MEMORANDUM

URBAN | CROSSROADS

DATE: August 22, 2023
TO: Peter Schafer, Ares
FROM: Charlene So, Urban Crossroads
JOB NO: 14726-06 FTA Memo

BEECH LOGISTICS CENTER (MCN22-059) FOCUSED TRAFFIC ASSESSMENT

This letter has been prepared to document the findings for the focused traffic assessment for the proposed Beech Logistics Center development (Project) located is located north of Foothill Boulevard (SR-66) and west of Beech Avenue in the City of Fontana. The Beech Logistics Center (MCN22-059) Traffic Analysis (dated January 17, 2023, **2023 Traffic Study**) evaluated the intersection of Beech Avenue and Foothill Boulevard (SR-66) as a full access intersection to be controlled by a traffic signal in the future. The purpose of this focused traffic assessment is to determine the potential deficiencies and improvement needs with the proposed interim improvements to Beech Avenue and Foothill Boulevard (SR-66) which includes the construction of medians and other physical improvements to restrict the access to right-in/right-out/left-in access only.

PROPOSED PROJECT

The Project is to consist of the development of a single 168,760 square foot warehouse building and was evaluated in the 2023 Traffic Study assuming 42,190 square feet of General Light Industrial and 126,570 square feet of Warehousing use. Access to the site would be accommodated via two driveways on the northerly extension of Beech Avenue.

With the proposed interim access restriction at the intersection of Beech Avenue and Foothill Boulevard (SR-66), this would affect travel patterns for not only Project traffic but also existing traffic on Beech Avenue to the south of Foothill Boulevard (SR-66). The following study area intersections are anticipated to be affected by the proposed interim access restriction:

- Intersection #1 Cherry Avenue & Foothill Boulevard (SR-66)
- Intersection #2 Redwood Avenue & Foothill Boulevard (SR-66)
- Intersection #3 Hemlock Avenue & Foothill Boulevard (SR-66)
- Intersection #6 Beech Avenue & Foothill Boulevard (SR-66)
- Intersection #7 Sultana Avenue & Foothill Boulevard (SR-66)

The Project driveways and other remaining off-site study area intersections are not anticipated to differ from that evaluated in the 2023 Traffic Study and therefore have not been evaluated in this focused traffic assessment. The Project site plan and trip generation are consistent with that evaluated in the 2023 Traffic Study. Exhibit 1 shows the Project's preliminary site plan and Table 1 summarizes the Project's trip generation.

EXHIBIT 1: PRELIMINARY SITE PLAN

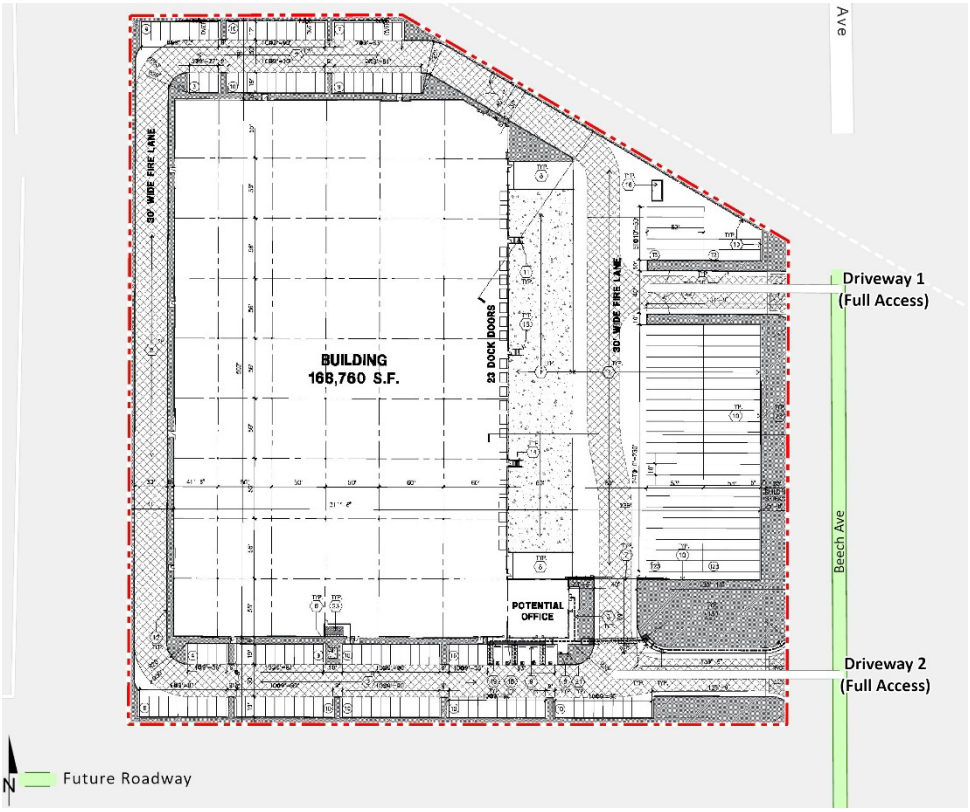


TABLE 1: PROJECT TRIP GENERATION

			AM Peak Hour			PM Peak Hour			
Land Use	Quantity	Units[1]	In	Out	Total	In	Out	Total	Daily
Actual Vehicles:									
Proposed Project	168.760	TSF							
Passenger Cars:			42	8	50	8	38	46	336
Total Truck Trips (Actual Vehicles):			1	1	2	1	1	2	90
Total Trips (Actual Vehicles)[2]			**43**	**9**	**52**	**9**	**39**	**48**	**426**
Passenger Car Equivalent (PCE):									
Proposed Project	168.760	TSF							
Passenger Cars:			42	8	50	8	38	46	336
Total Truck Trips (PCE):			6	3	9	6	5	11	226
Total Trips (PCE)[2]			**48**	**11**	**59**	**14**	**43**	**57**	**562**

[1] TSF = thousand square feet

[2] Total Trips = Passenger Cars + Truck Trips.

TRIP DISTRIBUTION

The Project trip distribution patterns would change from those evaluated in the 2023 Traffic Study and would affect the peak hour operations at the following intersections:

- Intersection #1 Cherry Avenue & Foothill Boulevard (SR-66)
- Intersection #2 Redwood Avenue & Foothill Boulevard (SR-66)
- Intersection #3 Hemlock Avenue & Foothill Boulevard (SR-66)
- Intersection #6 Beech Avenue & Foothill Boulevard (SR-66)
- Intersection #7 Sultana Avenue & Foothill Boulevard (SR-66)

Updated Project trip distribution patterns for passenger cars and trucks used for the purposes of this focused traffic analysis are provided in Attachment A. Due to the interim right-in/right-out/left-in access restriction for traffic to the north and south of Foothill Boulevard (SR-66) on Beech Avenue, existing northbound left turn traffic south of Foothill Boulevard (SR-66) has to be reallocated to use Muscat Avenue to Sultana Avenue (all other movements are not affected). Only the outbound Project traffic is affected by the proposed interim access restriction as the inbound trip distribution assumptions would be consistent with that evaluated in the 2023 Traffic Study. The proposed truck traffic must all make a southbound right on Beech Avenue to head west on Foothill Boulevard (SR-66). Lastly, 55% of the eastbound passenger car traffic must make a southbound right onto Foothill Boulevard (SR-66) from Beech Avenue and make a U-turn at Hemlock Avenue. The resulting updated Project volumes at the affected locations are also provided in Attachment A.

INTERSECTION OPERATIONS ANALYSIS

Intersection operations have been analyzed in accordance with the City's Traffic Study Guidelines. Per the City's Guidelines, Level of Service (LOS) C or better is considered acceptable for City intersections. For intersections operating at LOS D without the Project, there is a significant impact if the addition of Project traffic increases the pre-project delay by more than 5.0 seconds. Similarly, if the Project increases the pre-project delay by more than 3.0 seconds and 1.0 second for LOS E and LOS F, respectively, there would be a significant impact.

The following operations analyses account for the anticipated changes to the Project trip distribution patterns due to the interim access restriction at the intersection of Beech Avenue and Foothill Boulevard (SR-66). The proposed interim improvements that include a median on Foothill Boulevard (SR-66) in order to enforce the right-in/right-out/left-in access only (restricting lefts out from Beech Avenue) and an eyebrow median on the northern leg of Beech Avenue to force southbound vehicles to the west (southbound right turn only).

EXISTING PLUS AMBIENT GROWTH PLUS PROJECT (EAP) CONDITIONS

This scenario includes Existing (2022) traffic volumes from the 2023 Traffic Study plus an ambient growth factor of 4.04% and the addition of the Project traffic (with the proposed changes to the distribution). The intersection analysis results are summarized on Table 2 for EAP traffic conditions, which indicate the following study area intersection is anticipated to operate at an unacceptable LOS with the addition of Project traffic under EAP traffic conditions:

- Cherry Av. & Foothill Bl. (SR-66) (#1) – LOS D AM and PM peak hours

TABLE 2: INTERSECTION OPERATIONS ANALYSIS FOR EAP CONDITIONS

			Existing (2022)				EAP (2024)				Project-Related Increase in Delay	
			Delay[1] (secs.)		Level of Service		Delay[1] (secs.)		Level of Service			
#	Intersection	Traffic Control[2]	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
1	Cherry Av. & Foothill Bl. (SR-66)	TS	33.1	32.4	C	C	**35.6**	**35.1**	**D**	**D**	2.5	2.7
2	Redwood Av. & Foothill Bl. (SR-66	TS	11.2	11.3	B	B	11.4	11.5	B	B	--	--
3	Hemlock Av. & Foothill Bl. (SR-66)	TS	11.3	12.7	B	B	12.3	13.6	B	B	--	--
6	Beech Av. & Foothill Bl. (SR-66)[3]	CSS	**30.4**	**56.9**	**D**	**F**	17.1	21.3	C	C	--	--
7	Sultana Av. & Foothill Bl. (SR-66)	TS	23.3	15.2	C	B	27.9	16.5	C	B	--	--

* **BOLD** = Level of Service (LOS) does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

1 Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. HCM delay reported in seconds.

2 TS = Traffic Signal; CSS = Cross-street Stop; **CSS** = Improvement

3 EAP (2024) conditions assumes interim access restriction to right-in/right-out/left-in only.

As shown in Table 2, the intersection of Beech Avenue and Foothill Boulevard (SR-66) is anticipated to operate at an acceptable LOS with the proposed interim access restriction at Beech Avenue and Foothill Boulevard (SR-66) (was operating at a deficient LOS in the 2023 Traffic Study). All other peak hour intersection operations are consistent with the 2023 Traffic Study. The intersection operations analysis worksheets for EAP conditions are provided in Attachment B.

OPENING YEAR CUMULATIVE CONDITIONS

This scenario includes Existing traffic volumes from the 2023 Traffic Study, an ambient growth factor of 4.04%, traffic from pending and approved but not yet constructed known development projects in the area, and the addition of Project traffic (with the proposed changes to the distribution). The intersection analysis results are summarized on Table 3 for Opening Year Cumulative (2024) traffic conditions, which indicate the following study area intersections are anticipated to operate at an unacceptable LOS with the addition of Project traffic under Opening Year Cumulative traffic conditions:

- Cherry Av. & Foothill Bl. (SR-66) (#1) – LOS D AM and PM peak hours
- Sultana Av. & Foothill Bl. (SR-66) (#7) – LOS D AM peak hour only

TABLE 3: INTERSECTION OPERATIONS ANALYSIS FOR OPENING YEAR CUMULATIVE CONDITIONS

#	Intersection	Traffic Control[2]	2024 Without Project Delay[1] (secs.) AM	2024 Without Project Delay[1] (secs.) PM	2024 Without Project Level of Service AM	2024 Without Project Level of Service PM	2024 With Project Delay[1] (secs.) AM	2024 With Project Delay[1] (secs.) PM	2024 With Project Level of Service AM	2024 With Project Level of Service PM	Project-Related Increase in Delay AM	Project-Related Increase in Delay PM
1	Cherry Av. & Foothill Bl. (SR-66)	TS	**48.0**	**46.7**	**D**	**D**	**48.8**	**47.3**	**D**	**D**	0.8	0.6
2	Redwood Av. & Foothill Bl. (SR-66	TS	15.5	16.6	B	B	15.5	16.7	B	B	--	--
3	Hemlock Av. & Foothill Bl. (SR-66)	TS	15.5	14.9	B	B	15.6	15.6	B	B	--	--
6	Beech Av. & Foothill Bl. (SR-66)[3]	CSS	**45.0**	**125.2**	**E**	**F**	18.7	24.5	C	C	--	--
7	Sultana Av. & Foothill Bl. (SR-66)	TS	**36.2**	17.4	**D**	B	**38.7**	18.3	**D**	B	2.5	--

* **BOLD** = Level of Service (LOS) does not meet the applicable jurisdictional requirements (i.e., unacceptable LOS).

1 Per the Highway Capacity Manual (6th Edition), overall average intersection delay and level of service are shown for intersections with a traffic signal or all way stop control. For intersections with cross street stop control, the delay and level of service for the worst individual movement (or movements sharing a single lane) are shown. HCM delay reported in seconds.

2 TS = Traffic Signal; CSS = Cross-street Stop; **CSS** = Improvement

3 Opening Year Cumulative (2024) With Project conditions assumes interim access restriction to right-in/right-out/left-in only.

As shown in Table 3, the intersection of Beech Avenue and Foothill Boulevard (SR-66) is anticipated to operate at an acceptable LOS with the proposed interim access restriction at Beech Avenue and Foothill Boulevard (SR-66) (was operating at a deficient LOS in the 2023 Traffic Study) under Opening Year Cumulative With Project traffic conditions. All other peak hour intersection operations are consistent with the 2023 Traffic Study. The intersection operations analysis worksheets for Opening Year Cumulative (2024) With Project traffic conditions are provided in Attachment C.

