

# Iron Ridge Residential Development

## Transportation Impact Study - Appendix

June 27, 2022

**Prepared by:**

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## APPENDIX A

### Existing Traffic Counts

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Rd 92 & SR 198 EB Ramps  
**City:** Visalia  
**Control:** 3-Way Stop(NB/SB/EB)

**Project ID:** 21-090086-001  
**Date:** 9/21/2021

## Data - Totals

NS/EW Streets:	Rd 92				Rd 92				SR 198 EB Ramps				SR 198 EB Ramps				
<b>AM</b>	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	1	0	1	1	0	0	0.5	0.5	1	0	0	0	0	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	59	7	0	36	34	0	0	38	0	15	0	0	0	0	0	189
7:15 AM	0	56	12	0	46	46	0	0	27	0	17	0	0	0	0	0	204
7:30 AM	0	73	25	0	62	66	0	0	34	0	15	0	0	0	0	0	275
7:45 AM	0	96	25	0	64	62	0	0	41	1	33	0	0	0	0	0	322
8:00 AM	0	82	15	0	56	73	0	0	39	0	25	0	0	0	0	0	290
8:15 AM	0	82	20	0	60	50	0	0	25	1	11	0	0	0	0	0	249
8:30 AM	0	54	10	0	51	25	0	0	21	1	18	0	0	0	0	0	180
8:45 AM	0	35	10	0	45	33	0	0	29	0	13	0	0	0	0	0	165
<b>TOTAL VOLUMES :</b>	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
<b>APPROACH %'s :</b>	0	537	124	0	420	389	0	0	254	3	147	0	0	0	0	0	1874
	0.00%	81.24%	18.76%	0.00%	51.92%	48.08%	0.00%	0.00%	62.87%	0.74%	36.39%	0.00%	0	0	0	0	
<b>PEAK HR :</b>	07:30 AM - 08:30 AM																TOTAL
<b>PEAK HR VOL :</b>	0	333	85	0	242	251	0	0	139	2	84	0	0	0	0	0	1136
<b>PEAK HR FACTOR :</b>	0.000	0.867	0.850	0.000	0.945	0.860	0.000	0.000	0.848	0.500	0.636	0.000	0.000	0.000	0.000	0.000	0.882
	0.864				0.955				0.750								
<b>PM</b>	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	1	0	1	1	0	0	0.5	0.5	1	0	0	0	0	0	TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	59	9	0	78	63	0	0	50	1	32	0	0	0	0	0	292
4:15 PM	0	58	10	0	80	54	0	0	44	0	41	0	0	0	0	0	287
4:30 PM	0	66	9	0	74	59	0	0	65	1	39	0	0	0	0	0	313
4:45 PM	0	61	9	0	92	80	0	0	58	0	34	0	0	0	0	0	334
5:00 PM	0	78	14	0	82	61	0	0	49	0	44	0	0	0	0	0	328
5:15 PM	0	59	7	0	68	67	0	0	64	0	35	0	0	0	0	0	300
5:30 PM	0	50	6	0	66	58	0	0	61	0	35	0	0	0	0	0	276
5:45 PM	0	54	5	0	57	37	0	0	57	0	34	0	0	0	0	0	244
<b>TOTAL VOLUMES :</b>	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
<b>APPROACH %'s :</b>	0	485	69	0	597	479	0	0	448	2	294	0	0	0	0	0	2374
	0.00%	87.55%	12.45%	0.00%	55.48%	44.52%	0.00%	0.00%	60.22%	0.27%	39.52%	0.00%	0	0	0	0	
<b>PEAK HR :</b>	04:30 PM - 05:30 PM																TOTAL
<b>PEAK HR VOL :</b>	0	264	39	0	316	267	0	0	236	1	152	0	0	0	0	0	1275
<b>PEAK HR FACTOR :</b>	0.000	0.846	0.696	0.000	0.859	0.834	0.000	0.000	0.908	0.250	0.864	0.000	0.000	0.000	0.000	0.000	0.954
	0.823				0.847				0.926								

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Rd 92 & SR 198 WB Ramps  
**City:** Visalia  
**Control:** 3-Way Stop(NB/SB/WB)

**Project ID:** 21-090086-002  
**Date:** 9/21/2021

## Data - Totals

NS/EW Streets:	Rd 92				Rd 92				SR 198 WB Ramps				SR 198 WB Ramps				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	0	1	1	0	0	0	0	0	0	0.5	0.5	1	0
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	29	67	0	0	0	62	39	0	0	0	0	0	10	0	74	0	281
7:15 AM	28	54	0	0	0	85	76	0	0	0	0	0	10	1	61	0	315
7:30 AM	33	76	0	0	0	113	75	0	0	0	0	0	10	1	73	0	381
7:45 AM	39	94	0	0	0	111	52	0	0	0	0	0	15	0	116	0	427
8:00 AM	38	87	0	0	0	116	55	0	0	0	0	0	19	1	78	0	394
8:15 AM	27	80	0	0	0	97	47	0	0	0	0	0	7	0	59	0	317
8:30 AM	23	48	0	0	0	71	38	0	0	0	0	0	8	0	57	0	245
8:45 AM	19	49	0	0	0	67	22	0	0	0	0	0	8	1	58	0	224
<b>TOTAL VOLUMES :</b>	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
<b>APPROACH %'s :</b>	29.84%	70.16%	0.00%	0.00%	0.00%	64.12%	35.88%	0.00%	0	0	0	0	13.04%	0.60%	86.36%	0.00%	2584
<b>PEAK HR :</b>	07:30 AM - 08:30 AM																TOTAL
<b>PEAK HR VOL :</b>	137	337	0	0	0	437	229	0	0	0	0	0	51	2	326	0	1519
<b>PEAK HR FACTOR :</b>	0.878	0.896	0.000	0.000	0.000	0.942	0.763	0.000	0.000	0.000	0.000	0.000	0.671	0.500	0.703	0.000	0.889
	0.891				0.886								0.723				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	1	0	0	0	1	1	0	0	0	0	0	0.5	0.5	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	14	92	0	0	0	138	36	0	0	0	0	0	12	0	35	0	327
4:15 PM	12	93	0	0	0	112	23	0	0	0	0	0	13	1	42	0	296
4:30 PM	27	98	0	0	0	134	38	0	0	0	0	0	8	0	47	0	352
4:45 PM	18	107	0	0	0	155	33	0	0	0	0	0	8	2	40	0	363
5:00 PM	27	97	0	0	0	137	45	0	0	0	0	0	12	1	54	0	373
5:15 PM	18	108	0	0	0	119	40	0	0	0	0	0	10	0	63	0	358
5:30 PM	19	90	0	0	0	110	28	0	0	0	0	0	18	0	48	0	313
5:45 PM	24	89	0	0	0	84	25	0	0	0	0	0	8	2	45	0	277
<b>TOTAL VOLUMES :</b>	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
<b>APPROACH %'s :</b>	17.04%	82.96%	0.00%	0.00%	0.00%	78.68%	21.32%	0.00%	0	0	0	0	18.98%	1.28%	79.74%	0.00%	2659
<b>PEAK HR :</b>	04:30 PM - 05:30 PM																TOTAL
<b>PEAK HR VOL :</b>	90	410	0	0	0	545	156	0	0	0	0	0	38	3	204	0	1446
<b>PEAK HR FACTOR :</b>	0.833	0.949	0.000	0.000	0.000	0.879	0.867	0.000	0.000	0.000	0.000	0.000	0.792	0.375	0.810	0.000	0.969
	0.992				0.932								0.839				



# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Shirk Rd/Rd 92 & Hillsdale Ave  
**City:** Visalia  
**Control:** 1-Way Stop(WB)

**Project ID:** 21-090086-003  
**Date:** 9/21/2021

## Data - Totals

NS/EW Streets:	Shirk Rd/Rd 92				Shirk Rd/Rd 92				Hillsdale Ave				Hillsdale Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	1	1	0	0	1	0	0	0	0	0	0	0	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	0	132	8	0	2	94	0	0	0	0	0	0	9	0	0	0	245
7:15 AM	0	106	10	0	2	149	0	0	0	0	0	0	10	0	1	0	278
7:30 AM	0	141	4	0	5	180	0	0	0	0	0	0	11	0	3	0	344
7:45 AM	0	198	14	0	3	151	0	0	0	0	0	0	9	0	5	0	380
8:00 AM	0	153	14	0	3	169	0	0	0	0	0	0	2	0	5	0	346
8:15 AM	0	129	8	0	8	141	0	0	0	0	0	0	6	0	0	0	292
8:30 AM	0	99	8	0	2	104	0	0	0	0	0	0	4	0	0	0	217
8:45 AM	0	101	5	0	1	84	0	0	0	0	0	0	3	0	0	0	194
<b>TOTAL VOLUMES :</b>	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
<b>APPROACH %'s :</b>	0.00%	93.72%	6.28%	0.00%	2.37%	97.63%	0.00%	0.00%	0	0	0	0	79.41%	0.00%	20.59%	0.00%	2296
<b>PEAK HR :</b>	07:30 AM - 08:30 AM																TOTAL
<b>PEAK HR VOL :</b>	0	621	40	0	19	641	0	0	0	0	0	0	28	0	13	0	1362
<b>PEAK HR FACTOR :</b>	0.000	0.784	0.714	0.000	0.594	0.890	0.000	0.000	0.000	0.000	0.000	0.000	0.636	0.000	0.650	0.000	0.896
	0.779				0.892								0.732				

NS/EW Streets:	Shirk Rd/Rd 92				Shirk Rd/Rd 92				Hillsdale Ave				Hillsdale Ave				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	1	1	0	0	1	0	0	0	0	0	0	0	1	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	0	122	5	0	4	179	0	0	0	0	0	0	5	0	4	0	319
4:15 PM	0	124	7	0	4	121	0	0	0	0	0	0	4	0	5	0	265
4:30 PM	0	134	15	0	4	177	0	0	0	0	0	0	2	0	2	0	334
4:45 PM	0	126	17	0	2	180	0	0	0	0	0	0	1	0	5	0	331
5:00 PM	0	140	15	0	5	187	0	0	0	0	0	0	4	0	5	0	356
5:15 PM	0	158	13	0	4	143	0	0	0	0	0	0	7	0	3	0	328
5:30 PM	0	127	10	0	2	134	0	0	0	0	0	0	5	0	5	0	283
5:45 PM	0	126	9	0	2	100	0	0	0	0	0	0	8	0	4	0	249
<b>TOTAL VOLUMES :</b>	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
<b>APPROACH %'s :</b>	0.00%	92.07%	7.93%	0.00%	2.16%	97.84%	0.00%	0.00%	0	0	0	0	52.17%	0.00%	47.83%	0.00%	2465
<b>PEAK HR :</b>	04:30 PM - 05:30 PM																TOTAL
<b>PEAK HR VOL :</b>	0	558	60	0	15	687	0	0	0	0	0	0	14	0	15	0	1349
<b>PEAK HR FACTOR :</b>	0.000	0.883	0.882	0.000	0.750	0.918	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.750	0.000	0.947
	0.904				0.914								0.725				

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Shirk Rd/Rd 92 & W School Ave  
**City:** Visalia  
**Control:** 1-Way Stop(WB)

**Project ID:** 21-090086-004  
**Date:** 9/21/2021

## Data - Totals

NS/EW Streets:	Shirk Rd/Rd 92				Shirk Rd/Rd 92				W School Ave				W School Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	0	130	3	0	1	90	0	0	0	0	0	0	5	0	0	0	229
7:15 AM	0	105	0	0	1	140	0	0	0	0	0	0	12	0	0	0	258
7:30 AM	0	143	3	0	1	175	0	0	0	0	0	0	9	0	1	0	332
7:45 AM	0	200	1	0	0	148	0	0	0	0	0	0	8	0	0	0	357
8:00 AM	0	154	6	0	2	170	0	0	0	0	0	0	3	0	2	0	337
8:15 AM	0	120	5	0	4	141	0	0	0	0	0	0	5	0	3	0	278
8:30 AM	0	98	5	0	0	98	0	0	0	0	0	0	8	0	1	0	210
8:45 AM	0	98	3	0	1	83	0	0	0	0	0	0	2	0	2	0	189
<b>TOTAL VOLUMES :</b>	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
<b>APPROACH %'s :</b>	0.00%	1048	26	0.00%	10	1045	0	0.00%	0	0	0	0	85.25%	0.00%	14.75%	0.00%	2190
<b>PEAK HR :</b>	07:30 AM - 08:30 AM																TOTAL
<b>PEAK HR VOL :</b>	0	617	15	0	7	634	0	0	0	0	0	0	25	0	6	0	1304
<b>PEAK HR FACTOR :</b>	0.000	0.771	0.625	0.000	0.438	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.694	0.000	0.500	0.000	0.913
	0.786				0.911								0.775				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	0	119	6	0	2	182	0	0	0	0	0	0	3	0	2	0	314
4:15 PM	0	116	12	0	2	120	0	0	0	0	0	0	3	0	1	0	254
4:30 PM	0	133	5	0	0	184	0	0	0	0	0	0	1	0	0	0	323
4:45 PM	0	125	4	0	0	176	0	0	0	0	0	0	2	0	0	0	307
5:00 PM	0	140	7	0	0	192	0	0	0	0	0	0	5	0	1	0	345
5:15 PM	0	151	9	0	0	139	0	0	0	0	0	0	3	0	0	0	302
5:30 PM	0	128	5	0	2	130	0	0	0	0	0	0	6	0	0	1	272
5:45 PM	0	125	5	0	2	99	0	0	0	0	0	0	3	0	1	0	235
<b>TOTAL VOLUMES :</b>	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
<b>APPROACH %'s :</b>	0.00%	1037	53	0.00%	8	1222	0	0.00%	0	0	0	0	26	0	5	1	2352
<b>PEAK HR :</b>	04:30 PM - 05:30 PM																TOTAL
<b>PEAK HR VOL :</b>	0	549	25	0	0	691	0	0	0	0	0	0	11	0	1	0	1277
<b>PEAK HR FACTOR :</b>	0.000	0.909	0.694	0.000	0.000	0.900	0.000	0.000	0.000	0.000	0.000	0.000	0.550	0.000	0.250	0.000	0.925
	0.897				0.900								0.500				

# National Data & Surveying Services Intersection Turning Movement Count

Location: Shirk Rd/Rd 92 & Hurley Ave  
 City: Visalia  
 Control: Signalized

Project ID: 21-090086-005  
 Date: 9/21/2021

## Data - Totals

NS/EW Streets:	Shirk Rd/Rd 92				Shirk Rd/Rd 92				Hurley Ave				Hurley Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	1	0	1	1	0	0	0	0	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	127	7	0	7	81	0	0	0	0	0	0	11	0	10	0	243
7:15 AM	0	98	9	0	9	117	0	0	0	0	0	0	23	0	14	0	270
7:30 AM	0	127	9	0	15	141	0	0	0	0	0	0	37	0	18	0	347
7:45 AM	0	180	28	0	24	83	0	0	0	0	0	0	63	0	29	0	407
8:00 AM	0	122	25	0	52	130	0	0	0	0	0	0	42	0	47	1	419
8:15 AM	0	115	13	0	14	121	0	0	0	0	0	0	27	0	30	0	320
8:30 AM	0	100	5	0	6	85	0	0	0	0	0	0	11	0	7	0	214
8:45 AM	0	98	1	0	4	70	0	0	0	0	0	0	13	0	7	0	193
<b>TOTAL VOLUMES :</b>	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
<b>APPROACH %'s :</b>	0.00%	90.88%	9.12%	0.00%	13.66%	86.34%	0.00%	0.00%	0	0	0	0	58.21%	0.00%	41.54%	0.26%	2413
<b>PEAK HR :</b>	07:30 AM - 08:30 AM																TOTAL
<b>PEAK HR VOL :</b>	0	544	75	0	105	475	0	0	0	0	0	0	169	0	124	1	1493
<b>PEAK HR FACTOR :</b>	0.000	0.756	0.670	0.000	0.505	0.842	0.000	0.000	0.000	0.000	0.000	0.000	0.671	0.000	0.660	0.250	0.891
	0.744				0.797								0.799				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0	1	1	0	1	1	0	0	0	0	0	0	1	0	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	0	101	20	0	15	182	0	0	0	0	0	0	5	0	11	0	334
4:15 PM	0	100	14	0	7	113	0	0	0	0	0	0	7	0	8	0	249
4:30 PM	0	119	15	0	12	174	0	0	0	0	0	0	9	0	12	0	341
4:45 PM	0	110	17	0	18	167	0	0	0	0	0	0	11	0	6	0	329
5:00 PM	0	116	21	0	6	182	0	0	0	0	0	0	9	0	7	0	341
5:15 PM	0	134	15	0	10	126	0	0	0	0	0	0	12	0	9	0	306
5:30 PM	0	123	11	0	10	124	0	0	0	0	0	0	9	0	5	0	282
5:45 PM	0	109	15	0	4	91	0	0	0	0	0	0	11	0	7	0	237
<b>TOTAL VOLUMES :</b>	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
<b>APPROACH %'s :</b>	0.00%	87.69%	12.31%	0.00%	6.61%	93.39%	0.00%	0.00%	0	0	0	0	52.90%	0.00%	47.10%	0.00%	2419
<b>PEAK HR :</b>	04:30 PM - 05:30 PM																TOTAL
<b>PEAK HR VOL :</b>	0	479	68	0	46	649	0	0	0	0	0	0	41	0	34	0	1317
<b>PEAK HR FACTOR :</b>	0.000	0.894	0.810	0.000	0.639	0.891	0.000	0.000	0.000	0.000	0.000	0.000	0.854	0.000	0.708	0.000	0.966
	0.918				0.924								0.893				

# National Data & Surveying Services Intersection Turning Movement Count

**Location:** Shirk Rd/Rd 92 & Goshen Ave  
**City:** Visalia  
**Control:** Signalized

**Project ID:** 21-090086-006  
**Date:** 9/21/2021

## Data - Totals

NS/EW Streets:	Shirk Rd/Rd 92				Shirk Rd/Rd 92				Goshen Ave				Goshen Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	1 NR	0 NU	1 SL	1 ST	1 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	1 WR	0 WU	
7:00 AM	30	77	12	0	1	61	24	0	3	23	10	0	5	37	8	0	291
7:15 AM	29	56	5	0	3	81	11	0	5	25	19	0	10	36	7	2	289
7:30 AM	27	75	13	0	6	101	7	0	7	37	33	0	13	42	8	0	369
7:45 AM	64	15	47	0	0	24	3	0	1	47	34	1	32	97	2	0	367
8:00 AM	30	100	28	0	14	97	15	0	8	40	59	0	20	49	25	1	486
8:15 AM	40	80	13	0	5	69	15	0	6	35	28	1	21	42	12	1	368
8:30 AM	17	48	7	0	6	62	8	0	4	27	12	0	11	26	12	0	240
8:45 AM	16	64	8	0	5	38	8	0	7	24	21	1	7	28	6	0	233
<b>TOTAL VOLUMES:</b>	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
<b>APPROACH %'s:</b>	28.08%	57.16%	14.76%	0.00%	6.02%	80.27%	13.70%	0.00%	7.92%	49.81%	41.70%	0.58%	21.25%	63.75%	14.29%	0.71%	2643
<b>PEAK HR:</b>	<b>07:30 AM - 08:30 AM</b>																<b>TOTAL</b>
<b>PEAK HR VOL:</b>	161	270	101	0	25	291	40	0	22	159	154	2	86	230	47	2	1590
<b>PEAK HR FACTOR:</b>	0.629	0.675	0.537	0.000	0.446	0.720	0.667	0.000	0.688	0.846	0.653	0.500	0.672	0.593	0.470	0.500	0.818
	0.842				0.706				0.787				0.697				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	1 NL	1 NT	1 NR	0 NU	1 SL	1 ST	1 SR	0 SU	1 EL	2 ET	0 ER	0 EU	1 WL	2 WT	1 WR	0 WU	
4:00 PM	12	70	19	3	21	90	6	0	11	83	64	0	10	31	3	0	423
4:15 PM	16	62	17	1	7	66	7	1	7	68	34	0	9	27	6	0	328
4:30 PM	13	75	16	0	19	133	7	1	11	77	34	0	6	26	9	0	427
4:45 PM	12	84	19	0	20	104	10	0	10	63	32	0	6	27	2	0	389
5:00 PM	13	77	23	0	19	115	4	0	15	74	31	0	4	21	8	0	404
5:15 PM	16	74	18	0	7	96	9	0	4	55	30	0	7	33	5	1	355
5:30 PM	11	92	23	0	12	89	3	0	13	54	23	0	8	31	7	1	367
5:45 PM	10	76	13	0	5	52	7	0	10	48	22	1	12	33	5	0	294
<b>TOTAL VOLUMES:</b>	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
<b>APPROACH %'s:</b>	11.91%	70.52%	17.11%	0.46%	12.09%	81.87%	5.82%	0.22%	9.27%	59.73%	30.89%	0.11%	18.34%	67.75%	13.31%	0.59%	2987
<b>PEAK HR:</b>	<b>04:30 PM - 05:30 PM</b>																<b>TOTAL</b>
<b>PEAK HR VOL:</b>	54	310	76	0	65	448	30	1	40	269	127	0	23	107	24	1	1575
<b>PEAK HR FACTOR:</b>	0.844	0.923	0.826	0.000	0.813	0.842	0.750	0.250	0.667	0.873	0.934	0.000	0.821	0.811	0.667	0.250	0.922
	0.957				0.850				0.893				0.842				

# National Data & Surveying Services Intersection Turning Movement Count

Location: Rd 88 & Goshen Ave  
 City: Visalia  
 Control: 1-Way Stop(NB)

Project ID: 21-090086-007  
 Date: 9/21/2021

## Data - Totals

NS/EW Streets:	Rd 88				Rd 88				Goshen Ave				Goshen Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	1	0	0	0	0	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
7:00 AM	1	0	2	0	0	0	0	0	0	38	5	1	2	73	0	4	126
7:15 AM	1	0	1	0	0	0	0	0	0	40	2	3	2	71	0	0	120
7:30 AM	1	0	6	0	0	0	0	0	0	71	1	1	3	61	0	1	145
7:45 AM	1	0	6	0	0	0	0	0	0	82	0	1	2	163	0	0	255
8:00 AM	1	0	3	0	0	0	0	0	0	95	1	0	2	83	0	0	185
8:15 AM	0	0	1	0	0	0	0	0	0	62	3	1	3	82	0	0	152
8:30 AM	4	0	0	0	0	0	0	0	0	37	5	2	2	47	0	0	97
8:45 AM	5	0	3	0	0	0	0	0	0	36	4	3	3	41	0	0	95
<b>TOTAL VOLUMES :</b>	14	0	22	0	0	0	0	0	0	461	21	12	19	621	0	5	1175
<b>APPROACH %'s :</b>	38.89%	0.00%	61.11%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	93.32%	4.25%	2.43%	2.95%	96.28%	0.00%	0.78%	
<b>PEAK HR :</b>	07:30 AM - 08:30 AM																TOTAL
<b>PEAK HR VOL :</b>	3	0	16	0	0	0	0	0	0	310	5	3	10	389	0	1	737
<b>PEAK HR FACTOR :</b>	0.750	0.000	0.667	0.000	0.000	0.000	0.000	0.000	0.000	0.816	0.417	0.750	0.833	0.597	0.000	0.250	0.723
	0.679								0.828				0.606				

NS/EW Streets:	Rd 88				Rd 88				Goshen Ave				Goshen Ave				
PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				TOTAL
	0	1	0	0	0	0	0	0	1	2	0	0	1	2	0	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	
4:00 PM	5	0	1	0	0	0	0	0	0	134	5	4	0	53	0	0	202
4:15 PM	2	0	3	0	0	0	0	0	0	100	4	2	2	44	0	1	158
4:30 PM	2	0	4	0	0	0	0	0	0	113	2	2	1	40	0	0	164
4:45 PM	4	0	5	0	0	0	0	0	0	87	3	1	2	49	0	0	151
5:00 PM	2	0	1	0	0	0	0	0	0	123	2	3	4	32	0	0	167
5:15 PM	2	0	3	0	0	0	0	0	0	77	2	2	9	49	0	0	144
5:30 PM	2	0	2	0	0	0	0	0	0	87	2	3	3	44	0	0	143
5:45 PM	0	0	5	0	0	0	0	0	0	72	3	0	2	48	0	2	132
<b>TOTAL VOLUMES :</b>	19	0	24	0	0	0	0	0	0	793	23	17	23	359	0	3	1261
<b>APPROACH %'s :</b>	44.19%	0.00%	55.81%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	95.20%	2.76%	2.04%	5.97%	93.25%	0.00%	0.78%	
<b>PEAK HR :</b>	04:00 PM - 05:00 PM																TOTAL
<b>PEAK HR VOL :</b>	13	0	13	0	0	0	0	0	0	434	14	9	5	186	0	1	675
<b>PEAK HR FACTOR :</b>	0.650	0.000	0.650	0.000	0.000	0.000	0.000	0.000	0.000	0.810	0.700	0.563	0.625	0.877	0.000	0.250	0.835
	0.722								0.799				0.906				

## APPENDIX B

### Synchro Worksheets

# EXISTING CONDITIONS

HCM 6th AWSC  
1: Shirk Road & SR 198 EB Ramps

12/05/2021

Intersection	
Intersection Delay, s/veh	15.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕					↕	↕	↕	↕	
Traffic Vol, veh/h	139	2	84	0	0	0	0	333	85	242	251	0
Future Vol, veh/h	139	2	84	0	0	0	0	333	85	242	251	0
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	158	2	95	0	0	0	0	378	97	275	285	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	12.8	18.1	15.2
HCM LOS	B	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	99%	0%	100%	0%
Vol Thru, %	100%	0%	1%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	333	85	141	84	242	251
LT Vol	0	0	139	0	242	0
Through Vol	333	0	2	0	0	251
RT Vol	0	85	0	84	0	0
Lane Flow Rate	378	97	160	95	275	285
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.657	0.149	0.339	0.17	0.505	0.484
Departure Headway (Hd)	6.253	5.542	7.611	6.396	6.614	6.107
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	575	645	473	559	545	588
Service Time	4.008	3.296	5.368	4.153	4.367	3.859
HCM Lane V/C Ratio	0.657	0.15	0.338	0.17	0.505	0.485
HCM Control Delay	20.3	9.3	14.2	10.5	16	14.5
HCM Lane LOS	C	A	B	B	C	B
HCM 95th-tile Q	4.8	0.5	1.5	0.6	2.8	2.6



HCM 6th AWSC  
2: Shirk Road & SR 198 WB Ramps

12/05/2021

Intersection	
Intersection Delay, s/veh	33.7
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↖	↗	↖	↗			↖	↗
Traffic Vol, veh/h	0	0	0	51	2	326	137	337	0	0	437	229
Future Vol, veh/h	0	0	0	51	2	326	137	337	0	0	437	229
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	57	2	366	154	379	0	0	491	257
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	24.4	26.3	44.3
HCM LOS	C	D	E

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	96%	0%	0%	0%
Vol Thru, %	0%	100%	4%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	137	337	53	326	437	229
LT Vol	137	0	51	0	0	0
Through Vol	0	337	2	0	437	0
RT Vol	0	0	0	326	0	229
Lane Flow Rate	154	379	60	366	491	257
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.337	0.774	0.138	0.723	0.972	0.458
Departure Headway (Hd)	7.877	7.363	8.32	7.108	7.125	6.406
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	457	492	432	509	511	561
Service Time	5.622	5.108	6.06	4.847	4.867	4.148
HCM Lane V/C Ratio	0.337	0.77	0.139	0.719	0.961	0.458
HCM Control Delay	14.6	31.1	12.4	26.3	59.9	14.5
HCM Lane LOS	B	D	B	D	F	B
HCM 95th-tile Q	1.5	6.9	0.5	5.9	12.7	2.4

HCM 6th TWSC  
3: Shirk Road & Hillsdale Avenue

12/05/2021

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗		↘
Traffic Vol, veh/h	28	13	621	40	19	641
Future Vol, veh/h	28	13	621	40	19	641
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	125	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	31	14	690	44	21	712

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1444	690	0	0	734
Stage 1	690	-	-	-	-
Stage 2	754	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	145	443	-	-	866
Stage 1	496	-	-	-	-
Stage 2	463	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	139	443	-	-	866
Mov Cap-2 Maneuver	139	-	-	-	-
Stage 1	496	-	-	-	-
Stage 2	444	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.3	0	0.3
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	139	443	866	-
HCM Lane V/C Ratio	-	-	0.224	0.033	0.024	-
HCM Control Delay (s)	-	-	38.2	13.4	9.3	0
HCM Lane LOS	-	-	E	B	A	A
HCM 95th %tile Q(veh)	-	-	0.8	0.1	0.1	-

HCM 6th TWSC  
4: Shirk Road & School Avenue

12/05/2021

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑	↑		↓
Traffic Vol, veh/h	25	6	617	15	7	634
Future Vol, veh/h	25	6	617	15	7	634
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	225	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	27	7	678	16	8	697

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1391	678	0	0	694
Stage 1	678	-	-	-	-
Stage 2	713	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	156	450	-	-	897
Stage 1	502	-	-	-	-
Stage 2	484	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	154	450	-	-	897
Mov Cap-2 Maneuver	154	-	-	-	-
Stage 1	502	-	-	-	-
Stage 2	477	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	30.3	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	176	897
HCM Lane V/C Ratio	-	-	0.194	0.009
HCM Control Delay (s)	-	-	30.3	9
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	0.7	0

Intersection							
Int Delay, s/veh	0.4						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	⇄	⇄		⇄	⇄	⇄	
Traffic Vol, veh/h	3	310	5	10	389	3	16
Future Vol, veh/h	3	310	5	10	389	3	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72	72
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	4	431	7	14	540	4	22

