Appendix L:
Transportation Supporting Information

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Memorandum

Date: May 4, 2023

Project: SCI004-1

To: Ms. Mary Bean
Mr. Grant Gruber
First Carbon Solutions, Inc.

From: Kevin Carstens
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Mark Spencer
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Subject: Transportation Study Summary for the Suisun Logistics Center Project

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As requested, W-Trans has prepared a summary of the Draft Environmental Impact Report (DEIR) transportation section. The intent of this document is to present the materials of the DEIR at a high level for general comprehension, specifically regarding access and circulation on Walters Road and Petersen Road adjacent to the project site. Full details and technical appendices are included in the DEIR materials.

Project Description and Access

Construction of the project would result in the vacant field east of Walters Road and south of Petersen Road being replaced with 2,058,700 square feet of logistical warehousing, which includes the sorting and transshipment of items between trucks across six large warehouse buildings. Passenger vehicle (non-truck) access would be available on Walters Road via a new east leg at the intersection of Walters Road and the existing Walmart driveway. Additional access, including all truck access, would be via three driveways to be constructed on Petersen Road. There would be no direct vehicular access on SR-12. A copy of the site plan is attached.

Operational Analysis and Queuing

Traffic volumes were compiled for Existing (2021), Near-Term (2023), and Future (2035) horizon years, without and with the addition of project traffic. These volumes were then used to evaluate the surrounding roadway network in terms of traffic operations in terms of how long it takes drivers to get through an intersection, how dense traffic is on the roads, as well as queuing (how many vehicles are stacking at an intersection waiting to turn).

Several instances of vehicles stacking beyond the end of the turn lane were determined to occur with the addition of project traffic, a potential impact to roadway safety under CEQA. The following mitigation measures were devised to address the overages:

- TRANS-1a: Adjust the signal timing at Air Base Parkway/Walters Road and Rio Vista Road (SR-12)/Walters Road to account for the shift in vehicle volumes;
- TRANS-1b: Extend the westbound and southbound left-turn lanes at Petersen Road/Walters Road to contain maximum queues;
- TRANS-1b: Add protected left-turn phasing (green arrow for turning traffic) to the Petersen Road approaches on Walters Road;
- TRANS-1b: Prohibit gas station patrons leaving the Valero on the northeast corner of Petersen Road/Walters Road from turning left out of the gas station onto southbound Walters Road;
- TRANS-1c, -1d, and -1e: Monitor future traffic volumes, and if necessary adjust turn lane lengths or signal timings at Petersen Road/Walters Road, Walmart Driveway/Walters Road, and/or Rio Vista Road (SR-

12)/Walters Road, coordinate the signals at Walmart Driveway/Walters Road and Rio Vista Road (SR-12)/Walters Road, and/or add a southbound right-turn overlap (green arrow that allows drivers to turn right while the through traffic has a red indication) to Rio Vista Road (SR-12)/Walters Road; and

- TRANS-1f: Implement a program that discourages employees driving alone to and from the site.

A map showing the location of these mitigation measures (without the TRANS prefix) is attached.

Vehicle Miles Traveled

Vehicle miles traveled (VMT) is a measure of how often and how far vehicles are being driven. Higher VMT can mean more vehicles on the road, that drivers are driving farther, or both. Reducing VMT correlates to reducing greenhouse gas emissions, and therefore relates to the State's goals to reduce emissions. For this project, the relevant threshold is having a VMT per employee that is less than 85 percent of the Citywide average. This is often achieved by locating projects in central locations (requiring less driving distance), encouraging employees to walk, bike, or take transit, or reducing trips such as allowing eligible employees to work remotely. It was found that even with mitigation measures applied to reduce VMT, the project would have a VMT per employee above the City's threshold, representing a significant and unavoidable impact under CEQA.