QUEUING ANALYSIS

A queuing analysis has been performed for the intersection of Beech Avenue and Foothill Boulevard (SR-66) for Opening Year Cumulative (2024) With Project traffic conditions. The traffic modeling and signal timing optimization software package SimTraffic has been utilized to assess the queues. Random simulations generated by SimTraffic have been utilized to determine the 95th percentile queue lengths observed for the westbound and eastbound left turn lanes on Foothill Boulevard (SR-66). The SimTraffic simulation has been recorded up to 5 times, during the weekday AM and weekday PM peak hours, and has been seeded for 15-minute periods with 60-minute recording intervals. Queuing analysis worksheets for the weekday AM and PM peak hours are provided in Attachment D and results are summarized in Table 4. As shown, the proposed 120-foot eastbound and westbound left turn pockets are sufficient to accommodate the 95th percentile peak hour queues under Opening Year Cumulative (2024) With Project traffic conditions.

TABLE 4: PEAK HOUR QUEUES AT BEECH AVENUE & FOOTHILL BOULEVARD (SR-66)

Intersection	Movement	Available Stacking Distance (Feet)	95th Percentile Queue (Feet)[3]		Acceptable? [1]	
			AM Peak Hour	PM Peak Hour	AM	PM
Beech Av. & Foothill Bl. (SR-66)	EBL	120	39	24	Yes	Yes
	WBL	120	90	97	Yes	Yes

[1] Stacking Distance is acceptable if the required stacking distance is less than or equal to the stacking distance provided. An additional 25 feet of stacking which is assumed to be provided in the transition for turn pockets is reflected in the stacking distance shown on this table, where applicable.

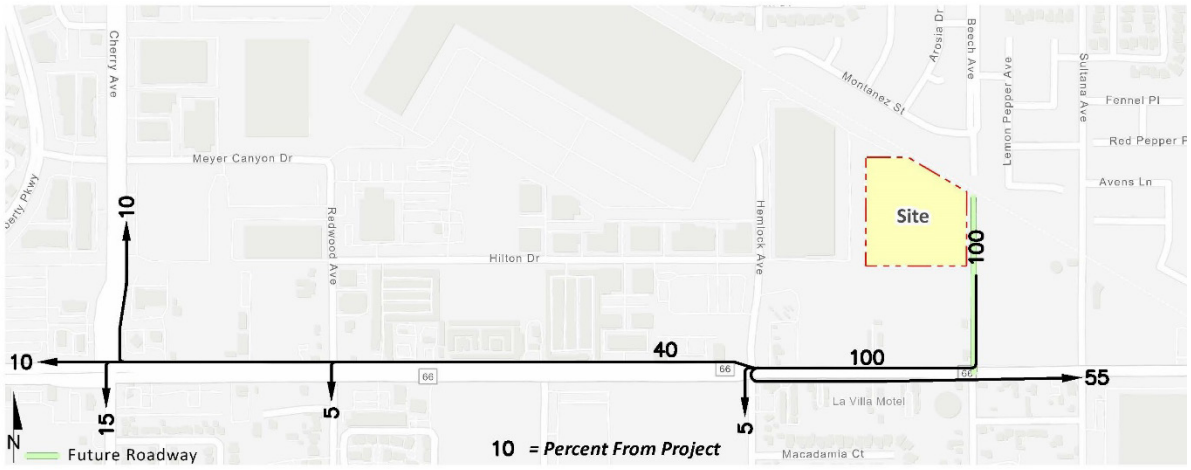
FINDINGS

As shown on Table 2 and Table 3, the addition of Project traffic falls below the City's significance thresholds at the deficient off-site study area intersections. As such, no improvements are recommended consistent with the 2023 Traffic Study. Signalization is not required at the intersection of Beech Avenue and Foothill Boulevard (SR-66) with the proposed interim access restriction and the intersection of Citrus Avenue and Foothill Boulevard (SR-66) was not evaluated as part of this assessment as the distribution and findings for this location would be unchanged from the 2023 Traffic Study.

If you have any questions or comments, I can be reached at cso@urbanxroads.com.

ATTACHMENT A: UPDATED PROJECT TRIP DISTRIBUTION PATTERNS

EXHIBIT A-1: PROJECT (PASSENGER CAR) TRIP DISTRIBUTION



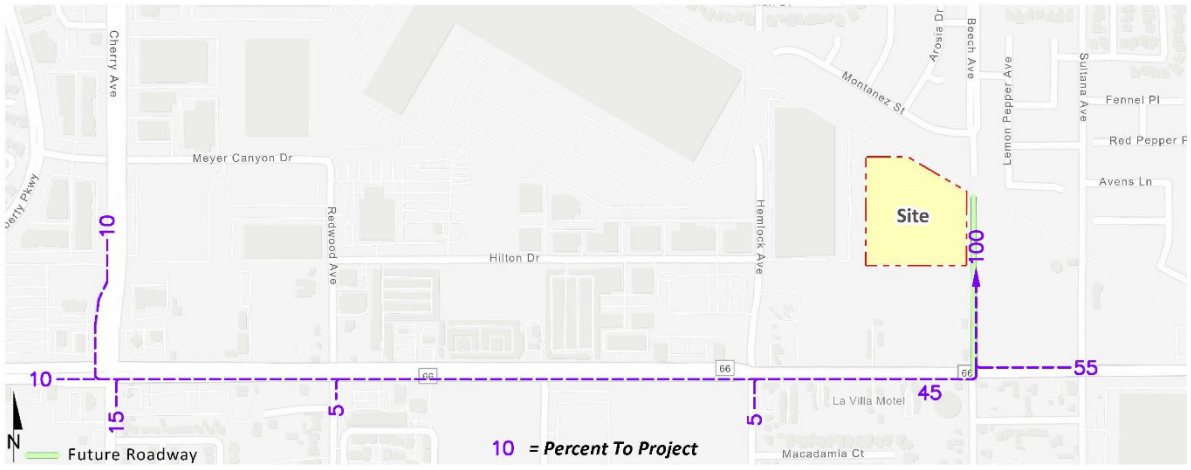
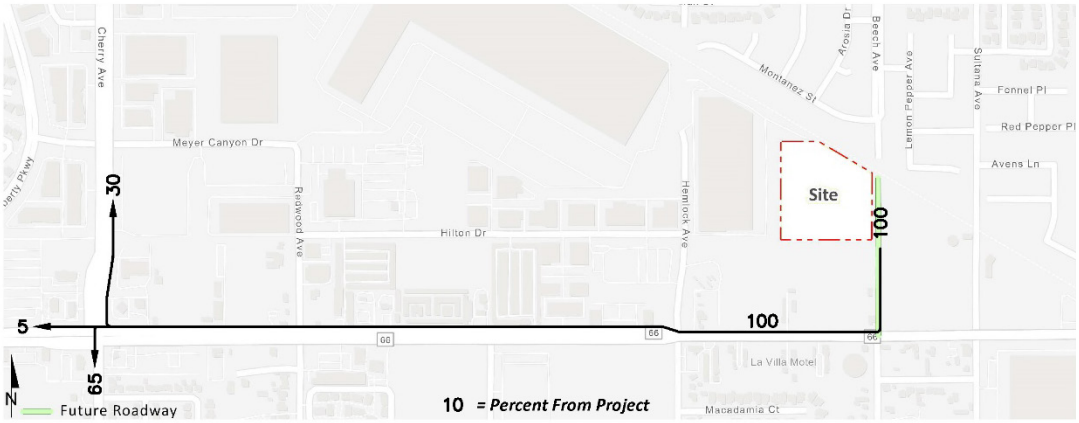


EXHIBIT A-2: PROJECT (TRUCK) TRIP DISTRIBUTION



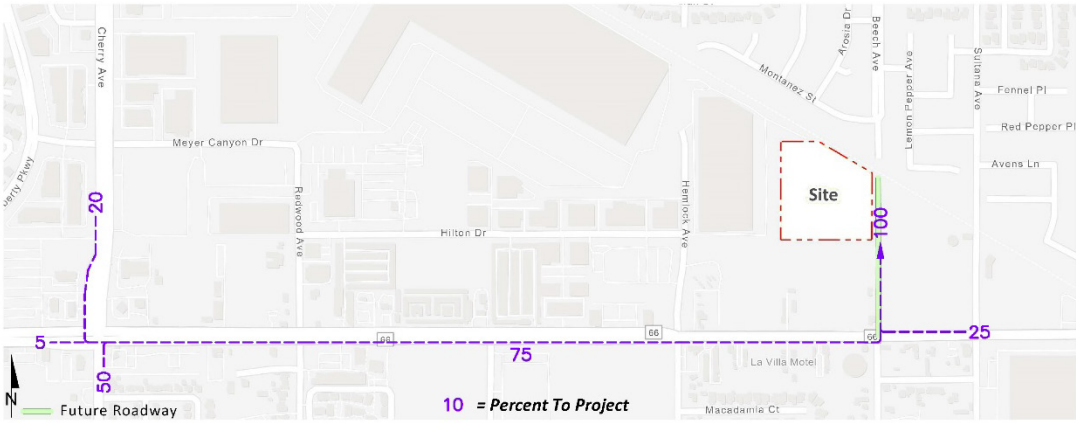
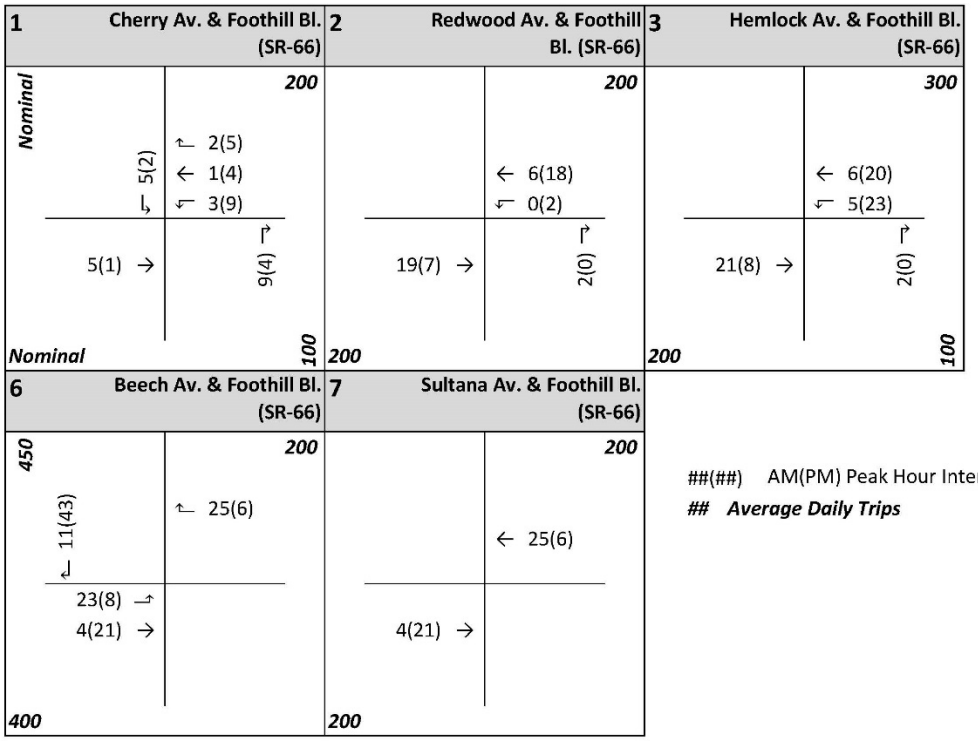