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	540	0	0	438	0	741
Stage 1	-	-	-	-	-	443
Stage 2	-	-	-	-	-	298
Critical Hdwy	6.46	-	-	4.16	-	6.86
Critical Hdwy Stg 1	-	-	-	-	-	5.86
Critical Hdwy Stg 2	-	-	-	-	-	5.86
Follow-up Hdwy	2.53	-	-	2.23	-	3.53
Pot Cap-1 Maneuver	649	-	-	1111	-	350
Stage 1	-	-	-	-	-	611
Stage 2	-	-	-	-	-	724
Platoon blocked, %		-	-		-	
Mov Cap-1 Maneuver	649	-	-	1111	-	343
Mov Cap-2 Maneuver	-	-	-	-	-	343
Stage 1	-	-	-	-	-	607
Stage 2	-	-	-	-	-	715

Approach	EB	WB	NB
HCM Control Delay, s	0.1	0.2	10.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	651	649	-	-	1111	-
HCM Lane V/C Ratio	0.041	0.006	-	-	0.013	-
HCM Control Delay (s)	10.8	10.6	-	-	8.3	-
HCM Lane LOS	B	B	-	-	A	-
HCM 95th %tile Q(veh)	0.1	0	-	-	0	-

# HCM 6th Signalized Intersection Summary

## 5: Shirk Road & Hurley Avenue

12/05/2021



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	169	124	544	75	105	475
Future Volume (veh/h)	169	124	544	75	105	475
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	190	139	611	84	118	534
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	238	212	1082	917	149	1358
Arrive On Green	0.13	0.13	0.58	0.58	0.08	0.73
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	190	139	611	84	118	534
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	8.8	7.1	17.2	2.0	5.5	9.1
Cycle Q Clear(g_c), s	8.8	7.1	17.2	2.0	5.5	9.1
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	238	212	1082	917	149	1358
V/C Ratio(X)	0.80	0.66	0.56	0.09	0.79	0.39
Avail Cap(c_a), veh/h	370	329	1082	917	244	1358
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.3	34.5	10.9	7.7	37.8	4.2
Incr Delay (d2), s/veh	6.6	3.4	2.1	0.2	8.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	2.8	6.3	0.6	2.7	2.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.9	38.0	13.0	7.9	46.7	5.1
LnGrp LOS	D	D	B	A	D	A
Approach Vol, veh/h	329		695			652
Approach Delay, s/veh	40.2		12.4			12.6
Approach LOS	D		B			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	12.5	54.9			67.4	16.7
Change Period (Y+Rc), s	5.4	5.8			* 5.8	5.4
Max Green Setting (Gmax), s	11.6	44.2			* 62	17.6
Max Q Clear Time (g_c+I1), s	7.5	19.2			11.1	10.8
Green Ext Time (p_c), s	0.1	4.1			3.6	0.6

### Intersection Summary

HCM 6th Ctrl Delay	18.0
HCM 6th LOS	B

### Notes

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

# HCM 6th Signalized Intersection Summary

## 7: Shirk Road & Goshen Avenue

12/05/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	22	159	154	86	230	47	161	270	101	25	291	40
Future Volume (veh/h)	22	159	154	86	230	47	161	270	101	25	291	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	27	194	188	105	280	57	196	329	123	30	355	49
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	198	283	252	133	437	195	235	798	677	69	623	528
Arrive On Green	0.11	0.16	0.16	0.08	0.12	0.12	0.13	0.43	0.43	0.04	0.34	0.34
Sat Flow, veh/h	1767	1763	1572	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	27	194	188	105	280	57	196	329	123	30	355	49
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	1.1	8.4	9.2	4.7	6.1	2.7	8.7	9.9	2.4	1.3	12.7	1.0
Cycle Q Clear(g_c), s	1.1	8.4	9.2	4.7	6.1	2.7	8.7	9.9	2.4	1.3	12.7	1.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	198	283	252	133	437	195	235	798	677	69	623	528
V/C Ratio(X)	0.14	0.69	0.75	0.79	0.64	0.29	0.83	0.41	0.18	0.44	0.57	0.09
Avail Cap(c_a), veh/h	198	612	546	164	1289	575	298	798	677	131	623	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.3	31.9	32.3	36.6	33.6	32.1	34.1	15.9	5.3	37.9	22.0	6.8
Incr Delay (d2), s/veh	0.3	2.9	4.3	18.2	1.6	0.8	14.8	1.6	0.6	4.3	3.7	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	3.5	3.5	2.5	2.5	1.0	4.5	4.1	1.2	0.6	5.7	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.6	34.9	36.6	54.9	35.2	32.9	48.9	17.5	5.9	42.2	25.7	7.2
LnGrp LOS	C	C	D	D	D	C	D	B	A	D	C	A
Approach Vol, veh/h		409			442			648			434	
Approach Delay, s/veh		35.5			39.6			24.8			24.8	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.5	40.1	12.6	19.4	16.1	32.5	15.5	16.5				
Change Period (Y+Rc), s	5.4	5.4	6.5	6.5	5.4	5.4	6.5	6.5				
Max Green Setting (Gmax), s	6.0	34.7	7.5	28.0	13.6	27.1	6.0	29.5				
Max Q Clear Time (g_c+I1), s	3.3	11.9	6.7	11.2	10.7	14.7	3.1	8.1				
Green Ext Time (p_c), s	0.0	2.2	0.0	1.7	0.1	1.7	0.0	1.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			30.4									
HCM 6th LOS			C									

HCM 6th AWSC  
1: Shirk Road & SR 198 EB Ramps

12/05/2021

Intersection	
Intersection Delay, s/veh	17.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↖	↗	↖	↗	
Traffic Vol, veh/h	236	1	152	0	0	0	0	264	39	316	267	0
Future Vol, veh/h	236	1	152	0	0	0	0	264	39	316	267	0
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	248	1	160	0	0	0	0	278	41	333	281	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	15.7	16.3	18.8
HCM LOS	C	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	264	39	237	152	316	267
LT Vol	0	0	236	0	316	0
Through Vol	264	0	1	0	0	267
RT Vol	0	39	0	152	0	0
Lane Flow Rate	278	41	249	160	333	281
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.531	0.07	0.522	0.281	0.643	0.504
Departure Headway (Hd)	6.884	6.168	7.538	6.32	6.962	6.452
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	522	577	476	566	516	556
Service Time	4.662	3.945	5.306	4.087	4.729	4.219
HCM Lane V/C Ratio	0.533	0.071	0.523	0.283	0.645	0.505
HCM Control Delay	17.3	9.4	18.3	11.6	21.5	15.7
HCM Lane LOS	C	A	C	B	C	C
HCM 95th-tile Q	3.1	0.2	3	1.1	4.5	2.8

HCM 6th AWSC  
2: Shirk Road & SR 198 WB Ramps

12/05/2021

Intersection	
Intersection Delay, s/veh	32
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↖	↗	↖	↗			↖	↗
Traffic Vol, veh/h	0	0	0	38	3	204	90	410	0	0	545	156
Future Vol, veh/h	0	0	0	38	3	204	90	410	0	0	545	156
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	39	3	210	93	423	0	0	562	161
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	13.7	23.7	44.4
HCM LOS	B	C	E

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	93%	0%	0%	0%
Vol Thru, %	0%	100%	7%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	90	410	41	204	545	156
LT Vol	90	0	38	0	0	0
Through Vol	0	410	3	0	545	0
RT Vol	0	0	0	204	0	156
Lane Flow Rate	93	423	42	210	562	161
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.179	0.754	0.094	0.398	0.967	0.245
Departure Headway (Hd)	6.928	6.419	8.011	6.82	6.195	5.483
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	516	562	446	526	584	651
Service Time	4.703	4.193	5.795	4.602	3.963	3.25
HCM Lane V/C Ratio	0.18	0.753	0.094	0.399	0.962	0.247
HCM Control Delay	11.2	26.4	11.6	14.1	54.3	10
HCM Lane LOS	B	D	B	B	F	A
HCM 95th-tile Q	0.6	6.6	0.3	1.9	13.3	1



HCM 6th TWSC  
3: Shirk Road & Hillsdale Avenue

12/05/2021

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗		↘
Traffic Vol, veh/h	14	15	558	60	15	687
Future Vol, veh/h	14	15	558	60	15	687
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	125	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	15	16	587	63	16	723

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1342	587	0	0	650
Stage 1	587	-	-	-	-
Stage 2	755	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	167	508	-	-	931
Stage 1	554	-	-	-	-
Stage 2	462	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	162	508	-	-	931
Mov Cap-2 Maneuver	162	-	-	-	-
Stage 1	554	-	-	-	-
Stage 2	449	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.6	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	162	508	931
HCM Lane V/C Ratio	-	-	0.091	0.031	0.017
HCM Control Delay (s)	-	-	29.4	12.3	8.9
HCM Lane LOS	-	-	D	B	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	0.1

HCM 6th TWSC  
4: Shirk Road & School Avenue

12/05/2021

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑	↑		↔
Traffic Vol, veh/h	11	1	549	25	0	691
Future Vol, veh/h	11	1	549	25	0	691
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	225	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	12	1	590	27	0	743

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1333	590	0	0	617
Stage 1	590	-	-	-	-
Stage 2	743	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	169	506	-	-	958
Stage 1	552	-	-	-	-
Stage 2	468	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	169	506	-	-	958
Mov Cap-2 Maneuver	169	-	-	-	-
Stage 1	552	-	-	-	-
Stage 2	468	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.7	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	179	958
HCM Lane V/C Ratio	-	-	0.072	-
HCM Control Delay (s)	-	-	26.7	0
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Intersection							
Int Delay, s/veh	0.7						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	⇐	⇐⇐		⇐	⇐⇐	⇐⇐	
Traffic Vol, veh/h	9	443	14	6	186	13	13
Future Vol, veh/h	9	443	14	6	186	13	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84	84
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	11	527	17	7	221	15	15

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	221	0	0	544	0	683 272
Stage 1	-	-	-	-	-	558 -
Stage 2	-	-	-	-	-	125 -
Critical Hdwy	6.46	-	-	4.16	-	6.86 6.96
Critical Hdwy Stg 1	-	-	-	-	-	5.86 -
Critical Hdwy Stg 2	-	-	-	-	-	5.86 -
Follow-up Hdwy	2.53	-	-	2.23	-	3.53 3.33
Pot Cap-1 Maneuver	1033	-	-	1014	-	381 723
Stage 1	-	-	-	-	-	534 -
Stage 2	-	-	-	-	-	884 -
Platoon blocked, %		-	-		-	
Mov Cap-1 Maneuver	1033	-	-	1014	-	374 723
Mov Cap-2 Maneuver	-	-	-	-	-	374 -
Stage 1	-	-	-	-	-	528 -
Stage 2	-	-	-	-	-	878 -

Approach	EB	WB	NB
HCM Control Delay, s	0.2	0.3	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	493	1033	-	-	1014	-
HCM Lane V/C Ratio	0.063	0.01	-	-	0.007	-
HCM Control Delay (s)	12.8	8.5	-	-	8.6	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-

# HCM 6th Signalized Intersection Summary

## 5: Shirk Road & Hurley Avenue

12/05/2021



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	41	34	479	68	46	649
Future Volume (veh/h)	41	34	479	68	46	649
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	42	35	494	70	47	669
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	147	131	1217	1031	87	1436
Arrive On Green	0.08	0.08	0.66	0.66	0.05	0.77
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	42	35	494	70	47	669
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	1.7	1.6	9.8	1.3	2.0	10.0
Cycle Q Clear(g_c), s	1.7	1.6	9.8	1.3	2.0	10.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	147	131	1217	1031	87	1436
V/C Ratio(X)	0.29	0.27	0.41	0.07	0.54	0.47
Avail Cap(c_a), veh/h	420	374	1217	1031	194	1436
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.7	33.7	6.3	4.9	36.4	3.1
Incr Delay (d2), s/veh	1.1	1.1	1.0	0.1	5.2	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.6	3.0	0.3	1.0	2.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.8	34.8	7.3	5.0	41.6	4.2
LnGrp LOS	C	C	A	A	D	A
Approach Vol, veh/h			564			716
Approach Delay, s/veh	34.8		7.0			6.7
Approach LOS	C		A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.2	57.2			66.4	11.9
Change Period (Y+Rc), s	5.4	5.8			* 5.8	5.4
Max Green Setting (Gmax), s	8.6	46.2			* 61	18.6
Max Q Clear Time (g_c+I1), s	4.0	11.8			12.0	3.7
Green Ext Time (p_c), s	0.0	3.3			5.0	0.1

### Intersection Summary

HCM 6th Ctrl Delay	8.4
HCM 6th LOS	A
























### Notes

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

# HCM 6th Signalized Intersection Summary

## 7: Shirk Road & Goshen Avenue

12/05/2021

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	269	127	24	107	24	54	310	76	65	448	30
Future Volume (veh/h)	40	269	127	24	107	24	54	310	76	65	448	30
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	43	292	138	26	116	26	59	337	83	71	487	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	129	411	189	59	479	214	101	747	633	115	762	646
Arrive On Green	0.07	0.18	0.18	0.03	0.14	0.14	0.06	0.40	0.40	0.07	0.41	0.41
Sat Flow, veh/h	1767	2343	1080	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	43	218	212	26	116	26	59	337	83	71	487	33
Grp Sat Flow(s),veh/h/ln	1767	1763	1661	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	1.7	8.6	8.9	1.1	2.2	1.1	2.4	9.8	1.6	2.9	15.4	0.6
Cycle Q Clear(g_c), s	1.7	8.6	8.9	1.1	2.2	1.1	2.4	9.8	1.6	2.9	15.4	0.6
Prop In Lane	1.00		0.65	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	129	309	291	59	479	214	101	747	633	115	762	646
V/C Ratio(X)	0.33	0.71	0.73	0.44	0.24	0.12	0.58	0.45	0.13	0.62	0.64	0.05
Avail Cap(c_a), veh/h	144	695	655	144	1390	620	144	747	633	159	762	646
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.4	28.5	28.7	34.9	28.4	27.9	33.8	16.1	6.3	33.5	17.3	4.7
Incr Delay (d2), s/veh	1.5	2.9	3.5	5.0	0.3	0.3	5.3	2.0	0.4	5.2	4.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.4	3.4	0.5	0.8	0.4	1.1	4.1	0.8	1.3	6.6	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.9	31.5	32.2	39.9	28.7	28.2	39.1	18.0	6.7	38.7	21.4	4.9
LnGrp LOS	C	C	C	D	C	C	D	B	A	D	C	A
Approach Vol, veh/h		473			168			479			591	
Approach Delay, s/veh		32.0			30.3			18.7			22.6	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.2	35.0	9.0	19.4	9.6	35.6	11.9	16.5				
Change Period (Y+Rc), s	5.4	5.4	6.5	6.5	5.4	5.4	6.5	6.5				
Max Green Setting (Gmax), s	6.6	29.6	6.0	29.0	6.0	30.2	6.0	29.0				
Max Q Clear Time (g_c+I1), s	4.9	11.8	3.1	10.9	4.4	17.4	3.7	4.2				
Green Ext Time (p_c), s	0.0	2.0	0.0	2.0	0.0	2.4	0.0	0.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			24.8									
HCM 6th LOS			C									

# OPENING YEAR CONDITIONS

HCM 6th AWSC  
1: Shirk Road & SR 198 EB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	20.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕					↕	↕	↕	↕	
Traffic Vol, veh/h	179	2	86	0	0	0	0	358	87	301	279	0
Future Vol, veh/h	179	2	86	0	0	0	0	358	87	301	279	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	203	2	86	0	0	0	0	407	99	342	317	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	15.2	23.5	19.7
HCM LOS	C	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	99%	0%	100%	0%
Vol Thru, %	100%	0%	1%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	358	87	181	86	301	279
LT Vol	0	0	179	0	301	0
Through Vol	358	0	2	0	0	279
RT Vol	0	87	0	86	0	0
Lane Flow Rate	407	99	206	86	342	317
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.749	0.162	0.452	0.16	0.656	0.563
Departure Headway (Hd)	6.629	5.915	7.918	6.698	6.907	6.398
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	541	602	453	532	520	561
Service Time	4.406	3.691	5.695	4.474	4.68	4.17
HCM Lane V/C Ratio	0.752	0.164	0.455	0.162	0.658	0.565
HCM Control Delay	26.8	9.8	17.1	10.8	22	17.2
HCM Lane LOS	D	A	C	B	C	C
HCM 95th-tile Q	6.5	0.6	2.3	0.6	4.7	3.5

HCM 6th AWSC  
2: Shirk Road & SR 198 WB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	64.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↖	↗	↖	↗			↖	↗
Traffic Vol, veh/h	0	0	0	52	2	373	140	388	0	0	525	272
Future Vol, veh/h	0	0	0	52	2	373	140	388	0	0	525	272
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	58	2	419	152	422	0	0	590	306
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	34.7	37.7	98.1
HCM LOS	D	E	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	96%	0%	0%	0%
Vol Thru, %	0%	100%	4%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	140	388	54	373	525	272
LT Vol	140	0	52	0	0	0
Through Vol	0	388	2	0	525	0
RT Vol	0	0	0	373	0	272
Lane Flow Rate	152	422	61	419	590	306
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.339	0.881	0.141	0.834	1.217	0.569
Departure Headway (Hd)	8.392	7.875	8.729	7.511	7.427	6.705
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	431	464	413	486	490	535
Service Time	6.092	5.575	6.429	5.211	5.201	4.479
HCM Lane V/C Ratio	0.353	0.909	0.148	0.862	1.204	0.572
HCM Control Delay	15.3	45.8	12.9	37.8	139.6	18
HCM Lane LOS	C	E	B	E	F	C
HCM 95th-tile Q	1.5	9.4	0.5	8.2	22.7	3.5



HCM 6th TWSC  
3: Shirk Road & Hillsdale Avenue

05/22/2022

Intersection						
Int Delay, s/veh	3.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗		↘
Traffic Vol, veh/h	60	23	708	51	22	741
Future Vol, veh/h	60	23	708	51	22	741
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	125	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	67	26	787	57	24	823

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1658	787	0	0	844
Stage 1	787	-	-	-	-
Stage 2	871	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	107	390	-	-	788
Stage 1	447	-	-	-	-
Stage 2	408	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	101	390	-	-	788
Mov Cap-2 Maneuver	101	-	-	-	-
Stage 1	447	-	-	-	-
Stage 2	385	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	70.9	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	101	390	788
HCM Lane V/C Ratio	-	-	0.66	0.066	0.031
HCM Control Delay (s)	-	-	92.4	14.9	9.7
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	3.3	0.2	0.1

HCM 6th TWSC  
4: Shirk Road & School Avenue

05/22/2022

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑	↑		↓
Traffic Vol, veh/h	26	6	714	15	7	737
Future Vol, veh/h	26	6	714	15	7	737
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	225	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	29	7	785	16	8	810

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1611	785	0	0	801	0
Stage 1	785	-	-	-	-	-
Stage 2	826	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	114	391	-	-	818	-
Stage 1	448	-	-	-	-	-
Stage 2	428	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	112	391	-	-	818	-
Mov Cap-2 Maneuver	112	-	-	-	-	-
Stage 1	448	-	-	-	-	-
Stage 2	420	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	43.1	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	129	818
HCM Lane V/C Ratio	-	-	0.273	0.009
HCM Control Delay (s)	-	-	43.1	9.4
HCM Lane LOS	-	-	E	A
HCM 95th %tile Q(veh)	-	-	1	0

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘↗		↘	↑	↑	↘
Traffic Vol, veh/h	0	0	0	703	670	0
Future Vol, veh/h	0	0	0	703	670	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	0	764	728	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1492	728	728	0	-	0
Stage 1	728	-	-	-	-	-
Stage 2	764	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	135	422	871	-	-	-
Stage 1	476	-	-	-	-	-
Stage 2	458	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	135	422	871	-	-	-
Mov Cap-2 Maneuver	135	-	-	-	-	-
Stage 1	476	-	-	-	-	-
Stage 2	458	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	871	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

HCM 6th TWSC  
8: Road 88 & Project Driveway

05/22/2022

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	19	0	0	16
Future Vol, veh/h	0	0	19	0	0	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	21	0	0	17

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	38	21	0	0	21
Stage 1	21	-	-	-	-
Stage 2	17	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	972	1054	-	-	1588
Stage 1	999	-	-	-	-
Stage 2	1003	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	972	1054	-	-	1588
Mov Cap-2 Maneuver	972	-	-	-	-
Stage 1	999	-	-	-	-
Stage 2	1003	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1588	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection							
Int Delay, s/veh	1.5						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	⬆	⬆		⬆	⬆	⬆	
Traffic Vol, veh/h	3	323	80	86	406	14	16
Future Vol, veh/h	3	323	80	86	406	14	16
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72	72
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	4	449	111	119	564	19	22

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	564	0	0	560	0	1033 280
Stage 1	-	-	-	-	-	513 -
Stage 2	-	-	-	-	-	520 -
Critical Hdwy	6.46	-	-	4.16	-	6.86 6.96
Critical Hdwy Stg 1	-	-	-	-	-	5.86 -
Critical Hdwy Stg 2	-	-	-	-	-	5.86 -
Follow-up Hdwy	2.53	-	-	2.23	-	3.53 3.33
Pot Cap-1 Maneuver	626	-	-	1000	-	227 714
Stage 1	-	-	-	-	-	563 -
Stage 2	-	-	-	-	-	558 -
Platoon blocked, %		-	-		-	
Mov Cap-1 Maneuver	626	-	-	1000	-	199 714
Mov Cap-2 Maneuver	-	-	-	-	-	199 -
Stage 1	-	-	-	-	-	560 -
Stage 2	-	-	-	-	-	492 -

Approach	EB	WB	NB
HCM Control Delay, s	0.1	1.6	17.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	323	626	-	-	1000	-
HCM Lane V/C Ratio	0.129	0.007	-	-	0.119	-
HCM Control Delay (s)	17.8	10.8	-	-	9.1	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.4	0	-	-	0.4	-

# HCM 6th Signalized Intersection Summary

## 5: Shirk Road & Hurley Avenue

05/22/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	174	133	636	80	112	574
Future Volume (veh/h)	174	133	636	80	112	574
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	196	149	715	90	126	645
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	244	217	1068	905	159	1353
Arrive On Green	0.14	0.14	0.58	0.58	0.09	0.73
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	196	149	715	90	126	645
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	9.1	7.6	22.5	2.2	5.9	12.2
Cycle Q Clear(g_c), s	9.1	7.6	22.5	2.2	5.9	12.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	244	217	1068	905	159	1353
V/C Ratio(X)	0.80	0.69	0.67	0.10	0.79	0.48
Avail Cap(c_a), veh/h	368	328	1068	905	243	1353
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.3	34.7	12.4	8.1	37.7	4.7
Incr Delay (d2), s/veh	7.4	3.8	3.3	0.2	9.8	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	3.0	8.4	0.7	2.9	3.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.7	38.5	15.7	8.3	47.5	6.0
LnGrp LOS	D	D	B	A	D	A
Approach Vol, veh/h	345		805			771
Approach Delay, s/veh	40.9		14.9			12.7
Approach LOS	D		B			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	13.0	54.4			67.4	17.1
Change Period (Y+Rc), s	5.4	5.8			* 5.8	5.4
Max Green Setting (Gmax), s	11.6	44.2			* 62	17.6
Max Q Clear Time (g_c+I1), s	7.9	24.5			14.2	11.1
Green Ext Time (p_c), s	0.1	4.7			4.7	0.6

### Intersection Summary

HCM 6th Ctrl Delay			18.7			
HCM 6th LOS			B			
























### Notes

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

# HCM 6th Signalized Intersection Summary

## 7: Shirk Road & Goshen Avenue

05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	166	210	89	239	51	229	297	106	33	344	57
Future Volume (veh/h)	35	166	210	89	239	51	229	297	106	33	344	57
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	43	202	256	109	291	62	279	362	129	40	420	70
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	272	339	302	137	407	182	310	860	728	70	607	514
Arrive On Green	0.15	0.19	0.19	0.08	0.12	0.12	0.18	0.46	0.46	0.04	0.33	0.33
Sat Flow, veh/h	1767	1763	1572	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	43	202	256	109	291	62	279	362	129	40	420	70
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	2.2	10.9	16.4	6.3	8.3	3.8	16.1	13.6	3.2	2.3	20.6	2.0
Cycle Q Clear(g_c), s	2.2	10.9	16.4	6.3	8.3	3.8	16.1	13.6	3.2	2.3	20.6	2.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	272	339	302	137	407	182	310	860	728	70	607	514
V/C Ratio(X)	0.16	0.60	0.85	0.80	0.72	0.34	0.90	0.42	0.18	0.57	0.69	0.14
Avail Cap(c_a), veh/h	272	472	421	228	1195	533	348	860	728	107	607	514
HCM Platoon Ratio	1.00	1.00	1.00	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	38.3	38.5	40.7	47.4	44.6	42.6	42.2	18.7	6.8	49.3	30.6	9.0
Incr Delay (d2), s/veh	0.3	1.7	10.9	10.1	2.4	1.1	23.4	1.5	0.5	7.2	6.4	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	4.6	6.9	3.0	3.6	1.5	8.8	5.9	1.7	1.1	9.9	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.6	40.2	51.6	57.5	46.9	43.7	65.6	20.2	7.3	56.6	36.9	9.5
LnGrp LOS	D	D	D	E	D	D	E	C	A	E	D	A
Approach Vol, veh/h		501			462			770			530	
Approach Delay, s/veh		45.9			49.0			34.5			34.8	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.5	53.8	14.6	26.6	23.7	39.6	22.6	18.6				
Change Period (Y+Rc), s	5.4	5.4	6.5	6.5	5.4	5.4	6.5	6.5				
Max Green Setting (Gmax), s	6.3	48.4	13.5	28.0	20.6	34.1	6.1	35.4				
Max Q Clear Time (g_c+I1), s	4.3	15.6	8.3	18.4	18.1	22.6	4.2	10.3				
Green Ext Time (p_c), s	0.0	2.6	0.1	1.7	0.2	2.0	0.0	1.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			40.0									
HCM 6th LOS			D									

HCM 6th AWSC  
1: Shirk Road & SR 198 EB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	26.2
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↖	↗	↖	↗	
Traffic Vol, veh/h	277	1	155	0	0	0	0	288	40	349	286	0
Future Vol, veh/h	277	1	155	0	0	0	0	288	40	349	286	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	315	1	155	0	0	0	0	327	45	397	325	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	22.8	23.2	30
HCM LOS	C	C	D

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	288	40	278	155	349	286
LT Vol	0	0	277	0	349	0
Through Vol	288	0	1	0	0	286
RT Vol	0	40	0	155	0	0
Lane Flow Rate	327	45	316	155	397	325
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.683	0.086	0.706	0.294	0.829	0.632
Departure Headway (Hd)	7.513	6.792	8.048	6.822	7.525	7.001
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	481	528	452	529	484	517
Service Time	5.25	4.529	5.757	4.532	5.247	4.734
HCM Lane V/C Ratio	0.68	0.085	0.699	0.293	0.82	0.629
HCM Control Delay	25	10.2	27.9	12.4	37.3	21
HCM Lane LOS	C	B	D	B	E	C
HCM 95th-tile Q	5.1	0.3	5.4	1.2	8.1	4.3



HCM 6th AWSC  
2: Shirk Road & SR 198 WB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	83
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↖	↗	↖	↗			↖	↗
Traffic Vol, veh/h	0	0	0	39	3	258	92	470	0	0	604	182
Future Vol, veh/h	0	0	0	39	3	258	92	470	0	0	604	182
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	44	3	290	100	511	0	0	679	204
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	18.6	52.5	128.6
HCM LOS	C	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	93%	0%	0%	0%
Vol Thru, %	0%	100%	7%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	92	470	42	258	604	182
LT Vol	92	0	39	0	0	0
Through Vol	0	470	3	0	604	0
RT Vol	0	0	0	258	0	182
Lane Flow Rate	100	511	47	290	679	204
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.204	0.972	0.108	0.568	1.285	0.347
Departure Headway (Hd)	7.755	7.241	8.689	7.485	6.818	6.102
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	466	506	415	484	536	587
Service Time	5.455	4.941	6.389	5.185	4.58	3.863
HCM Lane V/C Ratio	0.215	1.01	0.113	0.599	1.267	0.348
HCM Control Delay	12.4	60.3	12.4	19.6	163.7	12.1
HCM Lane LOS	B	F	B	C	F	B
HCM 95th-tile Q	0.8	12.6	0.4	3.5	27.7	1.5

HCM 6th TWSC  
3: Shirk Road & Hillsdale Avenue

05/22/2022

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	33	21	637	94	25	753
Future Vol, veh/h	33	21	637	94	25	753
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	125	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	37	23	708	104	28	837

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1601	708	0	0	812
Stage 1	708	-	-	-	-
Stage 2	893	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	116	433	-	-	810
Stage 1	486	-	-	-	-
Stage 2	398	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	108	433	-	-	810
Mov Cap-2 Maneuver	108	-	-	-	-
Stage 1	486	-	-	-	-
Stage 2	372	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	38.7	0	0.3
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	108	433	810
HCM Lane V/C Ratio	-	-	0.34	0.054	0.034
HCM Control Delay (s)	-	-	54.6	13.8	9.6
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q(veh)	-	-	1.3	0.2	0.1

HCM 6th TWSC  
4: Shirk Road & School Avenue

05/22/2022

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑	↑		↔
Traffic Vol, veh/h	11	1	634	26	0	767
Future Vol, veh/h	11	1	634	26	0	767
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	225	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	12	1	697	29	0	843

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1540	697	0	0	726
Stage 1	697	-	-	-	-
Stage 2	843	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	126	439	-	-	872
Stage 1	492	-	-	-	-
Stage 2	420	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	126	439	-	-	872
Mov Cap-2 Maneuver	126	-	-	-	-
Stage 1	492	-	-	-	-
Stage 2	420	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	34.8	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	134	872
HCM Lane V/C Ratio	-	-	0.098	-
HCM Control Delay (s)	-	-	34.8	0
HCM Lane LOS	-	-	D	A
HCM 95th %tile Q(veh)	-	-	0.3	0