Safety

The need for left- and right-turn lanes into the project from Walters Road and Petersen Road was assessed, as was visibility for drivers leaving the project site. Several impacts to safety were determined, with the following mitigation measures:

- TRANS-3a: Provide improvement plans to City staff demonstrating trucks can enter and exit all project driveways, including the Walters Road driveway that shall be designed to discourage (but not prohibit) trucks;
- TRANS-3b: Add "KEEP CLEAR" pavement markings and signage to the dedicated eastbound truck lane on Petersen Road in front of the project site to enable drivers to leave the site during Air Force Base truck operations;
- TRANS-3c: Prepare plans for a northbound right-turn lane at Walmart Driveway/Walters Road into the project site;
- TRANS-3d: Demonstrate that on-site storage at the easternmost driveway on Petersen Road would be at least 125 feet;
- TRANS-3e: Split the phasing for the Petersen Road approaches to Walters Road so that the approaches operate separately rather than at the same time, similar to the Walters Road and Lawler Ranch Parkway approaches to SR-12; and
- TRANS-3f: Submit plans for the design of the interior intersection near the Walters Road driveway.

Emergency Access

Given that the project is designed for large trucks to navigate around the site, it can be reasonably concluded that fire apparatus engines would be able to also negotiate the proposed site design. The only mitigation identified is to implement measure TRANS-3a (to design the Walters Road driveway to discourage but not prohibit trucks). This way, general truck traffic is directed to use Petersen Road, but a fire engine could still use the Walters Road driveway for emergency response.

Thank you for giving W-Trans the opportunity to provide these services. Please call if you have any questions.

MES/krc/SCI004-1.M2

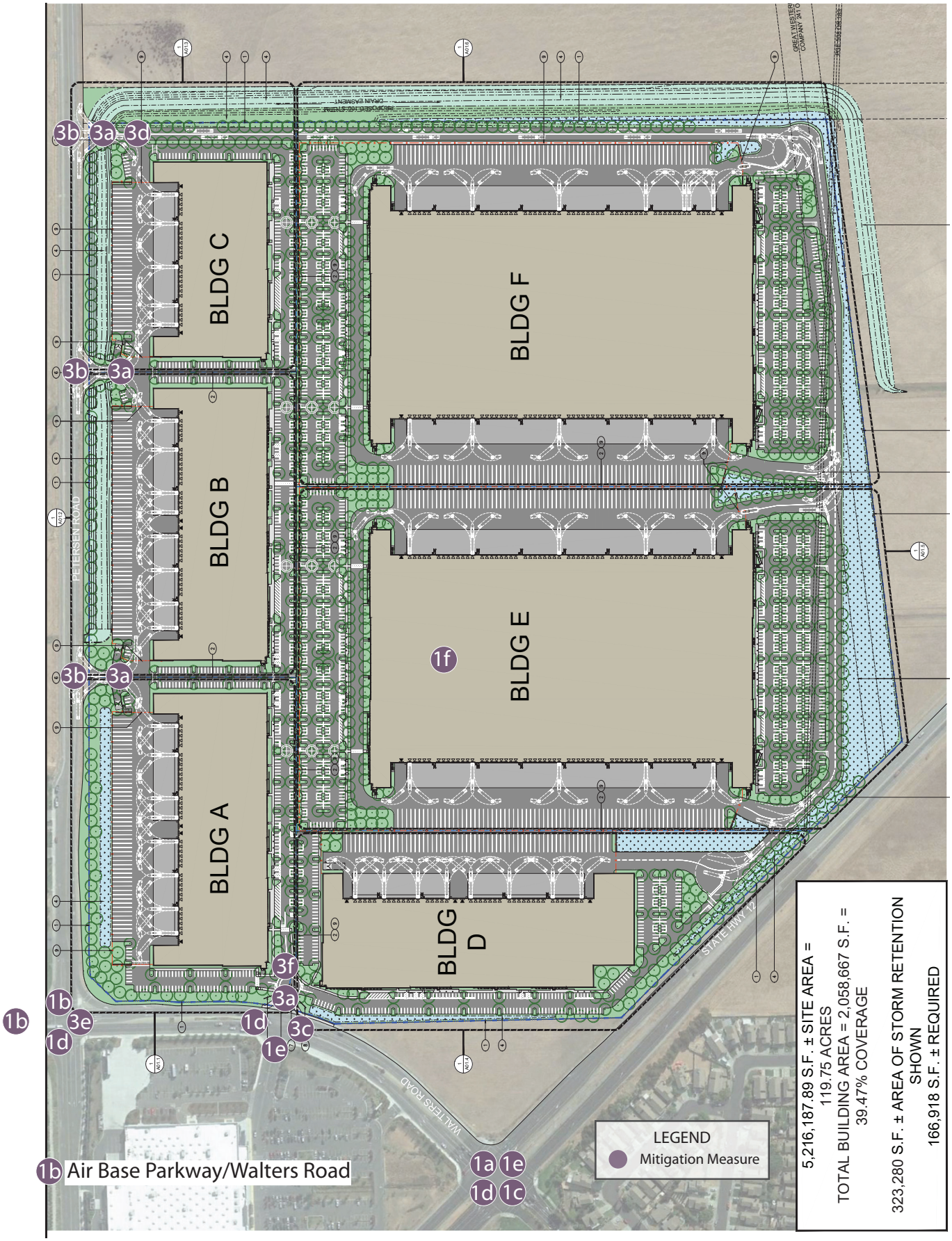
Attachments: Site Plan, Mitigation Measure Locations