EXHIBIT A-3: PROJECT (PCE) TRAFFIC VOLUMES

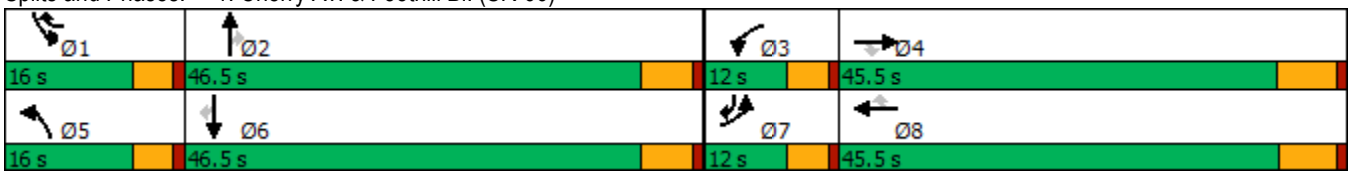


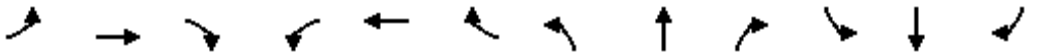
ATTACHMENT B: INTERSECTION OPERATIONS ANALYSIS WORKSHEETS FOR EAP (2024) CONDITIONS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	487	129	224	1008	98	176	464	119	170	791	120
Future Volume (vph)	204	487	129	224	1008	98	176	464	119	170	791	120
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	1	5	2	2	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	45.5	45.5	9.6	45.2	9.6	9.6	44.8	44.8	9.6	44.8	9.6
Total Split (s)	12.0	45.5	45.5	12.0	45.5	16.0	16.0	46.5	46.5	16.0	46.5	12.0
Total Split (%)	10.0%	37.9%	37.9%	10.0%	37.9%	13.3%	13.3%	38.8%	38.8%	13.3%	38.8%	10.0%
Yellow Time (s)	3.6	5.5	5.5	3.6	5.2	3.6	3.6	4.8	4.8	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	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 Lost Time (s)	4.6	6.5	6.5	4.6	6.2	4.6	4.6	5.8	5.8	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	7.6	28.5	28.5	7.6	28.8	42.1	11.6	24.8	24.8	11.6	24.8	33.6
Actuated g/C Ratio	0.08	0.30	0.30	0.08	0.30	0.45	0.12	0.26	0.26	0.12	0.26	0.36
v/c Ratio	0.83	0.35	0.25	0.91	0.72	0.14	0.90	0.39	0.26	0.87	0.66	0.22
Control Delay	70.1	26.8	5.7	81.7	32.6	4.1	84.5	29.5	6.3	79.2	33.6	10.4
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	70.1	26.8	5.7	81.7	32.6	4.1	84.5	29.5	6.3	79.2	33.6	10.4
LOS	E	C	A	F	C	A	F	C	A	E	C	B
Approach Delay		34.2			38.8			38.6			38.2	
Approach LOS		C			D			D			D	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 94.5	
Natural Cycle: 120	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 37.7	Intersection LOS: D
Intersection Capacity Utilization 69.4%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Cherry Av. & Foothill Bl. (SR-66)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	204	487	129	224	1008	98	176	464	119	170	791	120
Future Volume (veh/h)	204	487	129	224	1008	98	176	464	119	170	791	120
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		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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	232	553	72	255	1145	66	200	527	69	193	899	53
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	286	1586	490	286	1586	693	227	1299	397	227	1299	534
Arrive On Green	0.08	0.31	0.31	0.08	0.31	0.31	0.13	0.25	0.25	0.13	0.25	0.25
Sat Flow, veh/h	3510	5187	1602	3510	5187	1607	1810	5187	1584	1810	5187	1608
Grp Volume(v), veh/h	232	553	72	255	1145	66	200	527	69	193	899	53
Grp Sat Flow(s),veh/h/ln	1755	1729	1602	1755	1729	1607	1810	1729	1584	1810	1729	1608
Q Serve(g_s), s	5.9	7.5	3.0	6.5	17.9	2.2	9.9	7.7	3.1	9.5	14.3	2.1
Cycle Q Clear(g_c), s	5.9	7.5	3.0	6.5	17.9	2.2	9.9	7.7	3.1	9.5	14.3	2.1
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	286	1586	490	286	1586	693	227	1299	397	227	1299	534
V/C Ratio(X)	0.81	0.35	0.15	0.89	0.72	0.10	0.88	0.41	0.17	0.85	0.69	0.10
Avail Cap(c_a), veh/h	286	2227	688	286	2244	897	227	2324	710	227	2324	852
HCM Platoon Ratio	1.00	1.00	1.00	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	41.0	24.5	22.9	41.3	28.1	15.3	39.0	28.4	26.7	38.9	30.9	21.0
Incr Delay (d2), s/veh	15.0	0.1	0.1	26.7	0.7	0.1	29.4	0.2	0.2	24.0	0.7	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	3.0	2.9	1.1	3.8	6.9	0.8	6.0	3.0	1.1	5.5	5.6	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.0	24.6	23.1	68.1	28.8	15.4	68.5	28.6	26.9	62.9	31.5	21.0
LnGrp LOS	E	C	C	E	C	B	E	C	C	E	C	C
Approach Vol, veh/h		857			1466			796			1145	
Approach Delay, s/veh		33.0			35.0			38.5			36.3	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	28.6	12.0	34.3	16.0	28.5	12.0	34.3
Change Period (Y+Rc), s	4.6	5.8	4.6	6.5	4.6	5.8	4.6	* 6.5
Max Green Setting (Gmax), s	11.4	40.7	7.4	39.0	11.4	40.7	7.4	* 39
Max Q Clear Time (g_c+I1), s	11.5	9.7	8.5	9.5	11.9	16.3	7.9	19.9
Green Ext Time (p_c), s	0.0	3.7	0.0	3.9	0.0	6.3	0.0	7.6

Intersection Summary	
HCM 6th Ctrl Delay	35.6
HCM 6th LOS	D

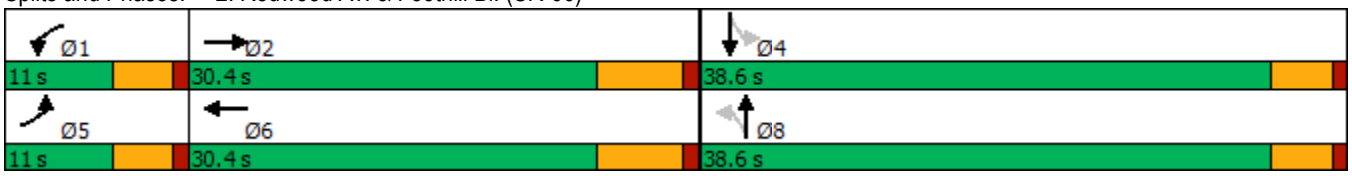
Notes

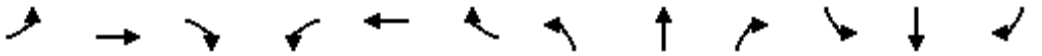
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	72	621	55	1160	45	33	10	6
Future Volume (vph)	72	621	55	1160	45	33	10	6
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	28.2	9.6	28.2	38.6	38.6	38.6	38.6
Total Split (s)	11.0	30.4	11.0	30.4	38.6	38.6	38.6	38.6
Total Split (%)	13.8%	38.0%	13.8%	38.0%	48.3%	48.3%	48.3%	48.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	7.5	28.9	7.3	26.8	16.2	16.2	16.2	16.2
Actuated g/C Ratio	0.14	0.55	0.14	0.51	0.31	0.31	0.31	0.31
v/c Ratio	0.31	0.26	0.25	0.50	0.12	0.11	0.03	0.13
Control Delay	32.3	12.1	30.7	15.6	17.9	11.4	16.3	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.3	12.1	30.7	15.6	17.9	11.4	16.3	6.3
LOS	C	B	C	B	B	B	B	A
Approach Delay		14.1		16.2		14.3		7.6
Approach LOS		B		B		B		A

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 52.3	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 15.1	Intersection LOS: B
Intersection Capacity Utilization 49.0%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Redwood Av. & Foothill Bl. (SR-66)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	621	35	55	1160	18	45	33	25	10	6	56
Future Volume (veh/h)	72	621	35	55	1160	18	45	33	25	10	6	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	81	698	39	62	1303	20	51	37	28	11	7	63
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	130	2064	115	110	2102	32	351	174	132	359	28	255
Arrive On Green	0.07	0.41	0.41	0.06	0.40	0.40	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1810	5028	280	1810	5263	81	1352	1004	760	1358	164	1472
Grp Volume(v), veh/h	81	479	258	62	856	467	51	0	65	11	0	70
Grp Sat Flow(s),veh/h/ln	1810	1729	1850	1810	1729	1885	1352	0	1763	1358	0	1635
Q Serve(g_s), s	1.9	4.1	4.1	1.4	8.6	8.6	1.5	0.0	1.4	0.3	0.0	1.6
Cycle Q Clear(g_c), s	1.9	4.1	4.1	1.4	8.6	8.6	3.1	0.0	1.4	1.7	0.0	1.6
Prop In Lane	1.00		0.15	1.00		0.04	1.00		0.43	1.00		0.90
Lane Grp Cap(c), veh/h	130	1420	759	110	1381	753	351	0	306	359	0	284
V/C Ratio(X)	0.62	0.34	0.34	0.56	0.62	0.62	0.15	0.00	0.21	0.03	0.00	0.25
Avail Cap(c_a), veh/h	267	1930	1032	267	1930	1052	1176	0	1383	1188	0	1282
HCM Platoon Ratio	1.00	1.00	1.00	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	19.6	8.7	8.8	19.8	10.4	10.4	16.8	0.0	15.4	16.1	0.0	15.5
Incr Delay (d2), s/veh	1.8	0.1	0.3	1.7	0.5	0.8	0.2	0.0	0.3	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	0.7	1.0	1.1	0.5	2.2	2.4	0.4	0.0	0.5	0.1	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.4	8.9	9.0	21.5	10.9	11.2	17.0	0.0	15.7	16.1	0.0	15.9
LnGrp LOS	C	A	A	C	B	B	B	A	B	B	A	B
Approach Vol, veh/h		818			1385			116			81	
Approach Delay, s/veh		10.2			11.5			16.3			15.9	
Approach LOS		B			B			B			B	

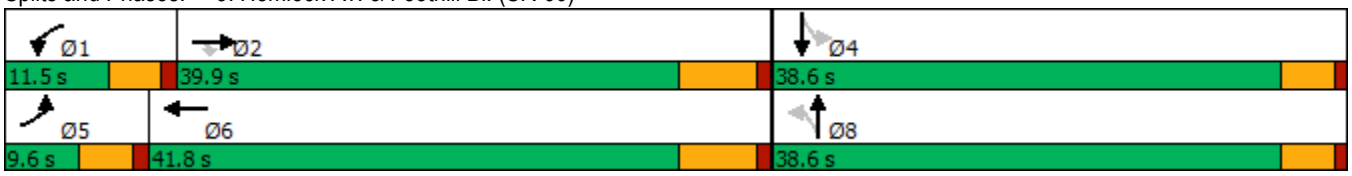
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.2	24.0		12.1	7.7	23.5		12.1				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	6.4	24.2		34.0	6.4	24.2		34.0				
Max Q Clear Time (g_c+I1), s	3.4	6.1		3.7	3.9	10.6		5.1				
Green Ext Time (p_c), s	0.0	4.1		0.4	0.0	6.7		0.5				

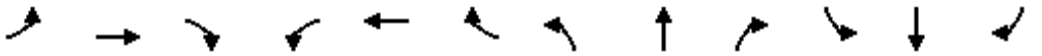
Intersection Summary												
HCM 6th Ctrl Delay			11.4									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	31	606	10	52	1323	24	16	24	3
Future Volume (vph)	31	606	10	52	1323	24	16	24	3
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8		4
Permitted Phases			2			8		4	
Detector Phase	5	2	2	1	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	28.2	28.2	9.6	28.2	38.6	38.6	38.6	38.6
Total Split (s)	9.6	39.9	39.9	11.5	41.8	38.6	38.6	38.6	38.6
Total Split (%)	10.7%	44.3%	44.3%	12.8%	46.4%	42.9%	42.9%	42.9%	42.9%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.3	36.6	36.6	6.4	39.7	13.9	13.9	13.9	13.9
Actuated g/C Ratio	0.09	0.59	0.59	0.10	0.64	0.22	0.22	0.22	0.22
v/c Ratio	0.23	0.33	0.01	0.33	0.72	0.09	0.25	0.10	0.06
Control Delay	37.1	12.3	0.0	36.5	16.6	21.1	8.5	21.3	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	12.3	0.0	36.5	16.6	21.1	8.5	21.3	10.6
LOS	D	B	A	D	B	C	A	C	B
Approach Delay		13.3			17.3		11.1		16.3
Approach LOS		B			B		B		B

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 62.1	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.72	
Intersection Signal Delay: 15.8	Intersection LOS: B
Intersection Capacity Utilization 60.5%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Hemlock Av. & Foothill Bl. (SR-66)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	606	10	52	1323	70	24	16	78	24	3	18
Future Volume (veh/h)	31	606	10	52	1323	70	24	16	78	24	3	18
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		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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	36	713	12	61	1556	66	28	19	26	28	4	6
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	70	1936	845	100	1950	82	302	90	123	271	85	127
Arrive On Green	0.04	0.54	0.54	0.06	0.55	0.55	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1810	3610	1575	1810	3525	149	1427	727	994	1383	686	1029
Grp Volume(v), veh/h	36	713	12	61	794	828	28	0	45	28	0	10
Grp Sat Flow(s),veh/h/ln	1810	1805	1575	1810	1805	1869	1427	0	1721	1383	0	1715
Q Serve(g_s), s	1.1	6.2	0.2	1.8	19.0	19.2	1.0	0.0	1.3	1.0	0.0	0.3
Cycle Q Clear(g_c), s	1.1	6.2	0.2	1.8	19.0	19.2	1.2	0.0	1.3	2.3	0.0	0.3
Prop In Lane	1.00		1.00	1.00		0.08	1.00		0.58	1.00		0.60
Lane Grp Cap(c), veh/h	70	1936	845	100	998	1034	302	0	212	271	0	211
V/C Ratio(X)	0.51	0.37	0.01	0.61	0.80	0.80	0.09	0.00	0.21	0.10	0.00	0.05
Avail Cap(c_a), veh/h	167	2252	983	231	1190	1232	1024	0	1083	971	0	1079
HCM Platoon Ratio	1.00	1.00	1.00	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	25.5	7.2	5.9	24.9	9.6	9.7	21.4	0.0	21.3	22.3	0.0	20.9
Incr Delay (d2), s/veh	2.2	0.1	0.0	2.2	3.2	3.3	0.1	0.0	0.5	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	0.4	1.4	0.0	0.7	5.0	5.3	0.3	0.0	0.5	0.3	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.6	7.4	5.9	27.1	12.9	13.0	21.6	0.0	21.8	22.5	0.0	21.0
LnGrp LOS	C	A	A	C	B	B	C	A	C	C	A	C
Approach Vol, veh/h		761			1683			73			38	
Approach Delay, s/veh		8.3			13.4			21.7			22.1	
Approach LOS		A			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	35.2		11.3	6.7	36.1		11.3				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	6.9	33.7		34.0	5.0	35.6		34.0				
Max Q Clear Time (g_c+I1), s	3.8	8.2		4.3	3.1	21.2		3.3				
Green Ext Time (p_c), s	0.0	4.5		0.1	0.0	8.7		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		12.3	
HCM 6th LOS		B	

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	653	43	206	1467	25	0	0	123	0	0	11
Future Vol, veh/h	23	653	43	206	1467	25	0	0	123	0	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	26	742	49	234	1667	28	0	0	140	0	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1695	0	0	791	0	0	-	-	396	-	-	848
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	-	-	6.9	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	-	-	3.3	-	-	3.3
Pot Cap-1 Maneuver	381	-	-	838	-	-	0	0	609	0	0	309
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	381	-	-	838	-	-	-	-	609	-	-	309
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

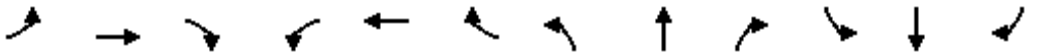
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.3	12.7	17.1
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	609	381	-	-	838	-	-	309
HCM Lane V/C Ratio	0.23	0.069	-	-	0.279	-	-	0.04
HCM Control Delay (s)	12.7	15.1	-	-	11	-	-	17.1
HCM Lane LOS	B	C	-	-	B	-	-	C
HCM 95th %tile Q(veh)	0.9	0.2	-	-	1.1	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	175	554	30	17	1204	30	53	47	44	43
Future Volume (vph)	175	554	30	17	1204	30	53	47	44	43
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases			2			6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	28.2	28.2	9.6	27.8	27.8	38.4	38.4	26.6	26.6
Total Split (s)	14.6	42.0	42.0	9.6	37.0	37.0	38.4	38.4	38.4	38.4
Total Split (%)	16.2%	46.7%	46.7%	10.7%	41.1%	41.1%	42.7%	42.7%	42.7%	42.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	4.8	4.8	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	5.8	5.8		5.4		5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	10.0	41.9	41.9	5.0	31.3	31.3		26.8		28.8
Actuated g/C Ratio	0.12	0.49	0.49	0.06	0.36	0.36		0.31		0.33
v/c Ratio	0.94	0.35	0.04	0.18	1.03	0.05		0.44		0.93
Control Delay	89.5	16.2	0.1	44.7	62.2	0.1		26.0		41.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	89.5	16.2	0.1	44.7	62.2	0.1		26.0		41.7
LOS	F	B	A	D	E	A		C		D
Approach Delay		32.5			60.5			26.0		41.7
Approach LOS		C			E			C		D

