	0
V/C Ratio(X)	0.13	0.00	0.86				0.00	0.18	0.20	0.65	0.32	0.00
Avail Cap(c_a), veh/h	1519	0	676				0	3694	909	436	2452	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.82	0.82	0.75	0.75	0.00
Uniform Delay (d), s/veh	27.2	0.0	31.6				0.0	8.1	8.2	34.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	2.8				0.0	0.1	0.4	1.0	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	4.6				0.0	1.2	1.4	1.2	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.3	0.0	34.4				0.0	8.2	8.6	35.3	0.3	0.0
LnGrp LOS	C	A	C				A	A	A	D	A	A
Approach Vol, veh/h		337						862			918	
Approach Delay, s/veh		32.6						8.3			5.5	
Approach LOS		C						A			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	9.3	51.0	19.7	60.3								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.5	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	15.0	6.5	14.3	2.0								
Green Ext Time (p_c), s	0.1	5.2	0.5	3.8								

Intersection Summary

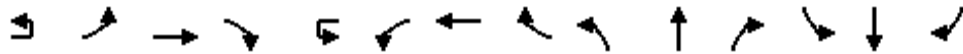
HCM 6th Ctrl Delay	10.9
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖ ↗ ↘ ↙		↖		↖ ↗ ↘ ↙				↖ ↗	↖ ↗		↖ ↗	
Traffic Volume (veh/h)	20	20	2729	160	10	78	1756	28	80	10	152	225	20	90
Future Volume (veh/h)	20	20	2729	160	10	78	1756	28	80	10	152	225	20	90
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	1.00		0.98	0.98		0.98
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No			No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		21	2813	139		80	1810	28	82	10	43	232	21	82
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h		237	2273	703		237	2305	36	415	48	475	294	23	88
Arrive On Green		0.13	0.45	0.45		0.13	0.45	0.45	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h		1781	5106	1580		1781	5178	80	1187	156	1546	811	73	287
Grp Volume(v), veh/h		21	2813	139		80	1190	648	92	0	43	335	0	0
Grp Sat Flow(s),veh/h/ln		1781	1702	1580		1781	1702	1854	1343	0	1546	1171	0	0
Q Serve(g_s), s		1.4	60.1	7.2		5.5	40.2	40.3	0.0	0.0	2.7	31.6	0.0	0.0
Cycle Q Clear(g_c), s		1.4	60.1	7.2		5.5	40.2	40.3	6.8	0.0	2.7	38.4	0.0	0.0
Prop In Lane		1.00		1.00		1.00		0.04	0.89		1.00	0.69		0.24
Lane Grp Cap(c), veh/h		237	2273	703		237	1515	825	463	0	475	404	0	0
V/C Ratio(X)		0.09	1.24	0.20		0.34	0.79	0.79	0.20	0.00	0.09	0.83	0.00	0.00
Avail Cap(c_a), veh/h		237	2273	703		237	1515	825	504	0	522	448	0	0
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		0.74	0.74	0.74	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh		51.3	37.5	22.8		53.1	31.9	32.0	34.7	0.0	33.4	49.0	0.0	0.0
Incr Delay (d2), s/veh		0.1	110.8	0.6		0.2	3.1	5.6	0.2	0.0	0.1	11.7	0.0	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.6	46.9	2.8		2.4	16.4	18.5	2.3	0.0	1.0	12.3	0.0	0.0
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		51.4	148.3	23.4		53.3	35.1	37.5	34.9	0.0	33.4	60.7	0.0	0.0
LnGrp LOS		D	F	C		D	D	D	C	A	C	E	A	A
Approach Vol, veh/h			2973				1918			135			335	
Approach Delay, s/veh			141.8				36.7			34.4			60.7	
Approach LOS			F				D			C			E	
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	22.4	66.3	46.3	22.4	66.3	46.3								
Change Period (Y+Rc), s	4.4	6.2	4.9	4.4	6.2	4.9								
Max Green Setting (Gmax), s	13.8	60.1	45.6	13.8	60.1	45.6								
Max Q Clear Time (g_c+1), s	17.5	62.1	40.4	3.4	42.3	8.8								
Green Ext Time (p_c), s	0.0	0.0	1.1	0.0	17.0	0.6								

Intersection Summary

HCM 6th Ctrl Delay	96.4
HCM 6th LOS	F

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 9: Fenton Pkwy & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗		↔↔	↑↑↑	↗	↔↔	↑	↗	↔↔	↗	↗
Traffic Volume (veh/h)	150	2268	868	10	295	1202	80	579	56	467	40	22	70
Future Volume (veh/h)	150	2268	868	10	295	1202	80	579	56	467	40	22	70
Initial Q (Qb), veh	15	25	15		0	0	0	0	0	15	15	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	2338	671		304	1239	43	597	58	286	41	23	9
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	253	2102	1122		333	2497	837	836	465	387	132	90	202
Arrive On Green	0.06	0.51	0.51		0.19	1.00	1.00	0.19	0.22	0.22	0.02	0.05	0.05
Sat Flow, veh/h	3456	5106	1585		3456	5106	1565	3456	1870	1581	3563	1870	1557
Grp Volume(v), veh/h	155	2338	671		304	1239	43	597	58	286	41	23	9
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1565	1728	1870	1581	1781	1870	1557
Q Serve(g_s), s	6.0	56.0	12.8		11.7	0.0	0.0	22.9	3.4	23.4	1.5	1.6	0.5
Cycle Q Clear(g_c), s	6.0	56.0	12.8		11.7	0.0	0.0	22.9	3.4	23.4	1.5	1.6	0.5
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	253	2102	1122		333	2497	837	836	465	387	132	90	202
V/C Ratio(X)	0.61	1.11	0.60		0.91	0.50	0.05	0.71	0.12	0.74	0.31	0.26	0.04
Avail Cap(c_a), veh/h	384	2618	1117		333	2805	896	664	545	460	280	470	486
HCM Platoon Ratio	1.00	1.00	1.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09		0.86	0.86	0.86	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.3	40.0	3.2		54.3	3.9	2.6	47.6	39.7	49.7	64.9	62.4	25.5
Incr Delay (d2), s/veh	0.1	51.2	0.2		25.1	0.6	0.1	0.4	0.0	1.2	0.5	6.7	0.4
Initial Q Delay(d3),s/veh	65.6	42.8	3.2		0.0	0.0	0.0	0.0	0.0	41.3	134.6	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	40.6	4.4		5.7	1.3	0.1	9.4	1.5	16.1	4.2	0.9	0.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	127.9	134.0	6.6		79.4	4.5	2.7	47.9	39.7	92.1	200.0	69.1	25.9
LnGrp LOS	F	F	A		E	A	A	D	D	F	F	E	C
Approach Vol, veh/h		3164				1586			941			73	
Approach Delay, s/veh		106.7				18.8			60.9			137.3	
Approach LOS		F				B			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	7.5	76.0	31.0	11.5	12.5	81.0	7.6	34.9					
Change Period (Y+Rc), s	4.4	6.3	4.9	*4.9	4.4	*6.3	4.4	4.9					
Max Green Setting (Gmax), s	13.1	52.6	16.1	*34	15.1	*51	10.7	39.6					
Max Q Clear Time (g_c+1/3), s	11.7	58.0	24.9	3.6	8.0	2.0	3.5	25.4					
Green Ext Time (p_c), s	0.0	0.0	0.0	0.3	0.1	32.0	0.0	3.7					

Intersection Summary

HCM 6th Ctrl Delay			75.4										
HCM 6th LOS			E										

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 10: Northside Dr & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↔↔↔	↔	↔↔	↔↔↔	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	10	160	2252	250	545	1257	225	210	40	811	111	30	100
Future Volume (veh/h)	10	160	2252	250	545	1257	225	210	40	811	111	30	100
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		172	2422	269	586	1352	153	226	43	791	119	32	5
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		220	2392	731	409	2672	897	280	407	529	170	347	294
Arrive On Green		0.13	0.94	0.94	0.24	1.00	1.00	0.08	0.22	0.22	0.05	0.19	0.19
Sat Flow, veh/h		3456	5106	1561	3456	5106	1565	3456	1870	1568	3456	1870	1585
Grp Volume(v), veh/h		172	2422	269	586	1352	153	226	43	791	119	32	5
Grp Sat Flow(s),veh/h/ln		1728	1702	1561	1728	1702	1565	1728	1870	1568	1728	1870	1585
Q Serve(g_s), s		6.6	63.7	2.3	16.1	0.0	0.0	8.7	2.5	29.6	4.6	1.9	0.4
Cycle Q Clear(g_c), s		6.6	63.7	2.3	16.1	0.0	0.0	8.7	2.5	29.6	4.6	1.9	0.4
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		220	2392	731	409	2672	897	280	407	529	170	347	294
V/C Ratio(X)		0.78	1.01	0.37	1.43	0.51	0.17	0.81	0.11	1.50	0.70	0.09	0.02
Avail Cap(c_a), veh/h		307	2392	731	409	2672	897	483	407	529	483	407	345
HCM Platoon Ratio		2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.24	0.24	0.24	0.86	0.86	0.86	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		58.5	4.3	2.3	51.9	0.0	0.0	61.4	42.6	45.2	63.7	45.9	45.2
Incr Delay (d2), s/veh		1.3	12.3	0.3	206.4	0.6	0.4	2.1	0.3	232.9	2.0	0.5	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.7	4.4	0.6	17.6	0.1	0.1	4.0	1.2	52.1	2.1	1.0	0.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		59.8	16.6	2.7	258.3	0.6	0.4	63.6	42.9	278.1	65.6	46.4	45.3
LnGrp LOS		E	F	A	F	A	A	E	D	F	E	D	D
Approach Vol, veh/h			2863			2091			1060			156	
Approach Delay, s/veh			17.9			72.8			222.9			61.0	
Approach LOS			B			E			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	20.5	69.9	15.4	30.2	13.0	77.4	11.1	34.5					
Change Period (Y+Rc), s	4.4	* 6.2	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	10.5	* 52	19.0	29.6	12.1	55.4	19.0	29.6					
Max Q Clear Time (g_c+11g), s	11.0	65.7	10.7	3.9	8.6	2.0	6.6	31.6					
Green Ext Time (p_c), s	0.0	0.0	0.3	0.4	0.1	33.3	0.1	0.0					

Intersection Summary

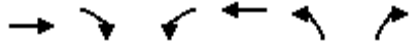
HCM 6th Ctrl Delay	72.8
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 11: Stadium Way (Street A) & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖↗	↑↑↑	↖↗	↗↘
Traffic Volume (veh/h)	2964	180	122	1784	252	525
Future Volume (veh/h)	2964	180	122	1784	252	525
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3120	138	128	1878	265	553
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	3454	1048	432	4280	305	595
Arrive On Green	1.00	1.00	0.13	0.84	0.09	0.09
Sat Flow, veh/h	5274	1549	3456	5274	3456	2790
Grp Volume(v), veh/h	3120	138	128	1878	265	553
Grp Sat Flow(s),veh/h/ln	1702	1549	1728	1702	1728	1395
Q Serve(g_s), s	0.0	0.0	4.6	12.8	10.3	9.5
Cycle Q Clear(g_c), s	0.0	0.0	4.6	12.8	10.3	9.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3454	1048	432	4280	305	595
V/C Ratio(X)	0.90	0.13	0.30	0.44	0.87	0.93
Avail Cap(c_a), veh/h	3454	1048	432	4280	305	595
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	54.1	2.8	61.2	52.5
Incr Delay (d2), s/veh	0.4	0.0	0.4	0.3	22.5	21.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	2.0	2.7	5.5	4.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.4	0.0	54.4	3.1	83.8	73.8
LnGrp LOS	A	A	D	A	F	E
Approach Vol, veh/h	3258			2006	818	
Approach Delay, s/veh	0.4			6.4	77.0	
Approach LOS	A			A	E	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	22.0	97.0			119.0	17.0
Change Period (Y+Rc), s	5.0	5.0			5.0	5.0
Max Green Setting (Gmax), s	17.0	92.0			114.0	12.0
Max Q Clear Time (g_c+1/6), s	10.6	2.0			14.8	12.3
Green Ext Time (p_c), s	0.2	72.5			24.9	0.0

Intersection Summary

HCM 6th Ctrl Delay		12.7				
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary
 12: Mission Village Dr & Friars Rd WB

Horizon Year Plus Project w/4-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↖	↖	↖↖	↖↖			↖↖	↖
Traffic Volume (veh/h)	0	0	0	545	0	364	330	731	0	0	1511	563
Future Volume (veh/h)	0	0	0	545	0	364	330	731	0	0	1511	563
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				568	0	174	344	761	0	0	1574	487
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				633	0	280	714	2663	0	0	1751	769
Arrive On Green				0.36	0.00	0.36	0.41	1.00	0.00	0.00	0.49	0.49
Sat Flow, veh/h				3563	0	1577	3456	3647	0	0	3647	1561
Grp Volume(v), veh/h				568	0	174	344	761	0	0	1574	487
Grp Sat Flow(s),veh/h/ln				1781	0	1577	1728	1777	0	0	1777	1561
Q Serve(g_s), s				21.1	0.0	12.8	10.2	0.0	0.0	0.0	56.5	32.2
Cycle Q Clear(g_c), s				21.1	0.0	12.8	10.2	0.0	0.0	0.0	56.5	32.2
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				633	0	280	714	2663	0	0	1751	769
V/C Ratio(X)				0.90	0.00	0.62	0.48	0.29	0.00	0.00	0.90	0.63
Avail Cap(c_a), veh/h				893	0	395	714	2663	0	0	1751	769
HCM Platoon Ratio				2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.96	0.96	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				43.9	0.0	41.2	35.6	0.0	0.0	0.0	32.3	26.2
Incr Delay (d2), s/veh				7.1	0.0	0.8	0.2	0.3	0.0	0.0	7.8	3.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				8.1	0.0	4.3	3.8	0.1	0.0	0.0	24.7	12.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				51.0	0.0	42.1	35.8	0.3	0.0	0.0	40.1	30.1
LnGrp LOS				D	A	D	D	A	A	A	D	C
Approach Vol, veh/h					742			1105			2061	
Approach Delay, s/veh					48.9			11.3			37.7	
Approach LOS					D			B			D	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		110.2			34.2	76.0		29.8				
Change Period (Y+Rc), s		5.3			5.3	7.0		4.9				
Max Green Setting (Gmax), s		94.7			18.7	69.0		35.1				
Max Q Clear Time (g_c+I1), s		2.0			12.2	58.5		23.1				
Green Ext Time (p_c), s		3.3			0.4	8.9		1.2				

Intersection Summary



















HCM 6th Ctrl Delay	32.4
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM Signalized Intersection Capacity Analysis
 13: Mission Village Dr/Street D & Friars Rd EB

Horizon Year Plus Project w/4-Ln Bridge
 PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	339	10	363	0	0	0	0	744	951	518	1548	0	
Future Volume (vph)	339	10	363	0	0	0	0	744	951	518	1548	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		5.2	5.2					4.9	4.9	6.2	6.2		
Lane Util. Factor		1.00	0.88					0.91	0.88	0.97	0.95		
Frbp, ped/bikes		1.00	0.99					1.00	0.96	1.00	1.00		
Flpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00		
Frt		1.00	0.85					1.00	0.85	1.00	1.00		
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)		1777	2747					5085	2680	3433	3539		
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)		1777	2747					5085	2680	3433	3539		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	357	11	382	0	0	0	0	783	1001	545	1629	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	368	382	0	0	0	0	783	1001	545	1629	0	
Confl. Peds. (#/hr)			1						4			4	
Confl. Bikes (#/hr)			1										
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA		
Protected Phases	4	4						2		1	6		
Permitted Phases			4						2				
Actuated Green, G (s)		33.6	33.6					66.4	66.4	23.7	95.0		
Effective Green, g (s)		33.6	33.6					66.4	66.4	23.7	95.0		
Actuated g/C Ratio		0.24	0.24					0.47	0.47	0.17	0.68		
Clearance Time (s)		5.2	5.2					4.9	4.9	6.2	6.2		
Vehicle Extension (s)		3.0	3.0					3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)		426	659					2411	1271	581	2401		
v/s Ratio Prot		c0.21						0.15		c0.16	0.46		
v/s Ratio Perm			0.14						c0.37				
v/c Ratio		0.86	0.58					0.32	0.79	0.94	0.68		
Uniform Delay, d1		51.0	47.0					22.9	30.9	57.4	13.4		
Progression Factor		1.00	1.00					0.34	0.42	1.21	0.22		
Incremental Delay, d2		16.4	1.2					0.1	1.4	16.2	1.0		
Delay (s)		67.4	48.2					7.8	14.4	85.5	3.9		
Level of Service		E	D					A	B	F	A		
Approach Delay (s)		57.6			0.0			11.5			24.4		
Approach LOS		E			A			B			C		
Intersection Summary													
HCM 2000 Control Delay			24.8									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.84										
Actuated Cycle Length (s)			140.0									Sum of lost time (s)	16.3
Intersection Capacity Utilization			81.9%									ICU Level of Service	D
Analysis Period (min)			15										

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 14: Street D & Street 4

Horizon Year Plus Project w/4-Ln Bridge
 PM Peak Hour
































Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↑	↗	↖	↑↑↑		↖	↑↑	↗
Traffic Volume (veh/h)	44	4	4	76	8	169	8	1490	193	832	1013	66
Future Volume (veh/h)	44	4	4	76	8	169	8	1490	193	832	1013	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.93	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	4	0	80	8	178	8	1568	191	876	1066	47
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	101	0	64	106	1390	14	1478	180	1541	2699	1170
Arrive On Green	0.03	0.05	0.00	0.04	0.06	0.06	0.01	0.32	0.32	0.89	1.00	1.00
Sat Flow, veh/h	1781	1870	0	1781	1870	2581	1781	4599	559	3456	3554	1541
Grp Volume(v), veh/h	46	4	0	80	8	178	8	1160	599	876	1066	47
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1781	1870	1291	1781	1702	1754	1728	1777	1541
Q Serve(g_s), s	3.6	0.3	0.0	5.0	0.6	5.2	0.6	45.0	45.0	7.8	0.0	0.0
Cycle Q Clear(g_c), s	3.6	0.3	0.0	5.0	0.6	5.2	0.6	45.0	45.0	7.8	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.32	1.00		1.00
Lane Grp Cap(c), veh/h	59	101	0	64	106	1390	14	1094	564	1541	2699	1170
V/C Ratio(X)	0.77	0.04	0.00	1.26	0.08	0.13	0.59	1.06	1.06	0.57	0.39	0.04
Avail Cap(c_a), veh/h	115	468	0	64	414	1815	89	1094	564	1541	2699	1170
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.70	0.70	0.70
Uniform Delay (d), s/veh	67.1	62.8	0.0	67.5	62.6	18.6	69.2	47.5	47.5	4.6	0.0	0.0
Incr Delay (d2), s/veh	18.9	0.2	0.0	197.1	0.3	0.0	34.4	44.6	55.7	0.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.1	0.0	5.8	0.3	1.6	0.4	25.7	28.2	1.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.1	62.9	0.0	264.6	62.9	18.7	103.6	92.1	103.2	5.0	0.1	0.0
LnGrp LOS	F	E	A	F	E	B	F	F	F	A	A	A
Approach Vol, veh/h		50			266			1767			1989	
Approach Delay, s/veh		84.2			94.0			95.9			2.2	
Approach LOS		F			F			F			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	67.4	50.0	10.0	12.6	6.1	111.3	9.7	12.9				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	35.0	45.0	5.0	35.0	7.0	73.0	9.0	31.0				
Max Q Clear Time (g_c+1), s	19.8	47.0	7.0	2.3	2.6	2.0	5.6	7.2				
Green Ext Time (p_c), s	3.6	0.0	0.0	0.0	0.0	10.9	0.0	0.8				

Intersection Summary

HCM 6th Ctrl Delay	49.9
HCM 6th LOS	D

HCM Signalized Intersection Capacity Analysis
15: Street F & Street 4

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 			 	 		 	 		 	 	 
Traffic Volume (vph)	943	21	4	5	8	21	8	222	4	82	356	217
Future Volume (vph)	943	21	4	5	8	21	8	222	4	82	356	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	2.1	4.5
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.88
Frbp, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.89		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1807		1770	1622		1770	1856		1770	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	1807		1770	1622		1770	1856		1770	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1025	23	4	5	9	23	9	241	4	89	387	236
RTOR Reduction (vph)	0	2	0	0	20	0	0	1	0	0	0	0
Lane Group Flow (vph)	1025	25	0	5	12	0	9	244	0	89	387	236
Confl. Peds. (#/hr)			10			10			10			
Confl. Bikes (#/hr)			3			3			3			3
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	7	4		3	8		5	2		1	6	9
Permitted Phases												
Actuated Green, G (s)	69.6	84.1		1.0	15.5		1.0	26.6		10.3	35.9	82.4
Effective Green, g (s)	69.6	84.1		1.0	15.5		1.0	26.6		10.3	35.9	82.4
Actuated g/C Ratio	0.50	0.60		0.01	0.11		0.01	0.19		0.07	0.26	0.59
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)	1706	1085		12	179		12	352		130	477	1640
v/s Ratio Prot	c0.30	0.01		0.00	c0.01		0.01	0.13		c0.05	c0.21	0.08
v/s Ratio Perm												
v/c Ratio	0.60	0.02		0.42	0.06		0.75	0.69		0.68	0.81	0.14
Uniform Delay, d1	25.2	11.3		69.2	55.8		69.4	52.9		63.3	48.9	12.9
Progression Factor	0.47	0.43		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.3	0.0		21.8	0.2		128.3	5.8		13.9	9.6	0.0
Delay (s)	13.1	4.9		91.0	55.9		197.6	58.7		77.2	58.5	13.0
Level of Service	B	A		F	E		F	E		E	E	B
Approach Delay (s)		12.9			60.6			63.6			45.7	
Approach LOS		B			E			E			D	
Intersection Summary												
HCM 2000 Control Delay			31.4									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			140.0									Sum of lost time (s) 20.1
Intersection Capacity Utilization			67.3%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												

Intersection					
Intersection Delay, s/veh 7.4					
Intersection LOS A					
Approach	EB		WB		NB
Entry Lanes	2		2		1
Conflicting Circle Lanes	2		2		2
Adj Approach Flow, veh/h	1289		661		149
Demand Flow Rate, veh/h	1315		674		152
Vehicles Circulating, veh/h	52		104		1215
Vehicles Exiting, veh/h	726		1263		152
Ped Vol Crossing Leg, #/h	0		0		0
Ped Cap Adj	1.000		1.000		1.000
Approach Delay, s/veh	8.0		5.3		11.9
Approach LOS	A		A		B
Lane	Left	Right	Left	Right	Left
Designated Moves	LT	TR	LT	TR	LR
Assumed Moves	LT	TR	LT	TR	LR
RT Channelized					
Lane Util	0.470	0.530	0.470	0.530	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328
Entry Flow, veh/h	618	697	317	357	152
Cap Entry Lane, veh/h	1287	1359	1227	1300	506
Entry HV Adj Factor	0.980	0.980	0.980	0.981	0.980
Flow Entry, veh/h	606	683	311	350	149
Cap Entry, veh/h	1262	1332	1202	1275	496
V/C Ratio	0.480	0.513	0.258	0.275	0.301
Control Delay, s/veh	7.9	8.1	5.3	5.3	11.9
LOS	A	A	A	A	B
95th %tile Queue, veh	3	3	1	1	1

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	477	2816	799	10	309	1413	390	0	0	0	1185	0	639
Future Volume (veh/h)	477	2816	799	10	309	1413	390	0	0	0	1185	0	639
Initial Q (Qb), veh	20	0	20		20	0	20				0	0	20
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	497	2933	639		322	1472	0				1234	0	662
Peak Hour Factor	0.96	0.96	0.96		0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	598	3346	651		393	1246					1153	0	1998
Arrive On Green	0.29	0.36	0.36		0.19	0.24	0.00				0.32	0.00	0.32
Sat Flow, veh/h	1781	5106	1552		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	497	2933	639		322	1472	0				1234	0	662
Grp Sat Flow(s),veh/h/ln	1781	1702	1552		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	37.3	49.3	49.3		24.2	33.2	0.0				44.0	0.0	0.0
Cycle Q Clear(g_c), s	37.3	49.3	49.3		24.2	33.2	0.0				44.0	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	598	3346	651		393	1246					1153	0	1998
V/C Ratio(X)	0.83	0.88	0.98		0.82	1.18					1.07	0.00	0.33
Avail Cap(c_a), veh/h	550	1852	563		393	1246					1153	0	1951
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.46	0.46	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	44.4	20.9	39.5		53.0	51.4	0.0				46.0	0.0	12.4
Incr Delay (d2), s/veh	10.7	3.6	31.2		6.0	85.5	0.0				47.6	0.0	0.0
Initial Q Delay(d3),s/veh	47.6	0.0	102.6		102.0	0.0	0.0				0.0	0.0	1.1
%ile BackOfQ(50%),veh	25.8	10.4	40.4		24.8	23.6	0.0				27.1	0.0	14.0
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	102.6	24.5	173.3		161.0	136.9	0.0				93.6	0.0	13.5
LnGrp LOS	F	C	F		F	F					F	A	B
Approach Vol, veh/h		4069				1794	A					1896	
Approach Delay, s/veh		57.4				141.3						65.6	
Approach LOS		E				F						E	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	30.6	56.3		49.1	46.7	40.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	30	45.7		44.0	42.0	* 33							
Max Q Clear Time (g_c+20), s	20.2	51.3		46.0	39.3	35.2							
Green Ext Time (p_c), s	0.2	0.0		0.0	0.3	0.0							

Intersection Summary

HCM 6th Ctrl Delay	78.8
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖				↑↑↑	↗						
Traffic Volume (veh/h)	1055	3006	0	0	1353	961	0	0	1429	0	0	729
Future Volume (veh/h)	1055	3006	0	0	1353	961	0	0	1429	0	0	729
Initial Q (Qb), veh	40	0	0	0	20	40						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	1111	3164	0	0	1352	1060						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	660	0	0	0	1701	1476						
Arrive On Green	0.44	0.93	0.00	0.00	0.44	0.44						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	1111	0	0	0	1352	1060						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	45.0	0.0	0.0	0.0	32.5	28.9						
Cycle Q Clear(g_c), s	45.0	0.0	0.0	0.0	32.5	28.9						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	660	0	0	0	1701	1476						
V/C Ratio(X)	1.68	0.00	0.00	0.00	0.79	0.72						
Avail Cap(c_a), veh/h	775	0	0	0	2315	1962						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	1.00	1.00						
Uniform Delay (d), s/veh	38.3	0.0	0.0	0.0	25.5	25.3						
Incr Delay (d2), s/veh	314.4	0.0	0.0	0.0	1.0	0.5						
Initial Q Delay(d3),s/veh	218.3	0.0	0.0	0.0	4.9	18.7						
%ile BackOfQ(50%),veh/ln	116.1	0.0	0.0	0.0	16.1	17.0						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	570.9	0.0	0.0	0.0	31.3	44.5						
LnGrp LOS	F	A	A	A	C	D						
Approach Vol, veh/h		1111			2412							
Approach Delay, s/veh		570.9			37.1							
Approach LOS		F			D							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		103.4			50.5	52.9						
Change Period (Y+Rc), s		* 7			5.5	7.0						
Max Green Setting (Gmax), s		* 18			45.0	64.0						
Max Q Clear Time (g_c+I1), s		0.0			47.0	34.5						
Green Ext Time (p_c), s		0.0			0.0	11.4						

Intersection Summary

HCM 6th Ctrl Delay	205.4
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
 PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↓	↑↑↑	↓	↑
Traffic Volume (veh/h)	3568	878	10	56	1821	483	113
Future Volume (veh/h)	3568	878	10	56	1821	483	113
Initial Q (Qb), veh	0	0		0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	3717	779		58	1897	503	26
Peak Hour Factor	0.96	0.96		0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	3101	1336		75	4876	600	299
Arrive On Green	0.68	0.68		0.04	0.76	0.16	0.16
Sat Flow, veh/h	5274	1583		1781	6696	3563	1585
Grp Volume(v), veh/h	3717	779		58	1897	503	26
Grp Sat Flow(s),veh/h/ln	5274	1583		1781	6696	3563	1585
Q Serve(g_s), s	93.1	20.5		4.4	13.7	18.8	1.9
Cycle Q Clear(g_c), s	93.1	20.5		4.4	13.7	18.8	1.9
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3101	1336		75	4876	600	299
V/C Ratio(X)	1.20	0.58		0.78	0.39	0.84	0.09
Avail Cap(c_a), veh/h	3497	1336		208	4884	843	375
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.88	0.88	0.68	0.68
Uniform Delay (d), s/veh	26.7	3.3		64.5	5.9	55.5	45.6
Incr Delay (d2), s/veh	92.7	1.9		5.6	0.2	2.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	12.4	0.0
%ile BackOfQ(50%),veh	56.3	15.2		2.1	4.2	10.3	0.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	119.4	5.1		70.1	6.1	70.5	45.7
LnGrp LOS	F	A		E	A	E	D
Approach Vol, veh/h	4496			1955	529		
Approach Delay, s/veh	99.6			8.0	69.3		
Approach LOS	F			A	E		
Timer - Assigned Phs	1	2		6	8		
Phs Duration (G+Y+Rc), s	10.1	99.1		109.2	26.8		
Change Period (Y+Rc), s	4.4	* 6		6.0	5.1		
Max Green Setting (Gmax), s	15.9	* 73		92.7	32.2		
Max Q Clear Time (g_c+10), s	10.4	95.1		15.7	20.8		
Green Ext Time (p_c), s	0.0	0.0		51.2	0.9		

Intersection Summary

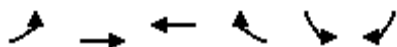
HCM 6th Ctrl Delay	71.7
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: Friars Rd & Santo Rd

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑↑		↔↔	↔
Traffic Volume (veh/h)	453	3308	1536	110	90	291
Future Volume (veh/h)	453	3308	1536	110	90	291
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1856	1870	1870
Adj Flow Rate, veh/h	472	3446	1600	109	94	297
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	3	3	2	2
Cap, veh/h	537	3752	3338	227	602	523
Arrive On Green	0.16	0.73	0.54	0.54	0.17	0.17
Sat Flow, veh/h	3456	5274	6409	419	3456	1585
Grp Volume(v), veh/h	472	3446	1246	463	94	297
Grp Sat Flow(s),veh/h/ln	1728	1702	1596	1780	1728	1585
Q Serve(g_s), s	16.0	66.0	19.3	19.3	2.8	18.5
Cycle Q Clear(g_c), s	16.0	66.0	19.3	19.3	2.8	18.5
Prop In Lane	1.00			0.24	1.00	1.00
Lane Grp Cap(c), veh/h	537	3752	2599	966	602	523
V/C Ratio(X)	0.88	0.92	0.48	0.48	0.16	0.57
Avail Cap(c_a), veh/h	737	3752	2599	966	734	583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.72	0.72	1.00	1.00
Uniform Delay (d), s/veh	49.6	13.0	16.9	17.0	42.0	33.2
Incr Delay (d2), s/veh	0.7	0.5	0.5	1.2	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	18.9	6.7	7.7	1.2	16.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.3	13.5	17.4	18.2	42.1	33.6
LnGrp LOS	D	B	B	B	D	C
Approach Vol, veh/h		3918	1709		391	
Approach Delay, s/veh		17.9	17.6		35.7	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		94.7		25.3	23.0	71.6
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		83.6		25.5	25.6	* 54
Max Q Clear Time (g_c+I1), s		68.0		20.5	18.0	21.3
Green Ext Time (p_c), s		15.3		0.4	0.6	16.6

Intersection Summary

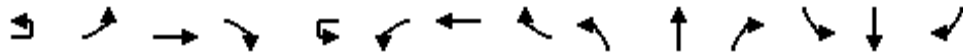
HCM 6th Ctrl Delay	19.0
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
21: Riverdale St & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↑↑↑	↗			↔	↗	↖	↑	↖	↖	↑	↗
Traffic Volume (veh/h)	30	234	2909	244	10	50	1211	60	223	110	140	60	60	143
Future Volume (veh/h)	30	234	2909	244	10	50	1211	60	223	110	140	60	60	143
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	0.99		0.99	1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No			No	
Adj Sat Flow, veh/h/ln		1870	1870	1856		1737	1856	1870	1870	1870	1870	1811	1870	1870
Adj Flow Rate, veh/h		241	2999	159		52	1248	25	230	113	92	62	62	51
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	3		11	3	2	2	2	2	6	2	2
Cap, veh/h		272	2832	870		65	2236	700	335	248	202	252	247	203
Arrive On Green		0.15	0.55	0.55		0.04	0.44	0.44	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h		1781	5106	1568		1654	5066	1585	1273	951	774	1135	946	778
Grp Volume(v), veh/h		241	2999	159		52	1248	25	230	0	205	62	0	113
Grp Sat Flow(s),veh/h/ln		1781	1702	1568		1654	1689	1585	1273	0	1725	1135	0	1724
Q Serve(g_s), s		13.9	58.2	5.3		3.3	19.2	0.9	18.3	0.0	10.5	5.1	0.0	5.4
Cycle Q Clear(g_c), s		13.9	58.2	5.3		3.3	19.2	0.9	23.7	0.0	10.5	15.5	0.0	5.4
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.45	1.00		0.45
Lane Grp Cap(c), veh/h		272	2832	870		65	2236	700	335	0	451	252	0	450
V/C Ratio(X)		0.89	1.06	0.18		0.80	0.56	0.04	0.69	0.00	0.45	0.25	0.00	0.25
Avail Cap(c_a), veh/h		324	2832	870		206	2236	700	455	0	613	359	0	612
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.51	0.51	0.51		0.92	0.92	0.92	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		43.6	23.4	11.6		50.0	21.7	16.6	40.0	0.0	32.5	39.0	0.0	30.7
Incr Delay (d2), s/veh		11.4	31.5	0.2		7.5	0.9	0.1	1.1	0.0	0.3	0.2	0.0	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		6.8	28.2	1.7		1.4	7.2	0.3	5.8	0.0	4.4	1.4	0.0	2.3
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		55.0	54.9	11.8		57.5	22.7	16.7	41.1	0.0	32.8	39.2	0.0	30.8
LnGrp LOS		E	F	B		E	C	B	D	A	C	D	A	C
Approach Vol, veh/h			3399				1325			435			175	
Approach Delay, s/veh			52.9				23.9			37.2			33.8	
Approach LOS			D				C			D			C	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	8.5	64.1		32.3	20.4	52.2		32.3						
Change Period (Y+Rc), s	4.4	* 5.9		4.9	4.4	5.9		4.9						
Max Green Setting (Gmax), s	13.5	* 40		37.3	19.1	33.4		37.3						
Max Q Clear Time (g_c+1/3), s	15.3	60.2		17.5	15.9	21.2		25.7						
Green Ext Time (p_c), s	0.0	0.0		0.5	0.1	6.3		1.0						

Intersection Summary

HCM 6th Ctrl Delay	43.8
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
22: Mission Gorge Rd & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↵↵	↑↑↑		↵	↵↵
Traffic Volume (veh/h)	2611	288	280	1021	10	360	600
Future Volume (veh/h)	2611	288	280	1021	10	360	600
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	2778	0	298	1086		383	637
Peak Hour Factor	0.94	0.94	0.94	0.94		0.94	0.94
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2621		463	0		412	1018
Arrive On Green	0.51	0.00	0.13	0.00		0.23	0.23
Sat Flow, veh/h	5443	0	3456	298		1781	2790
Grp Volume(v), veh/h	2778	0	298	51.6		383	637
Grp Sat Flow(s),veh/h/ln	1702	0	1728	D		1781	1395
Q Serve(g_s), s	61.6	0.0	9.8			25.3	6.5
Cycle Q Clear(g_c), s	61.6	0.0	9.8			25.3	6.5
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2621		463			412	1018
V/C Ratio(X)	1.06		0.64			0.93	0.63
Avail Cap(c_a), veh/h	2621		463			425	1039
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.09	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	29.2	0.0	49.3			45.2	31.4
Incr Delay (d2), s/veh	28.0	0.0	2.4			26.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh	29.5	0.0	4.3			14.1	7.6
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	57.2	0.0	51.6			71.3	32.2
LnGrp LOS	F		D			E	C
Approach Vol, veh/h	2778	A				1020	
Approach Delay, s/veh	57.2					46.9	
Approach LOS	E					D	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	30.5	67.4					32.1
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	61.6					28.6
Max Q Clear Time (g_c+I1), s	11.8	63.6					27.3
Green Ext Time (p_c), s	0.2	0.0					0.5

Intersection Summary

HCM 6th Ctrl Delay	54.2
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
23: Qualcomm Way & Rio San Diego Dr

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations	↔↔	↑	↗		↔↔	↑↑	↗	↔↔	↑↑↑	↗		↔↔	↑↑↑	
Traffic Volume (veh/h)	316	384	233	20	783	412	340	9	197	151	10	70	721	340
Future Volume (veh/h)	316	384	233	20	783	412	340	9	197	151	10	70	721	340
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		1.00	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	333	404	221		824	434	199	9	207	11		74	759	316
Peak Hour Factor	0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2		2	2	2
Cap, veh/h	400	465	401		871	1368	607	30	1539	476		123	1158	477
Arrive On Green	0.12	0.25	0.25		0.25	0.38	0.38	0.01	0.30	0.30		0.04	0.33	0.33
Sat Flow, veh/h	3456	1870	1558		3456	3554	1578	3456	5106	1579		3456	3529	1454
Grp Volume(v), veh/h	333	404	221		824	434	199	9	207	11		74	732	343
Grp Sat Flow(s),veh/h/ln	1728	1870	1558		1728	1777	1578	1728	1702	1579		1728	1702	1579
Q Serve(g_s), s	11.1	24.5	14.5		27.7	10.1	10.5	0.3	3.5	0.6		2.5	21.7	22.0
Cycle Q Clear(g_c), s	11.1	24.5	14.5		27.7	10.1	10.5	0.3	3.5	0.6		2.5	21.7	22.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.92
Lane Grp Cap(c), veh/h	400	465	401		871	1368	607	30	1539	476		123	1117	518
V/C Ratio(X)	0.83	0.87	0.55		0.95	0.32	0.33	0.30	0.13	0.02		0.60	0.66	0.66
Avail Cap(c_a), veh/h	877	633	541		877	1368	607	1754	2592	801		877	1728	802
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	51.1	42.5	38.0		43.4	25.5	25.6	58.2	30.1	29.1		56.2	34.0	34.1
Incr Delay (d2), s/veh	1.7	9.5	1.2		18.4	0.1	0.3	2.1	0.1	0.0		1.8	1.1	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	12.2	5.5		13.7	4.2	3.9	0.1	1.4	0.2		1.1	9.0	8.7
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	52.9	52.0	39.2		61.8	25.6	25.9	60.3	30.1	29.1		58.0	35.1	36.6
LnGrp LOS	D	D	D		E	C	C	E	C	C		E	D	D
Approach Vol, veh/h		958				1457			227				1149	
Approach Delay, s/veh		49.4				46.1			31.3				37.0	
Approach LOS		D				D			C				D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	8.6	40.7	34.2	34.7	5.4	43.9	18.1	50.8						
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3						
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0						
Max Q Clear Time (g_c+1), s	14.5	5.5	29.7	26.5	2.3	24.0	13.1	12.5						
Green Ext Time (p_c), s	0.1	2.1	0.1	2.6	0.0	14.7	0.5	3.5						

Intersection Summary

HCM 6th Ctrl Delay	43.3
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Intersection Delay, s/veh 57.1

Intersection LOS F

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↖	↕		↖	↕			↕				↕	
Traffic Vol, veh/h	20	170	755	20	15	535	60	20	22	20	20	130	28	110
Future Vol, veh/h	20	170	755	20	15	535	60	20	22	20	20	130	28	110
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	189	839	22	17	594	67	22	24	22	22	144	31	122
Number of Lanes	0	1	2	0	1	2	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	79.6	36.1	14.9	35.1
HCM LOS	F	E	B	E

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	32%	100%	0%	0%	100%	0%	0%	49%
Vol Thru, %	35%	0%	100%	93%	0%	100%	75%	10%
Vol Right, %	32%	0%	0%	7%	0%	0%	25%	41%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	62	190	503	272	15	357	238	288
LT Vol	20	190	0	0	15	0	0	140
Through Vol	22	0	503	252	0	357	178	30
RT Vol	20	0	0	20	0	0	60	118
Lane Flow Rate	69	211	559	302	17	396	265	320
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.182	0.482	1.197	0.642	0.039	0.878	0.574	0.763
Departure Headway (Hd)	9.95	8.227	7.708	7.654	8.824	8.303	8.12	8.89
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	363	439	475	471	408	440	448	410
Service Time	7.65	5.974	5.454	5.401	6.524	6.003	5.82	6.59
HCM Lane V/C Ratio	0.19	0.481	1.177	0.641	0.042	0.9	0.592	0.78
HCM Control Delay	14.9	18.4	133.1	23.2	11.9	47.1	21.2	35.1
HCM Lane LOS	B	C	F	C	B	E	C	E
HCM 95th-tile Q	0.7	2.6	21.2	4.4	0.1	9.1	3.5	6.3

HCM 6th Signalized Intersection Summary

Horizon Year Plus Project w/4-Ln Bridge

25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	10	156	280	325	20	320	210	214	544	77	30	306	829	66
Future Volume (veh/h)	10	156	280	325	20	320	210	214	544	77	30	306	829	66
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.99	1.00		0.98	1.00		0.99		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No		No		No		No			No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h		161	289	108	21	330	163	221	561	74		315	855	65
Peak Hour Factor		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97		0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h		322	338	282	25	402	209	246	1229	162		371	1204	91
Arrive On Green		0.18	0.18	0.18	0.18	0.18	0.18	0.14	0.39	0.39		0.11	0.36	0.36
Sat Flow, veh/h		1781	1870	1561	139	2211	1151	1781	3151	414		3456	3346	254
Grp Volume(v), veh/h		161	289	108	282	0	232	221	316	319		315	454	466
Grp Sat Flow(s),veh/h/ln		1781	1870	1561	1863	0	1638	1781	1777	1788		1728	1777	1823
Q Serve(g_s), s		11.6	21.3	8.7	20.8	0.0	19.2	17.4	18.7	18.9		12.7	31.3	31.3
Cycle Q Clear(g_c), s		11.6	21.3	8.7	20.8	0.0	19.2	17.4	18.7	18.9		12.7	31.3	31.3
Prop In Lane		1.00		1.00	0.07		0.70	1.00		0.23		1.00		0.14
Lane Grp Cap(c), veh/h		322	338	282	339	0	298	246	693	698		371	639	656
V/C Ratio(X)		0.50	0.86	0.38	0.83	0.00	0.78	0.90	0.46	0.46		0.85	0.71	0.71
Avail Cap(c_a), veh/h		501	526	439	524	0	461	376	750	755		729	750	769
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		52.5	56.5	51.3	56.1	0.0	55.4	60.3	32.2	32.2		62.3	39.2	39.2
Incr Delay (d2), s/veh		0.7	6.3	0.5	3.8	0.0	1.8	12.5	2.2	2.2		2.1	6.6	6.4
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		5.2	10.5	3.5	10.2	0.0	8.2	8.8	8.6	8.7		5.8	15.0	15.3
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		53.2	62.8	51.8	59.8	0.0	57.2	72.9	34.3	34.4		64.5	45.7	45.6
LnGrp LOS		D	E	D	E	A	E	E	C	C		E	D	D
Approach Vol, veh/h			558			514			856				1235	
Approach Delay, s/veh			57.9			58.7			44.3				50.4	
Approach LOS			E			E			D				D	
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	19.7	60.9	30.9	24.0	56.6	30.8								
Change Period (Y+Rc), s	4.4	* 5.4	5.2	4.4	5.4	4.9								
Max Green Setting (Gmax), s	30.0	* 60	40.0	30.0	60.0	40.0								
Max Q Clear Time (g_c+1/4), s	11.7	20.9	23.3	19.4	33.3	22.8								
Green Ext Time (p_c), s	0.5	15.4	1.5	0.2	17.9	2.1								

Intersection Summary

HCM 6th Ctrl Delay	51.4
HCM 6th LOS	D

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 26: Rancho Mission Rd & San Diego Mission Rd

Horizon Year Plus Project w/4-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	226	493	420	158	227	233	129	143	172	238	190	341
Future Volume (veh/h)	226	493	420	158	227	233	129	143	172	238	190	341
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	238	519	363	166	239	143	136	151	17	251	200	144
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	280	726	507	205	705	406	172	234	192	293	362	299
Arrive On Green	0.16	0.37	0.37	0.12	0.33	0.33	0.10	0.13	0.13	0.16	0.19	0.19
Sat Flow, veh/h	1781	1977	1381	1781	2167	1248	1781	1870	1537	1781	1870	1546
Grp Volume(v), veh/h	238	466	416	166	194	188	136	151	17	251	200	144
Grp Sat Flow(s),veh/h/ln	1781	1777	1582	1781	1777	1639	1781	1870	1537	1781	1870	1546
Q Serve(g_s), s	10.6	18.4	18.4	7.4	6.8	7.1	6.1	6.3	0.8	11.2	7.9	6.8
Cycle Q Clear(g_c), s	10.6	18.4	18.4	7.4	6.8	7.1	6.1	6.3	0.8	11.2	7.9	6.8
Prop In Lane	1.00		0.87	1.00		0.76	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	280	653	581	205	578	533	172	234	192	293	362	299
V/C Ratio(X)	0.85	0.71	0.72	0.81	0.34	0.35	0.79	0.65	0.09	0.86	0.55	0.48
Avail Cap(c_a), veh/h	763	1087	968	763	1196	1103	654	1145	941	654	1145	946
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.5	22.2	22.2	35.3	20.9	21.0	36.1	34.0	31.6	33.2	29.8	29.3
Incr Delay (d2), s/veh	2.8	2.2	2.5	2.9	0.6	0.7	3.1	1.1	0.1	2.8	0.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	7.4	6.6	3.2	2.7	2.6	2.7	2.8	0.3	4.9	3.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.3	24.4	24.7	38.2	21.5	21.7	39.2	35.1	31.7	36.0	30.3	29.8
LnGrp LOS	D	C	C	D	C	C	D	D	C	D	C	C
Approach Vol, veh/h		1120			548			304			595	
Approach Delay, s/veh		27.0			26.6			36.8			32.5	
Approach LOS		C			C			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.4	35.5	11.9	20.9	16.9	32.1	17.5	15.3				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	* 5.5	4.0	* 5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	* 55	30.0	* 50				
Max Q Clear Time (g_c+1), s	19.4	20.4	8.1	9.9	12.6	9.1	13.2	8.3				
Green Ext Time (p_c), s	0.2	9.6	0.2	1.0	0.3	4.0	0.3	0.6				

Intersection Summary

HCM 6th Ctrl Delay	29.4
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave

Horizon Year Plus Project w/4-Ln Bridge
 PM Peak Hour



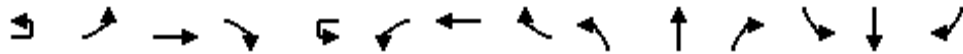
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↖	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (veh/h)	167	393	351	70	186	30	217	90	80	30	150	131
Future Volume (veh/h)	167	393	351	70	186	30	217	90	80	30	150	131
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	186	437	253	78	207	27	241	100	63	33	167	122
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	260	523	1071	138	806	115	282	168	106	339	191	139
Arrive On Green	0.53	0.53	0.53	0.53	0.53	0.53	0.16	0.16	0.16	0.19	0.19	0.19
Sat Flow, veh/h	410	986	1549	154	1521	217	1781	1061	668	1781	1002	732
Grp Volume(v), veh/h	623	0	253	105	0	207	241	0	163	33	0	289
Grp Sat Flow(s),veh/h/ln	1397	0	1549	229	0	1663	1781	0	1729	1781	0	1734
Q Serve(g_s), s	37.7	0.0	6.8	11.4	0.0	7.4	14.6	0.0	9.7	1.7	0.0	18.0
Cycle Q Clear(g_c), s	45.2	0.0	6.8	56.5	0.0	7.4	14.6	0.0	9.7	1.7	0.0	18.0
Prop In Lane	0.30		1.00	0.74		0.13	1.00		0.39	1.00		0.42
Lane Grp Cap(c), veh/h	782	0	1071	178	0	881	282	0	274	339	0	330
V/C Ratio(X)	0.80	0.00	0.24	0.59	0.00	0.24	0.85	0.00	0.60	0.10	0.00	0.88
Avail Cap(c_a), veh/h	799	0	1088	187	0	898	642	0	623	642	0	625
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.7	0.0	6.5	42.1	0.0	14.0	45.5	0.0	43.4	37.1	0.0	43.7
Incr Delay (d2), s/veh	5.5	0.0	0.1	4.2	0.0	0.1	2.9	0.0	0.8	0.0	0.0	2.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	0.0	3.4	3.1	0.0	2.8	6.7	0.0	4.2	0.7	0.0	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.2	0.0	6.6	46.3	0.0	14.1	48.4	0.0	44.2	37.1	0.0	46.6
LnGrp LOS	C	A	A	D	A	B	D	A	D	D	A	D
Approach Vol, veh/h		876			312			404			322	
Approach Delay, s/veh		24.1			24.9			46.7			45.6	
Approach LOS		C			C			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		63.3		25.6		63.3		22.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		47.2		20.0		58.5		16.6				
Green Ext Time (p_c), s		3.9		1.2		0.3		0.9				
Intersection Summary												
HCM 6th Ctrl Delay				32.6								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary

Horizon Year Plus Project w/4-Ln Bridge

28: Qualcomm Way & Camino de la Reina/Camino del Rio N

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔
Traffic Volume (veh/h)	10	138	457	320	10	505	212	22	183	548	321	124	1094	149
Future Volume (veh/h)	10	138	457	320	10	505	212	22	183	548	321	124	1094	149
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1841	1870	1856	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		142	503	246		521	219	3	189	565	271	128	1128	145
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2		2	4	2	3	2	2	2	2	2
Cap, veh/h		159	498	310		524	683	303	225	2871	877	163	2485	319
Arrive On Green		0.09	0.13	0.13		0.15	0.20	0.20	0.02	0.19	0.19	0.05	0.54	0.54
Sat Flow, veh/h		1781	3741	1550		3456	3497	1549	3428	5106	1559	3456	4570	587
Grp Volume(v), veh/h		142	503	246		521	219	3	189	565	271	128	840	433
Grp Sat Flow(s),veh/h/ln		1781	1870	1550		1728	1749	1549	1714	1702	1559	1728	1702	1753
Q Serve(g_s), s		15.8	26.6	26.6		30.1	10.8	0.3	11.0	18.7	30.0	7.3	29.9	29.9
Cycle Q Clear(g_c), s		15.8	26.6	26.6		30.1	10.8	0.3	11.0	18.7	30.0	7.3	29.9	29.9
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.33
Lane Grp Cap(c), veh/h		159	498	310		524	683	303	225	2871	877	163	1851	953
V/C Ratio(X)		0.89	1.01	0.79		1.00	0.32	0.01	0.84	0.20	0.31	0.78	0.45	0.45
Avail Cap(c_a), veh/h		190	498	310		524	683	303	314	2871	877	316	1851	953
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	0.84	0.84	0.84	0.09	0.09	0.09
Uniform Delay (d), s/veh		90.2	86.7	76.3		84.8	69.1	64.9	96.8	43.3	47.9	94.3	27.6	27.6
Incr Delay (d2), s/veh		31.1	43.1	12.7		38.0	0.1	0.0	8.4	0.1	0.8	0.3	0.1	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		8.7	16.0	13.1		16.1	4.8	0.1	5.4	8.7	12.9	3.3	12.4	12.8
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		121.3	129.8	89.1		122.8	69.2	64.9	105.2	43.4	48.7	94.6	27.7	27.8
LnGrp LOS		F	F	F		F	E	E	F	D	D	F	C	C
Approach Vol, veh/h			891			743			1025			1401		
Approach Delay, s/veh			117.2			106.7			56.2			33.8		
Approach LOS			F			F			E			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	13.8	119.2	34.7	32.3	17.5	115.5	22.2	44.8						
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7						
Max Green Setting (Gmax), s	10.3	103.6	30.3	* 27	18.3*	1.1E2	21.3	35.6						
Max Q Clear Time (g_c+1), s	19.3	32.0	32.1	28.6	13.0	31.9	17.8	12.8						
Green Ext Time (p_c), s	0.1	4.9	0.0	0.0	0.2	31.2	0.1	0.8						

Intersection Summary

HCM 6th Ctrl Delay	71.1
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

Horizon Year Plus Project w/4-Ln Bridge

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔	↑↑↑			↑↑	↔
Traffic Volume (veh/h)	10	113	0	612	32	197	410	213	819	0	0	1048	771
Future Volume (veh/h)	10	113	0	612	32	197	410	213	819	0	0	1048	771
Initial Q (Qb), veh		0	0	20	0	20	20	20	20	0	0	20	20
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h		120	0	390	34	210	252	227	871	0	0	1115	576
Peak Hour Factor		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h		0	0	0	21	319	317	178	3918	0	0	2283	991
Arrive On Green		0.00	0.00	0.00	0.17	0.17	0.17	0.10	0.77	0.00	0.00	1.00	1.00
Sat Flow, veh/h			0		259	1599	1582	1781	5274	0	0	3647	1551
Grp Volume(v), veh/h			0.0		244	0	252	227	871	0	0	1115	576
Grp Sat Flow(s),veh/h/ln					1857	0	1582	1781	1702	0	0	1777	1551
Q Serve(g_s), s					25.1	0.0	31.4	20.0	9.5	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s					25.1	0.0	31.4	20.0	9.5	0.0	0.0	0.0	0.0
Prop In Lane					0.14		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					353	0	317	178	3918	0	0	2283	991
V/C Ratio(X)					0.69	0.00	0.80	1.27	0.22	0.00	0.00	0.49	0.58
Avail Cap(c_a), veh/h					371	0	316	178	3922	0	0	2291	1000
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)					1.00	0.00	1.00	0.69	0.69	0.00	0.00	0.73	0.73
Uniform Delay (d), s/veh					79.6	0.0	80.0	90.0	7.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh					4.1	0.0	12.2	150.1	0.1	0.0	0.0	0.5	1.8
Initial Q Delay(d3),s/veh					75.3	0.0	135.7	404.2	0.2	0.0	0.0	1.1	7.0
%ile BackOfQ(50%),veh/ln					24.1	0.0	29.2	36.7	5.0	0.0	0.0	0.5	2.4
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					159.0	0.0	228.0	644.3	7.4	0.0	0.0	1.6	8.8
LnGrp LOS					F	A	F	F	A	A	A	A	A
Approach Vol, veh/h						496			1098			1691	
Approach Delay, s/veh						194.1			139.0			4.1	
Approach LOS						F			F			A	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		160.6			24.7	135.9		39.4					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		107.8			* 20	83.1		40.0					
Max Q Clear Time (g_c+I1), s		11.5			22.0	2.0		33.4					
Green Ext Time (p_c), s		4.5			0.0	40.7		0.8					

Intersection Summary

HCM 6th Ctrl Delay	77.9
HCM 6th LOS	E

Notes

- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Horizon Year Plus Project w/4-Ln Bridge
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	740	0	1273	1850	0
Future Volume (veh/h)	0	740	0	1273	1850	0
Initial Q (Qb), veh	0	10	0	0	50	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1870	0
Adj Flow Rate, veh/h	0	752	0	1299	1888	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	2	2	0
Cap, veh/h	0	0	0	2907	2907	0
Arrive On Green	0.00	0.00	0.00	0.80	0.80	0.00
Sat Flow, veh/h	0		0	3741	3741	0
Grp Volume(v), veh/h	0.0		0	1299	1888	0
Grp Sat Flow(s),veh/h/ln			0	1777	1777	0
Q Serve(g_s), s			0.0	3.2	6.2	0.0
Cycle Q Clear(g_c), s			0.0	3.2	6.2	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2907	2907	0
V/C Ratio(X)			0.00	0.45	0.65	0.00
Avail Cap(c_a), veh/h			0	5680	5680	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	0.8	1.4	0.0
Incr Delay (d2), s/veh			0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	6.1	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	2.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	0.8	7.6	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1299	1888	
Approach Delay, s/veh				0.8	7.6	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		28.2				28.2
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		45.0				45.0
Max Q Clear Time (g_c+I1), s		5.2				8.2
Green Ext Time (p_c), s		7.8				14.4
Intersection Summary						
HCM 6th Ctrl Delay			4.8			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
 31: Texas St & Camino del Rio S

Horizon Year Plus Project w/4-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑	↗	↖	↑	↗	↖	↑↑		↖	↑↑	↗
Traffic Volume (veh/h)	282	155	390	369	63	540	100	821	217	310	1703	197
Future Volume (veh/h)	282	155	390	369	63	540	100	821	217	310	1703	197
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	307	168	370	401	68	548	109	892	231	337	1851	176
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	349	367	423	246	258	534	126	1010	261	355	1741	777
Arrive On Green	0.20	0.20	0.20	0.14	0.14	0.14	0.07	0.36	0.36	0.20	0.49	0.49
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2794	723	1781	3554	1585
Grp Volume(v), veh/h	307	168	370	401	68	548	109	567	556	337	1851	176
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1740	1781	1777	1585
Q Serve(g_s), s	34.2	16.2	40.0	28.2	6.6	28.2	12.4	61.1	61.2	38.1	100.0	13.0
Cycle Q Clear(g_c), s	34.2	16.2	40.0	28.2	6.6	28.2	12.4	61.1	61.2	38.1	100.0	13.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.42	1.00		1.00
Lane Grp Cap(c), veh/h	349	367	423	246	258	534	126	642	629	355	1741	777
V/C Ratio(X)	0.88	0.46	0.88	1.63	0.26	1.03	0.87	0.88	0.88	0.95	1.06	0.23
Avail Cap(c_a), veh/h	349	367	423	246	258	534	218	642	629	634	1741	777
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	79.7	72.5	71.6	88.0	78.7	67.6	93.9	61.1	61.1	80.8	52.1	29.9
Incr Delay (d2), s/veh	21.8	0.9	18.2	301.1	1.5	45.5	6.7	13.2	13.6	9.5	40.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	7.9	20.7	33.7	3.3	34.6	6.0	29.9	29.4	18.5	53.9	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	101.5	73.4	89.8	389.0	80.1	113.2	100.6	74.3	74.7	90.3	92.7	30.2
LnGrp LOS	F	E	F	F	F	F	F	E	E	F	F	C
Approach Vol, veh/h		845			1017			1232			2364	
Approach Delay, s/veh		90.8			219.7			76.8			87.7	
Approach LOS		F			F			E			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	45.0	79.0		44.9	18.8	105.2		35.2				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0				
Max Green Setting (Gmax), s	72.6	51.8		40.0	25.0	* 1E2		28.2				
Max Q Clear Time (g_c+Rc), s	40.1	63.2		42.0	14.4	102.0		30.2				
Green Ext Time (p_c), s	0.5	0.0		0.0	0.1	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	110.3
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection									
Int Delay, s/veh	9.9								
Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations		↖	↗			↕		↕	
Traffic Vol, veh/h	10	55	279	10	241	333	10	507	88
Future Vol, veh/h	10	55	279	10	241	333	10	507	88
Conflicting Peds, #/hr	21	24	24	3	24	0	3	0	24
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	0	65	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	0	-
Grade, %	-	0	-	-	-	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	58	294	11	254	351	11	534	93

Major/Minor	Minor2	Major1			Major2				
Conflicting Flow All	0	1357	362	626	651	0	351	-	0
Stage 1	0	627	-	-	-	-	-	-	-
Stage 2	0	730	-	-	-	-	-	-	-
Critical Hdwy	-	6.84	6.94	6.44	4.14	-	6.44	-	-
Critical Hdwy Stg 1	-	5.84	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.84	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.52	3.32	2.52	2.22	-	2.52	-	-
Pot Cap-1 Maneuver	0	140	635	576	931	-	860	-	-
Stage 1	0	495	-	-	-	-	-	-	-
Stage 2	0	438	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	0	80	606	845	845	-	860	-	-
Mov Cap-2 Maneuver	0	80	-	-	-	-	-	-	-
Stage 1	0	296	-	-	-	-	-	-	-
Stage 2	0	420	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	34.1	5.8	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	845	-	80	606	-	-
HCM Lane V/C Ratio	0.3	-	0.724	0.485	-	-
HCM Control Delay (s)	11.2	1.8	123.9	16.4	-	-
HCM Lane LOS	B	A	F	C	-	-
HCM 95th %tile Q(veh)	1.3	-	3.5	2.6	-	-

HCM 6th Signalized Intersection Summary
33: Camino del Rio N & Ward Rd

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	191	851	333	374	720	96
Future Volume (veh/h)	191	851	333	374	720	96
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	203	905	354	100	766	79
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	248	1399	688	306	812	944
Arrive On Green	0.14	0.39	0.19	0.19	0.46	0.46
Sat Flow, veh/h	1781	3647	3647	1581	1781	1585
Grp Volume(v), veh/h	203	905	354	100	766	79
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1581	1781	1585
Q Serve(g_s), s	8.0	15.0	6.5	3.9	29.8	1.5
Cycle Q Clear(g_c), s	8.0	15.0	6.5	3.9	29.8	1.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	248	1399	688	306	812	944
V/C Ratio(X)	0.82	0.65	0.51	0.33	0.94	0.08
Avail Cap(c_a), veh/h	1080	3429	3429	1525	1080	1182
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.3	17.9	26.2	25.2	18.8	6.3
Incr Delay (d2), s/veh	2.5	0.8	0.9	0.9	11.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	5.4	2.6	1.4	13.2	2.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	32.8	18.7	27.1	26.1	30.6	6.3
LnGrp LOS	C	B	C	C	C	A
Approach Vol, veh/h		1108	454		845	
Approach Delay, s/veh		21.3	26.9		28.3	
Approach LOS		C	C		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		34.6		38.0	14.5	20.1
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		17.0		31.8	10.0	8.5
Green Ext Time (p_c), s		11.5		1.3	0.3	4.2

Intersection Summary

HCM 6th Ctrl Delay	24.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 34: Fairmount Ave & Mission Gorge Rd

Horizon Year Plus Project w/4-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↖	↕			↖	↕	
Traffic Volume (veh/h)	67	17	605	30	14	10	40	413	993	40	10	10	956	38
Future Volume (veh/h)	67	17	605	30	14	10	40	413	993	40	10	10	956	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		0.98	1.00		0.98		1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No			No			No		No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	701	31	14	3	421	1013	39	10	976	37		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	340	546	150	62	11	893	2440	94	17	1559	59		
Arrive On Green	0.00	0.00	0.18	0.18	0.18	0.18	0.52	1.00	1.00	0.01	0.45	0.45		
Sat Flow, veh/h	0	1870	3006	576	341	61	3456	3486	134	1781	3489	132		
Grp Volume(v), veh/h	0	0	701	48	0	0	421	516	536	10	497	516		
Grp Sat Flow(s),veh/h/ln	0	1870	1503	978	0	0	1728	1777	1844	1781	1777	1844		
Q Serve(g_s), s	0.0	0.0	23.6	3.5	0.0	0.0	10.1	0.0	0.0	0.7	27.9	27.9		
Cycle Q Clear(g_c), s	0.0	0.0	23.6	4.6	0.0	0.0	10.1	0.0	0.0	0.7	27.9	27.9		
Prop In Lane	0.00		1.00	0.65		0.06	1.00		0.07	1.00		0.07		
Lane Grp Cap(c), veh/h	0	340	546	223	0	0	893	1244	1290	17	794	824		
V/C Ratio(X)	0.00	0.00	1.28	0.22	0.00	0.00	0.47	0.42	0.42	0.60	0.63	0.63		
Avail Cap(c_a), veh/h	0	340	546	223	0	0	906	1244	1290	179	794	824		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.54	0.54	0.54	1.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.0	53.2	45.2	0.0	0.0	25.7	0.0	0.0	64.2	27.6	27.6		
Incr Delay (d2), s/veh	0.0	0.0	141.5	0.5	0.0	0.0	0.1	0.6	0.5	12.3	3.7	3.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.0	19.6	1.4	0.0	0.0	3.6	0.2	0.2	0.4	12.6	13.0		
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	194.7	45.6	0.0	0.0	25.8	0.6	0.5	76.5	31.3	31.2		
LnGrp LOS	A	A	F	D	A	A	C	A	A	E	C	C		
Approach Vol, veh/h		701		48			1473			1023				
Approach Delay, s/veh		194.7		45.6			7.8			31.7				
Approach LOS		F		D			A			C				
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	5.6	95.9	28.5	38.5	63.0	28.5								
Change Period (Y+Rc), s	4.4	4.9	4.9	4.9	* 4.9	4.9								
Max Green Setting (Gmax), s	13.1	79.1	23.6	34.1	* 58	23.6								
Max Q Clear Time (g_c+1/2), s	12.7	2.0	25.6	12.1	29.9	6.6								
Green Ext Time (p_c), s	0.0	22.3	0.0	0.8	14.3	0.2								

Intersection Summary

HCM 6th Ctrl Delay	56.2
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis

Horizon Year Plus Project w/4-Ln Bridge

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↔	↖	↖	↕		↖	↕	↖
Traffic Volume (vph)	398	153	1039	810	283	384	382	772	190	13	1583	150
Future Volume (vph)	398	153	1039	810	283	384	382	772	190	13	1583	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	0.98	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1730	1583	1610	3082	1425	1770	3425		3433	3539	1563
Flt Permitted	0.95	0.98	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1730	1583	1610	3082	1425	1770	3425		3433	3539	1563
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	402	155	1049	818	286	388	386	780	192	13	1599	152
RTOR Reduction (vph)	0	0	76	0	0	0	0	17	0	0	0	73
Lane Group Flow (vph)	273	284	973	409	749	334	386	955	0	13	1599	79
Confl. Peds. (#/hr)						3			1			
Confl. Bikes (#/hr)									1			1
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	7	5	8	8	1	5	2		1	6	
Permitted Phases			7			8						6
Actuated Green, G (s)	19.0	19.0	39.0	25.0	25.0	35.0	20.0	55.0		10.0	45.0	45.0
Effective Green, g (s)	19.0	19.0	39.0	25.0	25.0	35.0	20.0	55.0		10.0	45.0	45.0
Actuated g/C Ratio	0.15	0.15	0.30	0.19	0.19	0.27	0.15	0.42		0.08	0.35	0.35
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	245	252	532	309	592	383	272	1449		264	1225	541
v/s Ratio Prot	0.16	0.16	c0.28	c0.25	0.24	0.07	0.22	0.28		0.00	c0.45	
v/s Ratio Perm			0.33			0.17						0.05
v/c Ratio	1.11	1.13	1.83	1.32	1.32dl	0.87	1.42	0.66		0.05	1.31	0.15
Uniform Delay, d1	55.5	55.5	45.5	52.5	52.5	45.4	55.0	30.0		55.6	42.5	29.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.71	1.13	1.92
Incremental Delay, d2	91.6	95.2	380.7	166.5	132.4	18.6	208.8	2.4		0.0	140.5	0.3
Delay (s)	147.1	150.7	426.2	219.0	184.9	63.9	263.8	32.4		39.7	188.6	56.5
Level of Service	F	F	F	F	F	E	F	C		D	F	E
Approach Delay (s)		330.0			167.2			98.2			176.2	
Approach LOS		F			F			F			F	

Intersection Summary		
HCM 2000 Control Delay	196.7	HCM 2000 Level of Service F
HCM 2000 Volume to Capacity ratio	1.58	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 21.0
Intersection Capacity Utilization	145.6%	ICU Level of Service H
Analysis Period (min)	15	
dl Defacto Left Lane. Recode with 1 though lane as a left lane.		
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
 36: Fairmount Ave & I-8 EB Off-Ramp

Horizon Year Plus Project w/4-Ln Bridge
 PM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	731	2779	60	0	623	1584	0
Future Volume (veh/h)	731	2779	60	0	623	1584	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		0	1870	1870	0
Adj Flow Rate, veh/h	746	2836		0	636	1616	0
Peak Hour Factor	0.98	0.98		0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2		0	2	2	0
Cap, veh/h	982	2621		0	1288	1851	0
Arrive On Green	0.55	0.55		0.00	0.36	0.36	0.00
Sat Flow, veh/h	1781	4755		0	3741	5443	0
Grp Volume(v), veh/h	746	2836		0	636	1616	0
Grp Sat Flow(s),veh/h/ln	1781	1585		0	1777	1702	0
Q Serve(g_s), s	41.6	70.9		0.0	17.9	38.0	0.0
Cycle Q Clear(g_c), s	41.6	70.9		0.0	17.9	38.0	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	982	2621		0	1288	1851	0
V/C Ratio(X)	0.76	1.08		0.00	0.49	0.87	0.00
Avail Cap(c_a), veh/h	982	2621		0	2119	2064	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.3	28.9		0.0	31.8	38.2	0.0
Incr Delay (d2), s/veh	3.1	44.4		0.0	0.1	3.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	36.4		0.0	7.7	16.3	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	25.4	73.3		0.0	31.9	42.0	0.0
LnGrp LOS	C	F		A	C	D	A
Approach Vol, veh/h	3582				636	1616	
Approach Delay, s/veh	63.3				31.9	42.0	
Approach LOS	E				C	D	
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				52.6		76.0	52.6
Change Period (Y+Rc), s				6.0		5.1	6.0
Max Green Setting (Gmax), s				52.0		70.9	76.7
Max Q Clear Time (g_c+1), s				40.0		72.9	19.9
Green Ext Time (p_c), s				6.6		0.0	3.2

Intersection Summary

HCM 6th Ctrl Delay	54.0
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
37: Collwood Blvd & Montezuma Rd

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↓	↑↑	↑↑	↑
Traffic Volume (veh/h)	1547	1409	10	90	904	728	50
Future Volume (veh/h)	1547	1409	10	90	904	728	50
Initial Q (Qb), veh	20	20		0	0	0	0
Ped-Bike Adj(A_pbT)		0.98		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1737	1870	1870	1648
Adj Flow Rate, veh/h	1595	1325		93	932	751	26
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		11	2	2	17
Cap, veh/h	2079	1272		114	2440	802	324
Arrive On Green	0.58	0.58		0.07	0.69	0.23	0.23
Sat Flow, veh/h	3647	1546		1654	3647	3456	1397
Grp Volume(v), veh/h	1595	1325		93	932	751	26
Grp Sat Flow(s),veh/h/ln	1777	1546		1654	1777	1728	1397
Q Serve(g_s), s	45.3	78.4		7.4	14.9	28.6	2.0
Cycle Q Clear(g_c), s	45.3	78.4		7.4	14.9	28.6	2.0
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2079	1272		114	2440	802	324
V/C Ratio(X)	0.77	1.04		0.82	0.38	0.94	0.08
Avail Cap(c_a), veh/h	2079	1272		328	2440	848	343
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.1	12.5		61.6	8.9	50.5	40.3
Incr Delay (d2), s/veh	2.8	36.7		5.3	0.5	16.5	0.0
Initial Q Delay(d3),s/veh	2.9	56.6		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.3	57.9		3.3	5.4	14.0	0.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	27.7	105.9		66.9	9.4	67.0	40.3
LnGrp LOS	C	F		E	A	E	D
Approach Vol, veh/h	2920			1025	777		
Approach Delay, s/veh	63.2			14.6	66.1		
Approach LOS	E			B	E		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	13.6	84.9			98.5	35.5	
Change Period (Y+Rc), s	4.4	* 6.5			6.5	4.4	
Max Green Setting (Gmax), s	26.6	* 60			90.2	32.9	
Max Q Clear Time (g_c+1), s	19.4	80.4			16.9	30.6	
Green Ext Time (p_c), s	0.1	0.0			16.2	0.5	

Intersection Summary

HCM 6th Ctrl Delay	53.1
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
38: Mission Village Dr & Shawn Ave

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔				↔		↔	↑↑	↔	↔	↔	
Traffic Volume (veh/h)	80	10	84	10	54	10	30	76	716	36	50	2024	80
Future Volume (veh/h)	80	10	84	10	54	10	30	76	716	36	50	2024	80
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99		0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	11	86		57	11	3	81	762	26	53	2153	84
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	266	30	218		214	196	53	133	2573	1146	533	2525	98
Arrive On Green	0.15	0.15	0.15		0.15	0.15	0.15	0.72	0.72	0.72	0.72	0.72	0.72
Sat Flow, veh/h	1202	194	1425		829	1284	350	170	3554	1582	687	3487	135
Grp Volume(v), veh/h	96	0	86		57	0	14	81	762	26	53	1090	1147
Grp Sat Flow(s),veh/h/ln	1396	0	1425		829	0	1634	170	1777	1582	687	1777	1846
Q Serve(g_s), s	4.7	0.0	4.5		3.5	0.0	0.6	22.5	6.2	0.4	2.4	36.3	37.5
Cycle Q Clear(g_c), s	5.4	0.0	4.5		8.0	0.0	0.6	60.0	6.2	0.4	8.7	36.3	37.5
Prop In Lane	0.89		1.00		1.00		0.21	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	295	0	218		214	0	250	133	2573	1146	533	1287	1337
V/C Ratio(X)	0.33	0.00	0.39		0.27	0.00	0.06	0.61	0.30	0.02	0.10	0.85	0.86
Avail Cap(c_a), veh/h	766	0	688		638	0	789	133	2573	1146	533	1287	1337
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00		1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	0.0	31.6		35.2	0.0	30.0	35.0	4.0	3.2	5.5	8.2	8.3
Incr Delay (d2), s/veh	0.2	0.0	0.4		0.2	0.0	0.0	8.5	0.1	0.0	0.1	5.6	5.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	1.6		1.1	0.0	0.2	1.9	1.5	0.1	0.3	10.5	11.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	32.3	0.0	32.1		35.5	0.0	30.0	43.5	4.1	3.2	5.6	13.7	14.3
LnGrp LOS	C	A	C		D	A	C	D	A	A	A	B	B
Approach Vol, veh/h		182				71			869			2290	
Approach Delay, s/veh		32.2				34.4			7.7			13.8	
Approach LOS		C				C			A			B	
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		65.3		17.6		65.3		17.6					
Change Period (Y+Rc), s		5.3		4.9		5.3		4.9					
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0					
Max Q Clear Time (g_c+1), s		62.0		7.4		39.5		10.0					
Green Ext Time (p_c), s		0.0		0.8		18.3		0.3					

Intersection Summary

HCM 6th Ctrl Delay	13.7
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
39: Mission Village Dr & Fermi Ave

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕			↕	↕	
Traffic Volume (veh/h)	40	10	14	54	10	50	16	782	46	10	30	2145	30
Future Volume (veh/h)	40	10	14	54	10	50	16	782	46	10	30	2145	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	42	10	5	56	10	28	17	815	45		31	2234	31
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	173	37	13	145	23	42	28	2436	134		44	2584	36
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.02	0.71	0.71		0.02	0.72	0.72
Sat Flow, veh/h	1101	427	147	855	264	475	1781	3424	189		1781	3587	50
Grp Volume(v), veh/h	57	0	0	94	0	0	17	423	437		31	1103	1162
Grp Sat Flow(s),veh/h/ln1674	0	0	1593	0	0	1781	1777	1836			1781	1777	1860
Q Serve(g_s), s	0.0	0.0	0.0	2.1	0.0	0.0	0.8	7.4	7.4		1.4	37.7	38.3
Cycle Q Clear(g_c), s	2.4	0.0	0.0	4.5	0.0	0.0	0.8	7.4	7.4		1.4	37.7	38.3
Prop In Lane	0.74		0.09	0.60		0.30	1.00		0.10		1.00		0.03
Lane Grp Cap(c), veh/h	223	0	0	210	0	0	28	1264	1306		44	1280	1340
V/C Ratio(X)	0.26	0.00	0.00	0.45	0.00	0.00	0.61	0.33	0.33		0.71	0.86	0.87
Avail Cap(c_a), veh/h	801	0	0	621	0	0	649	1295	1339		649	1295	1356
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	0.0	36.2	0.0	0.0	40.3	4.5	4.5		39.8	8.5	8.6
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.6	0.0	0.0	7.8	0.3	0.3		7.4	6.5	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.1	0.0	0.0	0.0	1.8	0.0	0.0	0.4	1.9	2.0		0.7	12.0	12.6
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	35.6	0.0	0.0	36.8	0.0	0.0	48.0	4.8	4.8		47.3	15.0	15.1
LnGrp LOS	D	A	A	D	A	A	D	A	A		D	B	B
Approach Vol, veh/h		57			94			877				2296	
Approach Delay, s/veh		35.6			36.8			5.6				15.5	
Approach LOS		D			D			A				B	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s6.4	63.7			12.1	5.7	64.5		12.1					
Change Period (Y+Rc), s 4.4	5.2			4.9	4.4	5.2		4.9					
Max Green Setting (Gmax), s 30.0	60.0			40.0	30.0	60.0		30.0					
Max Q Clear Time (g_c+1), s 13.4	9.4			4.4	2.8	40.3		6.5					
Green Ext Time (p_c), s 0.0	12.0			0.2	0.0	19.0		0.3					

Intersection Summary

HCM 6th Ctrl Delay	13.8
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
40: Gramercy Dr/Mission Village Dr & Ruffin Rd

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	60	642	20	13	390	477	20	10	22	1590	20	90
Future Volume (veh/h)	60	642	20	13	390	477	20	10	22	1590	20	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	655	19	13	398	325	20	10	1	1622	20	88
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	210	1256	36	241	658	532	43	79	8	1608	136	599
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.02	0.02	0.02	0.45	0.45	0.45
Sat Flow, veh/h	729	3524	102	762	1847	1492	1781	3262	320	3563	302	1327
Grp Volume(v), veh/h	61	330	344	13	383	340	20	5	6	1622	0	108
Grp Sat Flow(s),veh/h/ln	729	1777	1849	762	1777	1563	1781	1777	1805	1781	0	1628
Q Serve(g_s), s	6.7	13.0	13.0	1.2	15.7	15.9	1.0	0.3	0.3	40.0	0.0	3.5
Cycle Q Clear(g_c), s	22.5	13.0	13.0	14.2	15.7	15.9	1.0	0.3	0.3	40.0	0.0	3.5
Prop In Lane	1.00		0.06	1.00		0.96	1.00		0.18	1.00		0.81
Lane Grp Cap(c), veh/h	210	633	659	241	633	557	43	43	43	1608	0	735
V/C Ratio(X)	0.29	0.52	0.52	0.05	0.60	0.61	0.47	0.13	0.13	1.01	0.00	0.15
Avail Cap(c_a), veh/h	444	1203	1252	485	1203	1058	804	802	815	1608	0	735
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.7	22.5	22.5	28.2	23.4	23.5	42.7	42.3	42.3	24.3	0.0	14.3
Incr Delay (d2), s/veh	0.9	0.8	0.8	0.1	1.2	1.4	2.9	0.5	0.5	24.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	5.5	5.7	0.2	6.6	5.9	0.5	0.1	0.1	20.4	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	23.4	23.3	28.3	24.6	24.8	45.6	42.8	42.8	48.9	0.0	14.3
LnGrp LOS	C	C	C	C	C	C	D	D	D	F	A	B
Approach Vol, veh/h		735			736			31			1730	
Approach Delay, s/veh		24.2			24.7			44.6			46.7	
Approach LOS		C			C			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.7		44.9		36.7		7.0				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		24.5		42.0		17.9		3.0				
Green Ext Time (p_c), s		7.0		0.0		7.7		0.0				

Intersection Summary

HCM 6th Ctrl Delay	36.6
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	880	910	10	1042	810	260	378
Future Volume (veh/h)	880	910	10	1042	810	260	378
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	926	957		1097	853	274	109
Peak Hour Factor	0.95	0.95		0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1862	963		896	2903	340	156
Arrive On Green	0.52	0.52		0.26	0.82	0.10	0.10
Sat Flow, veh/h	3647	1541		3456	3647	3456	1585
Grp Volume(v), veh/h	926	957		1097	853	274	109
Grp Sat Flow(s),veh/h/ln1777		1541		1728	1777	1728	1585
Q Serve(g_s), s	21.8	68.1		33.7	7.5	10.1	8.7
Cycle Q Clear(g_c), s	21.8	68.1		33.7	7.5	10.1	8.7
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1862	963		896	2903	340	156
V/C Ratio(X)	0.50	0.99		1.22	0.29	0.81	0.70
Avail Cap(c_a), veh/h	1862	963		896	2903	1135	521
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.86	0.86
Uniform Delay (d), s/veh	19.9	22.1		48.2	2.9	57.4	56.7
Incr Delay (d2), s/veh	1.0	27.5		111.0	0.3	1.5	1.8
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	38.4		27.8	1.8	4.5	3.5
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	20.9	49.6		159.2	3.1	58.9	58.6
LnGrp LOS	C	D		F	A	E	E
Approach Vol, veh/h	1883				1950	383	
Approach Delay, s/veh	35.5				90.9	58.8	
Approach LOS	D				F	E	
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	38.1	73.8			111.9	18.1	
Change Period (Y+Rc), s	4.4	* 5.7			5.7	5.3	
Max Green Setting (Gmax), s	33.7	* 39			76.3	42.7	
Max Q Clear Time (g_c+Rc), s	33.7	70.1			9.5	12.1	
Green Ext Time (p_c), s	0.0	0.0			9.6	0.7	

Intersection Summary

HCM 6th Ctrl Delay	63.2
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mobley St & Gramercy Dr

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	664	90	63	360	57	50	30	43	86	20	20
Future Volume (veh/h)	20	664	90	63	360	57	50	30	43	86	20	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.96	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1826	1826	1826	1752	1752	1752
Adj Flow Rate, veh/h	21	685	72	65	371	47	52	31	21	89	21	13
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	10	10	10
Cap, veh/h	647	1823	803	496	1622	204	267	131	60	352	74	28
Arrive On Green	0.51	0.51	0.51	0.51	0.51	0.51	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	962	3554	1565	705	3162	397	563	700	320	887	394	151
Grp Volume(v), veh/h	21	685	72	65	207	211	104	0	0	123	0	0
Grp Sat Flow(s),veh/h/ln	962	1777	1565	705	1777	1782	1583	0	0	1432	0	0
Q Serve(g_s), s	0.4	3.9	0.8	2.0	2.1	2.2	0.0	0.0	0.0	0.5	0.0	0.0
Cycle Q Clear(g_c), s	2.6	3.9	0.8	5.9	2.1	2.2	1.7	0.0	0.0	2.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.22	0.50		0.20	0.72		0.11
Lane Grp Cap(c), veh/h	647	1823	803	496	911	914	458	0	0	454	0	0
V/C Ratio(X)	0.03	0.38	0.09	0.13	0.23	0.23	0.23	0.00	0.00	0.27	0.00	0.00
Avail Cap(c_a), veh/h	1885	6398	2818	1403	3199	3208	1962	0	0	1806	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.2	4.9	4.1	6.7	4.5	4.5	11.7	0.0	0.0	11.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.1	0.2	0.4	0.4	0.5	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.2	5.1	4.2	6.9	4.7	4.7	11.8	0.0	0.0	12.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		778			483			104			123	
Approach Delay, s/veh		5.1			5.0			11.8			12.0	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.2		11.1		22.2		11.1				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		5.9		4.2		7.9		3.7				
Green Ext Time (p_c), s		11.1		0.5		6.1		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				6.1								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary
43: Sandrock Rd & Greyling Dr/Gramercy Dr

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕			↕	↕	↕	↕	↕
Traffic Volume (veh/h)	90	146	10	24	177	254	10	10	20	33	640	40	140
Future Volume (veh/h)	90	146	10	24	177	254	10	10	20	33	640	40	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.98		0.94	1.00		1.00	1.00			0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1574	1574	1870	1870	1856	1870	
Adj Flow Rate, veh/h	95	154	9	25	186	158	11	21	-1	704	0	80	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	22	22	2	2	3	2	
Cap, veh/h	239	325	16	130	532	896	16	30	46	976	0	417	
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.03	0.03	0.00	0.27	0.00	0.27	
Sat Flow, veh/h	374	1052	52	95	1721	1494	532	1015	1585	3563	0	1523	
Grp Volume(v), veh/h	258	0	0	211	0	158	32	0	-1	704	0	80	
Grp Sat Flow(s),veh/h/ln1477	0	0	1817	0	1494	1547	0	1585	1781	0	1523		
Q Serve(g_s), s	2.0	0.0	0.0	0.0	0.0	2.0	0.8	0.0	0.0	7.1	0.0	1.6	
Cycle Q Clear(g_c), s	5.5	0.0	0.0	3.5	0.0	2.0	0.8	0.0	0.0	7.1	0.0	1.6	
Prop In Lane	0.37		0.03	0.12		1.00	0.34		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	580	0	0	662	0	896	45	0	46	976	0	417	
V/C Ratio(X)	0.44	0.00	0.00	0.32	0.00	0.18	0.71	0.00	-0.02	0.72	0.00	0.19	
Avail Cap(c_a), veh/h	1029	0	0	1217	0	1368	774	0	793	1783	0	762	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh	11.3	0.0	0.0	10.8	0.0	3.9	19.2	0.0	0.0	13.1	0.0	11.1	
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	7.4	0.0	0.0	0.4	0.0	0.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln1.5	0.0	0.0	1.1	0.0	0.8	0.4	0.0	0.0	0.0	2.2	0.0	0.4	
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	11.5	0.0	0.0	10.9	0.0	3.9	26.6	0.0	0.0	13.5	0.0	11.2	
LnGrp LOS	B	A	A	B	A	A	C	A	A	B	A	B	
Approach Vol, veh/h		258			369			31			784		
Approach Delay, s/veh		11.5			7.9			27.5			13.3		
Approach LOS		B			A			C			B		
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		17.7		16.2		17.7		6.1					
Change Period (Y+Rc), s		5.3		5.3		5.3		4.9					
Max Green Setting (Gmax), s		25.0		20.0		25.0		20.0					
Max Q Clear Time (g_c+11), s		7.5		9.1		5.5		2.8					
Green Ext Time (p_c), s		1.1		1.3		1.0		0.1					

Intersection Summary

HCM 6th Ctrl Delay	11.9
HCM 6th LOS	B

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 44: Mission City Pkwy/Fenton Pkwy & Camino del Rio N

Horizon Year Plus Project w/4-Ln Bridge
 PM Peak Hour



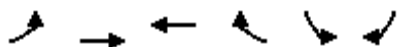
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	381	640	112	163	263	120	469	68	540	507	50
Future Volume (veh/h)	83	381	640	112	163	263	120	469	68	540	507	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	90	414	648	122	177	237	130	510	70	587	551	49
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	89	403	482	116	167	224	158	471	65	514	1624	144
Arrive On Green	0.05	0.22	0.22	0.07	0.23	0.23	0.09	0.29	0.29	0.29	0.49	0.49
Sat Flow, veh/h	1781	1870	1585	1781	725	971	1781	1610	221	1781	3302	293
Grp Volume(v), veh/h	90	414	648	122	0	414	130	0	580	587	296	304
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1696	1781	0	1831	1781	1777	1818
Q Serve(g_s), s	6.5	28.0	28.0	8.5	0.0	30.0	9.3	0.0	38.0	37.5	13.2	13.3
Cycle Q Clear(g_c), s	6.5	28.0	28.0	8.5	0.0	30.0	9.3	0.0	38.0	37.5	13.2	13.3
Prop In Lane	1.00		1.00	1.00		0.57	1.00		0.12	1.00		0.16
Lane Grp Cap(c), veh/h	89	403	482	116	0	391	158	0	535	514	874	894
V/C Ratio(X)	1.01	1.03	1.34	1.05	0.00	1.06	0.82	0.00	1.08	1.14	0.34	0.34
Avail Cap(c_a), veh/h	89	403	482	116	0	391	536	0	535	514	874	894
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	61.8	51.0	45.2	60.8	0.0	50.0	58.2	0.0	46.0	46.3	20.1	20.2
Incr Delay (d2), s/veh	98.3	52.1	168.1	96.7	0.0	61.6	10.0	0.0	63.6	85.2	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	18.5	37.5	6.9	0.0	19.0	4.6	0.0	26.4	28.8	5.6	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	160.0	103.1	213.3	157.5	0.0	111.6	68.2	0.0	109.6	131.5	20.4	20.4
LnGrp LOS	F	F	F	F	A	F	E	A	F	F	C	C
Approach Vol, veh/h		1152			536			710			1187	
Approach Delay, s/veh		169.5			122.1			102.0			75.3	
Approach LOS		F			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	42.0	42.5	13.0	32.5	16.1	68.4	11.0	34.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	37.5	38.0	8.5	28.0	39.1	36.4	6.5	30.0				
Max Q Clear Time (g_c+Q), s	39.5	40.0	10.5	30.0	11.3	15.3	8.5	32.0				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.3	3.9	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	117.9
HCM 6th LOS	F

HCM 6th Signalized Intersection Summary
45: Camino del Rio S & Mission City Pkwy

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	241	610	250	426	1072	227	
Future Volume (veh/h)	241	610	250	426	1072	227	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	262	663	272	401	1165	190	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	289	713	349	1175	988	879	
Arrive On Green	0.16	0.38	0.19	0.19	0.55	0.55	
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585	
Grp Volume(v), veh/h	262	663	272	401	1165	190	
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1781	1585	
Q Serve(g_s), s	20.2	47.5	19.3	12.3	77.5	8.5	
Cycle Q Clear(g_c), s	20.2	47.5	19.3	12.3	77.5	8.5	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	289	713	349	1175	988	879	
V/C Ratio(X)	0.91	0.93	0.78	0.34	1.18	0.22	
Avail Cap(c_a), veh/h	395	850	375	1197	988	879	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	57.5	41.5	54.1	6.3	31.1	15.8	
Incr Delay (d2), s/veh	19.4	15.0	9.5	0.2	91.3	0.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	10.6	24.4	9.8	14.2	56.5	10.7	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	76.9	56.4	63.6	6.4	122.4	15.9	
LnGrp LOS	E	E	E	A	F	B	
Approach Vol, veh/h		925	673		1355		
Approach Delay, s/veh		62.2	29.5		107.5		
Approach LOS		E	C		F		
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			57.8		82.0	27.2	30.6
Change Period (Y+Rc), s			4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s			63.5		77.5	31.0	28.0
Max Q Clear Time (g_c+1), s			49.5		79.5	22.2	21.3
Green Ext Time (p_c), s			3.8		0.0	0.5	1.7
Intersection Summary							
HCM 6th Ctrl Delay			75.5				
HCM 6th LOS			E				

HCM 6th Signalized Intersection Summary
46: Camino del Rio S & I-15 SB Off-Ramp

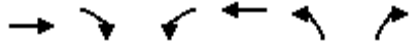
Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑			↕			↖	↗
Traffic Volume (veh/h)	0	2262	30	40	476	0	30	0	50	210	30	110
Future Volume (veh/h)	0	2262	30	40	476	0	30	0	50	210	30	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	2459	32	43	517	0	33	0	11	228	33	7
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	0	2439	32	55	1385	0	42	0	14	214	31	216
Arrive On Green	0.00	0.68	0.68	0.03	0.74	0.00	0.03	0.00	0.03	0.14	0.14	0.14
Sat Flow, veh/h	0	3686	47	1781	1870	0	1296	0	432	1565	227	1585
Grp Volume(v), veh/h	0	1214	1277	43	517	0	44	0	0	261	0	7
Grp Sat Flow(s),veh/h/ln	0	1777	1862	1781	1870	0	1728	0	0	1792	0	1585
Q Serve(g_s), s	0.0	101.0	101.0	3.6	14.8	0.0	3.8	0.0	0.0	20.3	0.0	0.6
Cycle Q Clear(g_c), s	0.0	101.0	101.0	3.6	14.8	0.0	3.8	0.0	0.0	20.3	0.0	0.6
Prop In Lane	0.00		0.03	1.00		0.00	0.75		0.25	0.87		1.00
Lane Grp Cap(c), veh/h	0	1206	1264	55	1385	0	56	0	0	245	0	216
V/C Ratio(X)	0.00	1.01	1.01	0.78	0.37	0.00	0.78	0.00	0.00	1.07	0.00	0.03
Avail Cap(c_a), veh/h	0	1206	1264	63	1393	0	63	0	0	245	0	216
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	23.9	23.9	71.6	6.9	0.0	71.4	0.0	0.0	64.2	0.0	55.7
Incr Delay (d2), s/veh	0.0	27.3	27.9	40.0	0.2	0.0	43.1	0.0	0.0	76.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	45.7	48.0	2.2	5.2	0.0	2.3	0.0	0.0	14.5	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	51.2	51.8	111.5	7.1	0.0	114.6	0.0	0.0	140.7	0.0	55.8
LnGrp LOS	A	F	F	F	A	A	F	A	A	F	A	E
Approach Vol, veh/h		2491			560			44			268	
Approach Delay, s/veh		51.5			15.1			114.6			138.5	
Approach LOS		D			B			F			F	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.1	105.5		24.8		114.6		9.3				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	5.3	101.0		20.3		110.8		5.4				
Max Q Clear Time (g_c+1), s	15.6	103.0		22.3		16.8		5.8				
Green Ext Time (p_c), s	0.0	0.0		0.0		3.3		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				53.2								
HCM 6th LOS				D								

HCM 6th Signalized Intersection Summary
47: I-15 SB On-Ramp & Camino del Rio S

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑		
Traffic Volume (veh/h)	1530	1032	40	506	0	0
Future Volume (veh/h)	1530	1032	40	506	0	0
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		
Adj Flow Rate, veh/h	1663	1059	43	550		
Peak Hour Factor	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2		
Cap, veh/h	1871	1074	66	1775		
Arrive On Green	0.86	0.86	0.04	0.95		
Sat Flow, veh/h	2268	1248	1781	1870		
Grp Volume(v), veh/h	1326	1396	43	550		
Grp Sat Flow(s),veh/h/ln	1777	1646	1781	1870		
Q Serve(g_s), s	36.0	68.5	2.1	1.9		
Cycle Q Clear(g_c), s	36.0	68.5	2.1	1.9		
Prop In Lane		0.76	1.00			
Lane Grp Cap(c), veh/h	1529	1416	66	1775		
V/C Ratio(X)	0.87	0.99	0.65	0.31		
Avail Cap(c_a), veh/h	1531	1418	107	1821		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.4	5.6	41.7	0.2		
Incr Delay (d2), s/veh	5.6	20.5	10.4	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.4	8.0	1.1	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.9	26.1	52.1	0.3		
LnGrp LOS	A	C	D	A		
Approach Vol, veh/h	2722			593		
Approach Delay, s/veh	17.7			4.0		
Approach LOS	B			A		
Timer - Assigned Phs	1	2			6	
Phs Duration (G+Y+Rc), s	7.7	80.1			87.8	
Change Period (Y+Rc), s	4.5	4.5			4.5	
Max Green Setting (Gmax), s	5.3	75.7			85.5	
Max Q Clear Time (g_c+I), s	14.1	70.5			3.9	
Green Ext Time (p_c), s	0.0	5.1			3.6	
Intersection Summary						
HCM 6th Ctrl Delay			15.3			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary
48: I-15 NB Ramps & Camino del Rio S