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	↔
Traffic Vol, veh/h	0	0	0	570	727	0
Future Vol, veh/h	0	0	0	570	727	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	0	620	790	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1410	790	790	0	-	0
Stage 1	790	-	-	-	-	-
Stage 2	620	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	152	389	826	-	-	-
Stage 1	445	-	-	-	-	-
Stage 2	535	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	152	389	826	-	-	-
Mov Cap-2 Maneuver	152	-	-	-	-	-
Stage 1	445	-	-	-	-	-
Stage 2	535	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	826	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	0	0	26	0	0	20
Future Vol, veh/h	0	0	26	0	0	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	28	0	0	22

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	50	28	0	0	28
Stage 1	28	-	-	-	-
Stage 2	22	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	957	1044	-	-	1579
Stage 1	992	-	-	-	-
Stage 2	998	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	957	1044	-	-	1579
Mov Cap-2 Maneuver	957	-	-	-	-
Stage 1	992	-	-	-	-
Stage 2	998	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1579	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection							
Int Delay, s/veh	1.3						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	⬇	⬆		⬆	⬆	⬆	
Traffic Vol, veh/h	9	462	51	36	196	19	13
Future Vol, veh/h	9	462	51	36	196	19	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72	72
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	13	642	71	50	272	26	18

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	272	0	0	713	0	940 357
Stage 1	-	-	-	-	-	704 -
Stage 2	-	-	-	-	-	236 -
Critical Hdwy	6.46	-	-	4.16	-	6.86 6.96
Critical Hdwy Stg 1	-	-	-	-	-	5.86 -
Critical Hdwy Stg 2	-	-	-	-	-	5.86 -
Follow-up Hdwy	2.53	-	-	2.23	-	3.53 3.33
Pot Cap-1 Maneuver	960	-	-	876	-	260 637
Stage 1	-	-	-	-	-	449 -
Stage 2	-	-	-	-	-	778 -
Platoon blocked, %		-	-		-	
Mov Cap-1 Maneuver	960	-	-	876	-	242 637
Mov Cap-2 Maneuver	-	-	-	-	-	242 -
Stage 1	-	-	-	-	-	443 -
Stage 2	-	-	-	-	-	734 -

Approach	EB	WB	NB
HCM Control Delay, s	0.2	1.5	17.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	323	960	-	-	876	-
HCM Lane V/C Ratio	0.138	0.013	-	-	0.057	-
HCM Control Delay (s)	17.9	8.8	-	-	9.4	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.5	0	-	-	0.2	-

# HCM 6th Signalized Intersection Summary

## 5: Shirk Road & Hurley Avenue

05/22/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	46	45	559	73	54	720
Future Volume (veh/h)	46	45	559	73	54	720
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	52	51	628	82	61	809
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	159	141	1200	1017	98	1429
Arrive On Green	0.09	0.09	0.65	0.65	0.06	0.77
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	52	51	628	82	61	809
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	2.2	2.4	14.4	1.6	2.7	14.2
Cycle Q Clear(g_c), s	2.2	2.4	14.4	1.6	2.7	14.2
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	159	141	1200	1017	98	1429
V/C Ratio(X)	0.33	0.36	0.52	0.08	0.62	0.57
Avail Cap(c_a), veh/h	389	346	1200	1017	256	1429
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.1	34.2	7.5	5.3	36.9	3.7
Incr Delay (d2), s/veh	1.2	1.5	1.6	0.2	6.2	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.0	4.6	0.4	1.3	3.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.3	35.8	9.2	5.4	43.2	5.4
LnGrp LOS	D	D	A	A	D	A
Approach Vol, veh/h			710			870
Approach Delay, s/veh			8.7			8.0
Approach LOS			A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	9.9	57.5			67.4	12.6
Change Period (Y+Rc), s	5.4	5.8			* 5.8	5.4
Max Green Setting (Gmax), s	11.6	44.2			* 62	17.6
Max Q Clear Time (g_c+I1), s	4.7	16.4			16.2	4.4
Green Ext Time (p_c), s	0.0	4.3			6.7	0.2

### Intersection Summary
























HCM 6th Ctrl Delay			10.0			
HCM 6th LOS			B			

### Notes

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

HCM 6th Signalized Intersection Summary  
 7: Shirk Road & Goshen Avenue

05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	53	276	159	28	111	33	81	369	79	71	491	39
Future Volume (veh/h)	53	276	159	28	111	33	81	369	79	71	491	39
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	65	337	194	34	135	40	99	450	96	87	599	48
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	229	417	235	64	347	155	127	883	748	109	865	733
Arrive On Green	0.13	0.19	0.19	0.04	0.10	0.10	0.07	0.48	0.48	0.06	0.47	0.47
Sat Flow, veh/h	1767	2172	1226	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	65	272	259	34	135	40	99	450	96	87	599	48
Grp Sat Flow(s),veh/h/ln	1767	1763	1635	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	3.4	15.0	15.5	1.9	3.7	2.4	5.6	17.1	2.5	4.9	25.9	0.9
Cycle Q Clear(g_c), s	3.4	15.0	15.5	1.9	3.7	2.4	5.6	17.1	2.5	4.9	25.9	0.9
Prop In Lane	1.00		0.75	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	229	338	314	64	347	155	127	883	748	109	865	733
V/C Ratio(X)	0.28	0.81	0.83	0.53	0.39	0.26	0.78	0.51	0.13	0.79	0.69	0.07
Avail Cap(c_a), veh/h	229	485	450	235	1227	547	358	883	748	109	865	733
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.0	39.3	39.5	48.1	43.0	42.4	46.4	18.4	7.4	47.1	21.4	4.3
Incr Delay (d2), s/veh	0.7	6.4	8.2	6.6	0.7	0.9	10.0	2.1	0.4	32.1	4.5	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	6.7	6.5	0.9	1.5	0.9	2.7	7.3	1.2	3.1	11.5	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.6	45.7	47.7	54.7	43.7	43.3	56.4	20.5	7.8	79.1	25.9	4.5
LnGrp LOS	D	D	D	D	D	D	E	C	A	E	C	A
Approach Vol, veh/h		596			209			645			734	
Approach Delay, s/veh		46.0			45.4			24.1			30.8	
Approach LOS		D			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.7	53.8	10.2	26.0	12.7	52.8	19.7	16.5				
Change Period (Y+Rc), s	5.4	5.4	6.5	6.5	5.4	5.4	6.5	6.5				
Max Green Setting (Gmax), s	6.3	48.4	13.5	28.0	20.6	34.1	6.1	35.4				
Max Q Clear Time (g_c+I1), s	6.9	19.1	3.9	17.5	7.6	27.9	5.4	5.7				
Green Ext Time (p_c), s	0.0	3.1	0.0	2.0	0.2	2.0	0.0	0.8				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			34.4									
HCM 6th LOS			C									



HCM 6th AWSC  
1: Shirk Road & SR 198 EB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	24.1
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕					↕	↕	↕	↕	
Traffic Vol, veh/h	187	2	86	0	0	0	0	360	87	363	286	0
Future Vol, veh/h	187	2	86	0	0	0	0	360	87	363	286	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	213	2	86	0	0	0	0	409	99	413	325	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	16.1	25.7	26.2
HCM LOS	C	D	D

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	99%	0%	100%	0%
Vol Thru, %	100%	0%	1%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	360	87	189	86	363	286
LT Vol	0	0	187	0	363	0
Through Vol	360	0	2	0	0	286
RT Vol	0	87	0	86	0	0
Lane Flow Rate	409	99	215	86	412	325
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.775	0.168	0.482	0.164	0.802	0.586
Departure Headway (Hd)	6.817	6.102	8.083	6.86	6.996	6.486
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	528	583	445	519	516	553
Service Time	4.606	3.89	5.867	4.643	4.778	4.268
HCM Lane V/C Ratio	0.775	0.17	0.483	0.166	0.798	0.588
HCM Control Delay	29.5	10.1	18.2	11	32.6	18.1
HCM Lane LOS	D	B	C	B	D	C
HCM 95th-tile Q	7	0.6	2.6	0.6	7.6	3.8

HCM 6th AWSC  
2: Shirk Road & SR 198 WB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	95.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔	↔	↔	↔			↔	↔
Traffic Vol, veh/h	0	0	0	52	2	392	140	399	0	0	591	298
Future Vol, veh/h	0	0	0	52	2	392	140	399	0	0	591	298
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	58	2	440	152	434	0	0	664	335
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	41.7	43.6	152.1
HCM LOS	E	E	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	96%	0%	0%	0%
Vol Thru, %	0%	100%	4%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	140	399	54	392	591	298
LT Vol	140	0	52	0	0	0
Through Vol	0	399	2	0	591	0
RT Vol	0	0	0	392	0	298
Lane Flow Rate	152	434	61	440	664	335
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.344	0.919	0.142	0.884	1.41	0.635
Departure Headway (Hd)	8.642	8.123	8.943	7.723	7.645	6.822
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	418	451	403	471	478	526
Service Time	6.342	5.823	6.643	5.423	5.345	4.622
HCM Lane V/C Ratio	0.364	0.962	0.151	0.934	1.389	0.637
HCM Control Delay	15.8	53.4	13.1	45.6	218.2	20.9
HCM Lane LOS	C	F	B	E	F	C
HCM 95th-tile Q	1.5	10.3	0.5	9.5	31.9	4.4

HCM 6th TWSC  
3: Shirk Road & Hillsdale Avenue

05/22/2022

Intersection						
Int Delay, s/veh	5.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↖	↗		↖
Traffic Vol, veh/h	60	23	738	51	22	833
Future Vol, veh/h	60	23	738	51	22	833
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	125	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	67	26	820	57	24	926

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1794	820	0	0	877	0
Stage 1	820	-	-	-	-	-
Stage 2	974	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	88	373	-	-	766	-
Stage 1	431	-	-	-	-	-
Stage 2	365	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	82	373	-	-	766	-
Mov Cap-2 Maneuver	82	-	-	-	-	-
Stage 1	431	-	-	-	-	-
Stage 2	342	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	105.8	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	82	373	766	-
HCM Lane V/C Ratio	-	-	0.813	0.069	0.032	-
HCM Control Delay (s)	-	-	140.4	15.4	9.9	0
HCM Lane LOS	-	-	F	C	A	A
HCM 95th %tile Q(veh)	-	-	4.1	0.2	0.1	-

HCM 6th TWSC  
4: Shirk Road & School Avenue

05/22/2022

Intersection						
Int Delay, s/veh	1.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑	↑		↓
Traffic Vol, veh/h	26	6	744	15	7	833
Future Vol, veh/h	26	6	744	15	7	833
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	225	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	29	7	818	16	8	915

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	1749	818	0	0	834	0
Stage 1	818	-	-	-	-	-
Stage 2	931	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	94	374	-	-	795	-
Stage 1	432	-	-	-	-	-
Stage 2	382	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	92	374	-	-	795	-
Mov Cap-2 Maneuver	92	-	-	-	-	-
Stage 1	432	-	-	-	-	-
Stage 2	374	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	54.3	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	107	795
HCM Lane V/C Ratio	-	-	0.329	0.01
HCM Control Delay (s)	-	-	54.3	9.6
HCM Lane LOS	-	-	F	A
HCM 95th %tile Q(veh)	-	-	1.3	0

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	↔
Traffic Vol, veh/h	0	105	0	735	667	39
Future Vol, veh/h	0	105	0	735	667	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	114	0	799	725	42

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1524	725	767	0	-	0
Stage 1	725	-	-	-	-	-
Stage 2	799	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	129	423	842	-	-	-
Stage 1	478	-	-	-	-	-
Stage 2	441	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	129	423	842	-	-	-
Mov Cap-2 Maneuver	129	-	-	-	-	-
Stage 1	478	-	-	-	-	-
Stage 2	441	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	842	-	423	-	-
HCM Lane V/C Ratio	-	-	0.27	-	-
HCM Control Delay (s)	0	-	16.6	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	1.1	-	-

HCM 6th TWSC  
8: Road 88 & Project Driveway

05/22/2022

Intersection						
Int Delay, s/veh	3.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	26	19	0	4	16
Future Vol, veh/h	0	26	19	0	4	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	28	21	0	4	17

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	46	21	0	0	21	0
Stage 1	21	-	-	-	-	-
Stage 2	25	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	962	1054	-	-	1588	-
Stage 1	999	-	-	-	-	-
Stage 2	995	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	959	1054	-	-	1588	-
Mov Cap-2 Maneuver	959	-	-	-	-	-
Stage 1	999	-	-	-	-	-
Stage 2	992	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	1.5
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1054	1588
HCM Lane V/C Ratio	-	-	0.027	0.003
HCM Control Delay (s)	-	-	8.5	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection							
Int Delay, s/veh	1.9						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	⬇	⬆		⬆	⬆	⬆	
Traffic Vol, veh/h	3	323	83	88	406	21	36
Future Vol, veh/h	3	323	83	88	406	21	36
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72	72
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	4	449	115	122	564	29	50

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	564	0	0	564	0	1041 282
Stage 1	-	-	-	-	-	515 -
Stage 2	-	-	-	-	-	526 -
Critical Hdwy	6.46	-	-	4.16	-	6.86 6.96
Critical Hdwy Stg 1	-	-	-	-	-	5.86 -
Critical Hdwy Stg 2	-	-	-	-	-	5.86 -
Follow-up Hdwy	2.53	-	-	2.23	-	3.53 3.33
Pot Cap-1 Maneuver	626	-	-	997	-	224 712
Stage 1	-	-	-	-	-	562 -
Stage 2	-	-	-	-	-	554 -
Platoon blocked, %		-	-		-	
Mov Cap-1 Maneuver	626	-	-	997	-	196 712
Mov Cap-2 Maneuver	-	-	-	-	-	196 -
Stage 1	-	-	-	-	-	559 -
Stage 2	-	-	-	-	-	486 -

Approach	EB	WB	NB
HCM Control Delay, s	0.1	1.6	17.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	361	626	-	-	997	-
HCM Lane V/C Ratio	0.219	0.007	-	-	0.123	-
HCM Control Delay (s)	17.8	10.8	-	-	9.1	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.8	0	-	-	0.4	-

# HCM 6th Signalized Intersection Summary

## 5: Shirk Road & Hurley Avenue

05/22/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	174	138	666	80	131	665
Future Volume (veh/h)	174	138	666	80	131	665
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	196	155	748	90	147	747
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	244	217	1044	884	182	1353
Arrive On Green	0.14	0.14	0.56	0.56	0.10	0.73
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	196	155	748	90	147	747
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	9.1	8.0	25.0	2.2	6.9	15.4
Cycle Q Clear(g_c), s	9.1	8.0	25.0	2.2	6.9	15.4
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	244	217	1044	884	182	1353
V/C Ratio(X)	0.80	0.71	0.72	0.10	0.81	0.55
Avail Cap(c_a), veh/h	368	328	1044	884	243	1353
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.3	34.8	13.5	8.6	37.1	5.2
Incr Delay (d2), s/veh	7.4	4.3	4.2	0.2	13.9	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	3.2	9.6	0.7	3.5	4.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.6	39.1	17.8	8.8	51.0	6.8
LnGrp LOS	D	D	B	A	D	A
Approach Vol, veh/h	351		838			894
Approach Delay, s/veh	41.1		16.8			14.1
Approach LOS	D		B			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	14.1	53.3			67.4	17.1
Change Period (Y+Rc), s	5.4	5.8			* 5.8	5.4
Max Green Setting (Gmax), s	11.6	44.2			* 62	17.6
Max Q Clear Time (g_c+I1), s	8.9	27.0			17.4	11.1
Green Ext Time (p_c), s	0.1	4.8			5.9	0.6

### Intersection Summary

HCM 6th Ctrl Delay			19.7			
HCM 6th LOS			B			

### Notes
























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



# HCM 6th Signalized Intersection Summary

## 7: Shirk Road & Goshen Avenue

05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	41	172	216	91	241	51	263	297	106	33	346	57
Future Volume (veh/h)	41	172	216	91	241	51	263	297	106	33	346	57
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	50	210	263	111	294	62	321	362	129	40	422	70
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	81	353	315	134	813	362	351	751	637	125	514	435
Arrive On Green	0.05	0.20	0.20	0.08	0.23	0.23	0.20	0.40	0.40	0.07	0.28	0.28
Sat Flow, veh/h	1767	1763	1572	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	50	210	263	111	294	62	321	362	129	40	422	70
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	2.7	10.4	15.4	5.9	6.7	2.3	17.1	13.9	5.1	2.1	20.4	3.2
Cycle Q Clear(g_c), s	2.7	10.4	15.4	5.9	6.7	2.3	17.1	13.9	5.1	2.1	20.4	3.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	81	353	315	134	813	362	351	751	637	125	514	435
V/C Ratio(X)	0.61	0.59	0.83	0.83	0.36	0.17	0.91	0.48	0.20	0.32	0.82	0.16
Avail Cap(c_a), veh/h	110	514	458	134	1075	480	355	751	637	129	514	435
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.0	34.9	36.9	43.8	31.0	16.5	37.7	21.1	18.5	42.4	32.5	26.3
Incr Delay (d2), s/veh	7.3	1.6	8.6	32.8	0.3	0.2	27.1	2.2	0.7	1.5	13.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	4.3	6.2	3.7	2.7	1.1	9.7	6.1	1.8	0.9	10.7	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.3	36.5	45.4	76.5	31.3	16.7	64.7	23.3	19.2	43.9	46.3	27.1
LnGrp LOS	D	D	D	E	C	B	E	C	B	D	D	C
Approach Vol, veh/h		523			467			812			532	
Approach Delay, s/veh		42.5			40.1			39.1			43.6	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.2	44.3	13.8	25.8	24.5	32.0	10.9	28.6				
Change Period (Y+Rc), s	5.4	5.4	6.5	6.5	5.4	5.4	6.5	6.5				
Max Green Setting (Gmax), s	7.0	38.9	7.3	28.0	19.3	26.6	6.0	29.3				
Max Q Clear Time (g_c+I1), s	4.1	15.9	7.9	17.4	19.1	22.4	4.7	8.7				
Green Ext Time (p_c), s	0.0	2.4	0.0	1.8	0.0	1.0	0.0	1.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			41.1									
HCM 6th LOS			D									

HCM 6th AWSC  
1: Shirk Road & SR 198 EB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	34.8
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↑	↗	↖	↑	
Traffic Vol, veh/h	307	1	155	0	0	0	0	295	40	388	290	0
Future Vol, veh/h	307	1	155	0	0	0	0	295	40	388	290	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	349	1	155	0	0	0	0	335	45	441	330	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	29.1	26.4	42.6
HCM LOS	D	D	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	295	40	308	155	388	290
LT Vol	0	0	307	0	388	0
Through Vol	295	0	1	0	0	290
RT Vol	0	40	0	155	0	0
Lane Flow Rate	335	45	350	155	441	330
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.725	0.089	0.798	0.301	0.947	0.661
Departure Headway (Hd)	7.781	7.058	8.211	6.983	7.73	7.216
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	466	508	445	518	472	501
Service Time	5.525	4.802	5.911	4.683	5.47	4.956
HCM Lane V/C Ratio	0.719	0.089	0.787	0.299	0.934	0.659
HCM Control Delay	28.5	10.5	36.3	12.7	57.3	23
HCM Lane LOS	D	B	E	B	F	C
HCM 95th-tile Q	5.8	0.3	7.2	1.3	11.4	4.8

HCM 6th AWSC  
2: Shirk Road & SR 198 WB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	117.4
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔	↔	↔	↔			↔	↔
Traffic Vol, veh/h	0	0	0	39	3	324	92	507	0	0	648	200
Future Vol, veh/h	0	0	0	39	3	324	92	507	0	0	648	200
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	44	3	364	100	551	0	0	728	225
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	26.3	86.5	177.8
HCM LOS	D	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	93%	0%	0%	0%
Vol Thru, %	0%	100%	7%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	92	507	42	324	648	200
LT Vol	92	0	39	0	0	0
Through Vol	0	507	3	0	648	0
RT Vol	0	0	0	324	0	200
Lane Flow Rate	100	551	47	364	728	225
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.214	1.103	0.109	0.722	1.437	0.4
Departure Headway (Hd)	8.252	7.735	8.947	7.738	7.365	6.644
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	438	474	403	470	502	546
Service Time	5.952	5.435	6.647	5.438	5.065	4.344
HCM Lane V/C Ratio	0.228	1.162	0.117	0.774	1.45	0.412
HCM Control Delay	13.2	99.8	12.7	28.1	228.5	13.7
HCM Lane LOS	B	F	B	D	F	B
HCM 95th-tile Q	0.8	17.2	0.4	5.7	34.4	1.9

HCM 6th TWSC  
3: Shirk Road & Hillsdale Avenue

05/22/2022

Intersection						
Int Delay, s/veh	1.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗		↘
Traffic Vol, veh/h	33	21	740	94	25	814
Future Vol, veh/h	33	21	740	94	25	814
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	125	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	37	23	822	104	28	904

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1782	822	0	0	926
Stage 1	822	-	-	-	-
Stage 2	960	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	90	372	-	-	734
Stage 1	430	-	-	-	-
Stage 2	370	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	83	372	-	-	734
Mov Cap-2 Maneuver	83	-	-	-	-
Stage 1	430	-	-	-	-
Stage 2	342	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	54.2	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	83	372	734
HCM Lane V/C Ratio	-	-	0.442	0.063	0.038
HCM Control Delay (s)	-	-	79	15.3	10.1
HCM Lane LOS	-	-	F	C	B
HCM 95th %tile Q(veh)	-	-	1.8	0.2	0.1

HCM 6th TWSC  
4: Shirk Road & School Avenue

05/22/2022

Intersection						
Int Delay, s/veh	0.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑	↑		↔
Traffic Vol, veh/h	11	1	737	26	0	828
Future Vol, veh/h	11	1	737	26	0	828
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	225	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	12	1	810	29	0	910

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1720	810	0	0	839
Stage 1	810	-	-	-	-
Stage 2	910	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	98	378	-	-	791
Stage 1	436	-	-	-	-
Stage 2	391	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	98	378	-	-	791
Mov Cap-2 Maneuver	98	-	-	-	-
Stage 1	436	-	-	-	-
Stage 2	391	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	44.6	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	104	791
HCM Lane V/C Ratio	-	-	0.127	-
HCM Control Delay (s)	-	-	44.6	0
HCM Lane LOS	-	-	E	A
HCM 95th %tile Q(veh)	-	-	0.4	0

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	↔
Traffic Vol, veh/h	0	70	0	685	726	132
Future Vol, veh/h	0	70	0	685	726	132
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	76	0	745	789	143

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1534	789	932	0	-	0
Stage 1	789	-	-	-	-	-
Stage 2	745	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	127	389	730	-	-	-
Stage 1	446	-	-	-	-	-
Stage 2	467	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	127	389	730	-	-	-
Mov Cap-2 Maneuver	127	-	-	-	-	-
Stage 1	446	-	-	-	-	-
Stage 2	467	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	730	-	389	-	-
HCM Lane V/C Ratio	-	-	0.196	-	-
HCM Control Delay (s)	0	-	16.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

HCM 6th TWSC  
8: Road 88 & Project Driveway

05/22/2022

Intersection						
Int Delay, s/veh	3.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	0	17	27	0	15	20
Future Vol, veh/h	0	17	27	0	15	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	18	29	0	16	22

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	83	29	0	0	29
Stage 1	29	-	-	-	-
Stage 2	54	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	916	1043	-	-	1578
Stage 1	991	-	-	-	-
Stage 2	966	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	907	1043	-	-	1578
Mov Cap-2 Maneuver	907	-	-	-	-
Stage 1	991	-	-	-	-
Stage 2	956	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	3.1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1043	1578
HCM Lane V/C Ratio	-	-	0.018	0.01
HCM Control Delay (s)	-	-	8.5	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection							
Int Delay, s/veh	1.6						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	⬆	⬆		⬆	⬆	⬆	
Traffic Vol, veh/h	9	462	58	43	196	23	26
Future Vol, veh/h	9	462	58	43	196	23	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72	72
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	13	642	81	60	272	32	36

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	272	0	0	723	0	965 362
Stage 1	-	-	-	-	-	709 -
Stage 2	-	-	-	-	-	256 -
Critical Hdwy	6.46	-	-	4.16	-	6.86 6.96
Critical Hdwy Stg 1	-	-	-	-	-	5.86 -
Critical Hdwy Stg 2	-	-	-	-	-	5.86 -
Follow-up Hdwy	2.53	-	-	2.23	-	3.53 3.33
Pot Cap-1 Maneuver	960	-	-	869	-	251 632
Stage 1	-	-	-	-	-	446 -
Stage 2	-	-	-	-	-	760 -
Platoon blocked, %		-	-		-	
Mov Cap-1 Maneuver	960	-	-	869	-	230 632
Mov Cap-2 Maneuver	-	-	-	-	-	230 -
Stage 1	-	-	-	-	-	440 -
Stage 2	-	-	-	-	-	708 -

Approach	EB	WB	NB
HCM Control Delay, s	0.1	1.7	17.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	347	960	-	-	869	-
HCM Lane V/C Ratio	0.196	0.013	-	-	0.069	-
HCM Control Delay (s)	17.9	8.8	-	-	9.4	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.7	0	-	-	0.2	-



# HCM 6th Signalized Intersection Summary

## 5: Shirk Road & Hurley Avenue

05/22/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	46	60	662	73	62	781
Future Volume (veh/h)	46	60	662	73	62	781
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	52	67	744	82	70	878
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	164	146	1190	1009	104	1425
Arrive On Green	0.09	0.09	0.64	0.64	0.06	0.77
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	52	67	744	82	70	878
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	2.2	3.2	19.3	1.6	3.1	16.7
Cycle Q Clear(g_c), s	2.2	3.2	19.3	1.6	3.1	16.7
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	164	146	1190	1009	104	1425
V/C Ratio(X)	0.32	0.46	0.63	0.08	0.67	0.62
Avail Cap(c_a), veh/h	388	345	1190	1009	255	1425
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.0	34.5	8.6	5.4	37.0	4.1
Incr Delay (d2), s/veh	1.1	2.3	2.5	0.2	7.2	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.3	6.3	0.4	1.5	3.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.1	36.7	11.1	5.6	44.2	6.1
LnGrp LOS	D	D	B	A	D	A
Approach Vol, veh/h	119		826			948
Approach Delay, s/veh	36.0		10.6			8.9
Approach LOS	D		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.1	57.3			67.4	12.8
Change Period (Y+Rc), s	5.4	5.8			* 5.8	5.4
Max Green Setting (Gmax), s	11.6	44.2			* 62	17.6
Max Q Clear Time (g_c+I1), s	5.1	21.3			18.7	5.2
Green Ext Time (p_c), s	0.1	5.2			7.7	0.2

### Intersection Summary

HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B
























### Notes

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

# HCM 6th Signalized Intersection Summary

## 7: Shirk Road & Goshen Avenue

05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	281	163	35	118	33	199	369	79	71	498	39
Future Volume (veh/h)	57	281	163	35	118	33	199	369	79	71	498	39
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	70	343	199	43	144	40	243	450	96	87	607	48
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	90	422	240	73	653	291	273	842	714	144	707	599
Arrive On Green	0.05	0.19	0.19	0.04	0.19	0.19	0.15	0.45	0.45	0.08	0.38	0.38
Sat Flow, veh/h	1767	2165	1232	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	70	278	264	43	144	40	243	450	96	87	607	48
Grp Sat Flow(s),veh/h/ln	1767	1763	1634	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	4.1	15.7	16.1	2.5	3.6	1.7	14.0	18.2	2.6	4.9	31.3	2.0
Cycle Q Clear(g_c), s	4.1	15.7	16.1	2.5	3.6	1.7	14.0	18.2	2.6	4.9	31.3	2.0
Prop In Lane	1.00		0.75	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	90	343	318	73	653	291	273	842	714	144	707	599
V/C Ratio(X)	0.78	0.81	0.83	0.59	0.22	0.14	0.89	0.53	0.13	0.61	0.86	0.08
Avail Cap(c_a), veh/h	102	492	456	102	983	439	282	842	714	153	707	599
HCM Platoon Ratio	1.00	1.00	1.00	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	48.8	40.0	40.2	49.0	36.0	20.4	43.1	20.5	8.4	46.2	29.6	20.6
Incr Delay (d2), s/veh	28.4	6.6	8.4	7.5	0.2	0.2	27.2	2.4	0.4	6.0	12.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	7.0	6.8	1.2	1.5	0.8	8.0	8.0	1.2	2.4	15.6	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.2	46.6	48.6	56.5	36.2	20.7	70.3	22.9	8.8	52.2	42.5	20.8
LnGrp LOS	E	D	D	E	D	C	E	C	A	D	D	C
Approach Vol, veh/h		612			227			789			742	
Approach Delay, s/veh		51.0			37.3			35.8			42.2	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.8	52.6	10.8	26.8	21.4	45.0	11.8	25.8				
Change Period (Y+Rc), s	5.4	5.4	6.5	6.5	5.4	5.4	6.5	6.5				
Max Green Setting (Gmax), s	9.0	47.2	6.0	29.0	16.6	39.6	6.0	29.0				
Max Q Clear Time (g_c+I1), s	6.9	20.2	4.5	18.1	16.0	33.3	6.1	5.6				
Green Ext Time (p_c), s	0.0	3.0	0.0	2.1	0.0	2.1	0.0	0.8				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			41.9									
HCM 6th LOS			D									

# 5-YEAR HORIZON CONDITIONS

HCM 6th AWSC  
1: Shirk Road & SR 198 EB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	25.6
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕					↕	↕	↕	↕	
Traffic Vol, veh/h	193	2	95	0	0	0	0	393	96	327	306	0
Future Vol, veh/h	193	2	95	0	0	0	0	393	96	327	306	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	219	2	95	0	0	0	0	447	109	372	348	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	16.7	32.4	24.2
HCM LOS	C	D	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	99%	0%	100%	0%
Vol Thru, %	100%	0%	1%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	393	96	195	95	327	306
LT Vol	0	0	193	0	327	0
Through Vol	393	0	2	0	0	306
RT Vol	0	96	0	95	0	0
Lane Flow Rate	447	109	222	95	372	348
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.852	0.186	0.502	0.183	0.737	0.64
Departure Headway (Hd)	6.867	6.152	8.156	6.932	7.139	6.628
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	523	578	441	514	502	542
Service Time	4.662	3.946	5.946	4.72	4.931	4.42
HCM Lane V/C Ratio	0.855	0.189	0.503	0.185	0.741	0.642
HCM Control Delay	37.8	10.4	19	11.3	27.6	20.6
HCM Lane LOS	E	B	C	B	D	C
HCM 95th-tile Q	8.9	0.7	2.7	0.7	6.1	4.5