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 86.1	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 47.3	Intersection LOS: D
Intersection Capacity Utilization 88.8%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 7: Sultana Av. & Foothill Bl. (SR-66)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	175	554	30	17	1204	30	53	47	12	44	43	448
Future Volume (veh/h)	175	554	30	17	1204	30	53	47	12	44	43	448
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		0.99
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	197	622	24	19	1353	31	60	53	5	49	48	250
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	236	1847	806	39	1455	649	190	151	12	93	75	295
Arrive On Green	0.13	0.51	0.51	0.02	0.40	0.40	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1810	3610	1576	1810	3610	1610	467	592	47	154	296	1161
Grp Volume(v), veh/h	197	622	24	19	1353	31	118	0	0	347	0	0
Grp Sat Flow(s),veh/h/ln	1810	1805	1576	1810	1805	1610	1106	0	0	1611	0	0
Q Serve(g_s), s	8.1	7.8	0.6	0.8	27.3	0.9	0.0	0.0	0.0	9.5	0.0	0.0
Cycle Q Clear(g_c), s	8.1	7.8	0.6	0.8	27.3	0.9	6.0	0.0	0.0	15.5	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.51		0.04	0.14		0.72
Lane Grp Cap(c), veh/h	236	1847	806	39	1455	649	352	0	0	463	0	0
V/C Ratio(X)	0.83	0.34	0.03	0.48	0.93	0.05	0.33	0.00	0.00	0.75	0.00	0.00
Avail Cap(c_a), veh/h	237	1847	806	119	1477	659	599	0	0	747	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	32.4	11.0	9.2	36.9	21.7	13.9	23.0	0.0	0.0	26.9	0.0	0.0
Incr Delay (d2), s/veh	20.7	0.1	0.0	3.4	10.7	0.0	0.6	0.0	0.0	2.5	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	4.6	2.5	0.2	0.4	12.0	0.3	1.7	0.0	0.0	5.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.1	11.1	9.2	40.3	32.4	13.9	23.6	0.0	0.0	29.4	0.0	0.0
LnGrp LOS	D	B	A	D	C	B	C	A	A	C	A	A
Approach Vol, veh/h		843			1403			118			347	
Approach Delay, s/veh		20.8			32.1			23.6			29.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	45.2		24.8	14.5	36.9		24.8				
Change Period (Y+Rc), s	4.6	6.2		5.4	4.6	* 6.2		5.4				
Max Green Setting (Gmax), s	5.0	35.8		33.0	10.0	* 31		33.0				
Max Q Clear Time (g_c+I1), s	2.8	9.8		17.5	10.1	29.3		8.0				
Green Ext Time (p_c), s	0.0	3.9		1.8	0.0	1.4		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		27.9	
HCM 6th LOS		C	

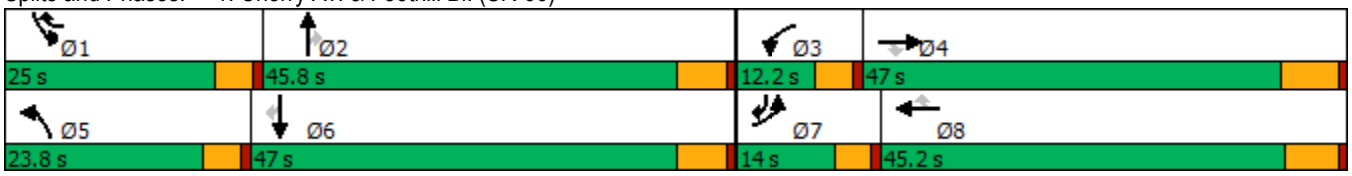
Notes

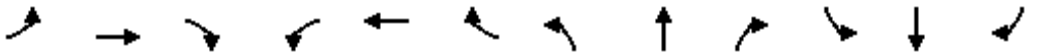
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	270	880	126	152	701	150	270	880	217	319	593	164
Future Volume (vph)	270	880	126	152	701	150	270	880	217	319	593	164
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	1	5	2	2	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	45.5	45.5	9.6	45.2	9.6	9.6	44.8	44.8	9.6	44.8	9.6
Total Split (s)	14.0	47.0	47.0	12.2	45.2	25.0	23.8	45.8	45.8	25.0	47.0	14.0
Total Split (%)	10.8%	36.2%	36.2%	9.4%	34.8%	19.2%	18.3%	35.2%	35.2%	19.2%	36.2%	10.8%
Yellow Time (s)	3.6	5.5	5.5	3.6	5.2	3.6	3.6	4.8	4.8	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	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 Lost Time (s)	4.6	6.5	6.5	4.6	6.2	4.6	4.6	5.8	5.8	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	9.6	26.4	26.4	7.5	24.6	47.1	19.6	26.8	26.8	20.8	28.1	38.9
Actuated g/C Ratio	0.09	0.26	0.26	0.07	0.24	0.46	0.19	0.26	0.26	0.20	0.27	0.38
v/c Ratio	0.85	0.68	0.26	0.61	0.58	0.20	0.81	0.67	0.42	0.90	0.43	0.26
Control Delay	72.6	37.6	6.8	60.5	36.8	9.8	61.9	37.2	12.8	71.0	32.4	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	0.0
Total Delay	72.6	37.6	6.8	60.5	36.8	9.8	61.9	37.2	12.8	71.0	32.4	13.2
LOS	E	D	A	E	D	A	E	D	B	E	C	B
Approach Delay		42.0			36.4			38.2			40.9	
Approach LOS		D			D			D			D	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 103.5	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 39.5	Intersection LOS: D
Intersection Capacity Utilization 73.9%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 1: Cherry Av. & Foothill Bl. (SR-66)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	270	880	126	152	701	150	270	880	217	319	593	164
Future Volume (veh/h)	270	880	126	152	701	150	270	880	217	319	593	164
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	276	898	75	155	715	77	276	898	122	326	605	95
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	348	1292	396	226	1111	662	312	1299	398	361	1438	599
Arrive On Green	0.10	0.25	0.25	0.06	0.21	0.21	0.17	0.25	0.25	0.20	0.28	0.28
Sat Flow, veh/h	3510	5187	1589	3510	5187	1589	1810	5187	1588	1810	5187	1586
Grp Volume(v), veh/h	276	898	75	155	715	77	276	898	122	326	605	95
Grp Sat Flow(s),veh/h/ln	1755	1729	1589	1755	1729	1589	1810	1729	1588	1810	1729	1586
Q Serve(g_s), s	7.0	14.3	3.4	3.9	11.4	2.7	13.5	14.2	5.7	16.0	8.7	3.6
Cycle Q Clear(g_c), s	7.0	14.3	3.4	3.9	11.4	2.7	13.5	14.2	5.7	16.0	8.7	3.6
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	348	1292	396	226	1111	662	312	1299	398	361	1438	599
V/C Ratio(X)	0.79	0.70	0.19	0.69	0.64	0.12	0.88	0.69	0.31	0.90	0.42	0.16
Avail Cap(c_a), veh/h	364	2314	709	294	2229	1004	383	2286	700	407	2354	880
HCM Platoon Ratio	1.00	1.00	1.00	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	40.0	31.0	26.9	41.6	32.5	16.4	36.7	30.8	27.6	35.5	26.8	18.8
Incr Delay (d2), s/veh	10.0	0.7	0.2	2.2	0.6	0.1	16.4	0.7	0.4	20.2	0.2	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	3.3	5.6	1.2	1.7	4.6	0.9	7.1	5.6	2.1	8.6	3.4	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.0	31.6	27.1	43.8	33.1	16.5	53.0	31.5	28.1	55.7	27.0	18.9
LnGrp LOS	D	C	C	D	C	B	D	C	C	E	C	B
Approach Vol, veh/h		1249			947			1296			1026	
Approach Delay, s/veh		35.4			33.5			35.8			35.4	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.7	28.5	10.4	29.1	20.3	31.0	13.6	25.9
Change Period (Y+Rc), s	4.6	5.8	4.6	6.5	4.6	5.8	4.6	* 6.5
Max Green Setting (Gmax), s	20.4	40.0	7.6	40.5	19.2	41.2	9.4	* 39
Max Q Clear Time (g_c+I1), s	18.0	16.2	5.9	16.3	15.5	10.7	9.0	13.4
Green Ext Time (p_c), s	0.1	6.5	0.0	6.3	0.1	4.4	0.0	5.0

Intersection Summary	
HCM 6th Ctrl Delay	35.1
HCM 6th LOS	D

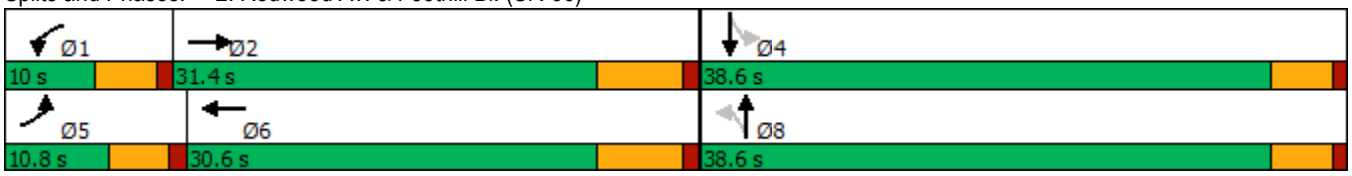
Notes

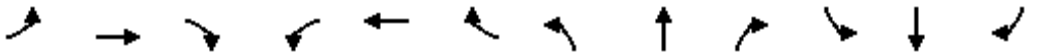
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	44	1300	62	839	66	36	29	25
Future Volume (vph)	44	1300	62	839	66	36	29	25
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	28.2	9.6	28.2	38.6	38.6	38.6	38.6
Total Split (s)	10.8	31.4	10.0	30.6	38.6	38.6	38.6	38.6
Total Split (%)	13.5%	39.3%	12.5%	38.3%	48.3%	48.3%	48.3%	48.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.9	27.4	6.6	28.9	15.7	15.7	15.7	15.7
Actuated g/C Ratio	0.14	0.54	0.13	0.57	0.31	0.31	0.31	0.31
v/c Ratio	0.18	0.50	0.27	0.30	0.16	0.14	0.07	0.15
Control Delay	29.9	14.2	32.2	11.4	18.0	10.1	17.0	8.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	14.2	32.2	11.4	18.0	10.1	17.0	8.5
LOS	C	B	C	B	B	B	B	A
Approach Delay		14.7		12.7		13.7		10.8
Approach LOS		B		B		B		B

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 50.4	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.50	
Intersection Signal Delay: 13.8	Intersection LOS: B
Intersection Capacity Utilization 53.9%	ICU Level of Service A
Analysis Period (min) 15	

Splits and Phases: 2: Redwood Av. & Foothill Bl. (SR-66)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	1300	66	62	839	21	66	36	43	29	25	56
Future Volume (veh/h)	44	1300	66	62	839	21	66	36	43	29	25	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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	45	1327	67	63	856	21	67	37	44	30	26	57
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	86	2084	105	109	2212	54	353	148	176	356	99	217
Arrive On Green	0.05	0.41	0.41	0.06	0.42	0.42	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1810	5057	255	1810	5207	128	1336	791	940	1338	530	1161
Grp Volume(v), veh/h	45	907	487	63	568	309	67	0	81	30	0	83
Grp Sat Flow(s),veh/h/ln	1810	1729	1854	1810	1729	1877	1336	0	1731	1338	0	1691
Q Serve(g_s), s	1.1	9.5	9.5	1.5	5.1	5.1	2.0	0.0	1.8	0.9	0.0	1.9
Cycle Q Clear(g_c), s	1.1	9.5	9.5	1.5	5.1	5.1	3.9	0.0	1.8	2.7	0.0	1.9
Prop In Lane	1.00		0.14	1.00		0.07	1.00		0.54	1.00		0.69
Lane Grp Cap(c), veh/h	86	1425	764	109	1469	797	353	0	323	356	0	316
V/C Ratio(X)	0.52	0.64	0.64	0.58	0.39	0.39	0.19	0.00	0.25	0.08	0.00	0.26
Avail Cap(c_a), veh/h	248	1928	1034	216	1866	1013	1108	0	1302	1112	0	1272
HCM Platoon Ratio	1.00	1.00	1.00	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	21.0	10.6	10.6	20.7	8.9	8.9	17.4	0.0	15.7	16.8	0.0	15.7
Incr Delay (d2), s/veh	1.8	0.5	0.9	1.8	0.2	0.3	0.3	0.0	0.4	0.1	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	0.4	2.4	2.7	0.6	1.3	1.4	0.6	0.0	0.7	0.3	0.0	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.8	11.1	11.5	22.4	9.1	9.3	17.7	0.0	16.1	16.9	0.0	16.2
LnGrp LOS	C	B	B	C	A	A	B	A	B	B	A	B
Approach Vol, veh/h		1439			940			148			113	
Approach Delay, s/veh		11.6			10.1			16.8			16.4	
Approach LOS		B			B			B			B	

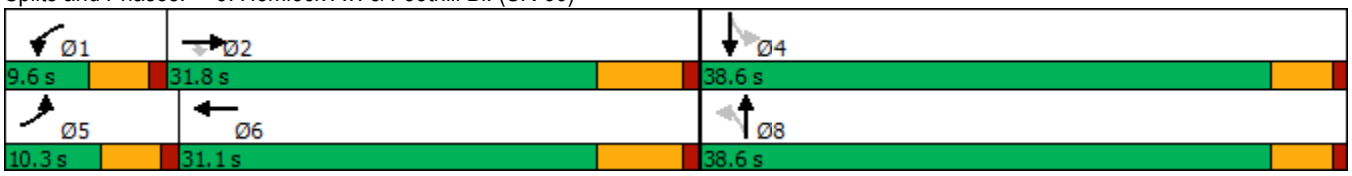
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	24.8		13.0	6.8	25.4		13.0				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.4	25.2		34.0	6.2	24.4		34.0				
Max Q Clear Time (g_c+I1), s	3.5	11.5		4.7	3.1	7.1		5.9				
Green Ext Time (p_c), s	0.0	7.2		0.6	0.0	4.9		0.7				