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	450	1090	0	0	120	50	436	10	140	0	0	0
Future Volume (veh/h)	450	1090	0	0	120	50	436	10	140	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	489	1185	0	0	130	11	474	11	79			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	531	1188	0	0	546	463	490	54	390			
Arrive On Green	0.30	0.63	0.00	0.00	0.29	0.29	0.28	0.28	0.28			
Sat Flow, veh/h	1781	1870	0	0	1870	1585	1781	197	1418			
Grp Volume(v), veh/h	489	1185	0	0	130	11	474	0	90			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1870	1585	1781	0	1615			
Q Serve(g_s), s	26.6	63.1	0.0	0.0	5.3	0.5	26.3	0.0	4.3			
Cycle Q Clear(g_c), s	26.6	63.1	0.0	0.0	5.3	0.5	26.3	0.0	4.3			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.88			
Lane Grp Cap(c), veh/h	531	1188	0	0	546	463	490	0	444			
V/C Ratio(X)	0.92	1.00	0.00	0.00	0.24	0.02	0.97	0.00	0.20			
Avail Cap(c_a), veh/h	725	1188	0	0	546	463	490	0	444			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	34.0	18.2	0.0	0.0	26.9	25.2	35.8	0.0	27.8			
Incr Delay (d2), s/veh	13.9	25.5	0.0	0.0	0.2	0.0	32.4	0.0	0.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	12.8	29.7	0.0	0.0	2.3	0.2	15.5	0.0	1.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.8	43.7	0.0	0.0	27.2	25.3	68.2	0.0	28.1			
LnGrp LOS	D	D	A	A	C	C	E	A	C			
Approach Vol, veh/h		1674			141			564				
Approach Delay, s/veh		44.9			27.0			61.8				
Approach LOS		D			C			E				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		68.0			34.3	33.7		32.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		63.5			40.7	18.3		27.5				
Max Q Clear Time (g_c+I1), s		65.1			28.6	7.3		28.3				
Green Ext Time (p_c), s		0.0			1.3	0.4		0.0				
Intersection Summary												
HCM 6th Ctrl Delay					47.9							
HCM 6th LOS					D							

HCM 6th Signalized Intersection Summary
49: Fenton Pkwy & River Park Rd

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



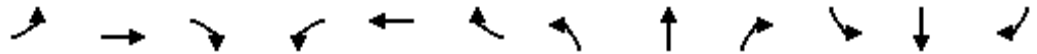
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	239	71	634	181	35	858
Future Volume (veh/h)	239	71	634	181	35	858
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	260	17	689	158	38	933
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	367	327	1427	327	155	1654
Arrive On Green	0.21	0.21	0.50	0.50	0.50	0.50
Sat Flow, veh/h	1781	1585	2964	658	56	3412
Grp Volume(v), veh/h	260	17	426	421	509	462
Grp Sat Flow(s),veh/h/ln	1781	1585	1777	1752	1766	1617
Q Serve(g_s), s	4.1	0.3	4.8	4.8	0.0	6.1
Cycle Q Clear(g_c), s	4.1	0.3	4.8	4.8	5.7	6.1
Prop In Lane	1.00	1.00		0.38	0.07	
Lane Grp Cap(c), veh/h	367	327	883	871	1005	804
V/C Ratio(X)	0.71	0.05	0.48	0.48	0.51	0.57
Avail Cap(c_a), veh/h	1645	1463	1348	1329	1705	1493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.2	9.7	5.0	5.0	5.3	5.4
Incr Delay (d2), s/veh	2.5	0.1	0.4	0.4	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.1	1.0	1.0	1.2	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.7	9.7	5.5	5.5	5.7	6.0
LnGrp LOS	B	A	A	A	A	A
Approach Vol, veh/h	277		847			971
Approach Delay, s/veh	13.5		5.5			5.8
Approach LOS	B		A			A
Timer - Assigned Phs		2			6	8
Phs Duration (G+Y+Rc), s		19.6			19.6	10.8
Change Period (Y+Rc), s		4.5			4.5	4.5
Max Green Setting (Gmax), s		23.0			28.0	28.0
Max Q Clear Time (g_c+I1), s		6.8			8.1	6.1
Green Ext Time (p_c), s		5.3			7.0	0.8
Intersection Summary						
HCM 6th Ctrl Delay			6.7			
HCM 6th LOS			A			

Queues

Horizon Year Plus Project w/4-Ln Bridge

1: SR-163 SB Ramps/Ulric St & Friars Rd

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	183	1816	714	647	1233	844	327	31	785	352	352	214
v/c Ratio	0.86	0.93	0.75	1.05	0.62	0.64	0.98	0.17	0.89	0.82	0.82	0.39
Control Delay	95.3	59.0	9.6	102.4	47.0	21.9	109.4	62.7	59.7	66.0	66.0	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	95.3	59.0	9.6	102.4	47.0	21.9	109.4	62.7	59.7	66.0	66.0	9.5
Queue Length 50th (ft)	170	500	17	~348	328	190	161	27	400	322	322	16
Queue Length 95th (ft)	#290	#616	165	#475	389	344	#263	62	#523	442	442	82
Internal Link Dist (ft)		1296			1059			834			622	
Turn Bay Length (ft)	300		350	400		200	300		215			200
Base Capacity (vph)	234	1944	949	615	1967	1416	333	181	887	486	486	587
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.93	0.75	1.05	0.63	0.60	0.98	0.17	0.89	0.72	0.72	0.36

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues
2: Friars Rd & SR-163 NB Ramps

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



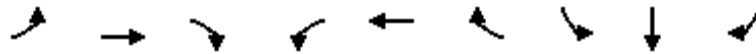
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	667	2581	1749	1081	1260	1052
v/c Ratio	0.73	0.63	0.84	0.85	0.84	0.63
Control Delay	49.7	12.4	56.3	56.1	53.7	21.5
Queue Delay	0.0	0.5	0.0	0.5	0.0	0.0
Total Delay	49.7	12.9	56.3	56.6	53.7	21.5
Queue Length 50th (ft)	323	311	427	612	396	352
Queue Length 95th (ft)	m360	346	437	692	456	456
Internal Link Dist (ft)		1059	635		521	
Turn Bay Length (ft)	500			200	500	400
Base Capacity (vph)	914	4087	2253	1278	1497	1664
Starvation Cap Reductn	0	0	0	35	0	0
Spillback Cap Reductn	0	938	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.82	0.78	0.87	0.84	0.63

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues
17: I-15 SB Ramps & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



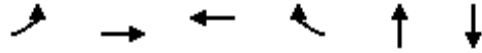
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	497	2933	832	332	1472	406	617	617	666
v/c Ratio	0.91	1.72	1.18	6.15	1.19	0.67	1.14	1.14	0.36
Control Delay	67.3	355.1	122.6	2365.4	136.6	19.2	123.8	123.8	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.3	355.1	122.6	2365.4	136.6	19.2	123.8	123.8	10.2
Queue Length 50th (ft)	422	~1396	~708	~521	~571	89	~666	~666	131
Queue Length 95th (ft)	#630	#1476	#961	#717	#669	211	#911	#911	168
Internal Link Dist (ft)		844			1079			723	
Turn Bay Length (ft)	380		200	350			520		520
Base Capacity (vph)	546	1708	705	54	1241	605	543	543	1870
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	1.72	1.18	6.15	1.19	0.67	1.14	1.14	0.36

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
18: I-15 NB Ramps & Friars Rd

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	1111	3164	1879	557	1504	767
v/c Ratio	1.58	no cap	0.82	0.83	17.69	9.02
Control Delay	296.9		28.0	36.7	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	296.9	Error	28.0	36.7	0.0	0.0
Queue Length 50th (ft)	~1205	0	438	391	0	0
Queue Length 95th (ft)	#1535	0	505	583	0	0
Internal Link Dist (ft)		1079	869		797	677
Turn Bay Length (ft)	515					
Base Capacity (vph)	702	1	2613	768	85	85
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.58	3164.00	0.72	0.73	17.69	9.02

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	131	651	244	436	227	871	1115	820
v/c Ratio	0.78	1.11	0.74	0.96	1.28	0.27	0.61	0.80
Control Delay	116.0	105.6	91.0	74.8	227.3	16.9	27.6	18.7
Queue Delay	0.0	0.0	0.0	5.8	0.0	0.0	50.4	40.3
Total Delay	116.0	105.6	91.0	80.6	227.3	17.0	78.0	59.0
Queue Length 50th (ft)	172	~644	301	322	~377	188	483	376
Queue Length 95th (ft)	248	#858	411	#538	#573	235	m570	m458
Internal Link Dist (ft)			653			1043	147	
Turn Bay Length (ft)				150	110			
Base Capacity (vph)	309	588	370	481	177	3251	1825	1026
Starvation Cap Reductn	0	0	0	0	0	0	933	264
Spillback Cap Reductn	0	0	0	25	0	610	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	1.11	0.66	0.96	1.28	0.33	1.25	1.08

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Horizon Year Plus Project w/4-Ln Bridge
 PM Peak Hour



Lane Group	EBR	NBT	SBT
Lane Group Flow (vph)	755	1299	1888
v/c Ratio	0.82	0.67	0.98
Control Delay	32.8	16.7	36.1
Queue Delay	0.0	5.5	0.0
Total Delay	32.8	22.1	36.1
Queue Length 50th (ft)	198	237	469
Queue Length 95th (ft)	269	390	#792
Internal Link Dist (ft)		283	1043
Turn Bay Length (ft)			
Base Capacity (vph)	1547	1935	1935
Starvation Cap Reductn	0	569	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.49	0.95	0.98

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	273	284	1049	409	749	334	386	972	13	1599	152
v/c Ratio	1.11	1.13	1.73	1.32	1.32dl	0.84	1.42	0.66	0.05	1.31	0.25
Control Delay	141.7	144.7	359.8	207.5	175.1	59.8	248.6	31.8	40.0	179.5	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.4	4.0	0.0	0.0	0.0	2.7	0.0
Total Delay	141.7	144.7	359.8	207.5	175.5	63.8	248.6	31.8	40.0	182.2	18.7
Queue Length 50th (ft)	~276	~290	~1252	~489	~461	274	~437	331	5	~935	68
Queue Length 95th (ft)	#463	#480	#1513	#714	#601	#468	#637	406	m6	m#901	m95
Internal Link Dist (ft)		2741			1304			830		254	
Turn Bay Length (ft)	105					200	215		65		140
Base Capacity (vph)	245	252	608	309	592	399	272	1465	264	1225	614
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	506	0
Spillback Cap Reductn	0	0	0	0	29	27	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.11	1.13	1.73	1.32	1.33	0.90	1.42	0.66	0.05	2.22	0.25

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.
- dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Queues

36: Fairmount Ave & I-8 EB Off-Ramp



Lane Group	EBL	EBR	NBU	NBT	SBT
Lane Group Flow (vph)	1682	1900	61	636	1616
v/c Ratio	1.23dr	1.46	0.60	0.41	0.91
Control Delay	82.7	244.2	91.3	28.7	54.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	82.7	244.2	91.3	28.7	54.0
Queue Length 50th (ft)	~925	~1450	58	215	538
Queue Length 95th (ft)	#1113	#1665	110	266	#633
Internal Link Dist (ft)	749			557	830
Turn Bay Length (ft)	550		350		
Base Capacity (vph)	1564	1297	234	1848	1800
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.08	1.46	0.26	0.34	0.90

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

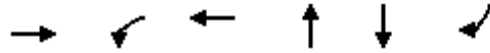
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Queues
46: Camino del Rio S & I-15 SB Off-Ramp

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



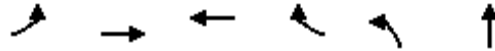
Lane Group	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	2492	43	517	87	261	120
v/c Ratio	1.03	0.68	0.38	0.65	1.07	0.38
Control Delay	51.6	117.5	8.1	40.8	135.6	12.8
Queue Delay	0.0	109.8	55.4	0.0	0.0	0.0
Total Delay	51.6	227.3	63.5	40.8	135.6	12.8
Queue Length 50th (ft)	~1392	42	165	11	~284	0
Queue Length 95th (ft)	#1514	#111	220	#85	#469	60
Internal Link Dist (ft)	323		47	78	212	
Turn Bay Length (ft)		50				
Base Capacity (vph)	2411	63	1395	134	244	320
Starvation Cap Reductn	0	37	942	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.03	1.65	1.14	0.65	1.07	0.38

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
48: I-15 NB Ramps & Camino del Rio S

Horizon Year Plus Project w/4-Ln Bridge
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	489	1185	130	54	474	163
v/c Ratio	0.84	1.00	0.27	0.12	0.98	0.32
Control Delay	44.0	46.2	33.7	7.7	72.5	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.0	46.2	33.7	7.7	72.5	15.1
Queue Length 50th (ft)	284	~694	67	0	299	34
Queue Length 95th (ft)	368	#1043	130	27	#502	88
Internal Link Dist (ft)		251	398			473
Turn Bay Length (ft)				90	175	
Base Capacity (vph)	720	1183	485	460	486	507
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	1.00	0.27	0.12	0.98	0.32

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

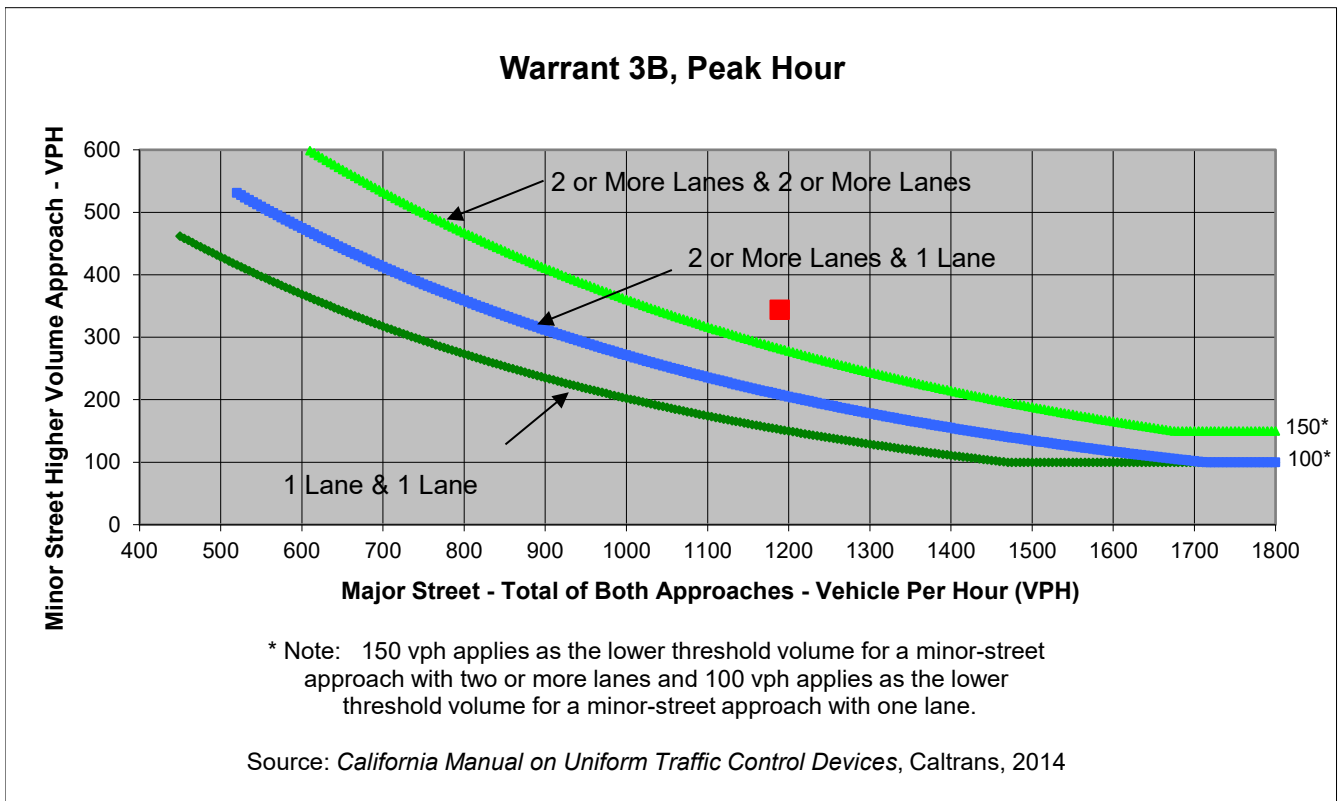
Project SDSU Mission Valley
 Scenario HY + Project w/4-Ln bridge
 Peak Hour PM

Turn Movement Volumes

	NB	SB	EB	WB
Left/U-turns	251	10	65	0
Through	333	507	0	0
Right	0	88	279	0
Total	584	605	344	0

Major Street Direction

x	North/South
	East/West



	Major Street	Minor Street	Warrant Met
	Ward Rd	Rancho Mission Rd	
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	1,189	344	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
 Traffic Volume for Minor Street is the Volume of High Volume Approach.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

Project SDSU Mission Valley
 Scenario HY + Project w/4-Ln bridge
 Peak Hour PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	291	10	68	0
Through	495	608	0	0
Right	0	88	350	0
Total	786	706	418	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	123.9
Approach with Worst Case Delay	EB
Total Vehicles on Approach	344

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
HY + Project w/4-Ln bridge	11.8	418	1,910
Limiting Value	4	100	650
Condition Satisfied?	Met	Met	Met
Warrant Met	<u>YES</u>		

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

HY+P w/4-Ln Bridge w/Improvements
 AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↔↔		↔	↑↑↑	↔↔				↔	↑	↔↔
Traffic Volume (veh/h)	339	1139	403	60	330	2055	520	0	0	0	794	10	1221
Future Volume (veh/h)	339	1139	403	60	330	2055	520	0	0	0	794	10	1221
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	361	1212	138		351	2186	0				853	0	1250
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	547	1966	1074		386	2135					891	0	1294
Arrive On Green	0.16	0.38	0.38		0.07	0.14	0.00				0.25	0.00	0.25
Sat Flow, veh/h	3456	5106	2790		1781	5106	2790				3563	0	3170
Grp Volume(v), veh/h	361	1212	138		351	2186	0				853	0	1250
Grp Sat Flow(s),veh/h/ln	1728	1702	1395		1781	1702	1395				1781	0	1585
Q Serve(g_s), s	10.8	21.1	3.5		21.5	46.0	0.0				26.0	0.0	25.0
Cycle Q Clear(g_c), s	10.8	21.1	3.5		21.5	46.0	0.0				26.0	0.0	25.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	547	1966	1074		386	2135					891	0	1294
V/C Ratio(X)	0.66	0.62	0.13		0.91	1.02					0.96	0.00	0.97
Avail Cap(c_a), veh/h	619	1966	1074		505	2135					891	0	1294
HCM Platoon Ratio	1.00	1.00	1.00		0.33	0.33	0.33				1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00		0.09	0.09	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	43.5	27.3	21.9		50.0	47.4	0.0				40.7	0.0	31.8
Incr Delay (d2), s/veh	1.5	1.5	0.2		1.8	13.3	0.0				20.4	0.0	17.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	8.3	1.1		10.4	23.4	0.0				13.9	0.0	28.9
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	45.0	28.7	22.1		51.7	60.7	0.0				61.1	0.0	49.2
LnGrp LOS	D	C	C		D	F					E	A	D
Approach Vol, veh/h		1711			2537	A					2103		
Approach Delay, s/veh		31.6			59.5						54.0		
Approach LOS		C			E						D		
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	38.1	49.3		32.6	24.4	53.0							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	35.0	35.0		27.5	19.7	* 46							
Max Q Clear Time (g_c+Y), s	23.1	23.1		28.0	12.8	48.0							
Green Ext Time (p_c), s	0.3	4.6		0.0	0.4	0.0							

Intersection Summary

HCM 6th Ctrl Delay	50.2
HCM 6th LOS	D

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

HY+P w/4-Ln Bridge w/Improvements
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗↘				↑↑↑	↗					↑	↗↘
Traffic Volume (veh/h)	789	1234	0	0	2471	1743	0	0	380	0	0	474
Future Volume (veh/h)	789	1234	0	0	2471	1743	0	0	380	0	0	474
Initial Q (Qb), veh	20	0	0	0	0	20				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	831	1299	0	0	2460	1929				0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				0	2	2
Cap, veh/h	974	0	0	0	2261	1916				0	0	
Arrive On Green	0.28	0.95	0.00	0.00	0.60	0.60				0.00	0.00	0.00
Sat Flow, veh/h	3456	0	0	0	3741	3170					0	
Grp Volume(v), veh/h	831	0	0	0	2460	1929					0.0	
Grp Sat Flow(s),veh/h/ln	1728	0	0	0	1870	1585						
Q Serve(g_s), s	25.0	0.0	0.0	0.0	66.5	66.5						
Cycle Q Clear(g_c), s	25.0	0.0	0.0	0.0	66.5	66.5						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	974	0	0	0	2261	1916						
V/C Ratio(X)	0.85	0.00	0.00	0.00	1.09	1.01						
Avail Cap(c_a), veh/h	974	0	0	0	2261	1916						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.53	0.00	0.00	0.00	0.24	0.24						
Uniform Delay (d), s/veh	38.6	0.0	0.0	0.0	21.8	21.7						
Incr Delay (d2), s/veh	3.9	0.0	0.0	0.0	41.8	11.7						
Initial Q Delay(d3),s/veh	20.7	0.0	0.0	0.0	0.0	37.6						
%ile BackOfQ(50%),veh/ln	4.7	0.0	0.0	0.0	37.5	33.7						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.2	0.0	0.0	0.0	63.5	71.0						
LnGrp LOS	E	A	A	A	F	F						
Approach Vol, veh/h		831			4389							
Approach Delay, s/veh		63.2			66.8							
Approach LOS		E			E							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		110.0			36.5	73.5						
Change Period (Y+Rc), s		5.5			5.5	7.0						
Max Green Setting (Gmax), s		95.0			21.5	66.5						
Max Q Clear Time (g_c+I1), s		0.0			27.0	68.5						
Green Ext Time (p_c), s		0.0			0.0	0.0						

Intersection Summary

HCM 6th Ctrl Delay	66.2
HCM 6th LOS	E

Notes

User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 31: Texas St & Camino del Rio S

HY+P w/4-Ln Bridge w/Improvements
 AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↖	↗	↖	↖	↖	↖	↖	↖	↖
Traffic Volume (veh/h)	10	103	53	60	120	92	120	150	1319	247	480	546	293
Future Volume (veh/h)	10	103	53	60	120	92	120	150	1319	247	480	546	293
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.98	1.00		0.96	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln		1811	1663	1870	1841	1870	1796	1841	1870	1870	1870	1870	1826
Adj Flow Rate, veh/h		81	91	11	110	116	53	156	1374	250	500	569	178
Peak Hour Factor		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		6	16	2	4	2	7	4	2	2	2	2	5
Cap, veh/h		132	128	286	192	205	614	182	1040	186	528	1919	818
Arrive On Green		0.08	0.08	0.08	0.11	0.11	0.11	0.10	0.35	0.35	0.30	0.54	0.54
Sat Flow, veh/h		1725	1663	1579	1753	1870	1493	1753	2990	535	1781	3554	1515
Grp Volume(v), veh/h		81	91	11	110	116	53	156	807	817	500	569	178
Grp Sat Flow(s),veh/h/ln		1725	1663	1579	1753	1870	1493	1753	1777	1748	1781	1777	1515
Q Serve(g_s), s		5.8	6.8	0.7	7.6	7.5	2.8	11.1	44.1	44.1	34.8	11.1	7.8
Cycle Q Clear(g_c), s		5.8	6.8	0.7	7.6	7.5	2.8	11.1	44.1	44.1	34.8	11.1	7.8
Prop In Lane		1.00		1.00	1.00		1.00	1.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h		132	128	286	192	205	614	182	618	608	528	1919	818
V/C Ratio(X)		0.61	0.71	0.04	0.57	0.57	0.09	0.86	1.30	1.34	0.95	0.30	0.22
Avail Cap(c_a), veh/h		408	394	539	390	416	783	346	618	608	992	2523	1076
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		56.7	57.2	42.8	53.6	53.6	23.2	55.9	41.3	41.3	43.6	16.0	15.2
Incr Delay (d2), s/veh		4.5	7.2	0.1	7.2	6.6	0.2	4.4	148.7	165.7	4.5	0.2	0.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.7	3.1	0.3	3.7	3.9	1.0	5.1	44.3	46.5	15.7	4.5	2.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		61.2	64.3	42.9	60.9	60.2	23.4	60.2	190.0	207.0	48.2	16.1	15.5
LnGrp LOS		E	E	D	E	E	C	E	F	F	D	B	B
Approach Vol, veh/h		183			279			1780			1247		
Approach Delay, s/veh		61.6			53.5			186.4			28.9		
Approach LOS		E			D			F			C		
Timer - Assigned Phs	1	2	4		5	6	8						
Phs Duration (G+Y+Rc), s	42.0	49.3	14.6		17.6	73.7	20.9						
Change Period (Y+Rc), s	4.4	5.2	4.9		4.4	* 5.2	7.0						
Max Green Setting (Gmax), s	70.6	44.1	30.0		25.0	* 90	28.2						
Max Q Clear Time (g_c+Rc), s	30.8	46.1	8.8		13.1	13.1	9.6						
Green Ext Time (p_c), s	0.7	0.0	0.7		0.2	11.1	2.4						

Intersection Summary

HCM 6th Ctrl Delay	113.0
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 32: Ward Rd & Rancho Mission Rd

HY+P w/4-Ln Bridge w/Improvements
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	215	162	582	428	34
Future Volume (veh/h)	50	215	162	582	428	34
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	0.99			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	29	169	606	446	26
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	157	139	455	1336	1765	103
Arrive On Green	0.09	0.09	0.52	0.52	0.52	0.52
Sat Flow, veh/h	1781	1585	442	2663	3500	198
Grp Volume(v), veh/h	52	29	386	389	232	240
Grp Sat Flow(s),veh/h/ln	1781	1585	1402	1617	1777	1827
Q Serve(g_s), s	0.6	0.4	0.6	3.5	1.7	1.7
Cycle Q Clear(g_c), s	0.6	0.4	3.1	3.5	1.7	1.7
Prop In Lane	1.00	1.00	0.44			0.11
Lane Grp Cap(c), veh/h	157	139	953	838	921	947
V/C Ratio(X)	0.33	0.21	0.41	0.46	0.25	0.25
Avail Cap(c_a), veh/h	1403	1249	1577	1627	1788	1839
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.8	9.7	3.4	3.5	3.1	3.1
Incr Delay (d2), s/veh	1.2	0.7	0.3	0.4	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.1	0.1	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.0	10.4	3.6	3.9	3.2	3.2
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	81			775	472	
Approach Delay, s/veh	10.8			3.8	3.2	
Approach LOS	B			A	A	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		16.3		6.5		16.3
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		23.0		18.0		23.0
Max Q Clear Time (g_c+I1), s		5.5		2.6		3.7
Green Ext Time (p_c), s		4.9		0.1		2.6
Intersection Summary						
HCM 6th Ctrl Delay			4.0			
HCM 6th LOS			A			

HCM Signalized Intersection Capacity Analysis

HY+P w/4-Ln Bridge w/Improvements

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	33	543	490	807	395	721	1470	180	13	948	271
Future Volume (vph)	67	33	543	490	807	395	721	1470	180	13	948	271
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	0.88	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1743	2777	1610	3171	1422	1770	3476		3433	3539	1583
Flt Permitted	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1743	2777	1610	3171	1422	1770	3476		3433	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	71	35	572	516	849	416	759	1547	189	14	998	285
RTOR Reduction (vph)	0	0	63	0	0	0	0	6	0	0	0	84
Lane Group Flow (vph)	56	50	509	464	943	374	759	1730	0	14	998	201
Confl. Peds. (#/hr)							2		1			
Confl. Bikes (#/hr)			2			2						
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8	1	5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	7.9	7.9	50.0	38.0	38.0	46.3	42.1	74.8		8.3	41.0	41.0
Effective Green, g (s)	7.9	7.9	50.0	38.0	38.0	46.3	42.1	74.8		8.3	41.0	41.0
Actuated g/C Ratio	0.05	0.05	0.33	0.25	0.25	0.31	0.28	0.50		0.06	0.27	0.27
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	88	91	1012	407	803	438	496	1733		189	967	432
v/s Ratio Prot	0.03	0.03	c0.14	0.29	c0.30	0.05	c0.43	0.50		0.00	c0.28	
v/s Ratio Perm			0.04			0.22						0.13
v/c Ratio	0.64	0.55	0.50	1.14	1.17	0.85	1.53	1.00		0.07	1.03	0.46
Uniform Delay, d1	69.6	69.3	40.1	56.0	56.0	48.7	54.0	37.5		67.2	54.5	45.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.08	0.60	0.41
Incremental Delay, d2	10.6	3.6	0.1	88.6	91.4	14.4	248.7	21.2		0.0	34.5	2.9
Delay (s)	80.2	72.9	40.2	144.6	147.4	63.1	302.6	58.7		72.6	67.2	21.3
Level of Service	F	E	D	F	F	E	F	E		E	E	C
Approach Delay (s)		45.9			129.0			132.9			57.2	
Approach LOS		D			F			F			E	
Intersection Summary												
HCM 2000 Control Delay			106.7									F
HCM 2000 Volume to Capacity ratio			1.21									
Actuated Cycle Length (s)			150.0							21.0		
Intersection Capacity Utilization			111.0%									H
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 44: Mission City Pkwy/Fenton Pkwy & Camino del Rio N

HY+P w/4-Ln Bridge w/Improvements
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	7	60	156	354	591	510	349	72	241	217	65
Future Volume (veh/h)	66	7	60	156	354	591	510	349	72	241	217	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	72	8	22	170	385	478	554	379	73	262	236	61
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	92	413	867	197	523	598	582	635	122	339	270	70
Arrive On Green	0.05	0.22	0.22	0.11	0.28	0.28	0.33	0.42	0.42	0.10	0.19	0.19
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1524	294	3456	1433	370
Grp Volume(v), veh/h	72	8	22	170	385	478	554	0	452	262	0	297
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1818	1728	0	1804
Q Serve(g_s), s	4.7	0.4	0.7	10.9	21.8	31.4	35.5	0.0	22.5	8.6	0.0	18.7
Cycle Q Clear(g_c), s	4.7	0.4	0.7	10.9	21.8	31.4	35.5	0.0	22.5	8.6	0.0	18.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		0.21
Lane Grp Cap(c), veh/h	92	413	867	197	523	598	582	0	757	339	0	339
V/C Ratio(X)	0.78	0.02	0.03	0.86	0.74	0.80	0.95	0.00	0.60	0.77	0.00	0.88
Avail Cap(c_a), veh/h	127	449	898	197	523	598	618	0	757	820	0	473
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.7	35.6	12.1	51.0	38.1	32.4	38.4	0.0	26.4	51.3	0.0	46.0
Incr Delay (d2), s/veh	19.0	0.0	0.0	30.4	5.4	7.5	24.3	0.0	1.3	3.8	0.0	12.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.2	0.3	6.4	10.4	12.6	19.0	0.0	9.8	3.9	0.0	9.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.7	35.6	12.1	81.4	43.6	39.9	62.7	0.0	27.7	55.1	0.0	58.7
LnGrp LOS	E	D	B	F	D	D	E	A	C	E	A	E
Approach Vol, veh/h		102			1033			1006			559	
Approach Delay, s/veh		57.4			48.1			47.0			57.0	
Approach LOS		E			D			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.0	53.1	17.4	30.2	42.6	26.4	10.5	37.1				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	27.5	43.4	12.9	28.0	40.5	30.6	8.3	32.6				
Max Q Clear Time (g_c+110), s	110.6	24.5	12.9	2.7	37.5	20.7	6.7	33.4				
Green Ext Time (p_c), s	0.8	2.7	0.0	0.1	0.6	1.3	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	49.9
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary
46: Camino del Rio S & I-15 SB Off-Ramp

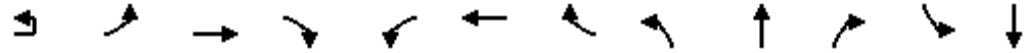
HY+P w/4-Ln Bridge w/Improvements
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↑			↑	↑
Traffic Volume (veh/h)	0	300	20	30	1165	0	10	0	10	70	20	530
Future Volume (veh/h)	0	300	20	30	1165	0	10	0	10	70	20	530
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	326	17	33	1266	0	11	0	2	76	22	506
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	0	1624	84	68	1606	0	23	0	4	491	142	557
Arrive On Green	0.00	0.47	0.47	0.47	0.47	0.00	0.02	0.00	0.02	0.35	0.35	0.35
Sat Flow, veh/h	0	3530	179	49	3484	0	1479	0	269	1396	404	1585
Grp Volume(v), veh/h	0	168	175	691	608	0	13	0	0	98	0	506
Grp Sat Flow(s),veh/h/ln	0	1777	1838	1831	1617	0	1748	0	0	1801	0	1585
Q Serve(g_s), s	0.0	4.6	4.7	9.5	26.7	0.0	0.6	0.0	0.0	3.1	0.0	25.6
Cycle Q Clear(g_c), s	0.0	4.6	4.7	26.6	26.7	0.0	0.6	0.0	0.0	3.1	0.0	25.6
Prop In Lane	0.00		0.10	0.05		0.00	0.85		0.15	0.78		1.00
Lane Grp Cap(c), veh/h	0	839	868	910	764	0	27	0	0	633	0	557
V/C Ratio(X)	0.00	0.20	0.20	0.76	0.80	0.00	0.48	0.00	0.00	0.15	0.00	0.91
Avail Cap(c_a), veh/h	0	1723	1782	2052	1789	0	104	0	0	825	0	726
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	12.9	12.9	18.6	18.7	0.0	41.0	0.0	0.0	18.7	0.0	26.0
Incr Delay (d2), s/veh	0.0	0.1	0.1	1.3	1.9	0.0	12.4	0.0	0.0	0.1	0.0	12.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.6	1.7	10.0	8.9	0.0	0.4	0.0	0.0	1.3	0.0	11.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.0	13.0	19.9	20.7	0.0	53.4	0.0	0.0	18.8	0.0	38.8
LnGrp LOS		A	B	B	C	A	D	A	A	B	A	D
Approach Vol, veh/h		343			1299			13			604	
Approach Delay, s/veh		13.0			20.3			53.4			35.6	
Approach LOS		B			C			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		44.2		34.0		44.2		5.8				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		81.5		38.5		93.0		5.0				
Max Q Clear Time (g_c+I1), s		6.7		27.6		28.7		2.6				
Green Ext Time (p_c), s		1.9		2.0		11.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay		23.5										
HCM 6th LOS		C										

HCM Signalized Intersection Capacity Analysis
 1: SR-163 SB Ramps/Ulric St & Friars Rd

HY+P w/4-Ln Bridge w/Improvements
 PM Peak Hour

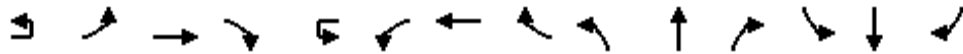


Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations		3		7	7	7	7	7	7	7	7	7	
Traffic Volume (vph)	10	170	1780	700	634	1208	827	320	30	769	690	0	
Future Volume (vph)	10	170	1780	700	634	1208	827	320	30	769	690	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.7	7.0	7.0	4.5	3.0	6.1	6.1	6.1	4.5	6.1	6.1	
Lane Util. Factor		1.00	0.86	1.00	0.97	0.91	0.88	0.97	1.00	0.88	0.95	0.95	
Frbp, ped/bikes		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (prot)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (perm)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	10	173	1816	714	647	1233	844	327	31	785	704	0	
RTOR Reduction (vph)	0	0	0	481	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	183	1816	233	647	1233	844	327	31	785	352	352	
Confl. Peds. (#/hr)				5									
Confl. Bikes (#/hr)				2									
Turn Type	Prot	Prot	NA	Perm	Prot	NA	custom	Split	NA	pm+ov	Split	NA	
Protected Phases	5	5	2		1	6 7	4 7	8	8	1	4	4	
Permitted Phases				2						8			
Actuated Green, G (s)		17.5	44.0	44.0	26.0	52.3	68.9	14.1	14.1	40.1	37.2	37.2	
Effective Green, g (s)		17.5	44.0	44.0	26.0	52.3	61.9	14.1	14.1	40.1	37.2	37.2	
Actuated g/C Ratio		0.12	0.30	0.30	0.18	0.36	0.43	0.10	0.10	0.28	0.26	0.26	
Clearance Time (s)		4.7	7.0	7.0	4.5			6.1	6.1	4.5	6.1	6.1	
Vehicle Extension (s)		2.0	2.0	2.0	3.0			3.0	3.0	3.0	2.0	2.0	
Lane Grp Cap (vph)		213	1944	469	615	1834	1189	333	181	770	431	431	
v/s Ratio Prot		0.10	c0.28		c0.19	0.24	0.30	0.10	0.02	c0.18	c0.21	0.21	
v/s Ratio Perm				0.15						0.10			
v/c Ratio		0.86	0.93	0.50	1.05	0.67	0.71	0.98	0.17	1.02	0.82	0.82	
Uniform Delay, d1		62.5	49.1	41.4	59.5	39.1	34.2	65.3	60.1	52.5	50.7	50.7	
Progression Factor		1.00	1.00	1.00	1.25	0.75	0.68	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		26.5	9.9	3.7	44.5	0.5	1.1	44.2	0.5	37.4	10.8	10.8	
Delay (s)		89.1	58.9	45.2	118.8	29.7	24.4	109.5	60.5	89.9	61.5	61.5	
Level of Service		F	E	D	F	C	C	F	E	F	E	E	
Approach Delay (s)			57.4			49.2			94.7			57.0	
Approach LOS			E			D			F			E	
Intersection Summary													
HCM 2000 Control Delay			60.1		HCM 2000 Level of Service					E			
HCM 2000 Volume to Capacity ratio			0.96										
Actuated Cycle Length (s)			145.0		Sum of lost time (s)					26.9			
Intersection Capacity Utilization			97.3%		ICU Level of Service					F			
Analysis Period (min)			15										
c Critical Lane Group													

Movement	SBR
Lane Configurations	7
Traffic Volume (vph)	210
Future Volume (vph)	210
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.1
Lane Util. Factor	1.00
Frbp, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1560
Flt Permitted	1.00
Satd. Flow (perm)	1560
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	214
RTOR Reduction (vph)	142
Lane Group Flow (vph)	72
Confl. Peds. (#/hr)	3
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	37.2
Effective Green, g (s)	37.2
Actuated g/C Ratio	0.26
Clearance Time (s)	6.1
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	400
v/s Ratio Prot	
v/s Ratio Perm	0.05
v/c Ratio	0.18
Uniform Delay, d1	42.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	42.1
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

HY+P w/4-Ln Bridge w/Improvements
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑	↑↑↑	↑		↑↑↑	↑↑↑		↑	↑			↑↓	
Traffic Volume (veh/h)	20	20	2729	160	10	78	1756	28	80	10	152	225	20	90
Future Volume (veh/h)	20	20	2729	160	10	78	1756	28	80	10	152	225	20	90
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	1.00		0.97	0.98		0.97
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		21	2813	140		80	1810	28	82	10	86	232	21	85
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h		27	2926	906		230	3615	56	362	42	418	241	18	75
Arrive On Green		0.02	0.57	0.57		0.26	1.00	1.00	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h		1781	5106	1581		1781	5178	80	1178	154	1541	750	68	275
Grp Volume(v), veh/h		21	2813	140		80	1190	648	92	0	86	338	0	0
Grp Sat Flow(s),veh/h/ln		1781	1702	1581		1781	1702	1854	1332	0	1541	1093	0	0
Q Serve(g_s), s		1.9	83.8	6.6		5.9	0.0	0.0	0.0	0.0	6.9	34.8	0.0	0.0
Cycle Q Clear(g_c), s		1.9	83.8	6.6		5.9	0.0	0.0	8.6	0.0	6.9	43.4	0.0	0.0
Prop In Lane		1.00		1.00		1.00		0.04	0.89		1.00	0.69		0.25
Lane Grp Cap(c), veh/h		27	2926	906		230	2377	1295	404	0	418	334	0	0
V/C Ratio(X)		0.78	0.96	0.15		0.35	0.50	0.50	0.23	0.00	0.21	1.01	0.00	0.00
Avail Cap(c_a), veh/h		104	2926	906		230	2377	1295	404	0	418	334	0	0
HCM Platoon Ratio		1.00	1.00	1.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		0.79	0.79	0.79	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh		78.5	32.5	16.0		53.9	0.0	0.0	45.6	0.0	45.0	64.6	0.0	0.0
Incr Delay (d2), s/veh		16.1	9.8	0.4		0.3	0.6	1.1	0.2	0.0	0.2	52.0	0.0	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		1.0	34.8	2.5		2.5	0.2	0.4	3.0	0.0	2.7	18.7	0.0	0.0
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		94.6	42.2	16.4		54.1	0.6	1.1	45.8	0.0	45.2	116.5	0.0	0.0
LnGrp LOS		F	D	B		D	A	A	D	A	D	F	A	A
Approach Vol, veh/h			2974			1918			178		338			
Approach Delay, s/veh			41.4			3.0			45.5		116.5			
Approach LOS			D			A			D		F			
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	26.9	97.9	48.3	6.8	118.0	48.3								
Change Period (Y+Rc), s	6.2	* 6.2	4.9	4.4	6.2	4.9								
Max Green Setting (Gmax), s	92	* 92	43.4	9.3	91.8	43.4								
Max Q Clear Time (g_c+1), s	85.8		45.4	3.9	2.0	10.6								
Green Ext Time (p_c), s	0.0	5.9	0.0	0.0	74.7	0.7								

Intersection Summary

HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 9: Fenton Pkwy & Friars Rd

HY+P w/4-Ln Bridge w/Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↔		↔↔	↑↑↑	↔	↔↔	↑	↔	↔↔	↔	↔
Traffic Volume (veh/h)	150	2268	868	10	295	1202	80	579	56	467	40	22	70
Future Volume (veh/h)	150	2268	868	10	295	1202	80	579	56	467	40	22	70
Initial Q (Qb), veh	15	25	15		0	0	0	0	0	15	15	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	2338	694		304	1239	41	597	58	371	41	23	8
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	427	2256	1097		272	2228	729	981	559	458	111	83	245
Arrive On Green	0.31	0.88	0.88		0.29	0.87	0.87	0.24	0.27	0.27	0.02	0.04	0.04
Sat Flow, veh/h	3456	5106	1585		3456	5106	1564	3456	1870	1581	3563	1870	1553
Grp Volume(v), veh/h	155	2338	694		304	1239	41	597	58	371	41	23	8
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1564	1728	1870	1581	1781	1870	1553
Q Serve(g_s), s	5.5	70.7	0.0		12.1	9.6	0.0	25.3	3.8	36.0	1.8	1.9	0.0
Cycle Q Clear(g_c), s	5.5	70.7	0.0		12.1	9.6	0.0	25.3	3.8	36.0	1.8	1.9	0.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	427	2256	1097		272	2228	729	981	559	458	111	83	245
V/C Ratio(X)	0.36	1.04	0.63		1.12	0.56	0.06	0.61	0.10	0.81	0.37	0.28	0.03
Avail Cap(c_a), veh/h	528	2256	1084		507	2228	716	836	597	505	125	399	573
HCM Platoon Ratio	2.00	2.00	2.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.25	0.25	0.25		0.88	0.88	0.88	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	56.5	9.3	5.5		67.4	6.4	5.2	49.7	40.6	55.5	77.3	73.9	57.4
Incr Delay (d2), s/veh	0.0	20.8	0.7		64.6	0.9	0.1	0.1	0.0	1.5	0.8	8.0	0.2
Initial Q Delay(d3),s/veh	14.0	39.9	3.7		0.0	0.0	0.0	0.0	0.0	40.6	210.8	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	16.3	7.7		7.5	2.3	0.2	10.5	1.7	22.5	5.4	1.1	0.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	70.5	70.0	9.8		132.0	7.3	5.3	49.8	40.7	97.6	288.9	82.0	57.7
LnGrp LOS	E	F	A		F	A	A	D	D	F	F	F	E
Approach Vol, veh/h		3187				1584			1026			72	
Approach Delay, s/veh		56.9				31.2			66.6			197.1	
Approach LOS		E				C			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	27.9	77.0	43.1	12.0	28.9	76.0	7.8	47.4					
Change Period (Y+Rc), s	4.4	6.3	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	12.6	70.7	22.6	34.1	13.6	69.8	5.6	51.1					
Max Q Clear Time (g_c+1/4), s	14.1	72.7	27.3	3.9	7.5	11.6	3.8	38.0					
Green Ext Time (p_c), s	0.0	0.0	0.0	0.3	0.1	35.9	0.0	4.5					

Intersection Summary

HCM 6th Ctrl Delay	53.4
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

HY+P w/4-Ln Bridge w/Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗	↑ ↑ ↑	↖ ↗		↖ ↗	↑ ↑ ↑	↖ ↗				↖ ↗	↑	↖ ↗
Traffic Volume (veh/h)	477	2816	799	10	309	1413	390	0	0	0	1185	0	639
Future Volume (veh/h)	477	2816	799	10	309	1413	390	0	0	0	1185	0	639
Initial Q (Qb), veh	20	0	20		20	0	20				0	0	20
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	497	2933	639		322	1472	334				1234	0	638
Peak Hour Factor	0.96	0.96	0.96		0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	954	3111	1050		393	1427	1682				1153	0	1887
Arrive On Green	0.26	0.36	0.36		0.06	0.09	0.09				0.32	0.00	0.32
Sat Flow, veh/h	3456	5106	2731		1781	5106	2790				3563	0	3170
Grp Volume(v), veh/h	497	2933	639		322	1472	334				1234	0	638
Grp Sat Flow(s),veh/h/ln	1728	1702	1366		1781	1702	1395				1781	0	1585
Q Serve(g_s), s	17.0	49.1	26.6		24.5	38.0	8.5				44.0	0.0	0.0
Cycle Q Clear(g_c), s	17.0	49.1	26.6		24.5	38.0	8.5				44.0	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	954	3111	1050		393	1427	1682				1153	0	1887
V/C Ratio(X)	0.52	0.94	0.61		0.82	1.03	0.20				1.07	0.00	0.34
Avail Cap(c_a), veh/h	945	1842	985		393	1427	1682				1153	0	1839
HCM Platoon Ratio	1.00	1.00	1.00		0.33	0.33	0.33				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.59	0.59	0.59				1.00	0.00	1.00
Uniform Delay (d), s/veh	42.8	24.4	35.0		63.1	61.7	16.1				46.0	0.0	14.7
Incr Delay (d2), s/veh	0.3	7.4	2.6		7.5	27.1	0.2				47.6	0.0	0.0
Initial Q Delay(d3),s/veh	6.6	0.0	6.7		102.0	0.0	1.3				0.0	0.0	1.2
%ile BackOfQ(50%),veh/ln	8.6	13.0	9.6		26.3	20.9	7.6				27.1	0.0	13.6
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	49.7	31.8	44.3		172.6	88.8	17.5				93.6	0.0	15.9
LnGrp LOS	D	C	D		F	F	B				F	A	B
Approach Vol, veh/h		4069				2128						1872	
Approach Delay, s/veh		35.9				90.3						67.1	
Approach LOS		D				F						E	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	30.8	56.1		49.1	41.9	45.0							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	30	45.7		44.0	37.2	* 38							
Max Q Clear Time (g_c+20), s	20.5	51.1		46.0	19.0	40.0							
Green Ext Time (p_c), s	0.2	0.0		0.0	0.9	0.0							

Intersection Summary

HCM 6th Ctrl Delay	57.5
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

HY+P w/4-Ln Bridge w/Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗				↑↑↑	↖					↑	↖↗
Traffic Volume (veh/h)	1055	3006	0	0	1353	961	0	0	1429	0	0	729
Future Volume (veh/h)	1055	3006	0	0	1353	961	0	0	1429	0	0	729
Initial Q (Qb), veh	40	0	0	0	20	40				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	1111	3164	0	0	1352	1060				0	0	745
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				0	2	2
Cap, veh/h	1258	0	0	0	2121	1787				0	0	0
Arrive On Green	0.34	0.95	0.00	0.00	1.00	1.00				0.00	0.00	0.00
Sat Flow, veh/h	3456	0	0	0	3741	3170					0	
Grp Volume(v), veh/h	1111	0	0	0	1352	1060					0.0	
Grp Sat Flow(s),veh/h/ln	1728	0	0	0	1870	1585						
Q Serve(g_s), s	42.7	0.0	0.0	0.0	0.0	0.0						
Cycle Q Clear(g_c), s	42.7	0.0	0.0	0.0	0.0	0.0						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	1258	0	0	0	2121	1787						
V/C Ratio(X)	0.88	0.00	0.00	0.00	0.64	0.59						
Avail Cap(c_a), veh/h	1258	0	0	0	2132	1807						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00						
Upstream Filter(I)	0.09	0.00	0.00	0.00	0.87	0.87						
Uniform Delay (d), s/veh	43.3	0.0	0.0	0.0	0.0	0.0						
Incr Delay (d2), s/veh	0.8	0.0	0.0	0.0	1.3	1.3						
Initial Q Delay(d3),s/veh	62.0	0.0	0.0	0.0	1.8	8.9						
%ile BackOfQ(50%),veh/ln	11.2	0.0	0.0	0.0	0.9	2.5						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	106.0	0.0	0.0	0.0	3.1	10.1						
LnGrp LOS	F	A	A	A	A	B						
Approach Vol, veh/h		1111			2412							
Approach Delay, s/veh		106.0			6.2							
Approach LOS		F			A							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		136.0			51.5	84.5						
Change Period (Y+Rc), s		* 7			5.5	7.0						
Max Green Setting (Gmax), s*		1.2E2			49.5	64.5						
Max Q Clear Time (g_c+I1), s		0.0			44.7	2.0						
Green Ext Time (p_c), s		0.0			1.3	13.1						

Intersection Summary

HCM 6th Ctrl Delay	37.6
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

HY+P w/4-Ln Bridge w/Improvements
 PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗		↖	↑↑↑	↘↘	↗
Traffic Volume (veh/h)	3568	878	10	56	1821	483	113
Future Volume (veh/h)	3568	878	10	56	1821	483	113
Initial Q (Qb), veh	0	0		0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	3717	779		58	1897	503	26
Peak Hour Factor	0.96	0.96		0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	3101	1336		75	4876	600	299
Arrive On Green	1.00	1.00		0.04	0.76	0.16	0.16
Sat Flow, veh/h	5274	1583		1781	6696	3563	1585
Grp Volume(v), veh/h	3717	779		58	1897	503	26
Grp Sat Flow(s),veh/h/ln	1702	1583		1781	1609	1781	1585
Q Serve(g_s), s	93.1	0.0		4.4	13.7	18.8	1.9
Cycle Q Clear(g_c), s	93.1	0.0		4.4	13.7	18.8	1.9
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3101	1336		75	4876	600	299
V/C Ratio(X)	1.20	0.58		0.78	0.39	0.84	0.09
Avail Cap(c_a), veh/h	3497	1336		208	4884	843	375
HCM Platoon Ratio	2.00	2.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.88	0.88	0.68	0.68
Uniform Delay (d), s/veh	0.0	0.0		64.5	5.9	55.5	45.6
Incr Delay (d2), s/veh	92.7	1.9		5.6	0.2	2.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	12.4	0.0
%ile BackOfQ(50%),veh	26.6	0.7		2.1	4.2	10.3	0.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	92.7	1.9		70.1	6.1	70.5	45.7
LnGrp LOS	F	A		E	A	E	D
Approach Vol, veh/h	4496			1955	529		
Approach Delay, s/veh	77.0			8.0	69.3		
Approach LOS	E			A	E		
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+Rc), s	10.1	99.1			109.2		26.8
Change Period (Y+Rc), s	4.4	* 6			6.0		5.1
Max Green Setting (Gmax), s	15.9	* 73			92.7		32.2
Max Q Clear Time (g_c+I), s	10.4	95.1			15.7		20.8
Green Ext Time (p_c), s	0.0	0.0			51.2		0.9

Intersection Summary

HCM 6th Ctrl Delay	57.1
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

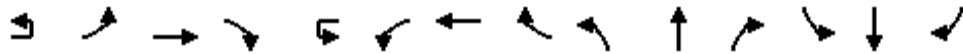
Intersection				
Intersection Delay, s/veh	29.1			
Intersection LOS	D			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	1072	678	68	319
Demand Flow Rate, veh/h	1093	691	68	325
Vehicles Circulating, veh/h	218	283	1240	667
Vehicles Exiting, veh/h	774	1025	71	307
Ped Vol Crossing Leg, #/h	12	17	17	13
Ped Cap Adj	0.998	0.998	1.000	0.998
Approach Delay, s/veh	44.8	13.8	12.1	12.1
Approach LOS	E	B	B	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	1093	691	68	325
Cap Entry Lane, veh/h	1105	1034	390	699
Entry HV Adj Factor	0.981	0.981	0.993	0.981
Flow Entry, veh/h	1072	678	68	319
Cap Entry, veh/h	1082	1012	387	685
V/C Ratio	0.991	0.670	0.175	0.466
Control Delay, s/veh	44.8	13.8	12.1	12.1
LOS	E	B	B	B
95th %tile Queue, veh	19	5	1	2

HCM 6th Signalized Intersection Summary

HY+P w/4-Ln Bridge w/Improvements

28: Qualcomm Way & Camino de la Reina/Camino del Rio N

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔	↔	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔	
Traffic Volume (veh/h)	10	138	457	320	10	505	212	22	183	548	321	124	1094	149	
Future Volume (veh/h)	10	138	457	320	10	505	212	22	183	548	321	124	1094	149	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.98	1.00		0.98	1.00		0.98	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1841	1870	1856	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		142	503	246		521	219	3	189	565	270	128	1128	145	
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %		2	2	2		2	4	2	3	2	2	2	2	2	
Cap, veh/h		159	509	315		524	694	307	225	2856	872	163	2471	317	
Arrive On Green		0.09	0.14	0.14		0.15	0.20	0.20	0.02	0.18	0.18	0.05	0.54	0.54	
Sat Flow, veh/h		1781	3741	1550		3456	3497	1549	3428	5106	1559	3456	4570	587	
Grp Volume(v), veh/h		142	503	246		521	219	3	189	565	270	128	840	433	
Grp Sat Flow(s),veh/h/ln		1781	1870	1550		1728	1749	1549	1714	1702	1559	1728	1702	1753	
Q Serve(g_s), s		15.8	26.8	27.2		30.1	10.7	0.3	11.0	18.7	30.0	7.3	30.1	30.1	
Cycle Q Clear(g_c), s		15.8	26.8	27.2		30.1	10.7	0.3	11.0	18.7	30.0	7.3	30.1	30.1	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.33	
Lane Grp Cap(c), veh/h		159	509	315		524	694	307	225	2856	872	163	1841	948	
V/C Ratio(X)		0.89	0.99	0.78		1.00	0.32	0.01	0.84	0.20	0.31	0.78	0.46	0.46	
Avail Cap(c_a), veh/h		190	509	315		524	694	307	314	2856	872	316	1841	948	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	0.84	0.84	0.84	0.09	0.09	0.09	
Uniform Delay (d), s/veh		90.2	86.2	75.7		84.8	68.6	64.4	96.8	43.6	48.2	94.3	28.0	28.0	
Incr Delay (d2), s/veh		31.1	36.8	11.5		38.0	0.1	0.0	8.4	0.1	0.8	0.3	0.1	0.1	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		8.7	15.7	12.9		16.1	4.8	0.1	5.4	8.7	12.8	3.3	12.5	12.9	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		121.3	123.1	87.3		122.8	68.7	64.4	105.2	43.7	48.9	94.6	28.1	28.1	
LnGrp LOS		F	F	F		F	E	E	F	D	D	F	C	C	
Approach Vol, veh/h		891				743				1024			1401		
Approach Delay, s/veh		112.9				106.6				56.4			34.2		
Approach LOS		F				F				E			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8							
Phs Duration (G+Y+Rc), s	13.8	118.6	34.7	32.9	17.5	114.9	22.2	45.4							
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7							
Max Green Setting (Gmax), s	10.3	103.6	30.3	* 27	18.3	* 1.1E2	21.3	35.6							
Max Q Clear Time (g_c+1), s	19.3	32.0	32.1	29.2	13.0	32.1	17.8	12.7							
Green Ext Time (p_c), s	0.1	4.9	0.0	0.0	0.2	31.1	0.1	0.8							

Intersection Summary

HCM 6th Ctrl Delay	70.3
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

HY+P w/4-Ln Bridge w/Improvements
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔	↑↑↑			↑↑	↔
Traffic Volume (veh/h)	10	113	0	612	32	197	410	213	819	0	0	1048	771
Future Volume (veh/h)	10	113	0	612	32	197	410	213	819	0	0	1048	771
Initial Q (Qb), veh		0	0	20	0	20	20	20	20	0	0	20	20
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No			No			No		
Adj Sat Flow, veh/h/ln		1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h		120	0	390	34	210	252	227	871	0	0	1115	575
Peak Hour Factor		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h		0	0	0	21	319	317	190	3918	0	0	2260	980
Arrive On Green		0.00	0.00	0.00	0.17	0.17	0.17	0.11	0.77	0.00	0.00	1.00	1.00
Sat Flow, veh/h			0		259	1599	1582	1781	5274	0	0	3647	1551
Grp Volume(v), veh/h			0.0		244	0	252	227	871	0	0	1115	575
Grp Sat Flow(s),veh/h/ln					1857	0	1582	1781	1702	0	0	1777	1551
Q Serve(g_s), s					25.1	0.0	31.4	21.3	9.5	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s					25.1	0.0	31.4	21.3	9.5	0.0	0.0	0.0	0.0
Prop In Lane					0.14		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					353	0	317	190	3918	0	0	2260	980
V/C Ratio(X)					0.69	0.00	0.80	1.20	0.22	0.00	0.00	0.49	0.59
Avail Cap(c_a), veh/h					371	0	316	190	3922	0	0	2268	990
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)					1.00	0.00	1.00	0.69	0.69	0.00	0.00	0.73	0.73
Uniform Delay (d), s/veh					79.6	0.0	80.0	89.4	7.0	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh					4.1	0.0	12.2	118.3	0.1	0.0	0.0	0.6	1.9
Initial Q Delay(d3),s/veh					75.3	0.0	135.7	379.5	0.2	0.0	0.0	1.1	7.3
%ile BackOfQ(50%),veh/ln					24.1	0.0	29.2	36.1	5.0	0.0	0.0	0.5	2.5
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					159.0	0.0	228.0	587.1	7.4	0.0	0.0	1.7	9.1
LnGrp LOS					F	A	F	F	A	A	A	A	A
Approach Vol, veh/h						496			1098			1690	
Approach Delay, s/veh						194.1			127.2			4.2	
Approach LOS						F			F			A	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		160.6			26.0	134.6		39.4					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		107.8			* 21	81.8		40.0					
Max Q Clear Time (g_c+I1), s		11.5			23.3	2.0		33.4					
Green Ext Time (p_c), s		4.5			0.0	40.3		0.8					

Intersection Summary

HCM 6th Ctrl Delay	74.0
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 31: Texas St & Camino del Rio S

HY+P w/4-Ln Bridge w/Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↕	↕	↔	↕	↔
Traffic Volume (veh/h)	282	155	390	369	63	540	100	821	217	310	1703	197
Future Volume (veh/h)	282	155	390	369	63	540	100	821	217	310	1703	197
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	238	265	370	450	0	548	109	892	231	337	1851	176
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	349	367	423	492	0	534	126	1010	261	355	1741	777
Arrive On Green	0.20	0.20	0.20	0.14	0.00	0.14	0.07	0.36	0.36	0.20	0.49	0.49
Sat Flow, veh/h	1781	1870	1585	3563	0	1585	1781	2794	723	1781	3554	1585
Grp Volume(v), veh/h	238	265	370	450	0	548	109	567	556	337	1851	176
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1585	1781	1777	1740	1781	1777	1585
Q Serve(g_s), s	25.3	27.1	40.0	25.4	0.0	28.2	12.4	61.1	61.2	38.1	100.0	13.0
Cycle Q Clear(g_c), s	25.3	27.1	40.0	25.4	0.0	28.2	12.4	61.1	61.2	38.1	100.0	13.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.42	1.00		1.00
Lane Grp Cap(c), veh/h	349	367	423	492	0	534	126	642	629	355	1741	777
V/C Ratio(X)	0.68	0.72	0.88	0.91	0.00	1.03	0.87	0.88	0.88	0.95	1.06	0.23
Avail Cap(c_a), veh/h	349	367	423	492	0	534	218	642	629	634	1741	777
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	76.2	76.9	71.6	86.8	0.0	67.6	93.9	61.1	61.1	80.8	52.1	29.9
Incr Delay (d2), s/veh	5.3	6.9	18.2	22.8	0.0	45.5	6.7	13.2	13.6	9.5	40.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.2	13.8	20.7	13.3	0.0	34.6	6.0	29.9	29.4	18.5	53.9	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.5	83.7	89.8	109.6	0.0	113.2	100.6	74.3	74.7	90.3	92.7	30.2
LnGrp LOS	F	F	F	F	A	F	F	E	E	F	F	C
Approach Vol, veh/h		873			998			1232			2364	
Approach Delay, s/veh		85.7			111.6			76.8			87.7	
Approach LOS		F			F			E			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	45.0	79.0		44.9	18.8	105.2		35.2				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0				
Max Green Setting (Gmax), s	72.6	51.8		40.0	25.0	* 1E2		28.2				
Max Q Clear Time (g_c+Rc), s	44.0	63.2		42.0	14.4	102.0		30.2				
Green Ext Time (p_c), s	0.5	0.0		0.0	0.1	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	89.3
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
32: Ward Rd & Rancho Mission Rd

HY+P w/4-Ln Bridge w/Improvements
PM Peak Hour



Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations									
Traffic Volume (veh/h)	10	55	279	10	241	333	10	507	88
Future Volume (veh/h)	10	55	279	10	241	333	10	507	88
Initial Q (Qb), veh		0	0		0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		0.99				0.96
Parking Bus, Adj		1.00	1.00		1.00	1.00		1.00	1.00
Work Zone On Approach		No			No		No		
Adj Sat Flow, veh/h/ln		1870	1870		1870	1870		1870	1870
Adj Flow Rate, veh/h		58	150		254	351		534	66
Peak Hour Factor		0.95	0.95		0.95	0.95		0.95	0.95
Percent Heavy Veh, %		2	2		2	2		2	2
Cap, veh/h		255	227		598	914		1723	212
Arrive On Green		0.14	0.14		0.54	0.54		0.54	0.54
Sat Flow, veh/h		1781	1585		653	1764		3260	390
Grp Volume(v), veh/h		58	150		272	333		299	301
Grp Sat Flow(s),veh/h/ln		1781	1585		715	1617		1777	1780
Q Serve(g_s), s		0.8	2.6		7.1	3.4		2.7	2.7
Cycle Q Clear(g_c), s		0.8	2.6		9.7	3.4		2.7	2.7
Prop In Lane		1.00	1.00		0.93				0.22
Lane Grp Cap(c), veh/h		255	227		631	880		967	968
V/C Ratio(X)		0.23	0.66		0.43	0.38		0.31	0.31
Avail Cap(c_a), veh/h		1114	992		846	1293		1420	1423
HCM Platoon Ratio		1.00	1.00		1.00	1.00		1.00	1.00
Upstream Filter(I)		1.00	1.00		1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh		10.9	11.7		6.1	3.8		3.6	3.6
Incr Delay (d2), s/veh		0.4	3.3		0.5	0.3		0.2	0.2
Initial Q Delay(d3),s/veh		0.0	0.0		0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln		0.3	0.9		0.6	0.3		0.2	0.2
Unsig. Movement Delay, s/veh									
LnGrp Delay(d),s/veh		11.4	14.9		6.5	4.0		3.8	3.8
LnGrp LOS		B	B		A	A		A	A
Approach Vol, veh/h		208			605			600	
Approach Delay, s/veh		13.9			5.2			3.8	
Approach LOS		B			A			A	
Timer - Assigned Phs		2		4		6			
Phs Duration (G+Y+Rc), s		20.2		8.6		20.2			
Change Period (Y+Rc), s		4.5		4.5		4.5			
Max Green Setting (Gmax), s		23.0		18.0		23.0			
Max Q Clear Time (g_c+I1), s		11.7		4.6		4.7			
Green Ext Time (p_c), s		3.4		0.5		3.4			

Intersection Summary

HCM 6th Ctrl Delay	5.9
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 34: Fairmount Ave & Mission Gorge Rd

HY+P w/4-Ln Bridge w/Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		↕	↗		↕			↖	↗			↖
Traffic Volume (veh/h)	67	17	605	30	14	10	40	413	993	40	10	10
Future Volume (veh/h)	67	17	605	30	14	10	40	413	993	40	10	10
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0		0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		0.98		1.00		0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1870	1870	1870		1870
Adj Flow Rate, veh/h	0	0	701	31	14	3		421	1013	39		10
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		0.98	0.98	0.98		0.98
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2
Cap, veh/h	0	347	558	153	63	11		880	2427	93		17
Arrive On Green	0.00	0.00	0.19	0.19	0.19	0.19		0.51	1.00	1.00		0.01
Sat Flow, veh/h	0	1870	3008	577	339	61		3456	3486	134		1781
Grp Volume(v), veh/h	0	0	701	48	0	0		421	516	536		10
Grp Sat Flow(s),veh/h/ln	0	1870	1504	978	0	0		1728	1777	1844		1781
Q Serve(g_s), s	0.0	0.0	24.1	3.5	0.0	0.0		10.3	0.0	0.0		0.7
Cycle Q Clear(g_c), s	0.0	0.0	24.1	4.6	0.0	0.0		10.3	0.0	0.0		0.7
Prop In Lane	0.00		1.00	0.65		0.06		1.00		0.07		1.00
Lane Grp Cap(c), veh/h	0	347	558	227	0	0		880	1237	1283		17
V/C Ratio(X)	0.00	0.00	1.26	0.21	0.00	0.00		0.48	0.42	0.42		0.60
Avail Cap(c_a), veh/h	0	347	558	227	0	0		893	1237	1283		179
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		2.00	2.00	2.00		1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00		0.54	0.54	0.54		1.00
Uniform Delay (d), s/veh	0.0	0.0	52.9	44.7	0.0	0.0		26.3	0.0	0.0		64.2
Incr Delay (d2), s/veh	0.0	0.0	129.7	0.5	0.0	0.0		0.1	0.6	0.5		12.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	19.1	1.4	0.0	0.0		3.6	0.2	0.2		0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	182.6	45.2	0.0	0.0		26.4	0.6	0.5		76.5
LnGrp LOS	A	A	F	D	A	A		C	A	A		E
Approach Vol, veh/h		701			48				1473			
Approach Delay, s/veh		182.6			45.2				7.9			
Approach LOS		F			D				A			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	95.4		29.0	38.0	63.0		29.0				
Change Period (Y+Rc), s	4.4	4.9		4.9	4.9	* 4.9		4.9				
Max Green Setting (Gmax), s	13.1	78.6		24.1	33.6	* 58		24.1				
Max Q Clear Time (g_c+I1), s	2.7	2.0		26.1	12.3	29.9		6.6				
Green Ext Time (p_c), s	0.0	22.3		0.0	0.8	14.3		0.2				

Intersection Summary

HCM 6th Ctrl Delay	53.7
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 34: Fairmount Ave & Mission Gorge Rd

HY+P w/4-Ln Bridge w/Improvements
 PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	956	38
Future Volume (veh/h)	956	38
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		0.99
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1870	1870
Adj Flow Rate, veh/h	976	37
Peak Hour Factor	0.98	0.98
Percent Heavy Veh, %	2	2
Cap, veh/h	1559	59
Arrive On Green	0.45	0.45
Sat Flow, veh/h	3489	132
Grp Volume(v), veh/h	497	516
Grp Sat Flow(s),veh/h/ln	1777	1844
Q Serve(g_s), s	27.9	27.9
Cycle Q Clear(g_c), s	27.9	27.9
Prop In Lane		0.07
Lane Grp Cap(c), veh/h	794	824
V/C Ratio(X)	0.63	0.63
Avail Cap(c_a), veh/h	794	824
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	27.6	27.6
Incr Delay (d2), s/veh	3.7	3.6
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.6	13.0
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	31.3	31.2
LnGrp LOS	C	C
Approach Vol, veh/h	1023	
Approach Delay, s/veh	31.7	
Approach LOS	C	

Timer - Assigned Phs

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis

HY+P w/4-Ln Bridge w/Improvements

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖↗	↖	↖↗	↖	↖	↖↗		↖↗	↖↗	↖
Traffic Volume (vph)	398	153	1039	810	283	384	382	772	190	13	1583	150
Future Volume (vph)	398	153	1039	810	283	384	382	772	190	13	1583	150
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	0.88	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	0.98	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1730	2787	1610	3082	1425	1770	3425		3433	3539	1563
Flt Permitted	0.95	0.98	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1730	2787	1610	3082	1425	1770	3425		3433	3539	1563
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	402	155	1049	818	286	388	386	780	192	13	1599	152
RTOR Reduction (vph)	0	0	66	0	0	0	0	14	0	0	0	62
Lane Group Flow (vph)	273	284	983	409	749	334	386	958	0	13	1599	90
Confl. Peds. (#/hr)						3			1			
Confl. Bikes (#/hr)									1			1
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	7	5	8	8	1	5	2		1	6	
Permitted Phases			7			8						6
Actuated Green, G (s)	20.9	20.9	44.2	31.0	31.0	44.6	23.3	63.5		13.6	53.8	53.8
Effective Green, g (s)	20.9	20.9	44.2	31.0	31.0	44.6	23.3	63.5		13.6	53.8	53.8
Actuated g/C Ratio	0.14	0.14	0.29	0.21	0.21	0.30	0.16	0.42		0.09	0.36	0.36
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	234	241	908	332	636	423	274	1449		311	1269	560
v/s Ratio Prot	0.16	0.16	c0.17	c0.25	0.24	0.07	c0.22	0.28		0.00	c0.45	
v/s Ratio Perm			0.18			0.16						0.06
v/c Ratio	1.17	1.18	1.08	1.23	1.23dl	0.79	1.41	0.66		0.04	1.26	0.16
Uniform Delay, d1	64.5	64.5	52.9	59.5	59.5	48.4	63.4	34.6		62.3	48.1	32.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.18	0.70	0.56
Incremental Delay, d2	111.3	114.8	54.7	127.9	95.6	8.8	204.3	2.4		0.0	122.2	0.5
Delay (s)	175.8	179.3	107.6	187.4	155.1	57.2	267.7	37.0		73.4	155.9	18.9
Level of Service	F	F	F	F	F	E	F	D		E	F	B
Approach Delay (s)		131.9			142.0			102.6			143.5	
Approach LOS		F			F			F			F	

Intersection Summary		
HCM 2000 Control Delay	131.2	HCM 2000 Level of Service F
HCM 2000 Volume to Capacity ratio	1.27	
Actuated Cycle Length (s)	150.0	Sum of lost time (s) 21.0
Intersection Capacity Utilization	121.7%	ICU Level of Service H
Analysis Period (min)	15	
dl Defacto Left Lane. Recode with 1 though lane as a left lane.		
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

HY+P w/4-Ln Bridge w/Improvements
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	880	910	10	1042	810	260	378
Future Volume (veh/h)	880	910	10	1042	810	260	378
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	926	954		1097	853	274	107
Peak Hour Factor	0.95	0.95		0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1673	881		1079	2903	340	156
Arrive On Green	0.47	0.47		0.31	0.82	0.10	0.10
Sat Flow, veh/h	3647	1540		3456	3647	3456	1585
Grp Volume(v), veh/h	926	954		1097	853	274	107
Grp Sat Flow(s),veh/h/ln1777	1540			1728	1777	1728	1585
Q Serve(g_s), s	24.2	61.2		40.6	7.5	10.1	8.5
Cycle Q Clear(g_c), s	24.2	61.2		40.6	7.5	10.1	8.5
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1673	881		1079	2903	340	156
V/C Ratio(X)	0.55	1.08		1.02	0.29	0.81	0.69
Avail Cap(c_a), veh/h	1673	881		1079	2903	1055	484
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.86	0.86
Uniform Delay (d), s/veh	24.6	25.2		44.7	2.9	57.4	56.7
Incr Delay (d2), s/veh	1.3	55.3		31.6	0.3	1.5	1.7
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	42.2		21.4	1.8	4.5	3.5
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	25.9	80.6		76.3	3.1	58.9	58.4
LnGrp LOS	C	F		F	A	E	E
Approach Vol, veh/h	1880			1950	381		
Approach Delay, s/veh	53.7			44.3	58.7		
Approach LOS	D			D	E		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	45.0	66.9			111.9	18.1	
Change Period (Y+Rc), s	4.4	* 5.7			5.7	5.3	
Max Green Setting (Gmax), s	40.6	* 35			79.3	39.7	
Max Q Clear Time (g_c+Rc), s	42.6	63.2			9.5	12.1	
Green Ext Time (p_c), s	0.0	0.0			9.7	0.7	

Intersection Summary

HCM 6th Ctrl Delay	49.8
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 44: Mission City Pkwy/Fenton Pkwy & Camino del Rio N

HY+P w/4-Ln Bridge w/Improvements
 PM Peak Hour



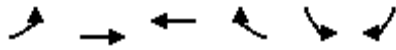
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	381	640	112	163	263	120	469	68	540	507	50
Future Volume (veh/h)	83	381	640	112	163	263	120	469	68	540	507	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	90	414	611	122	177	211	130	510	69	587	551	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	109	524	587	126	542	724	160	487	66	577	639	59
Arrive On Green	0.06	0.28	0.28	0.07	0.29	0.29	0.09	0.30	0.30	0.17	0.38	0.38
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1613	218	3456	1686	156
Grp Volume(v), veh/h	90	414	611	122	177	211	130	0	579	587	0	602
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	0	1831	1728	0	1842
Q Serve(g_s), s	5.0	20.5	28.0	6.8	7.4	8.3	7.2	0.0	30.2	16.7	0.0	30.1
Cycle Q Clear(g_c), s	5.0	20.5	28.0	6.8	7.4	8.3	7.2	0.0	30.2	16.7	0.0	30.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.12	1.00		0.08
Lane Grp Cap(c), veh/h	109	524	587	126	542	724	160	0	553	577	0	698
V/C Ratio(X)	0.83	0.79	1.04	0.96	0.33	0.29	0.81	0.00	1.05	1.02	0.00	0.86
Avail Cap(c_a), veh/h	109	524	587	126	542	724	226	0	553	577	0	698
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.4	33.3	31.5	46.3	27.8	17.0	44.7	0.0	34.9	41.7	0.0	28.6
Incr Delay (d2), s/veh	38.9	8.0	48.4	68.8	0.3	0.2	13.8	0.0	51.2	41.8	0.0	10.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	9.9	20.9	5.3	3.2	2.8	3.7	0.0	20.7	10.4	0.0	15.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.3	41.3	79.9	115.2	28.2	17.2	58.4	0.0	86.1	83.5	0.0	39.4
LnGrp LOS	F	D	F	F	C	B	E	A	F	F	A	D
Approach Vol, veh/h		1115			510			709			1189	
Approach Delay, s/veh		66.0			44.5			81.0			61.2	
Approach LOS		E			D			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	31.2	34.7	11.6	32.5	13.5	42.4	10.6	33.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.7	30.2	7.1	28.0	12.7	34.2	6.1	29.0				
Max Q Clear Time (g_c+1/3), s	11.7	32.2	8.8	30.0	9.2	32.1	7.0	10.3				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.1	0.9	0.0	1.5				

Intersection Summary

HCM 6th Ctrl Delay	64.3
HCM 6th LOS	E

HCM 6th Signalized Intersection Summary
45: Camino del Rio S & Mission City Pkwy

HY+P w/4-Ln Bridge w/Improvements
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↖	↑	↗	↘	↙	↘	
Traffic Volume (veh/h)	241	610	250	426	1072	227	
Future Volume (veh/h)	241	610	250	426	1072	227	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	262	663	272	401	1165	190	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	320	840	381	986	1447	664	
Arrive On Green	0.18	0.45	0.20	0.20	0.42	0.42	
Sat Flow, veh/h	1781	1870	1870	1585	3456	1585	
Grp Volume(v), veh/h	262	663	272	401	1165	190	
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1728	1585	
Q Serve(g_s), s	9.6	20.6	9.2	8.7	20.2	5.4	
Cycle Q Clear(g_c), s	9.6	20.6	9.2	8.7	20.2	5.4	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	320	840	381	986	1447	664	
V/C Ratio(X)	0.82	0.79	0.71	0.41	0.81	0.29	
Avail Cap(c_a), veh/h	810	1742	768	1315	3927	1801	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	26.9	16.0	25.3	6.5	17.4	13.1	
Incr Delay (d2), s/veh	5.1	1.7	2.5	0.3	1.1	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	4.3	7.9	3.9	6.2	7.2	5.7	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	32.0	17.7	27.8	6.8	18.5	13.3	
LnGrp LOS	C	B	C	A	B	B	
Approach Vol, veh/h		925	673		1355		
Approach Delay, s/veh		21.8	15.3		17.8		
Approach LOS		C	B		B		
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			35.1		33.1	16.8	18.4
Change Period (Y+Rc), s			4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s			63.5		77.5	31.0	28.0
Max Q Clear Time (g_c+1), s			22.6		22.2	11.6	11.2
Green Ext Time (p_c), s			5.1		6.4	0.7	2.6
Intersection Summary							
HCM 6th Ctrl Delay			18.5				
HCM 6th LOS			B				

**APPENDIX H: HORIZON YEAR (2037) CONDITIONS WITH 2-LANE
FENTON PARKWAY BRIDGE**

Technical Analysis



HCM Signalized Intersection Capacity Analysis
 1: SR-163 SB Ramps/Ulríc St & Friars Rd

Horizon Year No Project With 2-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	70	610	270	590	900	720	310	60	840	410	0	100	
Future Volume (vph)	70	610	270	590	900	720	310	60	840	410	0	100	
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.7	7.0	7.0	4.5	3.0	6.1	6.1	6.1	4.5	6.1	6.1	6.1	
Lane Util. Factor	1.00	0.86	1.00	0.97	0.91	0.88	0.97	1.00	0.88	0.95	0.95	1.00	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	
Satd. Flow (prot)	1770	6408	1557	3433	5085	2787	3433	1863	2787	1681	1681	1561	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	
Satd. Flow (perm)	1770	6408	1557	3433	5085	2787	3433	1863	2787	1681	1681	1561	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	73	635	281	615	938	750	323	62	875	427	0	104	
RTOR Reduction (vph)	0	0	192	0	0	0	0	0	0	0	0	85	
Lane Group Flow (vph)	73	635	89	615	938	750	323	63	875	213	214	19	
Confl. Peds. (#/hr)			2									2	
Confl. Bikes (#/hr)			1										
Turn Type	Prot	NA	Perm	Prot	NA	custom	Split	NA	pm+ov	Split	NA	Perm	
Protected Phases	5	2		1	6	4	8	8	1	4	4		
Permitted Phases			2						8			4	
Actuated Green, G (s)	10.3	47.3	47.3	32.9	69.7	80.8	18.7	18.7	51.6	27.4	27.4	27.4	
Effective Green, g (s)	10.3	47.3	47.3	32.9	69.7	73.8	18.7	18.7	51.6	27.4	27.4	27.4	
Actuated g/C Ratio	0.07	0.32	0.32	0.22	0.46	0.49	0.12	0.12	0.34	0.18	0.18	0.18	
Clearance Time (s)	4.7	7.0	7.0	4.5			6.1	6.1	4.5	6.1	6.1	6.1	
Vehicle Extension (s)	2.0	2.0	2.0	3.0			3.0	3.0	3.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	121	2020	490	752	2362	1371	427	232	958	307	307	285	
v/s Ratio Prot	0.04	0.10		0.18	c0.18	c0.27	0.09	0.03	c0.20	0.13	c0.13		
v/s Ratio Perm			0.06						0.11			0.01	
v/c Ratio	0.60	0.31	0.18	0.82	0.40	0.55	0.76	0.27	0.91	0.69	0.70	0.07	
Uniform Delay, d1	67.9	39.0	37.3	55.7	26.4	26.5	63.4	59.5	47.1	57.4	57.4	50.7	
Progression Factor	1.00	1.00	1.00	1.04	0.52	0.93	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.7	0.4	0.8	6.0	0.0	0.2	7.5	0.6	12.8	5.4	5.5	0.0	
Delay (s)	73.6	39.4	38.1	64.0	13.7	24.7	70.9	60.1	59.8	62.8	62.9	50.8	
Level of Service	E	D	D	E	B	C	E	E	E	E	E	D	
Approach Delay (s)		41.6			30.7			62.7			60.5		
Approach LOS		D			C			E			E		
Intersection Summary													
HCM 2000 Control Delay			43.9		HCM 2000 Level of Service				D				
HCM 2000 Volume to Capacity ratio			0.75										
Actuated Cycle Length (s)			150.0		Sum of lost time (s)				26.9				
Intersection Capacity Utilization			74.4%		ICU Level of Service				D				
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: Friars Rd & SR-163 NB Ramps

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	500	1340	1370	820	1170	800
Future Volume (vph)	500	1340	1370	820	1170	800
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	6.0	4.5	4.5	5.0
Lane Util. Factor	0.97	0.86	0.86	0.88	0.94	0.88
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	6408	6408	2787	4990	2770
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	6408	6408	2787	4990	2770
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	521	1396	1427	854	1219	833
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	521	1396	1427	854	1219	833
Confl. Peds. (#/hr)						1
Confl. Bikes (#/hr)				1		
Turn Type	Prot	NA	NA	custom	Prot	pm+ov
Protected Phases	5	2	3	6	4	3
Permitted Phases						4
Actuated Green, G (s)	45.9	96.2	47.3	74.0	44.3	90.2
Effective Green, g (s)	45.9	96.2	47.3	74.0	44.3	90.2
Actuated g/C Ratio	0.31	0.64	0.32	0.49	0.30	0.60
Clearance Time (s)	5.0	5.0			4.5	5.0
Vehicle Extension (s)	2.0	2.0			3.0	2.0
Lane Grp Cap (vph)	1050	4109	2020	1374	1473	1758
v/s Ratio Prot	0.15	0.22	c0.22	0.31	c0.24	c0.15
v/s Ratio Perm						0.16
v/c Ratio	0.50	0.34	0.71	0.62	0.83	0.47
Uniform Delay, d1	42.6	12.3	45.2	27.8	49.3	16.7
Progression Factor	0.92	0.78	0.51	0.69	1.00	1.00
Incremental Delay, d2	0.1	0.2	0.6	0.6	4.0	0.1
Delay (s)	39.5	9.9	23.7	19.8	53.3	16.7
Level of Service	D	A	C	B	D	B
Approach Delay (s)		17.9	22.3		38.4	
Approach LOS		B	C		D	

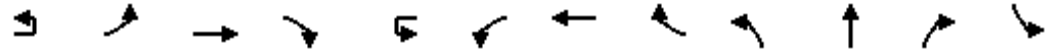
Intersection Summary

HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Frazee Rd & Friars Rd

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations		2 1	1 1 1 1	1 1		2 1	1 1 1 1	1	1 1	1 1		1 1
Traffic Volume (vph)	20	780	1170	520	10	50	1820	140	140	70	40	30
Future Volume (vph)	20	780	1170	520	10	50	1820	140	140	70	40	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.4	3.0	4.4		4.4	6.5	6.5	4.4	4.9		4.4
Lane Util. Factor		0.97	0.86	0.88		0.97	0.86	1.00	0.97	0.95		0.97
Frbp, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.98		1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.95		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (prot)		3433	6408	2787		3433	6408	1583	3433	3290		3433
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (perm)		3433	6408	2787		3433	6408	1583	3433	3290		3433
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	21	812	1219	542	10	52	1896	146	146	73	42	31
RTOR Reduction (vph)	0	0	0	0	0	0	0	92	0	31	0	0
Lane Group Flow (vph)	0	834	1219	542	0	62	1896	54	146	84	0	31
Confl. Peds. (#/hr)				3							37	
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	custom	Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2 9	3 9	1	1	6		3	8		7
Permitted Phases							6					
Actuated Green, G (s)		33.8	82.2	75.9		5.2	52.6	52.6	11.0	39.8		3.6
Effective Green, g (s)		33.8	82.2	70.4		5.2	52.6	52.6	11.0	39.8		3.6
Actuated g/C Ratio		0.23	0.55	0.47		0.03	0.35	0.35	0.07	0.27		0.02
Clearance Time (s)		4.4				4.4	6.5	6.5	4.4	4.9		4.4
Vehicle Extension (s)		2.0				2.0	4.4	4.4	2.2	2.0		2.2
Lane Grp Cap (vph)		773	3511	1308		119	2247	555	251	872		82
v/s Ratio Prot		c0.24	0.19	0.19		0.02	c0.30		c0.04	0.03		0.01
v/s Ratio Perm							0.03					
v/c Ratio		1.08	0.35	0.41		0.52	0.84	0.10	0.58	0.10		0.38
Uniform Delay, d1		58.1	18.9	26.2		71.2	44.9	32.7	67.3	41.5		72.1
Progression Factor		1.17	0.61	0.66		1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		53.4	0.0	0.1		1.9	4.1	0.3	2.5	0.0		1.5
Delay (s)		121.5	11.5	17.4		73.1	49.0	33.1	69.7	41.6		73.6
Level of Service		F	B	B		E	D	C	E	D		E
Approach Delay (s)			48.1				48.6			57.3		
Approach LOS			D				D			E		

Intersection Summary		
HCM 2000 Control Delay	49.0	HCM 2000 Level of Service D
HCM 2000 Volume to Capacity ratio	0.77	
Actuated Cycle Length (s)	150.0	Sum of lost time (s) 22.2
Intersection Capacity Utilization	94.1%	ICU Level of Service F
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Frazee Rd & Friars Rd

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑	↑↑
Traffic Volume (vph)	20	210
Future Volume (vph)	20	210
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.9	4.9
Lane Util. Factor	1.00	0.88
Frbp, ped/bikes	1.00	1.00
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1863	2787
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1863	2787
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	21	219
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	21	219
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	32.4	32.4
Effective Green, g (s)	32.4	32.4
Actuated g/C Ratio	0.22	0.22
Clearance Time (s)	4.9	4.9
Vehicle Extension (s)	2.3	2.3
Lane Grp Cap (vph)	402	601
v/s Ratio Prot	0.01	
v/s Ratio Perm		c0.08
v/c Ratio	0.05	0.36
Uniform Delay, d1	46.6	50.0
Progression Factor	1.00	1.00
Incremental Delay, d2	0.0	0.2
Delay (s)	46.7	50.3
Level of Service	D	D
Approach Delay (s)	52.6	
Approach LOS	D	
Intersection Summary		

HCM 6th Signalized Intersection Summary
4: Mission Center Rd & Friars Rd WB

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↵	↵	↵	↵↵	↵↵			↵↵	↵
Traffic Volume (veh/h)	0	0	0	180	10	370	110	540	0	0	440	330
Future Volume (veh/h)	0	0	0	180	10	370	110	540	0	0	440	330
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				199	0	162	117	574	0	0	468	192
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				463	0	206	183	2650	0	0	2288	995
Arrive On Green				0.26	0.00	0.26	0.11	1.00	0.00	0.00	0.64	0.64
Sat Flow, veh/h				3563	0	1585	3456	3647	0	0	3647	1546
Grp Volume(v), veh/h				199	0	162	117	574	0	0	468	192
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1728	1777	0	0	1777	1546
Q Serve(g_s), s				4.2	0.0	8.6	2.9	0.0	0.0	0.0	4.9	4.5
Cycle Q Clear(g_c), s				4.2	0.0	8.6	2.9	0.0	0.0	0.0	4.9	4.5
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				463	0	206	183	2650	0	0	2288	995
V/C Ratio(X)				0.43	0.00	0.79	0.64	0.22	0.00	0.00	0.20	0.19
Avail Cap(c_a), veh/h				1215	0	541	580	2650	0	0	2288	995
HCM Platoon Ratio				2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.96	0.96	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				30.5	0.0	32.2	39.4	0.0	0.0	0.0	6.6	6.5
Incr Delay (d2), s/veh				0.6	0.0	6.5	1.3	0.2	0.0	0.0	0.2	0.4
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.7	0.0	3.2	1.2	0.1	0.0	0.0	1.6	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				31.2	0.0	38.7	40.7	0.2	0.0	0.0	6.8	7.0
LnGrp LOS				C	A	D	D	A	A	A	A	A
Approach Vol, veh/h					361			691			660	
Approach Delay, s/veh					34.5			7.0			6.8	
Approach LOS					C			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		73.4			9.2	64.2		16.6				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 49			15.1	28.6		30.7				
Max Q Clear Time (g_c+I1), s		2.0			4.9	6.9		10.6				
Green Ext Time (p_c), s		3.4			0.1	6.3		1.1				

Intersection Summary

HCM 6th Ctrl Delay	12.8
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Mission Center Rd & Friars Rd EB

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	10	200	0	0	0	0	440	100	140	480	0
Future Volume (veh/h)	210	10	200	0	0	0	0	440	100	140	480	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	236	0	15				0	478	94	152	522	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	395	0	176				0	1149	224	1110	2737	0
Arrive On Green	0.11	0.00	0.11				0.00	0.39	0.39	0.43	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	3039	575	3456	3647	0
Grp Volume(v), veh/h	236	0	15				0	287	285	152	522	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1743	1728	1777	0
Q Serve(g_s), s	5.7	0.0	0.8				0.0	10.6	10.7	2.4	0.0	0.0
Cycle Q Clear(g_c), s	5.7	0.0	0.8				0.0	10.6	10.7	2.4	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.33	1.00		0.00
Lane Grp Cap(c), veh/h	395	0	176				0	693	680	1110	2737	0
V/C Ratio(X)	0.60	0.00	0.09				0.00	0.41	0.42	0.14	0.19	0.00
Avail Cap(c_a), veh/h	1013	0	451				0	693	680	1110	2737	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.33	1.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.98	0.98	0.00
Uniform Delay (d), s/veh	38.1	0.0	35.9				0.0	20.0	20.0	18.2	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.0	0.2				0.0	1.8	1.9	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.3				0.0	4.4	4.4	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.5	0.0	36.1				0.0	21.8	21.9	18.2	0.0	0.0
LnGrp LOS	D	A	D				A	C	C	B	A	A
Approach Vol, veh/h		251						572			674	
Approach Delay, s/veh		39.3						21.9			4.1	
Approach LOS		D						C			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	34.7	40.4	14.9	75.1								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	14.7	* 35	25.6	53.7								
Max Q Clear Time (g_c+I), s	14.4	12.7	7.7	2.0								
Green Ext Time (p_c), s	0.2	4.7	0.7	4.5								

Intersection Summary

HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
6: Qualcomm Way & Friars Rd WB

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷		↶	↷			↶	↷
Traffic Volume (veh/h)	0	0	0	166	0	50	425	140	0	0	100	40
Future Volume (veh/h)	0	0	0	166	0	50	425	140	0	0	100	40
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				197	0	0	478	157	0	0	112	9
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				287	151	0	1196	2823	0	0	1376	614
Arrive On Green				0.13	0.00	0.00	0.58	1.00	0.00	0.00	0.39	0.39
Sat Flow, veh/h				3563	1870	0	3456	3647	0	0	3647	1585
Grp Volume(v), veh/h				197	0	0	478	157	0	0	112	9
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1728	1777	0	0	1777	1585
Q Serve(g_s), s				4.2	0.0	0.0	6.1	0.0	0.0	0.0	1.6	0.3
Cycle Q Clear(g_c), s				4.2	0.0	0.0	6.1	0.0	0.0	0.0	1.6	0.3
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				287	151	0	1196	2823	0	0	1376	614
V/C Ratio(X)				0.69	0.00	0.00	0.40	0.06	0.00	0.00	0.08	0.01
Avail Cap(c_a), veh/h				1251	657	0	1196	2823	0	0	1376	614
HCM Platoon Ratio				1.67	1.67	1.67	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				33.6	0.0	0.0	12.3	0.0	0.0	0.0	15.5	15.1
Incr Delay (d2), s/veh				1.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.7	0.0	0.0	2.0	0.0	0.0	0.0	0.6	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				34.7	0.0	0.0	12.6	0.0	0.0	0.0	15.5	15.1
LnGrp LOS				C	A	A	B	A	A	A	B	B
Approach Vol, veh/h					197			635			121	
Approach Delay, s/veh					34.7			9.5			15.5	
Approach LOS					C			A			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		68.6			32.8	35.9		11.4				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+I1), s		2.0			8.1	3.6		6.2				
Green Ext Time (p_c), s		1.2			1.7	0.4		0.3				

Intersection Summary

HCM 6th Ctrl Delay	15.5
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
7: Qualcomm Way & Friars Rd EB

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	0	90	0	0	0	0	465	270	50	296	0
Future Volume (veh/h)	60	0	90	0	0	0	0	465	270	50	296	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	68	0	1				0	528	182	57	336	0
Peak Hour Factor	0.88	0.88	0.88				0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	170	0	75				0	4737	1142	124	2939	0
Arrive On Green	0.05	0.00	0.05				0.00	0.74	0.74	0.07	1.00	0.00
Sat Flow, veh/h	3563	0	1566				0	6696	1551	3456	3647	0
Grp Volume(v), veh/h	68	0	1				0	528	182	57	336	0
Grp Sat Flow(s),veh/h/ln	1781	0	1566				0	1609	1551	1728	1777	0
Q Serve(g_s), s	1.5	0.0	0.0				0.0	1.9	2.8	1.3	0.0	0.0
Cycle Q Clear(g_c), s	1.5	0.0	0.0				0.0	1.9	2.8	1.3	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	170	0	75				0	4737	1142	124	2939	0
V/C Ratio(X)	0.40	0.00	0.01				0.00	0.11	0.16	0.46	0.11	0.00
Avail Cap(c_a), veh/h	1519	0	668				0	4737	1142	436	2939	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.97	0.97	0.94	0.94	0.00
Uniform Delay (d), s/veh	37.0	0.0	36.3				0.0	3.0	3.2	36.4	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0				0.0	0.0	0.3	0.9	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0				0.0	0.4	0.7	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	0.0	36.3				0.0	3.1	3.4	37.3	0.1	0.0
LnGrp LOS	D	A	D				A	A	A	D	A	A
Approach Vol, veh/h		69						710			393	
Approach Delay, s/veh		37.5						3.2			5.5	
Approach LOS		D						A			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	7.3	64.0	8.7	71.3								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.1	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	13.3	4.8	3.5	2.0								
Green Ext Time (p_c), s	0.0	4.3	0.1	1.4								

Intersection Summary

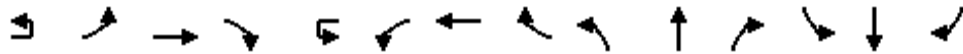
HCM 6th Ctrl Delay	6.0
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖ ↗ ↘ ↙		↖		↖ ↗ ↘ ↙				↖ ↗	↖ ↗		↖ ↗	
Traffic Volume (veh/h)	10	110	769	40	10	170	1971	180	130	60	60	20	10	10
Future Volume (veh/h)	10	110	769	40	10	170	1971	180	130	60	60	20	10	10
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	0.98		0.97	0.98		0.97
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No				No				No			No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		116	809	21		179	2075	184	137	63	9	21	11	2
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h		145	2655	824		211	2658	233	260	95	335	123	56	8
Arrive On Green		0.08	0.52	0.52		0.12	0.56	0.56	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h		1781	5106	1585		1781	4770	419	937	437	1543	317	259	36
Grp Volume(v), veh/h		116	809	21		179	1475	784	200	0	9	34	0	0
Grp Sat Flow(s),veh/h/ln		1781	1702	1585		1781	1702	1785	1374	0	1543	612	0	0
Q Serve(g_s), s		6.9	9.7	0.7		10.5	36.3	37.2	0.0	0.0	0.5	0.8	0.0	0.0
Cycle Q Clear(g_c), s		6.9	9.7	0.7		10.5	36.3	37.2	15.1	0.0	0.5	15.8	0.0	0.0
Prop In Lane		1.00		1.00		1.00		0.23	0.68		1.00	0.62		0.06
Lane Grp Cap(c), veh/h		145	2655	824		211	1897	994	354	0	335	187	0	0
V/C Ratio(X)		0.80	0.30	0.03		0.85	0.78	0.79	0.56	0.00	0.03	0.18	0.00	0.00
Avail Cap(c_a), veh/h		665	2861	888		499	1907	1000	450	0	432	416	0	0
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh		48.3	14.7	12.5		46.3	18.5	18.7	38.7	0.0	33.0	36.7	0.0	0.0
Incr Delay (d2), s/veh		3.9	0.3	0.1		3.6	3.2	6.3	1.0	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.1	3.5	0.2		4.7	13.4	15.2	5.0	0.0	0.2	0.9	0.0	0.0
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		52.2	15.0	12.6		49.9	21.7	25.1	39.8	0.0	33.1	37.3	0.0	0.0
LnGrp LOS		D	B	B		D	C	C	D	A	C	D	A	A
Approach Vol, veh/h		946				2438				209			34	
Approach Delay, s/veh		19.5				24.9				39.5			37.3	
Approach LOS		B				C				D			D	
Timer - Assigned Phs	1	2	4		5	6	8							
Phs Duration (G+Y+Rc), s	7.1	61.9	28.1		13.1	65.9	28.1							
Change Period (Y+Rc), s	4.4	6.2	4.9		4.4	6.2	4.9							
Max Green Setting (Gmax), s	30.0	60.0	40.0		40.0	60.0	30.0							
Max Q Clear Time (g_c+1/2), s	11.7	11.7	17.8		8.9	39.2	17.1							
Green Ext Time (p_c), s	0.2	21.3	0.1		0.1	20.5	0.8							