HCM 6th AWSC  
2: Shirk Road & SR 198 WB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	96.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↖	↗	↖	↗			↖	↗
Traffic Vol, veh/h	0	0	0	57	2	407	154	424	0	0	572	296
Future Vol, veh/h	0	0	0	57	2	407	154	424	0	0	572	296
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	64	2	457	167	461	0	0	643	333
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	48.8	54.8	148.5
HCM LOS	E	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	97%	0%	0%	0%
Vol Thru, %	0%	100%	3%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	154	424	59	407	572	296
LT Vol	154	0	57	0	0	0
Through Vol	0	424	2	0	572	0
RT Vol	0	0	0	407	0	296
Lane Flow Rate	167	461	66	457	643	333
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.382	0.988	0.156	0.929	1.398	0.656
Departure Headway (Hd)	8.734	8.215	9.038	7.815	7.828	7.104
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	415	447	399	466	469	512
Service Time	6.434	5.915	6.738	5.515	5.528	4.804
HCM Lane V/C Ratio	0.402	1.031	0.165	0.981	1.371	0.65
HCM Control Delay	16.7	68.7	13.4	53.9	213.8	22.3
HCM Lane LOS	C	F	B	F	F	C
HCM 95th-tile Q	1.8	12.4	0.5	10.8	30.7	4.7

HCM 6th TWSC  
3: Shirk Road & Hillsdale Avenue

05/22/2022

Intersection						
Int Delay, s/veh	6.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↑		↙
Traffic Vol, veh/h	63	24	774	55	24	809
Future Vol, veh/h	63	24	774	55	24	809
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	125	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	70	27	860	61	27	899

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1813	860	0	0	921
Stage 1	860	-	-	-	-
Stage 2	953	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	86	354	-	-	737
Stage 1	413	-	-	-	-
Stage 2	373	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	80	354	-	-	737
Mov Cap-2 Maneuver	80	-	-	-	-
Stage 1	413	-	-	-	-
Stage 2	346	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	118.8	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	80	354	737	-
HCM Lane V/C Ratio	-	-	0.875	0.075	0.036	-
HCM Control Delay (s)	-	-	157.9	16	10.1	0
HCM Lane LOS	-	-	F	C	B	A
HCM 95th %tile Q(veh)	-	-	4.5	0.2	0.1	-

HCM 6th TWSC  
4: Shirk Road & School Avenue

05/22/2022

Intersection						
Int Delay, s/veh	1.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	7	779	17	8	804
Future Vol, veh/h	28	7	779	17	8	804
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	225	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	31	8	856	19	9	884

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1758	856	0	0	875
Stage 1	856	-	-	-	-
Stage 2	902	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	93	356	-	-	767
Stage 1	415	-	-	-	-
Stage 2	394	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	91	356	-	-	767
Mov Cap-2 Maneuver	91	-	-	-	-
Stage 1	415	-	-	-	-
Stage 2	385	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	56.4	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	107	767
HCM Lane V/C Ratio	-	-	0.359	0.011
HCM Control Delay (s)	-	-	56.4	9.7
HCM Lane LOS	-	-	F	A
HCM 95th %tile Q(veh)	-	-	1.4	0

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	778	742	0
Future Vol, veh/h	0	0	0	778	742	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	0	846	807	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1653	807	807	0	-	0
Stage 1	807	-	-	-	-	-
Stage 2	846	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	108	380	814	-	-	-
Stage 1	437	-	-	-	-	-
Stage 2	419	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	108	380	814	-	-	-
Mov Cap-2 Maneuver	108	-	-	-	-	-
Stage 1	437	-	-	-	-	-
Stage 2	419	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	814	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-



HCM 6th TWSC  
8: Road 88 & Project Driveway

05/22/2022

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	0	0	21	0	0	18
Future Vol, veh/h	0	0	21	0	0	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	23	0	0	20

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	43	23	0	0	23
Stage 1	23	-	-	-	-
Stage 2	20	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	965	1051	-	-	1586
Stage 1	997	-	-	-	-
Stage 2	1000	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	965	1051	-	-	1586
Mov Cap-2 Maneuver	965	-	-	-	-
Stage 1	997	-	-	-	-
Stage 2	1000	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1586	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection							
Int Delay, s/veh	1.4						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	⬇	⬆		⬆	⬆	⬆	
Traffic Vol, veh/h	3	356	81	87	447	14	18
Future Vol, veh/h	3	356	81	87	447	14	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72	72
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	4	494	113	121	621	19	25

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	621	0	0	607	0	1112 304
Stage 1	-	-	-	-	-	559 -
Stage 2	-	-	-	-	-	553 -
Critical Hdwy	6.46	-	-	4.16	-	6.86 6.96
Critical Hdwy Stg 1	-	-	-	-	-	5.86 -
Critical Hdwy Stg 2	-	-	-	-	-	5.86 -
Follow-up Hdwy	2.53	-	-	2.23	-	3.53 3.33
Pot Cap-1 Maneuver	576	-	-	960	-	201 689
Stage 1	-	-	-	-	-	533 -
Stage 2	-	-	-	-	-	537 -
Platoon blocked, %		-	-		-	
Mov Cap-1 Maneuver	576	-	-	960	-	174 689
Mov Cap-2 Maneuver	-	-	-	-	-	174 -
Stage 1	-	-	-	-	-	529 -
Stage 2	-	-	-	-	-	469 -

Approach	EB	WB	NB
HCM Control Delay, s	0.1	1.5	19.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	300	576	-	-	960	-
HCM Lane V/C Ratio	0.148	0.007	-	-	0.126	-
HCM Control Delay (s)	19.1	11.3	-	-	9.3	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.5	0	-	-	0.4	-

# HCM 6th Signalized Intersection Summary

## 5: Shirk Road & Hurley Avenue

05/22/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	192	147	694	88	129	624
Future Volume (veh/h)	192	147	694	88	129	624
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	216	165	780	99	145	701
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	263	234	1031	874	179	1336
Arrive On Green	0.15	0.15	0.56	0.56	0.10	0.72
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	216	165	780	99	145	701
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	10.1	8.5	27.6	2.6	6.9	14.5
Cycle Q Clear(g_c), s	10.1	8.5	27.6	2.6	6.9	14.5
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	263	234	1031	874	179	1336
V/C Ratio(X)	0.82	0.70	0.76	0.11	0.81	0.52
Avail Cap(c_a), veh/h	364	324	1031	874	240	1336
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.3	34.6	14.6	9.0	37.6	5.4
Incr Delay (d2), s/veh	10.1	4.1	5.2	0.3	14.0	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	3.4	10.9	0.8	3.5	4.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.4	38.7	19.7	9.3	51.6	6.9
LnGrp LOS	D	D	B	A	D	A
Approach Vol, veh/h	381		879			846
Approach Delay, s/veh	42.5		18.6			14.5
Approach LOS	D		B			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	14.1	53.3			67.4	18.1
Change Period (Y+Rc), s	5.4	5.8			* 5.8	5.4
Max Green Setting (Gmax), s	11.6	44.2			* 62	17.6
Max Q Clear Time (g_c+I1), s	8.9	29.6			16.5	12.1
Green Ext Time (p_c), s	0.1	4.7			5.3	0.6

### Intersection Summary

HCM 6th Ctrl Delay			21.3			
HCM 6th LOS			C			
























### Notes

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

# HCM 6th Signalized Intersection Summary

## 7: Shirk Road & Goshen Avenue

05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	37	183	226	98	263	56	246	326	117	35	375	61
Future Volume (veh/h)	37	183	226	98	263	56	246	326	117	35	375	61
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	45	223	276	120	321	68	300	398	143	43	457	74
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	287	357	318	148	436	194	327	820	695	96	578	490
Arrive On Green	0.16	0.20	0.20	0.08	0.12	0.12	0.19	0.44	0.44	0.05	0.31	0.31
Sat Flow, veh/h	1767	1763	1572	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	45	223	276	120	321	68	300	398	143	43	457	74
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	2.4	12.6	18.6	7.3	9.6	4.3	18.2	16.7	4.0	2.6	24.6	2.3
Cycle Q Clear(g_c), s	2.4	12.6	18.6	7.3	9.6	4.3	18.2	16.7	4.0	2.6	24.6	2.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	287	357	318	148	436	194	327	820	695	96	578	490
V/C Ratio(X)	0.16	0.62	0.87	0.81	0.74	0.35	0.92	0.49	0.21	0.45	0.79	0.15
Avail Cap(c_a), veh/h	287	451	402	218	1140	508	332	820	695	102	578	490
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.4	39.9	42.2	49.3	46.3	44.0	43.8	21.7	8.1	50.2	34.4	10.0
Incr Delay (d2), s/veh	0.3	1.8	15.0	13.4	2.4	1.1	28.9	2.1	0.7	3.2	10.6	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	5.3	8.1	3.6	4.1	1.7	10.4	7.4	2.1	1.2	12.4	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.7	41.7	57.2	62.8	48.7	45.0	72.7	23.8	8.7	53.4	45.0	10.7
LnGrp LOS	D	D	E	E	D	D	E	C	A	D	D	B
Approach Vol, veh/h		544			509			841			574	
Approach Delay, s/veh		49.4			51.5			38.7			41.2	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.4	53.8	15.7	28.7	25.7	39.5	24.3	20.0				
Change Period (Y+Rc), s	5.4	5.4	6.5	6.5	5.4	5.4	6.5	6.5				
Max Green Setting (Gmax), s	6.3	48.4	13.5	28.0	20.6	34.1	6.1	35.4				
Max Q Clear Time (g_c+l1), s	4.6	18.7	9.3	20.6	20.2	26.6	4.4	11.6				
Green Ext Time (p_c), s	0.0	2.9	0.1	1.6	0.0	1.7	0.0	1.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			44.3									
HCM 6th LOS			D									

HCM 6th AWSC  
1: Shirk Road & SR 198 EB Ramps

05/23/2022

Intersection	
Intersection Delay, s/veh	27.7
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↑	↗	↖	↑	
Traffic Vol, veh/h	302	1	171	0	0	0	0	316	44	383	314	0
Future Vol, veh/h	302	1	171	0	0	0	0	316	44	383	314	0
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
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	318	1	180	0	0	0	0	333	46	403	331	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	23.3	24.6	32.3
HCM LOS	C	C	D

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	316	44	303	171	383	314
LT Vol	0	0	302	0	383	0
Through Vol	316	0	1	0	0	314
RT Vol	0	44	0	171	0	0
Lane Flow Rate	333	46	319	180	403	331
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.704	0.089	0.719	0.344	0.852	0.651
Departure Headway (Hd)	7.62	6.899	8.111	6.885	7.606	7.093
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	476	519	450	526	476	509
Service Time	5.361	4.64	5.811	4.585	5.344	4.831
HCM Lane V/C Ratio	0.7	0.089	0.709	0.342	0.847	0.65
HCM Control Delay	26.6	10.3	29	13.2	40.6	22.2
HCM Lane LOS	D	B	D	B	E	C
HCM 95th-tile Q	5.4	0.3	5.6	1.5	8.7	4.6

HCM 6th AWSC  
2: Shirk Road & SR 198 WB Ramps

05/23/2022

Intersection	
Intersection Delay, s/veh	115.4
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↖	↗	↖	↗			↖	↗
Traffic Vol, veh/h	0	0	0	43	3	279	101	514	0	0	662	199
Future Vol, veh/h	0	0	0	43	3	279	101	514	0	0	662	199
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	48	3	313	110	559	0	0	744	224
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	21	80.3	175.2
HCM LOS	C	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	93%	0%	0%	0%
Vol Thru, %	0%	100%	7%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	101	514	46	279	662	199
LT Vol	101	0	43	0	0	0
Through Vol	0	514	3	0	662	0
RT Vol	0	0	0	279	0	199
Lane Flow Rate	110	559	52	313	744	224
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.229	1.087	0.119	0.622	1.428	0.386
Departure Headway (Hd)	8.031	7.516	8.938	7.725	7.138	6.418
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	450	486	404	470	513	563
Service Time	5.731	5.216	6.638	5.425	4.838	4.118
HCM Lane V/C Ratio	0.244	1.15	0.129	0.666	1.45	0.398
HCM Control Delay	13.1	93.5	12.8	22.3	223.9	13.1
HCM Lane LOS	B	F	B	C	F	B
HCM 95th-tile Q	0.9	16.8	0.4	4.2	34.8	1.8

HCM 6th TWSC  
 3: Shirk Road & Hillsdale Avenue

05/22/2022

Intersection						
Int Delay, s/veh	1.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↖	↗	↕	↕		↙
Traffic Vol, veh/h	35	23	697	100	27	826
Future Vol, veh/h	35	23	697	100	27	826
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	125	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	39	26	774	111	30	918

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1752	774	0	0	885
Stage 1	774	-	-	-	-
Stage 2	978	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	93	397	-	-	761
Stage 1	453	-	-	-	-
Stage 2	363	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	86	397	-	-	761
Mov Cap-2 Maneuver	86	-	-	-	-
Stage 1	453	-	-	-	-
Stage 2	334	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	52.7	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	86	397	761	-
HCM Lane V/C Ratio	-	-	0.452	0.064	0.039	-
HCM Control Delay (s)	-	-	77.6	14.7	9.9	0
HCM Lane LOS	-	-	F	B	A	A
HCM 95th %tile Q(veh)	-	-	1.9	0.2	0.1	-

HCM 6th TWSC  
4: Shirk Road & School Avenue

05/22/2022

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑↑		↑	↑		↑
Traffic Vol, veh/h	12	1	692	28	0	841
Future Vol, veh/h	12	1	692	28	0	841
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	225	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	13	1	760	31	0	924

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1684	760	0	0	791
Stage 1	760	-	-	-	-
Stage 2	924	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	103	404	-	-	825
Stage 1	460	-	-	-	-
Stage 2	385	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	103	404	-	-	825
Mov Cap-2 Maneuver	103	-	-	-	-
Stage 1	460	-	-	-	-
Stage 2	385	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	42.9	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	109	825
HCM Lane V/C Ratio	-	-	0.131	-
HCM Control Delay (s)	-	-	42.9	0
HCM Lane LOS	-	-	E	A
HCM 95th %tile Q(veh)	-	-	0.4	0



Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘↙		↘	↑	↑	↘
Traffic Vol, veh/h	0	0	0	633	806	0
Future Vol, veh/h	0	0	0	633	806	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	0	688	876	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1564	876	876	0	-	0
Stage 1	876	-	-	-	-	-
Stage 2	688	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	122	347	766	-	-	-
Stage 1	406	-	-	-	-	-
Stage 2	497	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	122	347	766	-	-	-
Mov Cap-2 Maneuver	122	-	-	-	-	-
Stage 1	406	-	-	-	-	-
Stage 2	497	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	766	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection						
Int Delay, s/veh	0					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	0	0	29	0	0	23
Future Vol, veh/h	0	0	29	0	0	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	0	32	0	0	25

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	57	32	0	0	32	0
Stage 1	32	-	-	-	-	-
Stage 2	25	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	948	1039	-	-	1574	-
Stage 1	988	-	-	-	-	-
Stage 2	995	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	948	1039	-	-	1574	-
Mov Cap-2 Maneuver	948	-	-	-	-	-
Stage 1	988	-	-	-	-	-
Stage 2	995	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1574	-
HCM Lane V/C Ratio	-	-	-	-
HCM Control Delay (s)	-	-	0	0
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0	0

Intersection							
Int Delay, s/veh	1.3						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	⇐	⇐⇐		⇐	⇐⇐	⇐⇐	
Traffic Vol, veh/h	10	509	52	37	216	20	15
Future Vol, veh/h	10	509	52	37	216	20	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72	72
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	14	707	72	51	300	28	21

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	300	0	0	779	0	1023 390
Stage 1	-	-	-	-	-	771 -
Stage 2	-	-	-	-	-	252 -
Critical Hdwy	6.46	-	-	4.16	-	6.86 6.96
Critical Hdwy Stg 1	-	-	-	-	-	5.86 -
Critical Hdwy Stg 2	-	-	-	-	-	5.86 -
Follow-up Hdwy	2.53	-	-	2.23	-	3.53 3.33
Pot Cap-1 Maneuver	921	-	-	827	-	230 606
Stage 1	-	-	-	-	-	414 -
Stage 2	-	-	-	-	-	764 -
Platoon blocked, %		-	-		-	
Mov Cap-1 Maneuver	921	-	-	827	-	213 606
Mov Cap-2 Maneuver	-	-	-	-	-	213 -
Stage 1	-	-	-	-	-	408 -
Stage 2	-	-	-	-	-	717 -

Approach	EB	WB	NB
HCM Control Delay, s	0.2	1.4	19.6
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	295	921	-	-	827	-
HCM Lane V/C Ratio	0.165	0.015	-	-	0.062	-
HCM Control Delay (s)	19.6	9	-	-	9.6	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.6	0	-	-	0.2	-

# HCM 6th Signalized Intersection Summary

## 5: Shirk Road & Hurley Avenue

05/22/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	50	49	610	80	59	789
Future Volume (veh/h)	50	49	610	80	59	789
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	56	55	685	90	66	887
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	162	144	1195	1012	102	1427
Arrive On Green	0.09	0.09	0.64	0.64	0.06	0.77
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	56	55	685	90	66	887
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	2.4	2.6	16.7	1.7	2.9	17.0
Cycle Q Clear(g_c), s	2.4	2.6	16.7	1.7	2.9	17.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	162	144	1195	1012	102	1427
V/C Ratio(X)	0.35	0.38	0.57	0.09	0.65	0.62
Avail Cap(c_a), veh/h	388	345	1195	1012	256	1427
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.2	34.3	8.1	5.4	37.0	4.1
Incr Delay (d2), s/veh	1.3	1.7	2.0	0.2	6.7	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.0	5.4	0.5	1.4	3.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.4	35.9	10.1	5.6	43.7	6.2
LnGrp LOS	D	D	B	A	D	A
Approach Vol, veh/h			775			953
Approach Delay, s/veh			9.5			8.8
Approach LOS			A			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.0	57.4			67.4	12.7
Change Period (Y+Rc), s	5.4	5.8			* 5.8	5.4
Max Green Setting (Gmax), s	11.6	44.2			* 62	17.6
Max Q Clear Time (g_c+I1), s	4.9	18.7			19.0	4.6
Green Ext Time (p_c), s	0.1	4.8			7.8	0.2

### Intersection Summary

HCM 6th Ctrl Delay	10.7
HCM 6th LOS	B
























### Notes

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

# HCM 6th Signalized Intersection Summary

## 7: Shirk Road & Goshen Avenue

05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	57	305	172	30	122	35	87	402	87	78	539	42
Future Volume (veh/h)	57	305	172	30	122	35	87	402	87	78	539	42
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	70	372	210	37	149	43	106	490	106	95	657	51
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	259	448	249	67	340	152	135	866	734	107	837	710
Arrive On Green	0.15	0.21	0.21	0.04	0.10	0.10	0.08	0.47	0.47	0.06	0.45	0.45
Sat Flow, veh/h	1767	2185	1215	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	70	299	283	37	149	43	106	490	106	95	657	51
Grp Sat Flow(s),veh/h/ln	1767	1763	1637	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	3.7	16.8	17.2	2.1	4.1	2.6	6.1	19.8	2.9	5.5	31.2	1.0
Cycle Q Clear(g_c), s	3.7	16.8	17.2	2.1	4.1	2.6	6.1	19.8	2.9	5.5	31.2	1.0
Prop In Lane	1.00		0.74	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	259	362	336	67	340	152	135	866	734	107	837	710
V/C Ratio(X)	0.27	0.83	0.84	0.55	0.44	0.28	0.79	0.57	0.14	0.88	0.78	0.07
Avail Cap(c_a), veh/h	259	476	442	230	1203	537	351	866	734	107	837	710
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.3	39.5	39.6	49.0	44.2	43.5	47.1	20.0	8.1	48.3	24.2	4.4
Incr Delay (d2), s/veh	0.6	8.9	10.9	6.9	0.9	1.0	9.7	2.7	0.4	52.5	7.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	7.7	7.5	1.0	1.8	1.0	3.0	8.6	1.3	3.9	14.4	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.9	48.3	50.5	55.9	45.1	44.5	56.8	22.7	8.5	100.8	31.5	4.6
LnGrp LOS	D	D	D	E	D	D	E	C	A	F	C	A
Approach Vol, veh/h		652			229			702			803	
Approach Delay, s/veh		48.4			46.7			25.7			38.0	
Approach LOS		D			D			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.7	53.8	10.4	27.8	13.3	52.2	21.7	16.5				
Change Period (Y+Rc), s	5.4	5.4	6.5	6.5	5.4	5.4	6.5	6.5				
Max Green Setting (Gmax), s	6.3	48.4	13.5	28.0	20.6	34.1	6.1	35.4				
Max Q Clear Time (g_c+I1), s	7.5	21.8	4.1	19.2	8.1	33.2	5.7	6.1				
Green Ext Time (p_c), s	0.0	3.4	0.0	2.0	0.2	0.4	0.0	0.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			38.0									
HCM 6th LOS			D									

HCM 6th AWSC  
1: Shirk Road & SR 198 EB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	32.8
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕					↕	↕	↕	↕	
Traffic Vol, veh/h	201	2	95	0	0	0	0	395	96	386	312	0
Future Vol, veh/h	201	2	95	0	0	0	0	395	96	386	312	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	228	2	95	0	0	0	0	449	109	439	355	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	18	37.9	35.2
HCM LOS	C	E	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	99%	0%	100%	0%
Vol Thru, %	100%	0%	1%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	395	96	203	95	386	312
LT Vol	0	0	201	0	386	0
Through Vol	395	0	2	0	0	312
RT Vol	0	96	0	95	0	0
Lane Flow Rate	449	109	231	95	439	355
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.892	0.195	0.54	0.19	0.893	0.671
Departure Headway (Hd)	7.152	6.435	8.426	7.197	7.329	6.817
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	507	557	431	502	496	532
Service Time	4.888	4.171	6.126	4.897	5.064	4.552
HCM Lane V/C Ratio	0.886	0.196	0.536	0.189	0.885	0.667
HCM Control Delay	44.5	10.7	20.6	11.6	45.5	22.4
HCM Lane LOS	E	B	C	B	E	C
HCM 95th-tile Q	10	0.7	3.1	0.7	9.9	5

HCM 6th AWSC  
2: Shirk Road & SR 198 WB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	127
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↖	↗	↖	↗			↖	↗
Traffic Vol, veh/h	0	0	0	57	2	427	154	435	0	0	637	323
Future Vol, veh/h	0	0	0	57	2	427	154	435	0	0	637	323
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	64	2	480	167	473	0	0	716	363
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	60.5	64.1	198
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	97%	0%	0%	0%
Vol Thru, %	0%	100%	3%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	154	435	59	427	637	323
LT Vol	154	0	57	0	0	0
Through Vol	0	435	2	0	637	0
RT Vol	0	0	0	427	0	323
Lane Flow Rate	167	473	66	480	716	363
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.388	1.03	0.158	0.985	1.564	0.72
Departure Headway (Hd)	8.939	8.419	9.225	8.001	7.985	7.259
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	405	435	391	456	458	501
Service Time	6.639	6.119	6.925	5.701	5.685	4.959
HCM Lane V/C Ratio	0.412	1.087	0.169	1.053	1.563	0.725
HCM Control Delay	17.2	80.7	13.6	67	285	26.5
HCM Lane LOS	C	F	B	F	F	D
HCM 95th-tile Q	1.8	13.7	0.6	12.5	38.6	5.8

HCM 6th TWSC  
3: Shirk Road & Hillsdale Avenue

05/22/2022

Intersection						
Int Delay, s/veh	8.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↑		↙
Traffic Vol, veh/h	63	24	804	55	24	901
Future Vol, veh/h	63	24	804	55	24	901
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	125	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	70	27	893	61	27	1001

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1948	893	0	0	954
Stage 1	893	-	-	-	-
Stage 2	1055	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	71	339	-	-	716
Stage 1	398	-	-	-	-
Stage 2	333	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	~ 65	339	-	-	716
Mov Cap-2 Maneuver	~ 65	-	-	-	-
Stage 1	398	-	-	-	-
Stage 2	305	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	180.1	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	65	339	716
HCM Lane V/C Ratio	-	-	1.077	0.079	0.037
HCM Control Delay (s)	-	-	242.4	16.5	10.2
HCM Lane LOS	-	-	F	C	B
HCM 95th %tile Q(veh)	-	-	5.4	0.3	0.1

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



HCM 6th TWSC  
4: Shirk Road & School Avenue

05/22/2022

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑	↑		↓
Traffic Vol, veh/h	28	7	809	17	8	896
Future Vol, veh/h	28	7	809	17	8	896
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	225	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	31	8	889	19	9	985

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1892	889	0	0	908
Stage 1	889	-	-	-	-
Stage 2	1003	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	76	341	-	-	746
Stage 1	400	-	-	-	-
Stage 2	353	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	74	341	-	-	746
Mov Cap-2 Maneuver	74	-	-	-	-
Stage 1	400	-	-	-	-
Stage 2	343	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	74.5	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	88	746
HCM Lane V/C Ratio	-	-	0.437	0.012
HCM Control Delay (s)	-	-	74.5	9.9
HCM Lane LOS	-	-	F	A
HCM 95th %tile Q(veh)	-	-	1.8	0

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	↔
Traffic Vol, veh/h	0	105	0	799	726	39
Future Vol, veh/h	0	105	0	799	726	39
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	114	0	868	789	42

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1657	789	831	0	-	0
Stage 1	789	-	-	-	-	-
Stage 2	868	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	107	389	797	-	-	-
Stage 1	446	-	-	-	-	-
Stage 2	409	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	107	389	797	-	-	-
Mov Cap-2 Maneuver	107	-	-	-	-	-
Stage 1	446	-	-	-	-	-
Stage 2	409	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	797	-	389	-	-
HCM Lane V/C Ratio	-	-	0.293	-	-
HCM Control Delay (s)	0	-	18.1	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	1.2	-	-

HCM 6th TWSC  
8: Road 88 & Project Driveway

05/22/2022

Intersection						
Int Delay, s/veh	3.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	26	23	0	4	19
Future Vol, veh/h	0	26	23	0	4	19
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	28	25	0	4	21

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	54	25	0	0	25	0
Stage 1	25	-	-	-	-	-
Stage 2	29	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	952	1048	-	-	1583	-
Stage 1	995	-	-	-	-	-
Stage 2	991	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	949	1048	-	-	1583	-
Mov Cap-2 Maneuver	949	-	-	-	-	-
Stage 1	995	-	-	-	-	-
Stage 2	988	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	1.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1048	1583
HCM Lane V/C Ratio	-	-	0.027	0.003
HCM Control Delay (s)	-	-	8.5	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection							
Int Delay, s/veh	1.9						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	⬇	⬆		⬆	⬆	⬆	
Traffic Vol, veh/h	3	356	83	89	447	21	38
Future Vol, veh/h	3	356	83	89	447	21	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72	72
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	4	494	115	124	621	29	53

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	621	0	0	609	0	1119 305
Stage 1	-	-	-	-	-	560 -
Stage 2	-	-	-	-	-	559 -
Critical Hdwy	6.46	-	-	4.16	-	6.86 6.96
Critical Hdwy Stg 1	-	-	-	-	-	5.86 -
Critical Hdwy Stg 2	-	-	-	-	-	5.86 -
Follow-up Hdwy	2.53	-	-	2.23	-	3.53 3.33
Pot Cap-1 Maneuver	576	-	-	959	-	199 688
Stage 1	-	-	-	-	-	533 -
Stage 2	-	-	-	-	-	533 -
Platoon blocked, %		-	-		-	
Mov Cap-1 Maneuver	576	-	-	959	-	172 688
Mov Cap-2 Maneuver	-	-	-	-	-	172 -
Stage 1	-	-	-	-	-	529 -
Stage 2	-	-	-	-	-	464 -

Approach	EB	WB	NB
HCM Control Delay, s	0.1	1.5	19.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	333	576	-	-	959	-
HCM Lane V/C Ratio	0.246	0.007	-	-	0.129	-
HCM Control Delay (s)	19.3	11.3	-	-	9.3	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	0.9	0	-	-	0.4	-

# HCM 6th Signalized Intersection Summary

## 5: Shirk Road & Hurley Avenue

05/22/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	192	151	724	88	142	716
Future Volume (veh/h)	192	151	724	88	142	716
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	216	170	813	99	160	804
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	263	234	1014	860	195	1336
Arrive On Green	0.15	0.15	0.55	0.55	0.11	0.72
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	216	170	813	99	160	804
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	10.1	8.8	30.2	2.6	7.6	18.3
Cycle Q Clear(g_c), s	10.1	8.8	30.2	2.6	7.6	18.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	263	234	1014	860	195	1336
V/C Ratio(X)	0.82	0.73	0.80	0.12	0.82	0.60
Avail Cap(c_a), veh/h	364	324	1014	860	240	1336
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.3	34.7	15.6	9.4	37.2	5.9
Incr Delay (d2), s/veh	10.1	5.0	6.7	0.3	16.8	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	3.5	12.3	0.8	4.0	5.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.4	39.7	22.3	9.7	54.0	7.9
LnGrp LOS	D	D	C	A	D	A
Approach Vol, veh/h	386		912			964
Approach Delay, s/veh	42.9		20.9			15.6
Approach LOS	D		C			B
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	14.8	52.6			67.4	18.1
Change Period (Y+Rc), s	5.4	5.8			* 5.8	5.4
Max Green Setting (Gmax), s	11.6	44.2			* 62	17.6
Max Q Clear Time (g_c+I1), s	9.6	32.2			20.3	12.1
Green Ext Time (p_c), s	0.1	4.5			6.6	0.6