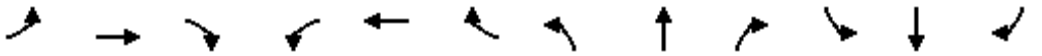
Intersection Summary			
HCM 6th Ctrl Delay		11.5	
HCM 6th LOS		B	

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	69	1200	33	72	746	23	10	122	15
Future Volume (vph)	69	1200	33	72	746	23	10	122	15
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8		4
Permitted Phases			2			8		4	
Detector Phase	5	2	2	1	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	28.2	28.2	9.6	28.2	38.6	38.6	38.6	38.6
Total Split (s)	10.3	31.8	31.8	9.6	31.1	38.6	38.6	38.6	38.6
Total Split (%)	12.9%	39.8%	39.8%	12.0%	38.9%	48.3%	48.3%	48.3%	48.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.0	30.2	30.2	5.5	31.8	14.8	14.8	14.8	14.8
Actuated g/C Ratio	0.11	0.53	0.53	0.10	0.56	0.26	0.26	0.26	0.26
v/c Ratio	0.38	0.65	0.04	0.43	0.42	0.07	0.11	0.35	0.13
Control Delay	36.2	18.9	0.1	39.8	14.0	16.8	7.8	21.5	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.2	18.9	0.1	39.8	14.0	16.8	7.8	21.5	8.1
LOS	D	B	A	D	B	B	A	C	A
Approach Delay		19.3			16.1		10.7		17.1
Approach LOS		B			B		B		B

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 56.5	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.65	
Intersection Signal Delay: 17.7	Intersection LOS: B
Intersection Capacity Utilization 63.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: Hemlock Av. & Foothill Bl. (SR-66)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	1200	33	72	746	58	23	10	38	122	15	45
Future Volume (veh/h)	69	1200	33	72	746	58	23	10	38	122	15	45
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		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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	72	1250	24	75	777	54	24	10	10	127	16	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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	115	1591	694	118	1512	105	374	158	158	389	135	178
Arrive On Green	0.06	0.44	0.44	0.07	0.44	0.44	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1810	3610	1575	1810	3419	238	1393	872	872	1414	745	978
Grp Volume(v), veh/h	72	1250	24	75	410	421	24	0	20	127	0	37
Grp Sat Flow(s),veh/h/ln	1810	1805	1575	1810	1805	1851	1393	0	1743	1414	0	1724
Q Serve(g_s), s	1.9	14.6	0.4	2.0	8.1	8.1	0.7	0.0	0.5	4.0	0.0	0.9
Cycle Q Clear(g_c), s	1.9	14.6	0.4	2.0	8.1	8.1	1.6	0.0	0.5	4.5	0.0	0.9
Prop In Lane	1.00		1.00	1.00		0.13	1.00		0.50	1.00		0.57
Lane Grp Cap(c), veh/h	115	1591	694	118	798	819	374	0	316	389	0	313
V/C Ratio(X)	0.63	0.79	0.03	0.64	0.51	0.51	0.06	0.00	0.06	0.33	0.00	0.12
Avail Cap(c_a), veh/h	209	1876	819	184	912	936	1083	0	1203	1109	0	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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.5	11.8	7.8	22.5	9.9	9.9	17.5	0.0	16.7	18.6	0.0	16.9
Incr Delay (d2), s/veh	2.1	1.9	0.0	2.1	0.5	0.5	0.1	0.0	0.1	0.5	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	0.7	4.1	0.1	0.8	2.1	2.2	0.2	0.0	0.2	1.3	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.6	13.7	7.8	24.6	10.4	10.4	17.6	0.0	16.8	19.0	0.0	17.0
LnGrp LOS	C	B	A	C	B	B	B	A	B	B	A	B
Approach Vol, veh/h		1346			906			44			164	
Approach Delay, s/veh		14.2			11.6			17.2			18.6	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	27.9		13.5	7.7	28.0		13.5				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.0	25.6		34.0	5.7	24.9		34.0				
Max Q Clear Time (g_c+I1), s	4.0	16.6		6.5	3.9	10.1		3.6				
Green Ext Time (p_c), s	0.0	5.1		0.5	0.0	4.0		0.1				

Intersection Summary												
HCM 6th Ctrl Delay			13.6									
HCM 6th LOS			B									

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	1293	67	118	881	6	0	0	131	0	0	43
Future Vol, veh/h	8	1293	67	118	881	6	0	0	131	0	0	43
Conflicting Peds, #/hr	0	0	4	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	9	1405	73	128	958	7	0	0	142	0	0	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	965	0	0	1482	0	0	-	-	743	-	-	483
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	-	-	6.9	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	-	-	3.3	-	-	3.3
Pot Cap-1 Maneuver	722	-	-	460	-	-	0	0	362	0	0	535
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	722	-	-	458	-	-	-	-	361	-	-	535
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

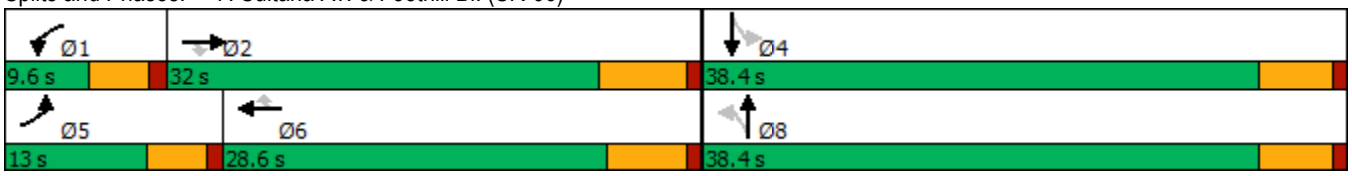
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.9	21.3	12.4
HCM LOS			C	B

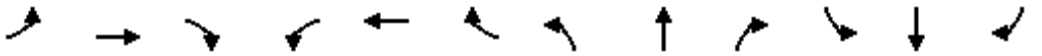
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	361	722	-	-	458	-	-	535
HCM Lane V/C Ratio	0.394	0.012	-	-	0.28	-	-	0.087
HCM Control Delay (s)	21.3	10	-	-	15.9	-	-	12.4
HCM Lane LOS	C	B	-	-	C	-	-	B
HCM 95th %tile Q(veh)	1.8	0	-	-	1.1	-	-	0.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	229	1226	22	17	753	77	76	115	31	19
Future Volume (vph)	229	1226	22	17	753	77	76	115	31	19
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases			2			6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	28.2	28.2	9.6	27.8	27.8	38.4	38.4	26.6	26.6
Total Split (s)	13.0	32.0	32.0	9.6	28.6	28.6	38.4	38.4	38.4	38.4
Total Split (%)	16.3%	40.0%	40.0%	12.0%	35.8%	35.8%	48.0%	48.0%	48.0%	48.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	4.8	4.8	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	5.8	5.8		5.4		5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	8.7	30.3	30.3	5.2	18.7	18.7		16.4		16.4
Actuated g/C Ratio	0.14	0.50	0.50	0.09	0.31	0.31		0.27		0.27
v/c Ratio	0.93	0.71	0.03	0.12	0.71	0.14		0.62		0.42
Control Delay	72.9	18.0	0.0	32.9	23.3	4.6		24.7		7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	72.9	18.0	0.0	32.9	23.3	4.6		24.7		7.6
LOS	E	B	A	C	C	A		C		A
Approach Delay		26.2			21.8			24.7		7.6
Approach LOS		C			C			C		A

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 60.1	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.93	
Intersection Signal Delay: 23.2	Intersection LOS: C
Intersection Capacity Utilization 77.2%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: Sultana Av. & Foothill Bl. (SR-66)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	1226	22	17	753	77	76	115	47	31	19	176
Future Volume (veh/h)	229	1226	22	17	753	77	76	115	47	31	19	176
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		0.99
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	241	1291	22	18	793	52	80	121	22	33	20	54
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	295	1641	715	40	1132	505	192	203	32	156	101	164
Arrive On Green	0.16	0.45	0.45	0.02	0.31	0.31	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1810	3610	1573	1810	3610	1610	479	1049	167	313	519	847
Grp Volume(v), veh/h	241	1291	22	18	793	52	223	0	0	107	0	0
Grp Sat Flow(s),veh/h/ln	1810	1805	1573	1810	1805	1610	1696	0	0	1679	0	0
Q Serve(g_s), s	6.3	14.9	0.4	0.5	9.5	1.1	3.2	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.3	14.9	0.4	0.5	9.5	1.1	5.8	0.0	0.0	2.6	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.36		0.10	0.31		0.50
Lane Grp Cap(c), veh/h	295	1641	715	40	1132	505	428	0	0	421	0	0
V/C Ratio(X)	0.82	0.79	0.03	0.45	0.70	0.10	0.52	0.00	0.00	0.25	0.00	0.00
Avail Cap(c_a), veh/h	309	1895	826	184	1675	747	1207	0	0	1145	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	19.9	11.4	7.4	23.7	14.8	12.0	18.2	0.0	0.0	17.0	0.0	0.0
Incr Delay (d2), s/veh	13.8	2.0	0.0	2.9	0.8	0.1	1.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	4.1	0.1	0.2	3.1	0.3	2.1	0.0	0.0	0.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	13.4	7.4	26.6	15.6	12.1	19.2	0.0	0.0	17.3	0.0	0.0
LnGrp LOS	C	B	A	C	B	B	B	A	A	B	A	A
Approach Vol, veh/h		1554			863			223			107	
Approach Delay, s/veh		16.4			15.7			19.2			17.3	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	28.5		14.9	12.6	21.6		14.9				
Change Period (Y+Rc), s	4.6	6.2		5.4	4.6	* 6.2		5.4				
Max Green Setting (Gmax), s	5.0	25.8		33.0	8.4	* 23		33.0				
Max Q Clear Time (g_c+I1), s	2.5	16.9		4.6	8.3	11.5		7.8				
Green Ext Time (p_c), s	0.0	5.2		0.6	0.0	3.9		1.2				

Intersection Summary			
HCM 6th Ctrl Delay		16.5	
HCM 6th LOS		B	

Notes

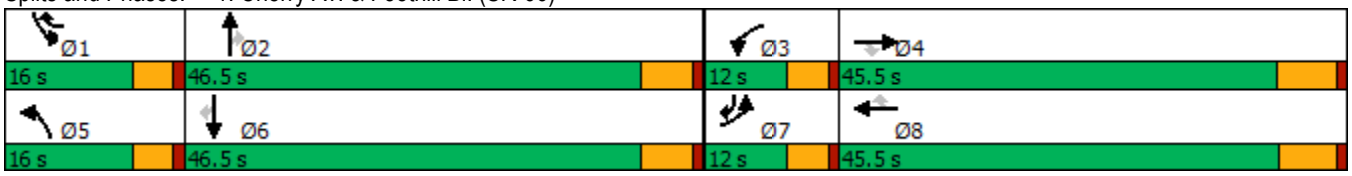
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

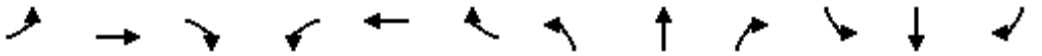
ATTACHMENT C: INTERSECTION OPERATIONS ANALYSIS WORKSHEETS FOR OPENING YEAR CUMULATIVE (2024) WITH PROJECT CONDITIONS

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	217	556	136	280	1105	166	178	477	168	230	802	131
Future Volume (vph)	217	556	136	280	1105	166	178	477	168	230	802	131
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	1	5	2	2	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	45.5	45.5	9.6	45.2	9.6	9.6	44.8	44.8	9.6	44.8	9.6
Total Split (s)	12.0	45.5	45.5	12.0	45.5	16.0	16.0	46.5	46.5	16.0	46.5	12.0
Total Split (%)	10.0%	37.9%	37.9%	10.0%	37.9%	13.3%	13.3%	38.8%	38.8%	13.3%	38.8%	10.0%
Yellow Time (s)	3.6	5.5	5.5	3.6	5.2	3.6	3.6	4.8	4.8	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	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 Lost Time (s)	4.6	6.5	6.5	4.6	6.2	4.6	4.6	5.8	5.8	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	7.5	31.3	31.3	7.5	31.7	44.9	11.6	25.7	25.7	11.6	25.7	34.4
Actuated g/C Ratio	0.08	0.32	0.32	0.08	0.32	0.46	0.12	0.26	0.26	0.12	0.26	0.35
v/c Ratio	0.92	0.38	0.25	1.19	0.75	0.24	0.95	0.40	0.34	1.23	0.67	0.24
Control Delay	85.7	26.9	5.5	155.8	33.3	7.4	96.2	30.8	6.0	174.9	35.1	11.6
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	85.7	26.9	5.5	155.8	33.3	7.4	96.2	30.8	6.0	174.9	35.1	11.6
LOS	F	C	A	F	C	A	F	C	A	F	D	B
Approach Delay		37.8			52.6			39.8			60.0	
Approach LOS		D			D			D			E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 98	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.23	
Intersection Signal Delay: 49.1	Intersection LOS: D
Intersection Capacity Utilization 71.8%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 1: Cherry Av. & Foothill Bl. (SR-66)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	217	556	136	280	1105	166	178	477	168	230	802	131
Future Volume (veh/h)	217	556	136	280	1105	166	178	477	168	230	802	131
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		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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	247	632	80	318	1256	144	202	542	125	261	911	66
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	274	1684	520	274	1684	715	218	1297	396	218	1297	528
Arrive On Green	0.08	0.32	0.32	0.08	0.32	0.32	0.12	0.25	0.25	0.12	0.25	0.25
Sat Flow, veh/h	3510	5187	1603	3510	5187	1607	1810	5187	1584	1810	5187	1608
Grp Volume(v), veh/h	247	632	80	318	1256	144	202	542	125	261	911	66
Grp Sat Flow(s),veh/h/ln	1755	1729	1603	1755	1729	1607	1810	1729	1584	1810	1729	1608
Q Serve(g_s), s	6.6	8.9	3.4	7.4	20.4	5.2	10.5	8.3	6.1	11.4	15.1	2.7
Cycle Q Clear(g_c), s	6.6	8.9	3.4	7.4	20.4	5.2	10.5	8.3	6.1	11.4	15.1	2.7
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	274	1684	520	274	1684	715	218	1297	396	218	1297	528
V/C Ratio(X)	0.90	0.38	0.15	1.16	0.75	0.20	0.93	0.42	0.32	1.20	0.70	0.13
Avail Cap(c_a), veh/h	274	2135	660	274	2152	860	218	2228	680	218	2228	817
HCM Platoon Ratio	1.00	1.00	1.00	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	43.3	24.6	22.7	43.7	28.5	16.0	41.3	29.8	28.9	41.7	32.3	22.3
Incr Delay (d2), s/veh	29.4	0.1	0.1	104.6	1.1	0.1	40.8	0.2	0.5	125.1	0.7	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	3.9	3.4	1.2	7.1	8.0	1.8	6.9	3.3	2.2	12.4	6.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.7	24.7	22.9	148.3	29.6	16.2	82.1	30.0	29.4	166.7	33.0	22.4
LnGrp LOS	E	C	C	F	C	B	F	C	C	F	C	C
Approach Vol, veh/h		959			1718			869			1238	
Approach Delay, s/veh		36.9			50.4			42.0			60.6	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	29.5	12.0	37.3	16.0	29.5	12.0	37.3
Change Period (Y+Rc), s	4.6	5.8	4.6	6.5	4.6	5.8	4.6	* 6.5
Max Green Setting (Gmax), s	11.4	40.7	7.4	39.0	11.4	40.7	7.4	* 39
Max Q Clear Time (g_c+I1), s	13.4	10.3	9.4	10.9	12.5	17.1	8.6	22.4
Green Ext Time (p_c), s	0.0	4.0	0.0	4.4	0.0	6.3	0.0	8.1