Intersection Summary

HCM 6th Ctrl Delay	24.4
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
9: Fenton Pkwy & Friars Rd

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑↑	↗		↖↗	↑↑↑	↗	↖↗	↑	↗	↖↗	↗	↗
Traffic Volume (veh/h)	60	740	164	10	180	1678	30	386	10	153	90	20	190
Future Volume (veh/h)	60	740	164	10	180	1678	30	386	10	153	90	20	190
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	804	98		196	1824	19	420	11	16	98	22	20
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	110	2980	1085		262	3204	1064	349	216	182	155	100	134
Arrive On Green	0.03	0.58	0.58		0.03	0.21	0.21	0.10	0.12	0.12	0.04	0.05	0.05
Sat Flow, veh/h	3456	5106	1585		3456	5106	1585	3456	1870	1581	3563	1870	1570
Grp Volume(v), veh/h	65	804	98		196	1824	19	420	11	16	98	22	20
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1585	1728	1870	1581	1781	1870	1570
Q Serve(g_s), s	2.0	8.6	0.8		6.2	35.3	0.9	11.1	0.6	1.0	3.0	1.2	1.0
Cycle Q Clear(g_c), s	2.0	8.6	0.8		6.2	35.3	0.9	11.1	0.6	1.0	3.0	1.2	1.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	110	2980	1085		262	3204	1064	349	216	182	155	100	134
V/C Ratio(X)	0.59	0.27	0.09		0.75	0.57	0.02	1.20	0.05	0.09	0.63	0.22	0.15
Avail Cap(c_a), veh/h	286	2980	1085		459	3204	1064	349	537	454	347	531	496
HCM Platoon Ratio	1.00	1.00	1.00		0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.97		0.79	0.79	0.79	0.86	0.86	0.86	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	11.3	1.3		52.6	30.2	13.0	49.5	43.3	43.5	51.7	49.9	27.3
Incr Delay (d2), s/veh	1.8	0.2	0.2		1.3	0.6	0.0	113.2	0.4	0.8	1.6	5.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	3.0	0.4		2.8	16.1	0.3	10.3	0.3	0.4	1.4	0.7	0.5
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	54.3	11.5	1.5		53.8	30.8	13.0	162.7	43.7	44.3	53.3	54.9	29.6
LnGrp LOS	D	B	A		D	C	B	F	D	D	D	D	C
Approach Vol, veh/h		967				2039			447			140	
Approach Delay, s/veh		13.4				32.9			155.5			50.2	
Approach LOS		B				C			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	12.8	70.5	16.0	10.8	7.9	75.3	9.2	17.6					
Change Period (Y+Rc), s	4.4	6.3	4.9	*4.9	4.4	*6.3	4.4	4.9					
Max Green Setting (Gmax), s	14.6	33.1	11.1	*31	9.1	*39	10.7	31.6					
Max Q Clear Time (g_c+1), s	10.2	10.6	13.1	3.2	4.0	37.3	5.0	3.0					
Green Ext Time (p_c), s	0.2	11.9	0.0	0.4	0.0	1.4	0.1	0.2					

Intersection Summary

HCM 6th Ctrl Delay	43.6
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
10: Northside Dr & Friars Rd

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↑↑↑	↔	↔↔	↑↑↑	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	10	40	640	270	570	1575	70	120	10	250	200	40	190
Future Volume (veh/h)	10	40	640	270	570	1575	70	120	10	250	200	40	190
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		42	674	284	600	1658	51	126	11	203	211	42	47
Peak Hour Factor		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		91	2166	671	600	2919	1021	185	264	497	276	313	266
Arrive On Green		0.01	0.14	0.14	0.17	0.57	0.57	0.05	0.14	0.14	0.08	0.17	0.17
Sat Flow, veh/h		3456	5106	1582	3456	5106	1565	3456	1870	1568	3456	1870	1585
Grp Volume(v), veh/h		42	674	284	600	1658	51	126	11	203	211	42	47
Grp Sat Flow(s),veh/h/ln		1728	1702	1582	1728	1702	1565	1728	1870	1568	1728	1870	1585
Q Serve(g_s), s		1.3	13.1	18.1	19.1	22.7	1.3	3.9	0.6	11.2	6.6	2.1	2.8
Cycle Q Clear(g_c), s		1.3	13.1	18.1	19.1	22.7	1.3	3.9	0.6	11.2	6.6	2.1	2.8
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		91	2166	671	600	2919	1021	185	264	497	276	313	266
V/C Ratio(X)		0.46	0.31	0.42	1.00	0.57	0.05	0.68	0.04	0.41	0.76	0.13	0.18
Avail Cap(c_a), veh/h		254	2166	671	600	2919	1021	346	452	654	471	520	441
HCM Platoon Ratio		0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.95	0.95	0.95	0.89	0.89	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		53.7	32.8	35.0	45.4	14.9	6.9	51.1	40.8	29.6	49.6	39.0	39.3
Incr Delay (d2), s/veh		1.3	0.4	1.9	34.6	0.7	0.1	1.6	0.2	1.6	1.7	0.9	1.5
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.6	5.9	8.0	10.8	8.0	0.4	1.8	0.3	4.5	2.9	1.1	1.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		55.0	33.2	36.9	80.1	15.7	7.0	52.8	41.0	31.2	51.3	39.9	40.7
LnGrp LOS		E	C	D	F	B	A	D	D	C	D	D	D
Approach Vol, veh/h			1000			2309			340			300	
Approach Delay, s/veh			35.2			32.2			39.5			48.0	
Approach LOS			D			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	23.5	52.9	10.3	23.3	7.3	69.1	13.2	20.4					
Change Period (Y+Rc), s	4.4	* 6.2	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	19.5	* 30	11.0	30.6	8.1	40.4	15.0	26.6					
Max Q Clear Time (g_c+D1), s	21.5	20.1	5.9	4.8	3.3	24.7	8.6	13.2					
Green Ext Time (p_c), s	0.0	6.0	0.1	1.3	0.0	14.0	0.2	1.5					

Intersection Summary

HCM 6th Ctrl Delay	34.8
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 12: Mission Village Dr & Friars Rd WB

Horizon Year No Project With 2-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕	↕	↕↕			↕↕	↕
Traffic Volume (veh/h)	0	0	0	90	0	540	108	830	0	0	530	280
Future Volume (veh/h)	0	0	0	90	0	540	108	830	0	0	530	280
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				No
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				97	0	581	116	892	0	0	570	181
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				708	0	630	151	1513	0	0	933	416
Arrive On Green				0.40	0.00	0.40	0.08	0.43	0.00	0.00	0.26	0.26
Sat Flow, veh/h				1781	0	1584	1781	3647	0	0	3647	1585
Grp Volume(v), veh/h				97	0	581	116	892	0	0	570	181
Grp Sat Flow(s),veh/h/ln				1781	0	1584	1781	1777	0	0	1777	1585
Q Serve(g_s), s				2.3	0.0	23.5	4.3	13.0	0.0	0.0	9.5	6.4
Cycle Q Clear(g_c), s				2.3	0.0	23.5	4.3	13.0	0.0	0.0	9.5	6.4
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				708	0	630	151	1513	0	0	933	416
V/C Ratio(X)				0.14	0.00	0.92	0.77	0.59	0.00	0.00	0.61	0.43
Avail Cap(c_a), veh/h				1057	0	939	1585	6735	0	0	3162	1410
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				12.9	0.0	19.3	30.2	14.8	0.0	0.0	21.8	20.7
Incr Delay (d2), s/veh				0.0	0.0	8.2	3.1	0.4	0.0	0.0	0.8	0.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.8	0.0	8.5	1.8	4.4	0.0	0.0	3.6	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				13.0	0.0	27.5	33.3	15.2	0.0	0.0	22.7	21.6
LnGrp LOS				B	A	C	C	B	A	A	C	C
Approach Vol, veh/h					678			1008			751	
Approach Delay, s/veh					25.4			17.3			22.4	
Approach LOS					C			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		35.7			11.0	24.7		31.7				
Change Period (Y+Rc), s		* 7			5.3	7.0		4.9				
Max Green Setting (Gmax), s* 1.3E2					60.0	60.0		40.0				
Max Q Clear Time (g_c+I1), s		15.0			6.3	11.5		25.5				
Green Ext Time (p_c), s		6.9			0.1	6.2		1.3				

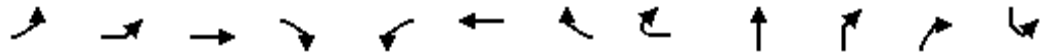
Intersection Summary

HCM 6th Ctrl Delay	21.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis Horizon Year No Project With 2-Ln Bridge
 13: Mission Village Dr & Friars Rd EB & San Diego Mission Rd AM Peak Hour



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBT	NBR	NBR2	SBL2	
Lane Configurations													
Traffic Volume (vph)	210	0	30	20	10	0	708	140	20	10	10	390	
Future Volume (vph)	210	0	30	20	10	0	708	140	20	10	10	390	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		5.2	5.2			5.4	5.4		4.9				
Lane Util. Factor		1.00	1.00			0.95	0.95		0.95				
Frbp, ped/bikes		1.00	0.99			1.00	1.00		0.99				
Flpb, ped/bikes		1.00	1.00			1.00	1.00		1.00				
Frt		1.00	0.94			0.85	0.85		0.93				
Flt Protected		0.95	1.00			1.00	1.00		1.00				
Satd. Flow (prot)		1770	1741			1509	1504		3248				
Flt Permitted		0.95	1.00			1.00	1.00		1.00				
Satd. Flow (perm)		1770	1741			1509	1504		3248				
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	
Adj. Flow (vph)	236	0	34	22	11	0	796	157	22	11	11	438	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	10	0	0	0	
Lane Group Flow (vph)	0	236	56	0	0	481	483	0	34	0	0	0	
Confl. Peds. (#/hr)				2	2					1	1		
Confl. Bikes (#/hr)				1									
Turn Type	Split	Split	NA		Split	NA	Perm		NA			Split	
Protected Phases	4	4	4		3	3			2			1	
Permitted Phases							3						
Actuated Green, G (s)		25.9	25.9			40.4	40.4		8.2				
Effective Green, g (s)		25.9	25.9			40.4	40.4		8.2				
Actuated g/C Ratio		0.17	0.17			0.26	0.26		0.05				
Clearance Time (s)		5.2	5.2			5.4	5.4		4.9				
Vehicle Extension (s)		3.0	3.0			3.0	3.0		3.0				
Lane Grp Cap (vph)		292	287			388	387		169				
v/s Ratio Prot		c0.13	0.03			0.32			c0.01				
v/s Ratio Perm							c0.32						
v/c Ratio		0.81	0.20			1.24	1.25		0.20				
Uniform Delay, d1		63.1	56.5			58.2	58.2		71.2				
Progression Factor		1.00	1.00			1.00	1.00		1.00				
Incremental Delay, d2		15.0	0.3			128.1	131.5		0.6				
Delay (s)		78.1	56.8			186.3	189.7		71.7				
Level of Service		E	E			F	F		E				
Approach Delay (s)			74.0			188.0			71.7				
Approach LOS			E			F			E				
Intersection Summary													
HCM 2000 Control Delay			117.9									HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			0.87										
Actuated Cycle Length (s)			156.8									Sum of lost time (s)	21.7
Intersection Capacity Utilization			82.0%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis Horizon Year No Project With 2-Ln Bridge
 13: Mission Village Dr & Friars Rd EB & San Diego Mission Rd AM Peak Hour



Movement	SBL	SBT
Lane Configurations		
Traffic Volume (vph)	140	80
Future Volume (vph)	140	80
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.2	6.2
Lane Util. Factor	0.91	0.91
Frbp, ped/bikes	1.00	1.00
Flpb, ped/bikes	1.00	1.00
Frt	1.00	1.00
Flt Protected	0.95	0.97
Satd. Flow (prot)	1610	3290
Flt Permitted	0.95	0.97
Satd. Flow (perm)	1610	3290
Peak-hour factor, PHF	0.89	0.89
Adj. Flow (vph)	157	90
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	454	231
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Turn Type	Split	NA
Protected Phases	1	1
Permitted Phases		
Actuated Green, G (s)	60.6	60.6
Effective Green, g (s)	60.6	60.6
Actuated g/C Ratio	0.39	0.39
Clearance Time (s)	6.2	6.2
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	622	1271
v/s Ratio Prot	c0.28	0.07
v/s Ratio Perm		
v/c Ratio	0.73	0.18
Uniform Delay, d1	41.1	31.7
Progression Factor	1.00	1.00
Incremental Delay, d2	4.3	0.1
Delay (s)	45.4	31.8
Level of Service	D	C
Approach Delay (s)		40.8
Approach LOS		D
Intersection Summary		

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

Horizon Year No Project With 2-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↗		↖	↑↑↑	↗				↖	↗	↖↗
Traffic Volume (veh/h)	267	776	317	60	330	1657	520	0	0	0	770	10	810
Future Volume (veh/h)	267	776	317	60	330	1657	520	0	0	0	770	10	810
Initial Q (Qb), veh	0	0	0		0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	284	826	92		351	1763	0				827	0	856
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	447	1972	612		374	1634					910	0	1605
Arrive On Green	0.25	0.39	0.39		0.42	0.64	0.00				0.26	0.00	0.26
Sat Flow, veh/h	1781	5106	1585		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	284	826	92		351	1763	0				827	0	856
Grp Sat Flow(s),veh/h/ln	1781	1702	1585		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	15.6	13.0	4.2		20.7	35.2	0.0				24.8	0.0	0.0
Cycle Q Clear(g_c), s	15.6	13.0	4.2		20.7	35.2	0.0				24.8	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	447	1972	612		374	1634					910	0	1605
V/C Ratio(X)	0.64	0.42	0.15		0.94	1.08					0.91	0.00	0.53
Avail Cap(c_a), veh/h	447	1972	612		534	1634					1069	0	1747
HCM Platoon Ratio	1.00	1.00	1.00		2.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.09	0.09	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	36.7	24.7	22.0		31.2	19.8	0.0				39.7	0.0	18.4
Incr Delay (d2), s/veh	2.3	0.7	0.5		2.2	36.8	0.0				9.4	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	5.1	1.6		6.4	11.5	0.0				12.0	0.0	13.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	39.0	25.4	22.5		33.4	56.6	0.0				49.1	0.0	18.5
LnGrp LOS	D	C	C		C	F					D	A	B
Approach Vol, veh/h		1202				2114	A					1683	
Approach Delay, s/veh		28.4				52.8						33.5	
Approach LOS		C				D						C	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	37.3	49.5		33.2	34.6	42.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	33	27.7		33.0	25.0	* 35							
Max Q Clear Time (g_c+20), s	20.7	15.0		26.8	17.6	37.2							
Green Ext Time (p_c), s	0.4	3.1		1.3	0.2	0.0							

Intersection Summary

HCM 6th Ctrl Delay	40.4
HCM 6th LOS	D

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

Horizon Year No Project With 2-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖				↑↑↑							↗
Traffic Volume (veh/h)	520	1116	0	0	2226	1740	0	0	300	0	0	321
Future Volume (veh/h)	520	1116	0	0	2226	1740	0	0	300	0	0	321
Initial Q (Qb), veh	20	0	0	0	0	20						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach	No				No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	547	1175	0	0	2343	1832						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	567	0	0	0	2125	1801						
Arrive On Green	0.32	0.95	0.00	0.00	0.57	0.57						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	547	0	0	0	2343	1832						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	33.2	0.0	0.0	0.0	62.5	62.5						
Cycle Q Clear(g_c), s	33.2	0.0	0.0	0.0	62.5	62.5						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	567	0	0	0	2125	1801						
V/C Ratio(X)	0.97	0.00	0.00	0.00	1.10	1.02						
Avail Cap(c_a), veh/h	567	0	0	0	2125	1801						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.71	0.00	0.00	0.00	0.38	0.38						
Uniform Delay (d), s/veh	37.5	0.0	0.0	0.0	23.7	23.8						
Incr Delay (d2), s/veh	23.4	0.0	0.0	0.0	49.3	17.6						
Initial Q Delay(d3),s/veh	11.3	0.0	0.0	0.0	0.0	40.0						
%ile BackOfQ(50%),veh	35.6	0.0	0.0	0.0	38.3	34.5						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	172.3	0.0	0.0	0.0	73.1	81.3						
LnGrp LOS	F	A	A	A	F	F						
Approach Vol, veh/h	547				4175							
Approach Delay, s/veh	172.3				76.7							
Approach LOS	F				E							
Timer - Assigned Phs	2				5		6					
Phs Duration (G+Y+Rc), s	110.0				40.5		69.5					
Change Period (Y+Rc), s	5.5				5.5		7.0					
Max Green Setting (Gmax), s	104.5				35.0		62.5					
Max Q Clear Time (g_c+I1), s	0.0				35.2		64.5					
Green Ext Time (p_c), s	0.0				0.0		0.0					

Intersection Summary

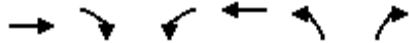
HCM 6th Ctrl Delay	87.7
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

Horizon Year No Project With 2-Ln Bridge
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↘↗	↗
Traffic Volume (veh/h)	1106	320	53	3176	800	53
Future Volume (veh/h)	1106	320	53	3176	800	53
Initial Q (Qb), veh	0	0	0	20	20	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1177	247	56	3379	851	17
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1945	1050	327	3959	995	446
Arrive On Green	0.13	0.13	0.20	0.64	0.26	0.26
Sat Flow, veh/h	5274	1585	1781	6696	3563	1585
Grp Volume(v), veh/h	1177	247	56	3379	851	17
Grp Sat Flow(s),veh/h/ln	1702	1585	1781	1609	1781	1585
Q Serve(g_s), s	24.0	9.1	2.8	44.2	25.5	0.9
Cycle Q Clear(g_c), s	24.0	9.1	2.8	44.2	25.5	0.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1945	1050	327	3959	995	446
V/C Ratio(X)	0.61	0.24	0.17	0.85	0.85	0.04
Avail Cap(c_a), veh/h	1945	1020	361	4095	1185	527
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.59	0.59	0.84	0.84
Uniform Delay (d), s/veh	40.3	11.0	37.9	17.9	38.7	28.7
Incr Delay (d2), s/veh	1.4	0.5	0.1	1.2	4.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	1.3	20.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	6.8	1.2	16.2	15.3	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.7	11.5	37.9	20.4	62.8	28.8
LnGrp LOS	D	B	D	C	E	C
Approach Vol, veh/h	1424			3435	868	
Approach Delay, s/veh	36.4			20.7	62.1	
Approach LOS	D			C	E	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	28.3	47.7			76.0	34.0
Change Period (Y+Rc), s	6.0	* 5.8			6.0	5.1
Max Green Setting (Gmax), s	16.2	* 42			62.3	36.6
Max Q Clear Time (g_c+I), s	14.8	26.0			46.2	27.5
Green Ext Time (p_c), s	0.0	10.1			16.0	1.4

Intersection Summary

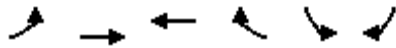
HCM 6th Ctrl Delay	30.9
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: Friars Rd & Santo Rd

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑↑		↔↔	↔
Traffic Volume (veh/h)	130	990	2790	70	80	380
Future Volume (veh/h)	130	990	2790	70	80	380
Initial Q (Qb), veh	0	0	80	0	50	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1811	1826	1826	1870	1870
Adj Flow Rate, veh/h	131	1000	2818	69	81	384
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	6	5	5	2	2
Cap, veh/h	188	3166	3471	58	885	512
Arrive On Green	0.05	0.66	0.57	0.57	0.25	0.25
Sat Flow, veh/h	3456	5107	6609	155	3456	1585
Grp Volume(v), veh/h	131	1000	2088	799	81	384
Grp Sat Flow(s),veh/h/ln	1728	1648	1570	1798	1728	1585
Q Serve(g_s), s	4.5	10.2	40.8	41.0	2.2	26.9
Cycle Q Clear(g_c), s	4.5	10.2	40.8	41.0	2.2	26.9
Prop In Lane	1.00			0.09	1.00	1.00
Lane Grp Cap(c), veh/h	188	3166	2546	986	885	512
V/C Ratio(X)	0.70	0.32	0.82	0.81	0.09	0.75
Avail Cap(c_a), veh/h	449	3282	2699	1030	1022	555
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.87	0.87	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	55.8	9.8	25.4	24.5	36.5	36.3
Incr Delay (d2), s/veh	1.5	0.2	0.3	0.7	0.0	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	22.2	15.7	25.3	0.0
%ile BackOfQ(50%),veh/ln	1.9	3.6	23.7	24.8	7.0	22.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	57.3	10.0	47.9	40.9	61.9	40.7
LnGrp LOS	E	B	D	D	E	D
Approach Vol, veh/h		1131	2887		465	
Approach Delay, s/veh		15.5	46.0		44.4	
Approach LOS		B	D		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		86.2		33.8	10.9	75.3
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		73.6		35.5	15.6	* 54
Max Q Clear Time (g_c+I1), s		12.2		28.9	6.5	43.0
Green Ext Time (p_c), s		9.6		0.6	0.1	10.6

Intersection Summary

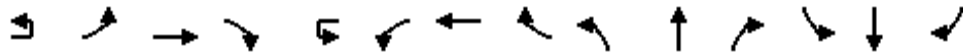
HCM 6th Ctrl Delay	38.1
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
21: Riverdale St & Friars Rd

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		3	↑↑↑	↑		3	↑↑↑	↑	↑	↑		↑	↑	
Traffic Volume (veh/h)	10	70	680	250	20	130	2630	30	130	30	30	20	140	170
Future Volume (veh/h)	10	70	680	250	20	130	2630	30	130	30	30	20	140	170
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		0.99	0.99		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1781	1826		1826	1841	1841	1781	1870	1870	1781	1870	1870
Adj Flow Rate, veh/h		73	708	124		135	2740	16	135	31	7	21	146	135
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		2	8	5		5	4	4	8	2	2	8	2	2
Cap, veh/h		94	2442	776		162	2728	845	193	393	89	390	237	220
Arrive On Green		0.05	0.50	0.50		0.09	0.54	0.54	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h		1781	4863	1546		1739	5025	1557	1042	1475	333	1296	891	824
Grp Volume(v), veh/h		73	708	124		135	2740	16	135	0	38	21	0	281
Grp Sat Flow(s),veh/h/ln		1781	1621	1546		1739	1675	1557	1042	0	1808	1296	0	1715
Q Serve(g_s), s		4.5	9.3	4.8		8.4	59.7	0.5	13.5	0.0	1.7	1.4	0.0	15.8
Cycle Q Clear(g_c), s		4.5	9.3	4.8		8.4	59.7	0.5	29.3	0.0	1.7	3.1	0.0	15.8
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.18	1.00		0.48
Lane Grp Cap(c), veh/h		94	2442	776		162	2728	845	193	0	482	390	0	457
V/C Ratio(X)		0.78	0.29	0.16		0.83	1.00	0.02	0.70	0.00	0.08	0.05	0.00	0.61
Avail Cap(c_a), veh/h		228	2442	776		223	2728	845	193	0	482	390	0	457
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.98	0.98	0.98		0.80	0.80	0.80	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		51.5	16.0	14.8		49.0	25.1	11.6	48.6	0.0	30.2	31.4	0.0	35.4
Incr Delay (d2), s/veh		5.0	0.3	0.4		10.5	16.5	0.0	9.0	0.0	0.0	0.0	0.0	1.8
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.1	3.3	1.7		4.0	24.9	0.2	4.2	0.0	0.8	0.4	0.0	6.8
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		56.5	16.3	15.3		59.5	41.6	11.6	57.6	0.0	30.3	31.4	0.0	37.2
LnGrp LOS		E	B	B		E	F	B	E	A	C	C	A	D
Approach Vol, veh/h			905			2891			173		302			
Approach Delay, s/veh			19.4			42.3			51.6		36.8			
Approach LOS			B			D			D		D			
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	4.7	61.1	34.2	10.2	65.6	34.2								
Change Period (Y+Rc), s	4.4	* 5.9	4.9	4.4	5.9	4.9								
Max Green Setting (Gmax), s	14.1	* 52	29.3	14.1	51.4	29.3								
Max Q Clear Time (g_c+10), s	11.0	11.3	17.8	6.5	61.7	31.3								
Green Ext Time (p_c), s	0.1	7.4	0.9	0.0	0.0	0.0								

Intersection Summary

HCM 6th Ctrl Delay	37.4
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 22: Mission Gorge Rd & Friars Rd

Horizon Year No Project With 2-Ln Bridge
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↵↵	↑↑↑		↵	↵↵
Traffic Volume (veh/h)	550	170	560	2690	30	170	270
Future Volume (veh/h)	550	170	560	2690	30	170	270
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	567	0	577	2773		185	63
Peak Hour Factor	0.97	0.97	0.97	0.97		0.92	0.92
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2962		615	0		215	832
Arrive On Green	0.58	0.00	0.18	0.00		0.12	0.12
Sat Flow, veh/h	5443	0	3456	577		1781	2790
Grp Volume(v), veh/h	567	0	577	70.7		185	63
Grp Sat Flow(s),veh/h/ln	1702	0	1728	E		1781	1395
Q Serve(g_s), s	6.3	0.0	19.8			12.2	0.0
Cycle Q Clear(g_c), s	6.3	0.0	19.8			12.2	0.0
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2962		615			215	832
V/C Ratio(X)	0.19		0.94			0.86	0.08
Avail Cap(c_a), veh/h	2962		615			306	975
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.97	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	11.9	0.0	48.7			51.8	30.2
Incr Delay (d2), s/veh	0.1	0.0	22.1			12.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	10.1			6.2	0.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	12.0	0.0	70.7			63.8	30.2
LnGrp LOS	B		E			E	C
Approach Vol, veh/h	567	A				248	
Approach Delay, s/veh	12.0					55.3	
Approach LOS	B					E	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	25.7	75.4					18.9
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	69.6					20.6
Max Q Clear Time (g_c+D), s	11.8	8.3					14.2
Green Ext Time (p_c), s	0.0	4.5					0.2

Intersection Summary

HCM 6th Ctrl Delay	44.1
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
23: Qualcomm Way & Rio San Diego Dr

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑	↗		↔↔	↑↑	↗	↔↔	↑↑↑	↗	↔↔	↑↑↑	↗
Traffic Volume (veh/h)	120	69	150	20	330	70	70	69	415	810	90	256	60
Future Volume (veh/h)	120	69	150	20	330	70	70	69	415	810	90	256	60
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	130	75	22		359	76	13	75	451	425	98	278	48
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	224	160	208		493	579	253	164	2046	623	185	1791	299
Arrive On Green	0.06	0.09	0.09		0.14	0.16	0.16	0.05	0.40	0.40	0.05	0.41	0.41
Sat Flow, veh/h	3456	1870	1557		3456	3554	1553	3456	5106	1555	3456	4405	735
Grp Volume(v), veh/h	130	75	22		359	76	13	75	451	425	98	213	113
Grp Sat Flow(s),veh/h/ln	1728	1870	1557		1728	1777	1553	1728	1702	1555	1728	1702	1736
Q Serve(g_s), s	2.2	2.3	0.8		6.0	1.1	0.4	1.3	3.5	13.6	1.7	2.4	2.5
Cycle Q Clear(g_c), s	2.2	2.3	0.8		6.0	1.1	0.4	1.3	3.5	13.6	1.7	2.4	2.5
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.42
Lane Grp Cap(c), veh/h	224	160	208		493	579	253	164	2046	623	185	1384	706
V/C Ratio(X)	0.58	0.47	0.11		0.73	0.13	0.05	0.46	0.22	0.68	0.53	0.15	0.16
Avail Cap(c_a), veh/h	1718	1240	1107		1718	2355	1029	3435	5076	1546	1718	3384	1725
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.4	26.3	23.0		24.8	21.6	21.3	28.0	11.9	14.9	27.8	11.3	11.4
Incr Delay (d2), s/veh	0.9	2.1	0.2		0.8	0.1	0.1	0.7	0.1	1.9	0.9	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.0	0.3		2.3	0.4	0.1	0.5	1.2	4.2	0.7	0.8	0.9
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	28.3	28.4	23.2		25.5	21.7	21.4	28.7	12.0	16.8	28.7	11.4	11.5
LnGrp LOS	C	C	C		C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		227			448			951		424			
Approach Delay, s/veh		27.9			24.8			15.5		15.4			
Approach LOS		C			C			B		B			
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	7.6	29.3	13.0	10.4	7.3	29.6	8.3	15.1					
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3					
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0					
Max Q Clear Time (g_c+1), s	13.7	15.6	8.0	4.3	3.3	4.5	4.2	3.1					
Green Ext Time (p_c), s	0.1	8.1	0.6	0.4	0.1	3.7	0.2	0.5					

Intersection Summary

HCM 6th Ctrl Delay	18.9
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection

Intersection Delay, s/veh 13.3
 Intersection LOS B

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations															
Traffic Vol, veh/h	20	120	169	20	0	410	110	10	10	10	10	10	20	0	230
Future Vol, veh/h	20	120	169	20	0	410	110	10	10	10	10	10	20	0	230
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	128	180	21	0	436	117	11	11	11	11	11	21	0	245
Number of Lanes	0	1	2	0	1	2	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	11.3	14	10.8	14.7
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	33%	100%	0%	0%	0%	0%	0%	8%
Vol Thru, %	33%	0%	100%	74%	100%	100%	55%	0%
Vol Right, %	33%	0%	0%	26%	0%	0%	45%	92%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	140	113	76	0	273	247	260
LT Vol	13	140	0	0	0	0	0	21
Through Vol	13	0	113	56	0	273	137	0
RT Vol	13	0	0	20	0	0	110	239
Lane Flow Rate	43	149	120	81	0	291	262	277
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.087	0.285	0.213	0.14	0	0.497	0.425	0.479
Departure Headway (Hd)	7.321	6.892	6.383	6.196	6.155	6.155	5.837	6.24
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	486	520	560	576	0	584	614	575
Service Time	5.114	4.662	4.152	3.965	3.918	3.918	3.599	4.008
HCM Lane V/C Ratio	0.088	0.287	0.214	0.141	0	0.498	0.427	0.482
HCM Control Delay	10.8	12.4	10.9	10	8.9	14.9	12.9	14.7
HCM Lane LOS	B	B	B	A	N	B	B	B
HCM 95th-tile Q	0.3	1.2	0.8	0.5	0	2.8	2.1	2.6

HCM 6th Signalized Intersection Summary

Horizon Year No Project With 2-Ln Bridge

25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy

AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	77	90	102	36	140	93	111	435	35	30	54	185	109
Future Volume (veh/h)	77	90	102	36	140	93	111	435	35	30	54	185	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	89	103	4	41	161	63	128	500	37		62	213	69
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87		0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	176	184	155	74	298	120	167	1273	94		150	874	275
Arrive On Green	0.10	0.10	0.10	0.14	0.14	0.14	0.09	0.38	0.38		0.04	0.33	0.33
Sat Flow, veh/h	1781	1870	1569	535	2144	867	1781	3354	248		3456	2656	837
Grp Volume(v), veh/h	89	103	4	141	0	124	128	264	273		62	140	142
Grp Sat Flow(s),veh/h/ln	1781	1870	1569	1844	0	1703	1781	1777	1825		1728	1777	1716
Q Serve(g_s), s	2.8	3.1	0.1	4.2	0.0	4.0	4.1	6.4	6.4		1.0	3.4	3.5
Cycle Q Clear(g_c), s	2.8	3.1	0.1	4.2	0.0	4.0	4.1	6.4	6.4		1.0	3.4	3.5
Prop In Lane	1.00		1.00	0.29		0.51	1.00		0.14		1.00		0.49
Lane Grp Cap(c), veh/h	176	184	155	256	0	237	167	674	692		150	585	565
V/C Ratio(X)	0.51	0.56	0.03	0.55	0.00	0.52	0.77	0.39	0.39		0.41	0.24	0.25
Avail Cap(c_a), veh/h	1216	1277	1071	1259	0	1163	912	1820	1869		1770	1820	1758
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	25.0	25.2	23.9	23.5	0.0	23.4	25.9	13.3	13.3		27.3	14.3	14.4
Incr Delay (d2), s/veh	1.4	1.6	0.0	0.7	0.0	0.7	2.8	1.7	1.7		0.7	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	1.3	0.0	1.8	0.0	1.6	1.8	2.6	2.7		0.4	1.4	1.4
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	26.4	26.8	23.9	24.2	0.0	24.1	28.7	15.0	14.9		28.0	15.3	15.4
LnGrp LOS	C	C	C	C	A	C	C	B	B		C	B	B
Approach Vol, veh/h		196			265			665				344	
Approach Delay, s/veh		26.6			24.2			17.6				17.6	
Approach LOS		C			C			B				B	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	6.9	27.6		11.0	9.9	24.7		13.0					
Change Period (Y+Rc), s	4.4	* 5.4		5.2	4.4	5.4		4.9					
Max Green Setting (Gmax), s	30.0	* 60		40.0	30.0	60.0		40.0					
Max Q Clear Time (g_c+1), s	13.0	8.4		5.1	6.1	5.5		6.2					
Green Ext Time (p_c), s	0.1	13.8		0.5	0.2	6.6		1.1					

Intersection Summary

HCM 6th Ctrl Delay	20.0
HCM 6th LOS	B

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 26: Rancho Mission Rd & San Diego Mission Rd

Horizon Year No Project With 2-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	50	79	190	465	280	253	273	50	100	103	80
Future Volume (veh/h)	50	50	79	190	465	280	253	273	50	100	103	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	56	56	9	213	522	264	284	307	12	112	116	2
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	71	791	124	262	830	418	336	431	363	146	231	189
Arrive On Green	0.04	0.26	0.26	0.15	0.36	0.36	0.19	0.23	0.23	0.08	0.12	0.12
Sat Flow, veh/h	1781	3069	480	1781	2275	1146	1781	1870	1575	1781	1870	1531
Grp Volume(v), veh/h	56	32	33	213	407	379	284	307	12	112	116	2
Grp Sat Flow(s),veh/h/ln	1781	1777	1772	1781	1777	1644	1781	1870	1575	1781	1870	1531
Q Serve(g_s), s	2.0	0.9	0.9	7.6	12.4	12.5	10.1	9.9	0.4	4.1	3.8	0.1
Cycle Q Clear(g_c), s	2.0	0.9	0.9	7.6	12.4	12.5	10.1	9.9	0.4	4.1	3.8	0.1
Prop In Lane	1.00		0.27	1.00		0.70	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	71	458	456	262	648	600	336	431	363	146	231	189
V/C Ratio(X)	0.79	0.07	0.07	0.81	0.63	0.63	0.84	0.71	0.03	0.77	0.50	0.01
Avail Cap(c_a), veh/h	948	1351	1347	948	1486	1375	813	1422	1197	813	1422	1164
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.3	18.5	18.5	27.2	17.2	17.2	25.7	23.3	19.6	29.6	26.9	25.3
Incr Delay (d2), s/veh	6.9	0.1	0.1	2.3	1.7	1.8	2.3	0.8	0.0	3.2	0.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.3	0.4	3.1	4.7	4.4	4.2	4.1	0.1	1.8	1.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.2	18.5	18.6	29.5	18.9	19.0	28.0	24.1	19.6	32.8	27.6	25.3
LnGrp LOS	D	B	B	C	B	B	C	C	B	C	C	C
Approach Vol, veh/h		121		999		603		230				
Approach Delay, s/veh		27.7		21.2		25.9		30.1				
Approach LOS		C		C		C		C				
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.7	22.4	16.4	13.2	6.6	29.5	9.4	20.3				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	*5.5	4.0	*5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	*55	30.0	*50				
Max Q Clear Time (g_c+1), s	19.6	2.9	12.1	5.8	4.0	14.5	6.1	11.9				
Green Ext Time (p_c), s	0.3	0.5	0.4	0.4	0.1	9.5	0.1	1.2				

Intersection Summary

HCM 6th Ctrl Delay	24.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave

Horizon Year No Project With 2-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↖	↗	↖	↖	↗	↖	↗	↖
Traffic Volume (veh/h)	40	108	82	70	604	30	140	130	40	10	90	230
Future Volume (veh/h)	40	108	82	70	604	30	140	130	40	10	90	230
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	47	126	46	81	702	33	163	151	39	12	105	208
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	152	373	907	136	1139	59	269	215	56	414	129	256
Arrive On Green	0.42	0.42	0.42	0.42	0.42	0.42	0.15	0.15	0.15	0.23	0.23	0.23
Sat Flow, veh/h	203	881	1578	176	2692	139	1781	1426	368	1781	555	1100
Grp Volume(v), veh/h	173	0	46	417	0	399	163	0	190	12	0	313
Grp Sat Flow(s),veh/h/ln1085	0	1578	1330	0	1676	1781	0	1794	1781	0	1655	
Q Serve(g_s), s	1.1	0.0	0.9	7.8	0.0	12.6	6.0	0.0	7.0	0.4	0.0	12.5
Cycle Q Clear(g_c), s	13.7	0.0	0.9	21.6	0.0	12.6	6.0	0.0	7.0	0.4	0.0	12.5
Prop In Lane	0.27		1.00	0.19		0.08	1.00		0.21	1.00		0.66
Lane Grp Cap(c), veh/h	525	0	907	624	0	709	269	0	271	414	0	385
V/C Ratio(X)	0.33	0.00	0.05	0.67	0.00	0.56	0.61	0.00	0.70	0.03	0.00	0.81
Avail Cap(c_a), veh/h	1224	0	1752	1458	0	1535	1198	0	1206	1122	0	1042
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.2	0.0	6.5	17.8	0.0	15.3	27.7	0.0	28.2	20.7	0.0	25.4
Incr Delay (d2), s/veh	0.3	0.0	0.0	1.1	0.0	0.6	0.8	0.0	1.2	0.0	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.5	0.0	0.0	0.4	5.9	0.0	4.6	2.5	0.0	3.0	0.1	0.0	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.6	0.0	6.5	18.9	0.0	15.9	28.5	0.0	29.4	20.7	0.0	27.0
LnGrp LOS	B	A	A	B	A	B	C	A	C	C	A	C
Approach Vol, veh/h		219		816		353		325				
Approach Delay, s/veh		12.1		17.4		29.0		26.7				
Approach LOS		B		B		C		C				
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		34.1		20.8		34.1		15.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		67.0		44.0		64.0		47.0				
Max Q Clear Time (g_c+11), s		15.7		14.5		23.6		9.0				
Green Ext Time (p_c), s		1.3		1.4		6.0		0.9				
Intersection Summary												
HCM 6th Ctrl Delay				20.9								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary

Horizon Year No Project With 2-Ln Bridge

28: Qualcomm Way & Camino de la Reina/Camino del Rio N

AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↖	↗	↘		↖	↗	↘	↖	↗	↘		↖	↗	↘
Traffic Volume (veh/h)	10	40	110	100	10	310	260	114	120	960	490	10	70	456	40
Future Volume (veh/h)	10	40	110	100	10	310	260	114	120	960	490	10	70	456	40
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.97	1.00		0.98		1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No			No		No		No			No		No
Adj Sat Flow, veh/h/ln		1781	1870	1870		1870	1870	1870	1841	1856	1870		1870	1811	1811
Adj Flow Rate, veh/h		44	122	24		344	289	11	133	1067	485		78	507	38
Peak Hour Factor		0.90	0.90	0.90		0.90	0.90	0.90	0.90	0.90	0.90		0.90	0.90	0.90
Percent Heavy Veh, %		8	2	2		2	2	2	4	3	2		2	6	6
Cap, veh/h		55	347	246		456	683	294	218	2193	671		153	1937	144
Arrive On Green		0.03	0.09	0.09		0.13	0.19	0.19	0.06	0.43	0.43		0.04	0.41	0.41
Sat Flow, veh/h		1697	3741	1555		3456	3554	1531	3401	5066	1550		3456	4691	348
Grp Volume(v), veh/h		44	122	24		344	289	11	133	1067	485		78	355	190
Grp Sat Flow(s),veh/h/ln		1697	1870	1555		1728	1777	1531	1700	1689	1550		1728	1648	1742
Q Serve(g_s), s		1.8	2.2	0.9		6.8	5.1	0.4	2.7	10.8	18.4		1.6	5.0	5.1
Cycle Q Clear(g_c), s		1.8	2.2	0.9		6.8	5.1	0.4	2.7	10.8	18.4		1.6	5.0	5.1
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.20
Lane Grp Cap(c), veh/h		55	347	246		456	683	294	218	2193	671		153	1361	719
V/C Ratio(X)		0.79	0.35	0.10		0.75	0.42	0.04	0.61	0.49	0.72		0.51	0.26	0.26
Avail Cap(c_a), veh/h		715	1577	758		1457	1498	646	1434	3560	1089		1457	2316	1224
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		34.2	30.3	25.7		29.8	25.3	23.4	32.4	14.5	16.6		33.2	13.7	13.8
Incr Delay (d2), s/veh		9.2	0.4	0.1		1.0	0.2	0.0	1.0	0.2	1.4		1.0	0.3	0.5
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.9	1.0	0.3		2.7	2.0	0.1	1.1	3.7	5.6		0.7	1.7	1.9
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		43.3	30.7	25.8		30.7	25.4	23.4	33.4	14.6	18.0		34.2	14.0	14.3
LnGrp LOS		D	C	C		C	C	C	C	B	B		C	B	B
Approach Vol, veh/h			190			644			1685				623		
Approach Delay, s/veh			33.0			28.2			17.1				16.6		
Approach LOS			C			C			B				B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8							
Phs Duration (G+Y+Rc), s	7.5	37.5	13.8	12.3	9.0	36.1	6.7	19.4							
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7							
Max Green Setting (Gmax), s	30.0	50.0	30.0	* 30	30.0	* 50	30.0	30.0							
Max Q Clear Time (g_c+1), s	13.6	20.4	8.8	4.2	4.7	7.1	3.8	7.1							
Green Ext Time (p_c), s	0.1	10.4	0.6	0.6	0.2	8.4	0.0	1.0							

Intersection Summary

HCM 6th Ctrl Delay	20.2
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary

Horizon Year No Project With 2-Ln Bridge

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔	↑↑↑			↑↑	↔
Traffic Volume (veh/h)	10	50	0	110	20	190	660	130	1180	0	0	366	480
Future Volume (veh/h)	10	50	0	110	20	190	660	130	1180	0	0	366	480
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1722	0	1796	1870	1870	1870	1870	1870	0	0	1826	1870
Adj Flow Rate, veh/h		54	0	18	22	204	543	140	1269	0	0	394	74
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		12	0	7	2	2	2	2	2	0	0	5	2
Cap, veh/h		0	0	0	68	632	596	318	2349	0	0	755	335
Arrive On Green		0.00	0.00	0.00	0.38	0.38	0.38	0.18	0.46	0.00	0.00	0.22	0.22
Sat Flow, veh/h			0		181	1680	1584	1781	5274	0	0	3561	1537
Grp Volume(v), veh/h			0.0		226	0	543	140	1269	0	0	394	74
Grp Sat Flow(s),veh/h/ln					1861	0	1584	1781	1702	0	0	1735	1537
Q Serve(g_s), s					6.4	0.0	24.1	5.2	13.2	0.0	0.0	7.4	2.9
Cycle Q Clear(g_c), s					6.4	0.0	24.1	5.2	13.2	0.0	0.0	7.4	2.9
Prop In Lane					0.10		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					700	0	596	318	2349	0	0	755	335
V/C Ratio(X)					0.32	0.00	0.91	0.44	0.54	0.00	0.00	0.52	0.22
Avail Cap(c_a), veh/h					1133	0	964	819	3937	0	0	2722	1206
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)					1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh					16.4	0.0	21.9	27.1	14.3	0.0	0.0	25.5	23.8
Incr Delay (d2), s/veh					0.1	0.0	5.4	0.4	0.1	0.0	0.0	1.2	0.7
Initial Q Delay(d3),s/veh					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln					2.4	0.0	8.5	2.1	4.5	0.0	0.0	3.0	1.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					16.5	0.0	27.2	27.4	14.4	0.0	0.0	26.7	24.5
LnGrp LOS					B	A	C	C	B	A	A	C	C
Approach Vol, veh/h						769			1409			468	
Approach Delay, s/veh						24.1			15.7			26.4	
Approach LOS						C			B			C	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		41.0			17.9	23.1		32.9					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		57.0			* 34	58.0		45.0					
Max Q Clear Time (g_c+I1), s		15.2			7.2	9.4		26.1					
Green Ext Time (p_c), s		7.3			0.1	6.2		1.6					

Intersection Summary

HCM 6th Ctrl Delay	20.0
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Horizon Year No Project With 2-Ln Bridge
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	620	0	1270	876	0
Future Volume (veh/h)	0	620	0	1270	876	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1856	0
Adj Flow Rate, veh/h	0	579	0	1309	903	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	2	0	2	3	0
Cap, veh/h	0	0	0	2600	2580	0
Arrive On Green	0.00	0.00	0.00	0.73	0.73	0.00
Sat Flow, veh/h	0		0	3741	3711	0
Grp Volume(v), veh/h	0.0		0	1309	903	0
Grp Sat Flow(s),veh/h/ln			0	1777	1763	0
Q Serve(g_s), s			0.0	3.2	1.9	0.0
Cycle Q Clear(g_c), s			0.0	3.2	1.9	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2600	2580	0
V/C Ratio(X)			0.00	0.50	0.35	0.00
Avail Cap(c_a), veh/h			0	6067	6019	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	1.2	1.0	0.0
Incr Delay (d2), s/veh			0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	1.2	1.0	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1309	903	
Approach Delay, s/veh				1.2	1.0	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		20.5				20.5
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		35.0				35.0
Max Q Clear Time (g_c+I1), s		5.2				3.9
Green Ext Time (p_c), s		7.5				4.5
Intersection Summary						
HCM 6th Ctrl Delay			1.1			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
 31: Texas St & Camino del Rio S

Horizon Year No Project With 2-Ln Bridge
 AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↕	↔	↔	↕	↔	↔	↕	↕	↔	↕	↔
Traffic Volume (veh/h)	10	100	50	60	93	90	120	150	1320	209	480	546	290
Future Volume (veh/h)	10	100	50	60	93	90	120	150	1320	209	480	546	290
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.98	1.00		0.96	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1811	1663	1870	1841	1870	1796	1841	1870	1870	1870	1870	1826
Adj Flow Rate, veh/h		104	52	12	97	94	51	156	1375	212	500	569	175
Peak Hour Factor		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		6	16	2	4	2	7	4	2	2	2	2	5
Cap, veh/h		141	136	295	180	192	605	183	1053	160	529	1901	811
Arrive On Green		0.08	0.08	0.08	0.10	0.10	0.10	0.10	0.34	0.34	0.30	0.53	0.53
Sat Flow, veh/h		1725	1663	1579	1753	1870	1491	1753	3073	468	1781	3554	1515
Grp Volume(v), veh/h		104	52	12	97	94	51	156	787	800	500	569	175
Grp Sat Flow(s),veh/h/ln		1725	1663	1579	1753	1870	1491	1753	1777	1763	1781	1777	1515
Q Serve(g_s), s		7.2	3.6	0.8	6.4	5.8	2.6	10.7	41.8	41.8	33.5	10.8	7.4
Cycle Q Clear(g_c), s		7.2	3.6	0.8	6.4	5.8	2.6	10.7	41.8	41.8	33.5	10.8	7.4
Prop In Lane		1.00		1.00	1.00		1.00	1.00		0.27	1.00		1.00
Lane Grp Cap(c), veh/h		141	136	295	180	192	605	183	609	604	529	1901	811
V/C Ratio(X)		0.74	0.38	0.04	0.54	0.49	0.08	0.85	1.29	1.32	0.95	0.30	0.22
Avail Cap(c_a), veh/h		424	409	554	405	432	797	359	609	604	1060	2622	1118
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		54.7	53.1	40.7	52.0	51.7	22.8	53.7	40.1	40.1	41.9	15.7	14.9
Incr Delay (d2), s/veh		7.3	1.8	0.1	6.8	5.3	0.2	4.2	144.0	156.9	4.1	0.2	0.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.4	1.6	0.3	3.1	3.0	0.9	4.9	42.1	44.0	15.0	4.3	2.6
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		62.0	54.9	40.7	58.8	57.0	22.9	57.9	184.1	197.0	46.0	15.9	15.2
LnGrp LOS		E	D	D	E	E	C	E	F	F	D	B	B
Approach Vol, veh/h			168			242			1743			1244	
Approach Delay, s/veh			58.3			50.6			178.7			27.9	
Approach LOS			E			D			F			C	
Timer - Assigned Phs	1	2	4	5	6	8							
Phs Duration (G+Y+Rc), s	40.6	47.0	14.9	17.2	70.5	19.5							
Change Period (Y+Rc), s	4.4	5.2	4.9	4.4	* 5.2	7.0							
Max Green Setting (Gmax), s	72.6	41.8	30.0	25.0	* 90	28.2							
Max Q Clear Time (g_c+Rc), s	36.5	43.8	9.2	12.7	12.8	8.4							
Green Ext Time (p_c), s	0.7	0.0	0.5	0.2	11.1	2.1							

Intersection Summary

HCM 6th Ctrl Delay	108.4
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	1.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	40	80	30	537	453	20
Future Vol, veh/h	40	80	30	537	453	20
Conflicting Peds, #/hr	32	33	33	0	0	32
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	65	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	42	83	31	559	472	21

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	890	313	526	0	-	0
Stage 1	516	-	-	-	-	-
Stage 2	374	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	282	683	1037	-	-	-
Stage 1	564	-	-	-	-	-
Stage 2	666	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	253	641	1004	-	-	-
Mov Cap-2 Maneuver	253	-	-	-	-	-
Stage 1	522	-	-	-	-	-
Stage 2	645	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15	0.6	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1004	-	253	641	-	-
HCM Lane V/C Ratio	0.031	-	0.165	0.13	-	-
HCM Control Delay (s)	8.7	0.2	22	11.5	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	0.4	-	-

HCM 6th Signalized Intersection Summary
33: Camino del Rio N & Ward Rd

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↷	↷	↶	↷
Traffic Volume (veh/h)	43	132	864	523	209	333
Future Volume (veh/h)	43	132	864	523	209	333
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	44	136	891	427	215	305
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	61	2133	1757	767	397	408
Arrive On Green	0.03	0.60	0.49	0.49	0.22	0.22
Sat Flow, veh/h	1781	3647	3647	1551	1781	1585
Grp Volume(v), veh/h	44	136	891	427	215	305
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1551	1781	1585
Q Serve(g_s), s	1.5	1.0	10.4	11.8	6.6	10.9
Cycle Q Clear(g_c), s	1.5	1.0	10.4	11.8	6.6	10.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	61	2133	1757	767	397	408
V/C Ratio(X)	0.72	0.06	0.51	0.56	0.54	0.75
Avail Cap(c_a), veh/h	1273	4039	4039	1763	1273	1187
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	5.1	10.5	10.9	21.2	21.0
Incr Delay (d2), s/veh	5.8	0.0	0.3	1.0	0.4	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.2	3.1	3.2	2.5	9.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.2	5.1	10.9	11.8	21.6	22.1
LnGrp LOS	D	A	B	B	C	C
Approach Vol, veh/h		180	1318		520	
Approach Delay, s/veh		12.5	11.2		21.9	
Approach LOS		B	B		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		43.0		18.6	6.5	36.4
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		3.0		12.9	3.5	13.8
Green Ext Time (p_c), s		1.3		0.8	0.0	16.6

Intersection Summary

HCM 6th Ctrl Delay	14.0
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 34: Fairmount Ave & Mission Gorge Rd

Horizon Year No Project With 2-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↖	↗			↖	↗	
Traffic Volume (veh/h)	20	10	292	20	10	0	40	508	1191	30	10	10	763	20
Future Volume (veh/h)	20	10	292	20	10	0	40	508	1191	30	10	10	763	20
Initial Q (Qb), veh	0	0	15	0	15	0	0	0	0	0	0	0	15	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		1.00	1.00		0.99		1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	345	22	11	0	546	1281	31	11	820	20		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	264	445	126	100	0	930	2570	62	18	1639	38		
Arrive On Green	0.00	0.00	0.13	0.13	0.13	0.00	0.55	1.00	1.00	0.01	0.46	0.46		
Sat Flow, veh/h	0	1870	3008	753	498	0	3456	3545	86	1781	3545	86		
Grp Volume(v), veh/h	0	0	345	33	0	0	546	642	670	11	411	429		
Grp Sat Flow(s),veh/h/ln	0	1870	1504	1251	0	0	1728	1777	1854	1781	1777	1854		
Q Serve(g_s), s	0.0	0.0	12.9	1.2	0.0	0.0	11.9	0.0	0.0	0.7	18.6	18.6		
Cycle Q Clear(g_c), s	0.0	0.0	12.9	2.2	0.0	0.0	11.9	0.0	0.0	0.7	18.6	18.6		
Prop In Lane	0.00		1.00	0.67		0.00	1.00		0.05	1.00		0.05		
Lane Grp Cap(c), veh/h	0	264	445	237	0	0	930	1288	1344	18	820	857		
V/C Ratio(X)	0.00	0.00	0.78	0.14	0.00	0.00	0.59	0.50	0.50	0.60	0.50	0.50		
Avail Cap(c_a), veh/h	0	335	539	274	0	0	957	1302	1359	156	820	856		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.14	0.14	0.14	1.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.0	48.3	44.8	0.0	0.0	22.3	0.0	0.0	56.7	22.4	22.3		
Incr Delay (d2), s/veh	0.0	0.0	4.5	0.3	0.0	0.0	0.1	0.2	0.2	11.1	2.2	2.1		
Initial Q Delay(d3),s/veh	0.0	0.0	36.5	33.4	0.0	0.0	0.0	0.0	0.0	0.0	1.2	1.1		
%ile BackOfQ(50%),veh/ln	0.0	0.0	8.2	4.8	0.0	0.0	3.9	0.1	0.1	0.4	9.4	9.8		
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	89.3	78.5	0.0	0.0	22.4	0.2	0.2	67.8	25.7	25.5		
LnGrp LOS	A	A	F	E	A	A	C	A	A	E	C	C		
Approach Vol, veh/h		345			33			1858				851		
Approach Delay, s/veh		89.3			78.5			6.7				26.2		
Approach LOS		F			E			A				C		
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	5.6	89.1		20.3	36.7	58.0		20.3						
Change Period (Y+Rc), s	4.4	4.9		4.9	4.9	* 4.9		4.9						
Max Green Setting (Gmax), s	10.5	70.1		20.6	27.1	* 53		20.6						
Max Q Clear Time (g_c+1/2), s	12.5	2.0		14.9	13.9	20.6		4.2						
Green Ext Time (p_c), s	0.0	31.8		0.5	1.0	12.3		0.1						

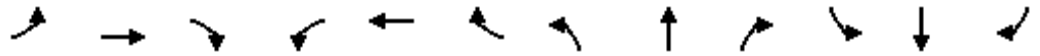
Intersection Summary

HCM 6th Ctrl Delay	22.1
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis Horizon Year No Project With 2-Ln Bridge
 35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	30	350	490	700	280	544	1458	180	10	872	223
Future Volume (vph)	61	30	350	490	700	280	544	1458	180	10	872	223
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	0.98	1.00	0.95	0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1739	1578	1610	3168	1424	1770	3476		3433	3539	1583
Flt Permitted	0.95	0.98	1.00	0.95	0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1739	1578	1610	3168	1424	1770	3476		3433	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	64	32	368	516	737	295	573	1535	189	11	918	235
RTOR Reduction (vph)	0	0	85	0	0	0	0	8	0	0	0	98
Lane Group Flow (vph)	47	49	283	418	865	265	573	1716	0	11	918	137
Confl. Peds. (#/hr)						2			1			
Confl. Bikes (#/hr)			2			2						
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	7	5	8	8	1	5	2		1	6	
Permitted Phases			7			8						6
Actuated Green, G (s)	8.0	8.0	35.0	25.0	25.0	33.0	27.0	53.0		8.0	34.0	34.0
Effective Green, g (s)	8.0	8.0	35.0	25.0	25.0	33.0	27.0	53.0		8.0	34.0	34.0
Actuated g/C Ratio	0.07	0.07	0.30	0.22	0.22	0.29	0.23	0.46		0.07	0.30	0.30
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	116	120	544	350	688	408	415	1601		238	1046	468
v/s Ratio Prot	0.03	0.03	c0.12	0.26	c0.27	0.05	c0.32	c0.49		0.00	c0.26	
v/s Ratio Perm			0.06			0.14						0.09
v/c Ratio	0.41	0.41	0.52	1.19	1.26	0.65	1.38	1.07		0.05	0.88	0.29
Uniform Delay, d1	51.2	51.2	33.1	45.0	45.0	35.9	44.0	31.0		49.9	38.5	31.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.66	0.74	0.83
Incremental Delay, d2	0.8	0.8	0.4	112.1	127.4	2.7	185.8	44.5		0.0	9.1	1.4
Delay (s)	52.1	52.1	33.5	157.1	172.4	38.6	229.8	75.5		32.9	37.5	27.4
Level of Service	D	D	C	F	F	D	F	E		C	D	C
Approach Delay (s)		37.3			145.4			114.0			35.4	
Approach LOS		D			F			F			D	

Intersection Summary		
HCM 2000 Control Delay	99.7	HCM 2000 Level of Service F
HCM 2000 Volume to Capacity ratio	1.16	
Actuated Cycle Length (s)	115.0	Sum of lost time (s) 21.0
Intersection Capacity Utilization	99.0%	ICU Level of Service F
Analysis Period (min)	15	

c Critical Lane Group

HCM 6th Signalized Intersection Summary
36: Fairmount Ave & I-8 EB Off-Ramp

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations	↔↔	↔↔	↔		↕↕	↕↕↕	
Traffic Volume (veh/h)	820	860	300	0	1122	693	0
Future Volume (veh/h)	820	860	300	0	1122	693	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1826	1870		0	1856	1856	0
Adj Flow Rate, veh/h	1010	1012		0	1352	835	0
Peak Hour Factor	0.83	0.83		0.83	0.83	0.83	0.83
Percent Heavy Veh, %	5	2		0	3	3	0
Cap, veh/h	1335	1217		0	1665	2393	0
Arrive On Green	0.38	0.38		0.00	0.47	0.47	0.00
Sat Flow, veh/h	3478	3170		0	3711	5400	0
Grp Volume(v), veh/h	1010	1012		0	1352	835	0
Grp Sat Flow(s),veh/h/ln	1739	1585		0	1763	1689	0
Q Serve(g_s), s	19.5	22.3		0.0	25.3	8.0	0.0
Cycle Q Clear(g_c), s	19.5	22.3		0.0	25.3	8.0	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	1335	1217		0	1665	2393	0
V/C Ratio(X)	0.76	0.83		0.00	0.81	0.35	0.00
Avail Cap(c_a), veh/h	1983	1808		0	3504	3413	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.6	21.5		0.0	17.4	12.9	0.0
Incr Delay (d2), s/veh	0.4	1.4		0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	7.9		0.0	9.3	2.8	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	21.1	22.9		0.0	17.8	12.9	0.0
LnGrp LOS	C	C		A	B	B	A
Approach Vol, veh/h	2022				1352	835	
Approach Delay, s/veh	22.0				17.8	12.9	
Approach LOS	C				B	B	
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				42.5		34.7	42.5
Change Period (Y+Rc), s				6.0		5.1	6.0
Max Green Setting (Gmax), s				52.0		44.0	76.7
Max Q Clear Time (g_c+I1), s				10.0		24.3	27.3
Green Ext Time (p_c), s				4.5		5.3	9.1

Intersection Summary

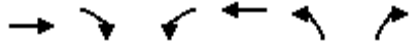
HCM 6th Ctrl Delay	18.8
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
37: Collwood Blvd & Montezuma Rd

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵↵	↵
Traffic Volume (veh/h)	503	470	70	1262	1150	60
Future Volume (veh/h)	503	470	70	1262	1150	60
Initial Q (Qb), veh	0	0	0	30	30	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1663	1870	1870	1618
Adj Flow Rate, veh/h	535	417	74	1343	1223	42
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	16	2	2	19
Cap, veh/h	1550	1276	91	1915	1341	523
Arrive On Green	0.45	0.45	0.06	0.54	0.37	0.37
Sat Flow, veh/h	3618	1538	1584	3647	3456	1372
Grp Volume(v), veh/h	535	417	74	1343	1223	42
Grp Sat Flow(s),veh/h/ln	1763	1538	1584	1777	1728	1372
Q Serve(g_s), s	12.4	8.4	5.8	35.0	43.4	2.5
Cycle Q Clear(g_c), s	12.4	8.4	5.8	35.0	43.4	2.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1550	1276	91	1915	1341	523
V/C Ratio(X)	0.35	0.33	0.81	0.70	0.91	0.08
Avail Cap(c_a), veh/h	1588	1275	158	1929	1341	532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.3	2.8	58.7	23.2	38.5	24.9
Incr Delay (d2), s/veh	0.6	0.7	6.3	2.2	9.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	5.9	40.9	0.0
%ile BackOfQ(50%),veh/ln	5.3	1.9	2.5	18.7	29.2	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	23.9	3.5	65.0	31.2	88.8	24.9
LnGrp LOS	C	A	E	C	F	C
Approach Vol, veh/h	952			1417	1265	
Approach Delay, s/veh	15.0			33.0	86.7	
Approach LOS	B			C	F	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	11.7	63.3		74.9	51.1	
Change Period (Y+Rc), s	4.4	* 6.5		6.5	4.4	
Max Green Setting (Gmax), s	12.6	* 50		66.2	48.9	
Max Q Clear Time (g_c+1), s	17.8	14.4		37.0	45.4	
Green Ext Time (p_c), s	0.0	9.5		18.7	1.2	

Intersection Summary

HCM 6th Ctrl Delay		47.0	
HCM 6th LOS		D	

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
38: Mission Village Dr & Shawn Ave

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔		↖	↕↕	↗	↖	↕↕	
Traffic Volume (veh/h)	120	10	60	50	10	30	50	1110	10	10	510	40
Future Volume (veh/h)	120	10	60	50	10	30	50	1110	10	10	510	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	129	11	12	54	11	6	54	1194	6	11	548	37
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	379	118	129	373	164	90	603	2128	933	355	2021	136
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.60	0.60	0.60	0.60	0.60	0.60
Sat Flow, veh/h	1312	743	810	1273	1034	564	829	3554	1559	466	3375	227
Grp Volume(v), veh/h	129	0	23	54	0	17	54	1194	6	11	288	297
Grp Sat Flow(s),veh/h/ln	1312	0	1553	1273	0	1598	829	1777	1559	466	1777	1825
Q Serve(g_s), s	3.7	0.0	0.5	1.5	0.0	0.4	1.4	8.5	0.1	0.6	3.3	3.3
Cycle Q Clear(g_c), s	4.0	0.0	0.5	2.0	0.0	0.4	4.7	8.5	0.1	9.2	3.3	3.3
Prop In Lane	1.00		0.52	1.00		0.35	1.00		1.00	1.00		0.12
Lane Grp Cap(c), veh/h	379	0	247	373	0	254	603	2128	933	355	1064	1093
V/C Ratio(X)	0.34	0.00	0.09	0.14	0.00	0.07	0.09	0.56	0.01	0.03	0.27	0.27
Avail Cap(c_a), veh/h	1479	0	1475	1467	0	1518	1288	5063	2220	740	2531	2600
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.8	0.0	15.1	16.0	0.0	15.1	5.2	5.1	3.4	7.9	4.0	4.0
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.1	0.0	0.0	0.1	0.3	0.0	0.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	0.2	0.4	0.0	0.1	0.1	1.3	0.0	0.0	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	17.0	0.0	15.2	16.0	0.0	15.1	5.2	5.4	3.4	7.9	4.2	4.2
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		152			71			1254			596	
Approach Delay, s/veh		16.7			15.8			5.4			4.3	
Approach LOS		B			B			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		30.5		11.6		30.5		11.6				
Change Period (Y+Rc), s		5.3		4.9		5.3		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		10.5		6.0		11.2		4.0				
Green Ext Time (p_c), s		14.6		0.6		5.0		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				6.2								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary
 39: Mission Village Dr & Fermi Ave

Horizon Year No Project With 2-Ln Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Volume (veh/h)	50	20	20	100	10	100	10	1190	110	70	450	10
Future Volume (veh/h)	50	20	20	100	10	100	10	1190	110	70	450	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	55	22	13	110	11	83	11	1308	117	77	495	10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	209	79	36	203	27	109	19	1929	172	100	2247	45
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.01	0.59	0.59	0.06	0.63	0.63
Sat Flow, veh/h	785	463	211	772	156	637	1781	3292	293	1781	3560	72
Grp Volume(v), veh/h	90	0	0	204	0	0	11	704	721	77	247	258
Grp Sat Flow(s),veh/h/ln1458		0	0	1565	0	0	1781	1777	1809	1781	1777	1855
Q Serve(g_s), s	0.0	0.0	0.0	5.4	0.0	0.0	0.5	21.1	21.3	3.3	4.6	4.6
Cycle Q Clear(g_c), s	4.0	0.0	0.0	9.4	0.0	0.0	0.5	21.1	21.3	3.3	4.6	4.6
Prop In Lane	0.61		0.14	0.54		0.41	1.00		0.16	1.00		0.04
Lane Grp Cap(c), veh/h	324	0	0	339	0	0	19	1041	1060	100	1122	1171
V/C Ratio(X)	0.28	0.00	0.00	0.60	0.00	0.00	0.57	0.68	0.68	0.77	0.22	0.22
Avail Cap(c_a), veh/h	820	0	0	655	0	0	688	1373	1398	688	1373	1434
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.2	0.0	0.0	30.3	0.0	0.0	38.2	11.0	11.1	36.1	6.1	6.1
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.6	0.0	0.0	9.3	1.5	1.5	4.6	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.5	0.0	0.0	0.0	3.6	0.0	0.0	0.2	6.9	7.2	1.5	1.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.4	0.0	0.0	31.0	0.0	0.0	47.5	12.5	12.6	40.7	6.3	6.3
LnGrp LOS	C	A	A	C	A	A	D	B	B	D	A	A
Approach Vol, veh/h		90			204			1436			582	
Approach Delay, s/veh		28.4			31.0			12.8			10.9	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.8	50.7		18.2	5.2	54.2		18.2				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	5.2		4.9				
Max Green Setting (Gmax), s	30.0	60.0		40.0	30.0	60.0		30.0				
Max Q Clear Time (g_c+1), s	15.3	23.3		6.0	2.5	6.6		11.4				
Green Ext Time (p_c), s	0.1	22.2		0.4	0.0	6.2		0.8				

Intersection Summary

HCM 6th Ctrl Delay	14.5
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
40: Gramercy Dr/Mission Village Dr & Ruffin Rd

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	70	260	30	40	480	830	20	10	20	240	20	50
Future Volume (veh/h)	70	260	30	40	480	830	20	10	20	240	20	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	80	295	31	45	545	803	23	11	0	273	23	29
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	155	1988	207	677	1090	955	158	316	0	519	106	134
Arrive On Green	0.61	0.61	0.61	0.61	0.61	0.61	0.09	0.09	0.00	0.15	0.15	0.15
Sat Flow, veh/h	405	3242	338	1051	1777	1557	1781	3647	0	3563	731	922
Grp Volume(v), veh/h	80	161	165	45	545	803	23	11	0	273	0	52
Grp Sat Flow(s),veh/h/ln	405	1777	1803	1051	1777	1557	1781	1777	0	1781	0	1652
Q Serve(g_s), s	19.2	3.8	3.8	1.9	16.7	40.3	1.2	0.3	0.0	6.9	0.0	2.7
Cycle Q Clear(g_c), s	59.6	3.8	3.8	5.7	16.7	40.3	1.2	0.3	0.0	6.9	0.0	2.7
Prop In Lane	1.00		0.19	1.00		1.00	1.00		0.00	1.00		0.56
Lane Grp Cap(c), veh/h	155	1090	1105	677	1090	955	158	316	0	519	0	241
V/C Ratio(X)	0.52	0.15	0.15	0.07	0.50	0.84	0.15	0.03	0.00	0.53	0.00	0.22
Avail Cap(c_a), veh/h	155	1090	1105	677	1090	955	728	1453	0	1456	0	676
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.9	8.0	8.1	9.3	10.6	15.1	41.1	40.7	0.0	38.7	0.0	36.9
Incr Delay (d2), s/veh	3.6	0.1	0.1	0.1	0.4	7.0	0.2	0.0	0.0	0.3	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	1.4	1.5	0.4	6.3	14.9	0.5	0.1	0.0	3.0	0.0	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.5	8.1	8.1	9.3	11.0	22.1	41.3	40.8	0.0	39.0	0.0	37.0
LnGrp LOS	D	A	A	A	B	C	D	D	A	D	A	D
Approach Vol, veh/h		406			1393			34			325	
Approach Delay, s/veh		14.9			17.3			41.1			38.7	
Approach LOS		B			B			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.1		19.1		65.1		13.6				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		61.6		8.9		42.3		3.2				
Green Ext Time (p_c), s		0.0		0.7		11.7		0.1				

Intersection Summary

HCM 6th Ctrl Delay	20.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	680	120	10	250	600	560	730
Future Volume (veh/h)	680	120	10	250	600	560	730
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	739	120		272	652	609	610
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1361	1231		324	1815	1398	641
Arrive On Green	0.38	0.38		0.09	0.51	0.40	0.40
Sat Flow, veh/h	3647	1540		3456	3647	3456	1585
Grp Volume(v), veh/h	739	120		272	652	609	610
Grp Sat Flow(s),veh/h/ln1777	1540			1728	1777	1728	1585
Q Serve(g_s), s	21.1	2.3		10.1	14.3	16.6	48.4
Cycle Q Clear(g_c), s	21.1	2.3		10.1	14.3	16.6	48.4
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1361	1231		324	1815	1398	641
V/C Ratio(X)	0.54	0.10		0.84	0.36	0.44	0.95
Avail Cap(c_a), veh/h	1361	1231		391	1815	1614	740
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.88	0.88
Uniform Delay (d), s/veh	31.2	3.2		57.9	19.1	28.0	37.5
Incr Delay (d2), s/veh	1.6	0.2		11.0	0.6	0.1	17.9
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.5		4.8	5.8	6.9	21.6
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	32.8	3.3		69.0	19.6	28.0	55.4
LnGrp LOS	C	A		E	B	C	E
Approach Vol, veh/h	859			924	1219		
Approach Delay, s/veh	28.7			34.1	41.7		
Approach LOS	C			C	D		
Timer - Assigned Phs	1	2		6	8		
Phs Duration (G+Y+Rc), s	66.6	55.5		72.1	57.9		
Change Period (Y+Rc), s	4.4	* 5.7		5.7	5.3		
Max Green Setting (Gmax), s	44.7	* 40		58.3	60.7		
Max Q Clear Time (g_c+112), s	112.1	23.1		16.3	50.4		
Green Ext Time (p_c), s	0.1	7.8		6.5	2.2		

Intersection Summary

HCM 6th Ctrl Delay	35.7
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mobley St & Gramercy Dr

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	190	30	30	460	100	90	40	60	80	10	20
Future Volume (veh/h)	20	190	30	30	460	100	90	40	60	80	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1826	1841	1737	1870	1870	1870	1870	1870	1707	1707	1707
Adj Flow Rate, veh/h	21	200	13	32	484	80	95	42	45	84	11	13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	5	4	11	2	2	2	2	2	13	13	13
Cap, veh/h	508	1515	655	663	1325	218	329	133	94	444	58	41
Arrive On Green	0.44	0.44	0.44	0.44	0.44	0.44	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	841	3469	1501	1072	3036	499	631	549	388	987	241	168
Grp Volume(v), veh/h	21	200	13	32	282	282	182	0	0	108	0	0
Grp Sat Flow(s),veh/h/ln	841	1735	1501	1072	1777	1758	1567	0	0	1396	0	0
Q Serve(g_s), s	0.5	1.1	0.2	0.6	3.3	3.3	1.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.9	1.1	0.2	1.6	3.3	3.3	2.9	0.0	0.0	1.7	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.28	0.52		0.25	0.78		0.12
Lane Grp Cap(c), veh/h	508	1515	655	663	776	767	555	0	0	543	0	0
V/C Ratio(X)	0.04	0.13	0.02	0.05	0.36	0.37	0.33	0.00	0.00	0.20	0.00	0.00
Avail Cap(c_a), veh/h	1765	6701	2900	2265	3432	3395	2130	0	0	1846	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.2	5.2	5.0	5.7	5.9	5.9	10.0	0.0	0.0	9.6	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.1	0.5	0.5	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.2	0.0	0.1	0.7	0.7	0.8	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.2	5.3	5.0	5.8	6.4	6.4	10.1	0.0	0.0	9.6	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	A	A	A
Approach Vol, veh/h		234			596			182			108	
Approach Delay, s/veh		5.5			6.4			10.1			9.6	
Approach LOS		A			A			B			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		18.7		12.4		18.7		12.4				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		5.9		3.7		5.3		4.9				
Green Ext Time (p_c), s		3.0		0.5		7.6		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				7.1								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary
43: Sandrock Rd & Greyling Dr/Gramercy Dr

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕	↕	↕	↕
Traffic Volume (veh/h)	60	90	10	10	110	420	0	20	20	240	10	60
Future Volume (veh/h)	60	90	10	10	110	420	0	20	20	240	10	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.92	0.96		0.94	1.00		1.00	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1663	1870	1870	1870	1841	1870	1870
Adj Flow Rate, veh/h	65	98	8	11	120	207	0	22	0	269	0	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	2	2	16	2	2	2	4	2	2
Cap, veh/h	278	355	24	131	614	712	0	41	35	638	0	268
Arrive On Green	0.34	0.34	0.34	0.34	0.34	0.34	0.00	0.02	0.00	0.18	0.00	0.18
Sat Flow, veh/h	388	1039	70	50	1795	1331	0	1870	1585	3506	0	1472
Grp Volume(v), veh/h	171	0	0	131	0	207	0	22	0	269	0	15
Grp Sat Flow(s),veh/h/ln1497	0	0	1845	0	1331	0	1870	1585	1753	0	1472	
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.4	0.0	2.3	0.0	0.3
Cycle Q Clear(g_c), s	2.3	0.0	0.0	1.7	0.0	3.0	0.0	0.4	0.0	2.3	0.0	0.3
Prop In Lane	0.38		0.05	0.08		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	657	0	0	745	0	712	0	41	35	638	0	268
V/C Ratio(X)	0.26	0.00	0.00	0.18	0.00	0.29	0.00	0.53	0.00	0.42	0.00	0.06
Avail Cap(c_a), veh/h	1197	0	0	1445	0	1231	0	1096	929	3081	0	1293
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.2	0.0	0.0	7.9	0.0	4.6	0.0	16.5	0.0	12.4	0.0	11.5
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.1	0.0	3.9	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln0.7	0.0	0.0	0.4	0.0	0.8	0.0	0.2	0.0	0.7	0.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.2	0.0	0.0	8.0	0.0	4.7	0.0	20.4	0.0	12.5	0.0	11.6
LnGrp LOS	A	A	A	A	A	A	A	C	A	B	A	B
Approach Vol, veh/h		171			338			22			284	
Approach Delay, s/veh		8.2			6.0			20.4			12.5	
Approach LOS		A			A			C			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.0		11.5		17.0		5.7				
Change Period (Y+Rc), s		5.3		5.3		5.3		4.9				
Max Green Setting (Gmax), s		25.0		30.0		25.0		20.0				
Max Q Clear Time (g_c+I1), s		4.3		4.3		5.0		2.4				
Green Ext Time (p_c), s		0.7		0.5		0.8		0.0				

Intersection Summary

HCM 6th Ctrl Delay	9.1
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
 44: Mission City Pkwy/Fenton Pkwy & Camino del Rio N

Horizon Year No Project With 2-Ln Bridge
 AM Peak Hour



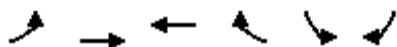
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	41	60	150	437	359	510	109	52	132	65	36
Future Volume (veh/h)	29	41	60	150	437	359	510	109	52	132	65	36
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	45	28	163	475	372	554	118	43	143	71	23
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	48	722	1074	192	454	356	519	348	127	171	96	31
Arrive On Green	0.03	0.39	0.39	0.11	0.47	0.47	0.29	0.27	0.27	0.10	0.07	0.07
Sat Flow, veh/h	1781	1870	1585	1781	972	761	1781	1308	477	1781	1353	438
Grp Volume(v), veh/h	32	45	28	163	0	847	554	0	161	143	0	94
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1733	1781	0	1785	1781	0	1791
Q Serve(g_s), s	2.2	1.9	0.7	11.3	0.0	58.5	36.5	0.0	9.1	9.9	0.0	6.4
Cycle Q Clear(g_c), s	2.2	1.9	0.7	11.3	0.0	58.5	36.5	0.0	9.1	9.9	0.0	6.4
Prop In Lane	1.00		1.00	1.00		0.44	1.00		0.27	1.00		0.24
Lane Grp Cap(c), veh/h	48	722	1074	192	0	809	519	0	475	171	0	127
V/C Ratio(X)	0.67	0.06	0.03	0.85	0.00	1.05	1.07	0.00	0.34	0.84	0.00	0.74
Avail Cap(c_a), veh/h	71	722	1074	326	0	809	519	0	678	297	0	458
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	60.4	24.2	6.6	54.9	0.0	33.4	44.4	0.0	37.0	55.6	0.0	57.0
Incr Delay (d2), s/veh	15.0	0.0	0.0	10.0	0.0	44.4	58.7	0.0	0.4	10.2	0.0	8.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.9	0.2	5.6	0.0	33.8	24.6	0.0	4.1	5.0	0.0	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.4	24.2	6.6	64.9	0.0	77.8	103.1	0.0	37.5	65.8	0.0	65.1
LnGrp LOS	E	C	A	E	A	F	F	A	D	E	A	E
Approach Vol, veh/h		105			1010			715			237	
Approach Delay, s/veh		35.1			75.7			88.3			65.5	
Approach LOS		D			E			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	16.5	37.9	18.0	52.9	41.0	13.4	7.9	63.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	20.9	47.6	22.9	40.6	36.5	32.0	5.0	58.5				
Max Q Clear Time (g_c+I1), s	11.9	11.1	13.3	3.9	38.5	8.4	4.2	60.5				
Green Ext Time (p_c), s	0.2	1.0	0.3	0.3	0.0	0.5	0.0	0.0				

Intersection Summary

HCM 6th Ctrl Delay	76.8
HCM 6th LOS	E

HCM 6th Signalized Intersection Summary
45: Camino del Rio S & Mission City Pkwy

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↶	↷	↶	↷	↶	↷	
Traffic Volume (veh/h)	79	210	530	502	123	173	
Future Volume (veh/h)	79	210	530	502	123	173	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	86	228	576	444	134	28	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	141	1206	830	880	198	176	
Arrive On Green	0.08	0.64	0.44	0.44	0.11	0.11	
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585	
Grp Volume(v), veh/h	86	228	576	444	134	28	
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1781	1585	
Q Serve(g_s), s	1.7	1.8	9.1	6.4	2.7	0.6	
Cycle Q Clear(g_c), s	1.7	1.8	9.1	6.4	2.7	0.6	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	141	1206	830	880	198	176	
V/C Ratio(X)	0.61	0.19	0.69	0.50	0.68	0.16	
Avail Cap(c_a), veh/h	265	1925	1418	1379	1110	987	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	16.4	2.7	8.3	5.1	15.8	14.8	
Incr Delay (d2), s/veh	4.2	0.1	1.1	0.4	4.0	0.4	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.8	0.2	2.6	1.8	1.2	0.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	20.6	2.7	9.3	5.5	19.7	15.3	
LnGrp LOS	C	A	A	A	B	B	
Approach Vol, veh/h		314	1020		162		
Approach Delay, s/veh		7.6	7.7		19.0		
Approach LOS		A	A		B		
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			28.3		8.6	7.4	20.9
Change Period (Y+Rc), s			4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s			38.0		23.0	5.5	28.0
Max Q Clear Time (g_c+1), s			3.8		4.7	3.7	11.1
Green Ext Time (p_c), s			1.4		0.4	0.0	5.2
Intersection Summary							
HCM 6th Ctrl Delay			8.9				
HCM 6th LOS			A				

HCM 6th Signalized Intersection Summary
46: Camino del Rio S & I-15 SB Off-Ramp

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



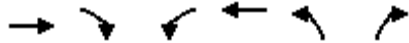
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑			↕		↖		↗
Traffic Volume (veh/h)	0	183	20	30	962	0	10	0	10	70	20	530
Future Volume (veh/h)	0	183	20	30	962	0	10	0	10	70	20	530
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	199	15	33	1046	0	11	0	0	76	22	468
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	0	1760	132	47	1095	0	22	0	0	534	0	475
Arrive On Green	0.00	0.53	0.53	0.03	0.59	0.00	0.01	0.00	0.00	0.30	0.30	0.30
Sat Flow, veh/h	0	3445	251	1781	1870	0	1781	0	0	1781	0	1585
Grp Volume(v), veh/h	0	105	109	33	1046	0	11	0	0	76	0	468
Grp Sat Flow(s),veh/h/ln	0	1777	1825	1781	1870	0	1781	0	0	1781	0	1585
Q Serve(g_s), s	0.0	3.9	4.0	2.4	69.5	0.0	0.8	0.0	0.0	4.1	0.0	38.8
Cycle Q Clear(g_c), s	0.0	3.9	4.0	2.4	69.5	0.0	0.8	0.0	0.0	4.1	0.0	38.8
Prop In Lane	0.00		0.14	1.00		0.00	1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	0	933	958	47	1095	0	22	0	0	534	0	475
V/C Ratio(X)	0.00	0.11	0.11	0.70	0.95	0.00	0.49	0.00	0.00	0.14	0.00	0.99
Avail Cap(c_a), veh/h	0	948	974	93	1159	0	67	0	0	534	0	475
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	15.8	15.9	63.8	25.7	0.0	64.8	0.0	0.0	33.9	0.0	46.0
Incr Delay (d2), s/veh	0.0	0.1	0.1	16.8	16.3	0.0	15.7	0.0	0.0	0.1	0.0	37.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.6	1.7	1.3	34.2	0.0	0.5	0.0	0.0	1.8	0.0	20.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.9	15.9	80.6	42.1	0.0	80.5	0.0	0.0	34.0	0.0	83.4
LnGrp LOS	A	B	B	F	D	A	F	A	A	C	A	F
Approach Vol, veh/h		214			1079			11			544	
Approach Delay, s/veh		15.9			43.3			80.5			76.5	
Approach LOS		B			D			F			E	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.0	73.9		44.1		81.9		6.2				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	6.0	70.5		39.6		81.9		5.0				
Max Q Clear Time (g_c+1/4), s	14.4	6.0		40.8		71.5		2.8				
Green Ext Time (p_c), s	0.0	1.3		0.0		5.9		0.0				

Intersection Summary

HCM 6th Ctrl Delay	50.1
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary
 47: I-15 SB On-Ramp & Camino del Rio S

Horizon Year No Project With 2-Ln Bridge
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑		
Traffic Volume (veh/h)	170	93	30	992	0	0
Future Volume (veh/h)	170	93	30	992	0	0
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		
Adj Flow Rate, veh/h	185	66	33	1078		
Peak Hour Factor	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2		
Cap, veh/h	1502	518	73	1516		
Arrive On Green	0.58	0.58	0.04	0.81		
Sat Flow, veh/h	2685	895	1781	1870		
Grp Volume(v), veh/h	125	126	33	1078		
Grp Sat Flow(s),veh/h/ln	1777	1709	1781	1870		
Q Serve(g_s), s	0.8	0.8	0.4	6.1		
Cycle Q Clear(g_c), s	0.8	0.8	0.4	6.1		
Prop In Lane		0.52	1.00			
Lane Grp Cap(c), veh/h	1029	990	73	1516		
V/C Ratio(X)	0.12	0.13	0.45	0.71		
Avail Cap(c_a), veh/h	1948	1874	375	2799		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	2.3	2.3	11.1	1.0		
Incr Delay (d2), s/veh	0.1	0.1	4.3	0.6		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	0.3		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	2.3	2.3	15.4	1.6		
LnGrp LOS	A	A	B	A		
Approach Vol, veh/h	251			1111		
Approach Delay, s/veh	2.3			2.0		
Approach LOS	A			A		
Timer - Assigned Phs			3	4		8
Phs Duration (G+Y+Rc), s			5.5	18.2		23.7
Change Period (Y+Rc), s			4.5	4.5		4.5
Max Green Setting (Gmax), s			5.0	26.0		35.5
Max Q Clear Time (g_c+I1), s			2.4	2.8		8.1
Green Ext Time (p_c), s			0.0	1.4		11.1
Intersection Summary						
HCM 6th Ctrl Delay			2.1			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
48: I-15 NB Ramps & Camino del Rio S

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	140	0	0	330	70	692	10	130	0	0	0
Future Volume (veh/h)	40	140	0	0	330	70	692	10	130	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	43	152	0	0	359	15	752	11	63			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	78	681	0	0	447	379	844	114	654			
Arrive On Green	0.04	0.36	0.00	0.00	0.24	0.24	0.47	0.47	0.47			
Sat Flow, veh/h	1781	1870	0	0	1870	1585	1781	241	1381			
Grp Volume(v), veh/h	43	152	0	0	359	15	752	0	74			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1870	1585	1781	0	1622			
Q Serve(g_s), s	1.3	3.1	0.0	0.0	10.0	0.4	21.3	0.0	1.4			
Cycle Q Clear(g_c), s	1.3	3.1	0.0	0.0	10.0	0.4	21.3	0.0	1.4			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.85			
Lane Grp Cap(c), veh/h	78	681	0	0	447	379	844	0	768			
V/C Ratio(X)	0.55	0.22	0.00	0.00	0.80	0.04	0.89	0.00	0.10			
Avail Cap(c_a), veh/h	161	963	0	0	642	544	1206	0	1098			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	25.9	12.2	0.0	0.0	19.8	16.2	13.3	0.0	8.0			
Incr Delay (d2), s/veh	6.0	0.2	0.0	0.0	4.8	0.0	6.4	0.0	0.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.7	1.2	0.0	0.0	4.5	0.1	8.3	0.0	0.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.9	12.4	0.0	0.0	24.7	16.2	19.6	0.0	8.1			
LnGrp LOS	C	B	A	A	C	B	B	A	A			
Approach Vol, veh/h		195			374			826				
Approach Delay, s/veh		16.7			24.3			18.6				
Approach LOS		B			C			B				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		24.7			6.9	17.7		30.7				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		28.5			5.0	19.0		37.5				
Max Q Clear Time (g_c+I1), s		5.1			3.3	12.0		23.3				
Green Ext Time (p_c), s		0.8			0.0	1.2		2.9				
Intersection Summary												
HCM 6th Ctrl Delay					19.9							
HCM 6th LOS					B							

Queues

Horizon Year No Project With 2-Ln Bridge

1: SR-163 SB Ramps/Ulric St & Friars Rd

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	73	635	281	615	938	750	323	63	875	213	214	104
v/c Ratio	0.60	0.31	0.41	0.82	0.38	0.50	0.76	0.27	0.82	0.70	0.70	0.26
Control Delay	88.0	42.7	7.4	65.9	13.8	22.9	75.2	61.8	47.8	68.1	68.3	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.0	42.7	7.4	65.9	13.8	22.9	75.2	61.8	47.8	68.1	68.3	3.7
Queue Length 50th (ft)	71	137	0	237	68	331	159	57	428	209	210	0
Queue Length 95th (ft)	126	204	86	246	344	452	211	104	487	270	271	20
Internal Link Dist (ft)		1296			1065			834			622	
Turn Bay Length (ft)	300		350	400		200	300		215			200
Base Capacity (vph)	149	2021	683	867	2500	1775	482	262	1164	471	471	538
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.31	0.41	0.71	0.38	0.42	0.67	0.24	0.75	0.45	0.45	0.19

Intersection Summary

Queues
2: Friars Rd & SR-163 NB Ramps

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour

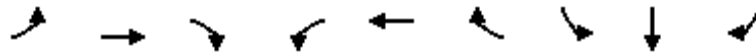


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	521	1396	1427	854	1219	833
v/c Ratio	0.50	0.34	0.76	0.61	0.83	0.50
Control Delay	41.8	10.1	26.5	20.1	54.6	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	10.1	26.5	20.1	54.6	16.1
Queue Length 50th (ft)	243	165	269	148	387	223
Queue Length 95th (ft)	229	109	347	198	444	305
Internal Link Dist (ft)		1065	635		521	
Turn Bay Length (ft)	500			200	500	400
Base Capacity (vph)	1051	4107	2527	1396	1546	1657
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.34	0.56	0.61	0.79	0.50

Intersection Summary

Queues
17: I-15 SB Ramps & Friars Rd

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



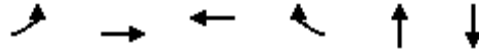
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	284	826	337	415	1763	553	418	412	862
v/c Ratio	0.71	0.51	0.46	0.89	1.00	0.35	0.91	0.90	0.57
Control Delay	49.9	33.7	5.9	44.7	41.1	0.1	64.4	61.7	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.9	33.7	5.9	44.7	41.1	0.1	64.4	61.7	17.5
Queue Length 50th (ft)	186	183	0	234	~494	0	290	285	201
Queue Length 95th (ft)	283	237	71	m141	m248	m0	#460	#449	257
Internal Link Dist (ft)		844			1079			723	
Turn Bay Length (ft)	380		200	350			520		520
Base Capacity (vph)	402	1607	730	531	1770	1583	504	506	1525
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.51	0.46	0.78	1.00	0.35	0.83	0.81	0.57

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
18: I-15 NB Ramps & Friars Rd

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	547	1175	3222	953	316	338
v/c Ratio	0.97	no cap	1.23	1.23	3.36	3.60
Control Delay	70.2		130.6	135.7	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	70.2	Error	130.6	135.7	0.0	0.0
Queue Length 50th (ft)	415	0	~1105	~981	0	0
Queue Length 95th (ft)	m#606	0	#1203	m#1253	0	0
Internal Link Dist (ft)		1079	869		797	677
Turn Bay Length (ft)	515					
Base Capacity (vph)	563	1	2618	773	94	94
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.97	1175.00	1.23	1.23	3.36	3.60

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues

Horizon Year No Project With 2-Ln Bridge

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

AM Peak Hour



Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	65	118	226	710	140	1269	394	516
v/c Ratio	0.41	0.26	0.31	0.91	0.59	0.65	0.56	0.71
Control Delay	60.4	7.6	27.6	39.4	59.4	31.0	44.5	9.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2
Total Delay	60.4	7.6	27.6	39.4	59.4	31.0	44.6	9.8
Queue Length 50th (ft)	46	0	113	344	99	284	137	0
Queue Length 95th (ft)	101	46	217	#725	183	350	206	103
Internal Link Dist (ft)			656			1041	147	
Turn Bay Length (ft)				150	110			
Base Capacity (vph)	582	691	738	779	535	4333	1775	1040
Starvation Cap Reductn	0	0	0	0	0	0	380	111
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.17	0.31	0.91	0.26	0.29	0.28	0.56

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Horizon Year No Project With 2-Ln Bridge

AM Peak Hour



Lane Group	EBR	NBT	SBT
Lane Group Flow (vph)	639	1309	903
v/c Ratio	0.72	0.72	0.50
Control Delay	21.2	14.0	10.7
Queue Delay	0.0	0.3	0.0
Total Delay	21.2	14.3	10.7
Queue Length 50th (ft)	96	163	95
Queue Length 95th (ft)	168	286	171
Internal Link Dist (ft)		285	1041
Turn Bay Length (ft)			
Base Capacity (vph)	2254	2238	2216
Starvation Cap Reductn	0	315	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.28	0.68	0.41
Intersection Summary			

Queues

Horizon Year No Project With 2-Ln Bridge

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	47	49	368	418	865	265	573	1724	11	918	235
v/c Ratio	0.32	0.32	0.65	1.19	1.26	0.62	1.38	1.05	0.05	0.85	0.41
Control Delay	55.8	55.6	25.6	152.0	165.6	38.5	220.9	67.8	33.4	36.9	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.9	0.0	3.8	0.5
Total Delay	55.8	55.6	25.6	152.0	165.6	38.5	220.9	81.7	33.4	40.6	14.0
Queue Length 50th (ft)	34	36	142	~412	~466	173	~563	~768	3	364	103
Queue Length 95th (ft)	75	78	241	#627	#607	269	#781	#910	m6	#482	m176
Internal Link Dist (ft)		2741			1304			835		254	
Turn Bay Length (ft)	105					200	215		65		140
Base Capacity (vph)	146	151	569	350	688	425	415	1641	238	1077	578
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	96	108
Spillback Cap Reductn	0	0	0	0	0	0	0	52	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.32	0.65	1.19	1.26	0.62	1.38	1.08	0.05	0.94	0.50

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
36: Fairmount Ave & I-8 EB Off-Ramp

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Lane Group	EBL	EBR	NBU	NBT	SBT
Lane Group Flow (vph)	1092	932	361	1352	835
v/c Ratio	0.80	0.85	1.11	0.79	0.64
Control Delay	35.1	40.1	126.8	30.0	40.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	35.1	40.1	126.8	30.0	40.0
Queue Length 50th (ft)	327	326	~283	406	191
Queue Length 95th (ft)	496	505	#664	610	270
Internal Link Dist (ft)	970			972	835
Turn Bay Length (ft)	550		350		
Base Capacity (vph)	2169	1755	326	2527	2412
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.50	0.53	1.11	0.54	0.35

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
46: Camino del Rio S & I-15 SB Off-Ramp

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



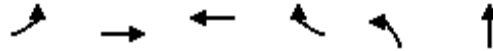
Lane Group	EBT	WBL	WBT	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	221	33	1046	22	76	22	576
v/c Ratio	0.12	0.37	0.96	0.15	0.14	no cap	0.99
Control Delay	15.7	76.0	45.9	2.2	37.2		71.3
Queue Delay	0.0	66.0	48.4	0.0	0.0		0.0
Total Delay	15.7	142.0	94.3	2.2	37.2	Error	71.3
Queue Length 50th (ft)	51	30	863	0	52	0	~474
Queue Length 95th (ft)	75	67	#1208	0	95	0	#708
Internal Link Dist (ft)	323		47	78		212	
Turn Bay Length (ft)		50					
Base Capacity (vph)	1932	94	1174	144	539	1	580
Starvation Cap Reductn	0	59	427	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.94	1.40	0.15	0.14	22.00	0.99