### Intersection Summary

HCM 6th Ctrl Delay			22.4			
HCM 6th LOS			C			

### Notes

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

# HCM 6th Signalized Intersection Summary

## 7: Shirk Road & Goshen Avenue

05/22/2022

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	44	189	232	100	266	58	280	326	117	35	377	61
Future Volume (veh/h)	44	189	232	100	266	58	280	326	117	35	377	61
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	54	230	283	122	324	71	341	398	143	43	460	74
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	78	364	325	139	849	379	364	850	720	71	542	459
Arrive On Green	0.04	0.21	0.21	0.08	0.24	0.24	0.21	0.46	0.46	0.04	0.29	0.29
Sat Flow, veh/h	1767	1763	1572	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	54	230	283	122	324	71	341	398	143	43	460	74
Grp Sat Flow(s),veh/h/ln	1767	1763	1572	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	3.3	13.1	19.1	7.5	8.4	3.9	20.8	16.2	3.9	2.6	25.6	3.8
Cycle Q Clear(g_c), s	3.3	13.1	19.1	7.5	8.4	3.9	20.8	16.2	3.9	2.6	25.6	3.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	78	364	325	139	849	379	364	850	720	71	542	459
V/C Ratio(X)	0.69	0.63	0.87	0.88	0.38	0.19	0.94	0.47	0.20	0.61	0.85	0.16
Avail Cap(c_a), veh/h	102	450	402	139	974	435	364	850	720	140	542	459
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.7	39.7	42.1	50.0	34.8	33.1	42.8	20.5	7.6	51.8	36.6	28.9
Incr Delay (d2), s/veh	12.6	2.0	15.8	43.1	0.3	0.2	31.2	1.9	0.6	8.2	15.3	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	5.5	8.4	4.8	3.4	1.4	12.0	7.1	2.0	1.3	13.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.3	41.6	57.9	93.1	35.1	33.3	74.1	22.4	8.2	60.0	51.9	29.6
LnGrp LOS	E	D	E	F	D	C	E	C	A	E	D	C
Approach Vol, veh/h		567			517			882			577	
Approach Delay, s/veh		51.9			48.5			40.1			49.6	
Approach LOS		D			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.8	55.6	15.1	29.1	28.0	37.4	11.3	32.9				
Change Period (Y+Rc), s	5.4	5.4	6.5	6.5	5.4	5.4	6.5	6.5				
Max Green Setting (Gmax), s	8.7	45.9	8.6	28.0	22.6	32.0	6.3	30.3				
Max Q Clear Time (g_c+I1), s	4.6	18.2	9.5	21.1	22.8	27.6	5.3	10.4				
Green Ext Time (p_c), s	0.0	2.8	0.0	1.6	0.0	1.2	0.0	1.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			46.6									
HCM 6th LOS			D									

HCM 6th AWSC  
1: Shirk Road & SR 198 EB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	49.1
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↑	↗	↖	↑	
Traffic Vol, veh/h	332	1	171	0	0	0	0	324	44	422	318	0
Future Vol, veh/h	332	1	171	0	0	0	0	324	44	422	318	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	377	1	171	0	0	0	0	368	50	480	361	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	36.4	34.7	64.5
HCM LOS	E	D	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	324	44	333	171	422	318
LT Vol	0	0	332	0	422	0
Through Vol	324	0	1	0	0	318
RT Vol	0	44	0	171	0	0
Lane Flow Rate	368	50	378	171	480	361
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.815	0.101	0.873	0.336	1.07	0.755
Departure Headway (Hd)	8.131	7.407	8.427	7.196	8.034	7.519
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	449	487	431	503	456	484
Service Time	5.831	5.107	6.127	4.896	5.734	5.219
HCM Lane V/C Ratio	0.82	0.103	0.877	0.34	1.053	0.746
HCM Control Delay	37.9	10.9	46.8	13.5	90.6	29.9
HCM Lane LOS	E	B	E	B	F	D
HCM 95th-tile Q	7.6	0.3	8.9	1.5	15.5	6.4

HCM 6th AWSC  
2: Shirk Road & SR 198 WB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	156.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↖	↗	↖	↗			↖	↗
Traffic Vol, veh/h	0	0	0	43	3	346	101	551	0	0	706	216
Future Vol, veh/h	0	0	0	43	3	346	101	551	0	0	706	216
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	48	3	389	110	599	0	0	793	243
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	30.3	124.2	232.7
HCM LOS	D	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	93%	0%	0%	0%
Vol Thru, %	0%	100%	7%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	101	551	46	346	706	216
LT Vol	101	0	43	0	0	0
Through Vol	0	551	3	0	706	0
RT Vol	0	0	0	346	0	216
Lane Flow Rate	110	599	52	389	793	243
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.24	1.224	0.119	0.769	1.6	0.442
Departure Headway (Hd)	8.51	7.992	9.192	7.974	7.609	6.886
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	425	461	392	459	484	527
Service Time	6.21	5.692	6.892	5.674	5.309	4.586
HCM Lane V/C Ratio	0.259	1.299	0.133	0.847	1.638	0.461
HCM Control Delay	13.9	144.4	13.1	32.6	299.3	14.9
HCM Lane LOS	B	F	B	D	F	B
HCM 95th-tile Q	0.9	22	0.4	6.6	42.2	2.2



HCM 6th TWSC  
3: Shirk Road & Hillsdale Avenue

05/22/2022

Intersection						
Int Delay, s/veh	2.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑	↗		↘
Traffic Vol, veh/h	35	23	800	100	27	887
Future Vol, veh/h	35	23	800	100	27	887
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	125	-	100	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	39	26	889	111	30	986

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1935	889	0	0	1000
Stage 1	889	-	-	-	-
Stage 2	1046	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	72	341	-	-	688
Stage 1	400	-	-	-	-
Stage 2	337	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	65	341	-	-	688
Mov Cap-2 Maneuver	65	-	-	-	-
Stage 1	400	-	-	-	-
Stage 2	305	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	80.1	0	0.3
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	65	341	688	-
HCM Lane V/C Ratio	-	-	0.598	0.075	0.044	-
HCM Control Delay (s)	-	-	121.9	16.4	10.5	0
HCM Lane LOS	-	-	F	C	B	A
HCM 95th %tile Q(veh)	-	-	2.5	0.2	0.1	-

HCM 6th TWSC  
4: Shirk Road & School Avenue

05/22/2022

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑	↑		↓
Traffic Vol, veh/h	12	1	795	28	0	902
Future Vol, veh/h	12	1	795	28	0	902
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	225	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	13	1	874	31	0	991

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1865	874	0	0	905
Stage 1	874	-	-	-	-
Stage 2	991	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13
Critical Hdwy Stg 1	5.43	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227
Pot Cap-1 Maneuver	79	348	-	-	747
Stage 1	407	-	-	-	-
Stage 2	358	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	79	348	-	-	747
Mov Cap-2 Maneuver	79	-	-	-	-
Stage 1	407	-	-	-	-
Stage 2	358	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	56.4	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	84	747
HCM Lane V/C Ratio	-	-	0.17	-
HCM Control Delay (s)	-	-	56.4	0
HCM Lane LOS	-	-	F	A
HCM 95th %tile Q(veh)	-	-	0.6	0

HCM 6th TWSC  
6: Shirk Road & Allen Avenue

05/22/2022

Intersection						
Int Delay, s/veh	0.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑	↑	↔
Traffic Vol, veh/h	0	70	0	736	794	132
Future Vol, veh/h	0	70	0	736	794	132
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	200	-	-	200
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	76	0	800	863	143

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1663	863	1006	0	-	0
Stage 1	863	-	-	-	-	-
Stage 2	800	-	-	-	-	-
Critical Hdwy	6.43	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	2.227	-	-	-
Pot Cap-1 Maneuver	106	353	685	-	-	-
Stage 1	411	-	-	-	-	-
Stage 2	441	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	106	353	685	-	-	-
Mov Cap-2 Maneuver	106	-	-	-	-	-
Stage 1	411	-	-	-	-	-
Stage 2	441	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	685	-	353	-	-
HCM Lane V/C Ratio	-	-	0.216	-	-
HCM Control Delay (s)	0	-	18	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.8	-	-

HCM 6th TWSC  
8: Road 88 & Project Driveway

05/22/2022

Intersection						
Int Delay, s/veh	3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	TT		TT			TT
Traffic Vol, veh/h	0	17	29	0	15	23
Future Vol, veh/h	0	17	29	0	15	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	0	18	32	0	16	25

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	89	32	0	0	32	0
Stage 1	32	-	-	-	-	-
Stage 2	57	-	-	-	-	-
Critical Hdwy	6.43	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.527	3.327	-	-	2.227	-
Pot Cap-1 Maneuver	909	1039	-	-	1574	-
Stage 1	988	-	-	-	-	-
Stage 2	963	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	900	1039	-	-	1574	-
Mov Cap-2 Maneuver	900	-	-	-	-	-
Stage 1	988	-	-	-	-	-
Stage 2	953	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	8.5	0	2.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	1039	1574
HCM Lane V/C Ratio	-	-	0.018	0.01
HCM Control Delay (s)	-	-	8.5	7.3
HCM Lane LOS	-	-	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0

Intersection							
Int Delay, s/veh	1.8						
Movement	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	⬇	⬆		⬆	⬆	⬆	
Traffic Vol, veh/h	10	509	60	44	216	25	28
Future Vol, veh/h	10	509	60	44	216	25	28
Conflicting Peds, #/hr	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	-	None	-	None	-	None
Storage Length	200	-	-	200	-	0	-
Veh in Median Storage, #	-	0	-	-	0	0	-
Grade, %	-	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72	72
Heavy Vehicles, %	3	3	3	3	3	3	3
Mvmt Flow	14	707	83	61	300	35	39

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	300	0	0	790	0	1049 395
Stage 1	-	-	-	-	-	777 -
Stage 2	-	-	-	-	-	272 -
Critical Hdwy	6.46	-	-	4.16	-	6.86 6.96
Critical Hdwy Stg 1	-	-	-	-	-	5.86 -
Critical Hdwy Stg 2	-	-	-	-	-	5.86 -
Follow-up Hdwy	2.53	-	-	2.23	-	3.53 3.33
Pot Cap-1 Maneuver	921	-	-	819	-	221 601
Stage 1	-	-	-	-	-	411 -
Stage 2	-	-	-	-	-	746 -
Platoon blocked, %		-	-		-	
Mov Cap-1 Maneuver	921	-	-	819	-	202 601
Mov Cap-2 Maneuver	-	-	-	-	-	202 -
Stage 1	-	-	-	-	-	405 -
Stage 2	-	-	-	-	-	691 -

Approach	EB	WB	NB
HCM Control Delay, s	0.2	1.7	20.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBU	EBT	EBR	WBL	WBT
Capacity (veh/h)	311	921	-	-	819	-
HCM Lane V/C Ratio	0.237	0.015	-	-	0.075	-
HCM Control Delay (s)	20.1	9	-	-	9.8	-
HCM Lane LOS	C	A	-	-	A	-
HCM 95th %tile Q(veh)	0.9	0	-	-	0.2	-

# HCM 6th Signalized Intersection Summary

## 5: Shirk Road & Hurley Avenue

05/22/2022



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	50	63	713	80	63	850
Future Volume (veh/h)	50	63	713	80	63	850
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	56	71	801	90	71	955
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3
Cap, veh/h	166	147	1188	1007	105	1423
Arrive On Green	0.09	0.09	0.64	0.64	0.06	0.77
Sat Flow, veh/h	1767	1572	1856	1572	1767	1856
Grp Volume(v), veh/h	56	71	801	90	71	955
Grp Sat Flow(s),veh/h/ln	1767	1572	1856	1572	1767	1856
Q Serve(g_s), s	2.4	3.4	22.0	1.8	3.2	19.9
Cycle Q Clear(g_c), s	2.4	3.4	22.0	1.8	3.2	19.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	166	147	1188	1007	105	1423
V/C Ratio(X)	0.34	0.48	0.67	0.09	0.68	0.67
Avail Cap(c_a), veh/h	387	345	1188	1007	255	1423
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.1	34.5	9.1	5.5	37.0	4.5
Incr Delay (d2), s/veh	1.2	2.4	3.1	0.2	7.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	1.4	7.3	0.5	1.5	4.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.3	37.0	12.2	5.7	44.4	7.0
LnGrp LOS	D	D	B	A	D	A
Approach Vol, veh/h	127		891			1026
Approach Delay, s/veh	36.2		11.6			9.6
Approach LOS	D		B			A
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	10.2	57.2			67.4	12.9
Change Period (Y+Rc), s	5.4	5.8			* 5.8	5.4
Max Green Setting (Gmax), s	11.6	44.2			* 62	17.6
Max Q Clear Time (g_c+I1), s	5.2	24.0			21.9	5.4
Green Ext Time (p_c), s	0.1	5.6			8.9	0.2

### Intersection Summary

HCM 6th Ctrl Delay			12.1			
HCM 6th LOS			B			
























### Notes

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

# HCM 6th Signalized Intersection Summary

## 7: Shirk Road & Goshen Avenue

05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	309	177	38	130	35	205	402	87	78	546	42
Future Volume (veh/h)	61	309	177	38	130	35	205	402	87	78	546	42
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	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	74	377	216	46	159	43	250	490	106	95	666	51
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	94	445	251	72	678	303	260	845	716	155	734	622
Arrive On Green	0.05	0.21	0.21	0.04	0.19	0.19	0.15	0.46	0.46	0.09	0.40	0.40
Sat Flow, veh/h	1767	2172	1226	1767	3526	1572	1767	1856	1572	1767	1856	1572
Grp Volume(v), veh/h	74	305	288	46	159	43	250	490	106	95	666	51
Grp Sat Flow(s),veh/h/ln	1767	1763	1635	1767	1763	1572	1767	1856	1572	1767	1856	1572
Q Serve(g_s), s	4.7	18.7	19.2	2.9	4.3	1.9	15.8	22.0	4.4	5.8	38.1	2.3
Cycle Q Clear(g_c), s	4.7	18.7	19.2	2.9	4.3	1.9	15.8	22.0	4.4	5.8	38.1	2.3
Prop In Lane	1.00		0.75	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	94	361	335	72	678	303	260	845	716	155	734	622
V/C Ratio(X)	0.79	0.84	0.86	0.64	0.23	0.14	0.96	0.58	0.15	0.61	0.91	0.08
Avail Cap(c_a), veh/h	94	454	421	94	907	405	260	845	716	155	734	622
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.7	43.1	43.2	53.2	38.5	21.8	47.7	22.7	17.9	49.5	32.1	21.3
Incr Delay (d2), s/veh	34.5	11.3	13.6	9.1	0.2	0.2	44.8	2.9	0.4	6.9	17.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	8.8	8.6	1.4	1.8	0.9	10.0	9.8	1.6	2.8	19.6	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	87.2	54.3	56.8	62.4	38.7	22.1	92.5	25.6	18.4	56.4	49.1	21.5
LnGrp LOS	F	D	E	E	D	C	F	C	B	E	D	C
Approach Vol, veh/h		667			248			846			812	
Approach Delay, s/veh		59.1			40.2			44.5			48.2	
Approach LOS		E			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	15.3	56.7	11.1	29.6	22.0	50.0	12.5	28.2				
Change Period (Y+Rc), s	5.4	5.4	6.5	6.5	5.4	5.4	6.5	6.5				
Max Green Setting (Gmax), s	9.9	51.3	6.0	29.0	16.6	44.6	6.0	29.0				
Max Q Clear Time (g_c+I1), s	7.8	24.0	4.9	21.2	17.8	40.1	6.7	6.3				
Green Ext Time (p_c), s	0.0	3.4	0.0	2.0	0.0	1.8	0.0	0.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			49.0									
HCM 6th LOS			D									

# 10-YEAR HORIZON CONDITIONS



HCM 6th AWSC  
1: Shirk Road & SR 198 EB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	42.6
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕					↕	↕	↕	↕	
Traffic Vol, veh/h	215	3	108	0	0	0	0	446	109	365	345	0
Future Vol, veh/h	215	3	108	0	0	0	0	446	109	365	345	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	244	3	108	0	0	0	0	507	124	415	392	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	19.5	64.1	36
HCM LOS	C	F	E

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	99%	0%	100%	0%
Vol Thru, %	100%	0%	1%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	446	109	218	108	365	345
LT Vol	0	0	215	0	365	0
Through Vol	446	0	3	0	0	345
RT Vol	0	109	0	108	0	0
Lane Flow Rate	507	124	248	108	415	392
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	1.035	0.228	0.584	0.218	0.865	0.762
Departure Headway (Hd)	7.351	6.632	8.618	7.388	7.645	7.132
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	497	545	421	489	477	510
Service Time	5.051	4.332	6.318	5.088	5.345	4.832
HCM Lane V/C Ratio	1.02	0.228	0.589	0.221	0.87	0.769
HCM Control Delay	77	11.3	22.7	12.1	42.4	29.2
HCM Lane LOS	F	B	C	B	E	D
HCM 95th-tile Q	14.9	0.9	3.6	0.8	9	6.7

HCM 6th AWSC  
2: Shirk Road & SR 198 WB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	138.4
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↖	↗	↖	↗			↖	↗
Traffic Vol, veh/h	0	0	0	65	3	459	176	477	0	0	641	333
Future Vol, veh/h	0	0	0	65	3	459	176	477	0	0	641	333
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	73	3	516	191	518	0	0	720	374
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	82.2	91.3	199.3
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	96%	0%	0%	0%
Vol Thru, %	0%	100%	4%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	176	477	68	459	641	333
LT Vol	176	0	65	0	0	0
Through Vol	0	477	3	0	641	0
RT Vol	0	0	0	459	0	333
Lane Flow Rate	191	518	76	516	720	374
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.449	1.145	0.184	1.073	1.568	0.742
Departure Headway (Hd)	9.116	8.595	9.41	8.19	8.294	7.566
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	398	425	384	449	447	483
Service Time	6.816	6.295	7.11	5.89	5.994	5.266
HCM Lane V/C Ratio	0.48	1.219	0.198	1.149	1.611	0.774
HCM Control Delay	19	118	14.2	92.3	287.7	29
HCM Lane LOS	C	F	B	F	F	D
HCM 95th-tile Q	2.3	17.7	0.7	15.5	37.6	6.2

HCM 6th AWSC  
1: Shirk Road & SR 198 EB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	57.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↖	↗	↖	↗	
Traffic Vol, veh/h	340	1	195	0	0	0	0	358	50	433	356	0
Future Vol, veh/h	340	1	195	0	0	0	0	358	50	433	356	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	386	1	195	0	0	0	0	407	57	492	405	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	38.6	46.7	75.8
HCM LOS	E	E	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	358	50	341	195	433	356
LT Vol	0	0	340	0	433	0
Through Vol	358	0	1	0	0	356
RT Vol	0	50	0	195	0	0
Lane Flow Rate	407	57	388	195	492	405
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.905	0.115	0.894	0.385	1.11	0.855
Departure Headway (Hd)	8.304	7.58	8.567	7.333	8.122	7.605
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	439	476	426	493	448	473
Service Time	6.004	5.28	6.267	5.033	5.902	5.385
HCM Lane V/C Ratio	0.927	0.12	0.911	0.396	1.098	0.856
HCM Control Delay	51.6	11.3	50.8	14.5	104.3	41.2
HCM Lane LOS	F	B	F	B	F	E
HCM 95th-tile Q	9.8	0.4	9.4	1.8	16.9	8.7

HCM 6th AWSC  
2: Shirk Road & SR 198 WB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	173.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↖	↗	↖	↗			↖	↗
Traffic Vol, veh/h	0	0	0	49	4	312	116	579	0	0	748	224
Future Vol, veh/h	0	0	0	49	4	312	116	579	0	0	748	224
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	55	4	351	126	629	0	0	840	252
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	25.2	135.7	255.5
HCM LOS	D	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	92%	0%	0%	0%
Vol Thru, %	0%	100%	8%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	116	579	53	312	748	224
LT Vol	116	0	49	0	0	0
Through Vol	0	579	4	0	748	0
RT Vol	0	0	0	312	0	224
Lane Flow Rate	126	629	60	351	840	252
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.271	1.265	0.137	0.695	1.666	0.45
Departure Headway (Hd)	8.431	7.914	9.288	8.074	7.507	6.785
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	429	466	388	452	496	534
Service Time	6.131	5.614	6.988	5.774	5.207	4.485
HCM Lane V/C Ratio	0.294	1.35	0.155	0.777	1.694	0.472
HCM Control Delay	14.2	160	13.5	27.2	327.6	14.9
HCM Lane LOS	B	F	B	D	F	B
HCM 95th-tile Q	1.1	24	0.5	5.2	46.4	2.3

HCM 6th AWSC  
1: Shirk Road & SR 198 EB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	52.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕					↕	↕	↕	↕	
Traffic Vol, veh/h	223	3	108	0	0	0	0	448	109	424	352	0
Future Vol, veh/h	223	3	108	0	0	0	0	448	109	424	352	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	253	3	108	0	0	0	0	509	124	482	400	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	20.5	67.9	54.7
HCM LOS	C	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	99%	0%	100%	0%
Vol Thru, %	100%	0%	1%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	448	109	226	108	424	352
LT Vol	0	0	223	0	424	0
Through Vol	448	0	3	0	0	352
RT Vol	0	109	0	108	0	0
Lane Flow Rate	509	124	257	108	482	400
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	1.048	0.23	0.607	0.222	1.017	0.787
Departure Headway (Hd)	7.523	6.804	8.733	7.502	7.711	7.197
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	484	531	416	482	472	508
Service Time	5.223	4.504	6.433	5.202	5.411	4.897
HCM Lane V/C Ratio	1.052	0.234	0.618	0.224	1.021	0.787
HCM Control Delay	81.6	11.5	24	12.3	73.8	31.6
HCM Lane LOS	F	B	C	B	F	D
HCM 95th-tile Q	15.2	0.9	3.9	0.8	13.8	7.2

HCM 6th AWSC  
2: Shirk Road & SR 198 WB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	169.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↖	↗	↖	↗			↖	↗
Traffic Vol, veh/h	0	0	0	65	3	478	176	488	0	0	706	359
Future Vol, veh/h	0	0	0	65	3	478	176	488	0	0	706	359
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	73	3	537	191	530	0	0	793	403
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	98.2	100.5	248.6
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	96%	0%	0%	0%
Vol Thru, %	0%	100%	4%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	176	488	68	478	706	359
LT Vol	176	0	65	0	0	0
Through Vol	0	488	3	0	706	0
RT Vol	0	0	0	478	0	359
Lane Flow Rate	191	530	76	537	793	403
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.45	1.176	0.185	1.125	1.728	0.797
Departure Headway (Hd)	9.269	8.748	9.583	8.362	8.424	7.695
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	392	419	377	440	436	472
Service Time	6.969	6.448	7.283	6.062	6.124	5.395
HCM Lane V/C Ratio	0.487	1.265	0.202	1.22	1.819	0.854
HCM Control Delay	19.3	129.8	14.4	110.1	357.6	34.3
HCM Lane LOS	C	F	B	F	F	D
HCM 95th-tile Q	2.3	18.7	0.7	17.3	45	7.3

HCM 6th AWSC  
1: Shirk Road & SR 198 EB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	62.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗					↖	↗	↖	↗	
Traffic Vol, veh/h	369	1	195	0	0	0	0	365	50	424	352	0
Future Vol, veh/h	369	1	195	0	0	0	0	365	50	424	352	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	419	1	195	0	0	0	0	415	57	482	400	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	50.5	52.5	76.7
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	365	50	370	195	424	352
LT Vol	0	0	369	0	424	0
Through Vol	365	0	1	0	0	352
RT Vol	0	50	0	195	0	0
Lane Flow Rate	415	57	420	195	482	400
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.936	0.117	0.974	0.387	1.109	0.863
Departure Headway (Hd)	8.434	7.709	8.595	7.361	8.285	7.768
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	431	468	425	491	438	464
Service Time	6.134	5.409	6.295	5.061	6.074	5.556
HCM Lane V/C Ratio	0.963	0.122	0.988	0.397	1.1	0.862
HCM Control Delay	58.1	11.4	67.1	14.6	104.7	43
HCM Lane LOS	F	B	F	B	F	E
HCM 95th-tile Q	10.7	0.4	11.7	1.8	16.6	8.9

HCM 6th AWSC  
2: Shirk Road & SR 198 WB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	218.4
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↖	↗	↖	↗			↖	↗
Traffic Vol, veh/h	0	0	0	49	4	378	116	615	0	0	792	241
Future Vol, veh/h	0	0	0	49	4	378	116	615	0	0	792	241
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	55	4	425	126	668	0	0	890	271
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	38.6	185.7	315.8
HCM LOS	E	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	92%	0%	0%	0%
Vol Thru, %	0%	100%	8%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	116	615	53	378	792	241
LT Vol	116	0	49	0	0	0
Through Vol	0	615	4	0	792	0
RT Vol	0	0	0	378	0	241
Lane Flow Rate	126	668	60	425	890	271
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.282	1.403	0.138	0.844	1.843	0.508
Departure Headway (Hd)	8.882	8.362	9.517	8.298	7.977	7.251
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	407	441	379	442	463	501
Service Time	6.582	6.062	7.217	5.998	5.677	4.951
HCM Lane V/C Ratio	0.31	1.515	0.158	0.962	1.922	0.541
HCM Control Delay	15	217.9	13.7	42.1	406.7	17.2
HCM Lane LOS	B	F	B	E	F	C
HCM 95th-tile Q	1.1	29.4	0.5	8.2	53.4	2.8



# 20-YEAR HORIZON CONDITIONS

HCM 6th AWSC  
1: Shirk Road & SR 198 EB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	98.6
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕					↕	↕	↕	↕	
Traffic Vol, veh/h	260	3	135	0	0	0	0	554	137	444	427	0
Future Vol, veh/h	260	3	135	0	0	0	0	554	137	444	427	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	295	3	135	0	0	0	0	630	156	505	485	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	26.4	157.8	83.3
HCM LOS	D	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	99%	0%	100%	0%
Vol Thru, %	100%	0%	1%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	554	137	263	135	444	427
LT Vol	0	0	260	0	444	0
Through Vol	554	0	3	0	0	427
RT Vol	0	137	0	135	0	0
Lane Flow Rate	630	156	299	135	505	485
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	1.348	0.303	0.719	0.28	1.095	0.985
Departure Headway (Hd)	7.957	7.235	9.205	7.967	8.315	7.798
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	460	500	395	454	439	471
Service Time	5.657	4.935	6.905	5.667	6.015	5.498
HCM Lane V/C Ratio	1.37	0.312	0.757	0.297	1.15	1.03
HCM Control Delay	193.6	13	32.2	13.7	99.9	66
HCM Lane LOS	F	B	D	B	F	F
HCM 95th-tile Q	27.9	1.3	5.5	1.1	16.1	12.6

HCM 6th AWSC  
2: Shirk Road & SR 198 WB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	239.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↖	↗	↖	↗			↖	↗
Traffic Vol, veh/h	0	0	0	82	3	566	221	588	0	0	784	408
Future Vol, veh/h	0	0	0	82	3	566	221	588	0	0	784	408
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	92	3	636	240	639	0	0	881	458
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	181.9	177	312.6
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	96%	0%	0%	0%
Vol Thru, %	0%	100%	4%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	221	588	85	566	784	408
LT Vol	221	0	82	0	0	0
Through Vol	0	588	3	0	784	0
RT Vol	0	0	0	566	0	408
Lane Flow Rate	240	639	96	636	881	458
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.573	1.435	0.237	1.369	1.928	0.914
Departure Headway (Hd)	9.715	9.191	10.363	9.137	9.103	8.368
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	375	403	349	401	405	436
Service Time	7.415	6.891	8.063	6.837	6.803	6.068
HCM Lane V/C Ratio	0.64	1.586	0.275	1.586	2.175	1.05
HCM Control Delay	24.7	234.3	16.3	206.8	447.5	53.5
HCM Lane LOS	C	F	C	F	F	F
HCM 95th-tile Q	3.4	28.7	0.9	26	51.4	10

HCM 6th AWSC  
1: Shirk Road & SR 198 EB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	130.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕					↕	↕	↕	↕	
Traffic Vol, veh/h	417	2	245	0	0	0	0	444	63	536	443	0
Future Vol, veh/h	417	2	245	0	0	0	0	444	63	536	443	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	474	2	245	0	0	0	0	505	72	609	503	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	80.9	118.3	168.6
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	444	63	419	245	536	443
LT Vol	0	0	417	0	536	0
Through Vol	444	0	2	0	0	443
RT Vol	0	63	0	245	0	0
Lane Flow Rate	505	72	476	245	609	503
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	1.181	0.154	1.127	0.499	1.414	1.097
Departure Headway (Hd)	9.15	8.423	8.946	7.709	8.91	8.389
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	399	429	409	470	414	438
Service Time	6.85	6.123	6.646	5.409	6.61	6.089
HCM Lane V/C Ratio	1.266	0.168	1.164	0.521	1.471	1.148
HCM Control Delay	133.3	12.7	113.4	17.8	224.5	100.9
HCM Lane LOS	F	B	F	C	F	F
HCM 95th-tile Q	18.4	0.5	16.6	2.7	28.4	16.1