Intersection Summary	
HCM 6th Ctrl Delay	48.8
HCM 6th LOS	D

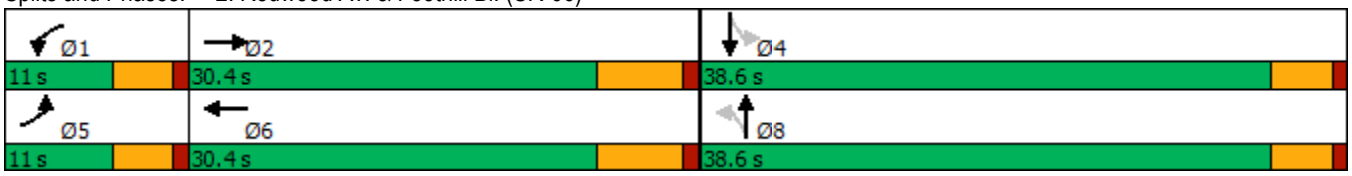
Notes

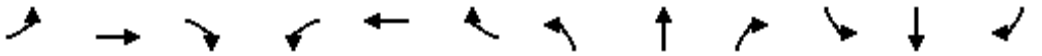
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	164	706	62	1285	45	33	10	6
Future Volume (vph)	164	706	62	1285	45	33	10	6
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	28.2	9.6	28.2	38.6	38.6	38.6	38.6
Total Split (s)	11.0	30.4	11.0	30.4	38.6	38.6	38.6	38.6
Total Split (%)	13.8%	38.0%	13.8%	38.0%	48.3%	48.3%	48.3%	48.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.5	28.8	6.1	24.0	13.8	13.8	13.8	13.8
Actuated g/C Ratio	0.11	0.48	0.10	0.40	0.23	0.23	0.23	0.23
v/c Ratio	0.94	0.34	0.38	0.71	0.19	0.16	0.04	0.35
Control Delay	83.4	12.8	34.6	19.4	19.3	11.6	16.4	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.4	12.8	34.6	19.4	19.3	11.6	16.4	5.6
LOS	F	B	C	B	B	B	B	A
Approach Delay		25.6		20.1		14.9		6.2
Approach LOS		C		C		B		A

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 60.1	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.94	
Intersection Signal Delay: 20.9	Intersection LOS: C
Intersection Capacity Utilization 69.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Redwood Av. & Foothill Bl. (SR-66)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	164	706	35	62	1285	18	45	33	27	10	6	152
Future Volume (veh/h)	164	706	35	62	1285	18	45	33	27	10	6	152
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	184	793	39	70	1444	20	51	37	30	11	7	171
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	227	2302	113	112	2061	29	241	177	144	344	12	284
Arrive On Green	0.13	0.45	0.45	0.06	0.39	0.39	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1810	5065	248	1810	5272	73	1225	971	787	1355	64	1556
Grp Volume(v), veh/h	184	541	291	70	947	517	51	0	67	11	0	178
Grp Sat Flow(s),veh/h/ln	1810	1729	1855	1810	1729	1887	1225	0	1758	1355	0	1620
Q Serve(g_s), s	5.1	5.2	5.2	1.9	11.7	11.7	2.0	0.0	1.7	0.4	0.0	5.2
Cycle Q Clear(g_c), s	5.1	5.2	5.2	1.9	11.7	11.7	7.2	0.0	1.7	2.0	0.0	5.2
Prop In Lane	1.00		0.13	1.00		0.04	1.00		0.45	1.00		0.96
Lane Grp Cap(c), veh/h	227	1572	843	112	1352	738	241	0	321	344	0	295
V/C Ratio(X)	0.81	0.34	0.35	0.63	0.70	0.70	0.21	0.00	0.21	0.03	0.00	0.60
Avail Cap(c_a), veh/h	227	1638	879	227	1638	894	833	0	1170	999	0	1078
HCM Platoon Ratio	1.00	1.00	1.00	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	21.8	9.0	9.0	23.4	13.1	13.1	22.5	0.0	17.8	18.6	0.0	19.2
Incr Delay (d2), s/veh	18.4	0.1	0.2	2.2	1.0	1.9	0.4	0.0	0.3	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/ln	3.0	1.4	1.5	0.8	3.5	4.0	0.6	0.0	0.7	0.1	0.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.1	9.1	9.3	25.6	14.1	15.0	22.9	0.0	18.1	18.6	0.0	21.2
LnGrp LOS	D	A	A	C	B	B	C	A	B	B	A	C
Approach Vol, veh/h		1016			1534			118			189	
Approach Delay, s/veh		14.8			14.9			20.2			21.0	
Approach LOS		B			B			C			C	

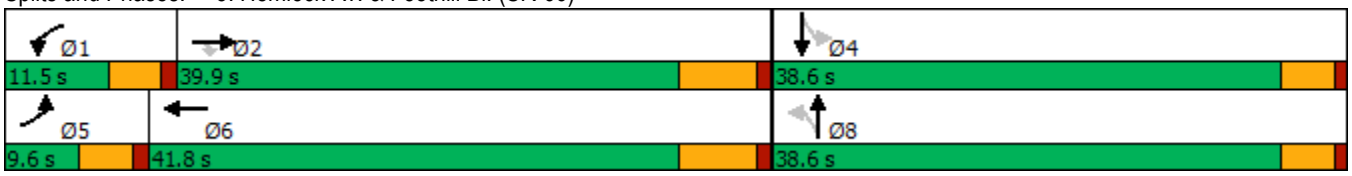
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.7	29.4		13.9	11.0	26.2		13.9				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	6.4	24.2		34.0	6.4	24.2		34.0				
Max Q Clear Time (g_c+I1), s	3.9	7.2		7.2	7.1	13.7		9.2				
Green Ext Time (p_c), s	0.0	4.6		1.2	0.0	6.2		0.5				

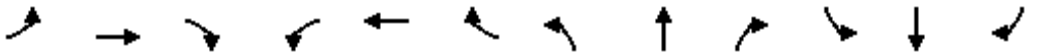
Intersection Summary			
HCM 6th Ctrl Delay		15.5	
HCM 6th LOS		B	

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	31	647	10	59	1406	24	16	72	3
Future Volume (vph)	31	647	10	59	1406	24	16	72	3
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8		4
Permitted Phases			2			8		4	
Detector Phase	5	2	2	1	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	28.2	28.2	9.6	28.2	38.6	38.6	38.6	38.6
Total Split (s)	9.6	39.9	39.9	11.5	41.8	38.6	38.6	38.6	38.6
Total Split (%)	10.7%	44.3%	44.3%	12.8%	46.4%	42.9%	42.9%	42.9%	42.9%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.3	36.6	36.6	6.5	39.8	14.2	14.2	14.2	14.2
Actuated g/C Ratio	0.08	0.59	0.59	0.10	0.64	0.23	0.23	0.23	0.23
v/c Ratio	0.23	0.36	0.01	0.37	0.79	0.09	0.25	0.29	0.06
Control Delay	37.3	12.7	0.0	37.4	18.7	20.9	8.4	24.1	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.3	12.7	0.0	37.4	18.7	20.9	8.4	24.1	10.6
LOS	D	B	A	D	B	C	A	C	B
Approach Delay		13.6			19.4		10.9		21.0
Approach LOS		B			B		B		C

Intersection Summary	
Cycle Length: 90	
Actuated Cycle Length: 62.4	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.79	
Intersection Signal Delay: 17.5	Intersection LOS: B
Intersection Capacity Utilization 68.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Hemlock Av. & Foothill Bl. (SR-66)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	31	647	10	59	1406	116	24	16	80	72	3	18
Future Volume (veh/h)	31	647	10	59	1406	116	24	16	80	72	3	18
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		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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	36	761	12	69	1654	120	28	19	28	85	4	6
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	68	1971	860	104	1929	139	307	93	137	274	92	138
Arrive On Green	0.04	0.55	0.55	0.06	0.57	0.57	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1810	3610	1575	1810	3410	245	1427	694	1022	1380	686	1029
Grp Volume(v), veh/h	36	761	12	69	868	906	28	0	47	85	0	10
Grp Sat Flow(s),veh/h/ln	1810	1805	1575	1810	1805	1850	1427	0	1716	1380	0	1715
Q Serve(g_s), s	1.1	7.1	0.2	2.2	23.6	24.5	1.0	0.0	1.4	3.4	0.0	0.3
Cycle Q Clear(g_c), s	1.1	7.1	0.2	2.2	23.6	24.5	1.3	0.0	1.4	4.9	0.0	0.3
Prop In Lane	1.00		1.00	1.00		0.13	1.00		0.60	1.00		0.60
Lane Grp Cap(c), veh/h	68	1971	860	104	1021	1046	307	0	230	274	0	230
V/C Ratio(X)	0.53	0.39	0.01	0.66	0.85	0.87	0.09	0.00	0.20	0.31	0.00	0.04
Avail Cap(c_a), veh/h	154	2073	905	213	1095	1122	942	0	994	889	0	993
HCM Platoon Ratio	1.00	1.00	1.00	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	27.7	7.7	6.1	27.1	10.7	10.9	22.7	0.0	22.6	24.8	0.0	22.1
Incr Delay (d2), s/veh	2.3	0.1	0.0	2.7	6.2	6.9	0.1	0.0	0.4	0.6	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	0.5	1.8	0.0	0.9	7.3	7.9	0.3	0.0	0.6	1.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.0	7.8	6.1	29.8	16.9	17.8	22.8	0.0	23.1	25.4	0.0	22.2
LnGrp LOS	C	A	A	C	B	B	C	A	C	C	A	C
Approach Vol, veh/h		809			1843			75			95	
Approach Delay, s/veh		8.8			17.8			23.0			25.1	
Approach LOS		A			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	38.2		12.5	6.8	39.4		12.5				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	6.9	33.7		34.0	5.0	35.6		34.0				
Max Q Clear Time (g_c+I1), s	4.2	9.1		6.9	3.1	26.5		3.4				
Green Ext Time (p_c), s	0.0	4.9		0.3	0.0	6.7		0.3				

Intersection Summary			
HCM 6th Ctrl Delay		15.6	
HCM 6th LOS		B	

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	745	43	206	1598	25	0	0	123	0	0	11
Future Vol, veh/h	23	745	43	206	1598	25	0	0	123	0	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	26	847	49	234	1816	28	0	0	140	0	0	13

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1844	0	0	896	0	0	-	-	448	-	-	922
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	-	-	6.9	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	-	-	3.3	-	-	3.3
Pot Cap-1 Maneuver	334	-	-	766	-	-	0	0	564	0	0	276
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	334	-	-	766	-	-	-	-	564	-	-	276
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

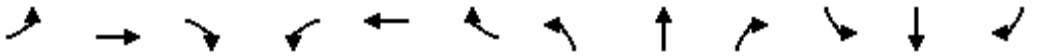
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.5	1.3	13.5	18.7
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	564	334	-	-	766	-	-	276
HCM Lane V/C Ratio	0.248	0.078	-	-	0.306	-	-	0.045
HCM Control Delay (s)	13.5	16.7	-	-	11.8	-	-	18.7
HCM Lane LOS	B	C	-	-	B	-	-	C
HCM 95th %tile Q(veh)	1	0.3	-	-	1.3	-	-	0.1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	178	643	30	17	1327	30	53	47	44	43
Future Volume (vph)	178	643	30	17	1327	30	53	47	44	43
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases			2			6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	28.2	28.2	9.6	27.8	27.8	38.4	38.4	26.6	26.6
Total Split (s)	14.6	42.0	42.0	9.6	37.0	37.0	38.4	38.4	38.4	38.4
Total Split (%)	16.2%	46.7%	46.7%	10.7%	41.1%	41.1%	42.7%	42.7%	42.7%	42.7%
Yellow Time (s)	3.6	5.2	5.2	3.6	4.8	4.8	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	5.8	5.8		5.4		5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	10.0	41.9	41.9	5.0	31.3	31.3		27.1		29.4
Actuated g/C Ratio	0.12	0.48	0.48	0.06	0.36	0.36		0.31		0.34
v/c Ratio	0.96	0.41	0.04	0.18	1.14	0.05		0.44		0.93
Control Delay	94.4	17.1	0.1	44.8	102.4	0.1		25.9		42.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	94.4	17.1	0.1	44.8	102.4	0.1		25.9		42.7
LOS	F	B	A	D	F	A		C		D
Approach Delay		32.6			99.4			25.9		42.7
Approach LOS		C			F			C		D