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
48: I-15 NB Ramps & Camino del Rio S

Horizon Year No Project With 2-Ln Bridge
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	43	152	359	76	752	152
v/c Ratio	0.28	0.24	0.73	0.16	0.85	0.17
Control Delay	37.7	16.7	34.0	5.7	26.0	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.7	16.7	34.0	5.7	26.0	3.1
Queue Length 50th (ft)	20	47	154	0	286	2
Queue Length 95th (ft)	50	86	#278	26	#510	29
Internal Link Dist (ft)		251	398			464
Turn Bay Length (ft)				90	175	
Base Capacity (vph)	154	927	617	583	1155	1096
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.16	0.58	0.13	0.65	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

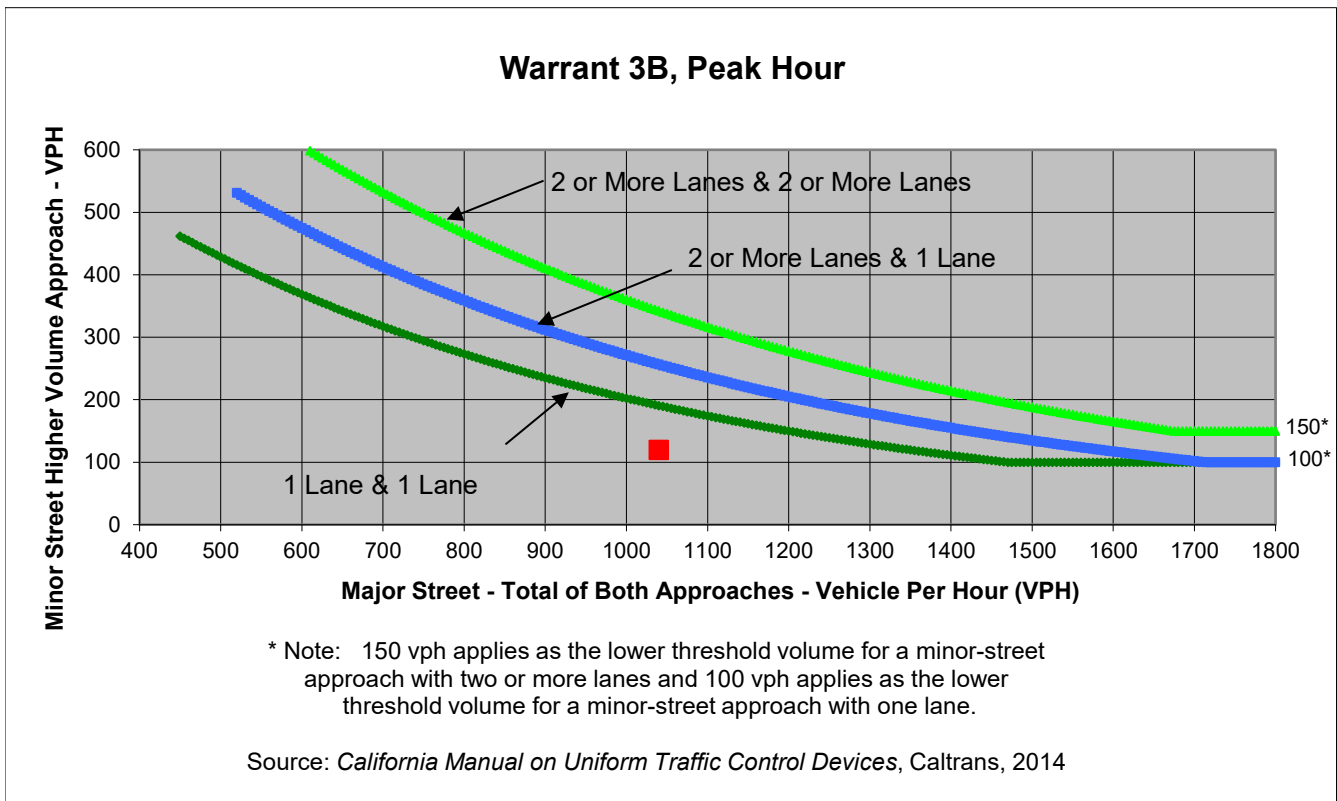
Project SDSU West
 Scenario Horizon Year w/2-Ln Bridge
 Peak Hour AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	30	0	40	0
Through	537	453	0	0
Right	0	20	80	0
Total	567	473	120	0

Major Street Direction

x	North/South
	East/West



	Major Street	Minor Street	Warrant Met
	Ward Rd	Rancho Mission Rd	
Number of Approach Lanes	2	1	<u>NO</u>
Traffic Volume (VPH) *	1,040	120	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
 Traffic Volume for Minor Street is the Volume of High Volume Approach.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

Project SDSU West
 Scenario Horizon Year w/2-Ln Bridge
 Peak Hour AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	30	0	40	0
Through	537	453	0	0
Right	0	20	80	0
Total	567	473	120	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

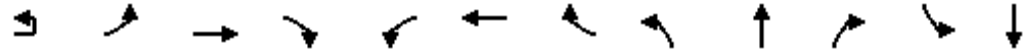
Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	22
Approach with Worst Case Delay	EB
Total Vehicles on Approach	120

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Horizon Year w/2-Ln Bridge	0.7	120	1,160
Limiting Value	4	100	650
Condition Satisfied?	Not Met	Met	Met
Warrant Met	<u>NO</u>		

HCM Signalized Intersection Capacity Analysis
 1: SR-163 SB Ramps/Ulríc St & Friars Rd

Horizon Year No Project With 2-Ln Bridge
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations		3		7	77	777	77	77	7	77	7	7
Traffic Volume (vph)	10	170	1730	700	610	1140	750	320	30	750	670	0
Future Volume (vph)	10	170	1730	700	610	1140	750	320	30	750	670	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.7	7.0	7.0	4.5	3.0	6.1	6.1	6.1	4.5	6.1	6.1
Lane Util. Factor		1.00	0.86	1.00	0.97	0.91	0.88	0.97	1.00	0.88	0.95	0.95
Frbp, ped/bikes		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Satd. Flow (prot)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Satd. Flow (perm)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	10	173	1765	714	622	1163	765	327	31	765	684	0
RTOR Reduction (vph)	0	0	0	491	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	183	1765	223	622	1163	765	327	31	765	342	342
Confl. Peds. (#/hr)				5								
Confl. Bikes (#/hr)				2								
Turn Type	Prot	Prot	NA	Perm	Prot	NA	custom	Split	NA	pm+ov	Split	NA
Protected Phases	5	5	2		1	6 7	4 7	8	8	1	4	4
Permitted Phases				2						8		
Actuated Green, G (s)		17.5	44.7	44.7	26.0	53.0	69.5	14.1	14.1	40.1	36.5	36.5
Effective Green, g (s)		17.5	44.7	44.7	26.0	53.0	62.5	14.1	14.1	40.1	36.5	36.5
Actuated g/C Ratio		0.12	0.31	0.31	0.18	0.37	0.43	0.10	0.10	0.28	0.25	0.25
Clearance Time (s)		4.7	7.0	7.0	4.5			6.1	6.1	4.5	6.1	6.1
Vehicle Extension (s)		2.0	2.0	2.0	3.0			3.0	3.0	3.0	2.0	2.0
Lane Grp Cap (vph)		213	1975	476	615	1858	1201	333	181	770	423	423
v/s Ratio Prot		0.10	c0.28		c0.18	0.23	0.27	0.10	0.02	c0.18	c0.20	0.20
v/s Ratio Perm				0.14						0.10		
v/c Ratio		0.86	0.89	0.47	1.01	0.63	0.64	0.98	0.17	0.99	0.81	0.81
Uniform Delay, d1		62.5	47.9	40.5	59.5	37.8	32.4	65.3	60.1	52.3	51.0	51.0
Progression Factor		1.00	1.00	1.00	1.24	0.67	0.67	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		26.5	6.7	3.3	34.1	0.4	0.6	44.2	0.5	30.6	10.3	10.3
Delay (s)		89.1	54.6	43.8	107.8	25.6	22.2	109.5	60.5	83.0	61.2	61.2
Level of Service		F	D	D	F	C	C	F	E	F	E	E
Approach Delay (s)			54.1			44.6			90.1			56.8
Approach LOS			D			D			F			E
Intersection Summary												
HCM 2000 Control Delay			56.7		HCM 2000 Level of Service				E			
HCM 2000 Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			145.0		Sum of lost time (s)				26.9			
Intersection Capacity Utilization			96.1%		ICU Level of Service				F			
Analysis Period (min)			15									
c Critical Lane Group												

Movement	SBR
Lane Configurations	7
Traffic Volume (vph)	210
Future Volume (vph)	210
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.1
Lane Util. Factor	1.00
Frbp, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1560
Flt Permitted	1.00
Satd. Flow (perm)	1560
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	214
RTOR Reduction (vph)	147
Lane Group Flow (vph)	67
Confl. Peds. (#/hr)	3
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	36.5
Effective Green, g (s)	36.5
Actuated g/C Ratio	0.25
Clearance Time (s)	6.1
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	392
v/s Ratio Prot	
v/s Ratio Perm	0.04
v/c Ratio	0.17
Uniform Delay, d1	42.4
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	42.5
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
2: Friars Rd & SR-163 NB Ramps

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	640	2390	1510	1020	1130	1010
Future Volume (vph)	640	2390	1510	1020	1130	1010
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.5	6.0	4.5	4.5	5.0
Lane Util. Factor	0.97	0.86	0.86	0.88	0.94	0.88
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	6408	6408	2787	4990	2787
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	6408	6408	2787	4990	2787
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	667	2490	1573	1062	1177	1052
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	667	2490	1573	1063	1177	1052
Turn Type	Prot	NA	NA	custom	Prot	pm+ov
Protected Phases	5	2	3	6	4	5
Permitted Phases						4
Actuated Green, G (s)	42.0	92.5	47.0	65.0	43.5	85.5
Effective Green, g (s)	42.0	92.5	47.0	65.0	43.5	85.5
Actuated g/C Ratio	0.29	0.64	0.32	0.45	0.30	0.59
Clearance Time (s)	5.0	4.5			4.5	5.0
Vehicle Extension (s)	2.0	3.0			3.0	2.0
Lane Grp Cap (vph)	994	4087	2077	1249	1497	1739
v/s Ratio Prot	c0.19	0.39	c0.25	c0.38	0.24	0.18
v/s Ratio Perm						0.20
v/c Ratio	0.67	0.61	0.76	0.85	0.79	0.60
Uniform Delay, d1	45.4	15.5	43.9	35.7	46.5	19.0
Progression Factor	0.81	0.50	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.3	1.4	5.8	2.8	0.4
Delay (s)	37.3	8.1	45.3	41.4	49.3	19.4
Level of Service	D	A	D	D	D	B
Approach Delay (s)		14.2	43.8		35.2	
Approach LOS		B	D		D	























Intersection Summary

HCM 2000 Control Delay	29.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Frazee Rd & Friars Rd

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour

												
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	30	340	2460	670	10	90	1610	100	330	70	130	130
Future Volume (vph)	30	340	2460	670	10	90	1610	100	330	70	130	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.4	3.0	4.4		4.4	6.5	6.5	4.4	4.9		4.4
Lane Util. Factor		0.97	0.86	0.88		0.97	0.86	1.00	0.97	0.95		0.97
Frbp, ped/bikes		1.00	1.00	1.00		1.00	1.00	0.98	1.00	0.97		1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.90		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (prot)		3433	6408	2787		3433	6408	1547	3433	3097		3433
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (perm)		3433	6408	2787		3433	6408	1547	3433	3097		3433
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	34	382	2764	753	11	101	1809	112	371	79	146	146
RTOR Reduction (vph)	0	0	0	0	0	0	0	71	0	55	0	0
Lane Group Flow (vph)	0	416	2764	753	0	112	1809	41	371	170	0	146
Confl. Peds. (#/hr)				18				8			43	
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	custom	Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2 9	3 9	1	1	6		3	8		7
Permitted Phases							6					
Actuated Green, G (s)		19.2	63.4	58.4		6.5	49.7	49.7	19.7	40.0		7.3
Effective Green, g (s)		19.2	63.4	52.9		6.5	49.7	49.7	19.7	40.0		7.3
Actuated g/C Ratio		0.14	0.46	0.39		0.05	0.36	0.36	0.14	0.29		0.05
Clearance Time (s)		4.4				4.4	6.5	6.5	4.4	4.9		4.4
Vehicle Extension (s)		2.0				2.0	4.4	4.4	2.0	2.0		2.2
Lane Grp Cap (vph)		483	2978	1080		163	2334	563	495	908		183
v/s Ratio Prot		c0.12	c0.43	0.27		0.03	0.28		c0.11	0.05		0.04
v/s Ratio Perm							0.03					
v/c Ratio		0.86	0.93	0.70		0.69	0.78	0.07	0.75	0.19		0.80
Uniform Delay, d1		57.3	34.4	35.0		63.9	38.4	28.3	56.0	36.0		63.8
Progression Factor		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		14.1	5.7	1.6		9.2	1.9	0.1	5.4	0.0		20.0
Delay (s)		71.4	40.0	36.6		73.1	40.3	28.4	61.4	36.1		83.8
Level of Service		E	D	D		E	D	C	E	D		F
Approach Delay (s)			42.7				41.4			51.8		
Approach LOS			D				D			D		
Intersection Summary												
HCM 2000 Control Delay			44.8				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			136.4				Sum of lost time (s)			22.2		
Intersection Capacity Utilization			91.8%				ICU Level of Service			F		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Frazee Rd & Friars Rd

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑	↑↑
Traffic Volume (vph)	80	380
Future Volume (vph)	80	380
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.9	4.9
Lane Util. Factor	1.00	0.88
Frbp, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1863	2750
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1863	2750
Peak-hour factor, PHF	0.89	0.89
Adj. Flow (vph)	90	427
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	90	427
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		1
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	27.6	27.6
Effective Green, g (s)	27.6	27.6
Actuated g/C Ratio	0.20	0.20
Clearance Time (s)	4.9	4.9
Vehicle Extension (s)	2.3	2.3
Lane Grp Cap (vph)	376	556
v/s Ratio Prot	0.05	
v/s Ratio Perm		c0.16
v/c Ratio	0.24	0.77
Uniform Delay, d1	45.6	51.4
Progression Factor	1.00	1.00
Incremental Delay, d2	0.2	5.9
Delay (s)	45.8	57.3
Level of Service	D	E
Approach Delay (s)	61.6	
Approach LOS	E	
Intersection Summary		

HCM 6th Signalized Intersection Summary
4: Mission Center Rd & Friars Rd WB

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↶		↶	↷			↶	↷
Traffic Volume (veh/h)	0	0	0	180	10	280	10	230	880	0	0	1200	340
Future Volume (veh/h)	0	0	0	180	10	280	10	230	880	0	0	1200	340
Initial Q (Qb), veh				0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00		1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No			No
Adj Sat Flow, veh/h/ln				1870	1870	1870		1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				195	0	163		240	917	0	0	1250	292
Peak Hour Factor				0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2		2	2	0	0	2	2
Cap, veh/h				447	0	199		303	2739	0	0	2283	983
Arrive On Green				0.25	0.00	0.25		0.18	1.00	0.00	0.00	0.64	0.64
Sat Flow, veh/h				3563	0	1585		3456	3647	0	0	3647	1531
Grp Volume(v), veh/h				195	0	163		240	917	0	0	1250	292
Grp Sat Flow(s),veh/h/ln				1781	0	1585		1728	1777	0	0	1777	1531
Q Serve(g_s), s				5.0	0.0	10.5		7.2	0.0	0.0	0.0	21.0	9.1
Cycle Q Clear(g_c), s				5.0	0.0	10.5		7.2	0.0	0.0	0.0	21.0	9.1
Prop In Lane				1.00		1.00		1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				447	0	199		303	2739	0	0	2283	983
V/C Ratio(X)				0.44	0.00	0.82		0.79	0.33	0.00	0.00	0.55	0.30
Avail Cap(c_a), veh/h				1013	0	451		579	2739	0	0	2283	983
HCM Platoon Ratio				2.00	2.00	2.00		2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00		0.59	0.59	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				37.2	0.0	39.3		43.6	0.0	0.0	0.0	10.7	8.5
Incr Delay (d2), s/veh				0.7	0.0	8.0		1.1	0.2	0.0	0.0	0.9	0.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.0	0.0	3.9		2.8	0.1	0.0	0.0	7.4	2.9
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh				37.9	0.0	47.3		44.7	0.2	0.0	0.0	11.6	9.3
LnGrp LOS				D	A	D		D	A	A	A	B	A
Approach Vol, veh/h						358				1157			1542
Approach Delay, s/veh						42.2				9.4			11.2
Approach LOS						D				A			B
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		89.5			13.9	75.7		18.5					
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9					
Max Green Setting (Gmax), s		* 67			18.1	43.6		30.7					
Max Q Clear Time (g_c+I1), s		2.0			9.2	23.0		12.5					
Green Ext Time (p_c), s		6.2			0.3	15.0		1.1					

Intersection Summary

HCM 6th Ctrl Delay	14.1
HCM 6th LOS	B

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Mission Center Rd & Friars Rd EB

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	10	310	0	0	0	0	730	430	550	830	0
Future Volume (veh/h)	380	10	310	0	0	0	0	730	430	550	830	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	408	0	185				0	768	386	579	874	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	528	0	235				0	776	389	1244	2675	0
Arrive On Green	0.15	0.00	0.15				0.00	0.34	0.34	0.72	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2353	1131	3456	3647	0
Grp Volume(v), veh/h	408	0	185				0	603	551	579	874	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1614	1728	1777	0
Q Serve(g_s), s	11.9	0.0	12.2				0.0	36.5	36.7	7.6	0.0	0.0
Cycle Q Clear(g_c), s	11.9	0.0	12.2				0.0	36.5	36.7	7.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.70	1.00		0.00
Lane Grp Cap(c), veh/h	528	0	235				0	610	554	1244	2675	0
V/C Ratio(X)	0.77	0.00	0.79				0.00	0.99	0.99	0.47	0.33	0.00
Avail Cap(c_a), veh/h	976	0	434				0	610	554	1244	2675	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.72	0.72	0.00
Uniform Delay (d), s/veh	44.2	0.0	44.3				0.0	35.2	35.3	10.7	0.0	0.0
Incr Delay (d2), s/veh	2.4	0.0	5.8				0.0	33.7	36.6	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	0.0	5.0				0.0	20.7	19.3	2.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.7	0.0	50.1				0.0	69.0	71.9	10.8	0.1	0.0
LnGrp LOS	D	A	D				A	E	E	B	A	A
Approach Vol, veh/h		593						1154			1453	
Approach Delay, s/veh		47.7						70.4			4.3	
Approach LOS		D						E			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	44.7	42.4	20.9	87.1								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	26.7	* 37	29.6	67.7								
Max Q Clear Time (g_c+I), s	19.6	38.7	14.2	2.0								
Green Ext Time (p_c), s	1.0	0.0	1.9	8.8								

Intersection Summary

HCM 6th Ctrl Delay	36.2
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
6: Qualcomm Way & Friars Rd WB

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↔		↖	↗			↗	↖
Traffic Volume (veh/h)	0	0	0	403	10	50	624	110	0	0	210	20
Future Volume (veh/h)	0	0	0	403	10	50	624	110	0	0	210	20
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				461	0	0	650	115	0	0	219	2
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				569	299	0	1169	2542	0	0	1122	487
Arrive On Green				0.16	0.00	0.00	0.34	0.72	0.00	0.00	0.32	0.32
Sat Flow, veh/h				3563	1870	0	3456	3647	0	0	3647	1543
Grp Volume(v), veh/h				461	0	0	650	115	0	0	219	2
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1728	1777	0	0	1777	1543
Q Serve(g_s), s				10.0	0.0	0.0	12.3	0.8	0.0	0.0	3.6	0.1
Cycle Q Clear(g_c), s				10.0	0.0	0.0	12.3	0.8	0.0	0.0	3.6	0.1
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				569	299	0	1169	2542	0	0	1122	487
V/C Ratio(X)				0.81	0.00	0.00	0.56	0.05	0.00	0.00	0.20	0.00
Avail Cap(c_a), veh/h				1251	657	0	1169	2542	0	0	1122	487
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.99	0.99	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				32.4	0.0	0.0	21.6	3.4	0.0	0.0	20.0	18.8
Incr Delay (d2), s/veh				1.1	0.0	0.0	0.6	0.0	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.2	0.0	0.0	4.7	0.2	0.0	0.0	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				33.5	0.0	0.0	22.2	3.4	0.0	0.0	20.0	18.8
LnGrp LOS				C	A	A	C	A	A	A	C	B
Approach Vol, veh/h					461			765			221	
Approach Delay, s/veh					33.5			19.4			20.0	
Approach LOS					C			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		62.3			32.2	30.1		17.7				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+11), s		2.8			14.3	5.6		12.0				
Green Ext Time (p_c), s		0.8			1.8	0.9		0.8				

Intersection Summary

HCM 6th Ctrl Delay	24.0
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
7: Qualcomm Way & Friars Rd EB

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	10	342	0	0	0	0	634	361	90	663	0
Future Volume (veh/h)	70	10	342	0	0	0	0	634	361	90	663	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	86	0	278				0	704	177	100	737	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	720	0	320				0	3669	903	165	2392	0
Arrive On Green	0.20	0.00	0.20				0.00	0.57	0.57	0.10	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	6696	1584	3456	3647	0
Grp Volume(v), veh/h	86	0	278				0	704	177	100	737	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1609	1584	1728	1777	0
Q Serve(g_s), s	1.6	0.0	13.6				0.0	4.2	4.3	2.2	0.0	0.0
Cycle Q Clear(g_c), s	1.6	0.0	13.6				0.0	4.2	4.3	2.2	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	720	0	320				0	3669	903	165	2392	0
V/C Ratio(X)	0.12	0.00	0.87				0.00	0.19	0.20	0.61	0.31	0.00
Avail Cap(c_a), veh/h	1519	0	676				0	3669	903	436	2392	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.84	0.84	0.80	0.80	0.00
Uniform Delay (d), s/veh	26.1	0.0	30.9				0.0	8.3	8.3	35.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	2.8				0.0	0.1	0.4	1.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	5.1				0.0	1.3	1.4	0.9	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.1	0.0	33.7				0.0	8.4	8.7	36.5	0.3	0.0
LnGrp LOS	C	A	C				A	A	A	D	A	A
Approach Vol, veh/h		364						881			837	
Approach Delay, s/veh		31.9						8.5			4.6	
Approach LOS		C						A			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	8.2	50.7	21.1	58.9								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.1	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	14.2	6.3	15.6	2.0								
Green Ext Time (p_c), s	0.1	5.3	0.6	3.5								

Intersection Summary

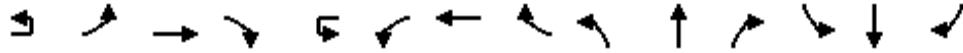
HCM 6th Ctrl Delay	11.0
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↖ ↗ ↘	↖ ↗ ↘	↖		↖ ↗ ↘	↖ ↗ ↘		↖ ↗	↖ ↗	↖ ↗		↖ ↗		
Traffic Volume (veh/h)	20	20	2388	160	10	70	1359	20	80	10	140	220	20	90	
Future Volume (veh/h)	20	20	2388	160	10	70	1359	20	80	10	140	220	20	90	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	1.00		0.98	0.98		0.98	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		21	2462	138		72	1401	20	82	10	38	227	21	82	
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2	
Cap, veh/h		243	2273	703		243	2308	33	409	47	469	289	23	88	
Arrive On Green		0.14	0.45	0.45		0.14	0.45	0.45	0.30	0.30	0.30	0.30	0.30	0.30	
Sat Flow, veh/h		1781	5106	1580		1781	5185	74	1180	155	1546	805	74	291	
Grp Volume(v), veh/h		21	2462	138		72	920	501	92	0	38	330	0	0	
Grp Sat Flow(s),veh/h/ln		1781	1702	1580		1781	1702	1855	1335	0	1546	1170	0	0	
Q Serve(g_s), s		1.4	60.1	7.2		4.9	27.7	27.7	0.0	0.0	2.4	31.0	0.0	0.0	
Cycle Q Clear(g_c), s		1.4	60.1	7.2		4.9	27.7	27.7	6.9	0.0	2.4	37.8	0.0	0.0	
Prop In Lane		1.00		1.00		1.00		0.04	0.89		1.00	0.69		0.25	
Lane Grp Cap(c), veh/h		243	2273	703		243	1515	826	456	0	469	400	0	0	
V/C Ratio(X)		0.09	1.08	0.20		0.30	0.61	0.61	0.20	0.00	0.08	0.82	0.00	0.00	
Avail Cap(c_a), veh/h		243	2273	703		243	1515	826	502	0	522	448	0	0	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		0.85	0.85	0.85	1.00	0.00	1.00	1.00	0.00	0.00	
Uniform Delay (d), s/veh		50.9	37.5	22.8		52.4	28.5	28.5	35.1	0.0	33.6	49.3	0.0	0.0	
Incr Delay (d2), s/veh		0.1	45.8	0.6		0.2	1.5	2.8	0.2	0.0	0.1	11.3	0.0	0.0	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		0.6	33.2	2.7		2.2	11.2	12.5	2.3	0.0	0.9	12.1	0.0	0.0	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		51.0	83.3	23.4		52.7	30.0	31.3	35.3	0.0	33.6	60.6	0.0	0.0	
LnGrp LOS		D	F	C		D	C	C	D	A	C	E	A	A	
Approach Vol, veh/h		2621				1493				130				330	
Approach Delay, s/veh		79.8				31.5				34.8				60.6	
Approach LOS		E				C				C				E	
Timer - Assigned Phs	1	2	4		5	6	8								
Phs Duration (G+Y+Rc), s	22.8	66.3	45.9		22.8	66.3	45.9								
Change Period (Y+Rc), s	4.4	6.2	4.9		4.4	6.2	4.9								
Max Green Setting (Gmax), s	13.8	60.1	45.6		13.8	60.1	45.6								
Max Q Clear Time (g_c+1), s	10.9	62.1	39.8		3.4	29.7	8.9								
Green Ext Time (p_c), s	0.0	0.0	1.1		0.0	25.0	0.6								

Intersection Summary

HCM 6th Ctrl Delay	61.4
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
9: Fenton Pkwy & Friars Rd

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗		↔↔	↑↑↑	↗	↔↔	↑	↗	↔↔	↗	↗
Traffic Volume (veh/h)	150	2081	697	10	279	878	80	490	50	451	40	20	70
Future Volume (veh/h)	150	2081	697	10	279	878	80	490	50	451	40	20	70
Initial Q (Qb), veh	15	25	15		0	0	0	0	0	15	15	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	2145	523		288	905	44	505	52	267	41	21	9
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	253	2106	1124		330	2541	849	811	451	372	132	88	199
Arrive On Green	0.06	0.52	0.52		0.19	1.00	1.00	0.18	0.21	0.21	0.02	0.05	0.05
Sat Flow, veh/h	3456	5106	1585		3456	5106	1565	3456	1870	1581	3563	1870	1557
Grp Volume(v), veh/h	155	2145	523		288	905	44	505	52	267	41	21	9
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1565	1728	1870	1581	1781	1870	1557
Q Serve(g_s), s	6.0	46.9	8.6		11.0	0.0	0.0	19.0	3.1	21.8	1.5	1.5	0.5
Cycle Q Clear(g_c), s	6.0	46.9	8.6		11.0	0.0	0.0	19.0	3.1	21.8	1.5	1.5	0.5
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	253	2106	1124		330	2541	849	811	451	372	132	88	199
V/C Ratio(X)	0.61	1.02	0.47		0.87	0.36	0.05	0.62	0.12	0.72	0.31	0.24	0.05
Avail Cap(c_a), veh/h	384	2677	1120		333	2861	913	630	545	460	280	470	486
HCM Platoon Ratio	1.00	1.00	1.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.23	0.23	0.23		0.92	0.92	0.92	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.3	40.0	2.7		54.2	3.5	2.5	47.0	40.4	50.2	64.9	62.5	26.0
Incr Delay (d2), s/veh	0.2	14.5	0.3		19.2	0.4	0.1	0.2	0.0	1.1	0.5	6.3	0.4
Initial Q Delay(d3),s/veh	65.6	42.7	2.4		0.0	0.0	0.0	0.0	0.0	41.7	134.6	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	33.5	4.7		5.1	0.9	0.1	7.8	1.4	15.3	4.2	0.9	0.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	128.1	97.2	5.4		73.4	3.9	2.6	47.2	40.5	93.0	200.0	68.7	26.4
LnGrp LOS	F	F	A		E	A	A	D	D	F	F	E	C
Approach Vol, veh/h		2823				1237			824			71	
Approach Delay, s/veh		81.9				20.0			61.6			139.2	
Approach LOS		F				C			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	7.4	77.6	29.7	11.3	12.5	82.5	7.6	33.4					
Change Period (Y+Rc), s	4.4	6.3	4.9	*4.9	4.4	*6.3	4.4	4.9					
Max Green Setting (Gmax), s	13.5	52.6	16.1	*34	15.1	*51	10.7	39.6					
Max Q Clear Time (g_c+1/3), s	13.5	48.9	21.0	3.5	8.0	2.0	3.5	23.8					
Green Ext Time (p_c), s	0.0	3.7	0.0	0.3	0.1	22.6	0.0	3.6					

Intersection Summary

HCM 6th Ctrl Delay	63.9
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
10: Northside Dr & Friars Rd

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗	↖ ↗
Traffic Volume (veh/h)	10	160	2036	250	530	918	210	210	40	800	100	30	100
Future Volume (veh/h)	10	160	2036	250	530	918	210	210	40	800	100	30	100
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		172	2189	269	570	987	140	226	43	771	108	32	5
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		220	2410	737	409	2690	897	280	407	529	158	341	289
Arrive On Green		0.13	0.94	0.94	0.12	0.53	0.53	0.08	0.22	0.22	0.05	0.18	0.18
Sat Flow, veh/h		3456	5106	1561	3456	5106	1565	3456	1870	1568	3456	1870	1585
Grp Volume(v), veh/h		172	2189	269	570	987	140	226	43	771	108	32	5
Grp Sat Flow(s),veh/h/ln		1728	1702	1561	1728	1702	1565	1728	1870	1568	1728	1870	1585
Q Serve(g_s), s		6.6	22.9	2.0	16.1	15.4	5.7	8.7	2.5	29.6	4.2	1.9	0.4
Cycle Q Clear(g_c), s		6.6	22.9	2.0	16.1	15.4	5.7	8.7	2.5	29.6	4.2	1.9	0.4
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		220	2410	737	409	2690	897	280	407	529	158	341	289
V/C Ratio(X)		0.78	0.91	0.37	1.39	0.37	0.16	0.81	0.11	1.46	0.68	0.09	0.02
Avail Cap(c_a), veh/h		307	2410	737	409	2690	897	483	407	529	483	407	345
HCM Platoon Ratio		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.40	0.40	0.40	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		58.5	2.7	2.1	60.0	18.9	13.6	61.4	42.6	45.2	63.9	46.3	45.6
Incr Delay (d2), s/veh		2.2	2.8	0.6	190.7	0.4	0.4	2.1	0.3	216.4	2.0	0.5	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.7	1.9	0.6	17.7	5.9	2.2	4.0	1.2	49.6	1.9	1.0	0.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		60.7	5.4	2.6	250.7	19.2	14.0	63.6	42.9	261.6	65.9	46.8	45.7
LnGrp LOS		E	A	A	F	B	B	E	D	F	E	D	D
Approach Vol, veh/h			2630			1697			1040			145	
Approach Delay, s/veh			8.8			96.5			209.5			61.0	
Approach LOS			A			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	20.5	70.4	15.4	29.7	13.0	77.8	10.6	34.5					
Change Period (Y+Rc), s	4.4	* 6.2	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	10.5	* 52	19.0	29.6	12.1	55.4	19.0	29.6					
Max Q Clear Time (g_c+1/10), s	11.0	24.9	10.7	3.9	8.6	17.4	6.2	31.6					
Green Ext Time (p_c), s	0.0	25.4	0.3	0.4	0.1	19.4	0.1	0.0					

Intersection Summary

HCM 6th Ctrl Delay	75.0
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 12: Mission Village Dr & Friars Rd WB

Horizon Year No Project With 2-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↕	↕	↕	↕↕			↕↕	↕
Traffic Volume (veh/h)	0	0	0	50	0	380	40	430	0	0	1320	550
Future Volume (veh/h)	0	0	0	50	0	380	40	430	0	0	1320	550
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				52	0	0	42	448	0	0	1375	484
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				86	0		74	1654	0	0	1318	572
Arrive On Green				0.05	0.00	0.00	0.04	0.47	0.00	0.00	0.37	0.37
Sat Flow, veh/h				1781	0	1585	1781	3647	0	0	3647	1542
Grp Volume(v), veh/h				52	0	0	42	448	0	0	1375	484
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	1777	0	0	1777	1542
Q Serve(g_s), s				2.9	0.0	0.0	2.3	7.7	0.0	0.0	37.1	28.8
Cycle Q Clear(g_c), s				2.9	0.0	0.0	2.3	7.7	0.0	0.0	37.1	28.8
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				86	0		74	1654	0	0	1318	572
V/C Ratio(X)				0.60	0.00		0.57	0.27	0.00	0.00	1.04	0.85
Avail Cap(c_a), veh/h				588	0		226	1958	0	0	1318	572
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.94	0.94	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				46.6	0.0	0.0	47.1	16.4	0.0	0.0	31.4	28.8
Incr Delay (d2), s/veh				2.5	0.0	0.0	2.4	0.1	0.0	0.0	36.7	14.3
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.3	0.0	0.0	1.0	2.9	0.0	0.0	21.3	12.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				49.1	0.0	0.0	49.5	16.5	0.0	0.0	68.2	43.2
LnGrp LOS				D	A		D	B	A	A	F	D
Approach Vol, veh/h				52	A		490				1859	
Approach Delay, s/veh				49.1			19.3				61.7	
Approach LOS				D			B				E	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		53.5			9.4	44.1		9.8				
Change Period (Y+Rc), s		7.0			5.3	7.0		4.9				
Max Green Setting (Gmax), s		55.1			12.7	37.1		33.0				
Max Q Clear Time (g_c+I1), s		9.7			4.3	39.1		4.9				
Green Ext Time (p_c), s		3.9			0.0	0.0		0.1				

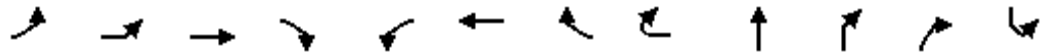
Intersection Summary

HCM 6th Ctrl Delay	52.8
HCM 6th LOS	D

Notes

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

HCM Signalized Intersection Capacity Analysis Horizon Year No Project With 2-Ln Bridge
 13: Mission Village Dr & Friars Rd EB & San Diego Mission Rd PM Peak Hour



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBT	NBR	NBR2	SBL2
Lane Configurations		EB	EB			WB	WB		NB	NB	NB	SB
Traffic Volume (vph)	310	10	125	10	10	0	130	40	40	20	20	540
Future Volume (vph)	310	10	125	10	10	0	130	40	40	20	20	540
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.2	5.2			5.4	5.4		4.9			
Lane Util. Factor		1.00	1.00			0.95	0.95		0.95			
Frbp, ped/bikes		1.00	1.00			1.00	1.00		0.99			
Flpb, ped/bikes		1.00	1.00			1.00	1.00		1.00			
Frt		1.00	0.99			0.87	0.85		0.93			
Flt Protected		0.95	1.00			0.99	1.00		1.00			
Satd. Flow (prot)		1770	1839			1526	1504		3239			
Flt Permitted		0.95	1.00			0.99	1.00		1.00			
Satd. Flow (perm)		1770	1839			1526	1504		3239			
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	326	11	132	11	11	0	137	42	42	21	21	568
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	19	0	0	0
Lane Group Flow (vph)	0	337	143	0	0	96	94	0	65	0	0	0
Confl. Peds. (#/hr)				1	1					4	3	
Confl. Bikes (#/hr)				1								
Turn Type	Split	Split	NA		Split	NA	Perm		NA			Split
Protected Phases	4	4	4		3	3			2			1
Permitted Phases							3					
Actuated Green, G (s)		14.1	14.1			13.3	13.3		9.0			
Effective Green, g (s)		14.1	14.1			13.3	13.3		9.0			
Actuated g/C Ratio		0.14	0.14			0.13	0.13		0.09			
Clearance Time (s)		5.2	5.2			5.4	5.4		4.9			
Vehicle Extension (s)		3.0	3.0			3.0	3.0		3.0			
Lane Grp Cap (vph)		249	259			202	200		291			
v/s Ratio Prot		c0.19	0.08			c0.06			c0.02			
v/s Ratio Perm							0.06					
v/c Ratio		1.35	0.55			0.48	0.47		0.22			
Uniform Delay, d1		43.0	40.0			40.1	40.1		42.3			
Progression Factor		1.00	1.00			1.00	1.00		1.00			
Incremental Delay, d2		183.1	2.5			1.8	1.7		0.4			
Delay (s)		226.0	42.5			41.9	41.8		42.6			
Level of Service		F	D			D	D		D			
Approach Delay (s)			171.4			41.9			42.6			
Approach LOS			F			D			D			
Intersection Summary												
HCM 2000 Control Delay			71.9			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			21.7			
Intersection Capacity Utilization			78.1%			ICU Level of Service			D			
Analysis Period (min)			15									
dl Defacto Left Lane. Recode with 1 though lane as a left lane.												
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis Horizon Year No Project With 2-Ln Bridge
 13: Mission Village Dr & Friars Rd EB & San Diego Mission Rd PM Peak Hour



Movement	SBL	SBT
Lane Configurations		
Traffic Volume (vph)	800	40
Future Volume (vph)	800	40
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	6.2	6.2
Lane Util. Factor	0.91	0.91
Frpb, ped/bikes	1.00	1.00
Flpb, ped/bikes	1.00	1.00
Frt	1.00	1.00
Flt Protected	0.95	0.95
Satd. Flow (prot)	1610	3237
Flt Permitted	0.95	0.95
Satd. Flow (perm)	1610	3237
Peak-hour factor, PHF	0.95	0.95
Adj. Flow (vph)	842	42
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	703	749
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Turn Type	Split	NA
Protected Phases	1	1
Permitted Phases		
Actuated Green, G (s)	41.9	41.9
Effective Green, g (s)	41.9	41.9
Actuated g/C Ratio	0.42	0.42
Clearance Time (s)	6.2	6.2
Vehicle Extension (s)	3.0	3.0
Lane Grp Cap (vph)	674	1356
v/s Ratio Prot	c0.44	0.23
v/s Ratio Perm		
v/c Ratio	1.04	0.98dl
Uniform Delay, d1	29.1	22.0
Progression Factor	0.86	0.92
Incremental Delay, d2	44.1	1.4
Delay (s)	69.2	21.7
Level of Service	E	C
Approach Delay (s)		44.7
Approach LOS		D
Intersection Summary		

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

Horizon Year No Project With 2-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	362	2019	639	10	300	1237	360	0	0	0	1120	0	330
Future Volume (veh/h)	362	2019	639	10	300	1237	360	0	0	0	1120	0	330
Initial Q (Qb), veh	20	0	20		20	0	20				0	0	20
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	377	2103	451		312	1289	0				1167	0	340
Peak Hour Factor	0.96	0.96	0.96		0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	590	3340	641		392	1246					1153	0	1993
Arrive On Green	0.29	0.37	0.37		0.19	0.24	0.00				0.32	0.00	0.32
Sat Flow, veh/h	1781	5106	1552		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	377	2103	451		312	1289	0				1167	0	340
Grp Sat Flow(s),veh/h/ln	1781	1702	1552		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	25.9	50.1	35.2		23.4	33.2	0.0				44.0	0.0	0.0
Cycle Q Clear(g_c), s	25.9	50.1	35.2		23.4	33.2	0.0				44.0	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	590	3340	641		392	1246					1153	0	1993
V/C Ratio(X)	0.64	0.63	0.70		0.80	1.03					1.01	0.00	0.17
Avail Cap(c_a), veh/h	550	1879	571		393	1246					1153	0	1951
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00		0.83	0.83	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	40.9	20.8	35.6		53.0	51.4	0.0				46.0	0.0	11.0
Incr Delay (d2), s/veh	2.2	0.9	6.4		8.4	32.5	0.0				29.6	0.0	0.0
Initial Q Delay(d3),s/veh	22.9	0.0	23.6		91.5	0.0	0.0				0.0	0.0	0.9
%ile BackOfQ(50%),veh/ln	15.6	9.8	17.2		23.9	17.5	0.0				24.2	0.0	7.9
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	66.0	21.7	65.6		152.9	83.9	0.0				75.6	0.0	11.9
LnGrp LOS	E	C	E		F	F					F	A	B
Approach Vol, veh/h		2931				1601	A					1507	
Approach Delay, s/veh		34.2				97.4						61.3	
Approach LOS		C				F						E	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	29.8	57.1		49.1	46.7	40.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	30	45.7		44.0	42.0	* 33							
Max Q Clear Time (g_c+2p_c), s	25.4	52.1		46.0	27.9	35.2							
Green Ext Time (p_c), s	0.2	0.0		0.0	0.5	0.0							

Intersection Summary

HCM 6th Ctrl Delay	57.7
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

Horizon Year No Project With 2-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖				↑↑↑	↗						
Traffic Volume (veh/h)	570	2629	0	0	1209	940	0	0	1260	0	0	658
Future Volume (veh/h)	570	2629	0	0	1209	940	0	0	1260	0	0	658
Initial Q (Qb), veh	40	0	0	0	20	40						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	600	2767	0	0	1272	990						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	660	0	0	0	1754	1511						
Arrive On Green	0.36	0.90	0.00	0.00	0.46	0.46						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	600	0	0	0	1272	990						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	23.1	0.0	0.0	0.0	19.8	17.4						
Cycle Q Clear(g_c), s	23.1	0.0	0.0	0.0	19.8	17.4						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	660	0	0	0	1754	1511						
V/C Ratio(X)	0.91	0.00	0.00	0.00	0.73	0.66						
Avail Cap(c_a), veh/h	1124	0	0	0	3356	2844						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	1.00	1.00						
Uniform Delay (d), s/veh	38.3	0.0	0.0	0.0	17.2	18.3						
Incr Delay (d2), s/veh	3.6	0.0	0.0	0.0	0.2	0.2						
Initial Q Delay(d3),s/veh	177.5	0.0	0.0	0.0	3.4	14.6						
%ile BackOfQ(50%),veh/ln	11.7	0.0	0.0	0.0	9.9	12.2						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	219.4	0.0	0.0	0.0	20.8	33.1						
LnGrp LOS	F	A	A	A	C	C						
Approach Vol, veh/h		600			2262							
Approach Delay, s/veh		219.4			26.2							
Approach LOS		F			C							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		71.3			31.4	39.9						
Change Period (Y+Rc), s		* 7			5.5	7.0						
Max Green Setting (Gmax), s		* 18			45.0	64.0						
Max Q Clear Time (g_c+I1), s		0.0			25.1	21.8						
Green Ext Time (p_c), s		0.0			0.9	11.1						

Intersection Summary

HCM 6th Ctrl Delay	66.7
HCM 6th LOS	E

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

Horizon Year No Project With 2-Ln Bridge
 PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↵	↑↑↑	↵↵	↑
Traffic Volume (veh/h)	3409	490	10	60	1709	430	121
Future Volume (veh/h)	3409	490	10	60	1709	430	121
Initial Q (Qb), veh	0	0		0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	3551	388		62	1780	448	27
Peak Hour Factor	0.96	0.96		0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	3087	1332		80	3348	545	284
Arrive On Green	0.70	0.70		0.04	0.77	0.14	0.14
Sat Flow, veh/h	5274	1583		1781	5125	3563	1585
Grp Volume(v), veh/h	3551	388		62	1780	448	27
Grp Sat Flow(s),veh/h/ln	1702	1583		1781	1085	1781	1585
Q Serve(g_s), s	93.9	7.0		4.7	21.3	16.8	2.0
Cycle Q Clear(g_c), s	93.9	7.0		4.7	21.3	16.8	2.0
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3087	1332		80	3348	545	284
V/C Ratio(X)	1.15	0.29		0.78	0.53	0.82	0.10
Avail Cap(c_a), veh/h	3562	1332		208	3362	843	375
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.90	0.90	0.78	0.78
Uniform Delay (d), s/veh	26.9	2.3		64.3	6.4	56.5	46.8
Incr Delay (d2), s/veh	71.8	0.6		5.5	0.5	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.1	13.5	0.0
%ile BackOfQ(50%),veh/ln	50.1	4.9		2.2	4.4	9.3	0.8
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	98.7	2.8		69.8	7.1	71.7	46.8
LnGrp LOS	F	A		E	A	E	D
Approach Vol, veh/h	3939				1842	475	
Approach Delay, s/veh	89.2				9.2	70.2	
Approach LOS	F				A	E	
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	10.5	100.9			111.4	24.6	
Change Period (Y+Rc), s	4.4	* 6			6.0	5.1	
Max Green Setting (Gmax), s	15.9	* 73			92.7	32.2	
Max Q Clear Time (g_c+1/3), s	10.7	95.9			23.3	18.8	
Green Ext Time (p_c), s	0.0	0.0			43.9	0.8	

Intersection Summary

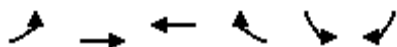
HCM 6th Ctrl Delay	64.2
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: Friars Rd & Santo Rd

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖↖	↑↑↑	↑↑↑		↖↖	↘
Traffic Volume (veh/h)	410	3200	1460	110	90	260
Future Volume (veh/h)	410	3200	1460	110	90	260
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1856	1870	1870
Adj Flow Rate, veh/h	427	3333	1521	109	94	262
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	3	3	2	2
Cap, veh/h	492	3833	3501	251	548	477
Arrive On Green	0.14	0.75	0.57	0.57	0.16	0.16
Sat Flow, veh/h	3456	5274	6385	439	3456	1585
Grp Volume(v), veh/h	427	3333	1188	442	94	262
Grp Sat Flow(s),veh/h/ln	1728	1702	1596	1777	1728	1585
Q Serve(g_s), s	14.5	56.2	17.0	17.0	2.8	16.6
Cycle Q Clear(g_c), s	14.5	56.2	17.0	17.0	2.8	16.6
Prop In Lane	1.00			0.25	1.00	1.00
Lane Grp Cap(c), veh/h	492	3833	2737	1016	548	477
V/C Ratio(X)	0.87	0.87	0.43	0.43	0.17	0.55
Avail Cap(c_a), veh/h	737	3833	2737	1016	734	563
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.76	0.76	1.00	1.00
Uniform Delay (d), s/veh	50.3	10.7	14.6	14.7	43.7	35.1
Incr Delay (d2), s/veh	0.5	0.3	0.4	1.0	0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	15.3	5.8	6.6	1.2	14.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.8	11.0	15.0	15.7	43.7	35.5
LnGrp LOS	D	B	B	B	D	D
Approach Vol, veh/h		3760	1630		356	
Approach Delay, s/veh		15.5	15.2		37.7	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		96.6		23.4	21.5	75.1
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		83.6		25.5	25.6	* 54
Max Q Clear Time (g_c+I1), s		58.2		18.6	16.5	19.0
Green Ext Time (p_c), s		24.6		0.4	0.6	16.1

Intersection Summary

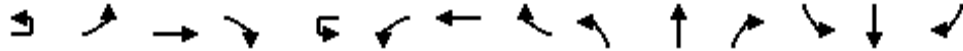
HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 21: Riverdale St & Friars Rd

Horizon Year No Project With 2-Ln Bridge
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		☞ ↑↑↑	☞ ↑↑↑	☞ ↑		☞ ↑↑↑	☞ ↑↑↑	☞ ↑	☞ ↑	☞ ↑		☞ ↑	☞ ↑	
Traffic Volume (veh/h)	30	230	2810	240	10	50	1140	60	220	110	140	60	60	140
Future Volume (veh/h)	30	230	2810	240	10	50	1140	60	220	110	140	60	60	140
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	0.99		0.99	1.00		0.99
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1856		1737	1856	1870	1870	1870	1870	1811	1870	1870
Adj Flow Rate, veh/h		237	2897	153		52	1175	25	227	113	92	62	62	49
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	3		11	3	2	2	2	2	6	2	2
Cap, veh/h		268	2822	867		65	2237	700	340	250	204	255	254	201
Arrive On Green		0.15	0.55	0.55		0.04	0.44	0.44	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h		1781	5106	1568		1654	5066	1585	1275	951	774	1135	965	762
Grp Volume(v), veh/h		237	2897	153		52	1175	25	227	0	205	62	0	111
Grp Sat Flow(s),veh/h/ln		1781	1702	1568		1654	1689	1585	1275	0	1725	1135	0	1727
Q Serve(g_s), s		13.7	58.0	5.1		3.3	17.7	0.9	17.9	0.0	10.4	5.1	0.0	5.3
Cycle Q Clear(g_c), s		13.7	58.0	5.1		3.3	17.7	0.9	23.2	0.0	10.4	15.5	0.0	5.3
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.45	1.00		0.44
Lane Grp Cap(c), veh/h		268	2822	867		65	2237	700	340	0	454	255	0	455
V/C Ratio(X)		0.88	1.03	0.18		0.80	0.53	0.04	0.67	0.00	0.45	0.24	0.00	0.24
Avail Cap(c_a), veh/h		324	2822	867		206	2237	700	457	0	613	359	0	613
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.55	0.55	0.55		0.92	0.92	0.92	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		43.7	23.5	11.6		50.0	21.3	16.6	39.6	0.0	32.3	38.8	0.0	30.5
Incr Delay (d2), s/veh		11.7	20.1	0.2		7.5	0.8	0.1	0.9	0.0	0.3	0.2	0.0	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		6.7	25.2	1.7		1.4	6.7	0.3	5.6	0.0	4.4	1.4	0.0	2.2
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		55.4	43.6	11.9		57.5	22.1	16.7	40.4	0.0	32.6	39.0	0.0	30.6
LnGrp LOS		E	F	B		E	C	B	D	A	C	D	A	C
Approach Vol, veh/h			3287				1252			432			173	
Approach Delay, s/veh			43.0				23.5			36.7			33.6	
Approach LOS			D				C			D			C	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	8.5	63.9		32.5	20.2	52.3		32.5						
Change Period (Y+Rc), s	4.4	* 5.9		4.9	4.4	5.9		4.9						
Max Green Setting (Gmax), s	13.5	* 40		37.3	19.1	33.4		37.3						
Max Q Clear Time (g_c+1/3), s	15.3	60.0		17.5	15.7	19.7		25.2						
Green Ext Time (p_c), s	0.0	0.0		0.5	0.1	6.4		1.0						

Intersection Summary	
HCM 6th Ctrl Delay	37.4
HCM 6th LOS	D

Notes
 User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
22: Mission Gorge Rd & Friars Rd

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↖↗	↑↑↑		↘↙	↑↑
Traffic Volume (veh/h)	2530	270	280	960	10	350	600
Future Volume (veh/h)	2530	270	280	960	10	350	600
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	2691	0	298	1021		372	637
Peak Hour Factor	0.94	0.94	0.94	0.94		0.94	0.94
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2621		479	0		403	1018
Arrive On Green	0.51	0.00	0.14	0.00		0.23	0.23
Sat Flow, veh/h	5443	0	3456	298		1781	2790
Grp Volume(v), veh/h	2691	0	298	50.6		372	637
Grp Sat Flow(s),veh/h/ln	1702	0	1728	D		1781	1395
Q Serve(g_s), s	61.6	0.0	9.8			24.5	5.9
Cycle Q Clear(g_c), s	61.6	0.0	9.8			24.5	5.9
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2621		479			403	1018
V/C Ratio(X)	1.03		0.62			0.92	0.63
Avail Cap(c_a), veh/h	2621		479			425	1051
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.09	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	29.2	0.0	48.7			45.4	31.4
Incr Delay (d2), s/veh	14.0	0.0	1.9			24.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh	26.1	0.0	4.2			13.5	7.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	43.2	0.0	50.6			69.6	32.2
LnGrp LOS	F		D			E	C
Approach Vol, veh/h	2691	A				1009	
Approach Delay, s/veh	43.2					46.0	
Approach LOS	D					D	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	31.0	67.4					31.6
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	61.6					28.6
Max Q Clear Time (g_c+I1), s	11.8	63.6					26.5
Green Ext Time (p_c), s	0.2	0.0					0.7

Intersection Summary

HCM 6th Ctrl Delay		44.5	
HCM 6th LOS		D	

Notes

User approved ignoring U-Turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 23: Qualcomm Way & Rio San Diego Dr

Horizon Year No Project With 2-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations	↔↔	↑	↗		↔↔	↑↑	↗	↔↔	↑↑↑	↗		↔↔	↑↑↑	
Traffic Volume (veh/h)	290	308	259	20	770	373	340	26	225	150	10	70	746	310
Future Volume (veh/h)	290	308	259	20	770	373	340	26	225	150	10	70	746	310
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		0.99	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	305	324	248		811	393	173	27	237	12		74	785	290
Peak Hour Factor	0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2		2	2	2
Cap, veh/h	377	397	363		875	1267	562	71	1648	510		125	1240	454
Arrive On Green	0.11	0.21	0.21		0.25	0.36	0.36	0.02	0.32	0.32		0.04	0.34	0.34
Sat Flow, veh/h	3456	1870	1556		3456	3554	1577	3456	5106	1579		3456	3665	1341
Grp Volume(v), veh/h	305	324	248		811	393	173	27	237	12		74	729	346
Grp Sat Flow(s),veh/h/ln	1728	1870	1556		1728	1777	1577	1728	1702	1579		1728	1702	1602
Q Serve(g_s), s	9.4	18.1	15.9		25.0	8.8	8.7	0.8	3.6	0.6		2.3	19.7	20.0
Cycle Q Clear(g_c), s	9.4	18.1	15.9		25.0	8.8	8.7	0.8	3.6	0.6		2.3	19.7	20.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.84
Lane Grp Cap(c), veh/h	377	397	363		875	1267	562	71	1648	510		125	1152	542
V/C Ratio(X)	0.81	0.82	0.68		0.93	0.31	0.31	0.38	0.14	0.02		0.59	0.63	0.64
Avail Cap(c_a), veh/h	948	684	602		948	1300	577	1896	2801	866		948	1867	879
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	47.6	41.0	38.3		39.8	25.5	25.4	52.9	26.3	25.3		51.9	30.5	30.5
Incr Delay (d2), s/veh	1.6	4.1	2.3		13.5	0.1	0.3	1.3	0.1	0.0		1.7	1.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	8.5	6.1		11.9	3.6	3.2	0.4	1.5	0.2		1.0	8.0	7.8
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	49.2	45.2	40.6		53.3	25.6	25.7	54.1	26.4	25.3		53.6	31.5	32.7
LnGrp LOS	D	D	D		D	C	C	D	C	C		D	C	C
Approach Vol, veh/h		877				1377			276				1149	
Approach Delay, s/veh		45.3				42.0			29.0				33.3	
Approach LOS		D				D			C				C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	8.3	40.4	32.1	28.5	6.6	42.1	16.3	44.3						
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3						
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0						
Max Q Clear Time (g_c+1), s	14.3	5.6	27.0	20.1	2.8	22.0	11.4	10.8						
Green Ext Time (p_c), s	0.1	2.5	0.7	2.6	0.0	15.0	0.5	3.1						

Intersection Summary

HCM 6th Ctrl Delay	39.1
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection														
Intersection Delay, s/veh	37.6													
Intersection LOS	E													

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↗	↕		↗	↕			↕				↕	
Traffic Vol, veh/h	20	170	678	20	10	483	60	20	10	20	20	130	20	110
Future Vol, veh/h	20	170	678	20	10	483	60	20	10	20	20	130	20	110
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	189	753	22	11	537	67	22	11	22	22	144	22	122
Number of Lanes	0	1	2	0	1	2	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	48.5	26.3	13.7	29.7
HCM LOS	E	D	B	D

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	40%	100%	0%	0%	100%	0%	0%	50%
Vol Thru, %	20%	0%	100%	92%	0%	100%	73%	8%
Vol Right, %	40%	0%	0%	8%	0%	0%	27%	42%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	50	190	452	246	10	322	221	280
LT Vol	20	190	0	0	10	0	0	140
Through Vol	10	0	452	226	0	322	161	22
RT Vol	20	0	0	20	0	0	60	118
Lane Flow Rate	56	211	502	273	11	358	246	311
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.142	0.466	1.036	0.559	0.025	0.766	0.512	0.714
Departure Headway (Hd)	9.483	7.945	7.428	7.369	8.461	7.943	7.746	8.481
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	381	456	492	492	426	458	469	429
Service Time	7.183	5.645	5.128	5.069	6.161	5.643	5.446	6.181
HCM Lane V/C Ratio	0.147	0.463	1.02	0.555	0.026	0.782	0.525	0.725
HCM Control Delay	13.7	17.4	77.6	19	11.4	32.2	18.3	29.7
HCM Lane LOS	B	C	F	C	B	D	C	D
HCM 95th-tile Q	0.5	2.4	14.9	3.4	0.1	6.6	2.9	5.5

HCM 6th Signalized Intersection Summary

Horizon Year No Project With 2-Ln Bridge

25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	10	170	280	248	10	320	230	152	409	42	30	327	589	70
Future Volume (veh/h)	10	170	280	248	10	320	230	152	409	42	30	327	589	70
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		0.98	1.00		0.98		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No		No			No				No		
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h		175	289	90	10	330	167	157	422	38		337	607	67
Peak Hour Factor		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97		0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h		343	360	298	13	435	232	188	1032	93		411	1054	116
Arrive On Green		0.19	0.19	0.19	0.19	0.19	0.19	0.11	0.31	0.31		0.12	0.33	0.33
Sat Flow, veh/h		1781	1870	1548	67	2238	1194	1781	3293	295		3456	3226	355
Grp Volume(v), veh/h		175	289	90	279	0	228	157	227	233		337	334	340
Grp Sat Flow(s),veh/h/ln		1781	1870	1548	1867	0	1631	1781	1777	1812		1728	1777	1804
Q Serve(g_s), s		9.7	16.2	5.5	15.6	0.0	14.4	9.5	11.0	11.2		10.5	17.1	17.2
Cycle Q Clear(g_c), s		9.7	16.2	5.5	15.6	0.0	14.4	9.5	11.0	11.2		10.5	17.1	17.2
Prop In Lane		1.00		1.00	0.04		0.73	1.00		0.16		1.00		0.20
Lane Grp Cap(c), veh/h		343	360	298	363	0	317	188	557	568		411	581	590
V/C Ratio(X)		0.51	0.80	0.30	0.77	0.00	0.72	0.84	0.41	0.41		0.82	0.57	0.58
Avail Cap(c_a), veh/h		648	680	563	679	0	593	486	969	988		943	969	984
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		39.8	42.4	38.1	42.0	0.0	41.5	48.3	29.7	29.8		47.3	30.7	30.7
Incr Delay (d2), s/veh		0.7	2.6	0.3	1.3	0.0	1.2	3.7	2.2	2.2		1.6	4.1	4.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		4.2	7.6	0.0	7.3	0.0	5.9	4.4	5.1	5.3		4.6	8.0	8.2
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		40.5	45.1	38.4	43.3	0.0	42.7	52.0	31.9	31.9		48.9	34.8	34.8
LnGrp LOS		D	D	D	D	A	D	D	C	C		D	C	C
Approach Vol, veh/h			554			507			617				1011	
Approach Delay, s/veh			42.5			43.0			37.0				39.5	
Approach LOS			D			D			D				D	
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	17.5	39.9	26.4	16.0	41.4	26.3								
Change Period (Y+Rc), s	4.4	* 5.4	5.2	4.4	5.4	4.9								
Max Green Setting (Gmax), s	30.0	* 60	40.0	30.0	60.0	40.0								
Max Q Clear Time (g_c+1/2), s	11.5	13.2	18.2	11.5	19.2	17.6								
Green Ext Time (p_c), s	0.6	11.2	1.6	0.2	16.8	2.2								

Intersection Summary

HCM 6th Ctrl Delay	40.2
HCM 6th LOS	D

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 26: Rancho Mission Rd & San Diego Mission Rd

Horizon Year No Project With 2-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	385	380	140	107	170	93	191	160	130	170	70
Future Volume (veh/h)	180	385	380	140	107	170	93	191	160	130	170	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	189	405	304	147	113	45	98	201	25	137	179	23
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	237	661	491	189	797	302	128	300	248	177	352	291
Arrive On Green	0.13	0.34	0.34	0.11	0.32	0.32	0.07	0.16	0.16	0.10	0.19	0.19
Sat Flow, veh/h	1781	1921	1427	1781	2514	953	1781	1870	1544	1781	1870	1545
Grp Volume(v), veh/h	189	374	335	147	78	80	98	201	25	137	179	23
Grp Sat Flow(s),veh/h/ln	1781	1777	1571	1781	1777	1690	1781	1870	1544	1781	1870	1545
Q Serve(g_s), s	6.6	11.2	11.4	5.2	2.0	2.2	3.5	6.5	0.9	4.8	5.5	0.8
Cycle Q Clear(g_c), s	6.6	11.2	11.4	5.2	2.0	2.2	3.5	6.5	0.9	4.8	5.5	0.8
Prop In Lane	1.00		0.91	1.00		0.56	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	237	611	540	189	563	535	128	300	248	177	352	291
V/C Ratio(X)	0.80	0.61	0.62	0.78	0.14	0.15	0.77	0.67	0.10	0.77	0.51	0.08
Avail Cap(c_a), veh/h	972	1386	1225	972	1524	1450	834	1459	1204	834	1459	1205
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.0	17.5	17.5	27.9	15.6	15.7	29.2	25.3	23.0	28.2	23.4	21.4
Incr Delay (d2), s/veh	2.3	1.5	1.8	2.6	0.2	0.2	3.6	1.0	0.1	2.7	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	4.2	3.8	2.2	0.7	0.8	1.5	2.7	0.3	2.1	2.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.3	19.0	19.3	30.5	15.8	15.9	32.8	26.3	23.0	30.9	23.8	21.5
LnGrp LOS	C	B	B	C	B	B	C	C	C	C	C	C
Approach Vol, veh/h		898			305			324			339	
Approach Delay, s/veh		21.3			22.9			28.0			26.5	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.8	27.5	8.6	17.2	12.5	25.8	10.4	15.4				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	*5.5	4.0	*5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	*55	30.0	*50				
Max Q Clear Time (g_c+1), s	17.2	13.4	5.5	7.5	8.6	4.2	6.8	8.5				
Green Ext Time (p_c), s	0.2	7.7	0.1	0.7	0.2	1.5	0.2	0.8				

Intersection Summary

HCM 6th Ctrl Delay	23.7
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave

Horizon Year No Project With 2-Ln Bridge
 PM Peak Hour



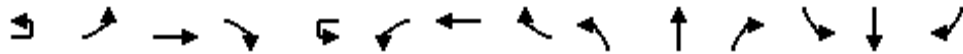
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↖	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (veh/h)	140	403	152	70	155	30	81	90	80	30	150	110
Future Volume (veh/h)	140	403	152	70	155	30	81	90	80	30	150	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	156	448	110	78	172	27	90	100	62	33	167	101
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	240	573	939	197	713	122	234	140	87	347	212	128
Arrive On Green	0.47	0.47	0.47	0.47	0.47	0.47	0.13	0.13	0.13	0.19	0.19	0.19
Sat Flow, veh/h	366	1213	1548	218	1509	258	1781	1068	662	1781	1089	659
Grp Volume(v), veh/h	604	0	110	104	0	173	90	0	162	33	0	268
Grp Sat Flow(s),veh/h/ln	1579	0	1548	330	0	1655	1781	0	1730	1781	0	1748
Q Serve(g_s), s	18.2	0.0	2.0	5.4	0.0	4.1	3.1	0.0	6.0	1.0	0.0	9.8
Cycle Q Clear(g_c), s	22.3	0.0	2.0	27.7	0.0	4.1	3.1	0.0	6.0	1.0	0.0	9.8
Prop In Lane	0.26		1.00	0.75		0.16	1.00		0.38	1.00		0.38
Lane Grp Cap(c), veh/h	814	0	939	250	0	782	234	0	227	347	0	341
V/C Ratio(X)	0.74	0.00	0.12	0.42	0.00	0.22	0.39	0.00	0.71	0.10	0.00	0.79
Avail Cap(c_a), veh/h	1502	0	1595	667	0	1483	1064	0	1033	1064	0	1044
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	15.5	0.0	5.7	22.7	0.0	10.4	26.6	0.0	27.9	22.1	0.0	25.6
Incr Delay (d2), s/veh	1.2	0.0	0.0	1.0	0.0	0.1	0.4	0.0	1.6	0.0	0.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	0.0	0.8	1.6	0.0	1.4	1.3	0.0	2.5	0.4	0.0	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	16.7	0.0	5.7	23.7	0.0	10.5	27.0	0.0	29.5	22.2	0.0	27.2
LnGrp LOS	B	A	A	C	A	B	C	A	C	C	A	C
Approach Vol, veh/h		714			277			252			301	
Approach Delay, s/veh		15.0			15.5			28.6			26.6	
Approach LOS		B			B			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.1		17.5		36.1		13.3				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		24.3		11.8		29.7		8.0				
Green Ext Time (p_c), s		4.4		1.1		1.9		0.7				
Intersection Summary												
HCM 6th Ctrl Delay				19.6								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary

Horizon Year No Project With 2-Ln Bridge

28: Qualcomm Way & Camino de la Reina/Camino del Rio N

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔	↔	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔	
Traffic Volume (veh/h)	10	130	450	320	10	470	210	60	180	561	310	171	1103	130	
Future Volume (veh/h)	10	130	450	320	10	470	210	60	180	561	310	171	1103	130	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.98	1.00		0.98	1.00		0.98	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No			No		
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1841	1870	1856	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		134	498	243		485	216	9	186	578	261	176	1137	127	
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %		2	2	2		2	4	2	3	2	2	2	2	2	
Cap, veh/h		151	498	309		516	691	306	222	2811	858	211	2544	284	
Arrive On Green		0.08	0.13	0.13		0.15	0.20	0.20	0.02	0.18	0.18	0.06	0.55	0.55	
Sat Flow, veh/h		1781	3741	1550		3456	3497	1549	3428	5106	1559	3456	4651	519	
Grp Volume(v), veh/h		134	498	243		485	216	9	186	578	261	176	832	432	
Grp Sat Flow(s),veh/h/ln		1781	1870	1550		1728	1749	1549	1714	1702	1559	1728	1702	1767	
Q Serve(g_s), s		14.9	26.6	26.6		27.8	10.6	0.9	10.8	19.2	29.0	10.1	29.3	29.3	
Cycle Q Clear(g_c), s		14.9	26.6	26.6		27.8	10.6	0.9	10.8	19.2	29.0	10.1	29.3	29.3	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.29	
Lane Grp Cap(c), veh/h		151	498	309		516	691	306	222	2811	858	211	1862	966	
V/C Ratio(X)		0.89	1.00	0.79		0.94	0.31	0.03	0.84	0.21	0.30	0.83	0.45	0.45	
Avail Cap(c_a), veh/h		190	498	309		524	691	306	314	2811	858	316	1862	966	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	0.84	0.84	0.84	0.09	0.09	0.09	
Uniform Delay (d), s/veh		90.6	86.7	76.3		84.2	68.6	64.8	96.8	44.6	48.6	92.9	27.2	27.2	
Incr Delay (d2), s/veh		28.0	40.6	12.2		24.7	0.1	0.0	7.9	0.1	0.8	0.7	0.1	0.1	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		8.1	15.8	12.9		14.1	4.7	0.4	5.3	8.9	12.4	4.6	12.2	12.7	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		118.5	127.3	88.5		108.9	68.7	64.8	104.7	44.8	49.4	93.6	27.2	27.3	
LnGrp LOS		F	F	F		F	E	E	F	D	D	F	C	C	
Approach Vol, veh/h		875				710				1025			1440		
Approach Delay, s/veh		115.2				96.1				56.8			35.4		
Approach LOS		F				F				E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8							
Phs Duration (G+Y+Rc), s	16.6	116.8	34.3	32.3	17.4	116.1	21.3	45.2							
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7							
Max Green Setting (Gmax), s	10.3	103.6	30.3	* 27	18.3	* 1.1E2	21.3	35.6							
Max Q Clear Time (g_c+1/2), s	11.0	31.0	29.8	28.6	12.8	31.3	16.9	12.6							
Green Ext Time (p_c), s	0.2	5.0	0.1	0.0	0.2	30.9	0.1	0.8							

Intersection Summary

HCM 6th Ctrl Delay	68.7
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

Horizon Year No Project With 2-Ln Bridge

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔	↑↑↑			↑↑	↔
Traffic Volume (veh/h)	10	100	0	610	30	190	410	210	831	0	0	1073	720
Future Volume (veh/h)	10	100	0	610	30	190	410	210	831	0	0	1073	720
Initial Q (Qb), veh		0	0	20	0	20	20	20	20	0	0	20	20
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No			No			No		
Adj Sat Flow, veh/h/ln		1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h		106	0	384	32	202	242	223	884	0	0	1141	549
Peak Hour Factor		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h		0	0	0	22	314	317	178	3947	0	0	2302	999
Arrive On Green		0.00	0.00	0.00	0.17	0.17	0.17	0.10	0.77	0.00	0.00	1.00	1.00
Sat Flow, veh/h			0		254	1604	1582	1781	5274	0	0	3647	1551
Grp Volume(v), veh/h			0.0		234	0	242	223	884	0	0	1141	549
Grp Sat Flow(s),veh/h/ln					1858	0	1582	1781	1702	0	0	1777	1551
Q Serve(g_s), s					24.1	0.0	30.1	20.0	9.5	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s					24.1	0.0	30.1	20.0	9.5	0.0	0.0	0.0	0.0
Prop In Lane					0.14		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					345	0	317	178	3947	0	0	2302	999
V/C Ratio(X)					0.68	0.00	0.76	1.25	0.22	0.00	0.00	0.50	0.55
Avail Cap(c_a), veh/h					372	0	316	178	3952	0	0	2312	1009
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)					1.00	0.00	1.00	0.68	0.68	0.00	0.00	0.76	0.76
Uniform Delay (d), s/veh					79.9	0.0	80.0	90.0	6.7	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh					3.4	0.0	9.6	140.8	0.1	0.0	0.0	0.6	1.7
Initial Q Delay(d3),s/veh					74.9	0.0	121.5	404.2	0.2	0.0	0.0	1.1	6.4
%ile BackOfQ(50%),veh/ln					23.3	0.0	27.7	36.2	4.9	0.0	0.0	0.5	2.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					158.1	0.0	211.1	635.0	7.1	0.0	0.0	1.7	8.1
LnGrp LOS					F	A	F	F	A	A	A	A	A
Approach Vol, veh/h						476			1107			1690	
Approach Delay, s/veh						185.1			133.6			3.7	
Approach LOS						F			F			A	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		161.8			24.7	137.1		38.2					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		107.8			* 20	83.1		40.0					
Max Q Clear Time (g_c+I1), s		11.5			22.0	2.0		32.1					
Green Ext Time (p_c), s		4.6			0.0	40.9		0.8					

Intersection Summary

HCM 6th Ctrl Delay	74.0
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Horizon Year No Project With 2-Ln Bridge
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	740	0	1291	1863	0
Future Volume (veh/h)	0	740	0	1291	1863	0
Initial Q (Qb), veh	0	10	0	0	50	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1870	0
Adj Flow Rate, veh/h	0	752	0	1317	1901	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	2	2	0
Cap, veh/h	0	0	0	2913	2913	0
Arrive On Green	0.00	0.00	0.00	0.81	0.81	0.00
Sat Flow, veh/h	0		0	3741	3741	0
Grp Volume(v), veh/h	0.0		0	1317	1901	0
Grp Sat Flow(s),veh/h/ln			0	1777	1777	0
Q Serve(g_s), s			0.0	3.2	6.3	0.0
Cycle Q Clear(g_c), s			0.0	3.2	6.3	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2913	2913	0
V/C Ratio(X)			0.00	0.45	0.65	0.00
Avail Cap(c_a), veh/h			0	5629	5629	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	0.8	1.4	0.0
Incr Delay (d2), s/veh			0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	6.1	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	2.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	0.8	7.6	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1317	1901	
Approach Delay, s/veh				0.8	7.6	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		28.4				28.4
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		45.0				45.0
Max Q Clear Time (g_c+I1), s		5.2				8.3
Green Ext Time (p_c), s		7.9				14.6
Intersection Summary						
HCM 6th Ctrl Delay			4.8			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
31: Texas St & Camino del Rio S

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	280	150	390	316	60	540	100	841	168	310	1723	190
Future Volume (veh/h)	280	150	390	316	60	540	100	841	168	310	1723	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.97	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	286	153	346	322	61	507	102	858	165	316	1758	159
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	351	368	417	247	259	515	119	1097	211	334	1748	774
Arrive On Green	0.20	0.20	0.20	0.14	0.14	0.14	0.07	0.37	0.37	0.19	0.49	0.49
Sat Flow, veh/h	1781	1870	1580	1781	1870	1571	1781	2953	568	1781	3554	1574
Grp Volume(v), veh/h	286	153	346	322	61	507	102	516	507	316	1758	159
Grp Sat Flow(s),veh/h/ln	1781	1870	1580	1781	1870	1571	1781	1777	1744	1781	1777	1574
Q Serve(g_s), s	31.2	14.5	40.0	28.2	5.9	28.2	11.5	52.3	52.3	35.6	100.0	11.6
Cycle Q Clear(g_c), s	31.2	14.5	40.0	28.2	5.9	28.2	11.5	52.3	52.3	35.6	100.0	11.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	1.00		1.00
Lane Grp Cap(c), veh/h	351	368	417	247	259	515	119	660	648	334	1748	774
V/C Ratio(X)	0.82	0.42	0.83	1.30	0.24	0.98	0.86	0.78	0.78	0.95	1.01	0.21
Avail Cap(c_a), veh/h	351	368	417	247	259	515	219	660	648	636	1748	774
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	78.1	71.4	70.6	87.5	77.9	68.1	93.9	56.6	56.6	81.6	51.6	29.2
Incr Delay (d2), s/veh	13.9	0.7	13.2	162.6	1.3	35.8	6.7	5.6	5.7	6.2	22.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.7	7.1	18.6	24.2	3.0	31.2	5.6	24.6	24.1	17.0	49.6	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	92.0	72.2	83.8	250.1	79.2	103.9	100.6	62.2	62.3	87.8	74.5	29.5
LnGrp LOS	F	E	F	F	E	F	F	E	E	F	F	C
Approach Vol, veh/h		785			890			1125			2233	
Approach Delay, s/veh		84.5			155.1			65.7			73.2	
Approach LOS		F			F			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	42.5	80.7		44.9	18.0	105.2		35.2				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0				
Max Green Setting (Gmax), s	72.6	51.8		40.0	25.0	* 1E2		28.2				
Max Q Clear Time (g_c+R), s	77.6	54.3		42.0	13.5	102.0		30.2				
Green Ext Time (p_c), s	0.4	0.0		0.0	0.1	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	87.8
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection									
Int Delay, s/veh	2.4								
Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations		↖	↗			↕↕		↕↕	
Traffic Vol, veh/h	10	40	40	10	50	374	10	470	70
Future Vol, veh/h	10	40	40	10	50	374	10	470	70
Conflicting Peds, #/hr	21	24	24	3	24	0	3	0	24
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	0	65	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	0	-
Grade, %	-	0	-	-	-	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	42	42	11	53	394	11	495	74

Major/Minor	Minor2	Major1			Major2				
Conflicting Flow All	0	927	333	568	593	0	394	-	0
Stage 1	0	578	-	-	-	-	-	-	-
Stage 2	0	349	-	-	-	-	-	-	-
Critical Hdwy	-	6.84	6.94	6.44	4.14	-	6.44	-	-
Critical Hdwy Stg 1	-	5.84	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.84	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.52	3.32	2.52	2.22	-	2.52	-	-
Pot Cap-1 Maneuver	0	267	663	627	979	-	808	-	-
Stage 1	0	524	-	-	-	-	-	-	-
Stage 2	0	685	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	0	226	633	866	866	-	808	-	-
Mov Cap-2 Maneuver	0	226	-	-	-	-	-	-	-
Stage 1	0	464	-	-	-	-	-	-	-
Stage 2	0	656	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	17.8	1.9	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	866	-	226	633	-	-
HCM Lane V/C Ratio	0.061	-	0.186	0.067	-	-
HCM Control Delay (s)	9.5	0.7	24.5	11.1	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0.2	-	0.7	0.2	-	-

HCM 6th Signalized Intersection Summary
33: Camino del Rio N & Ward Rd

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑	↑↑	↑	↘	↘
Traffic Volume (veh/h)	221	711	261	213	450	90
Future Volume (veh/h)	221	711	261	213	450	90
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	235	756	278	27	479	61
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	297	1652	738	328	554	757
Arrive On Green	0.17	0.46	0.21	0.21	0.31	0.31
Sat Flow, veh/h	1781	3647	3647	1581	1781	1585
Grp Volume(v), veh/h	235	756	278	27	479	61
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1581	1781	1585
Q Serve(g_s), s	6.2	7.0	3.3	0.7	12.3	1.0
Cycle Q Clear(g_c), s	6.2	7.0	3.3	0.7	12.3	1.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	297	1652	738	328	554	757
V/C Ratio(X)	0.79	0.46	0.38	0.08	0.86	0.08
Avail Cap(c_a), veh/h	1612	5116	5116	2276	1612	1698
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.4	8.8	16.6	15.5	15.8	6.9
Incr Delay (d2), s/veh	1.8	0.3	0.5	0.2	1.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	1.8	1.1	0.2	4.3	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.3	9.1	17.0	15.7	17.4	6.9
LnGrp LOS	C	A	B	B	B	A
Approach Vol, veh/h		991	305		540	
Approach Delay, s/veh		12.0	16.9		16.2	
Approach LOS		B	B		B	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		28.6		20.0	12.5	16.1
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		9.0		14.3	8.2	5.3
Green Ext Time (p_c), s		9.1		0.8	0.3	2.9

Intersection Summary

HCM 6th Ctrl Delay	14.1
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
34: Fairmount Ave & Mission Gorge Rd

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↖	↕			↖	↕	
Traffic Volume (veh/h)	20	10	459	30	10	10	40	288	958	40	10	10	947	20
Future Volume (veh/h)	20	10	459	30	10	10	40	288	958	40	10	10	947	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		0.98	1.00		0.98		1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	496	31	10	3	294	978	39		10	966	19	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	334	536	174	52	13	904	2447	98		17	1593	31	
Arrive On Green	0.00	0.00	0.18	0.18	0.18	0.18	0.52	1.00	1.00		0.01	0.45	0.45	
Sat Flow, veh/h	0	1870	3005	712	292	73	3456	3481	139		1781	3563	70	
Grp Volume(v), veh/h	0	0	496	44	0	0	294	499	518		10	482	503	
Grp Sat Flow(s),veh/h/ln	0	1870	1502	1077	0	0	1728	1777	1843		1781	1777	1857	
Q Serve(g_s), s	0.0	0.0	21.1	3.2	0.0	0.0	6.4	0.0	0.0		0.7	26.7	26.7	
Cycle Q Clear(g_c), s	0.0	0.0	21.1	4.0	0.0	0.0	6.4	0.0	0.0		0.7	26.7	26.7	
Prop In Lane	0.00		1.00	0.70		0.07	1.00		0.08		1.00		0.04	
Lane Grp Cap(c), veh/h	0	334	536	239	0	0	904	1249	1295		17	794	830	
V/C Ratio(X)	0.00	0.00	0.92	0.18	0.00	0.00	0.33	0.40	0.40		0.60	0.61	0.61	
Avail Cap(c_a), veh/h	0	340	545	243	0	0	906	1249	1295		179	794	830	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00		1.00	1.00	1.00	
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.65	0.65	0.65		1.00	1.00	1.00	
Uniform Delay (d), s/veh	0.0	0.0	52.5	45.3	0.0	0.0	24.4	0.0	0.0		64.2	27.3	27.3	
Incr Delay (d2), s/veh	0.0	0.0	21.2	0.4	0.0	0.0	0.1	0.6	0.6		12.3	3.4	3.3	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.0	0.0	9.5	1.2	0.0	0.0	2.4	0.2	0.2		0.4	12.0	12.5	
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	73.7	45.7	0.0	0.0	24.5	0.6	0.6		76.5	30.7	30.6	
LnGrp LOS	A	A	E	D	A	A	C	A	A		E	C	C	
Approach Vol, veh/h		496			44			1311				995		
Approach Delay, s/veh		73.7			45.7			6.0				31.1		
Approach LOS		E			D			A				C		
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	5.6	96.3		28.1	38.9	63.0		28.1						
Change Period (Y+Rc), s	4.4	4.9		4.9	4.9	* 4.9		4.9						
Max Green Setting (Gmax), s	13.1	79.1		23.6	34.1	* 58		23.6						
Max Q Clear Time (g_c+1/2), s	12.5	2.0		23.1	8.4	28.7		6.0						
Green Ext Time (p_c), s	0.0	21.0		0.1	0.5	14.2		0.2						

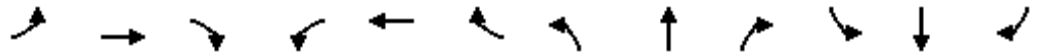
Intersection Summary

HCM 6th Ctrl Delay	27.2
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis Horizon Year No Project With 2-Ln Bridge
 35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↔	↖	↖	↕		↖	↕	↖
Traffic Volume (vph)	313	150	718	810	180	290	271	761	190	10	1439	122
Future Volume (vph)	313	150	718	810	180	290	271	761	190	10	1439	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	0.98	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1738	1583	1610	3078	1425	1770	3424		3433	3539	1563
Flt Permitted	0.95	0.98	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1738	1583	1610	3078	1425	1770	3424		3433	3539	1563
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	316	152	725	818	182	293	274	769	192	10	1454	123
RTOR Reduction (vph)	0	0	76	0	0	0	0	17	0	0	0	73
Lane Group Flow (vph)	231	237	649	409	620	264	274	944	0	10	1454	50
Confl. Peds. (#/hr)						3			1			
Confl. Bikes (#/hr)									1			1
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	7	5	8	8	1	5	2		1	6	
Permitted Phases			7			8						6
Actuated Green, G (s)	18.8	18.8	38.8	25.0	25.0	35.0	20.0	55.2		10.0	45.2	45.2
Effective Green, g (s)	18.8	18.8	38.8	25.0	25.0	35.0	20.0	55.2		10.0	45.2	45.2
Actuated g/C Ratio	0.14	0.14	0.30	0.19	0.19	0.27	0.15	0.42		0.08	0.35	0.35
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	243	251	529	309	591	383	272	1453		264	1230	543
v/s Ratio Prot	0.14	0.14	c0.19	c0.25	0.20	0.05	0.15	0.28		0.00	c0.41	
v/s Ratio Perm			0.22			0.13						0.03
v/c Ratio	0.95	0.94	1.23	1.32	1.32dl	0.69	1.01	0.65		0.04	1.18	0.09
Uniform Delay, d1	55.1	55.1	45.6	52.5	52.5	42.6	55.0	29.7		55.5	42.4	28.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.69	1.12	2.14
Incremental Delay, d2	43.7	41.1	118.2	166.5	50.5	4.1	56.5	2.3		0.0	88.3	0.2
Delay (s)	98.9	96.2	163.8	219.0	103.0	46.7	111.5	32.0		38.4	135.9	61.3
Level of Service	F	F	F	F	F	D	F	C		D	F	E
Approach Delay (s)		137.8			128.2			49.6			129.5	
Approach LOS		F			F			D			F	

Intersection Summary		
HCM 2000 Control Delay	112.5	HCM 2000 Level of Service F
HCM 2000 Volume to Capacity ratio	1.28	
Actuated Cycle Length (s)	130.0	Sum of lost time (s) 21.0
Intersection Capacity Utilization	120.6%	ICU Level of Service H
Analysis Period (min)	15	
dl Defacto Left Lane. Recode with 1 though lane as a left lane.		
c Critical Lane Group		

HCM 6th Signalized Intersection Summary
 36: Fairmount Ave & I-8 EB Off-Ramp

Horizon Year No Project With 2-Ln Bridge
 PM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	720	2770	60	0	512	1437	0
Future Volume (veh/h)	720	2770	60	0	512	1437	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		0	1870	1870	0
Adj Flow Rate, veh/h	735	2827		0	522	1466	0
Peak Hour Factor	0.98	0.98		0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2		0	2	2	0
Cap, veh/h	1016	2712		0	1210	1738	0
Arrive On Green	0.57	0.57		0.00	0.34	0.34	0.00
Sat Flow, veh/h	1781	4755		0	3741	5443	0
Grp Volume(v), veh/h	735	2827		0	522	1466	0
Grp Sat Flow(s),veh/h/ln	1781	1585		0	1777	1702	0
Q Serve(g_s), s	37.5	70.9		0.0	14.1	33.0	0.0
Cycle Q Clear(g_c), s	37.5	70.9		0.0	14.1	33.0	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	1016	2712		0	1210	1738	0
V/C Ratio(X)	0.72	1.04		0.00	0.43	0.84	0.00
Avail Cap(c_a), veh/h	1016	2712		0	2192	2136	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	19.5	26.7		0.0	31.7	37.9	0.0
Incr Delay (d2), s/veh	2.2	29.6		0.0	0.1	2.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.6	32.6		0.0	6.1	14.0	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	21.8	56.4		0.0	31.8	40.2	0.0
LnGrp LOS	C	F		A	C	D	A
Approach Vol, veh/h	3562				522	1466	
Approach Delay, s/veh	49.2				31.8	40.2	
Approach LOS	D				C	D	
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				48.3		76.0	48.3
Change Period (Y+Rc), s				6.0		5.1	6.0
Max Green Setting (Gmax), s				52.0		70.9	76.7
Max Q Clear Time (g_c+I1), s				35.0		72.9	16.1
Green Ext Time (p_c), s				7.3		0.0	2.6

Intersection Summary

HCM 6th Ctrl Delay	45.2
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
37: Collwood Blvd & Montezuma Rd

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↓	↑↑	↑↑	↑
Traffic Volume (veh/h)	1487	1370	10	90	832	700	50
Future Volume (veh/h)	1487	1370	10	90	832	700	50
Initial Q (Qb), veh	20	20		0	0	0	0
Ped-Bike Adj(A_pbT)		0.98		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1737	1870	1870	1648
Adj Flow Rate, veh/h	1533	1284		93	858	722	25
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		11	2	2	17
Cap, veh/h	2105	1272		114	2466	777	314
Arrive On Green	0.59	0.59		0.07	0.69	0.22	0.22
Sat Flow, veh/h	3647	1546		1654	3647	3456	1397
Grp Volume(v), veh/h	1533	1284		93	858	722	25
Grp Sat Flow(s),veh/h/ln	1777	1546		1654	1777	1728	1397
Q Serve(g_s), s	41.4	79.4		7.4	13.1	27.4	1.9
Cycle Q Clear(g_c), s	41.4	79.4		7.4	13.1	27.4	1.9
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2105	1272		114	2466	777	314
V/C Ratio(X)	0.73	1.01		0.82	0.35	0.93	0.08
Avail Cap(c_a), veh/h	2105	1272		328	2466	848	343
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.7	12.5		61.6	8.3	50.9	41.0
Incr Delay (d2), s/veh	2.3	27.6		5.3	0.4	15.1	0.0
Initial Q Delay(d3),s/veh	2.4	56.6		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.4	54.7		3.3	4.7	13.3	0.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	25.3	96.7		66.9	8.7	66.0	41.0
LnGrp LOS	C	F		E	A	E	D
Approach Vol, veh/h	2817				951	747	
Approach Delay, s/veh	57.9				14.4	65.2	
Approach LOS	E				B	E	
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	13.6	85.9			99.5	34.5	
Change Period (Y+Rc), s	4.4	* 6.5			6.5	4.4	
Max Green Setting (Gmax), s	26.6	* 60			90.2	32.9	
Max Q Clear Time (g_c+1), s	19.4	81.4			15.1	29.4	
Green Ext Time (p_c), s	0.1	0.0			14.3	0.7	

Intersection Summary

HCM 6th Ctrl Delay	49.9
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
38: Mission Village Dr & Shawn Ave

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔				↔		↔	↑↑	↔	↔	↔	
Traffic Volume (veh/h)	80	10	80	10	50	10	30	70	460	30	50	1830	80
Future Volume (veh/h)	80	10	80	10	50	10	30	70	460	30	50	1830	80
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99		0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	11	78		53	11	3	74	489	22	53	1947	83
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	259	29	208		214	188	51	167	2589	1153	697	2531	107
Arrive On Green	0.15	0.15	0.15		0.15	0.15	0.15	0.73	0.73	0.73	0.73	0.73	0.73
Sat Flow, veh/h	1199	196	1425		857	1284	350	209	3554	1582	888	3473	147
Grp Volume(v), veh/h	96	0	78		53	0	14	74	489	22	53	989	1041
Grp Sat Flow(s),veh/h/ln1394	0	1425			857	0	1634	209	1777	1582	888	1777	1844
Q Serve(g_s), s	4.7	0.0	4.0		3.1	0.0	0.6	27.8	3.5	0.3	1.6	27.7	28.7
Cycle Q Clear(g_c), s	5.3	0.0	4.0		7.2	0.0	0.6	56.5	3.5	0.3	5.1	27.7	28.7
Prop In Lane	0.89		1.00		1.00		0.21	1.00		1.00	1.00		0.08
Lane Grp Cap(c), veh/h	287	0	208		214	0	239	167	2589	1153	697	1294	1343
V/C Ratio(X)	0.33	0.00	0.37		0.25	0.00	0.06	0.44	0.19	0.02	0.08	0.76	0.78
Avail Cap(c_a), veh/h	780	0	700		662	0	803	169	2621	1167	705	1310	1359
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00		1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	0.0	31.4		34.6	0.0	29.9	24.5	3.5	3.0	4.3	6.8	6.9
Incr Delay (d2), s/veh	0.3	0.0	0.4		0.2	0.0	0.0	2.2	0.0	0.0	0.1	2.8	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.7	0.0	1.4			1.0	0.0	0.2	1.3	0.8	0.1	0.2	7.2	7.8
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	32.3	0.0	31.8		34.8	0.0	30.0	26.7	3.5	3.0	4.3	9.6	9.8
LnGrp LOS	C	A	C		C	A	C	C	A	A	A	A	A
Approach Vol, veh/h		174				67			585			2083	
Approach Delay, s/veh		32.1				33.8			6.4			9.6	
Approach LOS		C				C			A			A	
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		64.6		16.8		64.6		16.8					
Change Period (Y+Rc), s		5.3		4.9		5.3		4.9					
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0					
Max Q Clear Time (g_c+1), s		58.5		7.3		30.7		9.2					
Green Ext Time (p_c), s		0.8		0.7		23.1		0.2					

Intersection Summary

HCM 6th Ctrl Delay	10.8
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
39: Mission Village Dr & Fermi Ave

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕			↙	↕	
Traffic Volume (veh/h)	40	10	10	50	10	50	10	540	40	10	30	1960	30
Future Volume (veh/h)	40	10	10	50	10	50	10	540	40	10	30	1960	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	42	10	4	52	10	26	10	562	39		31	2042	31
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	178	38	11	145	26	42	18	2376	165		44	2578	39
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.01	0.70	0.70		0.02	0.72	0.72
Sat Flow, veh/h	1112	424	118	825	296	470	1781	3372	234		1781	3582	54
Grp Volume(v), veh/h	56	0	0	88	0	0	10	296	305		31	1010	1063
Grp Sat Flow(s),veh/h/ln1654	0	0	1591	0	0	1781	1777	1828			1781	1777	1859
Q Serve(g_s), s	0.0	0.0	0.0	1.7	0.0	0.0	0.4	4.7	4.7		1.4	29.6	30.0
Cycle Q Clear(g_c), s	2.3	0.0	0.0	4.1	0.0	0.0	0.4	4.7	4.7		1.4	29.6	30.0
Prop In Lane	0.75		0.07	0.59		0.30	1.00		0.13		1.00		0.03
Lane Grp Cap(c), veh/h	226	0	0	214	0	0	18	1252	1289		44	1279	1338
V/C Ratio(X)	0.25	0.00	0.00	0.41	0.00	0.00	0.56	0.24	0.24		0.70	0.79	0.79
Avail Cap(c_a), veh/h	822	0	0	639	0	0	667	1331	1370		667	1331	1393
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	34.3	0.0	0.0	35.0	0.0	0.0	39.5	4.2	4.2		38.7	7.3	7.3
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.5	0.0	0.0	10.0	0.2	0.2		7.2	3.6	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.0	0.0	0.0	0.0	1.7	0.0	0.0	0.2	1.2	1.2		0.7	8.6	9.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	34.5	0.0	0.0	35.5	0.0	0.0	49.5	4.4	4.4		45.9	10.9	10.9
LnGrp LOS	C	A	A	D	A	A	D	A	A		D	B	B
Approach Vol, veh/h		56			88			611				2104	
Approach Delay, s/veh		34.5			35.5			5.1				11.4	
Approach LOS		C			D			A				B	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s6.4	61.6			12.0	5.2	62.8		12.0					
Change Period (Y+Rc), s 4.4	5.2			4.9	4.4	5.2		4.9					
Max Green Setting (Gmax), s 30.0	60.0			40.0	30.0	60.0		30.0					
Max Q Clear Time (g_c+1), s 13.4	6.7			4.3	2.4	32.0		6.1					
Green Ext Time (p_c), s 0.0	7.4			0.2	0.0	25.7		0.3					

Intersection Summary

HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
40: Gramercy Dr/Mission Village Dr & Ruffin Rd

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	60	580	20	10	310	320	20	10	20	1470	20	90
Future Volume (veh/h)	60	580	20	10	310	320	20	10	20	1470	20	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	592	18	10	316	175	20	10	2	1500	20	88
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	265	1086	33	230	682	368	70	116	22	1630	138	607
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.04	0.04	0.04	0.46	0.46	0.46
Sat Flow, veh/h	902	3518	107	808	2208	1191	1781	2961	571	3563	302	1327
Grp Volume(v), veh/h	61	299	311	10	253	238	20	6	6	1500	0	108
Grp Sat Flow(s),veh/h/ln	902	1777	1848	808	1777	1623	1781	1777	1756	1781	0	1628
Q Serve(g_s), s	4.5	10.7	10.7	0.8	8.8	9.1	0.8	0.2	0.3	30.2	0.0	3.0
Cycle Q Clear(g_c), s	13.6	10.7	10.7	11.5	8.8	9.1	0.8	0.2	0.3	30.2	0.0	3.0
Prop In Lane	1.00		0.06	1.00		0.73	1.00		0.33	1.00		0.81
Lane Grp Cap(c), veh/h	265	548	570	230	548	501	70	70	69	1630	0	745
V/C Ratio(X)	0.23	0.54	0.55	0.04	0.46	0.48	0.29	0.08	0.09	0.92	0.00	0.14
Avail Cap(c_a), veh/h	693	1392	1448	614	1392	1271	930	928	917	1861	0	851
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.0	22.0	22.0	26.8	21.3	21.5	35.7	35.5	35.5	19.5	0.0	12.1
Incr Delay (d2), s/veh	0.5	1.1	1.0	0.1	0.8	0.9	0.8	0.2	0.2	6.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0	4.5	4.7	0.2	3.7	3.5	0.4	0.1	0.1	12.2	0.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.5	23.1	23.0	26.9	22.1	22.3	36.6	35.7	35.7	26.3	0.0	12.1
LnGrp LOS	C	C	C	C	C	C	D	D	D	C	A	B
Approach Vol, veh/h		671			501			32				1608
Approach Delay, s/veh		23.4			22.3			36.2				25.4
Approach LOS		C			C			D				C
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		28.7		39.9		28.7		7.9				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		15.6		32.2		13.5		2.8				
Green Ext Time (p_c), s		6.3		2.8		4.7		0.1				