HCM 6th AWSC  
2: Shirk Road & SR 198 WB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	309.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↖	↗	↖	↗			↖	↗
Traffic Vol, veh/h	0	0	0	61	5	379	145	713	0	0	927	275
Future Vol, veh/h	0	0	0	61	5	379	145	713	0	0	927	275
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	69	6	426	158	775	0	0	1042	309
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	42.6	271.1	434.9
HCM LOS	E	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	92%	0%	0%	0%
Vol Thru, %	0%	100%	8%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	145	713	66	379	927	275
LT Vol	145	0	61	0	0	0
Through Vol	0	713	5	0	927	0
RT Vol	0	0	0	379	0	275
Lane Flow Rate	158	775	74	426	1042	309
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.357	1.646	0.175	0.868	2.182	0.587
Departure Headway (Hd)	9.21	8.689	9.997	8.771	8.288	7.559
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	394	426	361	417	448	482
Service Time	6.91	6.389	7.697	6.471	5.988	5.259
HCM Lane V/C Ratio	0.401	1.819	0.205	1.022	2.326	0.641
HCM Control Delay	16.9	322.8	14.8	47.4	557.8	20.4
HCM Lane LOS	C	F	B	E	F	C
HCM 95th-tile Q	1.6	39.9	0.6	8.7	69.3	3.7

HCM 6th AWSC  
1: Shirk Road & SR 198 EB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	116
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕					↕	↕	↕	↕	
Traffic Vol, veh/h	269	3	135	0	0	0	0	556	137	503	434	0
Future Vol, veh/h	269	3	135	0	0	0	0	556	137	503	434	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	306	3	135	0	0	0	0	632	156	572	493	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	28.3	164.1	117.1
HCM LOS	D	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	99%	0%	100%	0%
Vol Thru, %	100%	0%	1%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	556	137	272	135	503	434
LT Vol	0	0	269	0	503	0
Through Vol	556	0	3	0	0	434
RT Vol	0	137	0	135	0	0
Lane Flow Rate	632	156	309	135	572	493
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	1.365	0.306	0.744	0.28	1.249	1.009
Departure Headway (Hd)	8.1	7.378	9.306	8.067	8.381	7.863
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	455	490	393	448	440	464
Service Time	5.8	5.078	7.006	5.767	6.081	5.563
HCM Lane V/C Ratio	1.389	0.318	0.786	0.301	1.3	1.063
HCM Control Delay	201.2	13.3	34.6	13.9	155.7	72.4
HCM Lane LOS	F	B	D	B	F	F
HCM 95th-tile Q	28.3	1.3	5.9	1.1	22.4	13.4

HCM 6th AWSC  
2: Shirk Road & SR 198 WB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	275
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↖	↗	↖	↗			↖	↗
Traffic Vol, veh/h	0	0	0	82	3	585	221	598	0	0	850	434
Future Vol, veh/h	0	0	0	82	3	585	221	598	0	0	850	434
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	92	3	657	240	650	0	0	955	488
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	203.3	186.8	366.9
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	96%	0%	0%	0%
Vol Thru, %	0%	100%	4%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	221	598	85	585	850	434
LT Vol	221	0	82	0	0	0
Through Vol	0	598	3	0	850	0
RT Vol	0	0	0	585	0	434
Lane Flow Rate	240	650	96	657	955	488
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.574	1.464	0.238	1.424	2.092	0.973
Departure Headway (Hd)	9.778	9.254	10.616	9.391	9.222	8.486
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	372	397	341	394	401	429
Service Time	7.478	6.954	8.316	7.091	6.922	6.186
HCM Lane V/C Ratio	0.645	1.637	0.282	1.668	2.382	1.138
HCM Control Delay	24.9	246.7	16.6	230.4	520.4	66.4
HCM Lane LOS	C	F	C	F	F	F
HCM 95th-tile Q	3.4	29.7	0.9	27.7	58.5	11.7

HCM 6th AWSC  
1: Shirk Road & SR 198 EB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	148.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕					↕	↕	↕	↕	
Traffic Vol, veh/h	446	2	245	0	0	0	0	451	63	575	448	0
Future Vol, veh/h	446	2	245	0	0	0	0	451	63	575	448	0
Peak Hour Factor	0.88	0.88	1.00	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	507	2	245	0	0	0	0	513	72	653	509	0
Number of Lanes	0	1	1	0	0	0	0	1	1	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	101.3	125.3	190.4
HCM LOS	F	F	F

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	451	63	448	245	575	448
LT Vol	0	0	446	0	575	0
Through Vol	451	0	2	0	0	448
RT Vol	0	63	0	245	0	0
Lane Flow Rate	512	72	509	245	653	509
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	1.2	0.154	1.205	0.499	1.497	1.096
Departure Headway (Hd)	9.32	8.592	8.975	7.737	9.045	8.523
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	395	420	407	468	405	428
Service Time	7.02	6.292	6.675	5.437	6.745	6.223
HCM Lane V/C Ratio	1.296	0.171	1.251	0.524	1.612	1.189
HCM Control Delay	141	12.8	141.4	17.9	259.9	101.2
HCM Lane LOS	F	B	F	C	F	F
HCM 95th-tile Q	18.9	0.5	19.5	2.7	31.8	16



HCM 6th AWSC  
2: Shirk Road & SR 198 WB Ramps

05/22/2022

Intersection	
Intersection Delay, s/veh	354.3
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↖	↗	↖	↗			↗	↖
Traffic Vol, veh/h	0	0	0	61	5	445	145	750	0	0	970	301
Future Vol, veh/h	0	0	0	61	5	445	145	750	0	0	970	301
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.92	0.92	0.92	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	0	0	0	69	6	500	158	815	0	0	1090	338
Number of Lanes	0	0	0	0	1	1	1	1	0	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	73.4	327.9	485.2
HCM LOS	F	F	F



















Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	92%	0%	0%	0%
Vol Thru, %	0%	100%	8%	0%	100%	0%
Vol Right, %	0%	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	145	750	66	445	970	301
LT Vol	145	0	61	0	0	0
Through Vol	0	750	5	0	970	0
RT Vol	0	0	0	445	0	301
Lane Flow Rate	158	815	74	500	1090	338
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.369	1.793	0.176	1.025	2.337	0.659
Departure Headway (Hd)	9.539	9.016	10.234	9.006	8.753	8.02
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	380	408	353	405	425	453
Service Time	7.239	6.716	7.934	6.706	6.453	5.72
HCM Lane V/C Ratio	0.416	1.998	0.21	1.235	2.565	0.746
HCM Control Delay	17.7	387.9	15.1	82	628	24.9
HCM Lane LOS	C	F	C	F	F	C
HCM 95th-tile Q	1.7	45.5	0.6	13	73.6	4.7

# MITIGATION

# HCM 6th Signalized Intersection Summary

## 1: Shirk Road & SR 198 EB Ramps



















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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	201	2	95	0	0	0	0	395	96	386	312	0
Future Volume (veh/h)	201	2	95	0	0	0	0	395	96	386	312	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856				0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	228	2	108				0	449	109	439	355	0
Peak Hour Factor	0.88	0.88	0.88				0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	312	3	280				0	564	478	513	1244	0
Arrive On Green	0.18	0.18	0.18				0.00	0.30	0.30	0.29	0.67	0.00
Sat Flow, veh/h	1753	15	1572				0	1856	1572	1767	1856	0
Grp Volume(v), veh/h	230	0	108				0	449	109	439	355	0
Grp Sat Flow(s),veh/h/ln	1768	0	1572				0	1856	1572	1767	1856	0
Q Serve(g_s), s	7.3	0.0	3.6				0.0	13.2	3.1	13.9	4.6	0.0
Cycle Q Clear(g_c), s	7.3	0.0	3.6				0.0	13.2	3.1	13.9	4.6	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	314	0	280				0	564	478	513	1244	0
V/C Ratio(X)	0.73	0.00	0.39				0.00	0.80	0.23	0.86	0.29	0.00
Avail Cap(c_a), veh/h	701	0	624				0	1300	1102	1238	2741	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	23.0	0.0	21.5				0.0	18.9	15.4	19.8	4.0	0.0
Incr Delay (d2), s/veh	3.3	0.0	0.9				0.0	2.6	0.2	4.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	1.2				0.0	5.0	0.9	5.3	0.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.3	0.0	22.4				0.0	21.6	15.7	24.1	4.1	0.0
LnGrp LOS	C	A	C				A	C	B	C	A	A
Approach Vol, veh/h		338						558			794	
Approach Delay, s/veh		25.0						20.4			15.1	
Approach LOS		C						C			B	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	21.7	22.5	15.0	44.2								
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5								
Max Green Setting (Gmax), s	41.5	41.5	23.5	87.5								
Max Q Clear Time (g_c+l1), s	15.9	15.2	9.3	6.6								
Green Ext Time (p_c), s	1.3	2.8	1.3	2.1								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			18.9									
HCM 6th LOS			B									

# HCM 6th Signalized Intersection Summary

## 1: Shirk Road & SR 198 EB Ramps



















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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	215	3	108	0	0	0	0	446	109	365	345	0
Future Volume (veh/h)	215	3	108	0	0	0	0	446	109	365	345	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856				0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	234	3	117				0	485	118	397	375	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	319	4	288				0	603	511	469	1236	0
Arrive On Green	0.18	0.18	0.18				0.00	0.33	0.33	0.27	0.67	0.00
Sat Flow, veh/h	1746	22	1572				0	1856	1572	1767	1856	0
Grp Volume(v), veh/h	237	0	117				0	485	118	397	375	0
Grp Sat Flow(s),veh/h/ln	1768	0	1572				0	1856	1572	1767	1856	0
Q Serve(g_s), s	7.5	0.0	3.9				0.0	14.2	3.3	12.7	5.0	0.0
Cycle Q Clear(g_c), s	7.5	0.0	3.9				0.0	14.2	3.3	12.7	5.0	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	323	0	288				0	603	511	469	1236	0
V/C Ratio(X)	0.73	0.00	0.41				0.00	0.80	0.23	0.85	0.30	0.00
Avail Cap(c_a), veh/h	727	0	647				0	1355	1148	1142	2694	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	23.0	0.0	21.5				0.0	18.4	14.7	20.7	4.2	0.0
Incr Delay (d2), s/veh	3.2	0.0	0.9				0.0	2.6	0.2	4.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	1.3				0.0	5.3	1.0	5.0	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.2	0.0	22.4				0.0	20.9	14.9	25.0	4.3	0.0
LnGrp LOS	C	A	C				A	C	B	C	A	A
Approach Vol, veh/h		354						603			772	
Approach Delay, s/veh		24.9						19.8			15.0	
Approach LOS		C						B			B	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	20.3	23.9	15.4	44.2								
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5								
Max Green Setting (Gmax), s	38.5	43.5	24.5	86.5								
Max Q Clear Time (g_c+I1), s	14.7	16.2	9.5	7.0								
Green Ext Time (p_c), s	1.2	3.1	1.4	2.2								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			18.7									
HCM 6th LOS			B									

# HCM 6th Signalized Intersection Summary

## 1: Shirk Road & SR 198 EB Ramps





















05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	3	108	0	0	0	0	448	109	424	352	0
Future Volume (veh/h)	223	3	108	0	0	0	0	448	109	424	352	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856				0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	242	3	117				0	487	118	461	383	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	317	4	285				0	591	501	527	1269	0
Arrive On Green	0.18	0.18	0.18				0.00	0.32	0.32	0.30	0.68	0.00
Sat Flow, veh/h	1747	22	1572				0	1856	1572	1767	1856	0
Grp Volume(v), veh/h	245	0	117				0	487	118	461	383	0
Grp Sat Flow(s),veh/h/ln	1768	0	1572				0	1856	1572	1767	1856	0
Q Serve(g_s), s	8.8	0.0	4.4				0.0	16.2	3.7	16.5	5.5	0.0
Cycle Q Clear(g_c), s	8.8	0.0	4.4				0.0	16.2	3.7	16.5	5.5	0.0
Prop In Lane	0.99		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	321	0	285				0	591	501	527	1269	0
V/C Ratio(X)	0.76	0.00	0.41				0.00	0.82	0.24	0.87	0.30	0.00
Avail Cap(c_a), veh/h	622	0	553				0	1153	977	1098	2430	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	26.0	0.0	24.2				0.0	21.0	16.8	22.3	4.2	0.0
Incr Delay (d2), s/veh	3.8	0.0	0.9				0.0	3.0	0.2	4.8	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	1.5				0.0	6.3	1.2	6.6	1.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.8	0.0	25.1				0.0	24.0	17.0	27.0	4.3	0.0
LnGrp LOS	C	A	C				A	C	B	C	A	A
Approach Vol, veh/h		362						605			844	
Approach Delay, s/veh		28.3						22.7			16.7	
Approach LOS		C						C			B	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	24.4	25.8	16.6	50.2								
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5								
Max Green Setting (Gmax), s	41.5	41.5	23.5	87.5								
Max Q Clear Time (g_c+I1), s	18.5	18.2	10.8	7.5								
Green Ext Time (p_c), s	1.4	3.1	1.3	2.3								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			21.0									
HCM 6th LOS			C									

# HCM 6th Signalized Intersection Summary

## 1: Shirk Road & SR 198 EB Ramps




















05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	260	3	135	0	0	0	0	554	137	444	427	0
Future Volume (veh/h)	260	3	135	0	0	0	0	554	137	444	427	0
Initial Q (Qb), veh	0	0	0					0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00					1.00	1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00					1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856				0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	285	0	147				0	602	149	483	464	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	462	0	206				0	705	597	542	1387	0
Arrive On Green	0.13	0.00	0.13				0.00	0.38	0.38	0.31	0.75	0.00
Sat Flow, veh/h	3534	0	1572				0	1856	1572	1767	1856	0
Grp Volume(v), veh/h	285	0	147				0	602	149	483	464	0
Grp Sat Flow(s),veh/h/ln	1767	0	1572				0	1856	1572	1767	1856	0
Q Serve(g_s), s	5.6	0.0	6.6				0.0	22.0	4.8	19.3	6.2	0.0
Cycle Q Clear(g_c), s	5.6	0.0	6.6				0.0	22.0	4.8	19.3	6.2	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	462	0	206				0	705	597	542	1387	0
V/C Ratio(X)	0.62	0.00	0.72				0.00	0.85	0.25	0.89	0.33	0.00
Avail Cap(c_a), veh/h	860	0	383				0	1204	1021	968	2333	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.4	0.0	30.8				0.0	21.0	15.7	24.4	3.1	0.0
Incr Delay (d2), s/veh	1.3	0.0	4.6				0.0	3.1	0.2	5.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	2.6				0.0	8.6	1.5	7.9	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.7	0.0	35.4				0.0	24.1	15.9	29.7	3.3	0.0
LnGrp LOS	C	A	D				A	C	B	C	A	A
Approach Vol, veh/h		432						751			947	
Approach Delay, s/veh		33.0						22.5			16.8	
Approach LOS		C						C			B	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	27.2	32.6	14.2	59.8								
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5								
Max Green Setting (Gmax), s	40.5	48.0	18.0	93.0								
Max Q Clear Time (g_c+l1), s	21.3	24.0	8.6	8.2								
Green Ext Time (p_c), s	1.4	4.1	1.0	2.9								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			22.1									
HCM 6th LOS			C									
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												

# HCM 6th Signalized Intersection Summary

## 1: Shirk Road & SR 198 EB Ramps

05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	269	3	135	0	0	0	0	556	137	503	434	0
Future Volume (veh/h)	269	3	135	0	0	0	0	556	137	503	434	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856				0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	294	0	147				0	604	149	547	472	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	446	0	199				0	691	585	600	1421	0
Arrive On Green	0.13	0.00	0.13				0.00	0.37	0.37	0.34	0.77	0.00
Sat Flow, veh/h	3534	0	1572				0	1856	1572	1767	1856	0
Grp Volume(v), veh/h	294	0	147				0	604	149	547	472	0
Grp Sat Flow(s),veh/h/ln	1767	0	1572				0	1856	1572	1767	1856	0
Q Serve(g_s), s	6.6	0.0	7.5				0.0	25.2	5.5	24.7	6.7	0.0
Cycle Q Clear(g_c), s	6.6	0.0	7.5				0.0	25.2	5.5	24.7	6.7	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	446	0	199				0	691	585	600	1421	0
V/C Ratio(X)	0.66	0.00	0.74				0.00	0.87	0.25	0.91	0.33	0.00
Avail Cap(c_a), veh/h	764	0	340				0	1003	850	923	2072	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	34.7	0.0	35.1				0.0	24.3	18.1	26.3	3.1	0.0
Incr Delay (d2), s/veh	1.7	0.0	5.3				0.0	6.2	0.2	9.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	3.0				0.0	10.8	1.8	10.8	1.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.3	0.0	40.4				0.0	30.5	18.4	35.4	3.2	0.0
LnGrp LOS	D	A	D				A	C	B	D	A	A
Approach Vol, veh/h		441						753			1019	
Approach Delay, s/veh		37.7						28.1			20.5	
Approach LOS		D						C			C	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	32.8	35.5	15.0	68.3								
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5								
Max Green Setting (Gmax), s	43.5	45.0	18.0	93.0								
Max Q Clear Time (g_c+I1), s	26.7	27.2	9.5	8.7								
Green Ext Time (p_c), s	1.6	3.8	1.0	2.9								

### Intersection Summary

HCM 6th Ctrl Delay	26.5
HCM 6th LOS	C



















### Notes

User approved volume balancing among the lanes for turning movement.

# HCM 6th Signalized Intersection Summary

## 1: Shirk Road & SR 198 EB Ramps

05/22/2022



















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	332	1	171	0	0	0	0	324	44	422	318	0
Future Volume (veh/h)	332	1	171	0	0	0	0	324	44	422	318	0
Initial Q (Qb), veh	0	0	0					0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00					1.00	1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00					1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856				0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	349	1	180				0	341	46	444	335	0
Peak Hour Factor	0.95	0.95	0.95				0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	451	1	402				0	434	368	515	1110	0
Arrive On Green	0.26	0.26	0.26				0.00	0.23	0.23	0.29	0.60	0.00
Sat Flow, veh/h	1762	5	1572				0	1856	1572	1767	1856	0
Grp Volume(v), veh/h	350	0	180				0	341	46	444	335	0
Grp Sat Flow(s),veh/h/ln	1767	0	1572				0	1856	1572	1767	1856	0
Q Serve(g_s), s	11.3	0.0	5.9				0.0	10.6	1.4	14.7	5.5	0.0
Cycle Q Clear(g_c), s	11.3	0.0	5.9				0.0	10.6	1.4	14.7	5.5	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	452	0	402				0	434	368	515	1110	0
V/C Ratio(X)	0.77	0.00	0.45				0.00	0.79	0.13	0.86	0.30	0.00
Avail Cap(c_a), veh/h	959	0	853				0	977	828	1160	2330	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	21.3	0.0	19.3				0.0	22.2	18.7	20.7	6.1	0.0
Incr Delay (d2), s/veh	2.9	0.0	0.8				0.0	3.2	0.2	4.4	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	2.0				0.0	4.3	0.5	5.7	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.2	0.0	20.1				0.0	25.4	18.8	25.1	6.2	0.0
LnGrp LOS	C	A	C				A	C	B	C	A	A
Approach Vol, veh/h		530						387			779	
Approach Delay, s/veh		22.8						24.6			17.0	
Approach LOS		C						C			B	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	22.5	18.9	20.3	41.4								
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5								
Max Green Setting (Gmax), s	40.5	32.5	33.5	77.5								
Max Q Clear Time (g_c+l1), s	16.7	12.6	13.3	7.5								
Green Ext Time (p_c), s	1.3	1.8	2.5	1.9								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			20.5									
HCM 6th LOS			C									



# HCM 6th Signalized Intersection Summary

## 1: Shirk Road & SR 198 EB Ramps



















05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	340	1	195	0	0	0	0	358	50	433	356	0
Future Volume (veh/h)	340	1	195	0	0	0	0	358	50	433	356	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856				0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	370	1	212				0	389	54	471	387	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	457	1	408				0	470	399	532	1144	0
Arrive On Green	0.26	0.26	0.26				0.00	0.25	0.25	0.30	0.62	0.00
Sat Flow, veh/h	1763	5	1572				0	1856	1572	1767	1856	0
Grp Volume(v), veh/h	371	0	212				0	389	54	471	387	0
Grp Sat Flow(s),veh/h/ln	1767	0	1572				0	1856	1572	1767	1856	0
Q Serve(g_s), s	14.3	0.0	8.4				0.0	14.3	1.9	18.4	7.3	0.0
Cycle Q Clear(g_c), s	14.3	0.0	8.4				0.0	14.3	1.9	18.4	7.3	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	458	0	408				0	470	399	532	1144	0
V/C Ratio(X)	0.81	0.00	0.52				0.00	0.83	0.14	0.89	0.34	0.00
Avail Cap(c_a), veh/h	793	0	706				0	858	727	988	2011	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	25.1	0.0	23.0				0.0	25.5	20.9	24.1	6.7	0.0
Incr Delay (d2), s/veh	3.5	0.0	1.0				0.0	3.8	0.2	5.2	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	0.0	2.9				0.0	6.0	0.6	7.5	2.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.6	0.0	24.0				0.0	29.3	21.1	29.3	6.9	0.0
LnGrp LOS	C	A	C				A	C	C	C	A	A
Approach Vol, veh/h		583						443			858	
Approach Delay, s/veh		26.9						28.3			19.2	
Approach LOS		C						C			B	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	26.3	22.9	23.3	49.1								
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5								
Max Green Setting (Gmax), s	40.5	33.5	32.5	78.5								
Max Q Clear Time (g_c+l1), s	20.4	16.3	16.3	9.3								
Green Ext Time (p_c), s	1.4	2.0	2.5	2.3								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			23.7									
HCM 6th LOS			C									

# HCM 6th Signalized Intersection Summary

## 1: Shirk Road & SR 198 EB Ramps





















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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	369	1	195	0	0	0	0	365	50	472	361	0
Future Volume (veh/h)	369	1	195	0	0	0	0	365	50	472	361	0
Initial Q (Qb), veh	0	0	0					0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00					1.00	1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00					1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856				0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	401	1	212				0	397	54	513	392	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	475	1	423				0	464	394	565	1157	0
Arrive On Green	0.27	0.27	0.27				0.00	0.25	0.25	0.32	0.62	0.00
Sat Flow, veh/h	1763	4	1572				0	1856	1572	1767	1856	0
Grp Volume(v), veh/h	402	0	212				0	397	54	513	392	0
Grp Sat Flow(s),veh/h/ln	1767	0	1572				0	1856	1572	1767	1856	0
Q Serve(g_s), s	18.0	0.0	9.5				0.0	17.1	2.2	23.3	8.5	0.0
Cycle Q Clear(g_c), s	18.0	0.0	9.5				0.0	17.1	2.2	23.3	8.5	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	476	0	423				0	464	394	565	1157	0
V/C Ratio(X)	0.84	0.00	0.50				0.00	0.85	0.14	0.91	0.34	0.00
Avail Cap(c_a), veh/h	706	0	628				0	719	610	854	1715	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	29.0	0.0	25.9				0.0	30.0	24.4	27.4	7.5	0.0
Incr Delay (d2), s/veh	6.1	0.0	0.9				0.0	6.2	0.2	9.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	0.0	3.4				0.0	7.7	0.8	10.4	2.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.1	0.0	26.8				0.0	36.2	24.6	37.0	7.7	0.0
LnGrp LOS	D	A	C				A	D	C	D	A	A
Approach Vol, veh/h		614						451			905	
Approach Delay, s/veh		32.2						34.8			24.3	
Approach LOS		C						C			C	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	31.3	25.5	27.1	56.8								
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5								
Max Green Setting (Gmax), s	40.5	32.5	33.5	77.5								
Max Q Clear Time (g_c+l1), s	25.3	19.1	20.0	10.5								
Green Ext Time (p_c), s	1.4	1.9	2.5	2.3								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			29.2									
HCM 6th LOS			C									

# HCM 6th Signalized Intersection Summary

## 1: Shirk Road & SR 198 EB Ramps





















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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	417	2	245	0	0	0	0	444	63	536	443	0
Future Volume (veh/h)	417	2	245	0	0	0	0	444	63	536	443	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856				0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	454	0	266				0	483	68	583	482	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	703	0	313				0	549	465	632	1303	0
Arrive On Green	0.20	0.00	0.20				0.00	0.30	0.30	0.36	0.70	0.00
Sat Flow, veh/h	3534	0	1572				0	1856	1572	1767	1856	0
Grp Volume(v), veh/h	454	0	266				0	483	68	583	482	0
Grp Sat Flow(s),veh/h/ln	1767	0	1572				0	1856	1572	1767	1856	0
Q Serve(g_s), s	10.8	0.0	14.9				0.0	22.6	2.9	28.8	9.5	0.0
Cycle Q Clear(g_c), s	10.8	0.0	14.9				0.0	22.6	2.9	28.8	9.5	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	703	0	313				0	549	465	632	1303	0
V/C Ratio(X)	0.65	0.00	0.85				0.00	0.88	0.15	0.92	0.37	0.00
Avail Cap(c_a), veh/h	841	0	374				0	765	649	915	1818	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	33.6	0.0	35.2				0.0	30.6	23.6	28.1	5.5	0.0
Incr Delay (d2), s/veh	1.3	0.0	14.7				0.0	8.8	0.1	11.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	6.6				0.0	10.5	1.0	13.0	2.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.9	0.0	49.9				0.0	39.3	23.8	39.2	5.6	0.0
LnGrp LOS	C	A	D				A	D	C	D	A	A
Approach Vol, veh/h		720						551			1065	
Approach Delay, s/veh		40.4						37.4			24.0	
Approach LOS		D						D			C	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	37.1	31.4	22.6	68.5								
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5								
Max Green Setting (Gmax), s	47.2	37.6	21.7	89.3								
Max Q Clear Time (g_c+I1), s	30.8	24.6	16.9	11.5								
Green Ext Time (p_c), s	1.7	2.4	1.3	3.0								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			32.2									
HCM 6th LOS			C									
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												

# HCM 6th Signalized Intersection Summary

## 1: Shirk Road & SR 198 EB Ramps



















05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	446	2	245	0	0	0	0	451	63	575	448	0
Future Volume (veh/h)	446	2	245	0	0	0	0	451	63	575	448	0
Initial Q (Qb), veh	0	0	0					0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00					1.00	1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00					1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856				0	1856	1856	1856	1856	0
Adj Flow Rate, veh/h	486	0	266				0	490	68	625	487	0
Peak Hour Factor	0.92	0.92	0.92				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3				0	3	3	3	3	0
Cap, veh/h	684	0	304				0	546	463	667	1330	0
Arrive On Green	0.19	0.00	0.19				0.00	0.29	0.29	0.38	0.72	0.00
Sat Flow, veh/h	3534	0	1572				0	1856	1572	1767	1856	0
Grp Volume(v), veh/h	486	0	266				0	490	68	625	487	0
Grp Sat Flow(s),veh/h/ln	1767	0	1572				0	1856	1572	1767	1856	0
Q Serve(g_s), s	12.9	0.0	16.4				0.0	25.4	3.2	34.1	10.1	0.0
Cycle Q Clear(g_c), s	12.9	0.0	16.4				0.0	25.4	3.2	34.1	10.1	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	684	0	304				0	546	463	667	1330	0
V/C Ratio(X)	0.71	0.00	0.87				0.00	0.90	0.15	0.94	0.37	0.00
Avail Cap(c_a), veh/h	759	0	338				0	695	589	838	1658	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	37.8	0.0	39.2				0.0	33.9	26.1	30.0	5.4	0.0
Incr Delay (d2), s/veh	2.8	0.0	20.3				0.0	12.2	0.1	15.6	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	7.7				0.0	12.4	1.1	16.2	2.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.5	0.0	59.5				0.0	46.1	26.2	45.6	5.6	0.0
LnGrp LOS	D	A	E				A	D	C	D	A	A
Approach Vol, veh/h		752						558			1112	
Approach Delay, s/veh		47.2						43.7			28.1	
Approach LOS		D						D			C	
Timer - Assigned Phs	1	2	4	6								
Phs Duration (G+Y+Rc), s	42.3	34.0	23.9	76.3								
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5								
Max Green Setting (Gmax), s	47.5	37.5	21.5	89.5								
Max Q Clear Time (g_c+l1), s	36.1	27.4	18.4	12.1								
Green Ext Time (p_c), s	1.7	2.1	0.9	3.1								
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			37.6									
HCM 6th LOS			D									
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												

# HCM 6th Signalized Intersection Summary

## 2: Shirk Road & SR 198 WB Ramps



















05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	52	2	373	140	388	0	0	525	272
Future Volume (veh/h)	0	0	0	52	2	373	140	388	0	0	525	272
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				58	2	419	157	436	0	0	590	306
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				498	17	457	200	1059	0	0	721	611
Arrive On Green				0.29	0.29	0.29	0.11	0.57	0.00	0.00	0.39	0.39
Sat Flow, veh/h				1711	59	1572	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				60	0	419	157	436	0	0	590	306
Grp Sat Flow(s),veh/h/ln				1770	0	1572	1767	1856	0	0	1856	1572
Q Serve(g_s), s				1.6	0.0	16.7	5.6	8.6	0.0	0.0	18.5	9.6
Cycle Q Clear(g_c), s				1.6	0.0	16.7	5.6	8.6	0.0	0.0	18.5	9.6
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				515	0	457	200	1059	0	0	721	611
V/C Ratio(X)				0.12	0.00	0.92	0.79	0.41	0.00	0.00	0.82	0.50
Avail Cap(c_a), veh/h				531	0	472	367	1756	0	0	1242	1053
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				16.9	0.0	22.3	28.1	7.8	0.0	0.0	17.8	15.1
Incr Delay (d2), s/veh				0.1	0.0	22.3	6.7	0.3	0.0	0.0	2.4	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.6	0.0	8.1	2.5	2.3	0.0	0.0	6.9	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				17.0	0.0	44.5	34.8	8.1	0.0	0.0	20.2	15.7
LnGrp LOS				B	A	D	C	A	A	A	C	B
Approach Vol, veh/h					479			593			896	
Approach Delay, s/veh					41.1			15.2			18.7	
Approach LOS					D			B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		41.6			11.8	29.7		23.4				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		61.5			13.5	43.5		19.5				
Max Q Clear Time (g_c+I1), s		10.6			7.6	20.5		18.7				
Green Ext Time (p_c), s		2.5			0.2	4.7		0.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											23.1	
HCM 6th LOS											C	