Intersection Summary		
Cycle Length: 90		
Actuated Cycle Length: 86.6		
Natural Cycle: 100		
Control Type: Actuated-Uncoordinated		
Maximum v/c Ratio: 1.14		
Intersection Signal Delay: 66.1	Intersection LOS: E	
Intersection Capacity Utilization 92.8%	ICU Level of Service F	
Analysis Period (min) 15		

Splits and Phases: 7: Sultana Av. & Foothill Bl. (SR-66)



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	178	643	30	17	1327	30	53	47	12	44	43	456
Future Volume (veh/h)	178	643	30	17	1327	30	53	47	12	44	43	456
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		0.99
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	200	722	24	19	1491	31	60	53	5	49	48	259
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	234	1842	804	39	1454	648	188	149	12	92	75	304
Arrive On Green	0.13	0.51	0.51	0.02	0.40	0.40	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1810	3610	1576	1810	3610	1610	456	577	46	150	288	1172
Grp Volume(v), veh/h	200	722	24	19	1491	31	118	0	0	356	0	0
Grp Sat Flow(s),veh/h/ln	1810	1805	1576	1810	1805	1610	1079	0	0	1610	0	0
Q Serve(g_s), s	8.4	9.5	0.6	0.8	31.2	0.9	0.0	0.0	0.0	9.9	0.0	0.0
Cycle Q Clear(g_c), s	8.4	9.5	0.6	0.8	31.2	0.9	6.3	0.0	0.0	16.2	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.51		0.04	0.14		0.73
Lane Grp Cap(c), veh/h	234	1842	804	39	1454	648	350	0	0	470	0	0
V/C Ratio(X)	0.86	0.39	0.03	0.48	1.03	0.05	0.34	0.00	0.00	0.76	0.00	0.00
Avail Cap(c_a), veh/h	234	1842	804	117	1454	648	578	0	0	735	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	33.0	11.6	9.4	37.5	23.1	14.1	23.1	0.0	0.0	27.2	0.0	0.0
Incr Delay (d2), s/veh	24.5	0.1	0.0	3.4	30.3	0.0	0.6	0.0	0.0	2.5	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	4.9	3.1	0.2	0.4	17.4	0.3	1.7	0.0	0.0	6.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.5	11.8	9.5	40.9	53.5	14.1	23.7	0.0	0.0	29.7	0.0	0.0
LnGrp LOS	E	B	A	D	F	B	C	A	A	C	A	A
Approach Vol, veh/h		946			1541			118			356	
Approach Delay, s/veh		21.4			52.5			23.7			29.7	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	45.7		25.5	14.6	37.4		25.5				
Change Period (Y+Rc), s	4.6	6.2		5.4	4.6	* 6.2		5.4				
Max Green Setting (Gmax), s	5.0	35.8		33.0	10.0	* 31		33.0				
Max Q Clear Time (g_c+I1), s	2.8	11.5		18.2	10.4	33.2		8.3				
Green Ext Time (p_c), s	0.0	4.6		1.9	0.0	0.0		0.6				

Intersection Summary		
HCM 6th Ctrl Delay		38.7
HCM 6th LOS		D

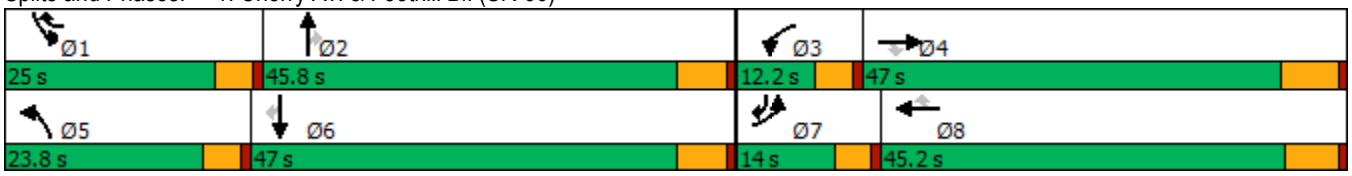
Notes

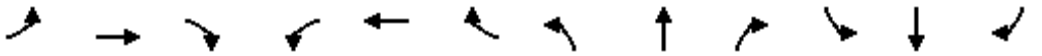
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	279	1011	131	228	810	235	278	889	301	411	601	172
Future Volume (vph)	279	1011	131	228	810	235	278	889	301	411	601	172
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	7	4		3	8	1	5	2		1	6	7
Permitted Phases			4			8			2			6
Detector Phase	7	4	4	3	8	1	5	2	2	1	6	7
Switch Phase												
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	5.0	5.0	10.0	10.0	5.0	10.0	5.0
Minimum Split (s)	9.6	45.5	45.5	9.6	45.2	9.6	9.6	44.8	44.8	9.6	44.8	9.6
Total Split (s)	14.0	47.0	47.0	12.2	45.2	25.0	23.8	45.8	45.8	25.0	47.0	14.0
Total Split (%)	10.8%	36.2%	36.2%	9.4%	34.8%	19.2%	18.3%	35.2%	35.2%	19.2%	36.2%	10.8%
Yellow Time (s)	3.6	5.5	5.5	3.6	5.2	3.6	3.6	4.8	4.8	3.6	4.8	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	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 Lost Time (s)	4.6	6.5	6.5	4.6	6.2	4.6	4.6	5.8	5.8	4.6	5.8	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	9.5	29.9	29.9	7.7	28.4	50.7	19.5	28.3	28.3	20.7	29.6	40.3
Actuated g/C Ratio	0.09	0.28	0.28	0.07	0.26	0.47	0.18	0.26	0.26	0.19	0.27	0.37
v/c Ratio	0.93	0.72	0.25	0.94	0.61	0.31	0.88	0.67	0.59	1.22	0.43	0.28
Control Delay	87.1	38.9	6.5	95.3	37.4	12.9	73.0	38.7	23.5	160.7	33.8	14.3
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	87.1	38.9	6.5	95.3	37.4	12.9	73.0	38.7	23.5	160.7	33.8	14.3
LOS	F	D	A	F	D	B	E	D	C	F	C	B
Approach Delay		45.4			43.3			42.1			75.0	
Approach LOS		D			D			D			E	

Intersection Summary	
Cycle Length: 130	
Actuated Cycle Length: 108.5	
Natural Cycle: 130	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.22	
Intersection Signal Delay: 50.5	Intersection LOS: D
Intersection Capacity Utilization 83.9%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 1: Cherry Av. & Foothill Bl. (SR-66)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	279	1011	131	228	810	235	278	889	301	411	601	172
Future Volume (veh/h)	279	1011	131	228	810	235	278	889	301	411	601	172
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	285	1032	80	233	827	164	284	907	208	419	613	104
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	324	1396	428	262	1304	722	315	1272	390	362	1408	579
Arrive On Green	0.09	0.27	0.27	0.07	0.25	0.25	0.17	0.25	0.25	0.20	0.27	0.27
Sat Flow, veh/h	3510	5187	1590	3510	5187	1589	1810	5187	1588	1810	5187	1586
Grp Volume(v), veh/h	285	1032	80	233	827	164	284	907	208	419	613	104
Grp Sat Flow(s),veh/h/ln	1755	1729	1590	1755	1729	1589	1810	1729	1588	1810	1729	1586
Q Serve(g_s), s	8.2	18.5	3.9	6.7	14.5	6.4	15.7	16.3	11.6	20.4	10.0	4.6
Cycle Q Clear(g_c), s	8.2	18.5	3.9	6.7	14.5	6.4	15.7	16.3	11.6	20.4	10.0	4.6
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	324	1396	428	262	1304	722	315	1272	390	362	1408	579
V/C Ratio(X)	0.88	0.74	0.19	0.89	0.63	0.23	0.90	0.71	0.53	1.16	0.44	0.18
Avail Cap(c_a), veh/h	324	2061	631	262	1984	930	341	2035	623	362	2096	789
HCM Platoon Ratio	1.00	1.00	1.00	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	45.7	34.0	28.7	46.8	34.0	17.1	41.2	35.2	33.4	40.8	30.7	22.1
Incr Delay (d2), s/veh	22.5	0.8	0.2	28.3	0.5	0.2	23.7	0.8	1.1	97.3	0.2	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	4.4	7.5	1.5	3.9	5.8	2.2	8.7	6.6	4.4	18.4	4.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.2	34.8	28.9	75.1	34.5	17.3	64.9	35.9	34.5	138.1	30.9	22.2
LnGrp LOS	E	C	C	E	C	B	E	D	C	F	C	C
Approach Vol, veh/h		1397			1224			1399			1136	
Approach Delay, s/veh		41.3			39.9			41.6			69.6	
Approach LOS		D			D			D			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	30.8	12.2	33.9	22.3	33.5	14.0	32.1
Change Period (Y+Rc), s	4.6	5.8	4.6	6.5	4.6	5.8	4.6	* 6.5
Max Green Setting (Gmax), s	20.4	40.0	7.6	40.5	19.2	41.2	9.4	* 39
Max Q Clear Time (g_c+I1), s	22.4	18.3	8.7	20.5	17.7	12.0	10.2	16.5
Green Ext Time (p_c), s	0.0	6.7	0.0	6.9	0.1	4.4	0.0	6.0

Intersection Summary	
HCM 6th Ctrl Delay	47.3
HCM 6th LOS	D

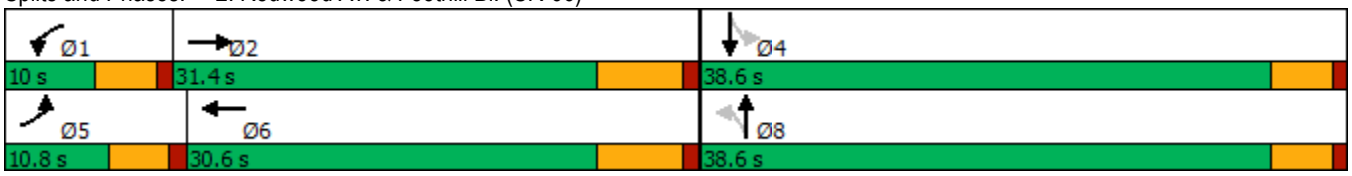
Notes

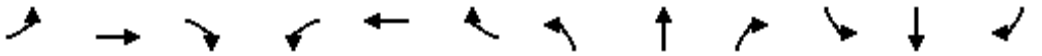
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Traffic Volume (vph)	197	1455	66	967	66	36	29	25
Future Volume (vph)	197	1455	66	967	66	36	29	25
Turn Type	Prot	NA	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2	1	6		8		4
Permitted Phases					8		4	
Detector Phase	5	2	1	6	8	8	4	4
Switch Phase								
Minimum Initial (s)	5.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	28.2	9.6	28.2	38.6	38.6	38.6	38.6
Total Split (s)	10.8	31.4	10.0	30.6	38.6	38.6	38.6	38.6
Total Split (%)	13.5%	39.3%	12.5%	38.3%	48.3%	48.3%	48.3%	48.3%
Yellow Time (s)	3.6	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None
Act Effct Green (s)	6.5	25.8	5.5	19.9	13.9	13.9	13.9	13.9
Actuated g/C Ratio	0.12	0.46	0.10	0.35	0.25	0.25	0.25	0.25
v/c Ratio	0.97	0.66	0.38	0.55	0.27	0.19	0.09	0.41
Control Delay	90.0	16.6	36.1	16.7	20.5	10.0	17.3	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.0	16.6	36.1	16.7	20.5	10.0	17.3	6.5
LOS	F	B	D	B	C	A	B	A
Approach Delay		25.0		17.9		14.5		7.7
Approach LOS		C		B		B		A

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 56.4	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.97	
Intersection Signal Delay: 20.8	Intersection LOS: C
Intersection Capacity Utilization 72.3%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 2: Redwood Av. & Foothill Bl. (SR-66)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	197	1455	66	66	967	21	66	36	50	29	25	198
Future Volume (veh/h)	197	1455	66	66	967	21	66	36	50	29	25	198
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	201	1485	67	67	987	21	67	37	51	30	26	202
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	226	2135	96	110	1859	40	241	152	209	367	39	305
Arrive On Green	0.12	0.42	0.42	0.06	0.36	0.36	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1810	5087	230	1810	5227	111	1171	723	997	1330	187	1452
Grp Volume(v), veh/h	201	1009	543	67	653	355	67	0	88	30	0	228
Grp Sat Flow(s),veh/h/ln	1810	1729	1859	1810	1729	1880	1171	0	1721	1330	0	1639
Q Serve(g_s), s	5.4	11.9	11.9	1.8	7.5	7.5	2.8	0.0	2.1	1.0	0.0	6.3
Cycle Q Clear(g_c), s	5.4	11.9	11.9	1.8	7.5	7.5	9.1	0.0	2.1	3.1	0.0	6.3
Prop In Lane	1.00		0.12	1.00		0.06	1.00		0.58	1.00		0.89
Lane Grp Cap(c), veh/h	226	1451	780	110	1230	668	241	0	361	367	0	344
V/C Ratio(X)	0.89	0.70	0.70	0.61	0.53	0.53	0.28	0.00	0.24	0.08	0.00	0.66
Avail Cap(c_a), veh/h	226	1753	942	197	1697	923	796	0	1177	998	0	1121
HCM Platoon Ratio	1.00	1.00	1.00	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	21.4	11.8	11.8	22.8	12.7	12.7	22.2	0.0	16.4	17.6	0.0	18.0
Incr Delay (d2), s/veh	31.6	0.9	1.7	2.0	0.4	0.7	0.6	0.0	0.3	0.1	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	3.9	3.4	3.8	0.7	2.2	2.5	0.8	0.0	0.8	0.3	0.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	53.0	12.8	13.6	24.8	13.1	13.4	22.8	0.0	16.7	17.7	0.0	20.2
LnGrp LOS	D	B	B	C	B	B	C	A	B	B	A	C
Approach Vol, veh/h		1753			1075			155			258	
Approach Delay, s/veh		17.6			13.9			19.3			19.9	
Approach LOS		B			B			B			B	