Intersection Summary

HCM 6th Ctrl Delay	24.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	880	850	10	990	810	180	310
Future Volume (veh/h)	880	850	10	990	810	180	310
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	926	894		1042	853	189	91
Peak Hour Factor	0.95	0.95		0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1943	963		896	2984	261	120
Arrive On Green	0.55	0.55		0.26	0.84	0.08	0.08
Sat Flow, veh/h	3647	1542		3456	3647	3456	1585
Grp Volume(v), veh/h	926	894		1042	853	189	91
Grp Sat Flow(s),veh/h/ln	1777	1542		1728	1777	1728	1585
Q Serve(g_s), s	20.8	67.8		33.7	6.6	7.0	7.3
Cycle Q Clear(g_c), s	20.8	67.8		33.7	6.6	7.0	7.3
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1943	963		896	2984	261	120
V/C Ratio(X)	0.48	0.93		1.16	0.29	0.72	0.76
Avail Cap(c_a), veh/h	1943	963		896	2984	1135	521
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.90	0.90
Uniform Delay (d), s/veh	18.1	22.1		48.2	2.2	58.8	58.9
Incr Delay (d2), s/veh	0.8	16.2		85.7	0.2	1.3	3.3
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.3	31.6		24.7	1.4	3.1	3.1
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	18.9	38.3		133.8	2.4	60.1	62.3
LnGrp LOS	B	D		F	A	E	E
Approach Vol, veh/h	1820			1895	280		
Approach Delay, s/veh	28.4			74.7	60.8		
Approach LOS	C			E	E		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	38.1	76.8			114.9	15.1	
Change Period (Y+Rc), s	4.4	* 5.7			5.7	5.3	
Max Green Setting (Gmax), s	33.7	* 39			76.3	42.7	
Max Q Clear Time (g_c+Y), s	33.7	69.8			8.6	9.3	
Green Ext Time (p_c), s	0.0	0.0			9.6	0.5	

Intersection Summary

HCM 6th Ctrl Delay	52.6
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mobley St & Gramercy Dr

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	610	90	60	290	50	50	30	40	80	20	20
Future Volume (veh/h)	20	610	90	60	290	50	50	30	40	80	20	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.96	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1826	1826	1826	1752	1752	1752
Adj Flow Rate, veh/h	21	629	69	62	299	38	52	31	20	82	21	13
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	10	10	10
Cap, veh/h	695	1804	794	522	1604	202	273	127	56	346	78	29
Arrive On Green	0.51	0.51	0.51	0.51	0.51	0.51	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1035	3554	1565	744	3161	397	577	695	306	851	426	161
Grp Volume(v), veh/h	21	629	69	62	167	170	103	0	0	116	0	0
Grp Sat Flow(s),veh/h/ln	1035	1777	1565	744	1777	1782	1578	0	0	1439	0	0
Q Serve(g_s), s	0.4	3.4	0.7	1.8	1.6	1.7	0.0	0.0	0.0	0.4	0.0	0.0
Cycle Q Clear(g_c), s	2.0	3.4	0.7	5.2	1.6	1.7	1.6	0.0	0.0	2.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.22	0.50		0.19	0.71		0.11
Lane Grp Cap(c), veh/h	695	1804	794	522	902	904	456	0	0	453	0	0
V/C Ratio(X)	0.03	0.35	0.09	0.12	0.18	0.19	0.23	0.00	0.00	0.26	0.00	0.00
Avail Cap(c_a), veh/h	2094	6607	2909	1528	3303	3312	2023	0	0	1870	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.9	4.8	4.1	6.3	4.3	4.3	11.5	0.0	0.0	11.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.7	0.1	0.2	0.3	0.3	0.5	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	4.9	5.0	4.2	6.5	4.5	4.5	11.5	0.0	0.0	11.7	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		719			399			103			116	
Approach Delay, s/veh		4.9			4.8			11.5			11.7	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		21.5		10.8		21.5		10.8				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		5.4		4.0		7.2		3.6				
Green Ext Time (p_c), s		10.8		0.5		4.9		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				6.0								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary
43: Sandrock Rd & Greyling Dr/Gramercy Dr

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕			↕	↕	↕	↕	↕
Traffic Volume (veh/h)	90	140	10	20	170	200	10	10	20	30	600	40	140
Future Volume (veh/h)	90	140	10	20	170	200	10	10	20	30	600	40	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.98		0.94	1.00		1.00	1.00		0.96	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1574	1574	1870	1870	1856	1870	
Adj Flow Rate, veh/h	95	147	10	21	179	129	11	21	0	662	0	75	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	22	22	2	2	3	2	
Cap, veh/h	247	321	18	126	533	879	16	31	48	952	0	407	
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.03	0.03	0.00	0.27	0.00	0.27	
Sat Flow, veh/h	393	1050	60	80	1746	1493	532	1015	1585	3563	0	1522	
Grp Volume(v), veh/h	252	0	0	200	0	129	32	0	0	662	0	75	
Grp Sat Flow(s),veh/h/ln1503	0	0	1826	0	1493	1547	0	1585	1781	0	1522		
Q Serve(g_s), s	1.8	0.0	0.0	0.0	0.0	1.6	0.8	0.0	0.0	6.5	0.0	1.5	
Cycle Q Clear(g_c), s	5.1	0.0	0.0	3.2	0.0	1.6	0.8	0.0	0.0	6.5	0.0	1.5	
Prop In Lane	0.38		0.04	0.10		1.00	0.34		1.00	1.00		1.00	
Lane Grp Cap(c), veh/h	586	0	0	659	0	879	46	0	48	952	0	407	
V/C Ratio(X)	0.43	0.00	0.00	0.30	0.00	0.15	0.69	0.00	0.00	0.70	0.00	0.18	
Avail Cap(c_a), veh/h	1067	0	0	1252	0	1381	793	0	813	2740	0	1171	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh	11.0	0.0	0.0	10.5	0.0	3.9	18.7	0.0	0.0	12.9	0.0	11.0	
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	6.6	0.0	0.0	0.3	0.0	0.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln1.4	0.0	0.0	1.0	0.0	0.6	0.3	0.0	0.0	2.0	0.0	0.4		
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	11.2	0.0	0.0	10.6	0.0	3.9	25.3	0.0	0.0	13.2	0.0	11.1	
LnGrp LOS	B	A	A	B	A	A	C	A	A	B	A	B	
Approach Vol, veh/h		252		329			32			737			
Approach Delay, s/veh		11.2		8.0			25.3			13.0			
Approach LOS		B		A			C			B			
Timer - Assigned Phs		2		4		6	8						
Phs Duration (G+Y+Rc), s		17.2		15.7		17.2	6.1						
Change Period (Y+Rc), s		5.3		5.3		5.3	4.9						
Max Green Setting (Gmax), s		25.0		30.0		25.0	20.0						
Max Q Clear Time (g_c+1), s		7.1		8.5		5.2	2.8						
Green Ext Time (p_c), s		1.1		1.4		0.9	0.1						

Intersection Summary

HCM 6th Ctrl Delay	11.7
HCM 6th LOS	B

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
44: Fenton Pkwy & Camino del Rio N

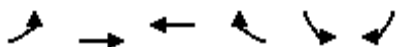
Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	453	640	104	196	151	120	218	79	320	221	24
Future Volume (veh/h)	48	453	640	104	196	151	120	218	79	320	221	24
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	492	482	113	213	139	130	237	73	348	240	23
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	72	561	623	137	355	232	166	277	85	394	555	53
Arrive On Green	0.04	0.30	0.30	0.08	0.34	0.34	0.09	0.20	0.20	0.22	0.33	0.33
Sat Flow, veh/h	1781	1870	1585	1781	1057	690	1781	1372	423	1781	1680	161
Grp Volume(v), veh/h	52	492	482	113	0	352	130	0	310	348	0	263
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1746	1781	0	1794	1781	0	1841
Q Serve(g_s), s	2.6	22.5	23.9	5.6	0.0	15.1	6.4	0.0	15.0	17.0	0.0	10.0
Cycle Q Clear(g_c), s	2.6	22.5	23.9	5.6	0.0	15.1	6.4	0.0	15.0	17.0	0.0	10.0
Prop In Lane	1.00		1.00	1.00		0.39	1.00		0.24	1.00		0.09
Lane Grp Cap(c), veh/h	72	561	623	137	0	587	166	0	362	394	0	608
V/C Ratio(X)	0.72	0.88	0.77	0.83	0.00	0.60	0.79	0.00	0.86	0.88	0.00	0.43
Avail Cap(c_a), veh/h	119	582	641	137	0	587	458	0	497	638	0	696
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.7	29.9	23.8	40.9	0.0	24.8	39.9	0.0	34.6	33.9	0.0	23.5
Incr Delay (d2), s/veh	12.7	13.9	5.7	32.4	0.0	1.7	8.0	0.0	10.5	8.5	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	11.9	9.5	3.7	0.0	6.3	3.2	0.0	7.5	8.2	0.0	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.4	43.8	29.6	73.3	0.0	26.5	47.9	0.0	45.1	42.4	0.0	24.0
LnGrp LOS	E	D	C	E	A	C	D	A	D	D	A	C
Approach Vol, veh/h		1026			465			440			611	
Approach Delay, s/veh		37.7			37.9			45.9			34.5	
Approach LOS		D			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	24.4	22.6	11.4	31.5	12.9	34.2	8.1	34.7				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	32.2	24.9	6.9	28.0	23.1	34.0	6.0	28.9				
Max Q Clear Time (g_c+1/3), s	11.0	17.0	7.6	25.9	8.4	12.0	4.6	17.1				
Green Ext Time (p_c), s	0.9	1.2	0.0	1.1	0.3	1.6	0.0	1.7				
Intersection Summary												
HCM 6th Ctrl Delay											38.4	
HCM 6th LOS											D	

HCM 6th Signalized Intersection Summary
45: Camino del Rio S & Fenton Pkwy

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑	↑	↗	↖	↗
Traffic Volume (veh/h)	178	610	250	249	850	156
Future Volume (veh/h)	178	610	250	249	850	156
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	193	663	272	233	924	108
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	221	711	406	1204	966	859
Arrive On Green	0.12	0.38	0.22	0.22	0.54	0.54
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585
Grp Volume(v), veh/h	193	663	272	233	924	108
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1781	1585
Q Serve(g_s), s	12.4	39.6	15.5	4.8	57.4	3.9
Cycle Q Clear(g_c), s	12.4	39.6	15.5	4.8	57.4	3.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	221	711	406	1204	966	859
V/C Ratio(X)	0.87	0.93	0.67	0.19	0.96	0.13
Avail Cap(c_a), veh/h	253	788	450	1241	1103	982
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	50.0	34.6	41.7	3.9	25.3	13.1
Incr Delay (d2), s/veh	24.4	16.8	3.3	0.1	16.6	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	20.9	7.5	6.1	27.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	74.4	51.4	45.0	4.0	41.9	13.1
LnGrp LOS	E	D	D	A	D	B
Approach Vol, veh/h		856	505		1032	
Approach Delay, s/veh		56.6	26.1		38.9	
Approach LOS		E	C		D	
Timer - Assigned Phs			4		6	7 8
Phs Duration (G+Y+Rc), s			48.7		67.5	19.0 29.8
Change Period (Y+Rc), s			4.5		4.5	4.5 4.5
Max Green Setting (Gmax), s			49.0		72.0	16.5 28.0
Max Q Clear Time (g_c+I1), s			41.6		59.4	14.4 17.5
Green Ext Time (p_c), s			2.7		3.7	0.1 1.8
Intersection Summary						
HCM 6th Ctrl Delay			42.5			
HCM 6th LOS			D			

HCM 6th Signalized Intersection Summary
46: Camino del Rio S & I-15 SB Off-Ramp

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



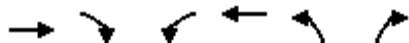
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑			↕		↖		↗
Traffic Volume (veh/h)	0	2040	30	40	299	0	30	0	50	210	30	110
Future Volume (veh/h)	0	2040	30	40	299	0	30	0	50	210	30	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	2217	32	43	325	0	33	0	11	228	33	8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	0	2383	34	55	1363	0	42	0	14	249	0	221
Arrive On Green	0.00	0.66	0.66	0.03	0.73	0.00	0.03	0.00	0.03	0.14	0.14	0.14
Sat Flow, veh/h	0	3680	52	1781	1870	0	1296	0	432	1781	0	1585
Grp Volume(v), veh/h	0	1096	1153	43	325	0	44	0	0	228	0	8
Grp Sat Flow(s),veh/h/ln	0	1777	1861	1781	1870	0	1728	0	0	1781	0	1585
Q Serve(g_s), s	0.0	73.4	74.4	3.3	7.8	0.0	3.4	0.0	0.0	17.2	0.0	0.6
Cycle Q Clear(g_c), s	0.0	73.4	74.4	3.3	7.8	0.0	3.4	0.0	0.0	17.2	0.0	0.6
Prop In Lane	0.00		0.03	1.00		0.00	0.75		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	0	1181	1237	55	1363	0	56	0	0	249	0	221
V/C Ratio(X)	0.00	0.93	0.93	0.78	0.24	0.00	0.79	0.00	0.00	0.92	0.00	0.04
Avail Cap(c_a), veh/h	0	1207	1264	69	1405	0	67	0	0	249	0	221
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	20.0	20.1	65.4	6.1	0.0	65.3	0.0	0.0	57.7	0.0	50.6
Incr Delay (d2), s/veh	0.0	12.2	12.3	34.2	0.1	0.0	38.5	0.0	0.0	35.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	32.0	34.0	2.0	2.9	0.0	2.1	0.0	0.0	10.2	0.0	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	32.2	32.5	99.6	6.1	0.0	103.9	0.0	0.0	93.2	0.0	50.7
LnGrp LOS	A	C	C	F	A	A	F	A	A	F	A	D
Approach Vol, veh/h		2249		368		44		236				
Approach Delay, s/veh		32.3		17.1		103.9		91.8				
Approach LOS		C		B		F		F				
Timer - Assigned Phs	1	2	4	6	8							
Phs Duration (G+Y+Rc), s	8.7	94.9		23.5	103.6		8.9					
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5		4.5					
Max Green Setting (Gmax), s	5.3	92.4		19.0	102.2		5.3					
Max Q Clear Time (g_c+I), s	15.3	76.4		19.2	9.8		5.4					
Green Ext Time (p_c), s	0.0	14.0		0.0	2.2		0.0					

Intersection Summary

HCM 6th Ctrl Delay	36.3
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary
 47: I-15 SB On-Ramp & Camino del Rio S

Horizon Year No Project With 2-Ln Bridge
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑		
Traffic Volume (veh/h)	1530	810	40	329	0	0
Future Volume (veh/h)	1530	810	40	329	0	0
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		
Adj Flow Rate, veh/h	1663	798	43	358		
Peak Hour Factor	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2		
Cap, veh/h	2012	892	70	1758		
Arrive On Green	0.84	0.84	0.04	0.94		
Sat Flow, veh/h	2488	1062	1781	1870		
Grp Volume(v), veh/h	1199	1262	43	358		
Grp Sat Flow(s),veh/h/ln	1777	1679	1781	1870		
Q Serve(g_s), s	24.8	36.2	1.8	1.1		
Cycle Q Clear(g_c), s	24.8	36.2	1.8	1.1		
Prop In Lane		0.63	1.00			
Lane Grp Cap(c), veh/h	1493	1411	70	1758		
V/C Ratio(X)	0.80	0.89	0.61	0.20		
Avail Cap(c_a), veh/h	1561	1475	126	1888		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	2.9	3.8	35.4	0.2		
Incr Delay (d2), s/veh	3.0	7.3	8.3	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	2.9	5.1	0.9	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	6.0	11.1	43.7	0.2		
LnGrp LOS	A	B	D	A		
Approach Vol, veh/h	2461			401		
Approach Delay, s/veh	8.6			4.9		
Approach LOS	A			A		
Timer - Assigned Phs	1	2			6	
Phs Duration (G+Y+Rc), s	7.5	67.3			74.8	
Change Period (Y+Rc), s	4.5	4.5			4.5	
Max Green Setting (Gmax), s	5.3	65.7			75.5	
Max Q Clear Time (g_c+I), s	13.8	38.2			3.1	
Green Ext Time (p_c), s	0.0	24.7			2.5	
Intersection Summary						
HCM 6th Ctrl Delay			8.1			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
48: I-15 NB Ramps & Camino del Rio S

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



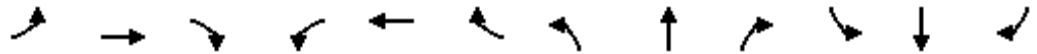
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	450	1090	0	0	120	50	259	10	140	0	0	0
Future Volume (veh/h)	450	1090	0	0	120	50	259	10	140	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	489	1185	0	0	130	7	282	11	62			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	550	1282	0	0	586	497	336	46	260			
Arrive On Green	0.31	0.69	0.00	0.00	0.31	0.31	0.19	0.19	0.19			
Sat Flow, veh/h	1781	1870	0	0	1870	1585	1781	244	1378			
Grp Volume(v), veh/h	489	1185	0	0	130	7	282	0	73			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1870	1585	1781	0	1622			
Q Serve(g_s), s	18.6	38.8	0.0	0.0	3.7	0.2	10.9	0.0	2.7			
Cycle Q Clear(g_c), s	18.6	38.8	0.0	0.0	3.7	0.2	10.9	0.0	2.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.85			
Lane Grp Cap(c), veh/h	550	1282	0	0	586	497	336	0	306			
V/C Ratio(X)	0.89	0.92	0.00	0.00	0.22	0.01	0.84	0.00	0.24			
Avail Cap(c_a), veh/h	847	1404	0	0	586	497	437	0	398			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	23.5	9.6	0.0	0.0	18.1	16.9	27.9	0.0	24.6			
Incr Delay (d2), s/veh	7.6	10.0	0.0	0.0	0.2	0.0	10.8	0.0	0.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.4	14.4	0.0	0.0	1.5	0.1	5.4	0.0	1.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	19.7	0.0	0.0	18.3	16.9	38.7	0.0	25.0			
LnGrp LOS	C	B	A	A	B	B	D	A	C			
Approach Vol, veh/h		1674			137			355				
Approach Delay, s/veh		23.0			18.2			35.9				
Approach LOS		C			B			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		53.3			26.5	26.8		17.9				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		53.5			33.9	15.1		17.5				
Max Q Clear Time (g_c+1), s		40.8			20.6	5.7		12.9				
Green Ext Time (p_c), s		8.1			1.4	0.4		0.6				
Intersection Summary												
HCM 6th Ctrl Delay					24.8							
HCM 6th LOS					C							

Queues

Horizon Year No Project With 2-Ln Bridge

1: SR-163 SB Ramps/Ulric St & Friars Rd

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	183	1765	714	622	1163	765	327	31	765	342	342	214
v/c Ratio	0.86	0.89	0.74	1.01	0.58	0.57	0.98	0.17	0.86	0.81	0.81	0.40
Control Delay	95.3	54.8	8.3	105.0	25.0	20.1	109.4	62.7	57.6	65.9	65.9	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	95.3	54.8	8.3	105.0	25.0	20.1	109.4	62.7	57.6	65.9	65.9	8.9
Queue Length 50th (ft)	170	474	3	~323	183	338	161	27	386	314	314	12
Queue Length 95th (ft)	#290	#587	133	#447	246	429	#263	62	#485	429	429	77
Internal Link Dist (ft)		1296			1068			834			622	
Turn Bay Length (ft)	300		350	400		200	300		215			200
Base Capacity (vph)	234	1977	968	615	1998	1440	333	181	887	486	486	591
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.89	0.74	1.01	0.58	0.53	0.98	0.17	0.86	0.70	0.70	0.36

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues
2: Friars Rd & SR-163 NB Ramps

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



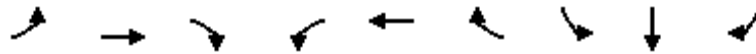
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	667	2490	1573	1063	1177	1052
v/c Ratio	0.67	0.61	0.81	0.83	0.79	0.61
Control Delay	39.4	8.1	50.1	41.4	51.0	19.3
Queue Delay	0.0	0.0	0.0	0.3	0.0	0.0
Total Delay	39.4	8.1	50.1	41.6	51.0	19.3
Queue Length 50th (ft)	294	208	399	492	362	327
Queue Length 95th (ft)	m370	220	418	600	418	447
Internal Link Dist (ft)		1068	635		521	
Turn Bay Length (ft)	500			200	500	400
Base Capacity (vph)	993	4087	2253	1278	1497	1729
Starvation Cap Reductn	0	0	0	22	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.61	0.70	0.85	0.79	0.61

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues
17: I-15 SB Ramps & Friars Rd

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



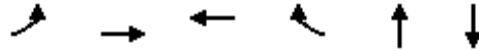
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	377	2103	666	323	1289	375	583	584	344
v/c Ratio	0.69	1.23	0.92	5.98	1.04	0.24	1.07	1.08	0.18
Control Delay	49.0	148.3	41.6	2290.8	85.7	0.4	103.5	104.0	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.0	148.3	41.6	2290.8	85.7	0.4	103.5	104.0	8.5
Queue Length 50th (ft)	293	~838	343	~505	~449	0	~601	~602	58
Queue Length 95th (ft)	410	#932	#601	#700	#546	0	#842	#845	80
Internal Link Dist (ft)		844			1079			723	
Turn Bay Length (ft)	380		200	350			520		520
Base Capacity (vph)	546	1708	726	54	1241	1583	543	543	1870
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	1.23	0.92	5.98	1.04	0.24	1.07	1.08	0.18

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
18: I-15 NB Ramps & Friars Rd

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	600	2767	1372	890	1326	693
v/c Ratio	0.96	no cap	0.53	1.21	15.60	8.15
Control Delay	64.4		19.1	135.1	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	64.4	Error	19.1	135.1	0.0	0.0
Queue Length 50th (ft)	445	0	267	~1008	0	0
Queue Length 95th (ft)	#668	0	314	#1295	0	0
Internal Link Dist (ft)		1079	869		797	677
Turn Bay Length (ft)	515					
Base Capacity (vph)	671	1	2565	735	85	85
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.89	2767.00	0.53	1.21	15.60	8.15

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

Horizon Year No Project With 2-Ln Bridge

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

PM Peak Hour



Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	117	649	234	436	223	884	1141	766
v/c Ratio	0.75	1.12	0.73	0.96	1.26	0.27	0.61	0.75
Control Delay	116.4	109.9	90.8	72.8	219.9	15.9	26.2	16.1
Queue Delay	0.0	0.0	0.0	5.9	0.0	0.0	50.2	28.8
Total Delay	116.4	109.9	90.8	78.6	219.9	16.0	76.4	44.8
Queue Length 50th (ft)	154	~645	288	310	~366	184	474	271
Queue Length 95th (ft)	226	#861	394	#518	#560	234	m585	m351
Internal Link Dist (ft)			657			1041	147	
Turn Bay Length (ft)				150	110			
Base Capacity (vph)	309	579	370	488	177	3314	1869	1019
Starvation Cap Reductn	0	0	0	0	0	0	933	284
Spillback Cap Reductn	0	0	0	29	0	681	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	1.12	0.63	0.95	1.26	0.34	1.22	1.04

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Horizon Year No Project With 2-Ln Bridge
 PM Peak Hour



Lane Group	EBR	NBT	SBT
Lane Group Flow (vph)	755	1317	1901
v/c Ratio	0.85	0.67	0.97
Control Delay	35.7	16.3	35.1
Queue Delay	0.0	5.5	0.0
Total Delay	35.7	21.8	35.1
Queue Length 50th (ft)	201	234	458
Queue Length 95th (ft)	274	388	#786
Internal Link Dist (ft)		285	1041
Turn Bay Length (ft)			
Base Capacity (vph)	1540	1953	1953
Starvation Cap Reductn	0	570	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.49	0.95	0.97

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

Horizon Year No Project With 2-Ln Bridge

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	231	237	725	409	620	264	274	961	10	1454	123
v/c Ratio	0.95	0.94	1.20	1.32	1.32dl	0.66	1.01	0.65	0.04	1.18	0.20
Control Delay	101.3	98.4	136.5	207.5	100.8	46.9	110.9	31.5	38.7	130.4	14.6
Queue Delay	0.0	0.0	0.0	0.0	19.0	0.8	0.0	0.0	0.0	2.8	0.0
Total Delay	101.3	98.4	136.5	207.5	119.7	47.6	110.9	31.5	38.7	133.3	14.6
Queue Length 50th (ft)	205	210	~676	~489	~329	204	~236	325	4	~797	42
Queue Length 95th (ft)	#375	#380	#919	#714	#464	308	#418	400	m6	m#922	m81
Internal Link Dist (ft)		2741			1304			820		254	
Turn Bay Length (ft)	105					200	215		65		140
Base Capacity (vph)	245	254	606	309	591	399	272	1469	264	1229	616
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	523	0
Spillback Cap Reductn	0	0	0	0	27	25	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.93	1.20	1.32	1.10	0.71	1.01	0.65	0.04	2.06	0.20

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.
- dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Queues
36: Fairmount Ave & I-8 EB Off-Ramp

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



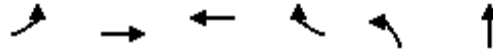
Lane Group	EBL	EBR	NBU	NBT	SBT
Lane Group Flow (vph)	1668	1894	61	522	1466
v/c Ratio	1.16dr	1.39	0.58	0.36	0.86
Control Delay	61.4	209.4	88.4	28.5	50.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	61.4	209.4	88.4	28.5	50.3
Queue Length 50th (ft)	~893	~1419	58	170	468
Queue Length 95th (ft)	#1099	#1659	110	215	554
Internal Link Dist (ft)	892			990	820
Turn Bay Length (ft)	550		350		
Base Capacity (vph)	1643	1364	245	1943	1893
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.02	1.39	0.25	0.27	0.77

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Queues
48: I-15 NB Ramps & Camino del Rio S

Horizon Year No Project With 2-Ln Bridge
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	489	1185	130	54	282	163
v/c Ratio	0.65	0.95	0.31	0.13	0.77	0.39
Control Delay	24.9	29.1	27.8	4.0	44.5	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.9	29.1	27.8	4.0	44.5	14.4
Queue Length 50th (ft)	217	465	51	0	132	24
Queue Length 95th (ft)	294	#830	107	17	#239	75
Internal Link Dist (ft)		251	398			472
Turn Bay Length (ft)				90	175	
Base Capacity (vph)	839	1342	470	460	417	456
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.88	0.28	0.12	0.68	0.36

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

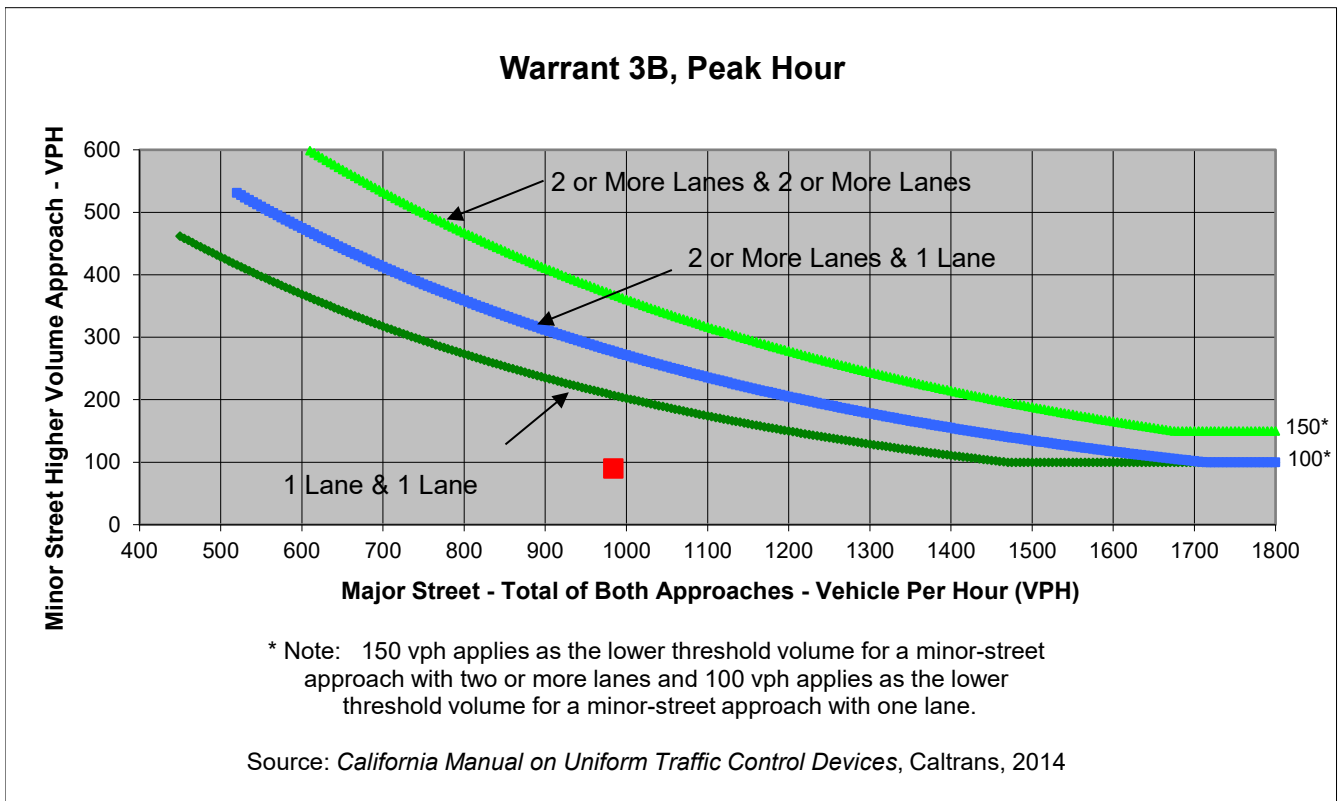
Project SDSU Mission Valley
 Scenario Horizon Year w/2-Ln Bridge
 Peak Hour PM

Turn Movement Volumes

	NB	SB	EB	WB
Left/U-turns	60	10	50	0
Through	374	470	0	0
Right	0	70	40	0
Total	434	550	90	0

Major Street Direction

x	North/South
	East/West



	Major Street	Minor Street	Warrant Met
	Ward Rd	Rancho Mission Rd	
Number of Approach Lanes	2	1	<u>NO</u>
Traffic Volume (VPH) *	984	90	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
 Traffic Volume for Minor Street is the Volume of High Volume Approach.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

Project SDSU Mission Valley
 Scenario Horizon Year w/2-Ln Bridge
 Peak Hour PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	60	10	50	0
Through	374	470	0	0
Right	0	70	40	0
Total	434	550	90	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	24.5
Approach with Worst Case Delay	EB
Total Vehicles on Approach	90

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
Horizon Year w/2-Ln Bridge	0.6	90	1,074
Limiting Value	4	100	650
Condition Satisfied?	Not Met	Not Met	Met
Warrant Met	<u>NO</u>		

HCM Signalized Intersection Capacity Analysis
 1: SR-163 SB Ramps/Ulrir St & Friars Rd

Horizon Year Plus Project w/2-Lane Bridge
 AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	70	666	270	599	938	764	310	60	858	434	0	100	
Future Volume (vph)	70	666	270	599	938	764	310	60	858	434	0	100	
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.7	7.0	7.0	4.5	3.0	6.1	6.1	6.1	4.5	6.1	6.1	6.1	
Lane Util. Factor	1.00	0.86	1.00	0.97	0.91	0.88	0.97	1.00	0.88	0.95	0.95	1.00	
Frbp, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	
Satd. Flow (prot)	1770	6408	1557	3433	5085	2787	3433	1863	2787	1681	1681	1561	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	
Satd. Flow (perm)	1770	6408	1557	3433	5085	2787	3433	1863	2787	1681	1681	1561	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	73	694	281	624	977	796	323	62	894	452	0	104	
RTOR Reduction (vph)	0	0	196	0	0	0	0	0	0	0	0	84	
Lane Group Flow (vph)	73	694	85	624	977	796	323	63	894	226	226	20	
Confl. Peds. (#/hr)			2									2	
Confl. Bikes (#/hr)			1										
Turn Type	Prot	NA	Perm	Prot	NA	custom	Split	NA	pm+ov	Split	NA	Perm	
Protected Phases	5	2		1	6	4	8	8	1	4	4		
Permitted Phases			2						8			4	
Actuated Green, G (s)	10.3	45.5	45.5	33.4	68.4	80.2	18.7	18.7	52.1	28.7	28.7	28.7	
Effective Green, g (s)	10.3	45.5	45.5	33.4	68.4	73.2	18.7	18.7	52.1	28.7	28.7	28.7	
Actuated g/C Ratio	0.07	0.30	0.30	0.22	0.46	0.49	0.12	0.12	0.35	0.19	0.19	0.19	
Clearance Time (s)	4.7	7.0	7.0	4.5			6.1	6.1	4.5	6.1	6.1	6.1	
Vehicle Extension (s)	2.0	2.0	2.0	3.0			3.0	3.0	3.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	121	1943	472	764	2318	1360	427	232	968	321	321	298	
v/s Ratio Prot	0.04	0.11		0.18	c0.19	c0.29	0.09	0.03	c0.21	c0.13	0.13		
v/s Ratio Perm			0.05						0.12			0.01	
v/c Ratio	0.60	0.36	0.18	0.82	0.42	0.59	0.76	0.27	0.92	0.70	0.70	0.07	
Uniform Delay, d1	67.9	40.8	38.5	55.4	27.5	27.5	63.4	59.5	47.0	56.7	56.7	49.7	
Progression Factor	1.00	1.00	1.00	1.37	0.62	0.52	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.7	0.5	0.8	5.7	0.0	0.3	7.5	0.6	13.9	5.6	5.6	0.0	
Delay (s)	73.6	41.3	39.3	81.8	17.2	14.6	70.9	60.1	61.0	62.3	62.3	49.7	
Level of Service	E	D	D	F	B	B	E	E	E	E	E	D	
Approach Delay (s)		43.0			33.1			63.4			60.0		
Approach LOS		D			C			E			E		
Intersection Summary													
HCM 2000 Control Delay			45.3		HCM 2000 Level of Service				D				
HCM 2000 Volume to Capacity ratio			0.77										
Actuated Cycle Length (s)			150.0		Sum of lost time (s)				26.9				
Intersection Capacity Utilization			75.7%		ICU Level of Service				D				
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
2: Friars Rd & SR-163 NB Ramps

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour

























Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	500	1438	1460	833	1295	800
Future Volume (vph)	500	1438	1460	833	1295	800
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.5	6.0	6.0	4.5	5.0
Lane Util. Factor	0.97	0.86	0.86	0.88	0.94	0.88
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	6408	6408	2787	4990	2769
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	6408	6408	2787	4990	2769
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	521	1498	1521	868	1349	833
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	521	1498	1521	868	1349	833
Confl. Peds. (#/hr)						1
Confl. Bikes (#/hr)				1		
Turn Type	Prot	NA	NA	custom	Prot	pm+ov
Protected Phases	5	2	3	6	4	5
Permitted Phases						4
Actuated Green, G (s)	43.7	95.2	48.0	74.0	45.8	89.5
Effective Green, g (s)	43.7	95.2	48.0	69.5	45.8	89.5
Actuated g/C Ratio	0.29	0.63	0.32	0.46	0.31	0.60
Clearance Time (s)	5.0	4.5			4.5	5.0
Vehicle Extension (s)	2.0	3.0			3.0	2.0
Lane Grp Cap (vph)	1000	4066	2050	1291	1523	1744
v/s Ratio Prot	c0.15	0.23	c0.24	0.31	c0.27	0.14
v/s Ratio Perm						0.16
v/c Ratio	0.52	0.37	0.74	0.67	0.89	0.48
Uniform Delay, d1	44.4	13.1	45.5	31.4	49.6	17.1
Progression Factor	1.04	0.99	0.70	0.37	1.00	1.00
Incremental Delay, d2	0.2	0.2	0.8	0.9	6.6	0.1
Delay (s)	46.2	13.2	32.8	12.4	56.2	17.1
Level of Service	D	B	C	B	E	B
Approach Delay (s)		21.7	25.4		41.3	
Approach LOS		C	C		D	

Intersection Summary			
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Frazee Rd & Friars Rd

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour

												
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	20	780	1393	520	10	69	1923	144	140	70	65	37
Future Volume (vph)	20	780	1393	520	10	69	1923	144	140	70	65	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.4	3.0	4.4		4.4	6.5	6.5	4.4	4.9		4.4
Lane Util. Factor		0.97	0.86	0.88		0.97	0.86	1.00	0.97	0.95		0.97
Frbp, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.98		1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.93		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (prot)		3433	6408	2787		3433	6408	1583	3433	3211		3433
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (perm)		3433	6408	2787		3433	6408	1583	3433	3211		3433
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	21	812	1451	542	10	72	2003	150	146	73	68	39
RTOR Reduction (vph)	0	0	0	0	0	0	0	91	0	51	0	0
Lane Group Flow (vph)	0	834	1451	542	0	82	2003	59	146	90	0	39
Confl. Peds. (#/hr)				3							37	
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	custom	Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2 9	3 9	1	1	6		3	8		7
Permitted Phases							6					
Actuated Green, G (s)		33.8	84.5	73.1		6.3	53.5	53.5	11.0	37.7		4.8
Effective Green, g (s)		33.8	84.5	70.1		6.3	53.5	53.5	11.0	37.7		4.8
Actuated g/C Ratio		0.23	0.56	0.47		0.04	0.36	0.36	0.07	0.25		0.03
Clearance Time (s)		4.4				4.4	6.5	6.5	4.4	4.9		4.4
Vehicle Extension (s)		2.0				2.0	4.4	4.4	2.2	2.0		2.2
Lane Grp Cap (vph)		773	3609	1302		144	2285	564	251	807		109
v/s Ratio Prot		c0.24	c0.23	0.19		0.02	c0.31		c0.04	0.03		0.01
v/s Ratio Perm							0.04					
v/c Ratio		1.08	0.40	0.42		0.57	0.88	0.10	0.58	0.11		0.36
Uniform Delay, d1		58.1	18.5	26.4		70.5	45.2	32.2	67.3	43.3		71.1
Progression Factor		1.15	1.06	0.95		1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		52.6	0.0	0.1		3.1	5.1	0.4	2.5	0.0		1.0
Delay (s)		119.7	19.7	25.1		73.6	50.3	32.6	69.7	43.3		72.1
Level of Service		F	B	C		E	D	C	E	D		E
Approach Delay (s)			50.2			50.0			56.7			
Approach LOS			D			D			E			
Intersection Summary												
HCM 2000 Control Delay			50.6			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			20.2			
Intersection Capacity Utilization			95.6%			ICU Level of Service			F			
Analysis Period (min)			15									

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations	↑	↑↑
Traffic Volume (vph)	20	210
Future Volume (vph)	20	210
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.9	4.9
Lane Util. Factor	1.00	0.88
Frbp, ped/bikes	1.00	1.00
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1863	2787
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1863	2787
Peak-hour factor, PHF	0.96	0.96
Adj. Flow (vph)	21	219
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	21	219
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	31.5	31.5
Effective Green, g (s)	31.5	31.5
Actuated g/C Ratio	0.21	0.21
Clearance Time (s)	4.9	4.9
Vehicle Extension (s)	2.3	2.3
Lane Grp Cap (vph)	391	585
v/s Ratio Prot	0.01	
v/s Ratio Perm		c0.08
v/c Ratio	0.05	0.37
Uniform Delay, d1	47.3	50.8
Progression Factor	1.00	1.00
Incremental Delay, d2	0.0	0.2
Delay (s)	47.4	51.0
Level of Service	D	D
Approach Delay (s)	53.7	
Approach LOS	D	
Intersection Summary		

HCM 6th Signalized Intersection Summary
4: Mission Center Rd & Friars Rd WB

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↗	↖	↖	↖			↗	↗
Traffic Volume (veh/h)	0	0	0	220	10	380	110	540	0	0	454	330
Future Volume (veh/h)	0	0	0	220	10	380	110	540	0	0	454	330
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				242	0	174	117	574	0	0	483	195
Peak Hour Factor				0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				494	0	220	183	2619	0	0	2257	982
Arrive On Green				0.28	0.00	0.28	0.11	1.00	0.00	0.00	0.64	0.64
Sat Flow, veh/h				3563	0	1585	3456	3647	0	0	3647	1546
Grp Volume(v), veh/h				242	0	174	117	574	0	0	483	195
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1728	1777	0	0	1777	1546
Q Serve(g_s), s				5.1	0.0	9.2	2.9	0.0	0.0	0.0	5.2	4.7
Cycle Q Clear(g_c), s				5.1	0.0	9.2	2.9	0.0	0.0	0.0	5.2	4.7
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				494	0	220	183	2619	0	0	2257	982
V/C Ratio(X)				0.49	0.00	0.79	0.64	0.22	0.00	0.00	0.21	0.20
Avail Cap(c_a), veh/h				1215	0	541	580	2619	0	0	2257	982
HCM Platoon Ratio				2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.95	0.95	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				29.9	0.0	31.3	39.4	0.0	0.0	0.0	6.9	6.9
Incr Delay (d2), s/veh				0.8	0.0	6.3	1.3	0.2	0.0	0.0	0.2	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.0	0.0	3.3	1.2	0.1	0.0	0.0	1.7	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				30.6	0.0	37.7	40.7	0.2	0.0	0.0	7.2	7.3
LnGrp LOS				C	A	D	D	A	A	A	A	A
Approach Vol, veh/h					416			691			678	
Approach Delay, s/veh					33.6			7.0			7.2	
Approach LOS					C			A			A	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		72.6			9.2	63.5		17.4				
Change Period (Y+Rc), s		* 6.3			4.4	6.3		4.9				
Max Green Setting (Gmax), s		* 49			15.1	28.6		30.7				
Max Q Clear Time (g_c+I1), s		2.0			4.9	7.2		11.2				
Green Ext Time (p_c), s		3.4			0.1	6.4		1.3				

Intersection Summary

HCM 6th Ctrl Delay	13.3
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Mission Center Rd & Friars Rd EB

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	210	10	200	0	0	0	0	440	147	153	520	0
Future Volume (veh/h)	210	10	200	0	0	0	0	440	147	153	520	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	236	0	15				0	478	134	166	565	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	395	0	176				0	1062	295	1110	2737	0
Arrive On Green	0.11	0.00	0.11				0.00	0.39	0.39	0.43	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2816	757	3456	3647	0
Grp Volume(v), veh/h	236	0	15				0	311	301	166	565	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1703	1728	1777	0
Q Serve(g_s), s	5.7	0.0	0.8				0.0	11.6	11.8	2.6	0.0	0.0
Cycle Q Clear(g_c), s	5.7	0.0	0.8				0.0	11.6	11.8	2.6	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.44	1.00		0.00
Lane Grp Cap(c), veh/h	395	0	176				0	693	664	1110	2737	0
V/C Ratio(X)	0.60	0.00	0.09				0.00	0.45	0.45	0.15	0.21	0.00
Avail Cap(c_a), veh/h	1013	0	451				0	693	664	1110	2737	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.33	1.33	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.97	0.97	0.00
Uniform Delay (d), s/veh	38.1	0.0	35.9				0.0	20.3	20.3	18.2	0.0	0.0
Incr Delay (d2), s/veh	1.4	0.0	0.2				0.0	2.1	2.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.3				0.0	4.9	4.8	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.5	0.0	36.1				0.0	22.4	22.6	18.3	0.0	0.0
LnGrp LOS	D	A	D				A	C	C	B	A	A
Approach Vol, veh/h		251						612			731	
Approach Delay, s/veh		39.3						22.5			4.2	
Approach LOS		D						C			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	34.7	40.4	14.9	75.1								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	14.7	* 35	25.6	53.7								
Max Q Clear Time (g_c+I), s	14.6	13.8	7.7	2.0								
Green Ext Time (p_c), s	0.2	5.0	0.7	4.9								

Intersection Summary

HCM 6th Ctrl Delay	16.7
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
6: Qualcomm Way & Friars Rd WB

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷		↶	↷			↶	↷
Traffic Volume (veh/h)	0	0	0	225	0	65	425	140	0	0	133	40
Future Volume (veh/h)	0	0	0	225	0	65	425	140	0	0	133	40
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				267	0	0	478	157	0	0	149	9
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				361	190	0	1179	2749	0	0	1319	588
Arrive On Green				0.17	0.00	0.00	0.57	1.00	0.00	0.00	0.37	0.37
Sat Flow, veh/h				3563	1870	0	3456	3647	0	0	3647	1585
Grp Volume(v), veh/h				267	0	0	478	157	0	0	149	9
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1728	1777	0	0	1777	1585
Q Serve(g_s), s				5.7	0.0	0.0	6.2	0.0	0.0	0.0	2.2	0.3
Cycle Q Clear(g_c), s				5.7	0.0	0.0	6.2	0.0	0.0	0.0	2.2	0.3
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				361	190	0	1179	2749	0	0	1319	588
V/C Ratio(X)				0.74	0.00	0.00	0.41	0.06	0.00	0.00	0.11	0.02
Avail Cap(c_a), veh/h				1251	657	0	1179	2749	0	0	1319	588
HCM Platoon Ratio				1.67	1.67	1.67	1.67	1.67	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				32.2	0.0	0.0	12.7	0.0	0.0	0.0	16.5	15.9
Incr Delay (d2), s/veh				1.1	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.3	0.0	0.0	2.0	0.0	0.0	0.0	0.9	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				33.3	0.0	0.0	12.9	0.0	0.0	0.0	16.6	15.9
LnGrp LOS				C	A	A	B	A	A	A	B	B
Approach Vol, veh/h					267			635			158	
Approach Delay, s/veh					33.3			9.7			16.5	
Approach LOS					C			A			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		67.0			32.4	34.6		13.0				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+I1), s		2.0			8.2	4.2		7.7				
Green Ext Time (p_c), s		1.2			1.7	0.6		0.4				

Intersection Summary

HCM 6th Ctrl Delay	16.7
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
7: Qualcomm Way & Friars Rd EB

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	0	91	0	0	0	0	465	298	83	355	0
Future Volume (veh/h)	60	0	91	0	0	0	0	465	298	83	355	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98				1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	68	0	1				0	528	192	94	403	0
Peak Hour Factor	0.88	0.88	0.88				0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	170	0	74				0	4676	1127	157	2939	0
Arrive On Green	0.05	0.00	0.05				0.00	0.73	0.73	0.09	1.00	0.00
Sat Flow, veh/h	3563	0	1553				0	6696	1551	3456	3647	0
Grp Volume(v), veh/h	68	0	1				0	528	192	94	403	0
Grp Sat Flow(s),veh/h/ln	1781	0	1553				0	1609	1551	1728	1777	0
Q Serve(g_s), s	1.5	0.0	0.0				0.0	2.0	3.1	2.1	0.0	0.0
Cycle Q Clear(g_c), s	1.5	0.0	0.0				0.0	2.0	3.1	2.1	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	170	0	74				0	4676	1127	157	2939	0
V/C Ratio(X)	0.40	0.00	0.01				0.00	0.11	0.17	0.60	0.14	0.00
Avail Cap(c_a), veh/h	1519	0	662				0	4676	1127	436	2939	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.97	0.97	0.90	0.90	0.00
Uniform Delay (d), s/veh	37.0	0.0	36.3				0.0	3.3	3.4	35.7	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.0				0.0	0.0	0.3	1.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.0				0.0	0.4	0.8	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	0.0	36.3				0.0	3.3	3.7	36.9	0.1	0.0
LnGrp LOS	D	A	D				A	A	A	D	A	A
Approach Vol, veh/h		69						720			497	
Approach Delay, s/veh		37.5						3.4			7.0	
Approach LOS		D						A			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	8.0	63.2	8.7	71.3								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.5	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	14.5	5.1	3.5	2.0								
Green Ext Time (p_c), s	0.1	4.3	0.1	1.8								

Intersection Summary

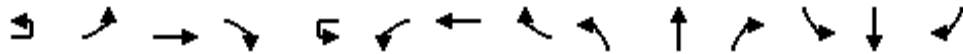
HCM 6th Ctrl Delay	6.6
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↖ ↗ ↘ ↙	↖ ↗ ↘ ↙	↖ ↗		↖ ↗ ↘ ↙	↖ ↗ ↘ ↙			↖ ↗	↖ ↗		↖ ↗		
Traffic Volume (veh/h)	10	110	1145	40	10	179	2221	184	130	60	62	28	10	10	
Future Volume (veh/h)	10	110	1145	40	10	179	2221	184	130	60	62	28	10	10	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	0.98		0.97	0.98		0.97	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		116	1205	21		188	2338	190	137	63	9	29	11	4	
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2	
Cap, veh/h		145	2629	816		220	2680	214	266	98	336	135	46	13	
Arrive On Green		0.08	0.51	0.51		0.12	0.56	0.56	0.22	0.22	0.22	0.22	0.22	0.22	
Sat Flow, veh/h		1781	5106	1585		1781	4811	385	964	449	1544	367	213	58	
Grp Volume(v), veh/h		116	1205	21		188	1643	885	200	0	9	44	0	0	
Grp Sat Flow(s),veh/h/ln		1781	1702	1585		1781	1702	1792	1414	0	1544	638	0	0	
Q Serve(g_s), s		6.9	16.1	0.7		11.1	44.5	46.5	0.0	0.0	0.5	1.8	0.0	0.0	
Cycle Q Clear(g_c), s		6.9	16.1	0.7		11.1	44.5	46.5	14.3	0.0	0.5	16.1	0.0	0.0	
Prop In Lane		1.00		1.00		1.00		0.21	0.68		1.00	0.66		0.09	
Lane Grp Cap(c), veh/h		145	2629	816		220	1896	998	364	0	336	194	0	0	
V/C Ratio(X)		0.80	0.46	0.03		0.85	0.87	0.89	0.55	0.00	0.03	0.23	0.00	0.00	
Avail Cap(c_a), veh/h		662	2847	884		497	1898	999	456	0	430	415	0	0	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	
Uniform Delay (d), s/veh		48.6	16.6	12.8		46.2	20.4	20.9	38.5	0.0	33.1	40.0	0.0	0.0	
Incr Delay (d2), s/veh		3.9	0.6	0.1		3.7	5.6	11.5	1.0	0.0	0.0	0.7	0.0	0.0	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		3.1	5.9	0.2		5.0	16.8	20.1	4.9	0.0	0.2	1.1	0.0	0.0	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		52.5	17.2	12.9		49.9	26.0	32.4	39.5	0.0	33.1	40.7	0.0	0.0	
LnGrp LOS		D	B	B		D	C	C	D	A	C	D	A	A	
Approach Vol, veh/h		1342				2716				209			44		
Approach Delay, s/veh		20.1				29.7				39.2			40.7		
Approach LOS		C				C				D			D		
Timer - Assigned Phs	1	2	4		5	6	8								
Phs Duration (G+Y+Rc), s	17.7	61.6	28.3		13.1	66.1	28.3								
Change Period (Y+Rc), s	4.4	6.2	4.9		4.4	6.2	4.9								
Max Green Setting (Gmax), s	30.0	60.0	40.0		40.0	60.0	30.0								
Max Q Clear Time (g_c+11), s	18.1	18.1	18.1		8.9	48.5	16.3								
Green Ext Time (p_c), s	0.2	29.7	0.2		0.1	11.4	0.8								

Intersection Summary

HCM 6th Ctrl Delay	27.3
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 9: Fenton Pkwy & Friars Rd

Horizon Year Plus Project w/2-Lane Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↑↑↑	↗		↔	↑↑↑	↗	↔	↑	↗	↔	↗	↗
Traffic Volume (veh/h)	60	1124	167	10	180	1941	30	386	13	154	90	24	190
Future Volume (veh/h)	60	1124	167	10	180	1941	30	386	13	154	90	24	190
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	1222	99		196	2110	18	420	14	16	98	26	20
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	110	2969	1082		262	3194	1061	349	219	185	155	103	137
Arrive On Green	0.03	0.58	0.58		0.03	0.21	0.21	0.10	0.12	0.12	0.04	0.06	0.06
Sat Flow, veh/h	3456	5106	1585		3456	5106	1585	3456	1870	1581	3563	1870	1570
Grp Volume(v), veh/h	65	1222	99		196	2110	18	420	14	16	98	26	20
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1585	1728	1870	1581	1781	1870	1570
Q Serve(g_s), s	2.0	14.5	0.8		6.2	41.8	0.9	11.1	0.7	1.0	3.0	1.5	1.0
Cycle Q Clear(g_c), s	2.0	14.5	0.8		6.2	41.8	0.9	11.1	0.7	1.0	3.0	1.5	1.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	110	2969	1082		262	3194	1061	349	219	185	155	103	137
V/C Ratio(X)	0.59	0.41	0.09		0.75	0.66	0.02	1.20	0.06	0.09	0.63	0.25	0.15
Avail Cap(c_a), veh/h	286	2969	1082		459	3194	1061	349	537	454	347	531	496
HCM Platoon Ratio	1.00	1.00	1.00		0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.90	0.90	0.90		0.70	0.70	0.70	0.86	0.86	0.86	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	12.7	1.4		52.6	32.9	13.1	49.5	43.2	43.3	51.7	49.8	27.2
Incr Delay (d2), s/veh	1.7	0.4	0.2		1.1	0.8	0.0	113.2	0.5	0.8	1.6	5.8	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	5.0	0.4		2.8	19.0	0.3	10.3	0.4	0.4	1.4	0.9	0.5
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	54.2	13.0	1.5		53.7	33.7	13.1	162.7	43.7	44.1	53.3	55.5	29.4
LnGrp LOS	D	B	A		D	C	B	F	D	D	D	E	C
Approach Vol, veh/h		1386				2324			450			144	
Approach Delay, s/veh		14.1				35.2			154.8			50.4	
Approach LOS		B				D			F			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	12.8	70.3	16.0	11.0	7.9	75.1	9.2	17.8					
Change Period (Y+Rc), s	4.4	6.3	4.9	* 4.9	4.4	* 6.3	4.4	4.9					
Max Green Setting (Gmax), s	14.6	33.1	11.1	* 31	9.1	* 39	10.7	31.6					
Max Q Clear Time (g_c+1), s	10.2	16.5	13.1	3.5	4.0	43.8	5.0	3.0					
Green Ext Time (p_c), s	0.2	13.0	0.0	0.5	0.0	0.0	0.1	0.3					

Intersection Summary

HCM 6th Ctrl Delay	41.4
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 10: Northside Dr & Friars Rd

Horizon Year Plus Project w/2-Lane Bridge
 AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↑↑↑	↔	↔↔	↑↑↑	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	10	40	1024	270	578	1838	74	120	10	262	212	40	190
Future Volume (veh/h)	10	40	1024	270	578	1838	74	120	10	262	212	40	190
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		42	1078	284	608	1935	54	126	11	216	223	42	48
Peak Hour Factor		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		91	2115	655	600	2868	1011	185	277	507	288	332	282
Arrive On Green		0.01	0.14	0.14	0.35	1.00	1.00	0.05	0.15	0.15	0.08	0.18	0.18
Sat Flow, veh/h		3456	5106	1582	3456	5106	1565	3456	1870	1569	3456	1870	1585
Grp Volume(v), veh/h		42	1078	284	608	1935	54	126	11	216	223	42	48
Grp Sat Flow(s),veh/h/ln		1728	1702	1582	1728	1702	1565	1728	1870	1569	1728	1870	1585
Q Serve(g_s), s		1.3	21.5	18.1	19.1	0.0	0.0	3.9	0.6	11.9	7.0	2.1	2.8
Cycle Q Clear(g_c), s		1.3	21.5	18.1	19.1	0.0	0.0	3.9	0.6	11.9	7.0	2.1	2.8
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		91	2115	655	600	2868	1011	185	277	507	288	332	282
V/C Ratio(X)		0.46	0.51	0.43	1.01	0.67	0.05	0.68	0.04	0.43	0.77	0.13	0.17
Avail Cap(c_a), veh/h		254	2115	655	600	2868	1011	346	452	655	471	520	441
HCM Platoon Ratio		0.33	0.33	0.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.87	0.87	0.87	0.78	0.78	0.78	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		53.7	37.1	35.6	35.9	0.0	0.0	51.1	40.2	29.4	49.4	38.1	38.4
Incr Delay (d2), s/veh		1.2	0.8	1.8	35.8	1.0	0.1	1.6	0.2	1.6	1.7	0.8	1.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.6	9.9	8.0	8.9	0.3	0.0	1.8	0.3	4.8	3.1	1.0	1.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		54.9	37.9	37.5	71.7	1.0	0.1	52.8	40.3	31.0	51.1	38.8	39.7
LnGrp LOS		D	D	D	F	A	A	D	D	C	D	D	D
Approach Vol, veh/h			1404			2597			353			313	
Approach Delay, s/veh			38.3			17.5			39.1			47.7	
Approach LOS			D			B			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	33.5	51.8	10.3	24.4	7.3	68.0	13.6	21.2					
Change Period (Y+Rc), s	4.4	* 6.2	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	19.5	* 30	11.0	30.6	8.1	40.4	15.0	26.6					
Max Q Clear Time (g_c+D1), s	21.5	23.5	5.9	4.8	3.3	2.0	9.0	13.9					
Green Ext Time (p_c), s	0.0	5.1	0.1	1.3	0.0	33.7	0.2	1.5					

Intersection Summary

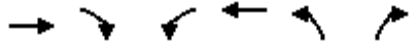
HCM 6th Ctrl Delay	27.4
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 11: Stadium Way (Street A) & Friars Rd

Horizon Year Plus Project w/2-Lane Bridge
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↙↘	↑↑↑	↙↘	↙↘
Traffic Volume (veh/h)	1247	251	638	2393	127	31
Future Volume (veh/h)	1247	251	638	2393	127	31
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1299	133	665	2493	132	32
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2970	921	775	4347	199	161
Arrive On Green	1.00	1.00	0.22	0.85	0.06	0.06
Sat Flow, veh/h	5274	1582	3456	5274	3456	2790
Grp Volume(v), veh/h	1299	133	665	2493	132	32
Grp Sat Flow(s),veh/h/ln	1702	1582	1728	1702	1728	1395
Q Serve(g_s), s	0.0	0.0	20.3	15.6	4.1	1.2
Cycle Q Clear(g_c), s	0.0	0.0	20.3	15.6	4.1	1.2
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2970	921	775	4347	199	161
V/C Ratio(X)	0.44	0.14	0.86	0.57	0.66	0.20
Avail Cap(c_a), veh/h	2970	921	1319	4347	408	330
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.86	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	41.0	2.4	50.8	49.4
Incr Delay (d2), s/veh	0.4	0.3	3.0	0.6	3.7	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	8.6	1.8	1.9	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.4	0.3	44.0	2.9	54.5	50.0
LnGrp LOS	A	A	D	A	D	D
Approach Vol, veh/h	1432			3158	164	
Approach Delay, s/veh	0.4			11.6	53.6	
Approach LOS	A			B	D	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	29.7	69.0		98.7	11.3	
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	
Max Green Setting (Gmax), s	42.0	40.0		87.0	13.0	
Max Q Clear Time (g_c+Y), s	20.3	2.0		17.6	6.1	
Green Ext Time (p_c), s	2.3	11.7		41.1	0.3	
Intersection Summary						
HCM 6th Ctrl Delay			9.7			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
 12: Mission Village Dr & Friars Rd WB

Horizon Year Plus Project w/2-Lane Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↶	↶↷	↶↷			↶↷	↶
Traffic Volume (veh/h)	0	0	0	498	0	510	261	986	0	0	747	298
Future Volume (veh/h)	0	0	0	498	0	510	261	986	0	0	747	298
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No		
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				535	0	481	281	1060	0	0	803	169
Peak Hour Factor				0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				1121	0	498	822	2106	0	0	1034	461
Arrive On Green				0.63	0.00	0.63	0.24	0.59	0.00	0.00	0.29	0.29
Sat Flow, veh/h				3563	0	1584	3456	3647	0	0	3647	1585
Grp Volume(v), veh/h				535	0	481	281	1060	0	0	803	169
Grp Sat Flow(s),veh/h/ln				1781	0	1584	1728	1777	0	0	1777	1585
Q Serve(g_s), s				8.7	0.0	31.5	7.4	19.1	0.0	0.0	22.8	9.3
Cycle Q Clear(g_c), s				8.7	0.0	31.5	7.4	19.1	0.0	0.0	22.8	9.3
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				1121	0	498	822	2106	0	0	1034	461
V/C Ratio(X)				0.48	0.00	0.96	0.34	0.50	0.00	0.00	0.78	0.37
Avail Cap(c_a), veh/h				1234	0	548	822	2106	0	0	1034	461
HCM Platoon Ratio				2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.91	0.91	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				15.6	0.0	19.8	34.8	13.0	0.0	0.0	35.7	31.0
Incr Delay (d2), s/veh				0.1	0.0	27.8	0.1	0.8	0.0	0.0	5.7	2.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.7	0.0	9.3	3.0	6.9	0.0	0.0	10.2	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				15.7	0.0	47.6	34.8	13.8	0.0	0.0	41.5	33.2
LnGrp LOS				B	A	D	C	B	A	A	D	C
Approach Vol, veh/h						1016		1341			972	
Approach Delay, s/veh						30.8		18.2			40.0	
Approach LOS						C		B			D	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		70.5			31.5	39.0		39.5				
Change Period (Y+Rc), s		* 5.3			5.3	7.0		4.9				
Max Green Setting (Gmax), s		* 63			22.7	32.0		38.1				
Max Q Clear Time (g_c+I1), s		21.1			9.4	24.8		33.5				
Green Ext Time (p_c), s		8.6			0.4	3.8		1.1				

Intersection Summary



















HCM 6th Ctrl Delay	28.4
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
13: Mission Village Dr/Street D & Friars Rd EB

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	205	0	273	0	0	0	0	1024	734	369	866	0	
Future Volume (vph)	205	0	273	0	0	0	0	1024	734	369	866	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		5.2	5.2					4.9	4.9	6.2	6.2		
Lane Util. Factor		1.00	0.88					0.91	0.88	0.97	0.95		
Frbp, ped/bikes		1.00	0.98					1.00	0.98	1.00	1.00		
Flpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00		
Frt		1.00	0.85					1.00	0.85	1.00	1.00		
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (prot)		1770	2740					5085	2721	3433	3539		
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00		
Satd. Flow (perm)		1770	2740					5085	2721	3433	3539		
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	
Adj. Flow (vph)	230	0	307	0	0	0	0	1151	825	415	973	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	230	307	0	0	0	0	1151	825	415	973	0	
Confl. Peds. (#/hr)			2						1				
Confl. Bikes (#/hr)			1										
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA		
Protected Phases	4	4						2		1	6		
Permitted Phases			4						2				
Actuated Green, G (s)		18.6	18.6					58.7	58.7	16.4	80.0		
Effective Green, g (s)		18.6	18.6					58.7	58.7	16.4	80.0		
Actuated g/C Ratio		0.17	0.17					0.53	0.53	0.15	0.73		
Clearance Time (s)		5.2	5.2					4.9	4.9	6.2	6.2		
Vehicle Extension (s)		3.0	3.0					3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)		299	463					2713	1452	511	2573		
v/s Ratio Prot		c0.13						0.23		c0.12	0.27		
v/s Ratio Perm			0.11						c0.30				
v/c Ratio		0.77	0.66					0.42	0.57	0.81	0.38		
Uniform Delay, d1		43.7	42.8					15.5	17.2	45.3	5.6		
Progression Factor		1.00	1.00					0.47	0.47	1.00	0.10		
Incremental Delay, d2		11.3	3.6					0.4	1.2	7.8	0.3		
Delay (s)		54.9	46.3					7.6	9.2	53.0	0.9		
Level of Service		D	D					A	A	D	A		
Approach Delay (s)		50.0			0.0			8.3			16.5		
Approach LOS		D			A			A			B		
Intersection Summary													
HCM 2000 Control Delay			16.9									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.65										
Actuated Cycle Length (s)			110.0									Sum of lost time (s)	16.3
Intersection Capacity Utilization			66.8%									ICU Level of Service	C
Analysis Period (min)			15										

c Critical Lane Group

HCM 6th Signalized Intersection Summary
14: Street D & Street 4

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	32	4	4	249	11	911	8	779	29	189	902	47
Future Volume (veh/h)	32	4	4	249	11	911	8	779	29	189	902	47
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	35	4	0	271	12	990	9	847	28	205	980	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	53	8	0	542	530	1654	19	1038	34	1070	1788	798
Arrive On Green	0.03	0.00	0.00	0.30	0.28	0.28	0.01	0.20	0.20	0.62	1.00	1.00
Sat Flow, veh/h	1781	1870	0	1781	1870	2790	1781	5077	168	3456	3554	1585
Grp Volume(v), veh/h	35	4	0	271	12	990	9	567	308	205	980	28
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1781	1870	1395	1781	1702	1840	1728	1777	1585
Q Serve(g_s), s	2.1	0.2	0.0	13.7	0.5	24.6	0.6	17.5	17.6	2.8	0.0	0.0
Cycle Q Clear(g_c), s	2.1	0.2	0.0	13.7	0.5	24.6	0.6	17.5	17.6	2.8	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.09	1.00		1.00
Lane Grp Cap(c), veh/h	53	8	0	542	530	1654	19	696	376	1070	1788	798
V/C Ratio(X)	0.66	0.51	0.00	0.50	0.02	0.60	0.46	0.81	0.82	0.19	0.55	0.04
Avail Cap(c_a), veh/h	100	595	0	542	774	2018	81	826	447	1070	1788	798
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90
Uniform Delay (d), s/veh	52.8	54.7	0.0	31.4	28.4	14.1	54.1	41.8	41.8	15.0	0.0	0.0
Incr Delay (d2), s/veh	13.0	43.4	0.0	0.7	0.0	0.3	16.1	5.4	9.8	0.1	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.2	0.0	6.0	0.2	7.4	0.3	7.6	8.7	1.0	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.8	98.1	0.0	32.1	28.5	14.5	70.2	47.2	51.6	15.1	0.3	0.0
LnGrp LOS	E	F	A	C	C	B	E	D	D	B	A	A
Approach Vol, veh/h		39			1273			884			1213	
Approach Delay, s/veh		69.1			18.4			49.0			2.8	
Approach LOS		E			B			D			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	38.6	27.5	38.5	5.5	5.7	60.4	7.8	36.2				
Change Period (Y+Rc), s	4.5	5.0	5.0	* 5	4.5	5.0	4.5	5.0				
Max Green Setting (Gmax), s	12.6	26.7	16.7	* 35	5.0	34.3	6.2	45.5				
Max Q Clear Time (g_c+14), s	14.8	19.6	15.7	2.2	2.6	2.0	4.1	26.6				
Green Ext Time (p_c), s	0.4	2.9	0.1	0.0	0.0	7.5	0.0	4.5				

Intersection Summary






























HCM 6th Ctrl Delay	21.3
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
15: Street F & Street 4

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 			 	 		 	 		 	 	 
Traffic Volume (vph)	201	9	15	4	39	15	54	179	9	38	94	1076
Future Volume (vph)	201	9	15	4	39	15	54	179	9	38	94	1076
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	2.1	4.5
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.88
Frt	1.00	0.91		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1691		1770	1786		1770	1849		1770	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	1691		1770	1786		1770	1849		1770	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	218	10	16	4	42	16	59	195	10	41	102	1170
RTOR Reduction (vph)	0	6	0	0	14	0	0	2	0	0	0	0
Lane Group Flow (vph)	218	20	0	4	44	0	59	203	0	41	102	1170
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	7	4		3	8		5	2		1	6	9
Permitted Phases												
Actuated Green, G (s)	54.1	65.8		1.0	12.7		4.0	20.1		5.1	21.2	66.7
Effective Green, g (s)	54.1	65.8		1.0	12.7		4.0	20.1		5.1	21.2	66.7
Actuated g/C Ratio	0.49	0.60		0.01	0.12		0.04	0.18		0.05	0.19	0.61
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)	1688	1011		16	206		64	337		82	359	1689
v/s Ratio Prot	0.06	0.01		0.00	c0.02		c0.03	c0.11		0.02	0.05	c0.42
v/s Ratio Perm												
v/c Ratio	0.13	0.02		0.25	0.21		0.92	0.60		0.50	0.28	0.69
Uniform Delay, d1	15.2	9.0		54.1	44.1		52.8	41.3		51.2	37.9	14.7
Progression Factor	1.14	0.39		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0		8.1	0.5		84.8	3.0		4.7	0.2	1.2
Delay (s)	17.5	3.5		62.2	44.6		137.7	44.3		55.9	38.1	15.9
Level of Service	B	A		E	D		F	D		E	D	B
Approach Delay (s)		16.0			45.8			65.2			18.9	
Approach LOS		B			D			E			B	
Intersection Summary												
HCM 2000 Control Delay			25.9				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			110.0				Sum of lost time (s)			20.1		
Intersection Capacity Utilization			57.2%				ICU Level of Service			B		
Analysis Period (min)			15									

c Critical Lane Group

Intersection					
Intersection Delay, s/veh 7.2					
Intersection LOS A					
Approach	EB		WB		NB
Entry Lanes	2		2		1
Conflicting Circle Lanes	2		2		2
Adj Approach Flow, veh/h	430		1305		113
Demand Flow Rate, veh/h	439		1331		115
Vehicles Circulating, veh/h	68		75		359
Vehicles Exiting, veh/h	1338		399		148
Ped Vol Crossing Leg, #/h	0		0		0
Ped Cap Adj	1.000		1.000		1.000
Approach Delay, s/veh	4.2		8.4		4.5
Approach LOS	A		A		A
Lane	Left	Right	Left	Right	Left
Designated Moves	LT	TR	LT	TR	LR
Assumed Moves	LT	TR	LT	TR	LR
RT Channelized					
Lane Util	0.469	0.531	0.470	0.530	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328
Entry Flow, veh/h	206	233	626	705	115
Cap Entry Lane, veh/h	1268	1340	1260	1332	1047
Entry HV Adj Factor	0.981	0.978	0.980	0.981	0.983
Flow Entry, veh/h	202	228	613	692	113
Cap Entry, veh/h	1244	1311	1235	1307	1028
V/C Ratio	0.162	0.174	0.497	0.529	0.110
Control Delay, s/veh	4.3	4.2	8.2	8.4	4.5
LOS	A	A	A	A	A
95th %tile Queue, veh	1	1	3	3	0

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

Horizon Year Plus Project w/2-Lane Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	364	1115	454	60	330	2156	520	0	0	0	794	10	1221
Future Volume (veh/h)	364	1115	454	60	330	2156	520	0	0	0	794	10	1221
Initial Q (Qb), veh	0	0	0		0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	387	1186	162		351	2294	0				853	0	1293
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	430	1922	597		374	1634					945	0	1605
Arrive On Green	0.24	0.38	0.38		0.42	0.64	0.00				0.27	0.00	0.27
Sat Flow, veh/h	1781	5106	1585		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	387	1186	162		351	2294	0				853	0	1293
Grp Sat Flow(s),veh/h/ln	1781	1702	1585		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	23.2	20.8	7.8		20.7	35.2	0.0				25.4	0.0	10.9
Cycle Q Clear(g_c), s	23.2	20.8	7.8		20.7	35.2	0.0				25.4	0.0	10.9
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	430	1922	597		374	1634					945	0	1605
V/C Ratio(X)	0.90	0.62	0.27		0.94	1.40					0.90	0.00	0.81
Avail Cap(c_a), veh/h	430	1922	597		534	1634					1069	0	1715
HCM Platoon Ratio	1.00	1.00	1.00		2.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.09	0.09	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	40.5	27.9	23.8		31.2	19.8	0.0				39.0	0.0	22.6
Incr Delay (d2), s/veh	21.1	1.5	1.1		2.2	182.1	0.0				9.2	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.2	8.2	3.0		6.4	33.5	0.0				12.3	0.0	23.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	61.6	29.4	24.9		33.4	201.9	0.0				48.2	0.0	25.1
LnGrp LOS	E	C	C		C	F					D	A	C
Approach Vol, veh/h		1735				2645	A					2146	
Approach Delay, s/veh		36.1				179.6						34.3	
Approach LOS		D				F						C	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	27.3	48.4		34.3	33.5	42.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	33	27.7		33.0	25.0	* 35							
Max Q Clear Time (g_c+20), s	22.8	22.8		27.4	25.2	37.2							
Green Ext Time (p_c), s	0.4	2.5		1.7	0.0	0.0							

Intersection Summary

HCM 6th Ctrl Delay	93.7
HCM 6th LOS	F

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

Horizon Year Plus Project w/2-Lane Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖				↑↑↑	↗						
Traffic Volume (veh/h)	789	1210	0	0	2447	1743	0	0	380	0	0	598
Future Volume (veh/h)	789	1210	0	0	2447	1743	0	0	380	0	0	598
Initial Q (Qb), veh	20	0	0	0	0	20						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach		No			No							
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	831	1274	0	0	2450	1919						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	567	0	0	0	2125	1801						
Arrive On Green	0.32	0.95	0.00	0.00	0.57	0.57						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	831	0	0	0	2450	1919						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	35.0	0.0	0.0	0.0	62.5	62.5						
Cycle Q Clear(g_c), s	35.0	0.0	0.0	0.0	62.5	62.5						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	567	0	0	0	2125	1801						
V/C Ratio(X)	1.47	0.00	0.00	0.00	1.15	1.07						
Avail Cap(c_a), veh/h	567	0	0	0	2125	1801						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.50	0.00	0.00	0.00	0.25	0.25						
Uniform Delay (d), s/veh	37.5	0.0	0.0	0.0	23.7	23.8						
Incr Delay (d2), s/veh	214.7	0.0	0.0	0.0	70.3	33.1						
Initial Q Delay(d3),s/veh	127.0	0.0	0.0	0.0	0.0	40.0						
%ile BackOfQ(50%),veh	68.2	0.0	0.0	0.0	44.5	38.4						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	379.2	0.0	0.0	0.0	94.0	96.8						
LnGrp LOS	F	A	A	A	F	F						
Approach Vol, veh/h		831			4369							
Approach Delay, s/veh		379.2			95.2							
Approach LOS		F			F							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		110.0			40.5	69.5						
Change Period (Y+Rc), s		5.5			5.5	7.0						
Max Green Setting (Gmax), s		104.5			35.0	62.5						
Max Q Clear Time (g_c+I1), s		0.0			37.0	64.5						
Green Ext Time (p_c), s		0.0			0.0	0.0						

Intersection Summary

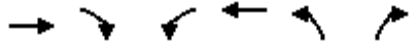
HCM 6th Ctrl Delay	140.6
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

Horizon Year Plus Project w/2-Lane Bridge
 AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↘	↙
Traffic Volume (veh/h)	1177	423	62	3279	922	63
Future Volume (veh/h)	1177	423	62	3279	922	63
Initial Q (Qb), veh	0	0	0	20	20	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1252	327	66	3488	981	22
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1945	1100	271	3756	1108	496
Arrive On Green	0.13	0.13	0.17	0.60	0.30	0.30
Sat Flow, veh/h	5274	1585	1781	6696	3563	1585
Grp Volume(v), veh/h	1252	327	66	3488	981	22
Grp Sat Flow(s),veh/h/ln	1702	1585	1781	1609	1781	1585
Q Serve(g_s), s	25.7	11.1	3.5	51.8	29.4	1.1
Cycle Q Clear(g_c), s	25.7	11.1	3.5	51.8	29.4	1.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1945	1100	271	3756	1108	496
V/C Ratio(X)	0.64	0.30	0.24	0.93	0.89	0.04
Avail Cap(c_a), veh/h	1945	1075	300	3874	1185	527
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.54	0.54	0.56	0.56
Uniform Delay (d), s/veh	41.0	9.6	41.1	21.5	37.2	26.3
Incr Delay (d2), s/veh	1.7	0.7	0.1	2.8	4.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	2.9	20.5	0.0
%ile BackOfQ(50%),veh/ln	1.9	9.2	1.5	19.9	17.4	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.6	10.3	41.2	27.1	62.1	26.3
LnGrp LOS	D	B	D	C	E	C
Approach Vol, veh/h	1579			3554	1003	
Approach Delay, s/veh	35.9			27.4	61.3	
Approach LOS	D			C	E	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	24.5	47.7		72.2	37.8	
Change Period (Y+Rc), s	6.0	* 5.8		6.0	5.1	
Max Green Setting (Gmax), s	16.2	* 42		62.3	36.6	
Max Q Clear Time (g_c+1), s	15.5	27.7		53.8	31.4	
Green Ext Time (p_c), s	0.0	10.0		8.5	1.3	

Intersection Summary

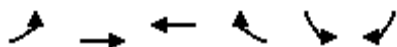
HCM 6th Ctrl Delay	35.1
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: Friars Rd & Santo Rd

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑↑		↔↔	↔
Traffic Volume (veh/h)	153	1047	2872	70	80	408
Future Volume (veh/h)	153	1047	2872	70	80	408
Initial Q (Qb), veh	0	0	80	0	50	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1811	1826	1826	1870	1870
Adj Flow Rate, veh/h	155	1058	2901	69	81	412
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	6	5	5	2	2
Cap, veh/h	213	3105	3354	46	923	543
Arrive On Green	0.06	0.65	0.55	0.55	0.26	0.26
Sat Flow, veh/h	3456	5107	6614	151	3456	1585
Grp Volume(v), veh/h	155	1058	2147	823	81	412
Grp Sat Flow(s),veh/h/ln	1728	1648	1570	1798	1728	1585
Q Serve(g_s), s	5.3	11.4	45.1	45.4	2.1	28.6
Cycle Q Clear(g_c), s	5.3	11.4	45.1	45.4	2.1	28.6
Prop In Lane	1.00			0.08	1.00	1.00
Lane Grp Cap(c), veh/h	213	3105	2451	951	923	543
V/C Ratio(X)	0.73	0.34	0.88	0.87	0.09	0.76
Avail Cap(c_a), veh/h	449	3213	2598	992	1022	567
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	55.3	10.6	28.1	27.2	35.5	35.1
Incr Delay (d2), s/veh	1.5	0.2	0.5	1.1	0.0	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	34.8	23.7	23.2	0.0
%ile BackOfQ(50%),veh/ln	2.3	4.0	28.2	28.9	6.8	23.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	56.8	10.8	63.4	51.9	58.7	40.0
LnGrp LOS	E	B	E	D	E	D
Approach Vol, veh/h		1213	2970		493	
Approach Delay, s/veh		16.7	60.2		43.1	
Approach LOS		B	E		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		84.5		35.5	11.8	72.7
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		73.6		35.5	15.6	* 54
Max Q Clear Time (g_c+I1), s		13.4		30.6	7.3	47.4
Green Ext Time (p_c), s		10.4		0.5	0.1	6.6

Intersection Summary

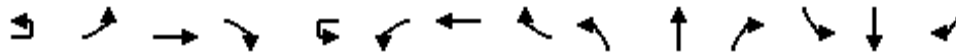
HCM 6th Ctrl Delay	47.1
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 21: Riverdale St & Friars Rd

Horizon Year Plus Project w/2-Lane Bridge
 AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		👉👉👉	👉👉👉	👉		👉👉👉	👉	👉	👉	👉		👉	👉		
Traffic Volume (veh/h)	10	73	732	253	20	130	2707	30	133	30	30	20	140	173	
Future Volume (veh/h)	10	73	732	253	20	130	2707	30	133	30	30	20	140	173	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	1.00		0.99	0.99		0.99	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No			No			No			No				
Adj Sat Flow, veh/h/ln		1870	1781	1826		1826	1841	1841	1781	1870	1870	1781	1870	1870	
Adj Flow Rate, veh/h		76	762	123		135	2820	15	139	31	7	21	146	137	
Peak Hour Factor		0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Percent Heavy Veh, %		2	8	5		5	4	4	8	2	2	8	2	2	
Cap, veh/h		97	2442	776		162	2717	842	192	393	89	390	236	221	
Arrive On Green		0.05	0.50	0.50		0.09	0.54	0.54	0.27	0.27	0.27	0.27	0.27	0.27	
Sat Flow, veh/h		1781	4863	1546		1739	5025	1557	1041	1475	333	1296	884	830	
Grp Volume(v), veh/h		76	762	123		135	2820	15	139	0	38	21	0	283	
Grp Sat Flow(s),veh/h/ln		1781	1621	1546		1739	1675	1557	1041	0	1808	1296	0	1714	
Q Serve(g_s), s		4.6	10.2	4.7		8.4	59.5	0.5	13.3	0.0	1.7	1.4	0.0	16.0	
Cycle Q Clear(g_c), s		4.6	10.2	4.7		8.4	59.5	0.5	29.3	0.0	1.7	3.1	0.0	16.0	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.18	1.00		0.48	
Lane Grp Cap(c), veh/h		97	2442	776		162	2717	842	192	0	482	390	0	457	
V/C Ratio(X)		0.78	0.31	0.16		0.83	1.04	0.02	0.73	0.00	0.08	0.05	0.00	0.62	
Avail Cap(c_a), veh/h		228	2442	776		223	2717	842	192	0	482	390	0	457	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		0.98	0.98	0.98		0.79	0.79	0.79	1.00	0.00	1.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh		51.3	16.2	14.8		49.0	25.3	11.7	48.9	0.0	30.2	31.4	0.0	35.5	
Incr Delay (d2), s/veh		4.9	0.3	0.4		10.4	26.3	0.0	11.2	0.0	0.0	0.0	0.0	1.9	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		2.1	3.6	1.7		4.0	27.3	0.2	4.4	0.0	0.8	0.4	0.0	6.9	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		56.2	16.5	15.2		59.4	51.5	11.7	60.2	0.0	30.3	31.4	0.0	37.4	
LnGrp LOS		E	B	B		E	F	B	E	A	C	C	A	D	
Approach Vol, veh/h		961			2970			177			304				
Approach Delay, s/veh		19.5			51.7			53.7			37.0				
Approach LOS		B			D			D			D				
Timer - Assigned Phs	1	2	4		5	6	8								
Phs Duration (G+Y+Rc), s	4.7	61.1	34.2		10.4	65.4	34.2								
Change Period (Y+Rc), s	4.4	* 5.9	4.9		4.4	5.9	4.9								
Max Green Setting (Gmax), s	14.1	* 52	29.3		14.1	51.4	29.3								
Max Q Clear Time (g_c+10), s	11.0	12.2	18.0		6.6	61.5	31.3								
Green Ext Time (p_c), s	0.1	8.0	0.9		0.0	0.0	0.0								

Intersection Summary

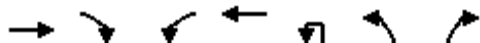
HCM 6th Ctrl Delay	43.8
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
22: Mission Gorge Rd & Friars Rd

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↖↗	↑↑↑		↘↙	↑↑
Traffic Volume (veh/h)	595	178	560	2758	30	179	270
Future Volume (veh/h)	595	178	560	2758	30	179	270
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	613	0	577	2843		195	64
Peak Hour Factor	0.97	0.97	0.97	0.97		0.92	0.92
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2962		596	0		224	832
Arrive On Green	0.58	0.00	0.17	0.00		0.13	0.13
Sat Flow, veh/h	5443	0	3456	577		1781	2790
Grp Volume(v), veh/h	613	0	577	78.2		195	64
Grp Sat Flow(s),veh/h/ln1702		0	1728	E		1781	1395
Q Serve(g_s), s	6.9	0.0	19.9			12.9	0.0
Cycle Q Clear(g_c), s	6.9	0.0	19.9			12.9	0.0
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2962		596			224	832
V/C Ratio(X)	0.21		0.97			0.87	0.08
Avail Cap(c_a), veh/h	2962		596			306	960
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.96	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	12.0	0.0	49.3			51.5	30.2
Incr Delay (d2), s/veh	0.2	0.0	28.8			14.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	10.7			6.6	0.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	12.2	0.0	78.2			65.8	30.2
LnGrp LOS	B		E			E	C
Approach Vol, veh/h	613	A				259	
Approach Delay, s/veh	12.2					57.0	
Approach LOS	B					E	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	25.1	75.4					19.5
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	69.6					20.6
Max Q Clear Time (g_c+D), s	11.9	8.9					14.9
Green Ext Time (p_c), s	0.0	4.9					0.2

Intersection Summary

HCM 6th Ctrl Delay	46.5
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 23: Qualcomm Way & Rio San Diego Dr

Horizon Year Plus Project w/2-Lane Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑	↗		↔↔	↑↑	↗	↔↔	↑↑↑	↗	↔↔	↑↑↑	↗
Traffic Volume (veh/h)	133	103	151	20	332	74	70	70	430	850	90	298	77
Future Volume (veh/h)	133	103	151	20	332	74	70	70	430	850	90	298	77
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99		1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	145	112	24		361	80	12	76	467	560	98	324	66
Peak Hour Factor	0.92	0.92	0.92		0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	231	200	233		468	622	272	145	2328	710	169	1981	389
Arrive On Green	0.07	0.11	0.11		0.14	0.18	0.18	0.04	0.46	0.46	0.05	0.46	0.46
Sat Flow, veh/h	3456	1870	1563		3456	3554	1555	3456	5106	1556	3456	4279	841
Grp Volume(v), veh/h	145	112	24		361	80	12	76	467	560	98	255	135
Grp Sat Flow(s),veh/h/ln	1728	1870	1563		1728	1777	1555	1728	1702	1556	1728	1702	1716
Q Serve(g_s), s	3.1	4.3	1.0		7.7	1.4	0.5	1.6	4.2	23.2	2.1	3.3	3.5
Cycle Q Clear(g_c), s	3.1	4.3	1.0		7.7	1.4	0.5	1.6	4.2	23.2	2.1	3.3	3.5
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.49
Lane Grp Cap(c), veh/h	231	200	233		468	622	272	145	2328	710	169	1575	794
V/C Ratio(X)	0.63	0.56	0.10		0.77	0.13	0.04	0.52	0.20	0.79	0.58	0.16	0.17
Avail Cap(c_a), veh/h	1366	986	891		1366	1873	820	2733	4038	1231	1366	2692	1357
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.5	32.2	27.9		31.7	26.4	26.0	35.6	12.4	17.5	35.3	11.8	11.9
Incr Delay (d2), s/veh	1.0	2.5	0.2		1.0	0.1	0.1	1.1	0.1	2.8	1.2	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3	2.0	0.4		3.1	0.6	0.2	0.7	1.4	7.7	0.9	1.2	1.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	35.5	34.7	28.1		32.7	26.5	26.1	36.7	12.4	20.4	36.5	11.9	12.1
LnGrp LOS	D	C	C		C	C	C	D	B	C	D	B	B
Approach Vol, veh/h		281			453			1103		488			
Approach Delay, s/veh		34.5			31.4			18.1		16.9			
Approach LOS		C			C			B		B			
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	39.7	14.7	13.4	7.6	40.2	9.5	18.6						
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3					
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0					
Max Q Clear Time (g_c+14), s	14.1	25.2	9.7	6.3	3.6	5.5	5.1	3.4					
Green Ext Time (p_c), s	0.1	9.4	0.6	0.6	0.1	4.6	0.2	0.5					

Intersection Summary

HCM 6th Ctrl Delay	22.4
HCM 6th LOS	C

Notes

- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection															
Intersection Delay, s/veh	14.1														
Intersection LOS	B														

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↖	↕		↖	↕				↕				↕	
Traffic Vol, veh/h	20	120	244	20	1	416	110	10	10	12	19	10	20	9	230
Future Vol, veh/h	20	120	244	20	1	416	110	10	10	12	19	10	20	9	230
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	128	260	21	1	443	117	11	11	13	20	11	21	10	245
Number of Lanes	0	1	2	0	1	2	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	12.1	15	11.2	15.9
HCM LOS	B	B	B	C

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	24%	100%	0%	0%	100%	0%	0%	8%
Vol Thru, %	29%	0%	100%	80%	0%	100%	56%	3%
Vol Right, %	46%	0%	0%	20%	0%	0%	44%	89%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	51	140	163	101	1	277	249	269
LT Vol	12	140	0	0	1	0	0	21
Through Vol	15	0	163	81	0	277	139	9
RT Vol	24	0	0	20	0	0	110	239
Lane Flow Rate	54	149	173	108	1	295	265	286
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.113	0.292	0.315	0.192	0.002	0.524	0.447	0.512
Departure Headway (Hd)	7.522	7.057	6.545	6.404	6.904	6.393	6.077	6.444
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	480	506	545	556	515	561	587	555
Service Time	5.222	4.849	4.337	4.196	4.692	4.181	3.864	4.232
HCM Lane V/C Ratio	0.113	0.294	0.317	0.194	0.002	0.526	0.451	0.515
HCM Control Delay	11.2	12.8	12.4	10.7	9.7	16.1	13.8	15.9
HCM Lane LOS	B	B	B	B	A	C	B	C
HCM 95th-tile Q	0.4	1.2	1.3	0.7	0	3	2.3	2.9

HCM 6th Signalized Intersection Summary

Horizon Year Plus Project w/2-Lane Bridge

25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy

AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	78	90	186	48	140	94	118	438	43	30	54	191	109
Future Volume (veh/h)	78	90	186	48	140	94	118	438	43	30	54	191	109
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00		1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	90	103	8	55	161	69	136	503	44		62	220	72
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87		0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	175	184	154	96	289	128	177	1260	110		149	860	274
Arrive On Green	0.10	0.10	0.10	0.15	0.15	0.15	0.10	0.38	0.38		0.04	0.32	0.32
Sat Flow, veh/h	1781	1870	1569	665	1991	883	1781	3306	288		3456	2649	843
Grp Volume(v), veh/h	90	103	8	152	0	133	136	270	277		62	146	146
Grp Sat Flow(s),veh/h/ln	1781	1870	1569	1837	0	1701	1781	1777	1818		1728	1777	1715
Q Serve(g_s), s	2.9	3.1	0.3	4.6	0.0	4.3	4.5	6.6	6.7		1.0	3.6	3.8
Cycle Q Clear(g_c), s	2.9	3.1	0.3	4.6	0.0	4.3	4.5	6.6	6.7		1.0	3.6	3.8
Prop In Lane	1.00		1.00	0.36		0.52	1.00		0.16		1.00		0.49
Lane Grp Cap(c), veh/h	175	184	154	267	0	247	177	677	693		149	577	557
V/C Ratio(X)	0.51	0.56	0.05	0.57	0.00	0.54	0.77	0.40	0.40		0.42	0.25	0.26
Avail Cap(c_a), veh/h	1190	1250	1048	1228	0	1137	893	1781	1822		1732	1781	1719
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	25.6	25.7	24.5	23.8	0.0	23.7	26.3	13.5	13.5		27.9	14.9	14.9
Incr Delay (d2), s/veh	1.4	1.6	0.1	0.7	0.0	0.7	2.7	1.7	1.7		0.7	1.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.4	0.1	2.0	0.0	1.7	1.9	2.8	2.8		0.4	1.5	1.5
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	27.0	27.4	24.5	24.6	0.0	24.4	28.9	15.3	15.3		28.6	15.9	16.1
LnGrp LOS	C	C	C	C	A	C	C	B	B		C	B	B
Approach Vol, veh/h		201			285			683				354	
Approach Delay, s/veh		27.1			24.5			18.0				18.2	
Approach LOS		C			C			B				B	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	7.0	28.2		11.1	10.3	24.8		13.6					
Change Period (Y+Rc), s	4.4	* 5.4		5.2	4.4	5.4		4.9					
Max Green Setting (Gmax), s	30.0	* 60		40.0	30.0	60.0		40.0					
Max Q Clear Time (g_c+1/3), s	13.0	8.7		5.1	6.5	5.8		6.6					
Green Ext Time (p_c), s	0.1	14.1		0.5	0.2	6.9		1.2					

Intersection Summary

HCM 6th Ctrl Delay	20.5
HCM 6th LOS	C

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 26: Rancho Mission Rd & San Diego Mission Rd

Horizon Year Plus Project w/2-Lane Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗	↗	↖	↗	↗
Traffic Volume (veh/h)	66	189	105	205	647	338	301	349	60	112	109	193
Future Volume (veh/h)	66	189	105	205	647	338	301	349	60	112	109	193
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	74	212	75	230	727	346	338	392	16	126	122	8
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	96	834	285	267	973	463	374	453	382	158	226	185
Arrive On Green	0.05	0.32	0.32	0.15	0.42	0.42	0.21	0.24	0.24	0.09	0.12	0.12
Sat Flow, veh/h	1781	2584	884	1781	2325	1105	1781	1870	1575	1781	1870	1530
Grp Volume(v), veh/h	74	144	143	230	556	517	338	392	16	126	122	8
Grp Sat Flow(s),veh/h/ln	1781	1777	1691	1781	1777	1653	1781	1870	1575	1781	1870	1530
Q Serve(g_s), s	3.9	5.6	5.9	11.9	25.1	25.1	17.5	19.0	0.7	6.6	5.8	0.4
Cycle Q Clear(g_c), s	3.9	5.6	5.9	11.9	25.1	25.1	17.5	19.0	0.7	6.6	5.8	0.4
Prop In Lane	1.00		0.52	1.00		0.67	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	96	573	546	267	744	692	374	453	382	158	226	185
V/C Ratio(X)	0.77	0.25	0.26	0.86	0.75	0.75	0.90	0.86	0.04	0.80	0.54	0.04
Avail Cap(c_a), veh/h	658	938	892	658	1032	960	564	987	831	564	987	808
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	44.2	23.6	23.7	39.3	23.3	23.3	36.5	34.4	27.5	42.3	39.2	36.8
Incr Delay (d2), s/veh	4.8	0.3	0.4	3.2	2.8	3.1	9.6	2.0	0.0	3.5	0.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	2.3	2.3	5.3	10.2	9.6	8.4	8.6	0.3	3.0	2.7	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.0	24.0	24.1	42.5	26.1	26.4	46.1	36.4	27.5	45.8	39.9	36.8
LnGrp LOS	D	C	C	D	C	C	D	D	C	D	D	D
Approach Vol, veh/h		361			1303			746			256	
Approach Delay, s/veh		29.2			29.1			40.6			42.7	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.2	36.1	23.9	16.6	9.1	45.2	12.4	28.1				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	* 5.5	4.0	* 5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	* 55	30.0	* 50				
Max Q Clear Time (g_c+1/3), s	11.9	7.9	19.5	7.8	5.9	27.1	8.6	21.0				
Green Ext Time (p_c), s	0.3	2.7	0.4	0.4	0.1	12.6	0.1	1.5				