# HCM 6th Signalized Intersection Summary



















## 2: Shirk Road & SR 198 WB Ramps

05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	52	2	392	140	399	0	0	591	298
Future Volume (veh/h)	0	0	0	52	2	392	140	399	0	0	591	298
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No		No			
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				58	2	440	157	448	0	0	664	335
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				517	18	475	196	1089	0	0	780	661
Arrive On Green				0.30	0.30	0.30	0.11	0.59	0.00	0.00	0.42	0.42
Sat Flow, veh/h				1711	59	1572	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				60	0	440	157	448	0	0	664	335
Grp Sat Flow(s),veh/h/ln				1770	0	1572	1767	1856	0	0	1856	1572
Q Serve(g_s), s				2.0	0.0	22.0	7.0	10.7	0.0	0.0	26.2	12.7
Cycle Q Clear(g_c), s				2.0	0.0	22.0	7.0	10.7	0.0	0.0	26.2	12.7
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				535	0	475	196	1089	0	0	780	661
V/C Ratio(X)				0.11	0.00	0.93	0.80	0.41	0.00	0.00	0.85	0.51
Avail Cap(c_a), veh/h				578	0	513	403	1932	0	0	1406	1191
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				20.5	0.0	27.4	35.2	9.1	0.0	0.0	21.2	17.3
Incr Delay (d2), s/veh				0.1	0.0	22.1	7.3	0.2	0.0	0.0	2.7	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.8	0.0	10.4	3.2	3.3	0.0	0.0	10.4	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				20.5	0.0	49.5	42.5	9.4	0.0	0.0	24.0	17.9
LnGrp LOS				C	A	D	D	A	A	A	C	B
Approach Vol, veh/h					500			605			999	
Approach Delay, s/veh					46.1			18.0			21.9	
Approach LOS					D			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		52.1			13.5	38.6		29.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		84.5			18.5	61.5		26.5				
Max Q Clear Time (g_c+I1), s		12.7			9.0	28.2		24.0				
Green Ext Time (p_c), s		2.6			0.2	5.9		0.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											26.5	
HCM 6th LOS											C	

HCM 6th Signalized Intersection Summary  
 2: Shirk Road & SR 198 WB Ramps



















05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	57	2	407	154	424	0	0	572	296
Future Volume (veh/h)	0	0	0	57	2	407	154	424	0	0	572	296
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No				No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				64	2	457	173	476	0	0	643	333
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				534	17	490	213	1078	0	0	754	639
Arrive On Green				0.31	0.31	0.31	0.12	0.58	0.00	0.00	0.41	0.41
Sat Flow, veh/h				1716	54	1572	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				66	0	457	173	476	0	0	643	333
Grp Sat Flow(s),veh/h/ln				1770	0	1572	1767	1856	0	0	1856	1572
Q Serve(g_s), s				2.2	0.0	23.5	8.0	12.1	0.0	0.0	26.3	13.3
Cycle Q Clear(g_c), s				2.2	0.0	23.5	8.0	12.1	0.0	0.0	26.3	13.3
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				551	0	490	213	1078	0	0	754	639
V/C Ratio(X)				0.12	0.00	0.93	0.81	0.44	0.00	0.00	0.85	0.52
Avail Cap(c_a), veh/h				583	0	518	413	1856	0	0	1323	1121
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				20.6	0.0	27.9	35.8	9.9	0.0	0.0	22.5	18.7
Incr Delay (d2), s/veh				0.1	0.0	23.5	7.3	0.3	0.0	0.0	2.9	0.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.9	0.0	11.2	3.6	3.9	0.0	0.0	10.7	4.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				20.7	0.0	51.4	43.0	10.2	0.0	0.0	25.4	19.3
LnGrp LOS				C	A	D	D	B	A	A	C	B
Approach Vol, veh/h					523			649			976	
Approach Delay, s/veh					47.5			18.9			23.3	
Approach LOS					D			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		53.0			14.6	38.4		30.5				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		83.5			19.5	59.5		27.5				
Max Q Clear Time (g_c+I1), s		14.1			10.0	28.3		25.5				
Green Ext Time (p_c), s		2.8			0.3	5.6		0.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											27.9	
HCM 6th LOS											C	



HCM 6th Signalized Intersection Summary  
 2: Shirk Road & SR 198 WB Ramps



















05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	57	2	427	154	435	0	0	637	323
Future Volume (veh/h)	0	0	0	57	2	427	154	435	0	0	637	323
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				64	2	480	173	489	0	0	716	363
Peak Hour Factor				0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				499	16	457	210	1133	0	0	822	696
Arrive On Green				0.29	0.29	0.29	0.12	0.61	0.00	0.00	0.44	0.44
Sat Flow, veh/h				1716	54	1572	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				66	0	480	173	489	0	0	716	363
Grp Sat Flow(s),veh/h/ln				1770	0	1572	1767	1856	0	0	1856	1572
Q Serve(g_s), s				2.5	0.0	26.5	8.7	12.7	0.0	0.0	31.9	15.2
Cycle Q Clear(g_c), s				2.5	0.0	26.5	8.7	12.7	0.0	0.0	31.9	15.2
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				514	0	457	210	1133	0	0	822	696
V/C Ratio(X)				0.13	0.00	1.05	0.83	0.43	0.00	0.00	0.87	0.52
Avail Cap(c_a), veh/h				514	0	457	339	1719	0	0	1272	1078
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				23.8	0.0	32.3	39.3	9.4	0.0	0.0	23.1	18.4
Incr Delay (d2), s/veh				0.1	0.0	56.0	8.5	0.3	0.0	0.0	4.3	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.0	0.0	16.4	4.1	4.1	0.0	0.0	13.3	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				23.9	0.0	88.3	47.8	9.6	0.0	0.0	27.4	19.0
LnGrp LOS				C	A	F	D	A	A	A	C	B
Approach Vol, veh/h					546			662			1079	
Approach Delay, s/veh					80.5			19.6			24.6	
Approach LOS					F			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		60.2			15.3	44.9		31.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		84.5			17.5	62.5		26.5				
Max Q Clear Time (g_c+I1), s		14.7			10.7	33.9		28.5				
Green Ext Time (p_c), s		2.9			0.2	6.5		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											36.5	
HCM 6th LOS											D	





















HCM 6th Signalized Intersection Summary  
 2: Shirk Road & SR 198 WB Ramps

05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	65	3	459	176	477	0	0	641	333
Future Volume (veh/h)	0	0	0	65	3	459	176	477	0	0	641	333
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				71	3	499	191	518	0	0	697	362
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				502	21	465	228	1127	0	0	798	677
Arrive On Green				0.30	0.30	0.30	0.13	0.61	0.00	0.00	0.43	0.43
Sat Flow, veh/h				1699	72	1572	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				74	0	499	191	518	0	0	697	362
Grp Sat Flow(s),veh/h/ln				1771	0	1572	1767	1856	0	0	1856	1572
Q Serve(g_s), s				2.9	0.0	27.5	9.8	14.1	0.0	0.0	31.9	15.8
Cycle Q Clear(g_c), s				2.9	0.0	27.5	9.8	14.1	0.0	0.0	31.9	15.8
Prop In Lane				0.96		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				523	0	465	228	1127	0	0	798	677
V/C Ratio(X)				0.14	0.00	1.07	0.84	0.46	0.00	0.00	0.87	0.53
Avail Cap(c_a), veh/h				523	0	465	351	1666	0	0	1207	1023
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				24.1	0.0	32.8	39.6	9.9	0.0	0.0	24.2	19.6
Incr Delay (d2), s/veh				0.1	0.0	62.8	10.2	0.3	0.0	0.0	4.8	0.7
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.1	0.0	17.8	4.7	4.6	0.0	0.0	13.5	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				24.2	0.0	95.5	49.8	10.2	0.0	0.0	29.0	20.3
LnGrp LOS				C	A	F	D	B	A	A	C	C
Approach Vol, veh/h					573			709			1059	
Approach Delay, s/veh					86.3			20.9			26.0	
Approach LOS					F			C			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		61.0			16.5	44.5		32.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		83.5			18.5	60.5		27.5				
Max Q Clear Time (g_c+I1), s		16.1			11.8	33.9		29.5				
Green Ext Time (p_c), s		3.2			0.3	6.1		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											39.2	
HCM 6th LOS											D	



















HCM 6th Signalized Intersection Summary  
 2: Shirk Road & SR 198 WB Ramps

05/23/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	65	3	478	176	488	0	0	706	359
Future Volume (veh/h)	0	0	0	65	3	478	176	488	0	0	706	359
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No				No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				71	3	520	191	530	0	0	767	390
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				362	15	590	234	1249	0	0	898	761
Arrive On Green				0.21	0.21	0.21	0.13	0.67	0.00	0.00	0.48	0.48
Sat Flow, veh/h				1699	72	2768	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				74	0	520	191	530	0	0	767	390
Grp Sat Flow(s),veh/h/ln				1771	0	1384	1767	1856	0	0	1856	1572
Q Serve(g_s), s				2.7	0.0	14.4	8.3	10.4	0.0	0.0	28.8	13.5
Cycle Q Clear(g_c), s				2.7	0.0	14.4	8.3	10.4	0.0	0.0	28.8	13.5
Prop In Lane				0.96		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				378	0	590	234	1249	0	0	898	761
V/C Ratio(X)				0.20	0.00	0.88	0.82	0.42	0.00	0.00	0.85	0.51
Avail Cap(c_a), veh/h				404	0	632	457	2174	0	0	1589	1347
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				25.6	0.0	30.2	33.4	5.9	0.0	0.0	18.0	14.0
Incr Delay (d2), s/veh				0.3	0.0	13.1	6.8	0.2	0.0	0.0	2.4	0.5
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.1	0.0	5.5	3.7	2.6	0.0	0.0	10.8	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				25.9	0.0	43.3	40.2	6.2	0.0	0.0	20.5	14.6
LnGrp LOS				C	A	D	D	A	A	A	C	B
Approach Vol, veh/h					594			721			1157	
Approach Delay, s/veh					41.1			15.2			18.5	
Approach LOS					D			B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		57.9			15.0	42.9		21.4				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		92.9			20.5	67.9		18.1				
Max Q Clear Time (g_c+I1), s		12.4			10.3	30.8		16.4				
Green Ext Time (p_c), s		3.3			0.3	7.5		0.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay					23.0							
HCM 6th LOS					C							



















HCM 6th Signalized Intersection Summary  
 2: Shirk Road & SR 198 WB Ramps

05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	82	3	566	221	588	0	0	784	408
Future Volume (veh/h)	0	0	0	82	3	566	221	588	0	0	784	408
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No		No			
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				89	3	615	240	639	0	0	852	443
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				320	11	517	277	1336	0	0	959	812
Arrive On Green				0.19	0.19	0.19	0.16	0.72	0.00	0.00	0.52	0.52
Sat Flow, veh/h				1712	58	2768	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				92	0	615	240	639	0	0	852	443
Grp Sat Flow(s),veh/h/ln				1770	0	1384	1767	1856	0	0	1856	1572
Q Serve(g_s), s				4.3	0.0	18.0	12.8	14.2	0.0	0.0	39.6	18.3
Cycle Q Clear(g_c), s				4.3	0.0	18.0	12.8	14.2	0.0	0.0	39.6	18.3
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				330	0	517	277	1336	0	0	959	812
V/C Ratio(X)				0.28	0.00	1.19	0.87	0.48	0.00	0.00	0.89	0.55
Avail Cap(c_a), veh/h				330	0	517	394	1790	0	0	1289	1093
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				33.6	0.0	39.2	39.7	5.8	0.0	0.0	20.8	15.7
Incr Delay (d2), s/veh				0.5	0.0	103.6	13.4	0.3	0.0	0.0	6.2	0.6
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.8	0.0	13.2	6.2	3.7	0.0	0.0	16.5	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				34.1	0.0	142.8	53.1	6.0	0.0	0.0	27.1	16.3
LnGrp LOS				C	A	F	D	A	A	A	C	B
Approach Vol, veh/h					707			879			1295	
Approach Delay, s/veh					128.7			18.9			23.4	
Approach LOS					F			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		73.9			19.6	54.3		22.5				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		93.0			21.5	67.0		18.0				
Max Q Clear Time (g_c+I1), s		16.2			14.8	41.6		20.0				
Green Ext Time (p_c), s		4.2			0.4	8.2		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											47.8	
HCM 6th LOS											D	

HCM 6th Signalized Intersection Summary  
 2: Shirk Road & SR 198 WB Ramps



















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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	82	3	585	221	598	0	0	850	434
Future Volume (veh/h)	0	0	0	82	3	585	221	598	0	0	850	434
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				89	3	636	240	650	0	0	924	472
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				352	12	569	249	1289	0	0	934	791
Arrive On Green				0.21	0.21	0.21	0.14	0.69	0.00	0.00	0.50	0.50
Sat Flow, veh/h				1712	58	2768	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				92	0	636	240	650	0	0	924	472
Grp Sat Flow(s),veh/h/ln				1770	0	1384	1767	1856	0	0	1856	1572
Q Serve(g_s), s				3.9	0.0	18.5	12.1	14.8	0.0	0.0	44.3	19.2
Cycle Q Clear(g_c), s				3.9	0.0	18.5	12.1	14.8	0.0	0.0	44.3	19.2
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				364	0	569	249	1289	0	0	934	791
V/C Ratio(X)				0.25	0.00	1.12	0.96	0.50	0.00	0.00	0.99	0.60
Avail Cap(c_a), veh/h				364	0	569	249	1289	0	0	934	791
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				30.0	0.0	35.8	38.4	6.5	0.0	0.0	22.1	15.9
Incr Delay (d2), s/veh				0.4	0.0	74.5	46.4	0.3	0.0	0.0	26.7	1.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.6	0.0	11.7	8.1	4.0	0.0	0.0	23.2	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				30.3	0.0	110.2	84.9	6.8	0.0	0.0	48.9	17.1
LnGrp LOS				C	A	F	F	A	A	A	D	B
Approach Vol, veh/h					728			890			1396	
Approach Delay, s/veh					100.1			27.8			38.1	
Approach LOS					F			C			D	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		67.0			17.2	49.8		23.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		62.5			12.7	45.3		18.5				
Max Q Clear Time (g_c+I1), s		16.8			14.1	46.3		20.5				
Green Ext Time (p_c), s		4.3			0.0	0.0		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											50.1	
HCM 6th LOS											D	
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												

# HCM 6th Signalized Intersection Summary



















## 2: Shirk Road & SR 198 WB Ramps

05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	39	3	258	92	470	0	0	604	182
Future Volume (veh/h)	0	0	0	39	3	258	92	470	0	0	604	182
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				40	3	266	95	485	0	0	623	188
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				352	26	335	132	1111	0	0	798	676
Arrive On Green				0.21	0.21	0.21	0.07	0.60	0.00	0.00	0.43	0.43
Sat Flow, veh/h				1649	124	1572	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				43	0	266	95	485	0	0	623	188
Grp Sat Flow(s),veh/h/ln				1773	0	1572	1767	1856	0	0	1856	1572
Q Serve(g_s), s				0.9	0.0	7.7	2.5	6.8	0.0	0.0	13.8	3.7
Cycle Q Clear(g_c), s				0.9	0.0	7.7	2.5	6.8	0.0	0.0	13.8	3.7
Prop In Lane				0.93		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				378	0	335	132	1111	0	0	798	676
V/C Ratio(X)				0.11	0.00	0.79	0.72	0.44	0.00	0.00	0.78	0.28
Avail Cap(c_a), veh/h				685	0	607	387	2421	0	0	1840	1560
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				15.2	0.0	17.8	21.7	5.2	0.0	0.0	11.7	8.8
Incr Delay (d2), s/veh				0.1	0.0	4.3	7.1	0.3	0.0	0.0	1.7	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.3	0.0	2.6	1.1	1.1	0.0	0.0	4.2	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				15.3	0.0	22.1	28.7	5.5	0.0	0.0	13.4	9.1
LnGrp LOS				B	A	C	C	A	A	A	B	A
Approach Vol, veh/h					309			580			811	
Approach Delay, s/veh					21.1			9.3			12.4	
Approach LOS					C			A			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		33.2			8.1	25.1		14.7				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		62.5			10.5	47.5		18.5				
Max Q Clear Time (g_c+I1), s		8.8			4.5	15.8		9.7				
Green Ext Time (p_c), s		2.9			0.1	4.8		0.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				12.9								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary  
 2: Shirk Road & SR 198 WB Ramps

05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	39	3	324	92	507	0	0	648	200
Future Volume (veh/h)	0	0	0	39	3	324	92	507	0	0	648	200
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				40	3	334	95	523	0	0	668	206
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				418	31	399	124	1096	0	0	822	697
Arrive On Green				0.25	0.25	0.25	0.07	0.59	0.00	0.00	0.44	0.44
Sat Flow, veh/h				1649	124	1572	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				43	0	334	95	523	0	0	668	206
Grp Sat Flow(s),veh/h/ln				1773	0	1572	1767	1856	0	0	1856	1572
Q Serve(g_s), s				1.1	0.0	11.6	3.1	9.3	0.0	0.0	18.1	4.9
Cycle Q Clear(g_c), s				1.1	0.0	11.6	3.1	9.3	0.0	0.0	18.1	4.9
Prop In Lane				0.93		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				450	0	399	124	1096	0	0	822	697
V/C Ratio(X)				0.10	0.00	0.84	0.77	0.48	0.00	0.00	0.81	0.30
Avail Cap(c_a), veh/h				782	0	693	412	2743	0	0	2165	1835
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				16.5	0.0	20.5	26.4	6.7	0.0	0.0	14.0	10.3
Incr Delay (d2), s/veh				0.1	0.0	4.7	9.6	0.3	0.0	0.0	2.0	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.4	0.0	4.1	1.4	2.1	0.0	0.0	6.1	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				16.6	0.0	25.2	36.0	7.1	0.0	0.0	16.0	10.6
LnGrp LOS				B	A	C	D	A	A	A	B	B
Approach Vol, veh/h						377		618				874
Approach Delay, s/veh						24.2		11.5				14.7
Approach LOS						C		B				B
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		38.7			8.5	30.1		19.2				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		85.5			13.5	67.5		25.5				
Max Q Clear Time (g_c+I1), s		11.3			5.1	20.1		13.6				
Green Ext Time (p_c), s		3.2			0.1	5.5		1.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											15.6	
HCM 6th LOS											B	

# HCM 6th Signalized Intersection Summary

## 2: Shirk Road & SR 198 WB Ramps

05/22/2022





















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↖	↗	↖	↗			↖	↗
Traffic Volume (veh/h)	0	0	0	43	3	279	101	514	0	0	662	199
Future Volume (veh/h)	0	0	0	43	3	279	101	514	0	0	662	199
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				44	3	288	104	530	0	0	682	205
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				374	25	354	136	1137	0	0	844	715
Arrive On Green				0.23	0.23	0.23	0.08	0.61	0.00	0.00	0.45	0.45
Sat Flow, veh/h				1659	113	1572	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				47	0	288	104	530	0	0	682	205
Grp Sat Flow(s),veh/h/ln				1773	0	1572	1767	1856	0	0	1856	1572
Q Serve(g_s), s				1.2	0.0	9.6	3.2	8.6	0.0	0.0	17.6	4.5
Cycle Q Clear(g_c), s				1.2	0.0	9.6	3.2	8.6	0.0	0.0	17.6	4.5
Prop In Lane				0.94		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				399	0	354	136	1137	0	0	844	715
V/C Ratio(X)				0.12	0.00	0.81	0.77	0.47	0.00	0.00	0.81	0.29
Avail Cap(c_a), veh/h				750	0	666	461	2924	0	0	2289	1940
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				17.1	0.0	20.4	25.1	5.8	0.0	0.0	13.0	9.5
Incr Delay (d2), s/veh				0.1	0.0	4.6	8.7	0.3	0.0	0.0	1.9	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.4	0.0	3.4	1.5	1.7	0.0	0.0	5.7	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				17.3	0.0	25.0	33.8	6.1	0.0	0.0	14.9	9.7
LnGrp LOS				B	A	C	C	A	A	A	B	A
Approach Vol, veh/h					335			634			887	
Approach Delay, s/veh					23.9			10.7			13.7	
Approach LOS					C			B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		38.5			8.8	29.8		17.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		87.5			14.5	68.5		23.5				
Max Q Clear Time (g_c+I1), s		10.6			5.2	19.6		11.6				
Green Ext Time (p_c), s		3.3			0.1	5.7		0.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				14.5								
HCM 6th LOS				B								



HCM 6th Signalized Intersection Summary  
 2: Shirk Road & SR 198 WB Ramps

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
















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	43	3	346	101	551	0	0	706	216
Future Volume (veh/h)	0	0	0	43	3	346	101	551	0	0	706	216
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				44	3	357	104	568	0	0	728	223
Peak Hour Factor				0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				433	30	410	135	1127	0	0	864	732
Arrive On Green				0.26	0.26	0.26	0.08	0.61	0.00	0.00	0.47	0.47
Sat Flow, veh/h				1659	113	1572	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				47	0	357	104	568	0	0	728	223
Grp Sat Flow(s),veh/h/ln				1773	0	1572	1767	1856	0	0	1856	1572
Q Serve(g_s), s				1.4	0.0	14.9	4.0	11.9	0.0	0.0	23.6	6.0
Cycle Q Clear(g_c), s				1.4	0.0	14.9	4.0	11.9	0.0	0.0	23.6	6.0
Prop In Lane				0.94		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				463	0	410	135	1127	0	0	864	732
V/C Ratio(X)				0.10	0.00	0.87	0.77	0.50	0.00	0.00	0.84	0.30
Avail Cap(c_a), veh/h				676	0	599	354	2301	0	0	1808	1532
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				19.2	0.0	24.2	31.0	7.6	0.0	0.0	16.1	11.4
Incr Delay (d2), s/veh				0.1	0.0	9.3	8.9	0.3	0.0	0.0	2.3	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.5	0.0	5.9	1.9	3.1	0.0	0.0	8.5	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				19.3	0.0	33.4	39.9	8.0	0.0	0.0	18.4	11.6
LnGrp LOS				B	A	C	D	A	A	A	B	B
Approach Vol, veh/h					404			672			951	
Approach Delay, s/veh					31.8			12.9			16.8	
Approach LOS					C			B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		46.1			9.7	36.4		22.4				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		84.9			13.7	66.7		26.1				
Max Q Clear Time (g_c+I1), s		13.9			6.0	25.6		16.9				
Green Ext Time (p_c), s		3.6			0.1	6.2		1.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				18.5								
HCM 6th LOS				B								



# HCM 6th Signalized Intersection Summary



















## 2: Shirk Road & SR 198 WB Ramps

05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	49	4	312	116	579	0	0	748	224
Future Volume (veh/h)	0	0	0	49	4	312	116	579	0	0	748	224
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				53	4	339	126	629	0	0	813	243
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				394	30	376	160	1205	0	0	934	791
Arrive On Green				0.24	0.24	0.24	0.09	0.65	0.00	0.00	0.50	0.50
Sat Flow, veh/h				1649	124	1572	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				57	0	339	126	629	0	0	813	243
Grp Sat Flow(s),veh/h/ln				1773	0	1572	1767	1856	0	0	1856	1572
Q Serve(g_s), s				2.0	0.0	16.9	5.6	14.5	0.0	0.0	31.3	7.3
Cycle Q Clear(g_c), s				2.0	0.0	16.9	5.6	14.5	0.0	0.0	31.3	7.3
Prop In Lane				0.93		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				424	0	376	160	1205	0	0	934	791
V/C Ratio(X)				0.13	0.00	0.90	0.79	0.52	0.00	0.00	0.87	0.31
Avail Cap(c_a), veh/h				472	0	419	317	2057	0	0	1621	1373
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				24.2	0.0	29.8	35.9	7.5	0.0	0.0	17.7	11.8
Incr Delay (d2), s/veh				0.1	0.0	21.0	8.2	0.4	0.0	0.0	2.7	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.8	0.0	8.0	2.6	4.0	0.0	0.0	11.7	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				24.3	0.0	50.8	44.2	7.8	0.0	0.0	20.4	12.0
LnGrp LOS				C	A	D	D	A	A	A	C	B
Approach Vol, veh/h					396			755			1056	
Approach Delay, s/veh					47.0			13.9			18.5	
Approach LOS					D			B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		56.9			11.8	45.1		23.8				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		89.5			14.5	70.5		21.5				
Max Q Clear Time (g_c+I1), s		16.5			7.6	33.3		18.9				
Green Ext Time (p_c), s		4.1			0.1	7.3		0.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay					22.0							
HCM 6th LOS					C							



















HCM 6th Signalized Intersection Summary  
 2: Shirk Road & SR 198 WB Ramps

05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	49	4	378	116	615	0	0	792	241
Future Volume (veh/h)	0	0	0	49	4	378	116	615	0	0	792	241
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No				No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				53	4	411	126	668	0	0	861	262
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				311	23	522	161	1280	0	0	998	846
Arrive On Green				0.19	0.19	0.19	0.09	0.69	0.00	0.00	0.54	0.54
Sat Flow, veh/h				1649	124	2768	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				57	0	411	126	668	0	0	861	262
Grp Sat Flow(s),veh/h/ln				1773	0	1384	1767	1856	0	0	1856	1572
Q Serve(g_s), s				2.0	0.0	10.5	5.2	12.9	0.0	0.0	29.6	6.8
Cycle Q Clear(g_c), s				2.0	0.0	10.5	5.2	12.9	0.0	0.0	29.6	6.8
Prop In Lane				0.93		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				334	0	522	161	1280	0	0	998	846
V/C Ratio(X)				0.17	0.00	0.79	0.78	0.52	0.00	0.00	0.86	0.31
Avail Cap(c_a), veh/h				564	0	880	299	2197	0	0	1770	1500
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				25.1	0.0	28.6	32.9	5.6	0.0	0.0	14.7	9.5
Incr Delay (d2), s/veh				0.2	0.0	2.7	8.1	0.3	0.0	0.0	2.4	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				0.8	0.0	3.4	2.4	2.8	0.0	0.0	10.2	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				25.4	0.0	31.3	40.9	5.9	0.0	0.0	17.1	9.7
LnGrp LOS				C	A	C	D	A	A	A	B	A
Approach Vol, veh/h					468			794			1123	
Approach Delay, s/veh					30.6			11.5			15.4	
Approach LOS					C			B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		55.5			11.2	44.3		18.4				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		87.5			12.5	70.5		23.5				
Max Q Clear Time (g_c+I1), s		14.9			7.2	31.6		12.5				
Green Ext Time (p_c), s		4.5			0.1	8.2		1.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											17.0	
HCM 6th LOS											B	



















HCM 6th Signalized Intersection Summary  
 2: Shirk Road & SR 198 WB Ramps

05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	61	5	379	145	713	0	0	927	275
Future Volume (veh/h)	0	0	0	61	5	379	145	713	0	0	927	275
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No				No			No	
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				66	5	412	158	775	0	0	1008	299
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				276	21	464	189	1381	0	0	1102	934
Arrive On Green				0.17	0.17	0.17	0.11	0.74	0.00	0.00	0.59	0.59
Sat Flow, veh/h				1648	125	2768	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				71	0	412	158	775	0	0	1008	299
Grp Sat Flow(s),veh/h/ln				1773	0	1384	1767	1856	0	0	1856	1572
Q Serve(g_s), s				3.6	0.0	14.9	9.0	18.8	0.0	0.0	49.5	9.8
Cycle Q Clear(g_c), s				3.6	0.0	14.9	9.0	18.8	0.0	0.0	49.5	9.8
Prop In Lane				0.93		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				297	0	464	189	1381	0	0	1102	934
V/C Ratio(X)				0.24	0.00	0.89	0.84	0.56	0.00	0.00	0.92	0.32
Avail Cap(c_a), veh/h				312	0	487	233	1685	0	0	1359	1152
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				37.0	0.0	41.7	44.8	5.7	0.0	0.0	18.5	10.4
Incr Delay (d2), s/veh				0.4	0.0	17.4	19.2	0.4	0.0	0.0	8.6	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.5	0.0	6.0	4.8	4.8	0.0	0.0	20.3	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				37.4	0.0	59.1	64.0	6.1	0.0	0.0	27.1	10.6
LnGrp LOS				D	A	E	E	A	A	A	C	B
Approach Vol, veh/h					483			933			1307	
Approach Delay, s/veh					55.9			15.9			23.3	
Approach LOS					E			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		80.7			15.4	65.3		21.7				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		93.0			13.5	75.0		18.0				
Max Q Clear Time (g_c+I1), s		20.8			11.0	51.5		16.9				
Green Ext Time (p_c), s		5.7			0.1	9.3		0.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											26.5	
HCM 6th LOS											C	

HCM 6th Signalized Intersection Summary  
 2: Shirk Road & SR 198 WB Ramps

05/22/2022

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	61	5	445	145	750	0	0	970	301
Future Volume (veh/h)	0	0	0	61	5	445	145	750	0	0	970	301
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach				No			No			No		
Adj Sat Flow, veh/h/ln				1856	1856	1856	1856	1856	0	0	1856	1856
Adj Flow Rate, veh/h				66	5	484	158	815	0	0	1054	327
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				3	3	3	3	3	0	0	3	3
Cap, veh/h				269	20	451	186	1402	0	0	1131	958
Arrive On Green				0.16	0.16	0.16	0.11	0.76	0.00	0.00	0.61	0.61
Sat Flow, veh/h				1648	125	2768	1767	1856	0	0	1856	1572
Grp Volume(v), veh/h				71	0	484	158	815	0	0	1054	327
Grp Sat Flow(s),veh/h/ln				1773	0	1384	1767	1856	0	0	1856	1572
Q Serve(g_s), s				3.9	0.0	18.0	9.7	21.1	0.0	0.0	56.7	11.3
Cycle Q Clear(g_c), s				3.9	0.0	18.0	9.7	21.1	0.0	0.0	56.7	11.3
Prop In Lane				0.93		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				289	0	451	186	1402	0	0	1131	958
V/C Ratio(X)				0.25	0.00	1.07	0.85	0.58	0.00	0.00	0.93	0.34
Avail Cap(c_a), veh/h				289	0	451	200	1562	0	0	1277	1082
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)				1.00	0.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh				40.3	0.0	46.2	48.5	5.9	0.0	0.0	19.5	10.6
Incr Delay (d2), s/veh				0.4	0.0	63.4	26.2	0.4	0.0	0.0	11.5	0.2
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				1.7	0.0	9.9	5.5	5.5	0.0	0.0	24.2	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				40.8	0.0	109.6	74.8	6.3	0.0	0.0	31.0	10.8
LnGrp LOS				D	A	F	E	A	A	A	C	B
Approach Vol, veh/h					555			973			1381	
Approach Delay, s/veh					100.8			17.4			26.2	
Approach LOS					F			B			C	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		88.0			16.1	71.8		22.5				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		93.0			12.5	76.0		18.0				
Max Q Clear Time (g_c+I1), s		23.1			11.7	58.7		20.0				
Green Ext Time (p_c), s		6.3			0.0	8.6		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											37.5	
HCM 6th LOS											D	