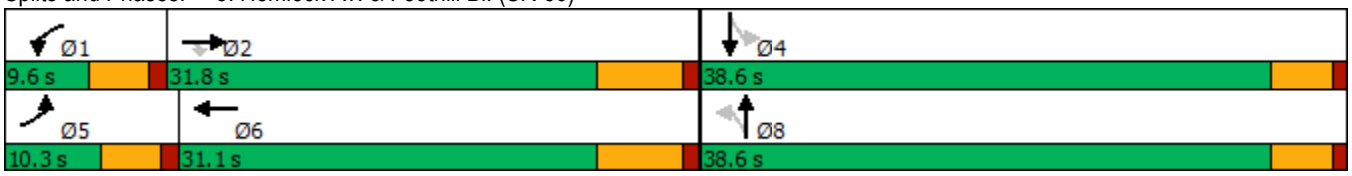
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	27.1		15.0	10.8	23.9		15.0				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.4	25.2		34.0	6.2	24.4		34.0				
Max Q Clear Time (g_c+I1), s	3.8	13.9		8.3	7.4	9.5		11.1				
Green Ext Time (p_c), s	0.0	7.0		1.6	0.0	5.3		0.7				

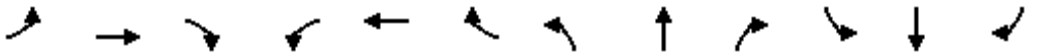
Intersection Summary												
HCM 6th Ctrl Delay			16.7									
HCM 6th LOS			B									

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Traffic Volume (vph)	69	1286	33	76	807	23	10	193	15
Future Volume (vph)	69	1286	33	76	807	23	10	193	15
Turn Type	Prot	NA	Perm	Prot	NA	Perm	NA	Perm	NA
Protected Phases	5	2		1	6		8		4
Permitted Phases			2			8		4	
Detector Phase	5	2	2	1	6	8	8	4	4
Switch Phase									
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	28.2	28.2	9.6	28.2	38.6	38.6	38.6	38.6
Total Split (s)	10.3	31.8	31.8	9.6	31.1	38.6	38.6	38.6	38.6
Total Split (%)	12.9%	39.8%	39.8%	12.0%	38.9%	48.3%	48.3%	48.3%	48.3%
Yellow Time (s)	3.6	5.2	5.2	3.6	5.2	3.6	3.6	3.6	3.6
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	6.2	4.6	4.6	4.6	4.6
Lead/Lag	Lead	Lag	Lag	Lead	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	5.7	26.4	26.4	5.2	25.9	16.0	16.0	16.3	16.3
Actuated g/C Ratio	0.09	0.43	0.43	0.08	0.42	0.26	0.26	0.27	0.27
v/c Ratio	0.43	0.86	0.05	0.52	0.65	0.07	0.12	0.55	0.13
Control Delay	39.5	26.4	0.1	45.9	19.4	16.3	7.1	25.3	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	26.4	0.1	45.9	19.4	16.3	7.1	25.3	7.8
LOS	D	C	A	D	B	B	A	C	A
Approach Delay		26.4			21.3		9.8		21.1
Approach LOS		C			C		A		C

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 61.2	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.86	
Intersection Signal Delay: 23.6	Intersection LOS: C
Intersection Capacity Utilization 70.0%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 3: Hemlock Av. & Foothill Bl. (SR-66)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	1286	33	76	807	134	23	10	45	193	15	45
Future Volume (veh/h)	69	1286	33	76	807	134	23	10	45	193	15	45
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		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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	72	1340	24	79	841	134	24	10	17	201	16	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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	112	1607	701	118	1394	222	386	124	210	394	146	192
Arrive On Green	0.06	0.45	0.45	0.07	0.45	0.45	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1810	3610	1575	1810	3108	495	1393	632	1075	1405	745	978
Grp Volume(v), veh/h	72	1340	24	79	488	487	24	0	27	201	0	37
Grp Sat Flow(s),veh/h/ln	1810	1805	1575	1810	1805	1798	1393	0	1707	1405	0	1724
Q Serve(g_s), s	2.0	17.2	0.5	2.2	10.7	10.7	0.8	0.0	0.7	7.2	0.0	0.9
Cycle Q Clear(g_c), s	2.0	17.2	0.5	2.2	10.7	10.7	1.7	0.0	0.7	7.8	0.0	0.9
Prop In Lane	1.00		1.00	1.00		0.28	1.00		0.63	1.00		0.57
Lane Grp Cap(c), veh/h	112	1607	701	118	810	806	386	0	334	394	0	338
V/C Ratio(X)	0.64	0.83	0.03	0.67	0.60	0.60	0.06	0.00	0.08	0.51	0.00	0.11
Avail Cap(c_a), veh/h	197	1762	769	173	857	854	1016	0	1106	1030	0	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	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.0	12.8	8.2	24.0	10.9	10.9	18.0	0.0	17.2	20.4	0.0	17.3
Incr Delay (d2), s/veh	2.3	3.4	0.0	2.4	1.1	1.1	0.1	0.0	0.1	1.0	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	5.3	0.1	0.9	3.1	3.1	0.2	0.0	0.3	2.3	0.0	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.3	16.2	8.2	26.4	12.0	12.0	18.1	0.0	17.3	21.4	0.0	17.5
LnGrp LOS	C	B	A	C	B	B	B	A	B	C	A	B
Approach Vol, veh/h		1436			1054			51			238	
Approach Delay, s/veh		16.6			13.1			17.7			20.8	
Approach LOS		B			B			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	29.6		14.9	7.8	29.7		14.9				
Change Period (Y+Rc), s	4.6	6.2		4.6	4.6	6.2		4.6				
Max Green Setting (Gmax), s	5.0	25.6		34.0	5.7	24.9		34.0				
Max Q Clear Time (g_c+I1), s	4.2	19.2		9.8	4.0	12.7		3.7				
Green Ext Time (p_c), s	0.0	4.2		0.8	0.0	4.4		0.2				

Intersection Summary			
HCM 6th Ctrl Delay		15.6	
HCM 6th LOS		B	

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	1452	67	118	1021	6	0	0	131	0	0	43
Future Vol, veh/h	8	1452	67	118	1021	6	0	0	131	0	0	43
Conflicting Peds, #/hr	0	0	4	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	1	-	-	1	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	9	1578	73	128	1110	7	0	0	142	0	0	47

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1117	0	0	1655	0	0	-	-	830	-	-	559
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	4.1	-	-	4.1	-	-	-	-	6.8	-	-	6.8
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	-	-	3.3	-	-	3.3
Pot Cap-1 Maneuver	633	-	-	395	-	-	0	0	325	0	0	485
Stage 1	-	-	-	-	-	-	0	0	-	0	0	-
Stage 2	-	-	-	-	-	-	0	0	-	0	0	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	633	-	-	393	-	-	-	-	324	-	-	485
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

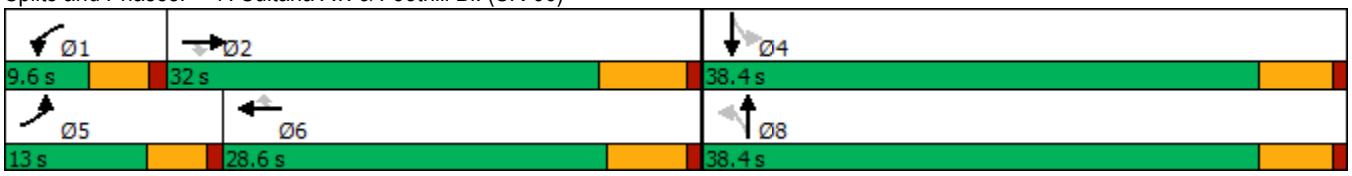
Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	1.9	24.5	13.2
HCM LOS			C	B

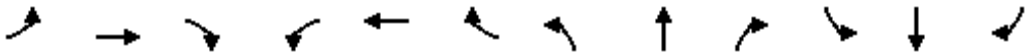
Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	324	633	-	-	393	-	-	485
HCM Lane V/C Ratio	0.439	0.014	-	-	0.326	-	-	0.096
HCM Control Delay (s)	24.5	10.8	-	-	18.5	-	-	13.2
HCM Lane LOS	C	B	-	-	C	-	-	B
HCM 95th %tile Q(veh)	2.1	0	-	-	1.4	-	-	0.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Traffic Volume (vph)	238	1377	22	17	887	77	76	115	31	19
Future Volume (vph)	238	1377	22	17	887	77	76	115	31	19
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	NA
Protected Phases	5	2		1	6			8		4
Permitted Phases			2			6	8		4	
Detector Phase	5	2	2	1	6	6	8	8	4	4
Switch Phase										
Minimum Initial (s)	5.0	10.0	10.0	5.0	10.0	10.0	10.0	10.0	10.0	10.0
Minimum Split (s)	9.6	28.2	28.2	9.6	27.8	27.8	38.4	38.4	26.6	26.6
Total Split (s)	13.0	32.0	32.0	9.6	28.6	28.6	38.4	38.4	38.4	38.4
Total Split (%)	16.3%	40.0%	40.0%	12.0%	35.8%	35.8%	48.0%	48.0%	48.0%	48.0%
Yellow Time (s)	3.6	5.2	5.2	3.6	4.8	4.8	4.4	4.4	4.4	4.4
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Lost Time (s)	4.6	6.2	6.2	4.6	5.8	5.8		5.4		5.4
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag				
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes				
Recall Mode	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	8.6	32.7	32.7	5.1	21.3	21.3		16.5		16.5
Actuated g/C Ratio	0.14	0.52	0.52	0.08	0.34	0.34		0.26		0.26
v/c Ratio	1.01	0.77	0.03	0.12	0.76	0.13		0.66		0.44
Control Delay	95.0	19.3	0.0	33.4	25.0	4.5		27.3		7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0
Total Delay	95.0	19.3	0.0	33.4	25.0	4.5		27.3		7.7
LOS	F	B	A	C	C	A		C		A
Approach Delay		30.1			23.6			27.3		7.7
Approach LOS		C			C			C		A

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 62.5	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.01	
Intersection Signal Delay: 26.1	Intersection LOS: C
Intersection Capacity Utilization 81.7%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: Sultana Av. & Foothill Bl. (SR-66)





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	238	1377	22	17	887	77	76	115	47	31	19	181
Future Volume (veh/h)	238	1377	22	17	887	77	76	115	47	31	19	181
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		0.99
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	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	251	1449	22	18	934	52	80	121	22	33	20	60
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, %	0	0	0	0	0	0	0	0	0	0	0	0
Cap, veh/h	292	1743	760	40	1240	553	184	193	31	146	90	166
Arrive On Green	0.16	0.48	0.48	0.02	0.34	0.34	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	1810	3610	1573	1810	3610	1610	489	1045	168	306	488	899
Grp Volume(v), veh/h	251	1449	22	18	934	52	223	0	0	113	0	0
Grp Sat Flow(s),veh/h/ln	1810	1805	1573	1810	1805	1610	1701	0	0	1692	0	0
Q Serve(g_s), s	7.0	18.1	0.4	0.5	11.9	1.1	3.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	7.0	18.1	0.4	0.5	11.9	1.1	6.2	0.0	0.0	3.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	0.36		0.10	0.29		0.53
Lane Grp Cap(c), veh/h	292	1743	760	40	1240	553	407	0	0	401	0	0
V/C Ratio(X)	0.86	0.83	0.03	0.45	0.75	0.09	0.55	0.00	0.00	0.28	0.00	0.00
Avail Cap(c_a), veh/h	292	1787	779	174	1580	705	1138	0	0	1083	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	21.3	11.6	7.1	25.2	15.1	11.6	19.8	0.0	0.0	18.6	0.0	0.0
Incr Delay (d2), s/veh	21.2	3.4	0.0	3.0	1.6	0.1	1.1	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	5.3	0.1	0.2	4.0	0.3	2.3	0.0	0.0	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.4	15.1	7.1	28.1	16.7	11.7	20.9	0.0	0.0	18.9	0.0	0.0
LnGrp LOS	D	B	A	C	B	B	C	A	A	B	A	A
Approach Vol, veh/h		1722			1004			223			113	
Approach Delay, s/veh		19.0			16.7			20.9			18.9	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	31.4		15.0	13.0	24.1		15.0				
Change Period (Y+Rc), s	4.6	6.2		5.4	4.6	* 6.2		5.4				
Max Green Setting (Gmax), s	5.0	25.8		33.0	8.4	* 23		33.0				
Max Q Clear Time (g_c+I1), s	2.5	20.1		5.0	9.0	13.9		8.2				
Green Ext Time (p_c), s	0.0	4.0		0.6	0.0	4.0		1.2				

Intersection Summary			
HCM 6th Ctrl Delay		18.3	
HCM 6th LOS		B	

Notes

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

ATTACHMENT D: QUEUING ANALYSIS FOR OPENING YEAR CUMULATIVE (2024) WITH PROJECT CONDITIONS

Intersection: 6: Beech Av. & Foothill Bl. (SR-66)

Movement	EB	EB	WB	WB	WB	NB	SB
Directions Served	L	TR	L	T	TR	R	R
Maximum Queue (ft)	46	5	120	5	6	96	31
Average Queue (ft)	14	0	48	0	0	39	8
95th Queue (ft)	39	3	90	3	3	68	30
Link Distance (ft)		1280		643	643	435	650
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	120		120				
Storage Blk Time (%)			0				
Queuing Penalty (veh)			1				

Zone Summary

Zone wide Queuing Penalty: 1

Intersection: 6: Beech Av. & Foothill Bl. (SR-66)

Movement	EB	EB	EB	WB	WB	NB	SB
Directions Served	L	T	TR	L	T	R	R
Maximum Queue (ft)	30	46	70	121	71	177	52
Average Queue (ft)	6	3	4	54	3	70	26
95th Queue (ft)	24	32	36	97	31	148	49
Link Distance (ft)		1280	1280		643	435	650
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	120			120			
Storage Blk Time (%)		0		1	0		
Queuing Penalty (veh)		0		3	0		

Zone Summary

Zone wide Queuing Penalty: 3