Intersection Summary

HCM 6th Ctrl Delay	33.6
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave

Horizon Year Plus Project w/2-Lane Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↖	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (veh/h)	55	131	200	70	658	30	306	130	40	10	90	253
Future Volume (veh/h)	55	131	200	70	658	30	306	130	40	10	90	253
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	64	152	132	81	765	33	356	151	39	12	105	227
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	134	302	1078	87	1059	59	389	312	80	392	115	248
Arrive On Green	0.46	0.46	0.46	0.46	0.46	0.46	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	216	651	1578	120	2283	126	1781	1428	369	1781	522	1128
Grp Volume(v), veh/h	216	0	132	440	0	439	356	0	190	12	0	332
Grp Sat Flow(s),veh/h/ln	867	0	1578	851	0	1679	1781	0	1797	1781	0	1649
Q Serve(g_s), s	12.6	0.0	4.0	25.3	0.0	26.2	26.9	0.0	12.8	0.7	0.0	27.1
Cycle Q Clear(g_c), s	38.7	0.0	4.0	64.0	0.0	26.2	26.9	0.0	12.8	0.7	0.0	27.1
Prop In Lane	0.30		1.00	0.18		0.08	1.00		0.21	1.00		0.68
Lane Grp Cap(c), veh/h	436	0	1078	425	0	778	389	0	392	392	0	363
V/C Ratio(X)	0.50	0.00	0.12	1.03	0.00	0.56	0.92	0.00	0.48	0.03	0.00	0.91
Avail Cap(c_a), veh/h	463	0	1112	425	0	778	607	0	612	568	0	526
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.0	0.0	7.6	46.9	0.0	26.9	52.7	0.0	47.2	42.2	0.0	52.5
Incr Delay (d2), s/veh	0.8	0.0	0.0	52.8	0.0	0.9	9.6	0.0	0.3	0.0	0.0	12.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	0.0	2.5	21.4	0.0	10.8	13.1	0.0	5.8	0.3	0.0	12.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.8	0.0	7.7	99.8	0.0	27.8	62.3	0.0	47.5	42.3	0.0	65.3
LnGrp LOS	C	A	A	F	A	C	E	A	D	D	A	E
Approach Vol, veh/h		348			879			546			344	
Approach Delay, s/veh		23.2			63.8			57.2			64.5	
Approach LOS		C			E			E			E	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		68.5		34.9		68.5		34.6				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		67.0		44.0		64.0		47.0				
Max Q Clear Time (g_c+1), s		40.7		29.1		66.0		28.9				
Green Ext Time (p_c), s		1.8		1.3		0.0		1.2				
Intersection Summary												
HCM 6th Ctrl Delay												55.5
HCM 6th LOS												E

HCM 6th Signalized Intersection Summary

Horizon Year Plus Project w/2-Lane Bridge

28: Qualcomm Way & Camino de la Reina/Camino del Rio N

AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR	
Lane Configurations																
Traffic Volume (veh/h)	10	62	116	102	10	316	262	124	122	983	499	10	76	483	50	
Future Volume (veh/h)	10	62	116	102	10	316	262	124	122	983	499	10	76	483	50	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0		0	0	0	
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.94	1.00		0.98		1.00		0.99	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No		
Adj Sat Flow, veh/h/ln		1781	1870	1870		1870	1870	1870	1841	1900	1870		1870	1811	1811	
Adj Flow Rate, veh/h		69	129	25		351	291	10	136	1092	496		84	537	49	
Peak Hour Factor		0.90	0.90	0.90		0.90	0.90	0.90	0.90	0.90	0.90		0.90	0.90	0.90	
Percent Heavy Veh, %		8	2	2		2	2	2	4	0	2		2	6	6	
Cap, veh/h		88	344	246		461	618	259	221	2271	679		155	1925	174	
Arrive On Green		0.05	0.09	0.09		0.13	0.17	0.17	0.07	0.44	0.44		0.04	0.42	0.42	
Sat Flow, veh/h		1697	3741	1555		3456	3554	1489	3401	5187	1550		3456	4609	416	
Grp Volume(v), veh/h		69	129	25		351	291	10	136	1092	496		84	382	204	
Grp Sat Flow(s),veh/h/ln		1697	1870	1555		1728	1777	1489	1700	1729	1550		1728	1648	1729	
Q Serve(g_s), s		2.9	2.4	1.0		7.1	5.4	0.4	2.8	10.9	19.2		1.7	5.5	5.7	
Cycle Q Clear(g_c), s		2.9	2.4	1.0		7.1	5.4	0.4	2.8	10.9	19.2		1.7	5.5	5.7	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.24	
Lane Grp Cap(c), veh/h		88	344	246		461	618	259	221	2271	679		155	1377	722	
V/C Ratio(X)		0.79	0.37	0.10		0.76	0.47	0.04	0.61	0.48	0.73		0.54	0.28	0.28	
Avail Cap(c_a), veh/h		701	1545	745		1427	1467	615	1404	3569	1067		1427	2268	1190	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Uniform Delay (d), s/veh		34.1	31.0	26.2		30.4	27.0	25.0	33.1	14.5	16.9		34.0	13.9	14.0	
Incr Delay (d2), s/veh		5.7	0.5	0.1		1.0	0.2	0.0	1.0	0.1	1.4		1.1	0.3	0.6	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		1.3	1.1	0.3		2.8	2.1	0.1	1.1	3.8	5.9		0.7	1.9	2.1	
Unsig. Movement Delay, s/veh																
LnGrp Delay(d),s/veh		39.8	31.5	26.4		31.3	27.2	25.0	34.1	14.7	18.3		35.1	14.2	14.5	
LnGrp LOS		D	C	C		C	C	C	C	B	B		D	B	B	
Approach Vol, veh/h		223				652				1724				670		
Approach Delay, s/veh		33.5				29.4				17.3				16.9		
Approach LOS		C				C				B				B		
Timer - Assigned Phs	1	2	3	4	5	6	7	8								
Phs Duration (G+Y+Rc), s	7.7	38.5	14.1	12.4	9.1	37.0	8.2	18.3								
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7								
Max Green Setting (Gmax), s	30.0	50.0	30.0	* 30	30.0	* 50	30.0	30.0								
Max Q Clear Time (g_c+1), s	13.75	21.2	9.1	4.4	4.8	7.7	4.9	7.4								
Green Ext Time (p_c), s	0.1	10.6	0.6	0.7	0.2	9.2	0.1	1.1								

Intersection Summary

HCM 6th Ctrl Delay	20.7
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary

Horizon Year Plus Project w/2-Lane Bridge

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖		↗		↖	↗	↖	↑↑↑			↑↑	↗
Traffic Volume (veh/h)	10	69	0	112	22	194	660	134	1195	0	0	382	499
Future Volume (veh/h)	10	69	0	112	22	194	660	134	1195	0	0	382	499
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1722	0	1796	1870	1870	1870	1870	1870	0	0	1826	1870
Adj Flow Rate, veh/h		74	0	21	24	209	557	144	1285	0	0	411	79
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		12	0	7	2	2	2	2	2	0	0	5	2
Cap, veh/h		0	0	0	74	641	608	311	2339	0	0	771	342
Arrive On Green		0.00	0.00	0.00	0.38	0.38	0.38	0.17	0.46	0.00	0.00	0.22	0.22
Sat Flow, veh/h			0		192	1669	1584	1781	5274	0	0	3561	1538
Grp Volume(v), veh/h			0.0		233	0	557	144	1285	0	0	411	79
Grp Sat Flow(s),veh/h/ln					1861	0	1584	1781	1702	0	0	1735	1538
Q Serve(g_s), s					6.7	0.0	25.6	5.6	13.9	0.0	0.0	8.0	3.2
Cycle Q Clear(g_c), s					6.7	0.0	25.6	5.6	13.9	0.0	0.0	8.0	3.2
Prop In Lane					0.10		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					714	0	608	311	2339	0	0	771	342
V/C Ratio(X)					0.33	0.00	0.92	0.46	0.55	0.00	0.00	0.53	0.23
Avail Cap(c_a), veh/h					1095	0	932	792	3805	0	0	2630	1166
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)					1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh					16.6	0.0	22.4	28.4	15.0	0.0	0.0	26.3	24.4
Incr Delay (d2), s/veh					0.1	0.0	7.1	0.4	0.1	0.0	0.0	1.2	0.7
Initial Q Delay(d3),s/veh					0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln					2.6	0.0	9.4	2.3	4.8	0.0	0.0	3.3	1.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					16.7	0.0	29.5	28.8	15.1	0.0	0.0	27.5	25.1
LnGrp LOS					B	A	C	C	B	A	A	C	C
Approach Vol, veh/h						790			1429			490	
Approach Delay, s/veh						25.7			16.5			27.1	
Approach LOS						C			B			C	
Timer - Assigned Phs		2			5	6			8				
Phs Duration (G+Y+Rc), s		42.0			18.0	24.0			34.5				
Change Period (Y+Rc), s		7.0			* 4.7	7.0			5.1				
Max Green Setting (Gmax), s		57.0			* 34	58.0			45.0				
Max Q Clear Time (g_c+I1), s		15.9			7.6	10.0			27.6				
Green Ext Time (p_c), s		7.4			0.1	6.6			1.7				

Intersection Summary

HCM 6th Ctrl Delay	21.1
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Horizon Year Plus Project w/2-Lane Bridge
 AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	620	0	1282	895	0
Future Volume (veh/h)	0	620	0	1282	895	0
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1856	0
Adj Flow Rate, veh/h	0	583	0	1322	923	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	2	0	2	3	0
Cap, veh/h	0	0	0	2600	2580	0
Arrive On Green	0.00	0.00	0.00	0.73	0.73	0.00
Sat Flow, veh/h	0		0	3741	3711	0
Grp Volume(v), veh/h	0.0		0	1322	923	0
Grp Sat Flow(s),veh/h/ln			0	1777	1763	0
Q Serve(g_s), s			0.0	3.3	2.0	0.0
Cycle Q Clear(g_c), s			0.0	3.3	2.0	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2600	2580	0
V/C Ratio(X)			0.00	0.51	0.36	0.00
Avail Cap(c_a), veh/h			0	6067	6019	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	1.2	1.0	0.0
Incr Delay (d2), s/veh			0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	1.2	1.0	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1322	923	
Approach Delay, s/veh				1.2	1.0	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		20.5				20.5
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		35.0				35.0
Max Q Clear Time (g_c+I1), s		5.3				4.0
Green Ext Time (p_c), s		7.6				4.7
Intersection Summary						
HCM 6th Ctrl Delay			1.1			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
31: Texas St & Camino del Rio S

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↘	↗	↗	↘	↗	↗	↘	↗	↗	↘	↗	↗
Traffic Volume (veh/h)	10	103	53	60	105	92	120	150	1343	223	480	562	293
Future Volume (veh/h)	10	103	53	60	105	92	120	150	1343	223	480	562	293
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.98	1.00		0.96	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1811	1663	1870	1841	1870	1796	1841	1870	1870	1870	1870	1826
Adj Flow Rate, veh/h		107	55	12	109	96	52	156	1399	226	500	585	180
Peak Hour Factor		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		6	16	2	4	2	7	4	2	2	2	2	5
Cap, veh/h		144	139	297	190	203	613	183	1031	164	528	1884	803
Arrive On Green		0.08	0.08	0.08	0.11	0.11	0.11	0.10	0.34	0.34	0.30	0.53	0.53
Sat Flow, veh/h		1725	1663	1579	1753	1870	1493	1753	3051	485	1781	3554	1515
Grp Volume(v), veh/h		107	55	12	109	96	52	156	806	819	500	585	180
Grp Sat Flow(s),veh/h/ln		1725	1663	1579	1753	1870	1493	1753	1777	1759	1781	1777	1515
Q Serve(g_s), s		7.5	3.9	0.8	7.3	6.0	2.7	10.8	41.8	41.8	34.0	11.5	7.8
Cycle Q Clear(g_c), s		7.5	3.9	0.8	7.3	6.0	2.7	10.8	41.8	41.8	34.0	11.5	7.8
Prop In Lane		1.00		1.00	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h		144	139	297	190	203	613	183	600	594	528	1884	803
V/C Ratio(X)		0.74	0.40	0.04	0.57	0.47	0.08	0.85	1.34	1.38	0.95	0.31	0.22
Avail Cap(c_a), veh/h		418	403	548	400	426	792	354	600	594	1045	2585	1102
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		55.4	53.8	41.1	52.4	51.8	22.7	54.5	41.0	41.0	42.5	16.4	15.5
Incr Delay (d2), s/veh		7.4	1.8	0.1	7.3	4.7	0.2	4.3	164.9	180.8	4.1	0.2	0.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		3.5	1.7	0.3	3.6	3.1	1.0	5.0	45.3	47.5	15.3	4.6	2.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		62.8	55.6	41.2	59.8	56.5	22.9	58.8	205.9	221.8	46.6	16.5	15.8
LnGrp LOS		E	E	D	E	E	C	E	F	F	D	B	B
Approach Vol, veh/h			174		257			1781			1265		
Approach Delay, s/veh			59.0		51.1			200.3			28.3		
Approach LOS			E		D			F			C		
Timer - Assigned Phs	1	2	4	5	6	8							
Phs Duration (G+Y+Rc), s	41.1	47.0	15.2	17.3	70.8	20.4							
Change Period (Y+Rc), s	4.4	5.2	4.9	4.4	* 5.2	7.0							
Max Green Setting (Gmax), s	72.6	41.8	30.0	25.0	* 90	28.2							
Max Q Clear Time (g_c+Rc), s	30.0	43.8	9.5	12.8	13.5	9.3							
Green Ext Time (p_c), s	0.7	0.0	0.5	0.2	11.5	2.2							

Intersection Summary

HCM 6th Ctrl Delay	119.6
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	5.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	50	225	172	635	467	34
Future Vol, veh/h	50	225	172	635	467	34
Conflicting Peds, #/hr	32	33	33	0	0	32
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	65	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	52	234	179	661	486	35

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1258	327	554	0	-	0
Stage 1	537	-	-	-	-	-
Stage 2	721	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	163	669	1012	-	-	-
Stage 1	550	-	-	-	-	-
Stage 2	443	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	109	628	980	-	-	-
Mov Cap-2 Maneuver	109	-	-	-	-	-
Stage 1	379	-	-	-	-	-
Stage 2	429	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.4	2.7	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	980	-	109	628	-	-
HCM Lane V/C Ratio	0.183	-	0.478	0.373	-	-
HCM Control Delay (s)	9.5	0.9	65.1	14.1	-	-
HCM Lane LOS	A	A	F	B	-	-
HCM 95th %tile Q(veh)	0.7	-	2.1	1.7	-	-

HCM 6th Signalized Intersection Summary
33: Camino del Rio N & Ward Rd

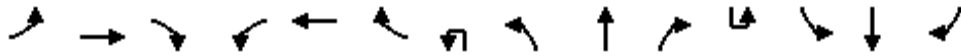
Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	77	160	895	729	348	355
Future Volume (veh/h)	77	160	895	729	348	355
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			0.98	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	79	165	923	627	359	332
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	103	2305	1925	840	408	455
Arrive On Green	0.06	0.65	0.54	0.54	0.23	0.23
Sat Flow, veh/h	1781	3647	3647	1551	1781	1585
Grp Volume(v), veh/h	79	165	923	627	359	332
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1551	1781	1585
Q Serve(g_s), s	3.9	1.5	14.4	27.8	17.4	16.9
Cycle Q Clear(g_c), s	3.9	1.5	14.4	27.8	17.4	16.9
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	103	2305	1925	840	408	455
V/C Ratio(X)	0.77	0.07	0.48	0.75	0.88	0.73
Avail Cap(c_a), veh/h	878	2787	2787	1217	878	873
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.5	5.8	12.7	15.7	33.2	28.7
Incr Delay (d2), s/veh	4.5	0.0	0.3	2.2	2.5	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.5	4.9	8.7	7.5	14.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.9	5.8	13.0	17.9	35.7	29.6
LnGrp LOS	D	A	B	B	D	C
Approach Vol, veh/h		244	1550		691	
Approach Delay, s/veh		18.8	15.0		32.7	
Approach LOS		B	B		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		63.9		25.4	9.5	54.3
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		3.5		19.4	5.9	29.8
Green Ext Time (p_c), s		1.6		1.1	0.1	18.6
Intersection Summary						
HCM 6th Ctrl Delay			20.3			
HCM 6th LOS			C			
Notes						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

HCM 6th Signalized Intersection Summary
 34: Fairmount Ave & Mission Gorge Rd

Horizon Year Plus Project w/2-Lane Bridge
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↖	↖			↖	↖	
Traffic Volume (veh/h)	39	13	375	20	16	0	40	637	1195	30	10	10	763	37
Future Volume (veh/h)	39	13	375	20	16	0	40	637	1195	30	10	10	763	37
Initial Q (Qb), veh	0	0	15	0	15	0	0	0	0	0	0	0	15	0
Ped-Bike Adj(A_pbT)	1.00		0.96	0.99		1.00	1.00		0.99		1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	457	22	17	0	685	1285	31		11	820	37	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	319	532	125	148	0	829	2467	59		18	1603	68	
Arrive On Green	0.00	0.00	0.17	0.17	0.17	0.00	0.49	1.00	1.00		0.01	0.46	0.46	
Sat Flow, veh/h	0	1870	3028	617	627	0	3456	3546	85		1781	3462	156	
Grp Volume(v), veh/h	0	0	457	39	0	0	685	644	672		11	421	436	
Grp Sat Flow(s),veh/h/ln	0	1870	1514	1244	0	0	1728	1777	1854		1781	1777	1841	
Q Serve(g_s), s	0.0	0.0	17.0	0.8	0.0	0.0	19.4	0.0	0.0		0.7	19.2	19.2	
Cycle Q Clear(g_c), s	0.0	0.0	17.0	2.3	0.0	0.0	19.4	0.0	0.0		0.7	19.2	19.2	
Prop In Lane	0.00		1.00	0.56		0.00	1.00		0.05		1.00		0.08	
Lane Grp Cap(c), veh/h	0	319	532	267	0	0	829	1236	1290		18	820	851	
V/C Ratio(X)	0.00	0.00	0.86	0.15	0.00	0.00	0.83	0.52	0.52		0.60	0.51	0.51	
Avail Cap(c_a), veh/h	0	335	542	271	0	0	840	1242	1296		156	820	850	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00		1.00	1.00	1.00	
Upstream Filter(l)	0.00	0.00	1.00	1.00	0.00	0.00	0.09	0.09	0.09		1.00	1.00	1.00	
Uniform Delay (d), s/veh	0.0	0.0	47.1	42.3	0.0	0.0	27.9	0.0	0.0		56.7	22.5	22.5	
Incr Delay (d2), s/veh	0.0	0.0	12.2	0.2	0.0	0.0	0.6	0.1	0.1		11.1	2.3	2.2	
Initial Q Delay(d3),s/veh	0.0	0.0	40.4	26.6	0.0	0.0	0.0	0.0	0.0		0.0	1.2	1.1	
%ile BackOfQ(50%),veh/ln	0.0	0.0	11.2	4.7	0.0	0.0	6.2	0.0	0.0		0.4	9.7	10.0	
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	99.8	69.1	0.0	0.0	28.5	0.1	0.1		67.8	26.0	25.8	
LnGrp LOS	A	A	F	E	A	A	C	A	A		E	C	C	
Approach Vol, veh/h		457			39			2001					868	
Approach Delay, s/veh		99.8			69.1			9.8					26.5	
Approach LOS		F			E			A					C	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	5.6	85.3		24.2	32.8	58.0		24.2						
Change Period (Y+Rc), s	4.4	4.9		4.9	4.9	* 4.9		4.9						
Max Green Setting (Gmax), s	10.5	70.1		20.6	27.1	* 53		20.6						
Max Q Clear Time (g_c+1/2), s	12.5	2.0		19.0	21.4	21.2		4.3						
Green Ext Time (p_c), s	0.0	32.0		0.2	0.9	12.5		0.1						

Intersection Summary														
HCM 6th Ctrl Delay													27.0	
HCM 6th LOS													C	

Notes
 User approved pedestrian interval to be less than phase max green.
 User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis Horizon Year Plus Project w/2-Lane Bridge
 35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	61	33	513	490	807	395	674	1476	180	13	952	223	
Future Volume (vph)	61	33	513	490	807	395	674	1476	180	13	952	223	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1	
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.98		1.00	1.00	0.85	
Flt Protected	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (prot)	1681	1746	1578	1610	3172	1424	1770	3477		3433	3539	1583	
Flt Permitted	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	
Satd. Flow (perm)	1681	1746	1578	1610	3172	1424	1770	3477		3433	3539	1583	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	64	35	540	516	849	416	709	1554	189	14	1002	235	
RTOR Reduction (vph)	0	0	85	0	0	0	0	8	0	0	0	90	
Lane Group Flow (vph)	51	48	455	464	943	374	709	1735	0	14	1002	145	
Confl. Peds. (#/hr)						2			1				
Confl. Bikes (#/hr)			2			2							
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm	
Protected Phases	4	4	5	8	8	1	5	2		1	6		
Permitted Phases			4			8						6	
Actuated Green, G (s)	8.0	8.0	35.0	25.0	25.0	33.0	27.0	53.0		8.0	34.0	34.0	
Effective Green, g (s)	8.0	8.0	35.0	25.0	25.0	33.0	27.0	53.0		8.0	34.0	34.0	
Actuated g/C Ratio	0.07	0.07	0.30	0.22	0.22	0.29	0.23	0.46		0.07	0.30	0.30	
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1	
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0	
Lane Grp Cap (vph)	116	121	544	350	689	408	415	1602		238	1046	468	
v/s Ratio Prot	0.03	0.03	c0.20	0.29	c0.30	0.06	c0.40	c0.50		0.00	c0.28		
v/s Ratio Perm			0.09			0.20						0.09	
v/c Ratio	0.44	0.40	0.84	1.33	1.37	0.92	1.71	1.08		0.06	0.96	0.31	
Uniform Delay, d1	51.3	51.2	37.3	45.0	45.0	39.7	44.0	31.0		50.0	39.8	31.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.65	0.73	0.80	
Incremental Delay, d2	1.0	0.8	10.3	165.1	175.1	24.6	328.9	48.6		0.0	16.2	1.3	
Delay (s)	52.3	52.0	47.6	210.1	220.1	64.2	372.9	79.6		32.8	45.4	26.5	
Level of Service	D	D	D	F	F	E	F	E		C	D	C	
Approach Delay (s)		48.3			184.8			164.4			41.7		
Approach LOS		D			F			F			D		
Intersection Summary													
HCM 2000 Control Delay			133.2		HCM 2000 Level of Service						F		
HCM 2000 Volume to Capacity ratio			1.33										
Actuated Cycle Length (s)			115.0		Sum of lost time (s)					21.0			
Intersection Capacity Utilization			108.5%		ICU Level of Service					G			
Analysis Period (min)			15										

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 36: Fairmount Ave & I-8E Off-Ramp

Horizon Year Plus Project w/2-Lane Bridge
 AM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations							
Traffic Volume (veh/h)	833	863	300	0	1257	786	0
Future Volume (veh/h)	833	863	300	0	1257	786	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1826	1870		0	1856	1856	0
Adj Flow Rate, veh/h	1021	1022		0	1514	947	0
Peak Hour Factor	0.83	0.83		0.83	0.83	0.83	0.83
Percent Heavy Veh, %	5	2		0	3	3	0
Cap, veh/h	1296	1181		0	1790	2572	0
Arrive On Green	0.37	0.37		0.00	0.51	0.51	0.00
Sat Flow, veh/h	3478	3170		0	3711	5400	0
Grp Volume(v), veh/h	1021	1022		0	1514	947	0
Grp Sat Flow(s),veh/h/ln	1739	1585		0	1763	1689	0
Q Serve(g_s), s	24.2	27.7		0.0	34.4	10.5	0.0
Cycle Q Clear(g_c), s	24.2	27.7		0.0	34.4	10.5	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	1296	1181		0	1790	2572	0
V/C Ratio(X)	0.79	0.87		0.00	0.85	0.37	0.00
Avail Cap(c_a), veh/h	1648	1502		0	2911	2836	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	25.9	27.0		0.0	19.7	13.8	0.0
Incr Delay (d2), s/veh	1.5	3.8		0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	10.6		0.0	13.2	3.8	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	27.4	30.8		0.0	20.4	13.9	0.0
LnGrp LOS	C	C		A	C	B	A
Approach Vol, veh/h	2043				1514	947	
Approach Delay, s/veh	29.1				20.4	13.9	
Approach LOS	C				C	B	
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				53.2		39.7	53.2
Change Period (Y+Rc), s				6.0		5.1	6.0
Max Green Setting (Gmax), s				52.0		44.0	76.7
Max Q Clear Time (g_c+11), s				12.5		29.7	36.4
Green Ext Time (p_c), s				5.3		4.9	10.8

Intersection Summary

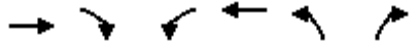
HCM 6th Ctrl Delay	22.9
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
37: Collwood Blvd & Montezuma Rd

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑↑	↵↵	↵
Traffic Volume (veh/h)	547	491	70	1334	1184	60
Future Volume (veh/h)	547	491	70	1334	1184	60
Initial Q (Qb), veh	0	0	0	30	30	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1663	1870	1870	1618
Adj Flow Rate, veh/h	582	439	74	1419	1260	43
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	16	2	2	19
Cap, veh/h	1541	1276	91	2725	1341	527
Arrive On Green	0.44	0.44	0.06	0.53	0.38	0.38
Sat Flow, veh/h	3618	1538	1584	5274	3456	1372
Grp Volume(v), veh/h	582	439	74	1419	1260	43
Grp Sat Flow(s),veh/h/ln	1763	1538	1584	1702	1728	1372
Q Serve(g_s), s	13.9	9.0	5.8	22.6	44.9	2.5
Cycle Q Clear(g_c), s	13.9	9.0	5.8	22.6	44.9	2.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1541	1276	91	2725	1341	527
V/C Ratio(X)	0.38	0.34	0.81	0.52	0.94	0.08
Avail Cap(c_a), veh/h	1559	1276	158	2730	1341	532
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.9	2.8	58.7	19.9	38.5	24.7
Incr Delay (d2), s/veh	0.7	0.7	6.3	0.7	12.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	1.8	53.3	0.0
%ile BackOfQ(50%),veh/ln	5.9	2.1	2.5	10.7	32.1	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	24.6	3.6	65.0	22.5	104.5	24.7
LnGrp LOS	C	A	E	C	F	C
Approach Vol, veh/h	1021			1493	1303	
Approach Delay, s/veh	15.6			24.6	101.9	
Approach LOS	B			C	F	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	11.7	62.2		73.9	52.1	
Change Period (Y+Rc), s	4.4	* 6.5		6.5	4.4	
Max Green Setting (Gmax), s	12.6	* 50		66.2	48.9	
Max Q Clear Time (g_c+1), s	17.8	15.9		24.6	46.9	
Green Ext Time (p_c), s	0.0	10.3		23.7	0.8	

Intersection Summary

HCM 6th Ctrl Delay	48.6
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
38: Mission Village Dr & Shawn Ave

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔		↖	↕	↗	↖	↕	↗
Traffic Volume (veh/h)	120	10	66	56	10	30	53	1250	13	10	733	40
Future Volume (veh/h)	120	10	66	56	10	30	53	1250	13	10	733	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	129	11	13	60	11	5	57	1344	6	11	788	39
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	354	110	130	346	172	78	497	2248	986	315	2178	108
Arrive On Green	0.16	0.16	0.16	0.16	0.16	0.16	0.63	0.63	0.63	0.63	0.63	0.63
Sat Flow, veh/h	1316	709	838	1264	1106	503	662	3554	1559	404	3443	170
Grp Volume(v), veh/h	129	0	24	60	0	16	57	1344	6	11	407	420
Grp Sat Flow(s),veh/h/ln	1316	0	1547	1264	0	1609	662	1777	1559	404	1777	1836
Q Serve(g_s), s	4.2	0.0	0.6	1.9	0.0	0.4	2.2	10.7	0.1	0.8	5.2	5.2
Cycle Q Clear(g_c), s	4.6	0.0	0.6	2.5	0.0	0.4	7.4	10.7	0.1	11.5	5.2	5.2
Prop In Lane	1.00		0.54	1.00		0.31	1.00		1.00	1.00		0.09
Lane Grp Cap(c), veh/h	354	0	240	346	0	250	497	2248	986	315	1124	1162
V/C Ratio(X)	0.36	0.00	0.10	0.17	0.00	0.06	0.11	0.60	0.01	0.03	0.36	0.36
Avail Cap(c_a), veh/h	1297	0	1288	1282	0	1340	905	4438	1947	564	2219	2294
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.3	0.0	17.4	18.5	0.0	17.3	6.0	5.2	3.3	8.6	4.2	4.2
Incr Delay (d2), s/veh	0.2	0.0	0.1	0.1	0.0	0.0	0.1	0.3	0.0	0.1	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3	0.0	0.2	0.6	0.0	0.1	0.2	1.8	0.0	0.1	0.9	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.5	0.0	17.5	18.6	0.0	17.4	6.1	5.5	3.3	8.7	4.5	4.4
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		153			76			1407			838	
Approach Delay, s/veh		19.2			18.3			5.5			4.5	
Approach LOS		B			B			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		35.7		12.4		35.7		12.4				
Change Period (Y+Rc), s		5.3		4.9		5.3		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		12.7		6.6		13.5		4.5				
Green Ext Time (p_c), s		17.6		0.6		7.7		0.3				
Intersection Summary												
HCM 6th Ctrl Delay				6.4								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary
39: Mission Village Dr & Fermi Ave

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕		↙	↕	
Traffic Volume (veh/h)	50	20	26	106	10	100	13	1323	113	70	660	10
Future Volume (veh/h)	50	20	26	106	10	100	13	1323	113	70	660	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	55	22	17	116	11	84	14	1454	121	77	725	11
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	195	76	45	204	24	107	24	1995	165	100	2309	35
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.01	0.60	0.60	0.06	0.64	0.64
Sat Flow, veh/h	743	442	262	805	140	625	1781	3315	274	1781	3582	54
Grp Volume(v), veh/h	94	0	0	211	0	0	14	775	800	77	360	376
Grp Sat Flow(s),veh/h/ln1447	0	0	1569	0	0	1781	1777	1813	1781	1777	1859	
Q Serve(g_s), s	0.0	0.0	0.0	6.0	0.0	0.0	0.7	26.2	26.7	3.6	7.7	7.7
Cycle Q Clear(g_c), s	4.6	0.0	0.0	10.6	0.0	0.0	0.7	26.2	26.7	3.6	7.7	7.7
Prop In Lane	0.59		0.18	0.55		0.40	1.00		0.15	1.00		0.03
Lane Grp Cap(c), veh/h	315	0	0	335	0	0	24	1069	1091	100	1145	1198
V/C Ratio(X)	0.30	0.00	0.00	0.63	0.00	0.00	0.59	0.72	0.73	0.77	0.31	0.31
Avail Cap(c_a), veh/h	749	0	0	600	0	0	629	1256	1281	629	1256	1314
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.9	0.0	0.0	33.3	0.0	0.0	41.7	11.9	12.1	39.5	6.7	6.7
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.7	0.0	0.0	8.5	2.4	2.5	4.6	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.7	0.0	0.0	0.0	4.2	0.0	0.0	0.3	9.1	9.5	1.7	2.5	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	0.0	0.0	34.0	0.0	0.0	50.2	14.3	14.5	44.1	7.0	7.0
LnGrp LOS	C	A	A	C	A	A	D	B	B	D	A	A
Approach Vol, veh/h		94			211			1589			813	
Approach Delay, s/veh		31.1			34.0			14.7			10.5	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.2	56.3		19.4	5.5	59.9		19.4				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	5.2		4.9				
Max Green Setting (Gmax), s	30.0	60.0		40.0	30.0	60.0		30.0				
Max Q Clear Time (g_c+1), s	15.6	28.7		6.6	2.7	9.7		12.6				
Green Ext Time (p_c), s	0.1	22.4		0.4	0.0	10.0		0.8				

Intersection Summary

HCM 6th Ctrl Delay	15.5
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
40: Gramercy Dr/Mission Village Dr & Ruffin Rd

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	330	30	42	525	916	20	10	23	377	20	50
Future Volume (veh/h)	70	330	30	42	525	916	20	10	23	377	20	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		1.00	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	80	375	31	48	597	889	23	11	0	428	23	41
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	84	1949	160	593	1043	914	157	313	0	638	105	187
Arrive On Green	0.59	0.59	0.59	0.59	0.59	0.59	0.09	0.09	0.00	0.18	0.18	0.18
Sat Flow, veh/h	355	3319	273	977	1777	1557	1781	3647	0	3563	586	1045
Grp Volume(v), veh/h	80	200	206	48	597	889	23	11	0	428	0	64
Grp Sat Flow(s),veh/h/ln	355	1777	1816	977	1777	1557	1781	1777	0	1781	0	1632
Q Serve(g_s), s	3.8	5.3	5.4	2.5	21.3	56.2	1.2	0.3	0.0	11.5	0.0	3.4
Cycle Q Clear(g_c), s	60.0	5.3	5.4	7.9	21.3	56.2	1.2	0.3	0.0	11.5	0.0	3.4
Prop In Lane	1.00		0.15	1.00		1.00	1.00		0.00	1.00		0.64
Lane Grp Cap(c), veh/h	84	1043	1066	593	1043	914	157	313	0	638	0	292
V/C Ratio(X)	0.96	0.19	0.19	0.08	0.57	0.97	0.15	0.04	0.00	0.67	0.00	0.22
Avail Cap(c_a), veh/h	84	1043	1066	593	1043	914	697	1391	0	1395	0	639
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.8	9.8	9.8	11.7	13.1	20.3	43.0	42.6	0.0	39.1	0.0	35.8
Incr Delay (d2), s/veh	83.5	0.1	0.1	0.1	0.9	23.3	0.2	0.0	0.0	0.5	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.1	2.1	0.5	8.4	24.7	0.5	0.1	0.0	4.9	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	134.2	9.9	9.9	11.7	14.0	43.6	43.2	42.6	0.0	39.6	0.0	36.0
LnGrp LOS	F	A	A	B	B	D	D	D	A	D	A	D
Approach Vol, veh/h		486			1534			34			492	
Approach Delay, s/veh		30.4			31.1			43.0			39.1	
Approach LOS		C			C			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		65.1		23.2		65.1		13.9				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		62.0		13.5		58.2		3.2				
Green Ext Time (p_c), s		0.0		1.0		1.6		0.1				

Intersection Summary

HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	680	191	10	309	600	603	766
Future Volume (veh/h)	680	191	10	309	600	603	766
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	739	204		336	652	655	657
Peak Hour Factor	0.92	0.92		0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1202	1205		385	1717	1493	685
Arrive On Green	0.34	0.34		0.11	0.48	0.43	0.43
Sat Flow, veh/h	3647	1538		3456	3647	3456	1585
Grp Volume(v), veh/h	739	204		336	652	655	657
Grp Sat Flow(s),veh/h/ln1777	1538			1728	1777	1728	1585
Q Serve(g_s), s	22.6	4.6		12.4	15.1	17.3	52.3
Cycle Q Clear(g_c), s	22.6	4.6		12.4	15.1	17.3	52.3
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1202	1205		385	1717	1493	685
V/C Ratio(X)	0.61	0.17		0.87	0.38	0.44	0.96
Avail Cap(c_a), veh/h	1202	1205		391	1717	1614	740
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.58	0.58
Uniform Delay (d), s/veh	35.9	4.0		56.9	21.3	25.9	35.8
Incr Delay (d2), s/veh	2.4	0.3		18.2	0.6	0.0	15.4
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	4.9		6.3	6.2	7.1	22.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	38.3	4.3		75.1	21.9	25.9	51.2
LnGrp LOS	D	A		E	C	C	D
Approach Vol, veh/h	943			988	1312		
Approach Delay, s/veh	30.9			40.0	38.6		
Approach LOS	C			D	D		
Timer - Assigned Phs	1	2		6	8		
Phs Duration (G+Y+Rc), s	48.9	49.7		68.5	61.5		
Change Period (Y+Rc), s	4.4	* 5.7		5.7	5.3		
Max Green Setting (Gmax), s	41.7	* 40		58.3	60.7		
Max Q Clear Time (g_c+1/4), s	14.4	24.6		17.1	54.3		
Green Ext Time (p_c), s	0.0	7.8		6.5	1.9		

Intersection Summary

HCM 6th Ctrl Delay	36.8
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mobley St & Gramercy Dr

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	251	30	32	499	104	90	40	63	86	10	20
Future Volume (veh/h)	20	251	30	32	499	104	90	40	63	86	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.96	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1826	1841	1737	1870	1870	1870	1870	1870	1707	1707	1707
Adj Flow Rate, veh/h	21	264	13	34	525	88	95	42	47	91	11	13
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	5	4	11	2	2	2	2	2	13	13	13
Cap, veh/h	492	1569	679	634	1370	228	318	131	97	442	53	38
Arrive On Green	0.45	0.45	0.45	0.45	0.45	0.45	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	804	3469	1502	1013	3028	505	626	544	402	1013	222	157
Grp Volume(v), veh/h	21	264	13	34	307	306	184	0	0	115	0	0
Grp Sat Flow(s),veh/h/ln	804	1735	1502	1013	1777	1757	1572	0	0	1393	0	0
Q Serve(g_s), s	0.6	1.5	0.2	0.7	3.7	3.8	1.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.3	1.5	0.2	2.1	3.7	3.8	3.0	0.0	0.0	1.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.29	0.52		0.26	0.79		0.11
Lane Grp Cap(c), veh/h	492	1569	679	634	804	794	546	0	0	533	0	0
V/C Ratio(X)	0.04	0.17	0.02	0.05	0.38	0.39	0.34	0.00	0.00	0.22	0.00	0.00
Avail Cap(c_a), veh/h	1612	6401	2771	2044	3278	3241	2036	0	0	1760	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.3	5.3	4.9	5.9	5.9	5.9	10.5	0.0	0.0	10.1	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.1	0.6	0.6	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.3	0.0	0.1	0.8	0.8	0.9	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.4	5.4	4.9	6.0	6.5	6.5	10.6	0.0	0.0	10.2	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		298			647			184			115	
Approach Delay, s/veh		5.5			6.4			10.6			10.2	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		19.8		12.7		19.8		12.7				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		6.3		3.9		5.8		5.0				
Green Ext Time (p_c), s		3.7		0.5		8.5		0.8				
Intersection Summary												
HCM 6th Ctrl Delay				7.2								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary
43: Sandrock Rd & Greyling Dr/Gramercy Dr

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕	↕	↕	↕
Traffic Volume (veh/h)	60	97	10	13	114	448	0	20	23	287	10	60
Future Volume (veh/h)	60	97	10	13	114	448	0	20	23	287	10	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.92	0.96		0.95	1.00		1.00	1.00		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1841	1841	1870	1870	1663	1870	1870	1870	1841	1870	1870
Adj Flow Rate, veh/h	65	105	8	14	124	239	0	22	0	320	0	17
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	4	4	4	2	2	16	2	2	2	4	2	2
Cap, veh/h	266	366	23	133	614	739	0	41	35	690	0	291
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.00	0.02	0.00	0.20	0.00	0.20
Sat Flow, veh/h	369	1056	67	64	1773	1332	0	1870	1585	3506	0	1480
Grp Volume(v), veh/h	178	0	0	138	0	239	0	22	0	320	0	17
Grp Sat Flow(s),veh/h/ln	1492	0	0	1837	0	1332	0	1870	1585	1753	0	1480
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	3.6	0.0	0.4	0.0	2.9	0.0	0.3
Cycle Q Clear(g_c), s	2.5	0.0	0.0	1.9	0.0	3.6	0.0	0.4	0.0	2.9	0.0	0.3
Prop In Lane	0.37		0.04	0.10		1.00	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	655	0	0	748	0	739	0	41	35	690	0	291
V/C Ratio(X)	0.27	0.00	0.00	0.18	0.00	0.32	0.00	0.54	0.00	0.46	0.00	0.06
Avail Cap(c_a), veh/h	1143	0	0	1378	0	1211	0	1050	889	2951	0	1246
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.4	0.0	0.0	8.2	0.0	4.5	0.0	17.2	0.0	12.7	0.0	11.6
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.1	0.0	4.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	0.5	0.0	1.0	0.0	0.2	0.0	1.0	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.5	0.0	0.0	8.3	0.0	4.6	0.0	21.2	0.0	12.8	0.0	11.7
LnGrp LOS	A	A	A	A	A	A	A	C	A	B	A	B
Approach Vol, veh/h		178			377			22			337	
Approach Delay, s/veh		8.5			6.0			21.2			12.8	
Approach LOS		A			A			C			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		17.6		12.3		17.6		5.7				
Change Period (Y+Rc), s		5.3		5.3		5.3		4.9				
Max Green Setting (Gmax), s		25.0		30.0		25.0		20.0				
Max Q Clear Time (g_c+I1), s		4.5		4.9		5.6		2.4				
Green Ext Time (p_c), s		0.8		0.6		0.9		0.0				

Intersection Summary

HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
 44: Mission City Pkwy/Fenton Pkwy & Camino del Rio N

Horizon Year Plus Project w/2-Lane Bridge
 AM Peak Hour

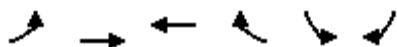


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑	↗	↖	↑	↗
Traffic Volume (veh/h)	44	55	60	163	450	390	510	230	81	159	143	43
Future Volume (veh/h)	44	55	60	163	450	390	510	230	81	159	143	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	60	30	177	489	403	554	250	78	173	155	38
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	62	677	991	204	419	345	469	381	119	199	183	45
Arrive On Green	0.03	0.36	0.36	0.11	0.44	0.44	0.26	0.28	0.28	0.11	0.13	0.13
Sat Flow, veh/h	1781	1870	1585	1781	948	781	1781	1367	427	1781	1451	356
Grp Volume(v), veh/h	48	60	30	177	0	892	554	0	328	173	0	193
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1730	1781	0	1794	1781	0	1806
Q Serve(g_s), s	3.6	2.8	1.0	13.2	0.0	59.5	35.5	0.0	21.8	12.9	0.0	14.1
Cycle Q Clear(g_c), s	3.6	2.8	1.0	13.2	0.0	59.5	35.5	0.0	21.8	12.9	0.0	14.1
Prop In Lane	1.00		1.00	1.00		0.45	1.00		0.24	1.00		0.20
Lane Grp Cap(c), veh/h	62	677	991	204	0	764	469	0	499	199	0	228
V/C Ratio(X)	0.78	0.09	0.03	0.87	0.00	1.17	1.18	0.00	0.66	0.87	0.00	0.85
Avail Cap(c_a), veh/h	66	677	991	319	0	764	469	0	644	253	0	429
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.5	28.3	9.6	58.6	0.0	37.6	49.6	0.0	42.9	58.9	0.0	57.5
Incr Delay (d2), s/veh	41.1	0.1	0.0	14.2	0.0	89.2	101.2	0.0	1.6	22.3	0.0	8.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	1.3	0.3	6.6	0.0	42.7	28.8	0.0	9.8	7.1	0.0	7.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	105.6	28.4	9.6	72.8	0.0	126.8	150.8	0.0	44.5	81.2	0.0	65.8
LnGrp LOS	F	C	A	E	A	F	F	A	D	F	A	E
Approach Vol, veh/h		138			1069			882			366	
Approach Delay, s/veh		51.2			117.9			111.2			73.1	
Approach LOS		D			F			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	19.5	42.0	19.9	53.2	40.0	21.5	9.2	64.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	19.5	48.4	24.1	40.4	35.5	32.0	5.0	59.5				
Max Q Clear Time (g_c+1/4), s	14.9	23.8	15.2	4.8	37.5	16.1	5.6	61.5				
Green Ext Time (p_c), s	0.2	2.0	0.3	0.4	0.0	1.0	0.0	0.0				

Intersection Summary												
HCM 6th Ctrl Delay											105.1	
HCM 6th LOS											F	

HCM 6th Signalized Intersection Summary
45: Camino del Rio S & Mission City Pkwy

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	113	210	530	618	189	202	
Future Volume (veh/h)	113	210	530	618	189	202	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	123	228	576	619	205	40	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	160	1173	807	939	287	255	
Arrive On Green	0.09	0.63	0.43	0.43	0.16	0.16	
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585	
Grp Volume(v), veh/h	123	228	576	619	205	40	
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1781	1585	
Q Serve(g_s), s	2.9	2.2	10.8	11.1	4.6	0.9	
Cycle Q Clear(g_c), s	2.9	2.2	10.8	11.1	4.6	0.9	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	160	1173	807	939	287	255	
V/C Ratio(X)	0.77	0.19	0.71	0.66	0.71	0.16	
Avail Cap(c_a), veh/h	230	1671	1231	1299	963	857	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	18.9	3.4	9.9	5.8	16.9	15.4	
Incr Delay (d2), s/veh	9.1	0.1	1.2	0.8	3.3	0.3	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	4	0.4	2.9	3.4	1.8	0.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	28.1	3.4	11.1	6.6	20.2	15.6	
LnGrp LOS	C	A	B	A	C	B	
Approach Vol, veh/h		351	1195		245		
Approach Delay, s/veh		12.1	8.8		19.5		
Approach LOS		B	A		B		
Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			31.2		11.4	8.3	22.9
Change Period (Y+Rc), s			4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s			38.0		23.0	5.5	28.0
Max Q Clear Time (g_c+1), s			4.2		6.6	4.9	13.1
Green Ext Time (p_c), s			1.3		0.6	0.0	5.3
Intersection Summary							
HCM 6th Ctrl Delay			10.9				
HCM 6th LOS			B				

HCM 6th Signalized Intersection Summary
46: Camino del Rio S & I-15 SB Off-Ramp

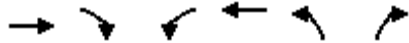
Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑			↑↓			↑	↗
Traffic Volume (veh/h)	0	249	20	30	1078	0	10	0	10	70	20	530
Future Volume (veh/h)	0	249	20	30	1078	0	10	0	10	70	20	530
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	271	18	33	1172	0	11	0	2	76	22	483
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	0	1905	126	45	1157	0	21	0	4	385	111	437
Arrive On Green	0.00	0.56	0.56	0.03	0.62	0.00	0.01	0.00	0.01	0.28	0.28	0.28
Sat Flow, veh/h	0	3477	223	1781	1870	0	1479	0	269	1396	404	1585
Grp Volume(v), veh/h	0	142	147	33	1172	0	13	0	0	98	0	483
Grp Sat Flow(s),veh/h/ln	0	1777	1830	1781	1870	0	1748	0	0	1801	0	1585
Q Serve(g_s), s	0.0	5.6	5.6	2.7	91.0	0.0	1.1	0.0	0.0	6.1	0.0	40.5
Cycle Q Clear(g_c), s	0.0	5.6	5.6	2.7	91.0	0.0	1.1	0.0	0.0	6.1	0.0	40.5
Prop In Lane	0.00		0.12	1.00		0.00	0.85		0.15	0.78		1.00
Lane Grp Cap(c), veh/h	0	1000	1030	45	1157	0	24	0	0	496	0	437
V/C Ratio(X)	0.00	0.14	0.14	0.74	1.01	0.00	0.53	0.00	0.00	0.20	0.00	1.11
Avail Cap(c_a), veh/h	0	1000	1030	85	1157	0	59	0	0	496	0	437
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	15.3	15.3	71.2	28.0	0.0	72.0	0.0	0.0	40.8	0.0	53.3
Incr Delay (d2), s/veh	0.0	0.1	0.1	20.6	29.6	0.0	16.7	0.0	0.0	0.2	0.0	75.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.2	2.3	1.5	46.0	0.0	0.6	0.0	0.0	2.8	0.0	25.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.3	15.3	91.8	57.6	0.0	88.7	0.0	0.0	41.0	0.0	128.5
LnGrp LOS	A	B	B	F	F	A	F	A	A	D	A	F
Approach Vol, veh/h		289			1205			13				581
Approach Delay, s/veh		15.3			58.6			88.7				113.7
Approach LOS		B			E			F				F
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	8.2	87.3		45.0		95.5		6.6				
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s	79.5			40.5		91.0		5.0				
Max Q Clear Time (g_c+14), s	7.6			42.5		93.0		3.1				
Green Ext Time (p_c), s	0.0	1.6		0.0		0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay				68.1								
HCM 6th LOS				E								

HCM 6th Signalized Intersection Summary
47: I-15 SB On-Ramp & Camino del Rio S

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑		
Traffic Volume (veh/h)	170	159	30	1108	0	0
Future Volume (veh/h)	170	159	30	1108	0	0
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		
Adj Flow Rate, veh/h	185	118	33	1204		
Peak Hour Factor	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2		
Cap, veh/h	1311	795	73	1550		
Arrive On Green	0.62	0.62	0.04	0.83		
Sat Flow, veh/h	2219	1289	1781	1870		
Grp Volume(v), veh/h	153	150	33	1204		
Grp Sat Flow(s),veh/h/ln	1777	1638	1781	1870		
Q Serve(g_s), s	0.9	1.0	0.5	8.1		
Cycle Q Clear(g_c), s	0.9	1.0	0.5	8.1		
Prop In Lane		0.79	1.00			
Lane Grp Cap(c), veh/h	1095	1010	73	1550		
V/C Ratio(X)	0.14	0.15	0.45	0.78		
Avail Cap(c_a), veh/h	1759	1622	339	2529		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	2.1	2.1	12.3	1.1		
Incr Delay (d2), s/veh	0.1	0.1	4.4	0.9		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.2	0.4		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	2.2	2.2	16.7	1.9		
LnGrp LOS	A	A	B	A		
Approach Vol, veh/h	303			1237		
Approach Delay, s/veh	2.2			2.3		
Approach LOS	A			A		
Timer - Assigned Phs	1	2			6	
Phs Duration (G+Y+Rc), s	5.6	20.7			26.3	
Change Period (Y+Rc), s	4.5	4.5			4.5	
Max Green Setting (Gmax), s	5.6	26.0			35.5	
Max Q Clear Time (g_c+I), s	12.5	3.0			10.1	
Green Ext Time (p_c), s	0.0	1.6			11.6	
Intersection Summary						
HCM 6th Ctrl Delay			2.3			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
48: I-15 NB Ramps & Camino del Rio S

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	140	0	0	330	70	808	10	130	0	0	0
Future Volume (veh/h)	40	140	0	0	330	70	808	10	130	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	43	152	0	0	359	12	878	11	79			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	66	570	0	0	402	341	1053	117	838			
Arrive On Green	0.04	0.30	0.00	0.00	0.22	0.22	0.59	0.59	0.59			
Sat Flow, veh/h	1781	1870	0	0	1870	1585	1781	197	1418			
Grp Volume(v), veh/h	43	152	0	0	359	12	878	0	90			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1870	1585	1781	0	1615			
Q Serve(g_s), s	2.1	5.3	0.0	0.0	16.1	0.5	34.3	0.0	2.1			
Cycle Q Clear(g_c), s	2.1	5.3	0.0	0.0	16.1	0.5	34.3	0.0	2.1			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.88			
Lane Grp Cap(c), veh/h	66	570	0	0	402	341	1053	0	955			
V/C Ratio(X)	0.65	0.27	0.00	0.00	0.89	0.04	0.83	0.00	0.09			
Avail Cap(c_a), veh/h	103	650	0	0	444	377	1053	0	955			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	41.0	22.7	0.0	0.0	32.9	26.8	14.2	0.0	7.6			
Incr Delay (d2), s/veh	10.1	0.2	0.0	0.0	18.7	0.0	7.8	0.0	0.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	2.2	0.0	0.0	8.9	0.2	14.2	0.0	0.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.1	23.0	0.0	0.0	51.6	26.8	22.0	0.0	7.8			
LnGrp LOS	D	C	A	A	D	C	C	A	A			
Approach Vol, veh/h		195			371			968				
Approach Delay, s/veh		29.2			50.8			20.7				
Approach LOS		C			D			C				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		55.5		30.8			7.7	23.1				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		51.0		30.0			5.0	20.5				
Max Q Clear Time (g_c+I1), s		36.3		7.3			4.1	18.1				
Green Ext Time (p_c), s		3.7		0.7			0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay				29.0								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary
49: Fenton Pkwy & Street A

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



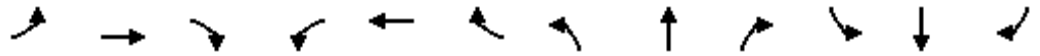
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	111	20	498	166	118	234
Future Volume (veh/h)	111	20	498	166	118	234
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	121	1	541	104	128	254
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	206	184	955	809	543	955
Arrive On Green	0.12	0.12	0.51	0.51	0.51	0.51
Sat Flow, veh/h	1781	1585	1870	1585	785	1870
Grp Volume(v), veh/h	121	1	541	104	128	254
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	785	1870
Q Serve(g_s), s	1.6	0.0	4.8	0.8	3.2	1.9
Cycle Q Clear(g_c), s	1.6	0.0	4.8	0.8	8.0	1.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	206	184	955	809	543	955
V/C Ratio(X)	0.59	0.01	0.57	0.13	0.24	0.27
Avail Cap(c_a), veh/h	2070	1842	2173	1842	1055	2173
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.1	9.4	4.1	3.1	6.8	3.3
Incr Delay (d2), s/veh	2.6	0.0	0.5	0.1	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	0.6	0.1	0.3	0.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	12.7	9.4	4.6	3.2	7.0	3.5
LnGrp LOS	B	A	A	A	A	A
Approach Vol, veh/h	122		645			382
Approach Delay, s/veh	12.7		4.4			4.7
Approach LOS	B		A			A
Timer - Assigned Phs		2			6	8
Phs Duration (G+Y+Rc), s		16.8			16.8	7.3
Change Period (Y+Rc), s		4.5			4.5	4.5
Max Green Setting (Gmax), s		28.0			28.0	28.0
Max Q Clear Time (g_c+I1), s		6.8			10.0	3.6
Green Ext Time (p_c), s		4.1			2.3	0.3
Intersection Summary						
HCM 6th Ctrl Delay			5.4			
HCM 6th LOS			A			

Queues

Horizon Year Plus Project w/2-Lane Bridge

1: SR-163 SB Ramps/Ulric St & Friars Rd

AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	73	694	281	624	977	796	323	63	894	226	226	104
v/c Ratio	0.60	0.36	0.42	0.82	0.40	0.53	0.76	0.27	0.83	0.70	0.70	0.25
Control Delay	88.0	44.5	7.6	83.6	17.3	13.8	75.2	61.8	48.2	67.3	67.3	3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.0	44.5	7.6	83.6	17.3	13.8	75.2	61.8	48.2	67.3	67.3	3.6
Queue Length 50th (ft)	71	157	0	323	119	134	159	57	434	221	221	0
Queue Length 95th (ft)	126	223	86	313	152	418	211	104	502	286	286	20
Internal Link Dist (ft)		1296			1069			834			622	
Turn Bay Length (ft)	300		350	400		200	300		215			200
Base Capacity (vph)	149	1943	667	867	2454	1739	482	262	1164	471	471	538
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.36	0.42	0.72	0.40	0.46	0.67	0.24	0.77	0.48	0.48	0.19

Intersection Summary

Queues
2: Friars Rd & SR-163 NB Ramps

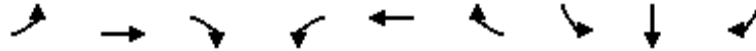
Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	521	1498	1521	868	1349	833
v/c Ratio	0.52	0.37	0.79	0.63	0.89	0.51
Control Delay	48.8	13.3	35.9	11.8	57.7	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.8	13.3	35.9	11.8	57.7	16.8
Queue Length 50th (ft)	244	229	426	50	443	232
Queue Length 95th (ft)	315	159	461	60	505	318
Internal Link Dist (ft)		1069	635		521	
Turn Bay Length (ft)	500			200	500	400
Base Capacity (vph)	999	4068	2466	1365	1546	1642
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.37	0.62	0.64	0.87	0.51
Intersection Summary						

Queues
17: I-15 SB Ramps & Friars Rd

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



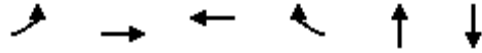
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	387	1186	483	415	2294	553	431	425	1299
v/c Ratio	0.96	0.75	0.61	0.89	1.32	0.72	0.93	0.91	0.84
Control Delay	79.5	39.2	8.8	44.1	173.1	12.7	65.8	63.0	26.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.5	39.2	8.8	44.1	173.1	12.7	65.8	63.0	26.5
Queue Length 50th (ft)	272	290	24	238	~791	110	301	294	388
Queue Length 95th (ft)	#462	#387	130	m121	m322	m44	#482	#470	500
Internal Link Dist (ft)		844			1079			723	
Turn Bay Length (ft)	380		200	350			520		520
Base Capacity (vph)	402	1582	794	531	1744	772	504	506	1539
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.75	0.61	0.78	1.32	0.72	0.86	0.84	0.84

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
18: I-15 NB Ramps & Friars Rd

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	831	1274	3402	1009	400	629
v/c Ratio	1.48	no cap	1.29	1.31	4.26	6.69
Control Delay	250.3		156.9	165.1	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	250.3	Error	156.9	165.1	0.0	0.0
Queue Length 50th (ft)	~840	0	~1208	~1081	0	0
Queue Length 95th (ft)	m#1080	0	#1301	m#1244	0	0
Internal Link Dist (ft)		1079	869		797	677
Turn Bay Length (ft)	515					
Base Capacity (vph)	563	1	2632	773	94	94
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.48	1274.00	1.29	1.31	4.26	6.69

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp



Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	85	120	233	710	144	1285	411	537
v/c Ratio	0.52	0.24	0.33	0.97	0.63	0.67	0.58	0.72
Control Delay	64.7	7.1	30.1	52.7	63.4	32.9	46.5	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3
Total Delay	64.7	7.1	30.1	52.7	63.4	32.9	46.6	10.0
Queue Length 50th (ft)	62	0	121	383	105	294	146	0
Queue Length 95th (ft)	128	46	236	#797	193	367	221	108
Internal Link Dist (ft)			657			1041	147	
Turn Bay Length (ft)				150	110			
Base Capacity (vph)	547	715	696	732	505	4131	1675	1021
Starvation Cap Reductn	0	0	0	0	0	0	396	115
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.17	0.33	0.97	0.29	0.31	0.32	0.59

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Horizon Year Plus Project w/2-Lane Bridge
 AM Peak Hour



Lane Group	EBR	NBT	SBT
Lane Group Flow (vph)	639	1322	923
v/c Ratio	0.72	0.72	0.51
Control Delay	21.3	13.6	10.4
Queue Delay	0.0	0.3	0.0
Total Delay	21.3	13.8	10.4
Queue Length 50th (ft)	96	161	95
Queue Length 95th (ft)	167	284	172
Internal Link Dist (ft)		285	1041
Turn Bay Length (ft)			
Base Capacity (vph)	2284	2243	2221
Starvation Cap Reductn	0	322	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.28	0.69	0.42
Intersection Summary			

Queues

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	51	48	540	464	943	374	709	1743	14	1002	235
v/c Ratio	0.35	0.32	0.95	1.33	1.37	0.88	1.71	1.06	0.06	0.93	0.41
Control Delay	56.6	55.4	55.0	201.9	210.9	57.9	358.6	71.7	33.2	43.0	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.1	0.0	15.8	0.6
Total Delay	56.6	55.4	55.0	201.9	210.9	57.9	358.6	87.8	33.2	58.8	14.6
Queue Length 50th (ft)	37	35	287	~490	~536	269	~773	~784	4	~420	110
Queue Length 95th (ft)	81	77	#412	#713	#680	#394	#1004	#925	m7	m#547	m156
Internal Link Dist (ft)		2741			1304			808		254	
Turn Bay Length (ft)	105					200	215		65		140
Base Capacity (vph)	146	151	569	350	689	425	415	1641	238	1077	570
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	96	112
Spillback Cap Reductn	0	0	0	0	0	0	0	220	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.32	0.95	1.33	1.37	0.88	1.71	1.23	0.06	1.02	0.51

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Queues
36: Fairmount Ave & I-8E Off-Ramp

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



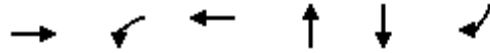
Lane Group	EBL	EBR	NBU	NBT	SBT
Lane Group Flow (vph)	1108	936	361	1514	947
v/c Ratio	0.81	0.86	1.23	0.87	0.64
Control Delay	39.2	43.9	174.9	35.4	40.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	43.9	174.9	35.4	40.8
Queue Length 50th (ft)	407	399	~381	567	245
Queue Length 95th (ft)	505	508	#667	732	312
Internal Link Dist (ft)	721			683	808
Turn Bay Length (ft)	550		350		
Base Capacity (vph)	1950	1578	293	2226	2169
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.57	0.59	1.23	0.68	0.44

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
46: Camino del Rio S & I-15 SB Off-Ramp

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



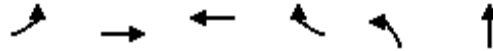
Lane Group	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	293	33	1172	22	98	576
v/c Ratio	0.14	0.41	1.01	0.17	0.20	1.10
Control Delay	15.4	84.6	56.8	2.8	42.6	107.9
Queue Delay	0.0	120.4	34.5	0.0	0.0	0.0
Total Delay	15.4	205.0	91.3	2.8	42.6	107.9
Queue Length 50th (ft)	73	32	~1231	0	75	~560
Queue Length 95th (ft)	100	70	#1497	0	126	#798
Internal Link Dist (ft)	323		47	78	212	
Turn Bay Length (ft)						
Base Capacity (vph)	2023	84	1160	131	497	524
Starvation Cap Reductn	0	57	367	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.14	1.22	1.48	0.17	0.20	1.10

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
48: I-15 NB Ramps & Camino del Rio S

Horizon Year Plus Project w/2-Lane Bridge
AM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	43	152	359	76	878	152
v/c Ratio	0.41	0.28	0.86	0.18	0.82	0.15
Control Delay	52.7	24.2	53.7	8.5	23.0	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.7	24.2	53.7	8.5	23.0	2.4
Queue Length 50th (ft)	24	62	196	0	399	3
Queue Length 95th (ft)	#59	109	#344	34	#676	27
Internal Link Dist (ft)		251	398			470
Turn Bay Length (ft)						
Base Capacity (vph)	105	664	453	443	1072	1027
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.23	0.79	0.17	0.82	0.15

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

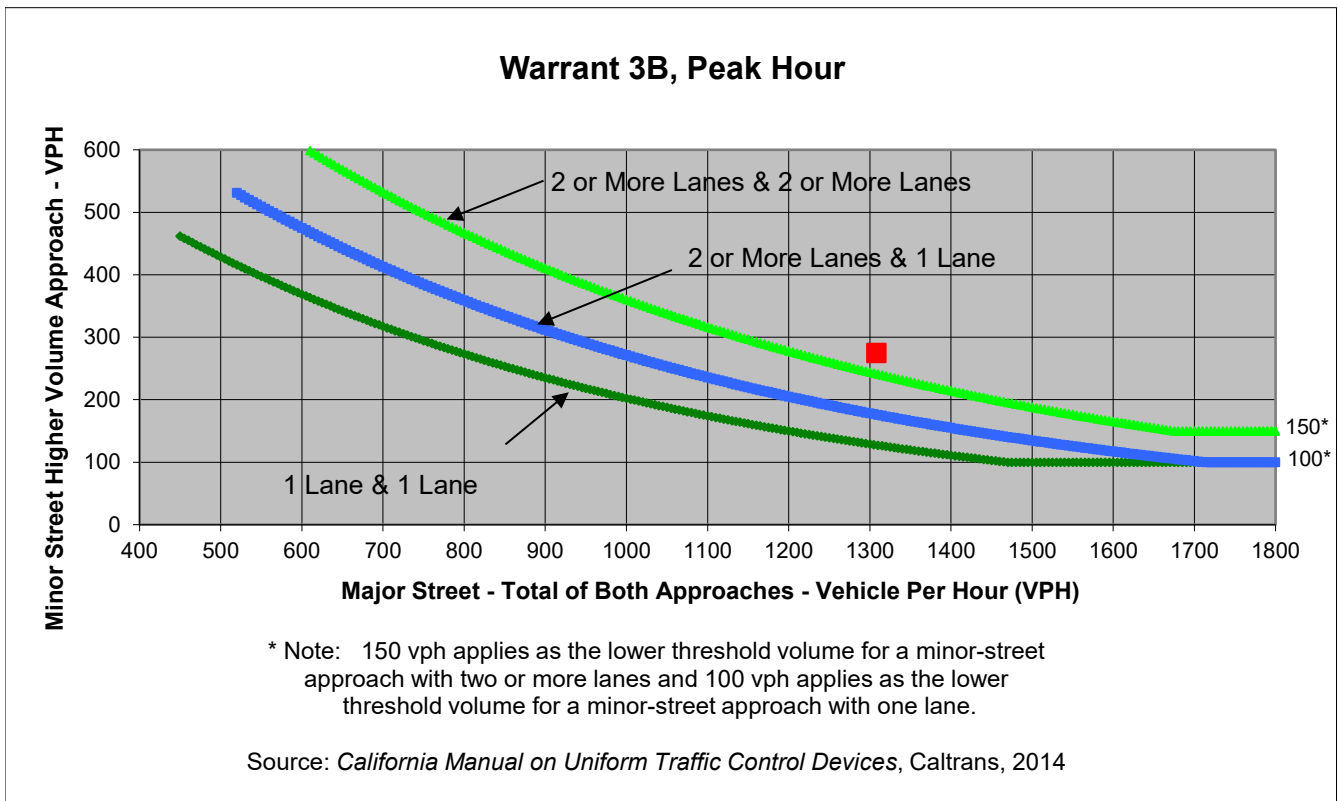
Project SDSU Mission Valley
 Scenario HY + Project w/2In bridge
 Peak Hour AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	172	0	50	0
Through	635	467	0	0
Right	0	34	225	0
Total	807	501	275	0

Major Street Direction

x	North/South
	East/West



	Major Street	Minor Street	Warrant Met
	Ward Rd	Rancho Mission Rd	
Number of Approach Lanes	2	1	<u>YES</u>
Traffic Volume (VPH) *	1,308	275	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
 Traffic Volume for Minor Street is the Volume of High Volume Approach.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

Project SDSU Mission Valley
 Scenario HY + Project w/2ln bridge
 Peak Hour AM

Turn Movement Volumes

	NB	SB	EB	WB
Left	217	0	50	0
Through	754	546	0	0
Right	0	34	273	0
Total	971	580	323	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

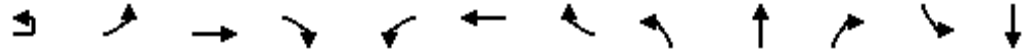
Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	65.1
Approach with Worst Case Delay	EB
Total Vehicles on Approach	275

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
HY + Project w/2ln bridge	5	323	1,874
Limiting Value	4	100	650
Condition Satisfied?	Met	Met	Met
Warrant Met	<u>YES</u>		

HCM Signalized Intersection Capacity Analysis
 1: SR-163 SB Ramps/Ulríc St & Friars Rd

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations		↔	↑↑↑↑	↗	↖↗	↑↑↑↑	↖↗	↖↗	↑	↖↗	↖	↖	
Traffic Volume (vph)	10	170	1780	700	634	1208	827	320	30	769	690	0	
Future Volume (vph)	10	170	1780	700	634	1208	827	320	30	769	690	0	
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.7	7.0	7.0	4.5	3.0	6.1	6.1	6.1	4.5	6.1	6.1	
Lane Util. Factor		1.00	0.86	1.00	0.97	0.91	0.88	0.97	1.00	0.88	0.95	0.95	
Frbp, ped/bikes		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (prot)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (perm)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	10	173	1816	714	647	1233	844	327	31	785	704	0	
RTOR Reduction (vph)	0	0	0	481	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	183	1816	233	647	1233	844	327	31	785	352	352	
Confl. Peds. (#/hr)				5									
Confl. Bikes (#/hr)				2									
Turn Type	Prot	Prot	NA	Perm	Prot	NA	custom	Split	NA	pm+ov	Split	NA	
Protected Phases	5	5	2		1	6 7	4 7	8	8	1	4	4	
Permitted Phases				2						8			
Actuated Green, G (s)		17.5	44.0	44.0	26.0	52.3	68.9	14.1	14.1	40.1	37.2	37.2	
Effective Green, g (s)		17.5	44.0	44.0	26.0	52.3	61.9	14.1	14.1	40.1	37.2	37.2	
Actuated g/C Ratio		0.12	0.30	0.30	0.18	0.36	0.43	0.10	0.10	0.28	0.26	0.26	
Clearance Time (s)		4.7	7.0	7.0	4.5			6.1	6.1	4.5	6.1	6.1	
Vehicle Extension (s)		2.0	2.0	2.0	3.0			3.0	3.0	3.0	2.0	2.0	
Lane Grp Cap (vph)		213	1944	469	615	1834	1189	333	181	770	431	431	
v/s Ratio Prot		0.10	c0.28		c0.19	0.24	0.30	0.10	0.02	c0.18	c0.21	0.21	
v/s Ratio Perm				0.15						0.10			
v/c Ratio		0.86	0.93	0.50	1.05	0.67	0.71	0.98	0.17	1.02	0.82	0.82	
Uniform Delay, d1		62.5	49.1	41.4	59.5	39.1	34.2	65.3	60.1	52.5	50.7	50.7	
Progression Factor		1.00	1.00	1.00	1.04	1.23	0.69	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		26.5	9.9	3.7	44.5	0.5	1.1	44.2	0.5	37.4	10.8	10.8	
Delay (s)		89.1	58.9	45.2	106.2	48.8	24.6	109.5	60.5	89.9	61.5	61.5	
Level of Service		F	E	D	F	D	C	F	E	F	E	E	
Approach Delay (s)			57.4			54.9			94.7			57.0	
Approach LOS			E			D			F			E	
Intersection Summary													
HCM 2000 Control Delay			62.1		HCM 2000 Level of Service					E			
HCM 2000 Volume to Capacity ratio			0.96										
Actuated Cycle Length (s)			145.0		Sum of lost time (s)					26.9			
Intersection Capacity Utilization			97.3%		ICU Level of Service					F			
Analysis Period (min)			15										
c Critical Lane Group													

Movement	SBR
Lane Configurations	7
Traffic Volume (vph)	210
Future Volume (vph)	210
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.1
Lane Util. Factor	1.00
Frbp, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1560
Flt Permitted	1.00
Satd. Flow (perm)	1560
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	214
RTOR Reduction (vph)	142
Lane Group Flow (vph)	72
Confl. Peds. (#/hr)	3
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	37.2
Effective Green, g (s)	37.2
Actuated g/C Ratio	0.26
Clearance Time (s)	6.1
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	400
v/s Ratio Prot	
v/s Ratio Perm	0.05
v/c Ratio	0.18
Uniform Delay, d1	42.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	42.1
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM Signalized Intersection Capacity Analysis
2: Friars Rd & SR-163 NB Ramps

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	640	2478	1679	1038	1210	1010
Future Volume (vph)	640	2478	1679	1038	1210	1010
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	4.5	6.0	4.5	4.5	5.0
Lane Util. Factor	0.97	0.86	0.86	0.88	0.94	0.88
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	6408	6408	2787	4990	2787
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	6408	6408	2787	4990	2787
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	667	2581	1749	1081	1260	1052
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	667	2581	1749	1081	1260	1052
Turn Type	Prot	NA	NA	custom	Prot	pm+ov
Protected Phases	5	2	3	6	4	3
Permitted Phases						4
Actuated Green, G (s)	38.6	92.5	50.4	65.0	43.5	82.1
Effective Green, g (s)	38.6	92.5	50.4	65.0	43.5	82.1
Actuated g/C Ratio	0.27	0.64	0.35	0.45	0.30	0.57
Clearance Time (s)	5.0	4.5			4.5	5.0
Vehicle Extension (s)	2.0	3.0			3.0	2.0
Lane Grp Cap (vph)	913	4087	2227	1249	1497	1674
v/s Ratio Prot	c0.19	0.40	c0.27	c0.39	0.25	0.17
v/s Ratio Perm						0.21
v/c Ratio	0.73	0.63	0.79	0.87	0.84	0.63
Uniform Delay, d1	48.5	15.9	42.4	36.1	47.5	21.2
Progression Factor	0.96	0.75	1.19	1.47	1.00	1.00
Incremental Delay, d2	1.2	0.3	1.1	4.1	4.5	0.5
Delay (s)	47.6	12.3	51.7	57.0	52.0	21.7
Level of Service	D	B	D	E	D	C
Approach Delay (s)		19.5	53.7		38.2	
Approach LOS		B	D		D	























Intersection Summary

HCM 2000 Control Delay	36.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	18.5
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
3: Frazee Rd & Friars Rd

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour

												
Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (vph)	30	340	2629	670	10	121	1797	108	330	70	154	137
Future Volume (vph)	30	340	2629	670	10	121	1797	108	330	70	154	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.4	3.0	4.4		4.4	6.5	6.5	4.4	4.9		4.4
Lane Util. Factor		0.97	0.86	0.88		0.97	0.86	1.00	0.97	0.95		0.97
Frbp, ped/bikes		1.00	1.00	1.00		1.00	1.00	0.98	1.00	0.97		1.00
Flpb, ped/bikes		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00
Frt		1.00	1.00	0.85		1.00	1.00	0.85	1.00	0.90		1.00
Flt Protected		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (prot)		3433	6408	2787		3433	6408	1546	3433	3067		3433
Flt Permitted		0.95	1.00	1.00		0.95	1.00	1.00	0.95	1.00		0.95
Satd. Flow (perm)		3433	6408	2787		3433	6408	1546	3433	3067		3433
Peak-hour factor, PHF	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Adj. Flow (vph)	34	382	2954	753	11	136	2019	121	371	79	173	154
RTOR Reduction (vph)	0	0	0	0	0	0	0	75	0	55	0	0
Lane Group Flow (vph)	0	416	2954	753	0	147	2019	46	371	197	0	154
Confl. Peds. (#/hr)				18				8			43	
Confl. Bikes (#/hr)				1								
Turn Type	Prot	Prot	NA	custom	Prot	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	5	5	2 9	3 9	1	1	6		3	8		7
Permitted Phases							6					
Actuated Green, G (s)		20.1	69.7	65.8		6.5	55.1	55.1	20.6	42.3		7.3
Effective Green, g (s)		20.1	69.7	60.3		6.5	55.1	55.1	20.6	42.3		7.3
Actuated g/C Ratio		0.14	0.48	0.42		0.04	0.38	0.38	0.14	0.29		0.05
Clearance Time (s)		4.4				4.4	6.5	6.5	4.4	4.9		4.4
Vehicle Extension (s)		2.0				2.0	4.4	4.4	2.0	2.0		2.2
Lane Grp Cap (vph)		475	3080	1159		153	2435	587	487	894		172
v/s Ratio Prot		c0.12	c0.46	0.27		0.04	0.32		c0.11	0.06		0.04
v/s Ratio Perm							0.03					
v/c Ratio		0.88	0.96	0.65		0.96	0.83	0.08	0.76	0.22		0.90
Uniform Delay, d1		61.2	36.3	33.9		69.1	40.7	28.7	59.8	38.9		68.5
Progression Factor		1.09	0.80	1.12		1.00	1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		12.6	6.8	0.7		60.4	3.4	0.3	6.3	0.0		39.5
Delay (s)		79.2	35.9	38.8		129.6	44.1	29.0	66.1	38.9		107.9
Level of Service		E	D	D		F	D	C	E	D		F
Approach Delay (s)			40.8				48.8			55.1		
Approach LOS			D				D			E		
Intersection Summary												
HCM 2000 Control Delay			46.9				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			145.0				Sum of lost time (s)		22.2			
Intersection Capacity Utilization			94.9%				ICU Level of Service		F			
Analysis Period (min)			15									

c Critical Lane Group



Movement	SBT	SBR
Lane Configurations	↑	↑↑
Traffic Volume (vph)	80	380
Future Volume (vph)	80	380
Ideal Flow (vphpl)	1900	1900
Total Lost time (s)	4.9	4.9
Lane Util. Factor	1.00	0.88
Frbp, ped/bikes	1.00	0.99
Flpb, ped/bikes	1.00	1.00
Frt	1.00	0.85
Flt Protected	1.00	1.00
Satd. Flow (prot)	1863	2750
Flt Permitted	1.00	1.00
Satd. Flow (perm)	1863	2750
Peak-hour factor, PHF	0.89	0.89
Adj. Flow (vph)	90	427
RTOR Reduction (vph)	0	0
Lane Group Flow (vph)	90	427
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		1
Turn Type	NA	Perm
Protected Phases	4	
Permitted Phases		4
Actuated Green, G (s)	29.0	29.0
Effective Green, g (s)	29.0	29.0
Actuated g/C Ratio	0.20	0.20
Clearance Time (s)	4.9	4.9
Vehicle Extension (s)	2.3	2.3
Lane Grp Cap (vph)	372	550
v/s Ratio Prot	0.05	
v/s Ratio Perm		c0.16
v/c Ratio	0.24	0.78
Uniform Delay, d1	48.8	54.9
Progression Factor	1.00	1.00
Incremental Delay, d2	0.2	6.4
Delay (s)	49.0	61.3
Level of Service	D	E
Approach Delay (s)	70.4	
Approach LOS	E	
Intersection Summary		

HCM 6th Signalized Intersection Summary
4: Mission Center Rd & Friars Rd WB

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷	↶		↶	↷			↶	↷
Traffic Volume (veh/h)	0	0	0	239	10	295	10	230	880	0	0	1212	340
Future Volume (veh/h)	0	0	0	239	10	295	10	230	880	0	0	1212	340
Initial Q (Qb), veh				0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00		1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No		No			No
Adj Sat Flow, veh/h/ln				1870	1870	1870		1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				256	0	179		240	917	0	0	1262	292
Peak Hour Factor				0.96	0.96	0.96		0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2		2	2	0	0	2	2
Cap, veh/h				488	0	217		303	2699	0	0	2242	966
Arrive On Green				0.27	0.00	0.27		0.18	1.00	0.00	0.00	0.63	0.63
Sat Flow, veh/h				3563	0	1585		3456	3647	0	0	3647	1530
Grp Volume(v), veh/h				256	0	179		240	917	0	0	1262	292
Grp Sat Flow(s),veh/h/ln				1781	0	1585		1728	1777	0	0	1777	1530
Q Serve(g_s), s				6.6	0.0	11.4		7.2	0.0	0.0	0.0	21.9	9.4
Cycle Q Clear(g_c), s				6.6	0.0	11.4		7.2	0.0	0.0	0.0	21.9	9.4
Prop In Lane				1.00		1.00		1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				488	0	217		303	2699	0	0	2242	966
V/C Ratio(X)				0.52	0.00	0.82		0.79	0.34	0.00	0.00	0.56	0.30
Avail Cap(c_a), veh/h				1013	0	451		579	2699	0	0	2242	966
HCM Platoon Ratio				2.00	2.00	2.00		2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00		0.55	0.55	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				36.2	0.0	38.0		43.6	0.0	0.0	0.0	11.4	9.1
Incr Delay (d2), s/veh				0.9	0.0	7.7		1.0	0.2	0.0	0.0	1.0	0.8
Initial Q Delay(d3),s/veh				0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				2.6	0.0	4.2		2.8	0.1	0.0	0.0	7.9	3.0
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh				37.1	0.0	45.7		44.6	0.2	0.0	0.0	12.4	9.9
LnGrp LOS				D	A	D		D	A	A	A	B	A
Approach Vol, veh/h				435				1157				1554	
Approach Delay, s/veh				40.6				9.4				12.0	
Approach LOS				D				A				B	
Timer - Assigned Phs		2			5	6			8				
Phs Duration (G+Y+Rc), s		88.3			13.9	74.5			19.7				
Change Period (Y+Rc), s		* 6.3			4.4	6.3			4.9				
Max Green Setting (Gmax), s		* 67			18.1	43.6			30.7				
Max Q Clear Time (g_c+I1), s		2.0			9.2	23.9			13.4				
Green Ext Time (p_c), s		6.2			0.3	14.5			1.3				

Intersection Summary

HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
5: Mission Center Rd & Friars Rd EB

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	10	310	0	0	0	0	730	471	562	889	0
Future Volume (veh/h)	380	10	310	0	0	0	0	730	471	562	889	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	408	0	204				0	768	412	592	936	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	570	0	254				0	757	404	1204	2633	0
Arrive On Green	0.16	0.00	0.16				0.00	0.34	0.34	0.70	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	2298	1176	3456	3647	0
Grp Volume(v), veh/h	408	0	204				0	618	562	592	936	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1604	1728	1777	0
Q Serve(g_s), s	11.7	0.0	13.4				0.0	37.1	37.1	8.5	0.0	0.0
Cycle Q Clear(g_c), s	11.7	0.0	13.4				0.0	37.1	37.1	8.5	0.0	0.0
Prop In Lane	1.00		1.00				0.00		0.73	1.00		0.00
Lane Grp Cap(c), veh/h	570	0	254				0	610	551	1204	2633	0
V/C Ratio(X)	0.72	0.00	0.80				0.00	1.01	1.02	0.49	0.36	0.00
Avail Cap(c_a), veh/h	976	0	434				0	610	551	1204	2633	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	0.69	0.69	0.00
Uniform Delay (d), s/veh	43.0	0.0	43.7				0.0	35.5	35.5	12.0	0.0	0.0
Incr Delay (d2), s/veh	1.7	0.0	5.9				0.0	39.7	43.4	0.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	0.0	5.5				0.0	21.9	20.4	2.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.7	0.0	49.6				0.0	75.2	78.8	12.0	0.1	0.0
LnGrp LOS	D	A	D				A	F	F	B	A	A
Approach Vol, veh/h		612						1180			1528	
Approach Delay, s/veh		46.4						76.9			4.7	
Approach LOS		D						E			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	43.4	42.4	22.2	85.8								
Change Period (Y+Rc), s	5.8	* 5.3	4.9	5.8								
Max Green Setting (Gmax), s	26.7	* 37	29.6	67.7								
Max Q Clear Time (g_c+110), s	11.5	39.1	15.4	2.0								
Green Ext Time (p_c), s	1.0	0.0	1.9	9.7								

Intersection Summary

HCM 6th Ctrl Delay	38.1
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
6: Qualcomm Way & Friars Rd WB

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶	↷		↶	↷			↶	↷
Traffic Volume (veh/h)	0	0	0	477	10	80	624	110	0	0	237	20
Future Volume (veh/h)	0	0	0	477	10	80	624	110	0	0	237	20
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				561	0	0	650	115	0	0	247	2
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				672	353	0	1168	2439	0	0	1020	443
Arrive On Green				0.19	0.00	0.00	0.34	0.69	0.00	0.00	0.29	0.29
Sat Flow, veh/h				3563	1870	0	3456	3647	0	0	3647	1542
Grp Volume(v), veh/h				561	0	0	650	115	0	0	247	2
Grp Sat Flow(s),veh/h/ln				1781	1870	0	1728	1777	0	0	1777	1542
Q Serve(g_s), s				12.1	0.0	0.0	12.3	0.8	0.0	0.0	4.3	0.1
Cycle Q Clear(g_c), s				12.1	0.0	0.0	12.3	0.8	0.0	0.0	4.3	0.1
Prop In Lane				1.00		0.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				672	353	0	1168	2439	0	0	1020	443
V/C Ratio(X)				0.83	0.00	0.00	0.56	0.05	0.00	0.00	0.24	0.00
Avail Cap(c_a), veh/h				1251	657	0	1168	2439	0	0	1020	443
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.98	0.98	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				31.3	0.0	0.0	21.6	4.1	0.0	0.0	21.8	20.4
Incr Delay (d2), s/veh				1.1	0.0	0.0	0.6	0.0	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				5.0	0.0	0.0	4.7	0.2	0.0	0.0	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				32.3	0.0	0.0	22.2	4.1	0.0	0.0	22.0	20.4
LnGrp LOS				C	A	A	C	A	A	A	C	C
Approach Vol, veh/h					561			765			249	
Approach Delay, s/veh					32.3			19.5			22.0	
Approach LOS					C			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		60.0			32.1	27.9		20.0				
Change Period (Y+Rc), s		5.1			5.1	* 4.9		4.9				
Max Green Setting (Gmax), s		41.9			21.1	* 16		28.1				
Max Q Clear Time (g_c+11), s		2.8			14.3	6.3		14.1				
Green Ext Time (p_c), s		0.8			1.8	1.0		1.0				

Intersection Summary

HCM 6th Ctrl Delay	24.5
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
7: Qualcomm Way & Friars Rd EB

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	10	343	0	0	0	0	634	412	123	732	0
Future Volume (veh/h)	70	10	343	0	0	0	0	634	412	123	732	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	86	0	302				0	704	184	137	813	0
Peak Hour Factor	0.90	0.90	0.90				0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	773	0	344				0	3488	858	210	2338	0
Arrive On Green	0.22	0.00	0.22				0.00	0.54	0.54	0.12	1.00	0.00
Sat Flow, veh/h	3563	0	1585				0	6696	1584	3456	3647	0
Grp Volume(v), veh/h	86	0	302				0	704	184	137	813	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1609	1584	1728	1777	0
Q Serve(g_s), s	1.5	0.0	14.7				0.0	4.5	4.8	3.0	0.0	0.0
Cycle Q Clear(g_c), s	1.5	0.0	14.7				0.0	4.5	4.8	3.0	0.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	773	0	344				0	3488	858	210	2338	0
V/C Ratio(X)	0.11	0.00	0.88				0.00	0.20	0.21	0.65	0.35	0.00
Avail Cap(c_a), veh/h	1519	0	676				0	3488	858	436	2338	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	0.82	0.82	0.74	0.74	0.00
Uniform Delay (d), s/veh	25.1	0.0	30.3				0.0	9.4	9.5	34.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	2.9				0.0	0.1	0.5	0.9	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.0	5.5				0.0	1.4	1.6	1.2	0.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.2	0.0	33.2				0.0	9.5	10.0	35.3	0.3	0.0
LnGrp LOS	C	A	C				A	A	A	D	A	A
Approach Vol, veh/h		388						888			950	
Approach Delay, s/veh		31.4						9.6			5.3	
Approach LOS		C						A			A	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	9.3	48.5	22.3	57.7								
Change Period (Y+Rc), s	4.4	5.1	4.9	* 5.1								
Max Green Setting (Gmax), s	10.5	21.4	34.1	* 36								
Max Q Clear Time (g_c+I), s	15.0	6.8	16.7	2.0								
Green Ext Time (p_c), s	0.1	5.3	0.6	4.0								

Intersection Summary

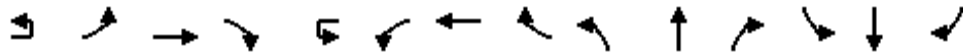
HCM 6th Ctrl Delay	11.6
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖ ↗ ↘ ↙		↖		↖ ↗ ↘ ↙				↖ ↗	↖ ↗		↖ ↗	
Traffic Volume (veh/h)	20	20	2724	160	10	78	1761	28	80	10	152	225	20	90
Future Volume (veh/h)	20	20	2724	160	10	78	1761	28	80	10	152	225	20	90
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	1.00		0.98	0.98		0.98
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No			No			No		No		No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		21	2808	139		80	1815	28	82	10	43	232	21	82
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h		237	2273	703		237	2305	36	415	48	475	294	23	88
Arrive On Green		0.13	0.45	0.45		0.13	0.45	0.45	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h		1781	5106	1580		1781	5178	80	1187	156	1546	811	73	287
Grp Volume(v), veh/h		21	2808	139		80	1193	650	92	0	43	335	0	0
Grp Sat Flow(s),veh/h/ln		1781	1702	1580		1781	1702	1854	1343	0	1546	1171	0	0
Q Serve(g_s), s		1.4	60.1	7.2		5.5	40.4	40.4	0.0	0.0	2.7	31.6	0.0	0.0
Cycle Q Clear(g_c), s		1.4	60.1	7.2		5.5	40.4	40.4	6.8	0.0	2.7	38.4	0.0	0.0
Prop In Lane		1.00		1.00		1.00		0.04	0.89		1.00	0.69		0.24
Lane Grp Cap(c), veh/h		237	2273	703		237	1515	825	463	0	475	404	0	0
V/C Ratio(X)		0.09	1.24	0.20		0.34	0.79	0.79	0.20	0.00	0.09	0.83	0.00	0.00
Avail Cap(c_a), veh/h		237	2273	703		237	1515	825	504	0	522	448	0	0
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		0.77	0.77	0.77	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh		51.3	37.5	22.8		53.1	32.0	32.0	34.7	0.0	33.4	49.0	0.0	0.0
Incr Delay (d2), s/veh		0.1	109.9	0.6		0.2	3.3	5.9	0.2	0.0	0.1	11.7	0.0	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.6	46.7	2.8		2.4	16.5	18.6	2.3	0.0	1.0	12.3	0.0	0.0
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		51.4	147.3	23.4		53.3	35.3	37.9	34.9	0.0	33.4	60.7	0.0	0.0
LnGrp LOS		D	F	C		D	D	D	C	A	C	E	A	A
Approach Vol, veh/h			2968			1923			135		335			
Approach Delay, s/veh			140.9			36.9			34.4		60.7			
Approach LOS			F			D			C		E			
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	22.4	66.3	46.3	22.4	66.3	46.3								
Change Period (Y+Rc), s	4.4	6.2	4.9	4.4	6.2	4.9								
Max Green Setting (Gmax), s	13.8	60.1	45.6	13.8	60.1	45.6								
Max Q Clear Time (g_c+1), s	17.5	62.1	40.4	3.4	42.4	8.8								
Green Ext Time (p_c), s	0.0	0.0	1.1	0.0	16.9	0.6								

Intersection Summary

HCM 6th Ctrl Delay	95.9
HCM 6th LOS	F

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 9: Fenton Pkwy & Friars Rd

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗		↔↔	↑↑↑	↗	↔↔	↑	↗	↔↔	↗	↗
Traffic Volume (veh/h)	150	2432	699	10	280	1295	80	491	56	451	40	22	70
Future Volume (veh/h)	150	2432	699	10	280	1295	80	491	56	451	40	22	70
Initial Q (Qb), veh	15	25	15		0	0	0	0	0	15	15	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	2507	553		289	1335	44	506	58	267	41	23	9
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	253	2105	1122		331	2539	848	809	451	372	132	90	201
Arrive On Green	0.06	0.52	0.52		0.19	1.00	1.00	0.18	0.21	0.21	0.02	0.05	0.05
Sat Flow, veh/h	3456	5106	1585		3456	5106	1565	3456	1870	1581	3563	1870	1557
Grp Volume(v), veh/h	155	2507	553		289	1335	44	506	58	267	41	23	9
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1565	1728	1870	1581	1781	1870	1557
Q Serve(g_s), s	6.0	62.5	9.3		11.0	0.0	0.0	19.1	3.4	21.8	1.5	1.6	0.5
Cycle Q Clear(g_c), s	6.0	62.5	9.3		11.0	0.0	0.0	19.1	3.4	21.8	1.5	1.6	0.5
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	253	2105	1122		331	2539	848	809	451	372	132	90	201
V/C Ratio(X)	0.61	1.19	0.49		0.87	0.53	0.05	0.63	0.13	0.72	0.31	0.26	0.04
Avail Cap(c_a), veh/h	384	2674	1118		333	2859	913	627	545	460	280	470	486
HCM Platoon Ratio	1.00	1.00	1.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09		0.85	0.85	0.85	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.3	40.0	2.8		54.1	3.9	2.5	47.1	40.5	50.2	64.9	62.4	25.9
Incr Delay (d2), s/veh	0.1	86.5	0.1		18.1	0.7	0.1	0.2	0.1	1.1	0.5	6.7	0.4
Initial Q Delay(d3),s/veh	65.6	42.8	2.5		0.0	0.0	0.0	0.0	0.0	41.4	134.6	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	47.4	5.0		5.1	1.4	0.1	7.8	1.6	15.3	4.2	0.9	0.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	127.9	169.2	5.5		72.3	4.5	2.6	47.3	40.5	92.7	200.0	69.1	26.3
LnGrp LOS	F	F	A		E	A	A	D	D	F	F	E	C
Approach Vol, veh/h		3215				1668			831			73	
Approach Delay, s/veh		139.1				16.2			61.4			137.3	
Approach LOS		F				B			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	7.4	77.5	29.6	11.5	12.5	82.4	7.6	33.5					
Change Period (Y+Rc), s	4.4	6.3	4.9	*4.9	4.4	*6.3	4.4	4.9					
Max Green Setting (Gmax), s	13.1	52.6	16.1	*34	15.1	*51	10.7	39.6					
Max Q Clear Time (g_c+1/3), s	13.1	64.5	21.1	3.6	8.0	2.0	3.5	23.8					
Green Ext Time (p_c), s	0.0	0.0	0.0	0.3	0.1	34.5	0.0	3.7					

Intersection Summary

HCM 6th Ctrl Delay	92.5
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 10: Northside Dr & Friars Rd

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↔↔↔	↔	↔↔	↔↔↔	↔	↔↔	↑	↔	↔↔	↑	↔
Traffic Volume (veh/h)	10	160	2388	250	545	1335	225	210	40	811	111	30	100
Future Volume (veh/h)	10	160	2388	250	545	1335	225	210	40	811	111	30	100
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		172	2568	269	586	1435	153	226	43	791	119	32	5
Peak Hour Factor		0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		220	2392	731	409	2672	897	280	407	529	170	347	294
Arrive On Green		0.13	0.94	0.94	0.24	1.00	1.00	0.08	0.22	0.22	0.05	0.19	0.19
Sat Flow, veh/h		3456	5106	1561	3456	5106	1565	3456	1870	1568	3456	1870	1585
Grp Volume(v), veh/h		172	2568	269	586	1435	153	226	43	791	119	32	5
Grp Sat Flow(s),veh/h/ln		1728	1702	1561	1728	1702	1565	1728	1870	1568	1728	1870	1585
Q Serve(g_s), s		6.6	63.7	2.3	16.1	0.0	0.0	8.7	2.5	29.6	4.6	1.9	0.4
Cycle Q Clear(g_c), s		6.6	63.7	2.3	16.1	0.0	0.0	8.7	2.5	29.6	4.6	1.9	0.4
Prop In Lane		1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h		220	2392	731	409	2672	897	280	407	529	170	347	294
V/C Ratio(X)		0.78	1.07	0.37	1.43	0.54	0.17	0.81	0.11	1.50	0.70	0.09	0.02
Avail Cap(c_a), veh/h		307	2392	731	409	2672	897	483	407	529	483	407	345
HCM Platoon Ratio		2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.15	0.15	0.15	0.85	0.85	0.85	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		58.5	4.3	2.3	51.9	0.0	0.0	61.4	42.6	45.2	63.7	45.9	45.2
Incr Delay (d2), s/veh		0.8	34.6	0.2	206.3	0.7	0.4	2.1	0.3	232.9	2.0	0.5	0.1
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.7	9.3	0.6	17.6	0.2	0.1	4.0	1.2	52.1	2.1	1.0	0.1
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		59.3	38.9	2.6	258.2	0.7	0.4	63.6	42.9	278.1	65.6	46.4	45.3
LnGrp LOS		E	F	A	F	A	A	E	D	F	E	D	D
Approach Vol, veh/h			3009			2174			1060			156	
Approach Delay, s/veh			36.8			70.1			222.9			61.0	
Approach LOS			D			E			F			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	20.5	69.9	15.4	30.2	13.0	77.4	11.1	34.5					
Change Period (Y+Rc), s	4.4	* 6.2	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	10.0	* 52	19.0	29.6	12.1	55.4	19.0	29.6					
Max Q Clear Time (g_c+11g), s	11.0	65.7	10.7	3.9	8.6	2.0	6.6	31.6					
Green Ext Time (p_c), s	0.0	0.0	0.3	0.4	0.1	35.5	0.1	0.0					

Intersection Summary

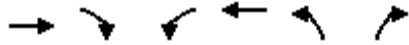
HCM 6th Ctrl Delay	79.5
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 11: Stadium Way (Street A) & Friars Rd