## APPENDIX C

### Collision Data

## SWITRS Query & Map

### Result Summary

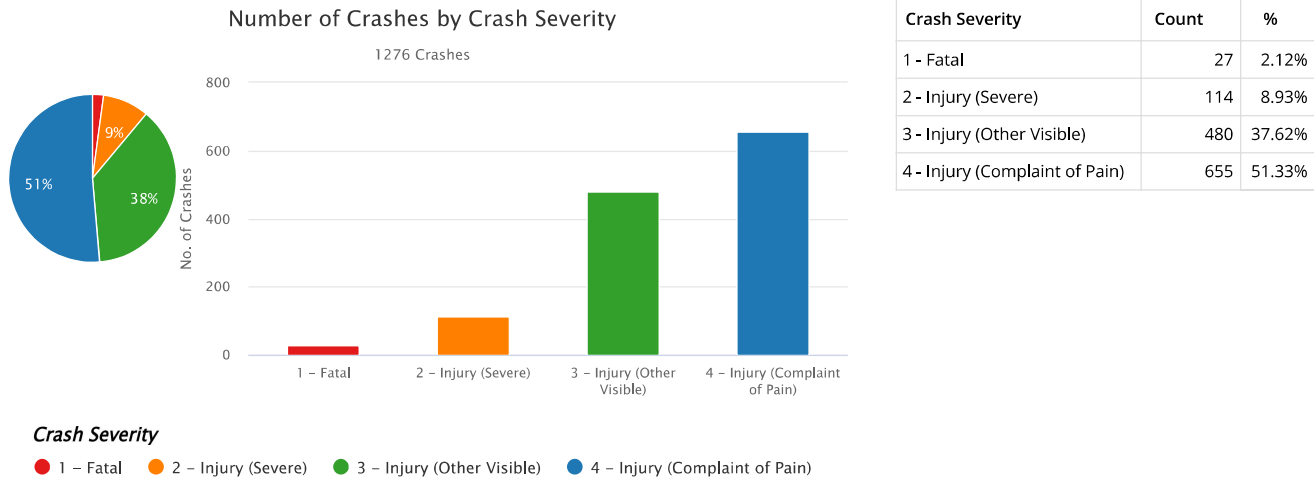
Date 01/01/2018 - 12/31/2020  
 County Tulare  
 City Visalia

[Change Filters](#) [Download Raw Data](#)

<b>Total Crashes</b>	1,276	<b>Total Victims</b>	28 Killed & 1,797 Injured	<b>State Highway</b>	303 (23.7%)
<b>Ped Crashes</b>	79 (6.2%)	<b>Bike Crashes</b>	83 (6.5%)	<b>Motorcycle Crashes</b>	69 (5.4%)

Overall

By Crash Severity



By Crash Type

By Day of Week and Time

By Primary Crash Factor (PCF) Violation

## SWITRS Query & Map

### Result Summary

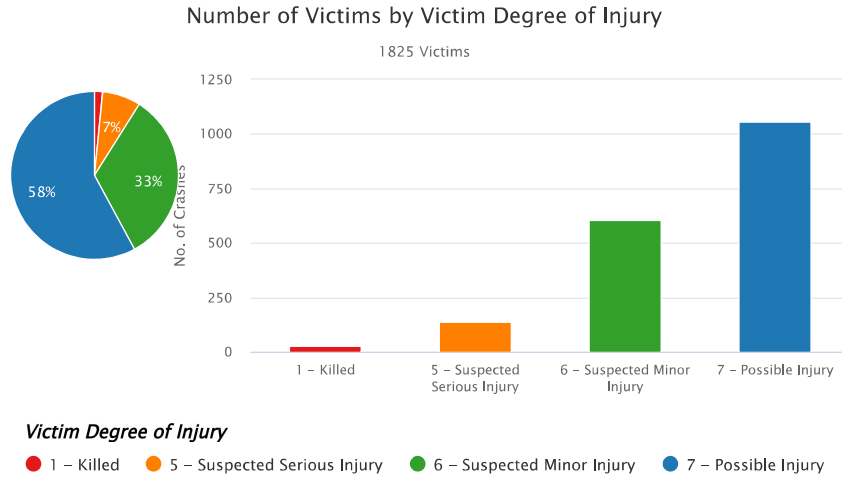
Date 01/01/2018 - 12/31/2020  
 County Tulare  
 City Visalia

[Change Filters](#) [Download Raw Data](#)

<b>Total Crashes</b>	1,276	<b>Total Victims</b>	28 Killed & 1,797 Injured	<b>State Highway</b>	303 (23.7%)
<b>Ped Crashes</b>	79 (6.2%)	<b>Bike Crashes</b>	83 (6.5%)	<b>Motorcycle Crashes</b>	69 (5.4%)

#### Victim Summary

By Victim Degree of Injury



Victim Degree of Injury	Count	%
1 - Killed	28	1.53%
5 - Suspected Serious Injury	135	7.40%
6 - Suspected Minor Injury	606	33.21%
7 - Possible Injury	1056	57.86%

By Victim Role

By Victim Safety Equipment 1

By Victim Gender and Age

# Crash Details for: Case ID 8584860

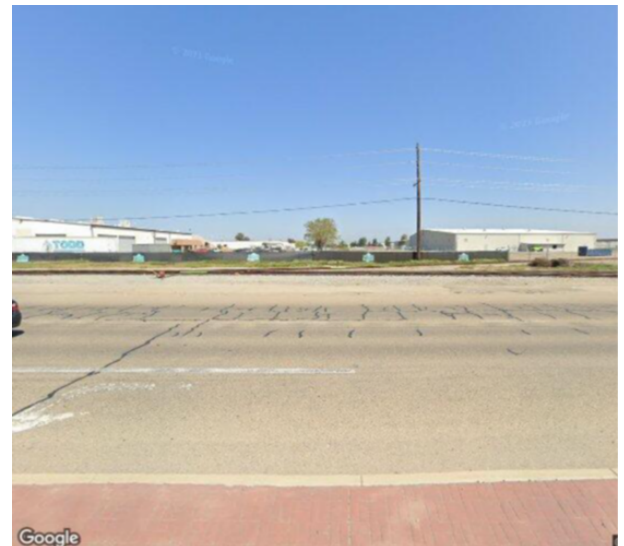
## Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	02/23/2018 10:38		
Location (Intersection)	Goshen Av & Clancy St		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.341946, -119.375939		
Type of Crash	D - Broadside		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	3 - Injury (Other Visible)		
PCF Violation Category	09 - Automobile Right of Way		
Weather	B - Cloudy		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	Yes

## Map View



## Street View



## Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	G - Truck or Truck Tractor with Trailer	Yes	North	E - Making Left Turn
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	East	B - Proceeding Straight

## Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	1 - Driver	M - Male	19	6 - Suspected Minor Injury



# Crash Details for: Case ID 8658434

## Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	06/28/2018 09:19		
Location (Intersection)	Shirk & School		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3318901, -119.3676682		
Type of Crash	C - Rear End		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	03 - Unsafe Speed		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

## Map View



## Street View



## Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	South	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	South	A - Stopped

## Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	1 - Driver	F - Female	50	7 - Possible Injury

# Crash Details for: Case ID 8659692

## Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	05/06/2018 11:33		
Location (Intersection)	N Shirk St & W Hillsdale Av		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3299341, -119.3676692		
Type of Crash	B - Sideswipe		
Motor Vehicle Involved With	G - Bicycle		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	08 - Improper Turning		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	Yes
Motorcycle Accident	No	Truck Accident	No

## Map View



## Street View



## Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	South	B - Proceeding Straight
2	4 - Bicyclist	L - Bicycle	No	South	E - Making Left Turn

## Victims: 5

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	2 - Passenger	M - Male	25	0 - No Injury
1	2 - Passenger	F - Female	7	0 - No Injury
1	2 - Passenger	F - Female	5	0 - No Injury

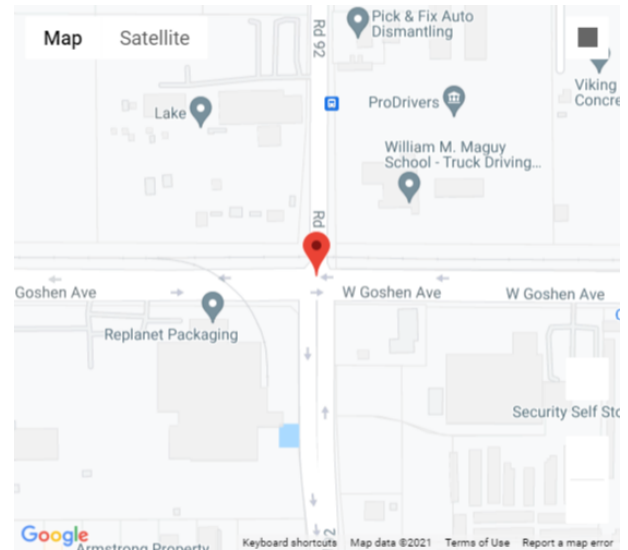
<b>Party Number</b>	<b>Victim Role</b>	<b>Victim Gender</b>	<b>Victim Age</b>	<b>Victim Degree of Injury</b>
1	2 - Passenger	M - Male	2	0 - No Injury
2	4 - Bicyclist	M - Male	15	7 - Possible Injury

# Crash Details for: Case ID 8854402

## Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	04/10/2019 08:30		
Location (Intersection)	W Goshen Av & Shirk		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3420181, -119.3677521		
Type of Crash	C - Rear End		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	03 - Unsafe Speed		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

## Map View



## Street View



## Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	D - Pickup or Panel Truck	Yes	East	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	No	East	A - Stopped

## Victims: 2

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
2	2 - Passenger	F - Female	12	7 - Possible Injury
2	2 - Passenger	F - Female	8	0 - No Injury

# Crash Details for: Case ID 8857574

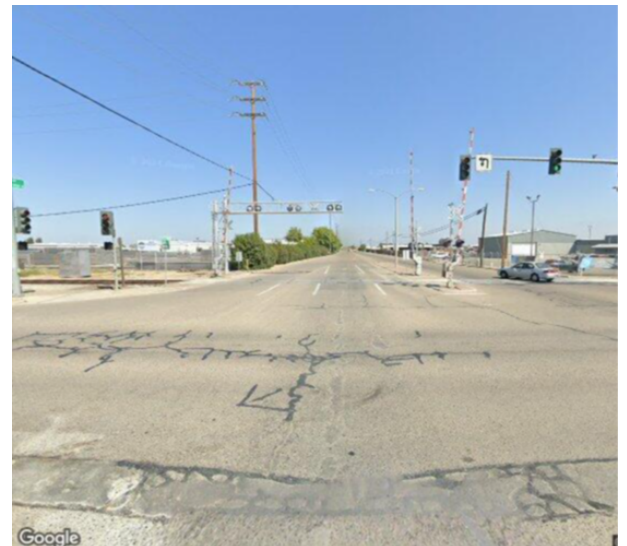
## Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	04/23/2019 11:23		
Location (Intersection)	W Goshen Av & N Clancy		
Dist. & Dir. from Intersection	36.00 ft West		
State Highway	No		
Geocoded Location	36.3418579, -119.367897		
Type of Crash	C - Rear End		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	3 - Injury (Other Visible)		
PCF Violation Category	03 - Unsafe Speed		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

## Map View



## Street View



## Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	East	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	E - Pickup or Panel Truck with Trailer	No	East	F - Making U-Turn

## Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	M - Male	30	6 - Suspected Minor Injury

# Crash Details for: Case ID 8873900

## Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	05/10/2019 12:10		
Location (Intersection)	Goshen Av & Shirk St		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3420181, -119.3677521		
Type of Crash	D - Broadside		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	4 - Injury (Complaint of Pain)		
PCF Violation Category	12 - Traffic Signals and Signs		
Weather	B - Cloudy		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	Yes

## Map View



## Street View



## Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	East	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	F - Truck or Truck Tractor	No	South	B - Proceeding Straight

## Victims: 2

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	M - Male	65	7 - Possible Injury
2	1 - Driver	M - Male	45	7 - Possible Injury

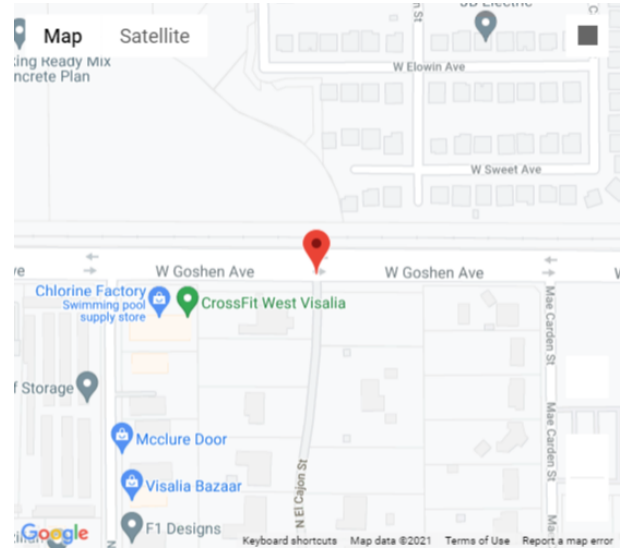


# Crash Details for: Case ID 9204005

## Crash Information

County	Tulare		
City	Visalia		
Date & Time (M/D/Y)	12/02/2020 12:30		
Location (Intersection)	Goshen Av & El Cajon		
Dist. & Dir. from Intersection	At Intersection		
State Highway	No		
Geocoded Location	36.3418388, -119.3620605		
Type of Crash	D - Broadside		
Motor Vehicle Involved With	C - Other Motor Vehicle		
Crash Severity	3 - Injury (Other Visible)		
PCF Violation Category	03 - Unsafe Speed		
Weather	A - Clear		
Alcohol Involved	No		
Pedestrian Accident	No	Bicycle Accident	No
Motorcycle Accident	No	Truck Accident	No

## Map View



## Street View



## Parties: 2

Party Number	Party Type	Statewide Vehicle Type	At Fault	Party Direction	Movement Preceding Collision
1	1 - Driver (including Hit and Run)	A - Passenger Car/Station Wagon	Yes	East	B - Proceeding Straight
2	1 - Driver (including Hit and Run)	-- Not Stated	No	East	D - Making Right Turn

## Victims: 1

Party Number	Victim Role	Victim Gender	Victim Age	Victim Degree of Injury
1	1 - Driver	M - Male	27	6 - Suspected Minor Injury

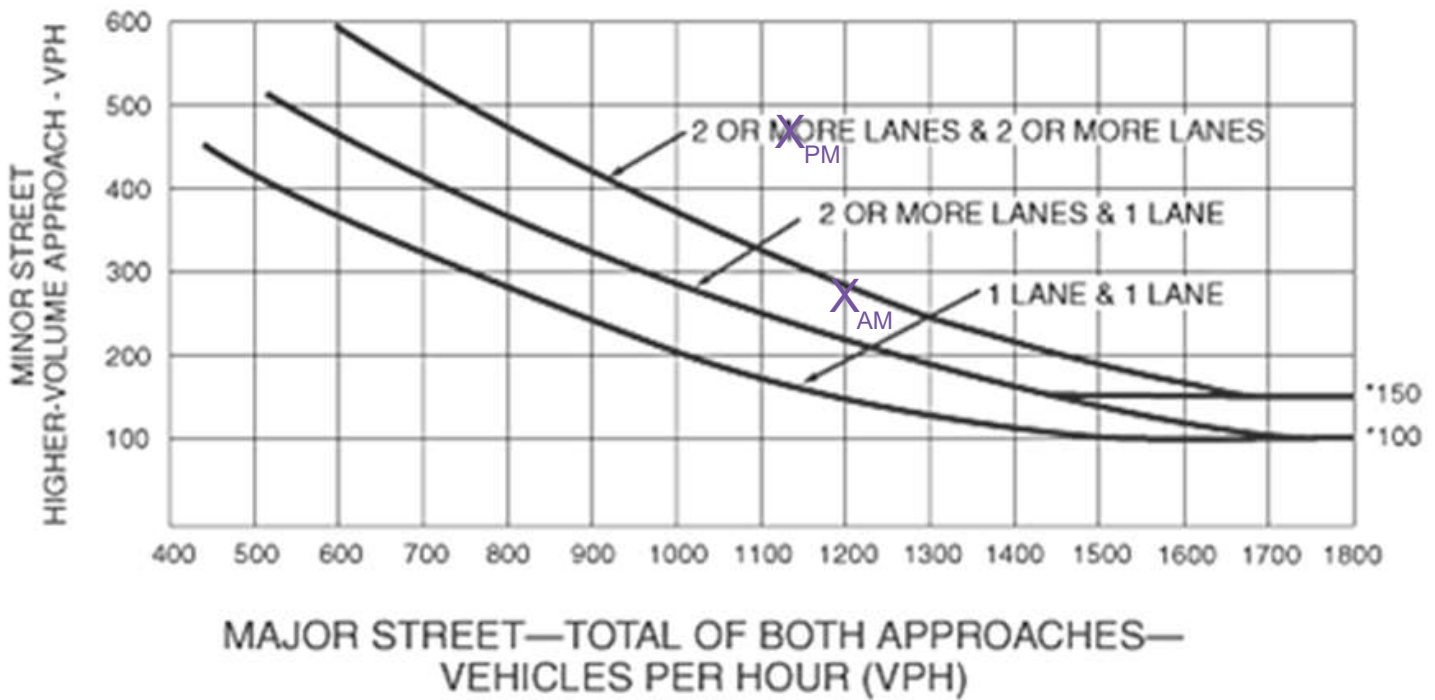
## APPENDIX D

### Signal Warrant Analysis



# Shirk Road / SR 198 EB Ramps

Figure 4C-3. Warrant 3, Peak Hour

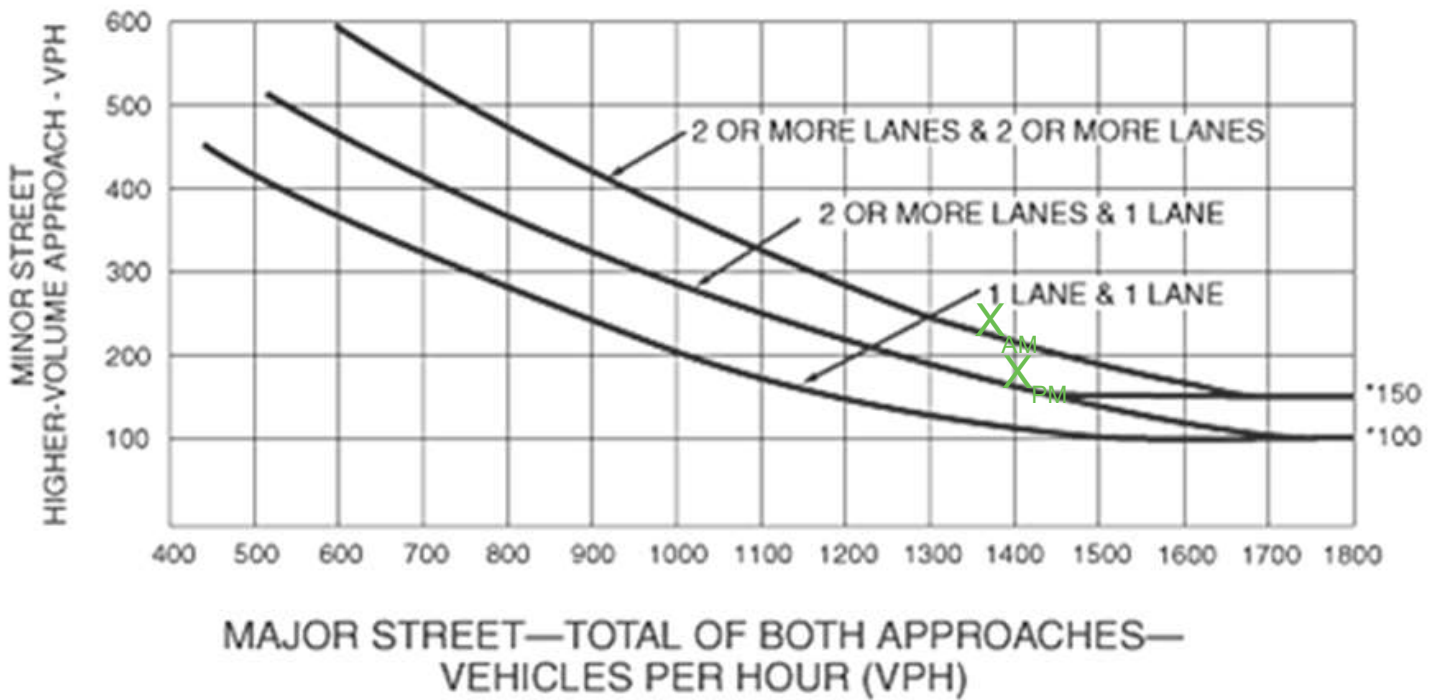


\*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

LEGEND	
$X_{AM}$ $X_{PM}$	5-Year Horizon Plus Project

# Shirk Road / SR 198 WB Ramps

Figure 4C-3. Warrant 3, Peak Hour

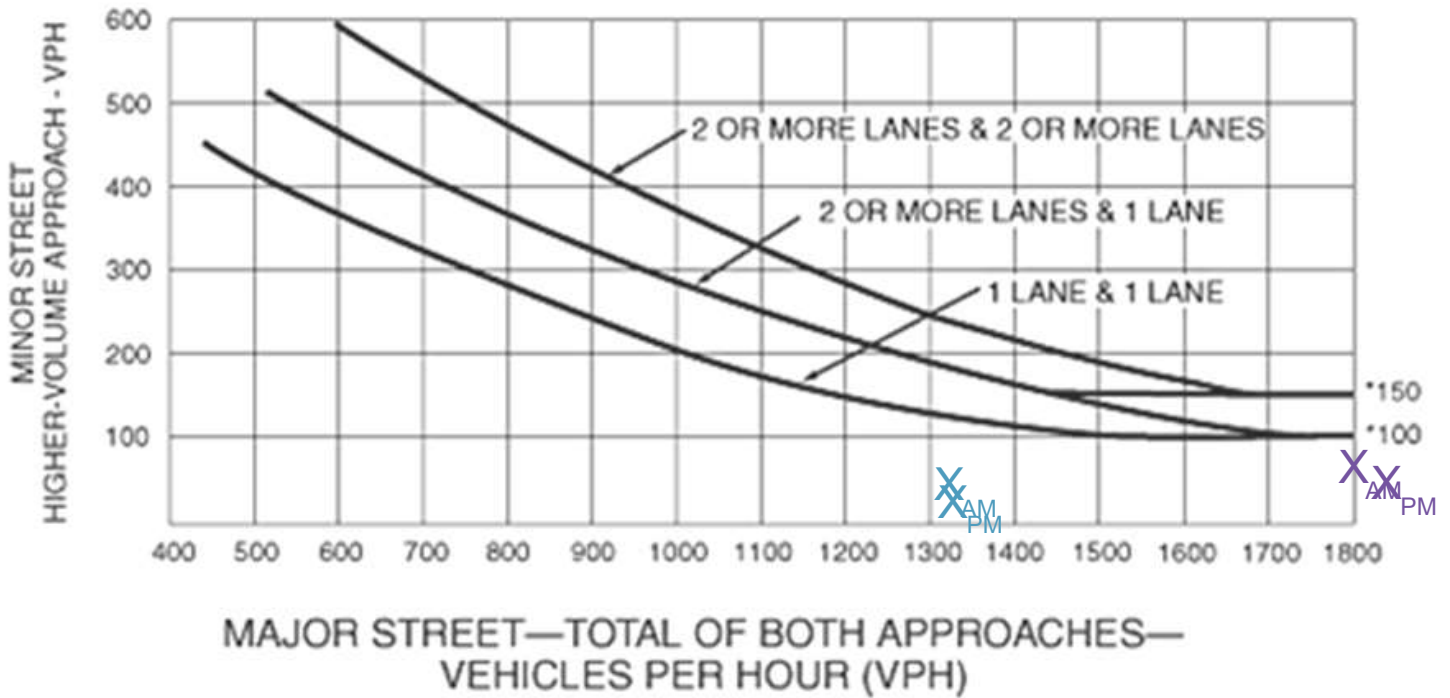


\*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

LEGEND	
$X_{AM}$	$X_{PM}$ Opening Year Without Project

# Shirk Road / Hillsdale Avenue

Figure 4C-3. Warrant 3, Peak Hour

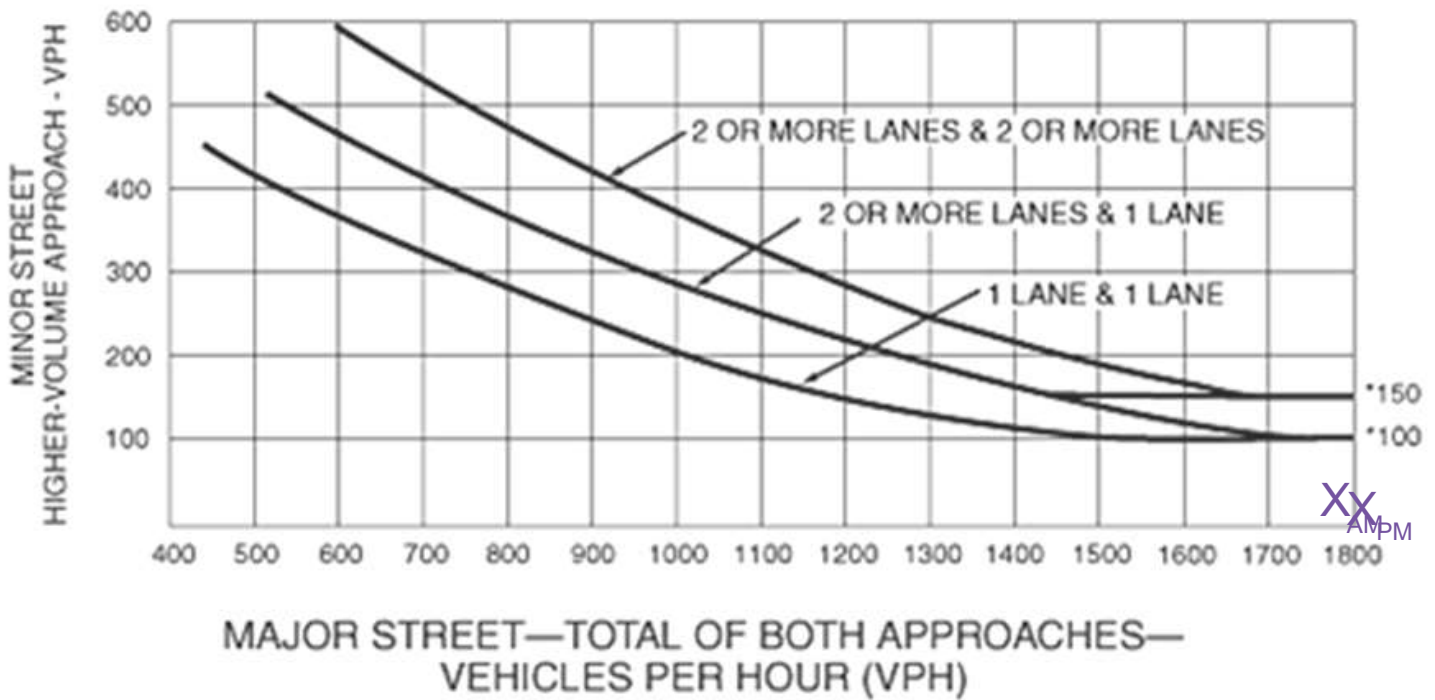


\*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

LEGEND	
X <sub>AM</sub> X <sub>PM</sub>	Existing
X <sub>AM</sub> X <sub>PM</sub>	5-Year Horizon Plus Project

# Shirk Road / School Avenue

Figure 4C-3. Warrant 3, Peak Hour



\*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

LEGEND
$X_{AM}$ $X_{PM}$ 5-Year Horizon Plus Project

## APPENDIX E

### Vehicle Miles Traveled Model Run

From: **Kasia A Poleszczuk** <[KPolleszczuk@tularecag.ca.gov](mailto:KPolleszczuk@tularecag.ca.gov)>  
Date: [Mon, Nov 1, 2021](#) at 4:59 PM  
Subject: RE: VMT Model run for Iron Ridge Development  
To: [jstine@vrpatechnologies.com](mailto:jstine@vrpatechnologies.com) <[jstine@vrpatechnologies.com](mailto:jstine@vrpatechnologies.com)>  
Cc: Derek M Winning <[DWinning@tularecag.ca.gov](mailto:DWinning@tularecag.ca.gov)>, Roberto Brady <[rbrady@tularecag.ca.gov](mailto:rbrady@tularecag.ca.gov)>

Hi Jeff,

Below are results for vmt run for the Iron Ridge.

		<b>VMT/per capita</b>	<b>VMT/per employee</b>	<b>VMT/per service population</b>
TCAG Region		11.7	7.9	28.4
Visalia	16%	9.8	6.7	23.9
Iron Ridge		<b>8.07</b>		

Let me know if you have any questions,

Thanks

Kasia