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑↑	↑↑↑	↑↑	↑↑
Traffic Volume (veh/h)	3095	185	147	1857	257	555
Future Volume (veh/h)	3095	185	147	1857	257	555
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		0.98	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	3258	144	155	1955	271	584
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	3454	1048	432	4280	305	595
Arrive On Green	1.00	1.00	0.13	0.84	0.09	0.09
Sat Flow, veh/h	5274	1549	3456	5274	3456	2790
Grp Volume(v), veh/h	3258	144	155	1955	271	584
Grp Sat Flow(s),veh/h/ln	1702	1549	1728	1702	1728	1395
Q Serve(g_s), s	0.0	0.0	5.6	13.6	10.6	11.3
Cycle Q Clear(g_c), s	0.0	0.0	5.6	13.6	10.6	11.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3454	1048	432	4280	305	595
V/C Ratio(X)	0.94	0.14	0.36	0.46	0.89	0.98
Avail Cap(c_a), veh/h	3454	1048	432	4280	305	595
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	54.5	2.9	61.3	53.2
Incr Delay (d2), s/veh	0.8	0.0	0.5	0.4	25.7	32.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	2.4	2.8	5.8	6.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.8	0.0	55.0	3.2	87.1	85.4
LnGrp LOS	A	A	E	A	F	F
Approach Vol, veh/h	3402			2110	855	
Approach Delay, s/veh	0.7			7.0	85.9	
Approach LOS	A			A	F	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	22.0	97.0		119.0	17.0	
Change Period (Y+Rc), s	5.0	5.0		5.0	5.0	
Max Green Setting (Gmax), s	92.0			114.0	12.0	
Max Q Clear Time (g_c+1), s	6.0	2.0		15.6	13.3	
Green Ext Time (p_c), s	0.3	76.4		27.3	0.0	
Intersection Summary						
HCM 6th Ctrl Delay			14.3			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary
 12: Mission Village Dr & Friars Rd WB

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↖	↖	↖↖	↖↖			↖↖	↖
Traffic Volume (veh/h)	0	0	0	569	0	364	361	731	0	0	1511	563
Future Volume (veh/h)	0	0	0	569	0	364	361	731	0	0	1511	563
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No		No		No				No
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				593	0	184	376	761	0	0	1574	485
Peak Hour Factor				0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				656	0	291	691	2640	0	0	1751	769
Arrive On Green				0.37	0.00	0.37	0.40	1.00	0.00	0.00	0.49	0.49
Sat Flow, veh/h				3563	0	1577	3456	3647	0	0	3647	1561
Grp Volume(v), veh/h				593	0	184	376	761	0	0	1574	485
Grp Sat Flow(s),veh/h/ln				1781	0	1577	1728	1777	0	0	1777	1561
Q Serve(g_s), s				22.1	0.0	13.5	11.7	0.0	0.0	0.0	56.5	32.0
Cycle Q Clear(g_c), s				22.1	0.0	13.5	11.7	0.0	0.0	0.0	56.5	32.0
Prop In Lane				1.00		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				656	0	291	691	2640	0	0	1751	769
V/C Ratio(X)				0.90	0.00	0.63	0.54	0.29	0.00	0.00	0.90	0.63
Avail Cap(c_a), veh/h				893	0	395	691	2640	0	0	1751	769
HCM Platoon Ratio				2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.95	0.95	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				43.0	0.0	40.3	37.1	0.0	0.0	0.0	32.3	26.1
Incr Delay (d2), s/veh				8.2	0.0	0.9	0.5	0.3	0.0	0.0	7.8	3.9
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				8.5	0.0	4.5	4.3	0.1	0.0	0.0	24.7	12.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				51.3	0.0	41.2	37.6	0.3	0.0	0.0	40.1	30.0
LnGrp LOS				D	A	D	D	A	A	A	D	C
Approach Vol, veh/h					777			1137			2059	
Approach Delay, s/veh					48.9			12.6			37.7	
Approach LOS					D			B			D	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		109.3			33.3	76.0		30.7				
Change Period (Y+Rc), s		5.3			5.3	7.0		4.9				
Max Green Setting (Gmax), s		94.7			18.7	69.0		35.1				
Max Q Clear Time (g_c+I1), s		2.0			13.7	58.5		24.1				
Green Ext Time (p_c), s		3.3			0.4	8.9		1.2				

Intersection Summary

HCM 6th Ctrl Delay	32.7
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

HCM Signalized Intersection Capacity Analysis
 13: Mission Village Dr/Street D & Friars Rd EB

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗↘					↕↕↕	↗↘	↗↘	↕↕	
Traffic Volume (vph)	339	10	458	0	0	0	0	775	982	518	1572	0
Future Volume (vph)	339	10	458	0	0	0	0	775	982	518	1572	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.2	5.2					4.9	4.9	6.2	6.2	
Lane Util. Factor		1.00	0.88					0.91	0.88	0.97	0.95	
Frbp, ped/bikes		1.00	0.99					1.00	0.96	1.00	1.00	
Flpb, ped/bikes		1.00	1.00					1.00	1.00	1.00	1.00	
Frt		1.00	0.85					1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1777	2747					5085	2680	3433	3539	
Flt Permitted		0.95	1.00					1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1777	2747					5085	2680	3433	3539	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	357	11	482	0	0	0	0	816	1034	545	1655	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	368	482	0	0	0	0	816	1034	545	1655	0
Confl. Peds. (#/hr)			1						4			4
Confl. Bikes (#/hr)			1									
Turn Type	Split	NA	Perm					NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4						2			
Actuated Green, G (s)		34.0	34.0					66.0	66.0	23.7	94.6	
Effective Green, g (s)		34.0	34.0					66.0	66.0	23.7	94.6	
Actuated g/C Ratio		0.24	0.24					0.47	0.47	0.17	0.68	
Clearance Time (s)		5.2	5.2					4.9	4.9	6.2	6.2	
Vehicle Extension (s)		3.0	3.0					3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		431	667					2397	1263	581	2391	
v/s Ratio Prot		c0.21						0.16		c0.16	0.47	
v/s Ratio Perm			0.18						c0.39			
v/c Ratio		0.85	0.72					0.34	0.82	0.94	0.69	
Uniform Delay, d1		50.6	48.7					23.3	31.8	57.4	13.8	
Progression Factor		1.00	1.00					0.34	0.43	1.20	0.22	
Incremental Delay, d2		15.1	3.9					0.1	1.6	15.8	1.0	
Delay (s)		65.7	52.5					8.1	15.4	85.0	4.1	
Level of Service		E	D					A	B	F	A	
Approach Delay (s)		58.2			0.0			12.2			24.1	
Approach LOS		E			A			B			C	

Intersection Summary			
HCM 2000 Control Delay	25.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.3
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 6th Signalized Intersection Summary
14: Street D & Street 4

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour

































Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↑	↗↖	↖	↑↑↑		↖↗	↑↑	↖
Traffic Volume (veh/h)	44	4	4	76	8	200	8	1521	193	927	1037	66
Future Volume (veh/h)	44	4	4	76	8	200	8	1521	193	927	1037	66
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.93	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	4	0	80	8	211	8	1601	191	976	1092	47
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	59	116	0	64	121	1389	14	1482	176	1513	2671	1158
Arrive On Green	0.03	0.06	0.00	0.04	0.06	0.06	0.01	0.32	0.32	0.88	1.00	1.00
Sat Flow, veh/h	1781	1870	0	1781	1870	2603	1781	4611	549	3456	3554	1541
Grp Volume(v), veh/h	46	4	0	80	8	211	8	1181	611	976	1092	47
Grp Sat Flow(s),veh/h/ln	1781	1870	0	1781	1870	1301	1781	1702	1756	1728	1777	1541
Q Serve(g_s), s	3.6	0.3	0.0	5.0	0.6	6.1	0.6	45.0	45.0	11.3	0.0	0.0
Cycle Q Clear(g_c), s	3.6	0.3	0.0	5.0	0.6	6.1	0.6	45.0	45.0	11.3	0.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h	59	116	0	64	121	1389	14	1094	564	1513	2671	1158
V/C Ratio(X)	0.77	0.03	0.00	1.26	0.07	0.15	0.59	1.08	1.08	0.65	0.41	0.04
Avail Cap(c_a), veh/h	115	468	0	64	414	1798	89	1094	564	1513	2671	1158
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.65	0.65	0.65
Uniform Delay (d), s/veh	67.1	61.7	0.0	67.5	61.5	18.9	69.2	47.5	47.5	5.6	0.0	0.0
Incr Delay (d2), s/veh	18.9	0.1	0.0	197.1	0.2	0.1	34.4	51.2	62.2	0.6	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.1	0.0	5.8	0.3	1.9	0.4	26.7	29.3	2.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	86.1	61.8	0.0	264.6	61.7	18.9	103.6	98.7	109.7	6.2	0.1	0.0
LnGrp LOS	F	E	A	F	E	B	F	F	F	A	A	A
Approach Vol, veh/h		50			299			1800			2115	
Approach Delay, s/veh		84.1			85.8			102.5			2.9	
Approach LOS		F			F			F			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	66.3	50.0	10.0	13.7	6.1	110.2	9.7	14.0				
Change Period (Y+Rc), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Max Green Setting (Gmax), s	35.0	45.0	5.0	35.0	7.0	73.0	9.0	31.0				
Max Q Clear Time (g_c+1/3), s	11.3	47.0	7.0	2.3	2.6	2.0	5.6	8.1				
Green Ext Time (p_c), s	4.0	0.0	0.0	0.0	0.0	11.3	0.0	0.9				

Intersection Summary

HCM 6th Ctrl Delay	51.7
HCM 6th LOS	D

HCM Signalized Intersection Capacity Analysis
15: Street F & Street 4

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 			 	 		 	 		 	 	  
Traffic Volume (vph)	1038	21	4	5	8	21	8	222	4	82	356	247
Future Volume (vph)	1038	21	4	5	8	21	8	222	4	82	356	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	2.1	4.5
Lane Util. Factor	0.97	1.00		1.00	1.00		1.00	1.00		1.00	1.00	0.88
Frbp, ped/bikes	1.00	0.99		1.00	0.98		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.89		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1807		1770	1622		1770	1856		1770	1863	2787
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	3433	1807		1770	1622		1770	1856		1770	1863	2787
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1128	23	4	5	9	23	9	241	4	89	387	268
RTOR Reduction (vph)	0	2	0	0	20	0	0	1	0	0	0	0
Lane Group Flow (vph)	1128	25	0	5	12	0	9	244	0	89	387	268
Confl. Peds. (#/hr)			10			10			10			
Confl. Bikes (#/hr)			3			3			3			3
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	7	4		3	8		5	2		1	6 9	7 9
Permitted Phases												
Actuated Green, G (s)	69.6	84.1		1.0	15.5		1.0	26.6		10.3	35.9	82.4
Effective Green, g (s)	69.6	84.1		1.0	15.5		1.0	26.6		10.3	35.9	82.4
Actuated g/C Ratio	0.50	0.60		0.01	0.11		0.01	0.19		0.07	0.26	0.59
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0		
Lane Grp Cap (vph)	1706	1085		12	179		12	352		130	477	1640
v/s Ratio Prot	c0.33	0.01		0.00	c0.01		0.01	0.13		c0.05	c0.21	0.10
v/s Ratio Perm												
v/c Ratio	0.66	0.02		0.42	0.06		0.75	0.69		0.68	0.81	0.16
Uniform Delay, d1	26.4	11.3		69.2	55.8		69.4	52.9		63.3	48.9	13.1
Progression Factor	0.46	0.35		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.6	0.0		21.8	0.2		128.3	5.8		13.9	9.6	0.0
Delay (s)	13.7	4.0		91.0	55.9		197.6	58.7		77.2	58.5	13.2
Level of Service	B	A		F	E		F	E		E	E	B
Approach Delay (s)		13.4			60.6			63.6			44.4	
Approach LOS		B			E			E			D	
Intersection Summary												
HCM 2000 Control Delay			30.6									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			140.0									Sum of lost time (s) 20.1
Intersection Capacity Utilization			70.0%									ICU Level of Service C
Analysis Period (min)			15									
c Critical Lane Group												

Intersection					
Intersection Delay, s/veh	8.0				
Intersection LOS	A				
Approach	EB		WB		NB
Entry Lanes	2		2		1
Conflicting Circle Lanes	2		2		2
Adj Approach Flow, veh/h	1393		693		149
Demand Flow Rate, veh/h	1421		707		152
Vehicles Circulating, veh/h	52		104		1321
Vehicles Exiting, veh/h	759		1369		152
Ped Vol Crossing Leg, #/h	0		0		0
Ped Cap Adj	1.000		1.000		1.000
Approach Delay, s/veh	8.6		5.4		13.4
Approach LOS	A		A		B
Lane	Left	Right	Left	Right	Left
Designated Moves	LT	TR	LT	TR	LR
Assumed Moves	LT	TR	LT	TR	LR
RT Channelized					
Lane Util	0.470	0.530	0.470	0.530	1.000
Follow-Up Headway, s	2.667	2.535	2.667	2.535	2.535
Critical Headway, s	4.645	4.328	4.645	4.328	4.328
Entry Flow, veh/h	668	753	332	375	152
Cap Entry Lane, veh/h	1287	1359	1227	1300	462
Entry HV Adj Factor	0.980	0.981	0.981	0.980	0.980
Flow Entry, veh/h	655	738	326	367	149
Cap Entry, veh/h	1261	1332	1204	1274	453
V/C Ratio	0.519	0.554	0.271	0.288	0.329
Control Delay, s/veh	8.5	8.8	5.5	5.4	13.4
LOS	A	A	A	A	B
95th %tile Queue, veh	3	4	1	1	1

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	498	2765	925	10	309	1504	390	0	0	0	1185	0	639
Future Volume (veh/h)	498	2765	925	10	309	1504	390	0	0	0	1185	0	639
Initial Q (Qb), veh	20	0	20		20	0	20				0	0	20
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	519	2880	737		322	1567	0				1234	0	662
Peak Hour Factor	0.96	0.96	0.96		0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	664	3446	717		393	1246					1153	0	2118
Arrive On Green	0.33	0.40	0.40		0.19	0.24	0.00				0.32	0.00	0.32
Sat Flow, veh/h	1781	5106	1552		1781	5106	1585				3563	0	3170
Grp Volume(v), veh/h	519	2880	737		322	1567	0				1234	0	662
Grp Sat Flow(s),veh/h/ln	1781	1702	1552		1781	1702	1585				1781	0	1585
Q Serve(g_s), s	37.4	54.6	54.6		24.2	33.2	0.0				44.0	0.0	0.0
Cycle Q Clear(g_c), s	37.4	54.6	54.6		24.2	33.2	0.0				44.0	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	664	3446	717		393	1246					1153	0	2118
V/C Ratio(X)	0.78	0.84	1.03		0.82	1.26					1.07	0.00	0.31
Avail Cap(c_a), veh/h	589	2050	623		393	1246					1153	0	2074
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.46	0.46	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	40.3	19.5	36.6		53.0	51.4	0.0				46.0	0.0	10.1
Incr Delay (d2), s/veh	7.1	2.6	41.1		6.0	118.9	0.0				47.6	0.0	0.0
Initial Q Delay(d3),s/veh	30.0	0.0	100.5		102.0	0.0	0.0				0.0	0.0	0.9
%ile BackOfQ(50%),veh	22.8	10.9	45.7		24.8	27.4	0.0				27.1	0.0	13.9
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	77.4	22.1	178.2		161.0	170.3	0.0				93.6	0.0	11.0
LnGrp LOS	E	C	F		F	F					F	A	B
Approach Vol, veh/h		4136				1889	A					1896	
Approach Delay, s/veh		56.8				168.7						64.8	
Approach LOS		E				F						E	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	30.6	61.6		49.1	52.0	40.2							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	30	45.7		44.0	42.0	* 33							
Max Q Clear Time (g_c+20), s	20.2	56.6		46.0	39.4	35.2							
Green Ext Time (p_c), s	0.2	0.0		0.0	0.3	0.0							

Intersection Summary

HCM 6th Ctrl Delay	85.4
HCM 6th LOS	F

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖			↑↑↑		↗						
Traffic Volume (veh/h)	1055	2955	0	0	1328	961	0	0	1429	0	0	845
Future Volume (veh/h)	1055	2955	0	0	1328	961	0	0	1429	0	0	845
Initial Q (Qb), veh	40	0	0	0	20	40						
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00						
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00						
Work Zone On Approach	No			No								
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870						
Adj Flow Rate, veh/h	1111	3111	0	0	1342	1050						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95						
Percent Heavy Veh, %	2	2	0	0	2	2						
Cap, veh/h	660	0	0	0	1692	1469						
Arrive On Green	0.44	0.93	0.00	0.00	0.44	0.44						
Sat Flow, veh/h	1781	0	0	0	3741	3170						
Grp Volume(v), veh/h	1111	0	0	0	1342	1050						
Grp Sat Flow(s),veh/h/ln	1781	0	0	0	1870	1585						
Q Serve(g_s), s	45.0	0.0	0.0	0.0	32.2	28.5						
Cycle Q Clear(g_c), s	45.0	0.0	0.0	0.0	32.2	28.5						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	660	0	0	0	1692	1469						
V/C Ratio(X)	1.68	0.00	0.00	0.00	0.79	0.71						
Avail Cap(c_a), veh/h	779	0	0	0	2326	1971						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	1.00	0.00	0.00	0.00	1.00	1.00						
Uniform Delay (d), s/veh	38.3	0.0	0.0	0.0	25.5	25.2						
Incr Delay (d2), s/veh	314.4	0.0	0.0	0.0	0.9	0.4						
Initial Q Delay(d3),s/veh	218.3	0.0	0.0	0.0	4.9	18.7						
%ile BackOfQ(50%),veh/ln	116.1	0.0	0.0	0.0	16.0	16.8						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	570.9	0.0	0.0	0.0	31.3	44.4						
LnGrp LOS	F	A	A	A	C	D						
Approach Vol, veh/h	1111				2392							
Approach Delay, s/veh	570.9				37.0							
Approach LOS	F				D							
Timer - Assigned Phs	2				5		6					
Phs Duration (G+Y+Rc), s	102.9				50.5		52.4					
Change Period (Y+Rc), s	* 7				5.5		7.0					
Max Green Setting (Gmax), s	* 18				45.0		64.0					
Max Q Clear Time (g_c+I1), s	0.0				47.0		34.2					
Green Ext Time (p_c), s	0.0				0.0		11.3					

Intersection Summary

HCM 6th Ctrl Delay	206.3
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↵	↑↑↑	↵↵	↑
Traffic Volume (veh/h)	3517	878	10	81	1796	483	164
Future Volume (veh/h)	3517	878	10	81	1796	483	164
Initial Q (Qb), veh	0	0		0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	3664	813		84	1871	503	40
Peak Hour Factor	0.96	0.96		0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	3014	1309		105	4876	600	299
Arrive On Green	0.67	0.67		0.06	0.76	0.16	0.16
Sat Flow, veh/h	5274	1583		1781	6696	3563	1585
Grp Volume(v), veh/h	3664	813		84	1871	503	40
Grp Sat Flow(s),veh/h/ln	1702	1583		1781	1609	1781	1585
Q Serve(g_s), s	90.8	24.9		6.3	13.4	18.8	3.0
Cycle Q Clear(g_c), s	90.8	24.9		6.3	13.4	18.8	3.0
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3014	1309		105	4876	600	299
V/C Ratio(X)	1.22	0.62		0.80	0.38	0.84	0.13
Avail Cap(c_a), veh/h	3409	1309		208	4884	843	375
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.88	0.88	0.56	0.56
Uniform Delay (d), s/veh	27.9	4.2		63.2	5.8	55.5	46.0
Incr Delay (d2), s/veh	100.3	2.2		4.6	0.2	2.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	12.3	0.0
%ile BackOfQ(50%),veh/ln	57.2	17.7		3.0	4.1	10.3	1.1
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	128.2	6.4		67.8	6.1	70.0	46.1
LnGrp LOS	F	A		E	A	E	D
Approach Vol, veh/h	4477			1955	543		
Approach Delay, s/veh	106.1			8.7	68.2		
Approach LOS	F			A	E		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	12.4	96.8			109.2	26.8	
Change Period (Y+Rc), s	4.4	* 6			6.0	5.1	
Max Green Setting (Gmax), s	15.9	* 73			92.7	32.2	
Max Q Clear Time (g_c+1), s	19.3	92.8			15.4	20.8	
Green Ext Time (p_c), s	0.0	0.0			50.3	0.9	

Intersection Summary

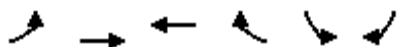
HCM 6th Ctrl Delay	75.8
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
20: Friars Rd & Santo Rd

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔↔	↑↑↑	↑↑↑		↔↔	↔
Traffic Volume (veh/h)	453	3308	1536	110	90	291
Future Volume (veh/h)	453	3308	1536	110	90	291
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1856	1856	1870	1870
Adj Flow Rate, veh/h	472	3446	1600	109	94	297
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	3	3	2	2
Cap, veh/h	537	3752	3338	227	602	523
Arrive On Green	0.16	0.73	0.54	0.54	0.17	0.17
Sat Flow, veh/h	3456	5274	6409	419	3456	1585
Grp Volume(v), veh/h	472	3446	1246	463	94	297
Grp Sat Flow(s),veh/h/ln	1728	1702	1596	1780	1728	1585
Q Serve(g_s), s	16.0	66.0	19.3	19.3	2.8	18.5
Cycle Q Clear(g_c), s	16.0	66.0	19.3	19.3	2.8	18.5
Prop In Lane	1.00			0.24	1.00	1.00
Lane Grp Cap(c), veh/h	537	3752	2599	966	602	523
V/C Ratio(X)	0.88	0.92	0.48	0.48	0.16	0.57
Avail Cap(c_a), veh/h	737	3752	2599	966	734	583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.72	0.72	1.00	1.00
Uniform Delay (d), s/veh	49.6	13.0	16.9	17.0	42.0	33.2
Incr Delay (d2), s/veh	0.7	0.5	0.5	1.2	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	18.9	6.7	7.7	1.2	16.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.3	13.5	17.4	18.2	42.1	33.6
LnGrp LOS	D	B	B	B	D	C
Approach Vol, veh/h		3918	1709		391	
Approach Delay, s/veh		17.9	17.6		35.7	
Approach LOS		B	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		94.7		25.3	23.0	71.6
Change Period (Y+Rc), s		6.5		4.4	4.4	* 6.5
Max Green Setting (Gmax), s		83.6		25.5	25.6	* 54
Max Q Clear Time (g_c+I1), s		68.0		20.5	18.0	21.3
Green Ext Time (p_c), s		15.3		0.4	0.6	16.6

Intersection Summary

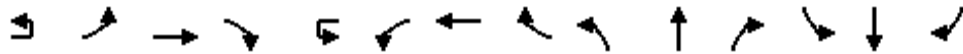
HCM 6th Ctrl Delay	19.0
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 21: Riverdale St & Friars Rd

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		🚗 🚗 🚗	🚗 🚗 🚗	🚗		🚗 🚗 🚗	🚗	🚗	🚗	🚗	🚗	🚗	🚗	🚗	
Traffic Volume (veh/h)	30	234	2909	244	10	50	1211	60	223	110	140	60	60	143	
Future Volume (veh/h)	30	234	2909	244	10	50	1211	60	223	110	140	60	60	143	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		1.00	0.99		0.99	1.00		0.99	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1856		1737	1856	1870	1870	1870	1870	1811	1870	1870	
Adj Flow Rate, veh/h		241	2999	159		52	1248	25	230	113	92	62	62	51	
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %		2	2	3		11	3	2	2	2	2	6	2	2	
Cap, veh/h		272	2832	870		65	2236	700	335	248	202	252	247	203	
Arrive On Green		0.15	0.55	0.55		0.04	0.44	0.44	0.26	0.26	0.26	0.26	0.26	0.26	
Sat Flow, veh/h		1781	5106	1568		1654	5066	1585	1273	951	774	1135	946	778	
Grp Volume(v), veh/h		241	2999	159		52	1248	25	230	0	205	62	0	113	
Grp Sat Flow(s),veh/h/ln		1781	1702	1568		1654	1689	1585	1273	0	1725	1135	0	1724	
Q Serve(g_s), s		13.9	58.2	5.3		3.3	19.2	0.9	18.3	0.0	10.5	5.1	0.0	5.4	
Cycle Q Clear(g_c), s		13.9	58.2	5.3		3.3	19.2	0.9	23.7	0.0	10.5	15.5	0.0	5.4	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		0.45	1.00		0.45	
Lane Grp Cap(c), veh/h		272	2832	870		65	2236	700	335	0	451	252	0	450	
V/C Ratio(X)		0.89	1.06	0.18		0.80	0.56	0.04	0.69	0.00	0.45	0.25	0.00	0.25	
Avail Cap(c_a), veh/h		324	2832	870		206	2236	700	455	0	613	359	0	612	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)		0.51	0.51	0.51		0.92	0.92	0.92	1.00	0.00	1.00	1.00	0.00	1.00	
Uniform Delay (d), s/veh		43.6	23.4	11.6		50.0	21.7	16.6	40.0	0.0	32.5	39.0	0.0	30.7	
Incr Delay (d2), s/veh		11.4	31.5	0.2		7.5	0.9	0.1	1.1	0.0	0.3	0.2	0.0	0.1	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		6.8	28.2	1.7		1.4	7.2	0.3	5.8	0.0	4.4	1.4	0.0	2.3	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		55.0	54.9	11.8		57.5	22.7	16.7	41.1	0.0	32.8	39.2	0.0	30.8	
LnGrp LOS		E	F	B		E	C	B	D	A	C	D	A	C	
Approach Vol, veh/h		3399				1325				435				175	
Approach Delay, s/veh		52.9				23.9				37.2				33.8	
Approach LOS		D				C				D				C	
Timer - Assigned Phs	1	2	4		5	6	8								
Phs Duration (G+Y+Rc), s	8.5	64.1	32.3		20.4	52.2	32.3								
Change Period (Y+Rc), s	4.4	* 5.9	4.9		4.4	5.9	4.9								
Max Green Setting (Gmax), s	13.5	* 40	37.3		19.1	33.4	37.3								
Max Q Clear Time (g_c+1/3), s	15.3	60.2	17.5		15.9	21.2	25.7								
Green Ext Time (p_c), s	0.0	0.0	0.5		0.1	6.3	1.0								

Intersection Summary

HCM 6th Ctrl Delay	43.8
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 22: Mission Gorge Rd & Friars Rd

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBU	NBL	NBR
Lane Configurations	↑↑↑		↖↗	↑↑↑		↘↙	↑↑
Traffic Volume (veh/h)	2611	288	280	1021	10	360	600
Future Volume (veh/h)	2611	288	280	1021	10	360	600
Initial Q (Qb), veh	0	0	0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00			1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00		1.00	1.00
Work Zone On Approach	No			No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		1870	1870
Adj Flow Rate, veh/h	2778	0	298	1086		383	637
Peak Hour Factor	0.94	0.94	0.94	0.94		0.94	0.94
Percent Heavy Veh, %	2	2	2	2		2	2
Cap, veh/h	2621		463	0		412	1018
Arrive On Green	0.51	0.00	0.13	0.00		0.23	0.23
Sat Flow, veh/h	5443	0	3456	298		1781	2790
Grp Volume(v), veh/h	2778	0	298	51.6		383	637
Grp Sat Flow(s),veh/h/ln	1702	0	1728	D		1781	1395
Q Serve(g_s), s	61.6	0.0	9.8			25.3	6.5
Cycle Q Clear(g_c), s	61.6	0.0	9.8			25.3	6.5
Prop In Lane		0.00	1.00			1.00	1.00
Lane Grp Cap(c), veh/h	2621		463			412	1018
V/C Ratio(X)	1.06		0.64			0.93	0.63
Avail Cap(c_a), veh/h	2621		463			425	1039
HCM Platoon Ratio	1.00	1.00	1.00			1.00	1.00
Upstream Filter(I)	0.09	0.00	1.00			1.00	1.00
Uniform Delay (d), s/veh	29.2	0.0	49.3			45.2	31.4
Incr Delay (d2), s/veh	28.0	0.0	2.4			26.2	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0			0.0	0.0
%ile BackOfQ(50%),veh	29.5	0.0	4.3			14.1	7.6
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	57.2	0.0	51.6			71.3	32.2
LnGrp LOS	F		D			E	C
Approach Vol, veh/h	2778	A				1020	
Approach Delay, s/veh	57.2					46.9	
Approach LOS	E					D	
Timer - Assigned Phs	1	2					8
Phs Duration (G+Y+Rc), s	30.5	67.4					32.1
Change Period (Y+Rc), s	4.4	5.8					4.4
Max Green Setting (Gmax), s	15.2	61.6					28.6
Max Q Clear Time (g_c+I1), s	11.8	63.6					27.3
Green Ext Time (p_c), s	0.2	0.0					0.5

Intersection Summary

HCM 6th Ctrl Delay	54.2
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 23: Qualcomm Way & Rio San Diego Dr

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations	↔↔	↑	↗		↔↔	↑↑	↗	↔↔	↑↑↑	↗		↔↔	↑↑↑	
Traffic Volume (veh/h)	316	324	259	20	789	395	340	26	251	151	10	70	784	340
Future Volume (veh/h)	316	324	259	20	789	395	340	26	251	151	10	70	784	340
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		0.99	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	333	341	248		831	416	183	27	264	13		74	825	320
Peak Hour Factor	0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2		2	2	2
Cap, veh/h	400	407	370		876	1263	561	69	1687	522		123	1248	481
Arrive On Green	0.12	0.22	0.22		0.25	0.36	0.36	0.02	0.33	0.33		0.04	0.35	0.35
Sat Flow, veh/h	3456	1870	1556		3456	3554	1577	3456	5106	1579		3456	3607	1390
Grp Volume(v), veh/h	333	341	248		831	416	183	27	264	13		74	778	367
Grp Sat Flow(s),veh/h/ln	1728	1870	1556		1728	1777	1577	1728	1702	1579		1728	1702	1593
Q Serve(g_s), s	11.1	20.6	17.0		27.9	10.1	10.0	0.9	4.3	0.7		2.5	22.9	23.1
Cycle Q Clear(g_c), s	11.1	20.6	17.0		27.9	10.1	10.0	0.9	4.3	0.7		2.5	22.9	23.1
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00		1.00		0.87
Lane Grp Cap(c), veh/h	400	407	370		876	1263	561	69	1687	522		123	1177	551
V/C Ratio(X)	0.83	0.84	0.67		0.95	0.33	0.33	0.39	0.16	0.02		0.60	0.66	0.67
Avail Cap(c_a), veh/h	879	635	560		879	1263	561	1759	2598	804		879	1732	811
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	51.0	44.1	40.8		43.2	27.7	27.7	57.1	27.9	26.7		56.0	32.7	32.8
Incr Delay (d2), s/veh	1.7	5.8	2.1		18.7	0.2	0.3	1.3	0.1	0.0		1.8	1.1	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	9.9	6.6		13.8	4.2	3.7	0.4	1.8	0.2		1.1	9.4	9.1
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	52.7	49.9	42.9		62.0	27.9	28.0	58.4	27.9	26.7		57.8	33.8	35.1
LnGrp LOS	D	D	D		E	C	C	E	C	C		E	C	D
Approach Vol, veh/h		922				1430			304				1219	
Approach Delay, s/veh		49.0				47.7			30.6				35.7	
Approach LOS		D				D			C				D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8						
Phs Duration (G+Y+Rc), s	8.6	44.0	34.3	31.0	6.7	45.9	18.1	47.2						
Change Period (Y+Rc), s	4.4	5.1	4.4	5.3	4.4	* 5.1	4.4	5.3						
Max Green Setting (Gmax), s	30.0	60.0	30.0	40.0	60.0	* 60	30.0	40.0						
Max Q Clear Time (g_c+1), s	14.5	6.3	29.9	22.6	2.9	25.1	13.1	12.1						
Green Ext Time (p_c), s	0.1	2.8	0.0	2.6	0.0	15.7	0.5	3.3						

Intersection Summary

HCM 6th Ctrl Delay	42.9
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection														
Intersection Delay, s/veh	45.9													
Intersection LOS	E													

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↖	↕		↖	↕			↕				↕	
Traffic Vol, veh/h	20	170	694	20	15	524	60	20	22	20	20	130	28	110
Future Vol, veh/h	20	170	694	20	15	524	60	20	22	20	20	130	28	110
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	22	189	771	22	17	582	67	22	24	22	22	144	31	122
Number of Lanes	0	1	2	0	1	2	0	0	1	0	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	60.3	33.3	14.7	33.9
HCM LOS	F	D	B	D

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	32%	100%	0%	0%	100%	0%	0%	49%
Vol Thru, %	35%	0%	100%	92%	0%	100%	74%	10%
Vol Right, %	32%	0%	0%	8%	0%	0%	26%	41%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	62	190	463	251	15	349	235	288
LT Vol	20	190	0	0	15	0	0	140
Through Vol	22	0	463	231	0	349	175	30
RT Vol	20	0	0	20	0	0	60	118
Lane Flow Rate	69	211	514	279	17	388	261	320
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.181	0.483	1.101	0.593	0.039	0.853	0.56	0.755
Departure Headway (Hd)	9.799	8.228	7.708	7.65	8.71	8.19	8.004	8.757
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	369	441	473	475	414	446	454	416
Service Time	7.499	5.928	5.408	5.35	6.41	5.89	5.704	6.457
HCM Lane V/C Ratio	0.187	0.478	1.087	0.587	0.041	0.87	0.575	0.769
HCM Control Delay	14.7	18.4	99	20.9	11.8	42.9	20.4	33.9
HCM Lane LOS	B	C	F	C	B	E	C	D
HCM 95th-tile Q	0.7	2.6	17.1	3.8	0.1	8.5	3.4	6.2

HCM 6th Signalized Intersection Summary

Horizon Year Plus Project w/2-Ln Bridge

25: Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations														
Traffic Volume (veh/h)	10	171	280	264	20	320	230	199	415	55	30	328	593	71
Future Volume (veh/h)	10	171	280	264	20	320	230	199	415	55	30	328	593	71
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0		0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		0.98	1.00		0.98		1.00		1.00
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach			No		No		No		No			No		No
Adj Sat Flow, veh/h/ln		1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h		176	289	96	21	330	171	205	428	51		338	611	68
Peak Hour Factor		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97		0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h		337	353	292	27	422	231	235	1057	125		407	1021	113
Arrive On Green		0.19	0.19	0.19	0.19	0.19	0.19	0.13	0.33	0.33		0.12	0.32	0.32
Sat Flow, veh/h		1781	1870	1547	136	2172	1188	1781	3194	378		3456	3223	358
Grp Volume(v), veh/h		176	289	96	287	0	235	205	237	242		338	336	343
Grp Sat Flow(s),veh/h/ln		1781	1870	1547	1864	0	1632	1781	1777	1795		1728	1777	1804
Q Serve(g_s), s		10.5	17.6	6.4	17.4	0.0	16.0	13.4	12.2	12.3		11.3	18.9	19.0
Cycle Q Clear(g_c), s		10.5	17.6	6.4	17.4	0.0	16.0	13.4	12.2	12.3		11.3	18.9	19.0
Prop In Lane		1.00		1.00	0.07		0.73	1.00		0.21		1.00		0.20
Lane Grp Cap(c), veh/h		337	353	292	362	0	317	235	588	594		407	563	571
V/C Ratio(X)		0.52	0.82	0.33	0.79	0.00	0.74	0.87	0.40	0.41		0.83	0.60	0.60
Avail Cap(c_a), veh/h		602	632	523	629	0	551	451	900	910		875	900	914
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh		43.2	46.1	41.5	45.4	0.0	44.9	50.4	30.6	30.6		51.1	34.1	34.1
Incr Delay (d2), s/veh		0.8	2.9	0.4	1.5	0.0	1.3	4.0	2.1	2.1		1.7	4.6	4.6
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		4.6	8.3	2.5	8.2	0.0	6.7	6.3	5.6	5.8		5.0	8.9	9.1
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		44.0	49.0	41.9	46.9	0.0	46.2	54.4	32.6	32.7		52.8	38.7	38.7
LnGrp LOS		D	D	D	D	A	D	D	C	C		D	D	D
Approach Vol, veh/h			561			522			684				1017	
Approach Delay, s/veh			46.2			46.6			39.2				43.4	
Approach LOS			D			D			D				D	
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	18.3	44.6	27.6	20.0	42.9	27.9								
Change Period (Y+Rc), s	4.4	* 5.4	5.2	4.4	5.4	4.9								
Max Green Setting (Gmax), s	30.0	* 60	40.0	30.0	60.0	40.0								
Max Q Clear Time (g_c+1/3), s	11.3	14.3	19.6	15.4	21.0	19.4								
Green Ext Time (p_c), s	0.6	11.6	1.6	0.3	16.5	2.2								

Intersection Summary

HCM 6th Ctrl Delay	43.5
HCM 6th LOS	D

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 26: Rancho Mission Rd & San Diego Mission Rd

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	226	583	425	158	254	233	133	194	172	238	216	341
Future Volume (veh/h)	226	583	425	158	254	233	133	194	172	238	216	341
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	238	614	384	166	267	160	140	204	19	251	227	171
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	275	797	499	201	740	429	173	277	228	287	397	329
Arrive On Green	0.15	0.38	0.38	0.11	0.34	0.34	0.10	0.15	0.15	0.16	0.21	0.21
Sat Flow, veh/h	1781	2078	1299	1781	2161	1254	1781	1870	1542	1781	1870	1549
Grp Volume(v), veh/h	238	525	473	166	218	209	140	204	19	251	227	171
Grp Sat Flow(s),veh/h/ln	1781	1777	1600	1781	1777	1638	1781	1870	1542	1781	1870	1549
Q Serve(g_s), s	12.5	24.8	24.8	8.7	8.8	9.2	7.4	10.0	1.0	13.2	10.4	9.4
Cycle Q Clear(g_c), s	12.5	24.8	24.8	8.7	8.8	9.2	7.4	10.0	1.0	13.2	10.4	9.4
Prop In Lane	1.00		0.81	1.00		0.77	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	275	682	614	201	609	561	173	277	228	287	397	329
V/C Ratio(X)	0.87	0.77	0.77	0.83	0.36	0.37	0.81	0.74	0.08	0.87	0.57	0.52
Avail Cap(c_a), veh/h	650	926	834	650	1019	940	557	975	804	557	975	808
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	25.8	25.8	41.6	23.6	23.8	42.4	39.1	35.2	39.3	33.9	33.4
Incr Delay (d2), s/veh	3.2	3.6	4.0	3.3	0.6	0.7	3.4	1.4	0.1	3.3	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	10.4	9.5	3.9	3.6	3.5	3.3	4.6	0.4	5.9	4.7	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.8	29.4	29.8	44.9	24.2	24.4	45.8	40.5	35.3	42.5	34.4	33.9
LnGrp LOS	D	C	C	D	C	C	D	D	D	D	C	C
Approach Vol, veh/h		1236			593			363			649	
Approach Delay, s/veh		32.2			30.1			42.3			37.4	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.8	42.3	13.3	25.5	18.8	38.3	19.5	19.3				
Change Period (Y+Rc), s	4.0	5.5	4.0	5.1	4.0	* 5.5	4.0	* 5.1				
Max Green Setting (Gmax), s	35.0	50.0	30.0	50.0	35.0	* 55	30.0	* 50				
Max Q Clear Time (g_c+10), s	11.0	26.8	9.4	12.4	14.5	11.2	15.2	12.0				
Green Ext Time (p_c), s	0.2	10.0	0.2	1.1	0.3	4.5	0.3	0.8				

Intersection Summary

HCM 6th Ctrl Delay	34.2
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 27: Fairmount Ave & San Diego Mission Rd/Twain Ave

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↖	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (veh/h)	167	453	380	70	204	30	226	90	80	30	150	131
Future Volume (veh/h)	167	453	380	70	204	30	226	90	80	30	150	131
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		0.97	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	186	503	274	78	227	27	251	100	63	33	167	122
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	234	534	1077	83	795	103	291	173	109	338	190	139
Arrive On Green	0.53	0.53	0.53	0.53	0.53	0.53	0.16	0.16	0.16	0.19	0.19	0.19
Sat Flow, veh/h	367	1011	1549	51	1506	195	1781	1061	668	1781	1002	732
Grp Volume(v), veh/h	689	0	274	102	0	230	251	0	163	33	0	289
Grp Sat Flow(s),veh/h/ln	1378	0	1549	86	0	1667	1781	0	1730	1781	0	1734
Q Serve(g_s), s	46.5	0.0	7.5	5.0	0.0	8.6	15.6	0.0	9.9	1.7	0.0	18.4
Cycle Q Clear(g_c), s	55.0	0.0	7.5	60.0	0.0	8.6	15.6	0.0	9.9	1.7	0.0	18.4
Prop In Lane	0.27		1.00	0.77		0.12	1.00		0.39	1.00		0.42
Lane Grp Cap(c), veh/h	768	0	1077	101	0	880	291	0	282	338	0	329
V/C Ratio(X)	0.90	0.00	0.25	1.00	0.00	0.26	0.86	0.00	0.58	0.10	0.00	0.88
Avail Cap(c_a), veh/h	768	0	1077	101	0	880	627	0	609	627	0	611
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.3	0.0	6.6	50.0	0.0	14.7	46.3	0.0	43.9	38.0	0.0	44.7
Incr Delay (d2), s/veh	13.2	0.0	0.1	90.0	0.0	0.1	3.0	0.0	0.7	0.0	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	19.5	0.0	3.9	5.5	0.0	3.3	7.1	0.0	4.3	0.8	0.0	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.5	0.0	6.7	140.0	0.0	14.8	49.3	0.0	44.6	38.0	0.0	47.8
LnGrp LOS	D	A	A	F	A	B	D	A	D	D	A	D
Approach Vol, veh/h		963			332			414			322	
Approach Delay, s/veh		32.3			53.2			47.4			46.8	
Approach LOS		C			D			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		64.5		26.0		64.5		23.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		57.0		20.4		62.0		17.6				
Green Ext Time (p_c), s		1.5		1.1		0.0		0.9				

Intersection Summary

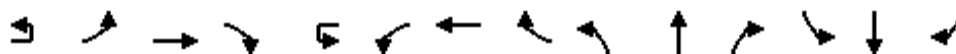
HCM 6th Ctrl Delay	41.1
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary

Horizon Year Plus Project w/2-Ln Bridge

28: Qualcomm Way & Camino de la Reina/Camino del Rio N

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔	↔	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔	
Traffic Volume (veh/h)	10	138	457	320	10	499	212	63	183	578	321	185	1129	149	
Future Volume (veh/h)	10	138	457	320	10	499	212	63	183	578	321	185	1129	149	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.98	1.00		0.98	1.00		0.98	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1841	1870	1856	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		142	503	246		514	219	10	189	596	271	191	1164	146	
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %		2	2	2		2	4	2	3	2	2	2	2	2	
Cap, veh/h		159	498	310		524	683	303	225	2778	848	226	2493	313	
Arrive On Green		0.09	0.13	0.13		0.15	0.20	0.20	0.02	0.18	0.18	0.07	0.54	0.54	
Sat Flow, veh/h		1781	3741	1550		3456	3497	1549	3428	5106	1559	3456	4585	575	
Grp Volume(v), veh/h		142	503	246		514	219	10	189	596	271	191	864	446	
Grp Sat Flow(s),veh/h/ln		1781	1870	1550		1728	1749	1549	1714	1702	1559	1728	1702	1755	
Q Serve(g_s), s		15.8	26.6	26.6		29.7	10.8	1.0	11.0	19.9	30.3	10.9	31.0	31.1	
Cycle Q Clear(g_c), s		15.8	26.6	26.6		29.7	10.8	1.0	11.0	19.9	30.3	10.9	31.0	31.1	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.33	
Lane Grp Cap(c), veh/h		159	498	310		524	683	303	225	2778	848	226	1851	955	
V/C Ratio(X)		0.89	1.01	0.79		0.98	0.32	0.03	0.84	0.21	0.32	0.84	0.47	0.47	
Avail Cap(c_a), veh/h		190	498	310		524	683	303	314	2778	848	316	1851	955	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	0.84	0.84	0.84	0.09	0.09	0.09	
Uniform Delay (d), s/veh		90.2	86.7	76.3		84.6	69.1	65.2	96.8	45.6	49.8	92.4	27.9	27.9	
Incr Delay (d2), s/veh		31.1	43.1	12.7		34.4	0.1	0.0	8.4	0.1	0.8	1.0	0.1	0.1	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		8.7	16.0	13.1		15.7	4.8	0.4	5.4	9.2	13.0	5.0	12.9	13.3	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		121.3	129.8	89.1		119.0	69.2	65.2	105.2	45.7	50.7	93.5	28.0	28.0	
LnGrp LOS		F	F	F		F	E	E	F	D	D	F	C	C	
Approach Vol, veh/h		891				743				1056			1501		
Approach Delay, s/veh		117.2				103.6				57.6			36.3		
Approach LOS		F				F				E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8							
Phs Duration (G+Y+Rc), s	17.5	115.5	34.7	32.3	17.5	115.5	22.2	44.8							
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7							
Max Green Setting (Gmax), s	10.3	103.6	30.3	* 27	18.3	* 1.1E2	21.3	35.6							
Max Q Clear Time (g_c+1/2g), s	11.0	32.3	31.7	28.6	13.0	33.1	17.8	12.8							
Green Ext Time (p_c), s	0.2	5.2	0.0	0.0	0.2	32.4	0.1	0.8							

Intersection Summary

HCM 6th Ctrl Delay	70.8
HCM 6th LOS	E

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary

Horizon Year Plus Project w/2-Ln Bridge

29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔	↑↑↑			↑↑	↔
Traffic Volume (veh/h)	10	113	0	612	32	197	410	213	848	0	0	1077	771
Future Volume (veh/h)	10	113	0	612	32	197	410	213	848	0	0	1077	771
Initial Q (Qb), veh		0	0	20	0	20	20	20	20	0	0	20	20
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h		120	0	391	34	210	259	227	902	0	0	1146	581
Peak Hour Factor		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h		0	0	0	22	323	317	178	3898	0	0	2270	985
Arrive On Green		0.00	0.00	0.00	0.18	0.18	0.18	0.10	0.76	0.00	0.00	1.00	1.00
Sat Flow, veh/h			0		259	1599	1582	1781	5274	0	0	3647	1551
Grp Volume(v), veh/h			0.0		244	0	259	227	902	0	0	1146	581
Grp Sat Flow(s),veh/h/ln					1857	0	1582	1781	1702	0	0	1777	1551
Q Serve(g_s), s					24.9	0.0	32.3	20.0	10.1	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s					24.9	0.0	32.3	20.0	10.1	0.0	0.0	0.0	0.0
Prop In Lane					0.14		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					355	0	317	178	3898	0	0	2270	985
V/C Ratio(X)					0.69	0.00	0.82	1.27	0.23	0.00	0.00	0.50	0.59
Avail Cap(c_a), veh/h					371	0	316	178	3901	0	0	2276	994
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)					1.00	0.00	1.00	0.67	0.67	0.00	0.00	0.73	0.73
Uniform Delay (d), s/veh					79.3	0.0	80.0	90.0	7.3	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh					4.0	0.0	14.5	149.4	0.1	0.0	0.0	0.6	1.9
Initial Q Delay(d3),s/veh					72.8	0.0	145.7	404.2	0.2	0.0	0.0	1.1	7.2
%ile BackOfQ(50%),veh/ln					23.9	0.0	30.3	36.7	5.2	0.0	0.0	0.5	2.5
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					156.1	0.0	240.2	643.6	7.6	0.0	0.0	1.7	9.1
LnGrp LOS					F	A	F	F	A	A	A	A	A
Approach Vol, veh/h						503			1129			1727	
Approach Delay, s/veh						199.4			135.5			4.2	
Approach LOS						F			F			A	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		159.8			24.7	135.1		40.2					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		107.8			* 20	83.1		40.0					
Max Q Clear Time (g_c+I1), s		12.1			22.0	2.0		34.3					
Green Ext Time (p_c), s		4.7			0.0	42.2		0.7					

Intersection Summary

HCM 6th Ctrl Delay	77.6
HCM 6th LOS	E

Notes

- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑	
Traffic Volume (veh/h)	0	740	0	1302	1879	0
Future Volume (veh/h)	0	740	0	1302	1879	0
Initial Q (Qb), veh	0	10	0	0	50	0
Ped-Bike Adj(A_pbT)	1.00	1.00	1.00			1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	0	1870	0	1870	1870	0
Adj Flow Rate, veh/h	0	752	0	1329	1917	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	0	2	0	2	2	0
Cap, veh/h	0	0	0	2920	2920	0
Arrive On Green	0.00	0.00	0.00	0.81	0.81	0.00
Sat Flow, veh/h	0		0	3741	3741	0
Grp Volume(v), veh/h	0.0		0	1329	1917	0
Grp Sat Flow(s),veh/h/ln			0	1777	1777	0
Q Serve(g_s), s			0.0	3.3	6.4	0.0
Cycle Q Clear(g_c), s			0.0	3.3	6.4	0.0
Prop In Lane			0.00			0.00
Lane Grp Cap(c), veh/h			0	2920	2920	0
V/C Ratio(X)			0.00	0.46	0.66	0.00
Avail Cap(c_a), veh/h			0	5566	5566	0
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh			0.0	0.8	1.4	0.0
Incr Delay (d2), s/veh			0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	6.1	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	2.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	0.8	7.6	0.0
LnGrp LOS			A	A	A	A
Approach Vol, veh/h				1329	1917	
Approach Delay, s/veh				0.8	7.6	
Approach LOS				A	A	
Timer - Assigned Phs		2				6
Phs Duration (G+Y+Rc), s		28.7				28.7
Change Period (Y+Rc), s		5.5				5.5
Max Green Setting (Gmax), s		45.0				45.0
Max Q Clear Time (g_c+I1), s		5.3				8.4
Green Ext Time (p_c), s		8.1				14.8
Intersection Summary						
HCM 6th Ctrl Delay			4.8			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary
 31: Texas St & Camino del Rio S

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	282	155	390	341	63	540	100	851	187	310	1732	197
Future Volume (veh/h)	282	155	390	341	63	540	100	851	187	310	1732	197
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	307	168	370	371	68	548	109	925	194	337	1883	176
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	349	367	423	246	258	534	126	1057	222	355	1741	777
Arrive On Green	0.20	0.20	0.20	0.14	0.14	0.14	0.07	0.36	0.36	0.20	0.49	0.49
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	2924	613	1781	3554	1585
Grp Volume(v), veh/h	307	168	370	371	68	548	109	562	557	337	1883	176
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1777	1760	1781	1777	1585
Q Serve(g_s), s	34.2	16.2	40.0	28.2	6.6	28.2	12.4	60.3	60.4	38.1	100.0	13.0
Cycle Q Clear(g_c), s	34.2	16.2	40.0	28.2	6.6	28.2	12.4	60.3	60.4	38.1	100.0	13.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	349	367	423	246	258	534	126	642	636	355	1741	777
V/C Ratio(X)	0.88	0.46	0.88	1.51	0.26	1.03	0.87	0.87	0.88	0.95	1.08	0.23
Avail Cap(c_a), veh/h	349	367	423	246	258	534	218	642	636	634	1741	777
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	79.7	72.5	71.6	88.0	78.7	67.6	93.9	60.8	60.9	80.8	52.1	29.9
Incr Delay (d2), s/veh	21.8	0.9	18.2	248.4	1.5	45.5	6.7	12.3	12.6	9.5	47.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	7.9	20.7	30.0	3.3	34.6	6.0	29.4	29.2	18.5	55.5	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	101.5	73.4	89.8	336.3	80.1	113.2	100.6	73.2	73.4	90.3	99.4	30.2
LnGrp LOS	F	E	F	F	F	F	F	E	E	F	F	C
Approach Vol, veh/h		845			987			1228			2396	
Approach Delay, s/veh		90.8			194.8			75.7			93.0	
Approach LOS		F			F			E			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	45.0	79.0		44.9	18.8	105.2		35.2				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0				
Max Green Setting (Gmax), s	72.6	51.8		40.0	25.0	* 1E2		28.2				
Max Q Clear Time (g_c+Rc), s	44.0	62.4		42.0	14.4	102.0		30.2				
Green Ext Time (p_c), s	0.5	0.0		0.0	0.1	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	107.2
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection									
Int Delay, s/veh	11.3								
Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations		↘	↗			↕		↕	
Traffic Vol, veh/h	10	55	288	10	243	387	10	537	88
Future Vol, veh/h	10	55	288	10	243	387	10	537	88
Conflicting Peds, #/hr	21	24	24	3	24	0	3	0	24
Sign Control	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None
Storage Length	-	0	65	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	-	0	-	0	-
Grade, %	-	0	-	-	-	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	58	303	11	256	407	11	565	93

Major/Minor	Minor2	Major1			Major2				
Conflicting Flow All	0	1420	377	658	682	0	407	-	0
Stage 1	0	658	-	-	-	-	-	-	-
Stage 2	0	762	-	-	-	-	-	-	-
Critical Hdwy	-	6.84	6.94	6.44	4.14	-	6.44	-	-
Critical Hdwy Stg 1	-	5.84	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	5.84	-	-	-	-	-	-	-
Follow-up Hdwy	-	3.52	3.32	2.52	2.22	-	2.52	-	-
Pot Cap-1 Maneuver	0	127	621	549	907	-	793	-	-
Stage 1	0	477	-	-	-	-	-	-	-
Stage 2	0	421	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	0	69	593	817	817	-	793	-	-
Mov Cap-2 Maneuver	0	69	-	-	-	-	-	-	-
Stage 1	0	270	-	-	-	-	-	-	-
Stage 2	0	402	-	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	41	5.9	0.2
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	817	-	69	593	-	-
HCM Lane V/C Ratio	0.313	-	0.839	0.511	-	-
HCM Control Delay (s)	11.5	2.2	165.9	17.2	-	-
HCM Lane LOS	B	A	F	C	-	-
HCM 95th %tile Q(veh)	1.3	-	4	2.9	-	-

HCM 6th Signalized Intersection Summary
 33: Camino del Rio N & Ward Rd

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↷	↷	↶	↷
Traffic Volume (veh/h)	248	735	284	380	725	131
Future Volume (veh/h)	248	735	284	380	725	131
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	264	782	302	47	771	109
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	312	1386	547	243	818	1005
Arrive On Green	0.18	0.39	0.15	0.15	0.46	0.46
Sat Flow, veh/h	1781	3647	3647	1580	1781	1585
Grp Volume(v), veh/h	264	782	302	47	771	109
Grp Sat Flow(s),veh/h/ln	1781	1777	1777	1580	1781	1585
Q Serve(g_s), s	10.4	12.4	5.7	1.9	29.8	2.0
Cycle Q Clear(g_c), s	10.4	12.4	5.7	1.9	29.8	2.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	312	1386	547	243	818	1005
V/C Ratio(X)	0.85	0.56	0.55	0.19	0.94	0.11
Avail Cap(c_a), veh/h	1085	3443	3443	1531	1085	1243
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.9	17.2	28.3	26.7	18.6	5.2
Incr Delay (d2), s/veh	2.5	0.6	1.3	0.6	11.6	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	4.5	2.3	0.7	13.2	3.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	31.3	17.8	29.6	27.2	30.3	5.2
LnGrp LOS	C	B	C	C	C	A
Approach Vol, veh/h		1046	349		880	
Approach Delay, s/veh		21.2	29.3		27.2	
Approach LOS		C	C		C	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		34.2		38.1	17.0	17.1
Change Period (Y+Rc), s		* 6		4.9	4.4	6.0
Max Green Setting (Gmax), s		* 70		44.0	44.0	70.0
Max Q Clear Time (g_c+I1), s		14.4		31.8	12.4	7.7
Green Ext Time (p_c), s		9.4		1.4	0.3	3.3

Intersection Summary

HCM 6th Ctrl Delay	24.8
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 34: Fairmount Ave & Mission Gorge Rd

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↗	↕			↗	↕	
Traffic Volume (veh/h)	67	17	611	30	14	10	40	398	963	40	10	10	947	38
Future Volume (veh/h)	67	17	611	30	14	10	40	398	963	40	10	10	947	38
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		0.98	1.00		0.98		1.00		0.99	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No			No			No		No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	0	707	31	14	3	406	983	39	10	966	37		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	0	340	546	150	62	11	893	2437	97	17	1559	60		
Arrive On Green	0.00	0.00	0.18	0.18	0.18	0.18	0.52	1.00	1.00	0.01	0.45	0.45		
Sat Flow, veh/h	0	1870	3006	574	340	61	3456	3482	138	1781	3487	134		
Grp Volume(v), veh/h	0	0	707	48	0	0	406	502	520	10	492	511		
Grp Sat Flow(s),veh/h/ln	0	1870	1503	974	0	0	1728	1777	1843	1781	1777	1844		
Q Serve(g_s), s	0.0	0.0	23.6	3.5	0.0	0.0	9.6	0.0	0.0	0.7	27.5	27.5		
Cycle Q Clear(g_c), s	0.0	0.0	23.6	4.6	0.0	0.0	9.6	0.0	0.0	0.7	27.5	27.5		
Prop In Lane	0.00		1.00	0.65		0.06	1.00		0.07	1.00		0.07		
Lane Grp Cap(c), veh/h	0	340	546	222	0	0	893	1244	1290	17	794	824		
V/C Ratio(X)	0.00	0.00	1.30	0.22	0.00	0.00	0.45	0.40	0.40	0.60	0.62	0.62		
Avail Cap(c_a), veh/h	0	340	546	222	0	0	906	1244	1290	179	794	824		
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00	0.58	0.58	0.58	1.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	0.0	53.2	45.2	0.0	0.0	25.6	0.0	0.0	64.2	27.5	27.5		
Incr Delay (d2), s/veh	0.0	0.0	146.1	0.5	0.0	0.0	0.1	0.6	0.5	12.3	3.6	3.5		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.0	20.0	1.4	0.0	0.0	3.4	0.2	0.2	0.4	12.4	12.9		
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh	0.0	0.0	199.3	45.6	0.0	0.0	25.7	0.6	0.5	76.5	31.1	31.0		
LnGrp LOS	A	A	F	D	A	A	C	A	A	E	C	C		
Approach Vol, veh/h		707		48			1428			1013				
Approach Delay, s/veh		199.3		45.6			7.7			31.5				
Approach LOS		F		D			A			C				
Timer - Assigned Phs	1	2	4	5	6	8								
Phs Duration (G+Y+Rc), s	5.6	95.9	28.5	38.5	63.0	28.5								
Change Period (Y+Rc), s	4.4	4.9	4.9	4.9	* 4.9	4.9								
Max Green Setting (Gmax), s	13.1	79.1	23.6	34.1	* 58	23.6								
Max Q Clear Time (g_c+1/2), s	12.7	2.0	25.6	11.6	29.5	6.6								
Green Ext Time (p_c), s	0.0	21.2	0.0	0.8	14.3	0.2								

Intersection Summary

HCM 6th Ctrl Delay	58.2
HCM 6th LOS	E

Notes

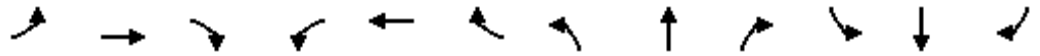
- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM Signalized Intersection Capacity Analysis

Horizon Year Plus Project w/2-Ln Bridge

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↔	↖	↖	↕		↖	↕	↖
Traffic Volume (vph)	314	153	1013	810	283	384	357	781	190	13	1588	123
Future Volume (vph)	314	153	1013	810	283	384	357	781	190	13	1588	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	0.98	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1739	1583	1610	3082	1425	1770	3426		3433	3539	1563
Flt Permitted	0.95	0.98	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1739	1583	1610	3082	1425	1770	3426		3433	3539	1563
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	317	155	1023	818	286	388	361	789	192	13	1604	124
RTOR Reduction (vph)	0	0	76	0	0	0	0	16	0	0	0	73
Lane Group Flow (vph)	231	241	947	409	749	334	361	965	0	13	1604	51
Confl. Peds. (#/hr)						3			1			
Confl. Bikes (#/hr)									1			1
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	7	5	8	8	1	5	2		1	6	
Permitted Phases			7			8						6
Actuated Green, G (s)	18.9	18.9	38.9	25.0	25.0	35.0	20.0	55.1		10.0	45.1	45.1
Effective Green, g (s)	18.9	18.9	38.9	25.0	25.0	35.0	20.0	55.1		10.0	45.1	45.1
Actuated g/C Ratio	0.15	0.15	0.30	0.19	0.19	0.27	0.15	0.42		0.08	0.35	0.35
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	244	252	530	309	592	383	272	1452		264	1227	542
v/s Ratio Prot	0.14	0.14	c0.27	c0.25	0.24	0.07	0.20	0.28		0.00	c0.45	
v/s Ratio Perm			0.32			0.17						0.03
v/c Ratio	0.95	0.96	1.79	1.32	1.32dl	0.87	1.33	0.66		0.05	1.31	0.09
Uniform Delay, d1	55.1	55.1	45.5	52.5	52.5	45.4	55.0	30.0		55.6	42.5	28.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.70	1.14	2.38
Incremental Delay, d2	42.3	44.0	361.9	166.5	132.4	18.6	170.4	2.4		0.0	141.2	0.2
Delay (s)	97.4	99.1	407.4	219.0	184.9	63.9	225.4	32.5		39.0	189.6	68.3
Level of Service	F	F	F	F	F	E	F	C		D	F	E
Approach Delay (s)		309.8			167.2			84.4			179.8	
Approach LOS		F			F			F			F	

Intersection Summary		
HCM 2000 Control Delay	187.6	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.56	F
Actuated Cycle Length (s)	130.0	Sum of lost time (s)
Intersection Capacity Utilization	144.2%	21.0
Analysis Period (min)	15	ICU Level of Service
		H

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

HCM 6th Signalized Intersection Summary
 36: Fairmount Ave & I-8 EB Off-Ramp

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations	YY	YY	Y		↑↑	↑↑↑	
Traffic Volume (veh/h)	731	2779	60	0	607	1598	0
Future Volume (veh/h)	731	2779	60	0	607	1598	0
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00			1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		0	1870	1870	0
Adj Flow Rate, veh/h	746	2836		0	619	1631	0
Peak Hour Factor	0.98	0.98		0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2		0	2	2	0
Cap, veh/h	979	2613		0	1295	1860	0
Arrive On Green	0.55	0.55		0.00	0.36	0.36	0.00
Sat Flow, veh/h	1781	4755		0	3741	5443	0
Grp Volume(v), veh/h	746	2836		0	619	1631	0
Grp Sat Flow(s),veh/h/ln	1781	1585		0	1777	1702	0
Q Serve(g_s), s	41.9	70.9		0.0	17.3	38.5	0.0
Cycle Q Clear(g_c), s	41.9	70.9		0.0	17.3	38.5	0.0
Prop In Lane	1.00	1.00		0.00			0.00
Lane Grp Cap(c), veh/h	979	2613		0	1295	1860	0
V/C Ratio(X)	0.76	1.09		0.00	0.48	0.88	0.00
Avail Cap(c_a), veh/h	979	2613		0	2113	2058	0
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	22.5	29.1		0.0	31.6	38.3	0.0
Incr Delay (d2), s/veh	3.2	45.7		0.0	0.1	4.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	36.7		0.0	7.5	16.6	0.0
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	25.7	74.7		0.0	31.7	42.3	0.0
LnGrp LOS	C	F		A	C	D	A
Approach Vol, veh/h	3582				619	1631	
Approach Delay, s/veh	64.5				31.7	42.3	
Approach LOS	E				C	D	
Timer - Assigned Phs				4		6	8
Phs Duration (G+Y+Rc), s				53.0		76.0	53.0
Change Period (Y+Rc), s				6.0		5.1	6.0
Max Green Setting (Gmax), s				52.0		70.9	76.7
Max Q Clear Time (g_c+1), s				40.5		72.9	19.3
Green Ext Time (p_c), s				6.5		0.0	3.1

Intersection Summary

HCM 6th Ctrl Delay	54.8
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
 User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
37: Collwood Blvd & Montezuma Rd

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↓	↑↑	↑↑	↑
Traffic Volume (veh/h)	1561	1409	10	90	888	728	50
Future Volume (veh/h)	1561	1409	10	90	888	728	50
Initial Q (Qb), veh	20	20		0	0	0	0
Ped-Bike Adj(A_pbT)		0.98		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1737	1870	1870	1648
Adj Flow Rate, veh/h	1609	1325		93	915	751	26
Peak Hour Factor	0.97	0.97		0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2		11	2	2	17
Cap, veh/h	2079	1272		114	2440	802	324
Arrive On Green	0.58	0.58		0.07	0.69	0.23	0.23
Sat Flow, veh/h	3647	1546		1654	3647	3456	1397
Grp Volume(v), veh/h	1609	1325		93	915	751	26
Grp Sat Flow(s),veh/h/ln	1777	1546		1654	1777	1728	1397
Q Serve(g_s), s	46.0	78.4		7.4	14.6	28.6	2.0
Cycle Q Clear(g_c), s	46.0	78.4		7.4	14.6	28.6	2.0
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2079	1272		114	2440	802	324
V/C Ratio(X)	0.77	1.04		0.82	0.37	0.94	0.08
Avail Cap(c_a), veh/h	2079	1272		328	2440	848	343
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.2	12.5		61.6	8.9	50.5	40.3
Incr Delay (d2), s/veh	2.9	36.7		5.3	0.4	16.5	0.0
Initial Q Delay(d3),s/veh	2.9	56.6		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.6	57.9		3.3	5.3	14.0	0.7
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	28.1	105.9		66.9	9.3	67.0	40.3
LnGrp LOS	C	F		E	A	E	D
Approach Vol, veh/h	2934			1008	777		
Approach Delay, s/veh	63.2			14.6	66.1		
Approach LOS	E			B	E		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	13.6	84.9			98.5	35.5	
Change Period (Y+Rc), s	4.4	* 6.5			6.5	4.4	
Max Green Setting (Gmax), s	26.6	* 60			90.2	32.9	
Max Q Clear Time (g_c+1), s	19.4	80.4			16.6	30.6	
Green Ext Time (p_c), s	0.1	0.0			15.7	0.5	

Intersection Summary

HCM 6th Ctrl Delay	53.3
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
38: Mission Village Dr & Shawn Ave

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔				↔		↗	↑↑	↖	↗	↑↑	
Traffic Volume (veh/h)	80	10	84	10	54	10	30	76	716	36	50	2024	80
Future Volume (veh/h)	80	10	84	10	54	10	30	76	716	36	50	2024	80
Initial Q (Qb), veh	0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99		0.99		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	11	86		57	11	3	81	762	27	53	2153	83
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	266	30	218		214	196	53	133	2573	1146	532	2527	97
Arrive On Green	0.15	0.15	0.15		0.15	0.15	0.15	0.72	0.72	0.72	0.72	0.72	0.72
Sat Flow, veh/h	1202	194	1425		829	1284	350	171	3554	1582	686	3489	134
Grp Volume(v), veh/h	96	0	86		57	0	14	81	762	27	53	1089	1147
Grp Sat Flow(s),veh/h/ln1396		0	1425		829	0	1634	171	1777	1582	686	1777	1846
Q Serve(g_s), s	4.7	0.0	4.5		3.5	0.0	0.6	22.5	6.2	0.4	2.4	36.2	37.5
Cycle Q Clear(g_c), s	5.4	0.0	4.5		8.0	0.0	0.6	60.0	6.2	0.4	8.7	36.2	37.5
Prop In Lane	0.89		1.00		1.00		0.21	1.00		1.00	1.00		0.07
Lane Grp Cap(c), veh/h	295	0	218		214	0	250	133	2573	1146	532	1287	1337
V/C Ratio(X)	0.33	0.00	0.39		0.27	0.00	0.06	0.61	0.30	0.02	0.10	0.85	0.86
Avail Cap(c_a), veh/h	766	0	688		638	0	789	133	2573	1146	532	1287	1337
HCM Platoon Ratio	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00		1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.1	0.0	31.6		35.2	0.0	30.0	35.0	4.0	3.2	5.5	8.1	8.3
Incr Delay (d2), s/veh	0.2	0.0	0.4		0.2	0.0	0.0	8.4	0.1	0.0	0.1	5.5	5.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.8	0.0	0.0	1.6		1.1	0.0	0.2	1.9	1.5	0.1	0.3	10.5	11.3
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	32.3	0.0	32.1		35.5	0.0	30.0	43.4	4.1	3.2	5.6	13.7	14.2
LnGrp LOS	C	A	C		D	A	C	D	A	A	A	B	B
Approach Vol, veh/h		182				71			870			2289	
Approach Delay, s/veh		32.2				34.4			7.7			13.8	
Approach LOS		C				C			A			B	
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		65.3		17.6		65.3		17.6					
Change Period (Y+Rc), s		5.3		4.9		5.3		4.9					
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0					
Max Q Clear Time (g_c+11), s		62.0		7.4		39.5		10.0					
Green Ext Time (p_c), s		0.0		0.8		18.4		0.3					

Intersection Summary

HCM 6th Ctrl Delay	13.6
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 39: Mission Village Dr & Fermi Ave

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕			↙	↕	
Traffic Volume (veh/h)	40	10	14	54	10	50	16	782	46	10	30	2145	30
Future Volume (veh/h)	40	10	14	54	10	50	16	782	46	10	30	2145	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00		1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Work Zone On Approach		No			No			No				No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870		1870	1870	1870
Adj Flow Rate, veh/h	42	10	6	56	10	28	17	815	45		31	2234	31
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96		0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2		2	2	2
Cap, veh/h	170	38	15	145	23	42	28	2436	134		44	2584	36
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.02	0.71	0.71		0.02	0.72	0.72
Sat Flow, veh/h	1074	428	173	856	264	475	1781	3424	189		1781	3587	50
Grp Volume(v), veh/h	58	0	0	94	0	0	17	423	437		31	1103	1162
Grp Sat Flow(s),veh/h/ln1675	0	0	0	1595	0	0	1781	1777	1836		1781	1777	1860
Q Serve(g_s), s	0.0	0.0	0.0	2.0	0.0	0.0	0.8	7.4	7.4		1.4	37.7	38.3
Cycle Q Clear(g_c), s	2.5	0.0	0.0	4.5	0.0	0.0	0.8	7.4	7.4		1.4	37.7	38.3
Prop In Lane	0.72		0.10	0.60		0.30	1.00		0.10		1.00		0.03
Lane Grp Cap(c), veh/h	222	0	0	210	0	0	28	1264	1306		44	1280	1340
V/C Ratio(X)	0.26	0.00	0.00	0.45	0.00	0.00	0.61	0.33	0.33		0.71	0.86	0.87
Avail Cap(c_a), veh/h	802	0	0	621	0	0	649	1295	1339		649	1295	1356
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00		1.00	1.00	1.00
Uniform Delay (d), s/veh	35.4	0.0	0.0	36.2	0.0	0.0	40.3	4.5	4.5		39.8	8.5	8.6
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.6	0.0	0.0	7.8	0.3	0.3		7.4	6.5	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.1	0.0	0.0	0.0	1.8	0.0	0.0	0.4	1.9	2.0		0.7	12.0	12.6
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	35.6	0.0	0.0	36.8	0.0	0.0	48.0	4.8	4.8		47.3	15.0	15.1
LnGrp LOS	D	A	A	D	A	A	D	A	A		D	B	B
Approach Vol, veh/h		58			94			877				2296	
Approach Delay, s/veh		35.6			36.8			5.6				15.5	
Approach LOS		D			D			A				B	
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s6.4	63.7			12.1	5.7	64.5		12.1					
Change Period (Y+Rc), s 4.4	5.2			4.9	4.4	5.2		4.9					
Max Green Setting (Gmax), s 30.0	60.0			40.0	30.0	60.0		30.0					
Max Q Clear Time (g_c+1), s 13.4	9.4			4.5	2.8	40.3		6.5					
Green Ext Time (p_c), s 0.0	12.0			0.2	0.0	19.0		0.3					

Intersection Summary

HCM 6th Ctrl Delay	13.9
HCM 6th LOS	B

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
40: Gramercy Dr/Mission Village Dr & Ruffin Rd

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	642	20	13	390	477	20	10	22	1590	20	90
Future Volume (veh/h)	60	642	20	13	390	477	20	10	22	1590	20	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	655	19	13	398	323	20	10	1	1622	20	88
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	211	1254	36	240	659	529	43	79	8	1610	136	599
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	0.02	0.02	0.02	0.45	0.45	0.45
Sat Flow, veh/h	730	3524	102	762	1853	1488	1781	3262	320	3563	302	1327
Grp Volume(v), veh/h	61	330	344	13	382	339	20	5	6	1622	0	108
Grp Sat Flow(s),veh/h/ln	730	1777	1849	762	1777	1564	1781	1777	1805	1781	0	1628
Q Serve(g_s), s	6.6	13.0	13.0	1.2	15.6	15.8	1.0	0.3	0.3	40.0	0.0	3.4
Cycle Q Clear(g_c), s	22.5	13.0	13.0	14.2	15.6	15.8	1.0	0.3	0.3	40.0	0.0	3.4
Prop In Lane	1.00		0.06	1.00		0.95	1.00		0.18	1.00		0.81
Lane Grp Cap(c), veh/h	211	632	658	240	632	556	43	43	44	1610	0	736
V/C Ratio(X)	0.29	0.52	0.52	0.05	0.60	0.61	0.47	0.13	0.13	1.01	0.00	0.15
Avail Cap(c_a), veh/h	446	1204	1253	486	1204	1060	805	803	816	1610	0	736
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.7	22.6	22.6	28.2	23.4	23.5	42.6	42.3	42.3	24.3	0.0	14.2
Incr Delay (d2), s/veh	0.9	0.8	0.8	0.1	1.2	1.4	2.9	0.5	0.5	24.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	5.5	5.7	0.2	6.6	5.9	0.5	0.1	0.1	20.3	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.6	23.4	23.4	28.3	24.6	24.8	45.5	42.8	42.8	48.6	0.0	14.3
LnGrp LOS	C	C	C	C	C	C	D	D	D	F	A	B
Approach Vol, veh/h		735			734			31			1730	
Approach Delay, s/veh		24.2			24.7			44.6			46.5	
Approach LOS		C			C			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		36.6		44.9		36.6		7.0				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+1), s		24.5		42.0		17.8		3.0				
Green Ext Time (p_c), s		7.0		0.0		7.6		0.0				

Intersection Summary

HCM 6th Ctrl Delay	36.4
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↑↑	↑↑	↑↑	↑
Traffic Volume (veh/h)	880	910	10	1042	810	260	378
Future Volume (veh/h)	880	910	10	1042	810	260	378
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	926	957		1097	853	274	109
Peak Hour Factor	0.95	0.95		0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1862	963		896	2903	340	156
Arrive On Green	0.52	0.52		0.26	0.82	0.10	0.10
Sat Flow, veh/h	3647	1541		3456	3647	3456	1585
Grp Volume(v), veh/h	926	957		1097	853	274	109
Grp Sat Flow(s),veh/h/ln1777		1541		1728	1777	1728	1585
Q Serve(g_s), s	21.8	68.1		33.7	7.5	10.1	8.7
Cycle Q Clear(g_c), s	21.8	68.1		33.7	7.5	10.1	8.7
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1862	963		896	2903	340	156
V/C Ratio(X)	0.50	0.99		1.22	0.29	0.81	0.70
Avail Cap(c_a), veh/h	1862	963		896	2903	1135	521
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.86	0.86
Uniform Delay (d), s/veh	19.9	22.1		48.2	2.9	57.4	56.7
Incr Delay (d2), s/veh	1.0	27.5		111.0	0.3	1.5	1.8
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	38.4		27.8	1.8	4.5	3.5
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	20.9	49.6		159.2	3.1	58.9	58.6
LnGrp LOS	C	D		F	A	E	E
Approach Vol, veh/h	1883			1950	383		
Approach Delay, s/veh	35.5			90.9	58.8		
Approach LOS	D			F	E		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	38.1	73.8			111.9	18.1	
Change Period (Y+Rc), s	4.4	* 5.7			5.7	5.3	
Max Green Setting (Gmax), s	33.7	* 39			76.3	42.7	
Max Q Clear Time (g_c+Rc), s	33.7	70.1			9.5	12.1	
Green Ext Time (p_c), s	0.0	0.0			9.6	0.7	

Intersection Summary

HCM 6th Ctrl Delay	63.2
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
42: Mobley St & Gramercy Dr

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	664	90	63	360	57	50	30	43	86	20	20
Future Volume (veh/h)	20	664	90	63	360	57	50	30	43	86	20	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	1.00		0.96	0.99		0.98	0.99		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1826	1826	1826	1752	1752	1752
Adj Flow Rate, veh/h	21	685	72	65	371	47	52	31	21	89	21	13
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	5	5	5	10	10	10
Cap, veh/h	647	1823	803	496	1622	204	267	131	60	352	74	28
Arrive On Green	0.51	0.51	0.51	0.51	0.51	0.51	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	962	3554	1565	705	3162	397	563	700	320	887	394	151
Grp Volume(v), veh/h	21	685	72	65	207	211	104	0	0	123	0	0
Grp Sat Flow(s),veh/h/ln	962	1777	1565	705	1777	1782	1583	0	0	1432	0	0
Q Serve(g_s), s	0.4	3.9	0.8	2.0	2.1	2.2	0.0	0.0	0.0	0.5	0.0	0.0
Cycle Q Clear(g_c), s	2.6	3.9	0.8	5.9	2.1	2.2	1.7	0.0	0.0	2.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.22	0.50		0.20	0.72		0.11
Lane Grp Cap(c), veh/h	647	1823	803	496	911	914	458	0	0	454	0	0
V/C Ratio(X)	0.03	0.38	0.09	0.13	0.23	0.23	0.23	0.00	0.00	0.27	0.00	0.00
Avail Cap(c_a), veh/h	1885	6398	2818	1403	3199	3208	1962	0	0	1806	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.2	4.9	4.1	6.7	4.5	4.5	11.7	0.0	0.0	11.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.7	0.1	0.2	0.4	0.4	0.5	0.0	0.0	0.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	5.2	5.1	4.2	6.9	4.7	4.7	11.8	0.0	0.0	12.0	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	A
Approach Vol, veh/h		778			483			104			123	
Approach Delay, s/veh		5.1			5.0			11.8			12.0	
Approach LOS		A			A			B			B	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		22.2		11.1		22.2		11.1				
Change Period (Y+Rc), s		5.1		4.9		5.1		4.9				
Max Green Setting (Gmax), s		60.0		40.0		60.0		40.0				
Max Q Clear Time (g_c+I1), s		5.9		4.2		7.9		3.7				
Green Ext Time (p_c), s		11.1		0.5		6.1		0.4				
Intersection Summary												
HCM 6th Ctrl Delay				6.1								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary
43: Sandrock Rd & Greyling Dr/Gramercy Dr

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕			↕	↕	↕	↕	↕
Traffic Volume (veh/h)	90	146	10	24	177	254	10	10	20	33	640	40	140
Future Volume (veh/h)	90	146	10	24	177	254	10	10	20	33	640	40	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.94	0.98		0.94	1.00		1.00	1.00			0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No				No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1574	1574	1870	1870	1856	1870	1870
Adj Flow Rate, veh/h	95	154	9	25	186	158	11	21	-1	704	0	80	80
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	22	22	2	2	3	2	2
Cap, veh/h	239	325	16	130	532	896	16	30	46	976	0	417	417
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.03	0.03	0.00	0.27	0.00	0.27	0.27
Sat Flow, veh/h	374	1052	52	95	1721	1494	532	1015	1585	3563	0	1523	1523
Grp Volume(v), veh/h	258	0	0	211	0	158	32	0	-1	704	0	80	80
Grp Sat Flow(s),veh/h/ln1477	0	0	1817	0	1494	1547	0	1585	1781	0	1523	1523	1523
Q Serve(g_s), s	2.0	0.0	0.0	0.0	0.0	2.0	0.8	0.0	0.0	7.1	0.0	1.6	1.6
Cycle Q Clear(g_c), s	5.5	0.0	0.0	3.5	0.0	2.0	0.8	0.0	0.0	7.1	0.0	1.6	1.6
Prop In Lane	0.37		0.03	0.12		1.00	0.34		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	580	0	0	662	0	896	45	0	46	976	0	417	417
V/C Ratio(X)	0.44	0.00	0.00	0.32	0.00	0.18	0.71	0.00	-0.02	0.72	0.00	0.19	0.19
Avail Cap(c_a), veh/h	1029	0	0	1217	0	1368	774	0	793	1783	0	762	762
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	11.3	0.0	0.0	10.8	0.0	3.9	19.2	0.0	0.0	13.1	0.0	11.1	11.1
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.1	0.0	0.0	7.4	0.0	0.0	0.4	0.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln1.5	0.0	0.0	0.0	1.1	0.0	0.8	0.4	0.0	0.0	2.2	0.0	0.4	0.4
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	11.5	0.0	0.0	10.9	0.0	3.9	26.6	0.0	0.0	13.5	0.0	11.2	11.2
LnGrp LOS	B	A	A	B	A	A	C	A	A	B	A	B	B
Approach Vol, veh/h		258			369				31			784	784
Approach Delay, s/veh		11.5			7.9				27.5			13.3	13.3
Approach LOS		B			A				C			B	B
Timer - Assigned Phs		2		4		6		8					
Phs Duration (G+Y+Rc), s		17.7		16.2		17.7		6.1					
Change Period (Y+Rc), s		5.3		5.3		5.3		4.9					
Max Green Setting (Gmax), s		25.0		20.0		25.0		20.0					
Max Q Clear Time (g_c+1), s		7.5		9.1		5.5		2.8					
Green Ext Time (p_c), s		1.1		1.3		1.0		0.1					

Intersection Summary

HCM 6th Ctrl Delay	11.9
HCM 6th LOS	B

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 44: Mission City Pkwy/Fenton Pkwy & Camino del Rio N

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



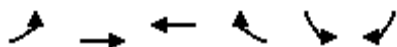
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	470	640	129	221	174	120	310	97	343	335	46
Future Volume (veh/h)	55	470	640	129	221	174	120	310	97	343	335	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	511	545	140	240	159	130	337	93	373	364	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	524	587	150	337	223	160	346	95	376	597	74
Arrive On Green	0.04	0.28	0.28	0.08	0.32	0.32	0.09	0.25	0.25	0.21	0.37	0.37
Sat Flow, veh/h	1781	1870	1585	1781	1050	695	1781	1411	389	1781	1632	202
Grp Volume(v), veh/h	60	511	545	140	0	399	130	0	430	373	0	409
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1745	1781	0	1800	1781	0	1834
Q Serve(g_s), s	3.3	27.1	28.0	7.8	0.0	20.1	7.2	0.0	23.7	20.9	0.0	18.2
Cycle Q Clear(g_c), s	3.3	27.1	28.0	7.8	0.0	20.1	7.2	0.0	23.7	20.9	0.0	18.2
Prop In Lane	1.00		1.00	1.00		0.40	1.00		0.22	1.00		0.11
Lane Grp Cap(c), veh/h	77	524	587	150	0	560	160	0	441	376	0	671
V/C Ratio(X)	0.78	0.98	0.93	0.94	0.00	0.71	0.81	0.00	0.97	0.99	0.00	0.61
Avail Cap(c_a), veh/h	109	524	587	150	0	560	228	0	441	376	0	671
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.4	35.7	30.2	45.5	0.0	29.9	44.7	0.0	37.4	39.4	0.0	25.9
Incr Delay (d2), s/veh	20.2	33.0	21.4	54.5	0.0	4.3	13.5	0.0	36.2	44.3	0.0	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9	16.4	15.1	5.6	0.0	8.6	3.7	0.0	14.5	13.7	0.0	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.6	68.7	51.6	100.1	0.0	34.2	58.1	0.0	73.7	83.7	0.0	27.5
LnGrp LOS	E	E	D	F	A	C	E	A	E	F	A	C
Approach Vol, veh/h		1116			539			560			782	
Approach Delay, s/veh		60.3			51.3			70.1			54.3	
Approach LOS		E			D			E			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	25.6	29.0	12.9	32.5	13.5	41.1	8.8	36.6				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	21.1	24.5	8.4	28.0	12.8	32.8	6.1	30.3				
Max Q Clear Time (g_c+20.9), s	20.9	25.7	9.8	30.0	9.2	20.2	5.3	22.1				
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.1	2.1	0.0	1.4				

Intersection Summary

HCM 6th Ctrl Delay	58.9
HCM 6th LOS	E

HCM 6th Signalized Intersection Summary
45: Camino del Rio S & Mission City Pkwy

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations							
Traffic Volume (veh/h)	211	610	250	325	946	198	
Future Volume (veh/h)	211	610	250	325	946	198	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	229	663	272	280	1028	160	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	256	713	383	1204	988	879	
Arrive On Green	0.14	0.38	0.20	0.20	0.55	0.55	
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585	
Grp Volume(v), veh/h	229	663	272	280	1028	160	
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1781	1585	
Q Serve(g_s), s	17.6	47.5	18.9	7.2	77.5	7.0	
Cycle Q Clear(g_c), s	17.6	47.5	18.9	7.2	77.5	7.0	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	256	713	383	1204	988	879	
V/C Ratio(X)	0.89	0.93	0.71	0.23	1.04	0.18	
Avail Cap(c_a), veh/h	395	850	383	1204	988	879	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	58.8	41.5	51.7	4.9	31.1	15.4	
Incr Delay (d2), s/veh	15.2	15.0	6.0	0.1	39.8	0.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.0	24.4	9.3	9.3	42.4	9.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	73.9	56.4	57.7	5.0	70.9	15.5	
LnGrp LOS	E	E	E	A	F	B	
Approach Vol, veh/h		892	552		1188		
Approach Delay, s/veh		60.9	31.0		63.4		
Approach LOS		E	C		E		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				57.8	82.0	24.6	33.1
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				63.5	77.5	31.0	28.0
Max Q Clear Time (g_c+I1), s				49.5	79.5	19.6	20.9
Green Ext Time (p_c), s				3.8	0.0	0.5	1.4
Intersection Summary							
HCM 6th Ctrl Delay			55.8				
HCM 6th LOS			E				

HCM 6th Signalized Intersection Summary
46: Camino del Rio S & I-15 SB Off-Ramp

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



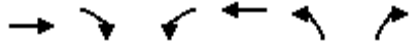
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑			↕			↖	↗
Traffic Volume (veh/h)	0	2136	30	40	375	0	30	0	50	210	30	110
Future Volume (veh/h)	0	2136	30	40	375	0	30	0	50	210	30	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	2322	32	43	408	0	33	0	11	228	33	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	0	2372	33	55	1351	0	42	0	14	242	35	245
Arrive On Green	0.00	0.66	0.66	0.03	0.72	0.00	0.03	0.00	0.03	0.15	0.15	0.15
Sat Flow, veh/h	0	3682	49	1781	1870	0	1296	0	432	1565	227	1585
Grp Volume(v), veh/h	0	1147	1207	43	408	0	44	0	0	261	0	9
Grp Sat Flow(s),veh/h/ln	0	1777	1861	1781	1870	0	1728	0	0	1792	0	1585
Q Serve(g_s), s	0.0	91.6	92.9	3.6	11.5	0.0	3.8	0.0	0.0	21.4	0.0	0.7
Cycle Q Clear(g_c), s	0.0	91.6	92.9	3.6	11.5	0.0	3.8	0.0	0.0	21.4	0.0	0.7
Prop In Lane	0.00		0.03	1.00		0.00	0.75		0.25	0.87		1.00
Lane Grp Cap(c), veh/h	0	1174	1230	55	1351	0	56	0	0	276	0	245
V/C Ratio(X)	0.00	0.98	0.98	0.78	0.30	0.00	0.78	0.00	0.00	0.94	0.00	0.04
Avail Cap(c_a), veh/h	0	1177	1233	64	1362	0	64	0	0	276	0	245
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	24.1	24.3	71.4	7.3	0.0	71.3	0.0	0.0	62.1	0.0	53.4
Incr Delay (d2), s/veh	0.0	20.7	21.1	39.8	0.1	0.0	41.7	0.0	0.0	39.2	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	40.5	43.0	2.2	4.2	0.0	2.3	0.0	0.0	12.8	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	44.8	45.4	111.2	7.4	0.0	113.0	0.0	0.0	101.3	0.0	53.5
LnGrp LOS	A	D	D	F	A	A	F	A	A	F	A	D
Approach Vol, veh/h		2354		451		44		270				
Approach Delay, s/veh		45.1		17.3		113.0		99.7				
Approach LOS		D		B		F		F				
Timer - Assigned Phs	1	2	4	6	8							
Phs Duration (G+Y+Rc), s	9.1	102.6	27.4	111.7	9.3							
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5							
Max Green Setting (Gmax), s	5.3	98.3	22.9	108.1	5.5							
Max Q Clear Time (g_c+1), s	15.6	94.9	23.4	13.5	5.8							
Green Ext Time (p_c), s	0.0	3.3	0.0	2.5	0.0							

Intersection Summary

HCM 6th Ctrl Delay	46.8
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary
47: I-15 SB On-Ramp & Camino del Rio S

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑		
Traffic Volume (veh/h)	1530	906	40	405	0	0
Future Volume (veh/h)	1530	906	40	405	0	0
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		
Adj Flow Rate, veh/h	1663	908	43	440		
Peak Hour Factor	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2		
Cap, veh/h	1935	966	70	1760		
Arrive On Green	0.84	0.84	0.04	0.94		
Sat Flow, veh/h	2388	1146	1781	1870		
Grp Volume(v), veh/h	1253	1318	43	440		
Grp Sat Flow(s),veh/h/ln	1777	1664	1781	1870		
Q Serve(g_s), s	28.7	45.8	1.8	1.4		
Cycle Q Clear(g_c), s	28.7	45.8	1.8	1.4		
Prop In Lane		0.69	1.00			
Lane Grp Cap(c), veh/h	1498	1403	70	1760		
V/C Ratio(X)	0.84	0.94	0.62	0.25		
Avail Cap(c_a), veh/h	1532	1435	116	1844		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	1.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	3.2	4.5	36.2	0.2		
Incr Delay (d2), s/veh	4.1	12.1	8.6	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	1.7	4.7	0.9	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.3	16.6	44.8	0.2		
LnGrp LOS	A	B	D	A		
Approach Vol, veh/h	2571			483		
Approach Delay, s/veh	12.1			4.2		
Approach LOS	B			A		
Timer - Assigned Phs	1	2			6	
Phs Duration (G+Y+Rc), s	7.5	69.1			76.6	
Change Period (Y+Rc), s	4.5	4.5			4.5	
Max Green Setting (Gmax), s	5.0	66.0			75.5	
Max Q Clear Time (g_c+I), s	13.8	47.8			3.4	
Green Ext Time (p_c), s	0.0	16.8			2.7	
Intersection Summary						
HCM 6th Ctrl Delay			10.8			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary
48: I-15 NB Ramps & Camino del Rio S

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	450	1090	0	0	120	50	335	10	140	0	0	0
Future Volume (veh/h)	450	1090	0	0	120	50	335	10	140	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	489	1185	0	0	130	7	364	11	64			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	542	1237	0	0	560	474	399	53	310			
Arrive On Green	0.30	0.66	0.00	0.00	0.30	0.30	0.22	0.22	0.22			
Sat Flow, veh/h	1781	1870	0	0	1870	1585	1781	238	1384			
Grp Volume(v), veh/h	489	1185	0	0	130	7	364	0	75			
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	1870	1585	1781	0	1621			
Q Serve(g_s), s	20.6	45.8	0.0	0.0	4.1	0.2	15.6	0.0	2.9			
Cycle Q Clear(g_c), s	20.6	45.8	0.0	0.0	4.1	0.2	15.6	0.0	2.9			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.85			
Lane Grp Cap(c), veh/h	542	1237	0	0	560	474	399	0	363			
V/C Ratio(X)	0.90	0.96	0.00	0.00	0.23	0.01	0.91	0.00	0.21			
Avail Cap(c_a), veh/h	772	1279	0	0	560	474	399	0	363			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	26.1	12.2	0.0	0.0	20.6	19.3	29.6	0.0	24.7			
Incr Delay (d2), s/veh	10.5	16.0	0.0	0.0	0.2	0.0	25.1	0.0	0.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	9.4	17.7	0.0	0.0	1.7	0.1	9.2	0.0	1.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.6	28.2	0.0	0.0	20.8	19.3	54.7	0.0	25.0			
LnGrp LOS	D	C	A	A	C	B	D	A	C			
Approach Vol, veh/h		1674			137			439				
Approach Delay, s/veh		30.7			20.8			49.6				
Approach LOS		C			C			D				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		56.2			28.3	27.9		22.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		53.5			33.9	15.1		17.5				
Max Q Clear Time (g_c+1), s		47.8			22.6	6.1		17.6				
Green Ext Time (p_c), s		3.9			1.2	0.3		0.0				
Intersection Summary												
HCM 6th Ctrl Delay					33.8							
HCM 6th LOS					C							

HCM 6th Signalized Intersection Summary
49: Fenton Pkwy & Street A

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



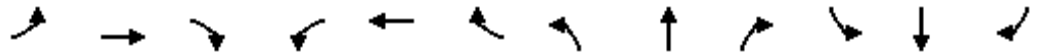
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	158	78	418	119	35	566
Future Volume (veh/h)	158	78	418	119	35	566
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	172	11	454	64	38	615
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	254	226	940	797	587	940
Arrive On Green	0.14	0.14	0.50	0.50	0.50	0.50
Sat Flow, veh/h	1781	1585	1870	1585	883	1870
Grp Volume(v), veh/h	172	11	454	64	38	615
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	883	1870
Q Serve(g_s), s	2.3	0.2	4.0	0.5	0.7	6.2
Cycle Q Clear(g_c), s	2.3	0.2	4.0	0.5	4.8	6.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	254	226	940	797	587	940
V/C Ratio(X)	0.68	0.05	0.48	0.08	0.06	0.65
Avail Cap(c_a), veh/h	1964	1748	2063	1748	1117	2063
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.3	9.4	4.1	3.3	5.7	4.7
Incr Delay (d2), s/veh	3.1	0.1	0.4	0.0	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.6	0.1	0.1	1.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.5	9.5	4.5	3.3	5.8	5.5
LnGrp LOS	B	A	A	A	A	A
Approach Vol, veh/h	183		518			653
Approach Delay, s/veh	13.2		4.4			5.5
Approach LOS	B		A			A
Timer - Assigned Phs		2			6	8
Phs Duration (G+Y+Rc), s		17.3			17.3	8.1
Change Period (Y+Rc), s		4.5			4.5	4.5
Max Green Setting (Gmax), s		28.0			28.0	28.0
Max Q Clear Time (g_c+I1), s		6.0			8.2	4.3
Green Ext Time (p_c), s		3.3			4.6	0.5
Intersection Summary						
HCM 6th Ctrl Delay			6.1			
HCM 6th LOS			A			

Queues

Horizon Year Plus Project w/2-Ln Bridge

1: SR-163 SB Ramps/Ulric St & Friars Rd

PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	183	1816	714	647	1233	844	327	31	785	352	352	214
v/c Ratio	0.86	0.93	0.75	1.05	0.62	0.64	0.98	0.17	0.89	0.82	0.82	0.39
Control Delay	95.3	59.0	9.6	102.4	47.0	21.9	109.4	62.7	59.7	66.0	66.0	9.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	95.3	59.0	9.6	102.4	47.0	21.9	109.4	62.7	59.7	66.0	66.0	9.5
Queue Length 50th (ft)	170	500	17	~348	328	190	161	27	400	322	322	16
Queue Length 95th (ft)	#290	#616	165	#475	389	344	#263	62	#523	442	442	82
Internal Link Dist (ft)		1296			1059			834			622	
Turn Bay Length (ft)	300		350	400		200	300		215			200
Base Capacity (vph)	234	1944	949	615	1967	1416	333	181	887	486	486	587
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.93	0.75	1.05	0.63	0.60	0.98	0.17	0.89	0.72	0.72	0.36

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Queues
2: Friars Rd & SR-163 NB Ramps

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



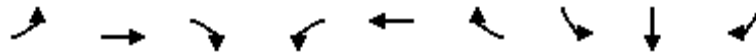
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	667	2581	1749	1081	1260	1052
v/c Ratio	0.73	0.63	0.84	0.85	0.84	0.63
Control Delay	49.7	12.4	56.3	56.1	53.7	21.5
Queue Delay	0.0	0.5	0.0	0.5	0.0	0.0
Total Delay	49.7	12.9	56.3	56.6	53.7	21.5
Queue Length 50th (ft)	323	311	427	612	396	352
Queue Length 95th (ft)	m360	346	437	692	456	456
Internal Link Dist (ft)		1059	635		521	
Turn Bay Length (ft)	500			200	500	400
Base Capacity (vph)	914	4087	2253	1278	1497	1664
Starvation Cap Reductn	0	0	0	35	0	0
Spillback Cap Reductn	0	938	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.82	0.78	0.87	0.84	0.63

Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

Queues
17: I-15 SB Ramps & Friars Rd

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



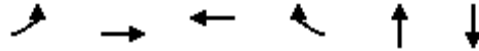
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR
Lane Group Flow (vph)	519	2880	964	332	1567	406	617	617	666
v/c Ratio	0.95	1.69	1.31	6.15	1.26	0.69	1.14	1.14	0.36
Control Delay	74.2	341.7	173.0	2365.4	166.9	21.5	123.8	123.8	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.2	341.7	173.0	2365.4	166.9	21.5	123.8	123.8	10.2
Queue Length 50th (ft)	449	~1360	~891	~521	~635	106	~666	~666	131
Queue Length 95th (ft)	#674	#1442	#1152	#717	#733	230	#911	#911	168
Internal Link Dist (ft)		844			1079			723	
Turn Bay Length (ft)	380		200	350			520		520
Base Capacity (vph)	546	1708	738	54	1241	592	543	543	1870
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.95	1.69	1.31	6.15	1.26	0.69	1.14	1.14	0.36

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
18: I-15 NB Ramps & Friars Rd

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	1111	3111	1864	546	1504	889
v/c Ratio	1.57	no cap	0.82	0.82	17.69	10.46
Control Delay	291.7		28.1	35.9	0.0	0.0
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	291.7	Error	28.1	35.9	0.0	0.0
Queue Length 50th (ft)	~1187	0	433	379	0	0
Queue Length 95th (ft)	#1535	0	500	565	0	0
Internal Link Dist (ft)		1079	869		797	677
Turn Bay Length (ft)	515					
Base Capacity (vph)	707	1	2627	774	85	85
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.57	3111.00	0.71	0.71	17.69	10.46

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Lane Group	EBL	EBR	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	131	651	244	436	227	902	1146	820
v/c Ratio	0.78	1.11	0.73	0.97	1.28	0.28	0.63	0.81
Control Delay	116.0	106.8	89.6	77.2	227.3	17.3	28.9	19.9
Queue Delay	0.0	0.0	0.0	8.8	0.0	0.1	50.3	47.0
Total Delay	116.0	106.8	89.6	86.0	227.3	17.3	79.3	66.9
Queue Length 50th (ft)	172	~648	301	334	~377	196	496	76
Queue Length 95th (ft)	248	#862	411	#556	#573	245	m593	m472
Internal Link Dist (ft)			653			1043	147	
Turn Bay Length (ft)				150	110			
Base Capacity (vph)	309	586	370	474	177	3234	1814	1016
Starvation Cap Reductn	0	0	0	0	0	0	912	266
Spillback Cap Reductn	0	0	0	29	0	747	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	1.11	0.66	0.98	1.28	0.36	1.27	1.09

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Queues
 30: Texas St/Qualcomm Way & I-8 EB Off-Ramp

Horizon Year Plus Project w/2-Ln Bridge
 PM Peak Hour



Lane Group	EBR	NBT	SBT
Lane Group Flow (vph)	755	1329	1917
v/c Ratio	0.82	0.69	0.99
Control Delay	32.8	17.0	39.3
Queue Delay	0.0	6.9	0.0
Total Delay	32.8	24.0	39.3
Queue Length 50th (ft)	198	246	484
Queue Length 95th (ft)	269	404	#811
Internal Link Dist (ft)		283	1043
Turn Bay Length (ft)			
Base Capacity (vph)	1547	1935	1935
Starvation Cap Reductn	0	560	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.49	0.97	0.99

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Queues

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	231	241	1023	409	749	334	361	981	13	1604	124
v/c Ratio	0.95	0.95	1.69	1.32	1.32dl	0.84	1.33	0.67	0.05	1.31	0.20
Control Delay	100.4	100.8	342.4	207.5	175.1	59.8	212.7	31.9	39.2	180.3	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.1	0.8	0.0	0.0	0.0	2.7	0.0
Total Delay	100.4	100.8	342.4	207.5	175.2	60.5	212.7	31.9	39.2	183.0	16.2
Queue Length 50th (ft)	205	214	~1205	~489	~461	274	~394	335	5	~941	45
Queue Length 95th (ft)	#375	#388	#1467	#714	#601	#468	#590	412	m6	m#896	m67
Internal Link Dist (ft)		2741			1304			830		254	
Turn Bay Length (ft)	105					200	215		65		140
Base Capacity (vph)	245	254	607	309	592	399	272	1468	264	1227	615
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	507	0
Spillback Cap Reductn	0	0	0	0	8	7	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.95	1.69	1.32	1.28	0.85	1.33	0.67	0.05	2.23	0.20

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.
- dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Queues
36: Fairmount Ave & I-8 EB Off-Ramp



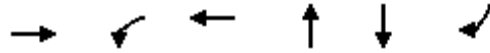
Lane Group	EBL	EBR	NBU	NBT	SBT
Lane Group Flow (vph)	1682	1900	61	619	1631
v/c Ratio	1.23dr	1.47	0.60	0.40	0.91
Control Delay	83.7	245.6	91.3	28.5	54.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	83.7	245.6	91.3	28.5	54.4
Queue Length 50th (ft)	~925	~1450	58	208	545
Queue Length 95th (ft)	#1113	#1665	110	257	#651
Internal Link Dist (ft)	749			557	830
Turn Bay Length (ft)	550		350		
Base Capacity (vph)	1561	1295	233	1844	1796
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.08	1.47	0.26	0.34	0.91

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Queues
46: Camino del Rio S & I-15 SB Off-Ramp

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



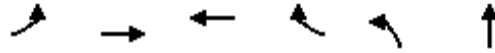
Lane Group	EBT	WBL	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	2355	43	408	87	261	120
v/c Ratio	1.00	0.68	0.31	0.64	0.95	0.35
Control Delay	44.3	117.0	8.2	40.3	104.2	11.8
Queue Delay	0.0	109.8	57.6	0.0	0.0	0.0
Total Delay	44.3	226.9	65.9	40.3	104.2	11.8
Queue Length 50th (ft)	~1278	42	130	11	257	0
Queue Length 95th (ft)	#1404	#111	177	#84	#438	59
Internal Link Dist (ft)	323		47	78	212	
Turn Bay Length (ft)		50				
Base Capacity (vph)	2349	63	1362	135	276	346
Starvation Cap Reductn	0	37	1001	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.00	1.65	1.13	0.64	0.95	0.35

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
48: I-15 NB Ramps & Camino del Rio S

Horizon Year Plus Project w/2-Ln Bridge
PM Peak Hour



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT
Lane Group Flow (vph)	489	1185	130	54	364	163
v/c Ratio	0.66	0.96	0.32	0.13	0.92	0.37
Control Delay	25.4	32.3	28.3	4.1	62.4	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.4	32.3	28.3	4.1	62.4	13.8
Queue Length 50th (ft)	217	465	51	0	180	24
Queue Length 95th (ft)	294	#830	107	17	#343	75
Internal Link Dist (ft)		251	398			473
Turn Bay Length (ft)				90	175	
Base Capacity (vph)	823	1284	449	444	399	441
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.92	0.29	0.12	0.91	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

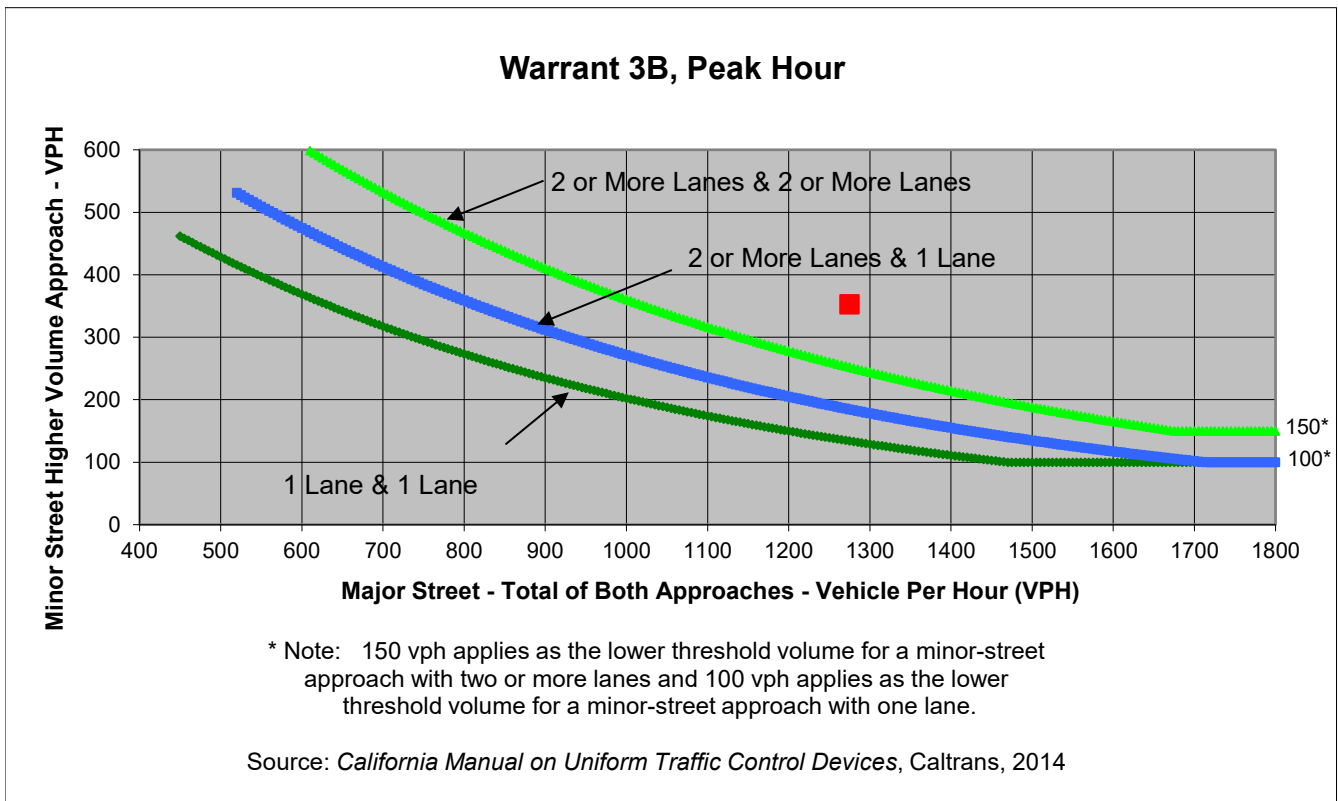
Project SDSU Mission Valley
 Scenario HY + Project w/2In bridge
 Peak Hour PM

Turn Movement Volumes

	NB	SB	EB	WB
Left/U-turns	253	10	65	0
Through	387	537	0	0
Right	0	88	288	0
Total	640	635	353	0

Major Street Direction

x	North/South
	East/West



	Major Street	Minor Street	Warrant Met
	Ward Rd	Rancho Mission Rd	
Number of Approach Lanes	2	1	YES
Traffic Volume (VPH) *	1,275	353	

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
 Traffic Volume for Minor Street is the Volume of High Volume Approach.



Major Street Ward Rd
 Minor Street Rancho Mission Rd

Project SDSU Mission Valley
 Scenario HY + Project w/2ln bridge
 Peak Hour PM

Turn Movement Volumes

	NB	SB	EB	WB
Left	291	10	68	0
Through	495	608	0	0
Right	0	88	350	0
Total	786	706	418	0

Major Street Direction

x	North/South
	East/West

Intersection Geometry

Number of Approach Lanes for Minor Street	1
Total Approaches	3

Worst Case Delay for Minor Street

Stopped Delay (seconds per vehicle)	165.9
Approach with Worst Case Delay	EB
Total Vehicles on Approach	353

Warrant 3A, Peak Hour			
	Peak Hour Delay on Minor Approach (vehicle-hours)	Peak Hour Volume on Minor Approach (vph)	Peak Hour Entering Volume Serviced (vph)
HY + Project w/2ln bridge	16.3	418	1,910
Limiting Value	4	100	650
Condition Satisfied?	Met	Met	Met
Warrant Met	<u>YES</u>		

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

HY+P w/2-Ln Bridge w/Improvements
 AM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗	↑ ↑ ↑	↖ ↗		↖ ↗	↑ ↑ ↑	↖ ↗				↖ ↗	↑	↖ ↗
Traffic Volume (veh/h)	364	1115	454	60	330	2156	520	0	0	0	794	10	1221
Future Volume (veh/h)	364	1115	454	60	330	2156	520	0	0	0	794	10	1221
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	387	1186	148		351	2294	518				853	0	1293
Peak Hour Factor	0.94	0.94	0.94		0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	534	1993	1089		386	2182	1874				871	0	1265
Arrive On Green	0.15	0.39	0.39		0.07	0.14	0.14				0.24	0.00	0.24
Sat Flow, veh/h	3456	5106	2790		1781	5106	2790				3563	0	3170
Grp Volume(v), veh/h	387	1186	148		351	2294	518				853	0	1293
Grp Sat Flow(s),veh/h/ln	1728	1702	1395		1781	1702	1395				1781	0	1585
Q Serve(g_s), s	11.7	20.3	3.8		21.5	47.0	10.7				26.2	0.0	26.9
Cycle Q Clear(g_c), s	11.7	20.3	3.8		21.5	47.0	10.7				26.2	0.0	26.9
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	534	1993	1089		386	2182	1874				871	0	1265
V/C Ratio(X)	0.72	0.59	0.14		0.91	1.05	0.28				0.98	0.00	1.02
Avail Cap(c_a), veh/h	606	1993	1089		505	2182	1874				871	0	1265
HCM Platoon Ratio	1.00	1.00	1.00		0.33	0.33	0.33				1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00		0.09	0.09	0.09				1.00	0.00	1.00
Uniform Delay (d), s/veh	44.3	26.6	21.6		50.0	47.2	11.5				41.3	0.0	33.0
Incr Delay (d2), s/veh	2.9	1.3	0.3		1.8	24.6	0.0				25.3	0.0	31.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0		0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	8.0	1.2		10.4	26.2	6.9				14.5	0.0	31.9
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	47.2	27.9	21.8		51.7	71.8	11.6				66.5	0.0	64.1
LnGrp LOS	D	C	C		D	F	B				E	A	F
Approach Vol, veh/h		1721				3163						2146	
Approach Delay, s/veh		31.7				59.7						65.0	
Approach LOS		C				E						E	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	38.1	49.9		32.0	24.0	54.0							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	35.6	35.6		26.9	19.3	* 47							
Max Q Clear Time (g_c+Y), s	23.5	22.3		28.9	13.7	49.0							
Green Ext Time (p_c), s	0.3	4.8		0.0	0.4	0.0							

Intersection Summary

HCM 6th Ctrl Delay	54.5
HCM 6th LOS	D

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

HY+P w/2-Ln Bridge w/Improvements
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔				↑↑↑	↔					↑	↔↔
Traffic Volume (veh/h)	789	1210	0	0	2447	1743	0	0	380	0	0	598
Future Volume (veh/h)	789	1210	0	0	2447	1743	0	0	380	0	0	598
Initial Q (Qb), veh	20	0	0	0	0	20				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	831	1274	0	0	2450	1919				0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				0	2	2
Cap, veh/h	974	0	0	0	2261	1916				0	0	
Arrive On Green	0.28	0.95	0.00	0.00	0.60	0.60				0.00	0.00	0.00
Sat Flow, veh/h	3456	0	0	0	3741	3170					0	
Grp Volume(v), veh/h	831	0	0	0	2450	1919					0.0	
Grp Sat Flow(s),veh/h/ln	1728	0	0	0	1870	1585						
Q Serve(g_s), s	25.0	0.0	0.0	0.0	66.5	66.5						
Cycle Q Clear(g_c), s	25.0	0.0	0.0	0.0	66.5	66.5						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	974	0	0	0	2261	1916						
V/C Ratio(X)	0.85	0.00	0.00	0.00	1.08	1.00						
Avail Cap(c_a), veh/h	974	0	0	0	2261	1916						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00						
Upstream Filter(I)	0.55	0.00	0.00	0.00	0.25	0.25						
Uniform Delay (d), s/veh	38.6	0.0	0.0	0.0	21.8	21.7						
Incr Delay (d2), s/veh	4.1	0.0	0.0	0.0	40.0	10.6						
Initial Q Delay(d3),s/veh	20.7	0.0	0.0	0.0	0.0	37.6						
%ile BackOfQ(50%),veh/ln	4.7	0.0	0.0	0.0	36.9	33.4						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.3	0.0	0.0	0.0	61.7	69.9						
LnGrp LOS	E	A	A	A	F	F						
Approach Vol, veh/h		831			4369							
Approach Delay, s/veh		63.3			65.3							
Approach LOS		E			E							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		110.0			36.5	73.5						
Change Period (Y+Rc), s		5.5			5.5	7.0						
Max Green Setting (Gmax), s		95.0			21.5	66.5						
Max Q Clear Time (g_c+I1), s		0.0			27.0	68.5						
Green Ext Time (p_c), s		0.0			0.0	0.0						

Intersection Summary

HCM 6th Ctrl Delay	65.0
HCM 6th LOS	E

Notes

User approved volume balancing among the lanes for turning movement.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 31: Texas St & Camino del Rio S

HY+P w/2-Ln Bridge w/Improvements
 AM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗	↖	↖	↗	↖	↖	↖	↖	↖	↖	↖
Traffic Volume (veh/h)	10	103	53	60	105	92	120	150	1343	223	480	562	293
Future Volume (veh/h)	10	103	53	60	105	92	120	150	1343	223	480	562	293
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		0.98	1.00		0.96	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1811	1663	1870	1841	1870	1796	1841	1870	1870	1870	1870	1826
Adj Flow Rate, veh/h		81	91	11	102	105	52	156	1399	226	500	585	183
Peak Hour Factor		0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %		6	16	2	4	2	7	4	2	2	2	2	5
Cap, veh/h		133	128	287	184	196	608	183	1070	170	528	1930	823
Arrive On Green		0.08	0.08	0.08	0.10	0.10	0.10	0.10	0.35	0.35	0.30	0.54	0.54
Sat Flow, veh/h		1725	1663	1579	1753	1870	1492	1753	3051	485	1781	3554	1515
Grp Volume(v), veh/h		81	91	11	102	105	52	156	806	819	500	585	183
Grp Sat Flow(s),veh/h/ln		1725	1663	1579	1753	1870	1492	1753	1777	1760	1781	1777	1515
Q Serve(g_s), s		5.7	6.7	0.7	7.0	6.7	2.7	11.0	44.1	44.1	34.5	11.3	7.9
Cycle Q Clear(g_c), s		5.7	6.7	0.7	7.0	6.7	2.7	11.0	44.1	44.1	34.5	11.3	7.9
Prop In Lane		1.00		1.00	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h		133	128	287	184	196	608	183	623	617	528	1930	823
V/C Ratio(X)		0.61	0.71	0.04	0.56	0.54	0.09	0.85	1.29	1.33	0.95	0.30	0.22
Avail Cap(c_a), veh/h		412	397	542	393	420	786	349	623	617	1000	2544	1085
HCM Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		56.2	56.7	42.4	53.5	53.4	23.4	55.4	40.8	40.8	43.3	15.7	14.9
Incr Delay (d2), s/veh		4.5	7.1	0.1	7.1	6.1	0.2	4.3	143.3	158.4	4.2	0.2	0.3
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.6	3.1	0.3	3.4	3.5	1.0	5.0	43.6	45.8	15.5	4.6	2.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh		60.7	63.7	42.5	60.5	59.5	23.5	59.7	184.1	199.2	47.4	15.9	15.2
LnGrp LOS		E	E	D	E	E	C	E	F	F	D	B	B
Approach Vol, veh/h			183		259			1781			1268		
Approach Delay, s/veh			61.1		52.7			180.1			28.2		
Approach LOS			E		D			F			C		
Timer - Assigned Phs	1	2		4	5	6		8					
Phs Duration (G+Y+Rc), s	1.7	49.3		14.6	17.5	73.5		20.2					
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0					
Max Green Setting (Gmax), s	70.6	44.1		30.0	25.0	* 90		28.2					
Max Q Clear Time (g_c+Rc), s	30.5	46.1		8.7	13.0	13.3		9.0					
Green Ext Time (p_c), s	0.7	0.0		0.7	0.2	11.6		2.2					

Intersection Summary

HCM 6th Ctrl Delay	109.3
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 32: Ward Rd & Rancho Mission Rd

HY+P w/2-Ln Bridge w/Improvements
 AM Peak Hour



























Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	50	225	172	635	467	34
Future Volume (veh/h)	50	225	172	635	467	34
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00	0.99			0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	52	35	179	661	486	27
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	164	146	447	1359	1816	101
Arrive On Green	0.09	0.09	0.53	0.53	0.53	0.53
Sat Flow, veh/h	1781	1585	435	2643	3510	189
Grp Volume(v), veh/h	52	35	412	428	252	261
Grp Sat Flow(s),veh/h/ln	1781	1585	1376	1617	1777	1829
Q Serve(g_s), s	0.7	0.5	1.1	4.0	1.9	1.9
Cycle Q Clear(g_c), s	0.7	0.5	3.6	4.0	1.9	1.9
Prop In Lane	1.00	1.00	0.43			0.10
Lane Grp Cap(c), veh/h	164	146	947	859	944	972
V/C Ratio(X)	0.32	0.24	0.44	0.50	0.27	0.27
Avail Cap(c_a), veh/h	1342	1194	1487	1557	1710	1761
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.1	10.1	3.4	3.6	3.1	3.1
Incr Delay (d2), s/veh	1.1	0.8	0.3	0.4	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.1	0.1	0.0	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.3	10.9	3.7	4.0	3.2	3.2
LnGrp LOS	B	B	A	A	A	A
Approach Vol, veh/h	87			840	513	
Approach Delay, s/veh	11.1			3.9	3.2	
Approach LOS	B			A	A	
Timer - Assigned Phs		2		4		6
Phs Duration (G+Y+Rc), s		17.2		6.7		17.2
Change Period (Y+Rc), s		4.5		4.5		4.5
Max Green Setting (Gmax), s		23.0		18.0		23.0
Max Q Clear Time (g_c+I1), s		6.0		2.7		3.9
Green Ext Time (p_c), s		5.4		0.2		2.8
Intersection Summary						
HCM 6th Ctrl Delay			4.1			
HCM 6th LOS			A			

HCM Signalized Intersection Capacity Analysis

HY+P w/2-Ln Bridge w/Improvements

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	61	33	513	490	807	395	674	1476	180	13	952	223
Future Volume (vph)	61	33	513	490	807	395	674	1476	180	13	952	223
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	1.00	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1746	1580	1610	3171	1424	1770	3477		3433	3539	1583
Flt Permitted	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1746	1580	1610	3171	1424	1770	3477		3433	3539	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	64	35	540	516	849	416	709	1554	189	14	1002	235
RTOR Reduction (vph)	0	0	65	0	0	0	0	6	0	0	0	69
Lane Group Flow (vph)	51	48	475	464	943	374	709	1737	0	14	1002	166
Confl. Peds. (#/hr)						2			1			
Confl. Bikes (#/hr)			2			2						
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	4	4	5	8	8	1	5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	8.0	8.0	46.3	37.9	37.9	50.9	38.3	70.1		13.0	44.8	44.8
Effective Green, g (s)	8.0	8.0	46.3	37.9	37.9	50.9	38.3	70.1		13.0	44.8	44.8
Actuated g/C Ratio	0.05	0.05	0.31	0.25	0.25	0.34	0.26	0.47		0.09	0.30	0.30
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	89	93	537	406	801	483	451	1624		297	1056	472
v/s Ratio Prot	0.03	0.03	c0.23	0.29	c0.30	0.07	c0.40	c0.50		0.00	c0.28	
v/s Ratio Perm			0.07			0.20						0.10
v/c Ratio	0.57	0.52	0.88	1.14	1.18	0.77	1.57	1.07		0.05	0.95	0.35
Uniform Delay, d1	69.3	69.1	49.3	56.0	56.0	44.4	55.9	40.0		62.8	51.5	41.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.03	0.57	0.35
Incremental Delay, d2	5.4	2.0	15.5	89.7	92.6	6.9	268.0	43.6		0.0	15.4	1.7
Delay (s)	74.8	71.1	64.8	145.8	148.7	51.3	323.8	83.5		64.8	44.9	15.9
Level of Service	E	E	E	F	F	D	F	F		E	D	B
Approach Delay (s)		66.1			127.5			153.0			39.7	
Approach LOS		E			F			F			D	
Intersection Summary												
HCM 2000 Control Delay			113.4			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.24									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			21.0			
Intersection Capacity Utilization			108.5%			ICU Level of Service			G			
Analysis Period (min)			15									

c Critical Lane Group

HCM 6th Signalized Intersection Summary
 44: Mission City Pkwy/Fenton Pkwy & Camino del Rio N

HY+P w/2-Ln Bridge w/Improvements
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (veh/h)	44	55	60	163	450	390	510	230	81	159	143	43
Future Volume (veh/h)	44	55	60	163	450	390	510	230	81	159	143	43
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	48	60	32	177	489	339	554	250	27	173	155	37
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	68	413	882	211	564	665	598	659	558	211	197	47
Arrive On Green	0.04	0.22	0.22	0.12	0.30	0.30	0.34	0.35	0.35	0.12	0.13	0.13
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1459	348
Grp Volume(v), veh/h	48	60	32	177	489	339	554	250	27	173	0	192
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	0	1808
Q Serve(g_s), s	2.5	2.4	0.9	9.2	23.4	14.9	28.4	9.5	1.1	9.0	0.0	9.7
Cycle Q Clear(g_c), s	2.5	2.4	0.9	9.2	23.4	14.9	28.4	9.5	1.1	9.0	0.0	9.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.19
Lane Grp Cap(c), veh/h	68	413	882	211	564	665	598	659	558	211	0	244
V/C Ratio(X)	0.71	0.15	0.04	0.84	0.87	0.51	0.93	0.38	0.05	0.82	0.00	0.79
Avail Cap(c_a), veh/h	94	554	1001	254	722	800	748	960	813	415	0	589
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.0	29.6	9.5	40.8	31.2	20.3	30.3	22.9	20.2	40.7	0.0	39.6
Incr Delay (d2), s/veh	13.7	0.2	0.0	18.6	9.0	0.6	15.4	0.4	0.0	7.7	0.0	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.1	0.3	4.9	11.2	5.1	14.1	4.1	0.4	4.4	0.0	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.7	29.8	9.5	59.4	40.2	20.9	45.7	23.3	20.2	48.4	0.0	45.2
LnGrp LOS	E	C	A	E	D	C	D	C	C	D	A	D
Approach Vol, veh/h	140			1005			831			365		
Approach Delay, s/veh	35.1			37.1			38.1			46.7		
Approach LOS	D			D			D			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.7	37.8	15.7	25.4	36.2	17.3	8.1	33.0				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	22.0	48.5	13.5	28.0	39.7	30.8	5.0	36.5				
Max Q Clear Time (g_c+I1), s	11.0	11.5	11.2	4.4	30.4	11.7	4.5	25.4				
Green Ext Time (p_c), s	0.3	1.6	0.1	0.3	1.4	1.0	0.0	3.1				

Intersection Summary												
HCM 6th Ctrl Delay	38.8											
HCM 6th LOS	D											

HCM 6th Signalized Intersection Summary
46: Camino del Rio S & I-15 SB Off-Ramp

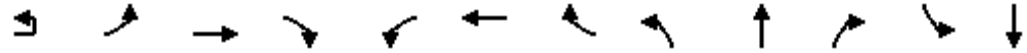
HY+P w/2-Ln Bridge w/Improvements
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↑			↑	↑
Traffic Volume (veh/h)	0	249	20	30	1078	0	10	0	10	70	20	530
Future Volume (veh/h)	0	249	20	30	1078	0	10	0	10	70	20	530
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	271	14	33	1172	0	11	0	2	76	22	483
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	0	1474	76	80	1460	0	24	0	4	479	139	543
Arrive On Green	0.00	0.43	0.43	0.43	0.43	0.00	0.02	0.00	0.02	0.34	0.34	0.34
Sat Flow, veh/h	0	3532	177	49	3489	0	1479	0	269	1396	404	1585
Grp Volume(v), veh/h	0	139	146	642	563	0	13	0	0	98	0	483
Grp Sat Flow(s),veh/h/ln	0	1777	1839	1836	1617	0	1748	0	0	1801	0	1585
Q Serve(g_s), s	0.0	3.1	3.1	6.4	19.4	0.0	0.5	0.0	0.0	2.4	0.0	18.3
Cycle Q Clear(g_c), s	0.0	3.1	3.1	19.3	19.4	0.0	0.5	0.0	0.0	2.4	0.0	18.3
Prop In Lane	0.00		0.10	0.05		0.00	0.85		0.15	0.78		1.00
Lane Grp Cap(c), veh/h	0	762	788	847	693	0	28	0	0	617	0	543
V/C Ratio(X)	0.00	0.18	0.18	0.76	0.81	0.00	0.46	0.00	0.00	0.16	0.00	0.89
Avail Cap(c_a), veh/h	0	950	983	1037	864	0	137	0	0	778	0	685
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	11.3	11.3	15.8	15.9	0.0	31.0	0.0	0.0	14.5	0.0	19.8
Incr Delay (d2), s/veh	0.0	0.1	0.1	2.6	4.8	0.0	11.3	0.0	0.0	0.1	0.0	11.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.0	1.1	7.0	6.6	0.0	0.3	0.0	0.0	0.9	0.0	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	11.4	11.4	18.5	20.7	0.0	42.3	0.0	0.0	14.6	0.0	31.3
LnGrp LOS	A	B	B	B	C	A	D	A	A	B	A	C
Approach Vol, veh/h		285			1205			13				581
Approach Delay, s/veh		11.4			19.5			42.3				28.5
Approach LOS		B			B			D				C
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		31.8		26.3		31.8		5.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		34.0		27.5		34.0		5.0				
Max Q Clear Time (g_c+I1), s		5.1		20.3		21.4		2.5				
Green Ext Time (p_c), s		1.5		1.5		5.9		0.0				
Intersection Summary												
HCM 6th Ctrl Delay					21.0							
HCM 6th LOS					C							

HCM Signalized Intersection Capacity Analysis
 1: SR-163 SB Ramps/Ulric St & Friars Rd

HY+P w/2-Ln Bridge w/Improvements
 PM Peak Hour

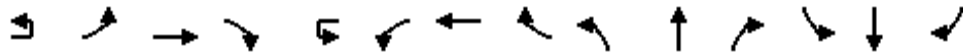


Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	
Lane Configurations		3		7	7	7	7	7	7	7	7	7	
Traffic Volume (vph)	10	170	1780	700	634	1208	827	320	30	769	690	0	
Future Volume (vph)	10	170	1780	700	634	1208	827	320	30	769	690	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.7	7.0	7.0	4.5	3.0	6.1	6.1	6.1	4.5	6.1	6.1	
Lane Util. Factor		1.00	0.86	1.00	0.97	0.91	0.88	0.97	1.00	0.88	0.95	0.95	
Frbp, ped/bikes		1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (prot)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Flt Permitted		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95	
Satd. Flow (perm)		1770	6408	1546	3433	5085	2787	3433	1863	2787	1681	1681	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
Adj. Flow (vph)	10	173	1816	714	647	1233	844	327	31	785	704	0	
RTOR Reduction (vph)	0	0	0	481	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	183	1816	233	647	1233	844	327	31	785	352	352	
Confl. Peds. (#/hr)				5									
Confl. Bikes (#/hr)				2									
Turn Type	Prot	Prot	NA	Perm	Prot	NA	custom	Split	NA	pm+ov	Split	NA	
Protected Phases	5	5	2		1	6 7	4 7	8	8	1	4	4	
Permitted Phases				2						8			
Actuated Green, G (s)		17.5	44.0	44.0	26.0	52.3	68.9	14.1	14.1	40.1	37.2	37.2	
Effective Green, g (s)		17.5	44.0	44.0	26.0	52.3	61.9	14.1	14.1	40.1	37.2	37.2	
Actuated g/C Ratio		0.12	0.30	0.30	0.18	0.36	0.43	0.10	0.10	0.28	0.26	0.26	
Clearance Time (s)		4.7	7.0	7.0	4.5			6.1	6.1	4.5	6.1	6.1	
Vehicle Extension (s)		2.0	2.0	2.0	3.0			3.0	3.0	3.0	2.0	2.0	
Lane Grp Cap (vph)		213	1944	469	615	1834	1189	333	181	770	431	431	
v/s Ratio Prot		0.10	c0.28		c0.19	0.24	0.30	0.10	0.02	c0.18	c0.21	0.21	
v/s Ratio Perm				0.15						0.10			
v/c Ratio		0.86	0.93	0.50	1.05	0.67	0.71	0.98	0.17	1.02	0.82	0.82	
Uniform Delay, d1		62.5	49.1	41.4	59.5	39.1	34.2	65.3	60.1	52.5	50.7	50.7	
Progression Factor		1.00	1.00	1.00	1.25	0.75	0.68	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		26.5	9.9	3.7	44.5	0.5	1.1	44.2	0.5	37.4	10.8	10.8	
Delay (s)		89.1	58.9	45.2	118.8	29.7	24.4	109.5	60.5	89.9	61.5	61.5	
Level of Service		F	E	D	F	C	C	F	E	F	E	E	
Approach Delay (s)			57.4			49.2			94.7			57.0	
Approach LOS			E			D			F			E	
Intersection Summary													
HCM 2000 Control Delay			60.1		HCM 2000 Level of Service					E			
HCM 2000 Volume to Capacity ratio			0.96										
Actuated Cycle Length (s)			145.0		Sum of lost time (s)					26.9			
Intersection Capacity Utilization			97.3%		ICU Level of Service					F			
Analysis Period (min)			15										
c Critical Lane Group													

Movement	SBR
Lane Configurations	7
Traffic Volume (vph)	210
Future Volume (vph)	210
Ideal Flow (vphpl)	1900
Total Lost time (s)	6.1
Lane Util. Factor	1.00
Frbp, ped/bikes	0.98
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1560
Flt Permitted	1.00
Satd. Flow (perm)	1560
Peak-hour factor, PHF	0.98
Adj. Flow (vph)	214
RTOR Reduction (vph)	142
Lane Group Flow (vph)	72
Confl. Peds. (#/hr)	3
Confl. Bikes (#/hr)	
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Actuated Green, G (s)	37.2
Effective Green, g (s)	37.2
Actuated g/C Ratio	0.26
Clearance Time (s)	6.1
Vehicle Extension (s)	2.0
Lane Grp Cap (vph)	400
v/s Ratio Prot	
v/s Ratio Perm	0.05
v/c Ratio	0.18
Uniform Delay, d1	42.0
Progression Factor	1.00
Incremental Delay, d2	0.1
Delay (s)	42.1
Level of Service	D
Approach Delay (s)	
Approach LOS	
Intersection Summary	

HCM 6th Signalized Intersection Summary
8: River Run Dr & Friars Rd

HY+P w/2-Ln Bridge w/Improvements
PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖ ↗ ↘ ↙		↖		↖ ↗ ↘ ↙				↖ ↗	↖ ↗		↖ ↗	
Traffic Volume (veh/h)	20	20	2724	160	10	78	1761	28	80	10	152	225	20	90
Future Volume (veh/h)	20	20	2724	160	10	78	1761	28	80	10	152	225	20	90
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00		0.98	1.00		0.97	0.98		0.97
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No				No			No			No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h		21	2808	139		80	1815	28	82	10	84	232	21	84
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h		27	2906	900		230	3594	55	365	42	419	244	19	74
Arrive On Green		0.02	0.57	0.57		0.26	1.00	1.00	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h		1781	5106	1581		1781	5178	80	1181	155	1541	754	68	273
Grp Volume(v), veh/h		21	2808	139		80	1193	650	92	0	84	337	0	0
Grp Sat Flow(s),veh/h/ln		1781	1702	1581		1781	1702	1854	1336	0	1541	1095	0	0
Q Serve(g_s), s		1.8	81.6	6.4		5.7	0.0	0.0	0.0	0.0	6.5	33.8	0.0	0.0
Cycle Q Clear(g_c), s		1.8	81.6	6.4		5.7	0.0	0.0	8.3	0.0	6.5	42.1	0.0	0.0
Prop In Lane		1.00		1.00		1.00		0.04	0.89		1.00	0.69		0.25
Lane Grp Cap(c), veh/h		27	2906	900		230	2363	1287	407	0	419	337	0	0
V/C Ratio(X)		0.77	0.97	0.15		0.35	0.50	0.51	0.23	0.00	0.20	1.00	0.00	0.00
Avail Cap(c_a), veh/h		106	2906	900		230	2363	1287	407	0	419	337	0	0
HCM Platoon Ratio		1.00	1.00	1.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		0.79	0.79	0.79	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh		76.0	32.0	15.8		52.2	0.0	0.0	44.1	0.0	43.5	62.6	0.0	0.0
Incr Delay (d2), s/veh		15.2	10.5	0.4		0.3	0.6	1.1	0.2	0.0	0.2	49.3	0.0	0.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		0.9	34.0	2.4		2.4	0.2	0.4	2.9	0.0	2.6	18.1	0.0	0.0
Unsig. Movement Delay, s/veh														
LnGrp Delay(d),s/veh		91.3	42.5	16.1		52.5	0.6	1.1	44.3	0.0	43.7	111.9	0.0	0.0
LnGrp LOS		F	D	B		D	A	A	D	A	D	F	A	A
Approach Vol, veh/h			2968				1923			176			337	
Approach Delay, s/veh			41.6				2.9			44.0			111.9	
Approach LOS			D				A			D			F	
Timer - Assigned Phs	1	2		4	5	6		8						
Phs Duration (G+Y+Rc), s	36.2	94.4		47.0	6.8	113.8		47.0						
Change Period (Y+Rc), s	6.2	* 6.2		4.9	4.4	6.2		4.9						
Max Green Setting (Gmax), s	88	* 88		42.1	9.2	88.2		42.1						
Max Q Clear Time (g_c+1), s	83.6			44.1	3.8	2.0		10.3						
Green Ext Time (p_c), s	0.0	4.6		0.0	0.0	72.4		0.7						

Intersection Summary

HCM 6th Ctrl Delay	32.3
HCM 6th LOS	C

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 9: Fenton Pkwy & Friars Rd

HY+P w/2-Ln Bridge w/Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑↑	↗		↔↔	↑↑↑	↗	↔↔	↑	↗	↔↔	↗	↗
Traffic Volume (veh/h)	150	2432	699	10	280	1295	80	491	56	451	40	22	70
Future Volume (veh/h)	150	2432	699	10	280	1295	80	491	56	451	40	22	70
Initial Q (Qb), veh	15	25	15		0	0	0	0	0	15	15	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00		1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No		No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	155	2507	567		289	1335	41	506	58	344	41	41	35
Peak Hour Factor	0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2		2	2	2	2	2	2	2	2	2
Cap, veh/h	541	2230	1048		281	2135	701	909	540	436	112	105	301
Arrive On Green	0.36	0.87	0.87		0.32	0.84	0.84	0.22	0.25	0.25	0.02	0.06	0.06
Sat Flow, veh/h	3456	5106	1585		3456	5106	1564	3456	1870	1581	3563	1870	1560
Grp Volume(v), veh/h	155	2507	567		289	1335	41	506	58	344	41	41	35
Grp Sat Flow(s),veh/h/ln	1728	1702	1585		1728	1702	1564	1728	1870	1581	1781	1870	1560
Q Serve(g_s), s	4.9	67.7	0.0		10.5	13.9	0.0	20.8	3.7	32.3	1.8	3.3	0.0
Cycle Q Clear(g_c), s	4.9	67.7	0.0		10.5	13.9	0.0	20.8	3.7	32.3	1.8	3.3	0.0
Prop In Lane	1.00		1.00		1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	541	2230	1048		281	2135	701	909	540	436	112	105	301
V/C Ratio(X)	0.29	1.12	0.54		1.03	0.63	0.06	0.56	0.11	0.79	0.37	0.39	0.12
Avail Cap(c_a), veh/h	628	2230	1035		561	2135	688	746	592	501	129	448	661
HCM Platoon Ratio	2.00	2.00	2.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.24	0.24	0.24		0.86	0.86	0.86	0.09	0.09	0.09	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.1	9.8	5.1		64.9	8.5	6.7	49.5	40.5	54.6	74.8	70.6	52.0
Incr Delay (d2), s/veh	0.0	57.6	0.5		24.3	1.2	0.1	0.1	0.0	1.4	0.7	10.7	0.8
Initial Q Delay(d3),s/veh	7.8	40.4	3.2		0.0	0.0	0.0	0.0	0.0	40.3	203.1	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	24.0	6.2		5.9	3.1	0.3	8.6	1.7	20.6	5.2	1.9	1.2
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	55.9	107.7	8.8		89.2	9.7	6.8	49.6	40.6	96.2	278.7	81.3	52.8
LnGrp LOS	E	F	A		F	A	A	D	D	F	F	F	D
Approach Vol, veh/h		3229				1665			908			117	
Approach Delay, s/veh		87.8				23.5			66.7			142.0	
Approach LOS		F				C			E			F	
Timer - Assigned Phs	1	2	3	4	5	6	7	8					
Phs Duration (G+Y+Rc), s	29.6	74.0	37.9	13.6	32.6	71.0	7.7	43.7					
Change Period (Y+Rc), s	4.4	6.3	4.4	4.9	4.4	6.2	4.4	4.9					
Max Green Setting (Gmax), s	12.6	67.7	17.6	37.1	15.6	64.8	5.6	49.1					
Max Q Clear Time (g_c+1/2y), s	11.5	69.7	22.8	5.3	6.9	15.9	3.8	34.3					
Green Ext Time (p_c), s	0.0	0.0	0.0	1.0	0.2	34.5	0.0	4.5					

Intersection Summary

HCM 6th Ctrl Delay	67.6
HCM 6th LOS	E

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 17: I-15 SB Ramps & Friars Rd

HY+P w/2-Ln Bridge w/Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖ ↗	↑ ↑ ↑	↖ ↗		↖ ↗	↑ ↑ ↑	↖ ↗				↖ ↗	↖ ↗	↖ ↗
Traffic Volume (veh/h)	498	2765	925	10	309	1504	390	0	0	0	1185	0	639
Future Volume (veh/h)	498	2765	925	10	309	1504	390	0	0	0	1185	0	639
Initial Q (Qb), veh	20	0	20		20	0	20				0	0	20
Ped-Bike Adj(A_pbT)	1.00		0.98		1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00		1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No		
Adj Sat Flow, veh/h/ln	1870	1870	1870		1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	519	2880	737		322	1567	353				1234	0	637
Peak Hour Factor	0.96	0.96	0.96		0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2		2	2	2				2	2	2
Cap, veh/h	905	3113	1054		393	1502	1723				1153	0	1841
Arrive On Green	0.24	0.36	0.36		0.06	0.10	0.10				0.32	0.00	0.32
Sat Flow, veh/h	3456	5106	2731		1781	5106	2790				3563	0	3170
Grp Volume(v), veh/h	519	2880	737		322	1567	353				1234	0	637
Grp Sat Flow(s),veh/h/ln	1728	1702	1366		1781	1702	1395				1781	0	1585
Q Serve(g_s), s	18.2	49.1	32.1		24.5	40.0	8.8				44.0	0.0	0.0
Cycle Q Clear(g_c), s	18.2	49.1	32.1		24.5	40.0	8.8				44.0	0.0	0.0
Prop In Lane	1.00		1.00		1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	905	3113	1054		393	1502	1723				1153	0	1841
V/C Ratio(X)	0.57	0.93	0.70		0.82	1.04	0.20				1.07	0.00	0.35
Avail Cap(c_a), veh/h	894	1842	985		393	1502	1723				1153	0	1793
HCM Platoon Ratio	1.00	1.00	1.00		0.33	0.33	0.33				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00		0.54	0.54	0.54				1.00	0.00	1.00
Uniform Delay (d), s/veh	44.8	24.4	36.6		63.1	61.4	15.3				46.0	0.0	15.7
Incr Delay (d2), s/veh	0.6	6.1	3.9		6.9	29.8	0.1				47.6	0.0	0.0
Initial Q Delay(d3),s/veh	8.2	0.0	8.6		102.0	0.0	1.2				0.0	0.0	1.3
%ile BackOfQ(50%),veh/ln	9.4	12.6	11.7		26.2	22.4	7.9				27.1	0.0	13.7
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh	53.7	30.4	49.1		172.0	91.2	16.7				93.6	0.0	17.1
LnGrp LOS	D	C	D		F	F	B				F	A	B
Approach Vol, veh/h		4136				2242						1871	
Approach Delay, s/veh		36.7				91.0						67.5	
Approach LOS		D				F						E	
Timer - Assigned Phs	1	2		4	5	6							
Phs Duration (G+Y+Rc), s	30.8	56.1		49.1	39.9	47.0							
Change Period (Y+Rc), s	4.2	7.0		5.1	7.0	* 7							
Max Green Setting (Gmax), s	30	45.7		44.0	35.2	* 40							
Max Q Clear Time (g_c+20), s	20.5	51.1		46.0	20.2	42.0							
Green Ext Time (p_c), s	0.2	0.0		0.0	0.9	0.0							

Intersection Summary

HCM 6th Ctrl Delay	58.4
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 18: I-15 NB Ramps & Friars Rd

HY+P w/2-Ln Bridge w/Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔				↑↑↑	↔					↑	↔↔
Traffic Volume (veh/h)	1055	2955	0	0	1328	961	0	0	1429	0	0	845
Future Volume (veh/h)	1055	2955	0	0	1328	961	0	0	1429	0	0	845
Initial Q (Qb), veh	40	0	0	0	20	40				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870				0	1870	1870
Adj Flow Rate, veh/h	1111	3111	0	0	1342	1050				0	0	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95				0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2				0	2	2
Cap, veh/h	1143	0	0	0	2159	1830				0	0	
Arrive On Green	0.33	0.95	0.00	0.00	1.00	1.00				0.00	0.00	0.00
Sat Flow, veh/h	3456	0	0	0	3741	3170					0	
Grp Volume(v), veh/h	1111	0	0	0	1342	1050					0.0	
Grp Sat Flow(s),veh/h/ln	1728	0	0	0	1870	1585						
Q Serve(g_s), s	43.1	0.0	0.0	0.0	0.0	0.0						
Cycle Q Clear(g_c), s	43.1	0.0	0.0	0.0	0.0	0.0						
Prop In Lane	1.00		0.00	0.00		1.00						
Lane Grp Cap(c), veh/h	1143	0	0	0	2159	1830						
V/C Ratio(X)	0.97	0.00	0.00	0.00	0.62	0.57						
Avail Cap(c_a), veh/h	1143	0	0	0	2159	1830						
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00						
Upstream Filter(I)	0.09	0.00	0.00	0.00	0.87	0.87						
Uniform Delay (d), s/veh	45.5	0.0	0.0	0.0	0.0	0.0						
Incr Delay (d2), s/veh	3.6	0.0	0.0	0.0	1.2	1.1						
Initial Q Delay(d3),s/veh	13.2	0.0	0.0	0.0	1.6	8.1						
%ile BackOfQ(50%),veh/ln	7.1	0.0	0.0	0.0	0.8	2.3						
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	162.3	0.0	0.0	0.0	2.8	9.2						
LnGrp LOS	F	A	A	A	A	A						
Approach Vol, veh/h		1111			2392							
Approach Delay, s/veh		162.3			5.6							
Approach LOS		F			A							
Timer - Assigned Phs		2			5	6						
Phs Duration (G+Y+Rc), s		136.0			50.5	85.5						
Change Period (Y+Rc), s		* 7			5.5	7.0						
Max Green Setting (Gmax), s*		1.1E2			45.0	56.0						
Max Q Clear Time (g_c+I1), s		0.0			45.1	2.0						
Green Ext Time (p_c), s		0.0			0.0	12.7						

Intersection Summary

HCM 6th Ctrl Delay	55.3
HCM 6th LOS	E

Notes

User approved volume balancing among the lanes for turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
 Unsignalized Delay for [NBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
 19: Rancho Mission Rd & Friars Rd

HY+P w/2-Ln Bridge w/Improvements
 PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑		↵	↑↑↑	↵↵	↑
Traffic Volume (veh/h)	3517	878	10	81	1796	483	164
Future Volume (veh/h)	3517	878	10	81	1796	483	164
Initial Q (Qb), veh	0	0		0	10	10	0
Ped-Bike Adj(A_pbT)		1.00		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	3664	813		84	1871	503	40
Peak Hour Factor	0.96	0.96		0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	3014	1309		105	4876	600	299
Arrive On Green	1.00	1.00		0.06	0.76	0.16	0.16
Sat Flow, veh/h	5274	1583		1781	6696	3563	1585
Grp Volume(v), veh/h	3664	813		84	1871	503	40
Grp Sat Flow(s),veh/h/ln	5274	1583		1781	6696	3563	1585
Q Serve(g_s), s	90.8	0.0		6.3	13.4	18.8	3.0
Cycle Q Clear(g_c), s	90.8	0.0		6.3	13.4	18.8	3.0
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	3014	1309		105	4876	600	299
V/C Ratio(X)	1.22	0.62		0.80	0.38	0.84	0.13
Avail Cap(c_a), veh/h	3409	1309		208	4884	843	375
HCM Platoon Ratio	2.00	2.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		0.88	0.88	0.56	0.56
Uniform Delay (d), s/veh	0.0	0.0		63.2	5.8	55.5	46.0
Incr Delay (d2), s/veh	100.3	2.2		4.6	0.2	2.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	12.3	0.0
%ile BackOfQ(50%),veh	28.0	0.8		3.0	4.1	10.3	1.1
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	100.3	2.2		67.8	6.1	70.0	46.1
LnGrp LOS	F	A		E	A	E	D
Approach Vol, veh/h	4477			1955	543		
Approach Delay, s/veh	82.5			8.7	68.2		
Approach LOS	F			A	E		
Timer - Assigned Phs	1	2			6		8
Phs Duration (G+Y+Rc), s	12.4	96.8			109.2		26.8
Change Period (Y+Rc), s	4.4	* 6			6.0		5.1
Max Green Setting (Gmax), s	15.9	* 73			92.7		32.2
Max Q Clear Time (g_c+1), s	19.3	92.8			15.4		20.8
Green Ext Time (p_c), s	0.0	0.0			50.3		0.9

Intersection Summary

HCM 6th Ctrl Delay	60.7
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

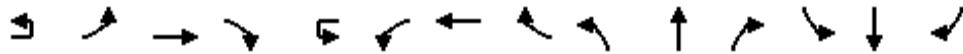
Intersection				
Intersection Delay, s/veh	22.3			
Intersection LOS	C			
Approach	EB	WB	NB	SB
Entry Lanes	1	1	1	1
Conflicting Circle Lanes	1	1	1	1
Adj Approach Flow, veh/h	1004	666	68	319
Demand Flow Rate, veh/h	1023	679	68	325
Vehicles Circulating, veh/h	218	283	1170	655
Vehicles Exiting, veh/h	762	955	71	307
Ped Vol Crossing Leg, #/h	12	17	17	13
Ped Cap Adj	0.998	0.998	1.000	0.998
Approach Delay, s/veh	32.3	13.4	11.2	11.8
Approach LOS	D	B	B	B
Lane	Left	Left	Left	Left
Designated Moves	LTR	LTR	LTR	LTR
Assumed Moves	LTR	LTR	LTR	LTR
RT Channelized				
Lane Util	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976
Entry Flow, veh/h	1023	679	68	325
Cap Entry Lane, veh/h	1105	1034	418	707
Entry HV Adj Factor	0.981	0.981	0.993	0.981
Flow Entry, veh/h	1003	666	68	319
Cap Entry, veh/h	1082	1012	416	693
V/C Ratio	0.928	0.658	0.163	0.460
Control Delay, s/veh	32.3	13.4	11.2	11.8
LOS	D	B	B	B
95th %tile Queue, veh	15	5	1	2

HCM 6th Signalized Intersection Summary

HY+P w/2-Ln Bridge w/Improvements

28: Qualcomm Way & Camino de la Reina/Camino del Rio N

PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔	↔	↔		↔	↔	↔	↔	↔	↔	↔	↔	↔	
Traffic Volume (veh/h)	10	138	457	320	10	499	212	63	183	578	321	185	1129	149	
Future Volume (veh/h)	10	138	457	320	10	499	212	63	183	578	321	185	1129	149	
Initial Q (Qb), veh		0	0	0		0	0	0	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00		0.98		1.00		0.98	1.00		0.98	1.00		0.98	
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No				No				No				No	
Adj Sat Flow, veh/h/ln		1870	1870	1870		1870	1841	1870	1856	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h		142	503	246		514	219	10	189	596	271	191	1164	146	
Peak Hour Factor		0.97	0.97	0.97		0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Percent Heavy Veh, %		2	2	2		2	4	2	3	2	2	2	2	2	
Cap, veh/h		159	509	315		524	694	307	225	2763	843	226	2479	311	
Arrive On Green		0.09	0.14	0.14		0.15	0.20	0.20	0.02	0.18	0.18	0.07	0.54	0.54	
Sat Flow, veh/h		1781	3741	1550		3456	3497	1549	3428	5106	1559	3456	4585	575	
Grp Volume(v), veh/h		142	503	246		514	219	10	189	596	271	191	864	446	
Grp Sat Flow(s),veh/h/ln		1781	1870	1550		1728	1749	1549	1714	1702	1559	1728	1702	1755	
Q Serve(g_s), s		15.8	26.8	27.2		29.7	10.7	1.0	11.0	19.9	30.3	10.9	31.2	31.3	
Cycle Q Clear(g_c), s		15.8	26.8	27.2		29.7	10.7	1.0	11.0	19.9	30.3	10.9	31.2	31.3	
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00	1.00		0.33	
Lane Grp Cap(c), veh/h		159	509	315		524	694	307	225	2763	843	226	1841	949	
V/C Ratio(X)		0.89	0.99	0.78		0.98	0.32	0.03	0.84	0.22	0.32	0.84	0.47	0.47	
Avail Cap(c_a), veh/h		190	509	315		524	694	307	314	2763	843	316	1841	949	
HCM Platoon Ratio		1.00	1.00	1.00		1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	
Upstream Filter(I)		1.00	1.00	1.00		1.00	1.00	1.00	0.84	0.84	0.84	0.09	0.09	0.09	
Uniform Delay (d), s/veh		90.2	86.2	75.7		84.6	68.6	64.7	96.8	45.9	50.1	92.4	28.3	28.3	
Incr Delay (d2), s/veh		31.1	36.8	11.5		34.4	0.1	0.0	8.4	0.2	0.8	1.0	0.1	0.2	
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln		8.7	15.7	12.9		15.7	4.8	0.4	5.4	9.3	13.0	5.0	13.0	13.4	
Unsig. Movement Delay, s/veh															
LnGrp Delay(d),s/veh		121.3	123.1	87.3		119.0	68.7	64.7	105.2	46.0	51.0	93.5	28.3	28.4	
LnGrp LOS		F	F	F		F	E	E	F	D	D	F	C	C	
Approach Vol, veh/h		891				743				1056			1501		
Approach Delay, s/veh		112.9				103.4				57.9			36.7		
Approach LOS		F				F				E			D		
Timer - Assigned Phs	1	2	3	4	5	6	7	8							
Phs Duration (G+Y+Rc), s	17.5	114.9	34.7	32.9	17.5	114.9	22.2	45.4							
Change Period (Y+Rc), s	4.4	6.7	4.4	* 5.7	4.4	* 6.7	4.4	5.7							
Max Green Setting (Gmax), s	10.3	103.6	30.3	* 27	18.3	* 1.1E2	21.3	35.6							
Max Q Clear Time (g_c+1/2g), s	11.0	32.3	31.7	29.2	13.0	33.3	17.8	12.7							
Green Ext Time (p_c), s	0.2	5.2	0.0	0.0	0.2	32.4	0.1	0.8							

Intersection Summary

HCM 6th Ctrl Delay	70.1
HCM 6th LOS	E

Notes

- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 29: Qualcomm Way & Camino del Rio N/I-8 WB Off-ramp

HY+P w/2-Ln Bridge w/Improvements
 PM Peak Hour



Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔		↔		↔	↔	↔	↑↑↑			↑↑	↔
Traffic Volume (veh/h)	10	113	0	612	32	197	410	213	848	0	0	1077	771
Future Volume (veh/h)	10	113	0	612	32	197	410	213	848	0	0	1077	771
Initial Q (Qb), veh		0	0	20	0	20	20	20	20	0	0	20	20
Ped-Bike Adj(A_pbT)		1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach			No		No		No		No		No		No
Adj Sat Flow, veh/h/ln		1870	0	1870	1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h		120	0	392	34	210	259	227	902	0	0	1146	581
Peak Hour Factor		0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %		2	0	2	2	2	2	2	2	0	0	2	2
Cap, veh/h		0	0	0	22	323	317	190	3898	0	0	2246	975
Arrive On Green		0.00	0.00	0.00	0.18	0.18	0.18	0.11	0.76	0.00	0.00	1.00	1.00
Sat Flow, veh/h			0		259	1599	1582	1781	5274	0	0	3647	1551
Grp Volume(v), veh/h			0.0		244	0	259	227	902	0	0	1146	581
Grp Sat Flow(s),veh/h/ln					1857	0	1582	1781	1702	0	0	1777	1551
Q Serve(g_s), s					24.9	0.0	32.3	21.3	10.1	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s					24.9	0.0	32.3	21.3	10.1	0.0	0.0	0.0	0.0
Prop In Lane					0.14		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h					355	0	317	190	3898	0	0	2246	975
V/C Ratio(X)					0.69	0.00	0.82	1.20	0.23	0.00	0.00	0.51	0.60
Avail Cap(c_a), veh/h					371	0	316	190	3901	0	0	2253	984
HCM Platoon Ratio					1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00
Upstream Filter(I)					1.00	0.00	1.00	0.67	0.67	0.00	0.00	0.73	0.73
Uniform Delay (d), s/veh					79.3	0.0	80.0	89.4	7.3	0.0	0.0	0.0	0.0
Incr Delay (d2), s/veh					4.0	0.0	14.5	117.6	0.1	0.0	0.0	0.6	2.0
Initial Q Delay(d3),s/veh					72.8	0.0	145.7	379.5	0.2	0.0	0.0	1.2	7.5
%ile BackOfQ(50%),veh/ln					23.9	0.0	30.3	36.1	5.2	0.0	0.0	0.6	2.6
Unsig. Movement Delay, s/veh													
LnGrp Delay(d),s/veh					156.1	0.0	240.2	586.5	7.6	0.0	0.0	1.8	9.5
LnGrp LOS					F	A	F	F	A	A	A	A	A
Approach Vol, veh/h						503			1129			1727	
Approach Delay, s/veh						199.4			124.0			4.4	
Approach LOS						F			F			A	
Timer - Assigned Phs		2			5	6		8					
Phs Duration (G+Y+Rc), s		159.8			26.0	133.8		40.2					
Change Period (Y+Rc), s		7.0			* 4.7	7.0		5.1					
Max Green Setting (Gmax), s		107.8			* 21	81.8		40.0					
Max Q Clear Time (g_c+I1), s		12.1			23.3	2.0		34.3					
Green Ext Time (p_c), s		4.7			0.0	41.9		0.7					

Intersection Summary

HCM 6th Ctrl Delay	73.8
HCM 6th LOS	E

Notes

User approved ignoring U-Turning movement.
 * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 31: Texas St & Camino del Rio S

HY+P w/2-Ln Bridge w/Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↕	↕	↔	↕	↔
Traffic Volume (veh/h)	282	155	390	341	63	540	100	851	187	310	1732	197
Future Volume (veh/h)	282	155	390	341	63	540	100	851	187	310	1732	197
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	238	265	367	420	0	558	109	925	195	337	1883	177
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	314	329	391	554	0	562	126	1066	224	354	1753	782
Arrive On Green	0.18	0.18	0.18	0.16	0.00	0.16	0.07	0.36	0.36	0.20	0.49	0.49
Sat Flow, veh/h	1781	1870	1585	3563	0	1585	1781	2921	615	1781	3554	1585
Grp Volume(v), veh/h	238	265	367	420	0	558	109	562	558	337	1883	177
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1585	1781	1777	1760	1781	1777	1585
Q Serve(g_s), s	26.1	28.0	36.2	23.2	0.0	32.0	12.5	60.5	60.6	38.4	101.4	13.1
Cycle Q Clear(g_c), s	26.1	28.0	36.2	23.2	0.0	32.0	12.5	60.5	60.6	38.4	101.4	13.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	314	329	391	554	0	562	126	648	642	354	1753	782
V/C Ratio(X)	0.76	0.80	0.94	0.76	0.00	0.99	0.87	0.87	0.87	0.95	1.07	0.23
Avail Cap(c_a), veh/h	314	329	391	554	0	562	204	648	642	672	1753	782
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	80.6	81.3	75.9	83.1	0.0	66.1	94.6	60.7	60.7	81.4	52.1	29.7
Incr Delay (d2), s/veh	10.3	13.5	30.4	7.6	0.0	36.1	11.1	11.5	11.8	6.3	44.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	14.8	22.4	11.3	0.0	34.7	6.2	29.4	29.2	18.3	55.6	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	90.8	94.9	106.3	90.7	0.0	102.2	105.7	72.2	72.5	87.7	96.7	30.0
LnGrp LOS	F	F	F	F	A	F	F	E	E	F	F	C
Approach Vol, veh/h		870			978			1229			2397	
Approach Delay, s/veh		98.6			97.3			75.3			90.5	
Approach LOS		F			F			E			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	45.3	80.2		41.1	18.9	106.6		39.0				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	* 5.2		7.0				
Max Green Setting (Gmax), s	77.6	47.1		36.2	23.6	* 1E2		32.0				
Max Q Clear Time (g_c+Rc), s	110.4	62.6		38.2	14.5	103.4		34.0				
Green Ext Time (p_c), s	0.5	0.0		0.0	0.1	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay	89.6
HCM 6th LOS	F

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- * HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
32: Ward Rd & Rancho Mission Rd

HY+P w/2-Ln Bridge w/Improvements
PM Peak Hour



Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations									
Traffic Volume (veh/h)	10	55	288	10	243	387	10	537	88
Future Volume (veh/h)	10	55	288	10	243	387	10	537	88
Initial Q (Qb), veh		0	0		0	0		0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		0.99				0.96
Parking Bus, Adj		1.00	1.00		1.00	1.00		1.00	1.00
Work Zone On Approach		No			No		No		
Adj Sat Flow, veh/h/ln		1870	1870		1870	1870		1870	1870
Adj Flow Rate, veh/h		58	178		256	407		565	68
Peak Hour Factor		0.95	0.95		0.95	0.95		0.95	0.95
Percent Heavy Veh, %		2	2		2	2		2	2
Cap, veh/h		293	260		553	940		1731	208
Arrive On Green		0.16	0.16		0.54	0.54		0.54	0.54
Sat Flow, veh/h		1781	1585		611	1810		3271	381
Grp Volume(v), veh/h		58	178		289	374		315	318
Grp Sat Flow(s),veh/h/ln		1781	1585		719	1617		1777	1782
Q Serve(g_s), s		0.9	3.3		8.1	4.2		3.0	3.1
Cycle Q Clear(g_c), s		0.9	3.3		11.1	4.2		3.0	3.1
Prop In Lane		1.00	1.00		0.89				0.21
Lane Grp Cap(c), veh/h		293	260		611	881		968	971
V/C Ratio(X)		0.20	0.68		0.47	0.42		0.33	0.33
Avail Cap(c_a), veh/h		1036	922		779	1202		1321	1325
HCM Platoon Ratio		1.00	1.00		1.00	1.00		1.00	1.00
Upstream Filter(I)		1.00	1.00		1.00	1.00		1.00	1.00
Uniform Delay (d), s/veh		11.2	12.2		6.6	4.2		3.9	3.9
Incr Delay (d2), s/veh		0.3	3.2		0.6	0.3		0.2	0.2
Initial Q Delay(d3),s/veh		0.0	0.0		0.0	0.0		0.0	0.0
%ile BackOfQ(50%),veh/ln		0.3	1.1		0.7	0.5		0.4	0.4
Unsig. Movement Delay, s/veh									
LnGrp Delay(d),s/veh		11.5	15.3		7.2	4.5		4.1	4.1
LnGrp LOS		B	B		A	A		A	A
Approach Vol, veh/h		236				663		633	
Approach Delay, s/veh		14.4				5.7		4.1	
Approach LOS		B				A		A	
Timer - Assigned Phs		2		4		6			
Phs Duration (G+Y+Rc), s		21.4		9.6		21.4			
Change Period (Y+Rc), s		4.5		4.5		4.5			
Max Green Setting (Gmax), s		23.0		18.0		23.0			
Max Q Clear Time (g_c+I1), s		13.1		5.3		5.1			
Green Ext Time (p_c), s		3.5		0.6		3.6			

Intersection Summary

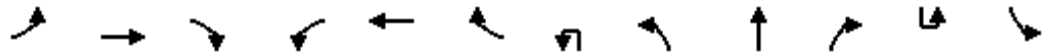
HCM 6th Ctrl Delay	6.4
HCM 6th LOS	A

Notes

User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 34: Fairmount Ave & Mission Gorge Rd

HY+P w/2-Ln Bridge w/Improvements
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU	SBL
Lane Configurations		↕	↗		↕			↗	↖			↗
Traffic Volume (veh/h)	67	17	611	30	14	10	40	398	963	40	10	10
Future Volume (veh/h)	67	17	611	30	14	10	40	398	963	40	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	0.99		0.98		1.00		0.98		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00		1.00
Work Zone On Approach		No			No				No			
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870		1870	1870	1870		1870
Adj Flow Rate, veh/h	0	0	707	31	14	4		406	983	39		10
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98		0.98	0.98	0.98		0.98
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2		2
Cap, veh/h	0	361	582	155	65	15		853	2397	95		17
Arrive On Green	0.00	0.00	0.19	0.19	0.19	0.19		0.49	1.00	1.00		0.01
Sat Flow, veh/h	0	1870	3012	567	334	80		3456	3482	138		1781
Grp Volume(v), veh/h	0	0	707	49	0	0		406	502	520		10
Grp Sat Flow(s),veh/h/ln	0	1870	1506	981	0	0		1728	1777	1843		1781
Q Serve(g_s), s	0.0	0.0	25.1	3.4	0.0	0.0		10.1	0.0	0.0		0.7
Cycle Q Clear(g_c), s	0.0	0.0	25.1	4.6	0.0	0.0		10.1	0.0	0.0		0.7
Prop In Lane	0.00		1.00	0.63		0.08		1.00		0.07		1.00
Lane Grp Cap(c), veh/h	0	361	582	235	0	0		853	1223	1269		17
V/C Ratio(X)	0.00	0.00	1.22	0.21	0.00	0.00		0.48	0.41	0.41		0.60
Avail Cap(c_a), veh/h	0	361	582	235	0	0		867	1223	1269		179
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00		2.00	2.00	2.00		1.00
Upstream Filter(I)	0.00	0.00	1.00	1.00	0.00	0.00		0.58	0.58	0.58		1.00
Uniform Delay (d), s/veh	0.0	0.0	52.4	43.9	0.0	0.0		27.3	0.0	0.0		64.2
Incr Delay (d2), s/veh	0.0	0.0	112.1	0.4	0.0	0.0		0.1	0.6	0.6		12.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0		0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	18.5	1.4	0.0	0.0		3.6	0.2	0.2		0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.0	164.6	44.3	0.0	0.0		27.4	0.6	0.6		76.5
LnGrp LOS	A	A	F	D	A	A		C	A	A		E
Approach Vol, veh/h		707			49				1428			
Approach Delay, s/veh		164.6			44.3				8.2			
Approach LOS		F			D				A			
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	94.4		30.0	37.0	63.0		30.0				
Change Period (Y+Rc), s	4.4	4.9		4.9	4.9	* 4.9		4.9				
Max Green Setting (Gmax), s	13.1	77.6		25.1	32.6	* 58		25.1				
Max Q Clear Time (g_c+I1), s	2.7	2.0		27.1	12.1	29.5		6.6				
Green Ext Time (p_c), s	0.0	21.1		0.0	0.8	14.3		0.2				

Intersection Summary

HCM 6th Ctrl Delay	50.7
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.
- User approved ignoring U-Turning movement.

HCM 6th Signalized Intersection Summary
 34: Fairmount Ave & Mission Gorge Rd

HY+P w/2-Ln Bridge w/Improvements
 PM Peak Hour



Movement	SBT	SBR
Lane Configurations	↑↑	
Traffic Volume (veh/h)	947	38
Future Volume (veh/h)	947	38
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		0.99
Parking Bus, Adj	1.00	1.00
Work Zone On Approach	No	
Adj Sat Flow, veh/h/ln	1870	1870
Adj Flow Rate, veh/h	966	37
Peak Hour Factor	0.98	0.98
Percent Heavy Veh, %	2	2
Cap, veh/h	1559	60
Arrive On Green	0.45	0.45
Sat Flow, veh/h	3487	134
Grp Volume(v), veh/h	492	511
Grp Sat Flow(s),veh/h/ln	1777	1844
Q Serve(g_s), s	27.5	27.5
Cycle Q Clear(g_c), s	27.5	27.5
Prop In Lane		0.07
Lane Grp Cap(c), veh/h	794	824
V/C Ratio(X)	0.62	0.62
Avail Cap(c_a), veh/h	794	824
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	27.5	27.5
Incr Delay (d2), s/veh	3.6	3.5
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.4	12.9
Unsig. Movement Delay, s/veh		
LnGrp Delay(d),s/veh	31.1	31.0
LnGrp LOS	C	C
Approach Vol, veh/h	1013	
Approach Delay, s/veh	31.5	
Approach LOS	C	

Timer - Assigned Phs

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis

HY+P w/2-Ln Bridge w/Improvements

35: Fairmount Ave & Camino del Rio N/Alvarado Canyon Rd

PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖↖	↖	↖↖	↖	↖	↖↖		↖↖	↖↖	↖
Traffic Volume (vph)	314	153	1013	810	283	384	357	781	190	13	1588	123
Future Volume (vph)	314	153	1013	810	283	384	357	781	190	13	1588	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Lane Util. Factor	0.95	0.95	0.88	0.91	0.86	0.91	1.00	0.95		0.97	0.95	1.00
Frbp, ped/bikes	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	0.98	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1739	2787	1610	3082	1425	1770	3426		3433	3539	1563
Flt Permitted	0.95	0.98	1.00	0.95	0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1739	2787	1610	3082	1425	1770	3426		3433	3539	1563
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	317	155	1023	818	286	388	361	789	192	13	1604	124
RTOR Reduction (vph)	0	0	67	0	0	0	0	13	0	0	0	62
Lane Group Flow (vph)	231	241	956	409	749	334	361	968	0	13	1604	62
Confl. Peds. (#/hr)						3			1			
Confl. Bikes (#/hr)									1			1
Turn Type	Split	NA	pm+ov	Split	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	7	5	8	8	1	5	2		1	6	
Permitted Phases			7			8						6
Actuated Green, G (s)	18.9	18.9	43.1	32.0	32.0	46.0	24.2	64.1		14.0	53.9	53.9
Effective Green, g (s)	18.9	18.9	43.1	32.0	32.0	46.0	24.2	64.1		14.0	53.9	53.9
Actuated g/C Ratio	0.13	0.13	0.29	0.21	0.21	0.31	0.16	0.43		0.09	0.36	0.36
Clearance Time (s)	5.1	5.1	4.7	6.1	6.1	4.7	4.7	5.1		4.7	5.1	5.1
Vehicle Extension (s)	2.0	2.0	1.0	2.0	2.0	1.0	1.0	2.0		1.0	2.0	2.0
Lane Grp Cap (vph)	211	219	888	343	657	437	285	1464		320	1271	561
v/s Ratio Prot	0.14	0.14	c0.17	c0.25	0.24	0.07	c0.20	0.28		0.00	c0.45	
v/s Ratio Perm			0.17			0.16						0.04
v/c Ratio	1.09	1.10	1.08	1.19	1.19dl	0.76	1.27	0.66		0.04	1.26	0.11
Uniform Delay, d1	65.5	65.5	53.4	59.0	59.0	47.1	62.9	34.3		61.9	48.1	32.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.15	0.71	0.58
Incremental Delay, d2	89.6	90.3	53.0	111.8	80.5	7.0	144.9	2.4		0.0	123.0	0.3
Delay (s)	155.1	155.8	106.4	170.8	139.5	54.1	207.8	36.6		71.0	157.0	18.8
Level of Service	F	F	F	F	F	D	F	D		E	F	B
Approach Delay (s)		121.9			128.9			82.7			146.5	
Approach LOS		F			F			F			F	

Intersection Summary		
HCM 2000 Control Delay	122.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.24	F
Actuated Cycle Length (s)	150.0	Sum of lost time (s)
Intersection Capacity Utilization	118.2%	ICU Level of Service
Analysis Period (min)	15	H

dl Defacto Left Lane. Recode with 1 though lane as a left lane.
c Critical Lane Group

HCM 6th Signalized Intersection Summary
41: Ruffin Rd & Aero Dr

HY+P w/2-Ln Bridge w/Improvements
PM Peak Hour



Movement	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑		↔	↑↑	↔	↑
Traffic Volume (veh/h)	880	910	10	1042	810	260	378
Future Volume (veh/h)	880	910	10	1042	810	260	378
Initial Q (Qb), veh	0	0		0	0	0	0
Ped-Bike Adj(A_pbT)		0.97		1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00		1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870		1870	1870	1870	1870
Adj Flow Rate, veh/h	926	954		1097	853	274	107
Peak Hour Factor	0.95	0.95		0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2		2	2	2	2
Cap, veh/h	1673	881		1079	2903	340	156
Arrive On Green	0.47	0.47		0.31	0.82	0.10	0.10
Sat Flow, veh/h	3647	1540		3456	3647	3456	1585
Grp Volume(v), veh/h	926	954		1097	853	274	107
Grp Sat Flow(s),veh/h/ln1777		1540		1728	1777	1728	1585
Q Serve(g_s), s	24.2	61.2		40.6	7.5	10.1	8.5
Cycle Q Clear(g_c), s	24.2	61.2		40.6	7.5	10.1	8.5
Prop In Lane		1.00		1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1673	881		1079	2903	340	156
V/C Ratio(X)	0.55	1.08		1.02	0.29	0.81	0.69
Avail Cap(c_a), veh/h	1673	881		1079	2903	1055	484
HCM Platoon Ratio	1.00	1.00		1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00		1.00	1.00	0.86	0.86
Uniform Delay (d), s/veh	24.6	25.2		44.7	2.9	57.4	56.7
Incr Delay (d2), s/veh	1.3	55.3		31.6	0.3	1.5	1.7
Initial Q Delay(d3),s/veh	0.0	0.0		0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	42.2		21.4	1.8	4.5	3.5
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	25.9	80.6		76.3	3.1	58.9	58.4
LnGrp LOS	C	F		F	A	E	E
Approach Vol, veh/h	1880			1950	381		
Approach Delay, s/veh	53.7			44.3	58.7		
Approach LOS	D			D	E		
Timer - Assigned Phs	1	2			6	8	
Phs Duration (G+Y+Rc), s	45.0	66.9			111.9	18.1	
Change Period (Y+Rc), s	4.4	* 5.7			5.7	5.3	
Max Green Setting (Gmax), s	40.6	* 35			79.3	39.7	
Max Q Clear Time (g_c+Rc), s	42.6	63.2			9.5	12.1	
Green Ext Time (p_c), s	0.0	0.0			9.7	0.7	

Intersection Summary

HCM 6th Ctrl Delay	49.8
HCM 6th LOS	D

Notes

User approved ignoring U-Turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

HCM 6th Signalized Intersection Summary
 44: Mission City Pkwy/Fenton Pkwy & Camino del Rio N

HY+P w/2-Ln Bridge w/Improvements
 PM Peak Hour



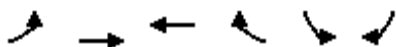
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	470	640	129	221	174	120	310	97	343	335	46
Future Volume (veh/h)	55	470	640	129	221	174	120	310	97	343	335	46
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	60	511	544	140	240	97	130	337	16	373	364	45
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	548	608	158	633	893	161	383	325	401	554	68
Arrive On Green	0.04	0.29	0.29	0.09	0.34	0.34	0.09	0.20	0.20	0.22	0.34	0.34
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	1632	202
Grp Volume(v), veh/h	60	511	544	140	240	97	130	337	16	373	0	409
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	1870	1585	1781	0	1834
Q Serve(g_s), s	3.2	25.4	28.0	7.4	9.3	2.7	6.8	16.7	0.8	19.6	0.0	18.1
Cycle Q Clear(g_c), s	3.2	25.4	28.0	7.4	9.3	2.7	6.8	16.7	0.8	19.6	0.0	18.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.11
Lane Grp Cap(c), veh/h	77	548	608	158	633	893	161	383	325	401	0	622
V/C Ratio(X)	0.78	0.93	0.90	0.88	0.38	0.11	0.81	0.88	0.05	0.93	0.00	0.66
Avail Cap(c_a), veh/h	114	548	608	158	633	893	231	470	398	401	0	635
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.3	32.9	27.7	43.1	24.0	9.7	42.6	36.9	30.5	36.3	0.0	26.8
Incr Delay (d2), s/veh	18.0	23.1	15.8	40.1	0.4	0.1	12.7	14.9	0.1	28.3	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	14.2	13.3	4.9	3.9	0.8	3.5	9.0	0.3	11.6	0.0	8.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.3	56.0	43.5	83.1	24.4	9.8	55.4	51.8	30.6	64.6	0.0	29.3
LnGrp LOS	E	E	D	F	C	A	E	D	C	E	A	C
Approach Vol, veh/h		1115			477			483			782	
Approach Delay, s/veh		50.3			38.6			52.0			46.1	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	26.0	24.1	13.0	32.5	13.2	36.9	8.6	36.9				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	21.5	24.0	8.5	28.0	12.4	33.1	6.1	30.4				
Max Q Clear Time (g_c+Y), s	21.6	18.7	9.4	30.0	8.8	20.1	5.2	11.3				
Green Ext Time (p_c), s	0.0	0.9	0.0	0.0	0.1	2.2	0.0	1.4				

Intersection Summary

HCM 6th Ctrl Delay	47.5
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary
45: Camino del Rio S & Mission City Pkwy

HY+P w/2-Ln Bridge w/Improvements
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	↶	↷	↶	↷	↶	↷	
Traffic Volume (veh/h)	211	610	250	325	946	198	
Future Volume (veh/h)	211	610	250	325	946	198	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach		No	No		No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	229	663	272	273	1028	165	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	258	717	385	1200	982	1103	
Arrive On Green	0.14	0.38	0.21	0.21	0.55	0.55	
Sat Flow, veh/h	1781	1870	1870	1585	1781	1585	
Grp Volume(v), veh/h	229	663	272	273	1028	165	
Grp Sat Flow(s),veh/h/ln	1781	1870	1870	1585	1781	1585	
Q Serve(g_s), s	17.3	46.4	18.5	6.9	75.5	4.8	
Cycle Q Clear(g_c), s	17.3	46.4	18.5	6.9	75.5	4.8	
Prop In Lane	1.00			1.00	1.00	1.00	
Lane Grp Cap(c), veh/h	258	717	385	1200	982	1103	
V/C Ratio(X)	0.89	0.92	0.71	0.23	1.05	0.15	
Avail Cap(c_a), veh/h	429	894	385	1200	982	1103	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	57.5	40.4	50.6	4.9	30.8	7.1	
Incr Delay (d2), s/veh	12.1	13.2	5.8	0.1	41.9	0.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	8.6	23.5	9.1	8.8	42.0	0.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	69.7	53.6	56.4	5.0	72.7	7.1	
LnGrp LOS	E	D	E	A	F	A	
Approach Vol, veh/h		892	545		1193		
Approach Delay, s/veh		57.7	30.6		63.6		
Approach LOS		E	C		E		
Timer - Assigned Phs				4	6	7	8
Phs Duration (G+Y+Rc), s				57.0	80.0	24.3	32.7
Change Period (Y+Rc), s				4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s				65.5	75.5	33.0	28.0
Max Q Clear Time (g_c+I1), s				48.4	77.5	19.3	20.5
Green Ext Time (p_c), s				4.1	0.0	0.5	1.5
Intersection Summary							
HCM 6th Ctrl Delay			54.8				
HCM 6th LOS			D				

APPENDIX I: EVALUATION OF PROPOSED TDM PROGRAM STRATEGIES



Appendix I

SDSU MV Campus TDM Program Detailed VMT Reduction Calculations

The SDSU MV Campus TDM Program is estimated to result in a 14.14% VMT reduction. The program includes measures in three (3) categories: Neighborhood Site Enhancements, Parking Policy/Pricing, and Commute Trip Reduction. The detailed calculations for the measures in these categories is shown below.

SDSU MV Campus VMT Reduction <i>(1-((1-Neighborhood Site Enhancement)*(1-Parking Policy/Pricing)*(1-Commute Trip Reduction))</i>	14.41%
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Neighborhood Site Enhancements

Neighborhood Site Enhancement Reduction <i>(1-((1-Improve Design of Development Reduction)*(1-Traffic Calming Reduction)*(1-Car Share Reduction)*(1-Pedestrian Network))</i>	13.39%
Capped Neighborhood Site Enhancement Reduction	5%

Improve Design of Development (LUT-9)

- Includes:
- Bicycle Facilities (SDT-5)
 - Dedicated Land for Bicycle Trails (SDT-9)
 - Non-Residential Bicycle Parking (SDT-6)
 - Residential Bicycle Parking (SDT-7)

Data		Source
Intersections/square mile	69.23	Project Site Plan
Intersections/square mile of typical ITE suburban development	36	CAPCOA Provided Input
Intersections <i>(Intersections/sq mile - Intersections/sq mile of typical ITE suburban development)/(Intersection per square mile of typical ITE suburban development)</i>	0.92	
Elasticity of VMT with respect to % of intersections	0.12	CAPCOA Provided Input
Calculation <i>(Intersections*Elasticity of VMT)</i>	11.08%	

Traffic Calming (SDT-2)

CAPCOA Provided Lookup Table

		% of streets with improvements			
		25%	50%	75%	100%
		% VMT Reduction			
% of intersections with improvements	25%	0.25%	0.25%	0.50%	0.50%
	50%	0.25%	0.50%	0.50%	0.75%
	75%	0.50%	0.50%	0.75%	0.75%
	100%	0.50%	0.75%	0.75%	1%

Calculation	0.25%	CAPCOA Provided Input <i>(from lookup table above)</i>
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Car Share (TRT-9)

Data		Source
% Reduction in Car Share Member Annual VMT	0.37	CAPCOA Provided Input
Number of Car Share Members Per Shared Care	0.37	CAPCOA Provided Input
Deployment Level <i>(1 car per 2,000 population)</i>	0.0005	CAPCOA Provided Input for Suburban Context
Calculation <i>(% Reduction in Car Share Member Annual VMT*Number of Car Share Members Per Shared Car*Deployment Level)</i>	0.40%	

Pedestrian Network (SDT-1)

Due to compact, mixed use communities, interconnected street network, narrower roadways and shorter block lengths, sidewalks, accessibility to transit and transit shelters, traffic calming measures and street trees, and parks and public spaces		
Calculation	2.00%	CAPCOA Provided Input <i>(from lookup table with extent of pedestrian accommodations listed as "Within Project Site and Connecting Off-Site)</i>

Parking Policy/Pricing

Parking Policy/Pricing <i>(1-((1-Unbundle Residential Parking)*(1-Meter On-Street Parking)))</i>	4.07%
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Unbundle Residential Parking (PDT-2)

Data		Source
Monthly Parking Cost	\$75	Project Specific
Monthly Vehicle Cost	0.003	CAPCOA Provided Input
Change in Vehicle Cost <i>(Monthly Parking Cost*Monthly Vehicle Cost)</i>	0.225	
Elasticity of VMT	0.4	CAPCOA Provided Input
Adjustment for Vehicle Ownership to VMT	85%	CAPCOA Provided Input
% Project VMT Associated with Residential Uses	55%	Project Specific
Calculation <i>(Change in Vehicle Cost*Elasticity of VMT*Adjustment for Vehicle Ownership to VMT*%Project VMT Associated with Residential Uses)</i>	0.90%	

Meter On-Street Parking (PDT-3)

Data		Source
% Increase in On-Street Parking Prices <i>(Minimum of 25% and Maximum of 50% - Listed as 50% because parking does not currently exist)</i>	50%	CAPCOA Provided Input
Elasticity of VMT	0.11	CAPCOA Provided Input
% Project VMT Associated with Residential and Retail Uses	57%	Project Specific
Calculation <i>(% Increase in On-Street Parking Prices*Elasticity of VMT*% Project VMT Associated with Residential and Retail Uses)</i>	3.10%	

Commute Trip Reduction

Commute Trip Reduction (CTR) Reduction <i>(1-((1-TDM Program Marketing)*(1-Carpool Matching)*(1-School Pool)*(1-Hotel Shuttle Service)))</i>	6.09%
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TDM Program Marketing with Transportation Coordinator (TRT-7)

Includes: Shower and Locker Facilities

Data		Source
% Reduction in Vehicle Trips	4%	CAPCOA Provided Input
% Population Eligible	100%	Project Specific <i>(Assumed all tenants and residents are eligible)</i>
Adjustment from Vehicle Trips to VMT	1	CAPCOA Provided Input
% of VMT Associated with Home-based Work Trips and Employees	55%	Project Specific
Calculation <i>(% Reduction in Vehicle Trips*% Population Eligible*Adjustment from Vehicle Trips to VMT*% of VMT Associated with Home-based Work Trips and Employees)</i>	2.20%	

Carpool Matching/Guaranteed Ride Home (TRT-3)

Data		Source
% Reduction in Commute VMT	10%	CAPCOA Provided Input
% Population Eligible	50%	Project Specific
% of VMT Associated with Home-based Work Trips and Employees	55%	Project Specific
Calculation <i>(% Reduction in Commute VMT*% Population Eligible*% of VMT Associated with Home-based Work Trips and Employees)</i>	2.80%	

Bike Share

Data		Source
Effectiveness of Program	0.50%	Fehr & Peers Research
% of VMT Associated with Residents and Employees	97%	CAPCOA Provided Input
Calculation <i>(Effectiveness of Program*% of VMT Associated with Residents and Employees)</i>	0.50%	

School Pool (TRT-10)

Data		Source
Family participation rate	16%	Low Range CAPCOA Provided Input
% of Home-based School VMT Outside of Project	10%	Project Specific <i>(only include students not eligible for busing)</i>
Adjustment to Convert Participation to Daily VMT	45%	CAPCOA Provided Input
Calculation <i>(Family Participation Rate*% of Home-based School VMT Outside of Project*Adjustment to Convert Participation to Daily VMT)</i>	0.70%	

Hotel Shuttle Service (TST-3, TST-4, TST-6)

Data		Source
% Increase in Network Coverage	100%	Project Specific
Elasticity of Transit	1.01	CAPCOA Provided Input
Existing Transit Mode Share	1.30%	CAPCOA Provided Input
Adjustment Factor	0.67	CAPCOA Provided Input
% VMT Associated with Hotel Guests	3%	Project Specific
Network Coverage <i>(% Increase in Network Coverage*Elasticity of Transit*Existing Transit Mode Share*Adjustment Factor*% VMT Associated with Hotel Guests)</i>	0.03%	
% Reduction in Headways	100%	Project Specific
Elasticity of Transit	0.36	CAPCOA Provided Input
Level of Implementation Factor	85%	CAPCOA Provided Input
Existing Transit Mode Share	1.30%	CAPCOA Provided Input <i>(Site is currently undeveloped)</i>
Adjustment Factor	0.67	Project Specific
% VMT Associated with Hotel Guests	3%	Project Specific
Headway Reduction <i>(% Increase in Network Coverage*Elasticity of Transit*Existing Transit Mode Share*Adjustment Factor*% VMT Associated with Hotel Guests)</i>	0.01%	
Calculation <i>(Network Coverage+Headway Reduction)</i>	0.04%	

APPENDIX J: TRANSIT RIDERSHIP ESTIMATE



Trolley Ridership Estimates for with Project Conditions

5/16/2019

		Alightings	Boardings		
Existing Data	EB	122	65%	71	35%
	WB	65	35%	133	65%
	Total	187		204	391
		48%		52%	

Future with Project

Total Transit/Bike Walk

Daily	4599		
		Outbound	Inbound
AM	223		364
PM	407		301

85% Assumed transit trips (vs bike/ped) - Conservative

Transit Only (Total)

Daily	1955	1955
AM	190	309
PM	346	256

Daily (Total) by Direction

EB	1275	680
WB	679	1274
Total	1955	1955

AM (Total) by Direction

EB	124	108
WB	66	202
Total	190	309

AM (Per Train - 4/hr)

31	27
16	50

PM (Total) by Direction

EB	226	89
WB	120	167
Total	346	256

PM (Per Train - 4/hr)

56	22
30	42

**APPENDIX K: LAND USE CONVERSION FACTORS TO DWELLING UNIT
EQUIVALENTS**



Proposed Land Use Conversion to Dwelling Unit Equivalents

Description and Size	Quantity	Units	DUE* Conversion Factor	Unit	Quantity (DUEs)
Supermarket	12	ksf	15	DUE/ksf	180
Neighborhood Retail	83	ksf	12	DUE/ksf	996
Apartments	4,300	du	1	DUE/du	4300
Student Focused Housing	300	du	0.73	DUE/du	220
Commercial Office	1,165	ksf	2.86	DUE/ksf	3330
Medical Office	100	ksf	2.67	DUE/ksf	267
Scientific Research	301	ksf	1.33	DUE/ksf	401
Hotel	400	room	1.67	DUE/room	667
Racquetball/Tennis/Health Club	25	ksf	6.67	DUE/ksf	167
Community Park/River Park	6	acre	0.83	DUE/acre	5
Active Parks	50	acre	8.33	DUE/acre	417
Landscaped Areas, Paseos, Trails, etc.	27.6	acre	-	DUE/acre	-
PROJECT TOTAL					10,950

*DUE=Dwelling Unit Equivalent

APPENDIX L: FAIR SHARE CONTRIBUTION CALCULATION



PROJECT SHARE CONTRIBUTION CALCULATION

Impacted Location	Peak Hour Impacted	Project Share of Future Growth ^{3,4}	Project Responsibility for Mitigating Incremental Impact
<i>Intersection¹</i>			
1. SR-163 SB Ramps & Friars Rd	PM	12.8%	N/A
8. River Run Dr & Friars Rd	PM	47.8%	100.0%
9. Fenton Pkwy & Friars Rd	PM	41.5%	100.0%
10. Northside Dr & Friars Rd	PM	44.2%	100.0%
17. I-15 SB Ramps & Friars Rd	AM	64.3%	N/A
	PM	65.1%	N/A
18. I-15 NB Ramps & Friars Rd	AM	50.0%	N/A
	PM	52.5%	N/A
19. Rancho Mission Rd & Friars Rd	PM	38.6%	N/A
27. Fairmount & San Diego Mission Rd/Twain Ave	AM	43.6%	100.0%
	PM	49.9%	100.0%
31. Texas St & Camino del Rio S	AM	9.0%	100.0%
	PM	6.8%	100.0%
32. Ward Rd & Rancho Mission Rd	AM	64.4%	100.0%
	PM	69.1%	100.0%
34. Fairmount Ave & Mission Gorge Rd	PM	32.5%	100.0%
35. Fairmount Ave & Camino del Rio N	AM	38.8%	N/A
	PM	44.3%	N/A
41. Ruffin Rd & Aero Dr	PM	26.2%	100.0%
<i>Ramp Meter¹</i>			
I-15 NB On-Ramp from Friars Rd	AM	44.0%	N/A
	PM	69.6%	N/A
I-15 SB / I-8 Loop On-Ramp from Friars Rd	PM	50.5%	N/A
I-15 SB Direct On-Ramp from Friars Rd	PM	67.2%	N/A
I-8 EB On-Ramp from SB Fairmount Ave	PM	67.3%	N/A
<i>Freeway Segment</i>			
I-15 from Adams Ave to I-8 NB	AM	4.4%	N/A
	PM	3.5%	N/A
I-15 from Adams Ave to I-8 SB	PM	3.9%	N/A
I-15 NB Off-Ramp to Friars Rd	PM	17.4%	N/A
I-15 SB Auxiliary Lanes from Friars Rd to I-8	AM	2.5%	N/A
	PM	3.2%	N/A
I-15 SB Auxiliary Lanes from Friars Rd to I-15 SB	PM	26.1%	N/A
I-15 from Friars Rd to Aero Dr NB	AM	2.7%	N/A
I-15 from Friars Rd to Aero Dr SB	PM	3.2%	N/A
I-15 from Aero Dr to Balboa Ave/Tierrasanta Blvd NB	AM	2.2%	N/A
	PM	5.2%	N/A
I-15 from Aero Dr to Balboa Ave/Tierrasanta Blvd SB	AM	4.4%	N/A
	PM	3.2%	N/A
I-8 from Morena Blvd to Taylor St EB	PM	1.0%	N/A

PROJECT SHARE CONTRIBUTION CALCULATION

Impacted Location	Peak Hour Impacted	Project Share of Future Growth ^{3,4}	Project Responsibility for Mitigating Incremental Impact
<i>Freeway Segment</i>			
I-8 from Taylor St to Hotel Cir EB	AM	1.6%	N/A
	PM	1.0%	N/A
I-8 from Taylor St to Hotel Cir WB	PM	1.5%	N/A
I-8 from Hotel Cir to SR-163 EB	AM	1.3%	N/A
	PM	0.9%	N/A
I-8 from Hotel Cir to SR-163 WB	PM	1.6%	N/A
I-8 from SR-163 to Mission Center Rd WB	PM	1.3%	N/A
I-8 from Mission Center Rd to Texas St WB	PM	1.2%	N/A
I-8 from I-805 to I-15 EB	PM	0.9%	N/A
I-8 from I-805 to I-15 WB	AM	0.8%	N/A
	PM	1.6%	N/A
I-8 from Fairmount Ave to Waring Rd EB	PM	2.0%	N/A
I-8 from Fairmount Ave to Waring Rd WB	AM	1.9%	N/A
I-8 from Waring Rd to College Ave EB	PM	2.1%	N/A
I-8 from Waring Rd to College Ave WB	AM	2.0%	N/A
	PM	2.1%	N/A

Source: Fehr & Peers, 2019

Notes:

¹ Intersection and ramp meter fair share contributions are based on the impacted peak hour that results in the highest fair share percentage

² Roadway segment fair share contributions are based on ADT volumes

³ Project share percentage = (Project Traffic) / (Horizon Year Plus Project Traffic - Existing Traffic)

APPENDIX M: CITY-WIDE VMT PER SERVICE POPULATION



VMT Metrics For City of San Diego from SANDAG 2035 Travel Demand Model

Metric	Project-Level Assessment		Cumulative Level Assessment	
	2012 Baseline	Project-Generated	2035 No Project	2035 With Project
Vehicle Miles Traveled	68,404,489	358,758	76,954,235	76,962,338
Service Population	2,116,950	14,058	2,613,898	2,627,956
VMT Per Service Population	32.31	25.52	29.44	29.29
% Decrease from 2012 Baseline	21.0%			

Source: SANDAG 2035 Regional Activity-Based Travel Demand Model (Series 13) and Fehr & Peers, 2019.