Source: RMW Architecture Interiors 5/21

sci004-1.ai 5/23

Transportation Study Summary for the Suisun Logistics Center Project

Site Plan



Source: RMW Architecture Interiors 5/21

sci004-1.ai 5/23

Transportation Study Summary for the Suisun Logistics Center Project

Mitigation Measure Locations

W-Trans

HCM 6th Signalized Intersection Summary
1: Sunset Avenue /Sunset Avenue & Pintail Drive

04/21/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	73	9	97	221	165	30	272	39	178	319	31
Future Volume (veh/h)	47	73	9	97	221	165	30	272	39	178	319	31
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1753	1900	1885	1824	1900	1885	1767	1870	1885	1824
Adj Flow Rate, veh/h	52	81	10	108	246	183	33	302	43	198	354	34
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	0	5	0	1	0	0	1	4	2	1	0
Cap, veh/h	164	517	64	446	313	233	56	1243	175	237	1640	157
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.03	0.39	0.39	0.13	0.50	0.50
Sat Flow, veh/h	958	1658	205	1322	1002	745	1810	3148	443	1781	3301	315
Grp Volume(v), veh/h	52	0	91	108	0	429	33	170	175	198	191	197
Grp Sat Flow(s),veh/h/ln	958	0	1862	1322	0	1748	1810	1791	1800	1781	1791	1825
Q Serve(g_s), s	4.7	0.0	3.2	5.8	0.0	20.1	1.6	5.7	5.8	9.8	5.4	5.5
Cycle Q Clear(g_c), s	24.9	0.0	3.2	9.0	0.0	20.1	1.6	5.7	5.8	9.8	5.4	5.5
Prop In Lane	1.00		0.11	1.00		0.43	1.00		0.25	1.00		0.17
Lane Grp Cap(c), veh/h	164	0	581	446	0	545	56	707	711	237	890	907
V/C Ratio(X)	0.32	0.00	0.16	0.24	0.00	0.79	0.58	0.24	0.25	0.84	0.21	0.22
Avail Cap(c_a), veh/h	242	0	732	553	0	687	187	707	711	323	890	907
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.87	0.87	0.87	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	0.0	22.4	25.6	0.0	28.2	43.0	18.2	18.2	38.1	12.8	12.8
Incr Delay (d2), s/veh	1.4	0.0	0.2	0.3	0.0	5.2	10.3	0.2	0.2	14.4	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.4	1.9	0.0	9.1	0.9	2.3	2.4	5.1	2.2	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.9	0.0	22.5	26.0	0.0	33.4	53.3	18.4	18.5	52.4	13.3	13.3
LnGrp LOS	D	A	C	C	A	C	D	B	B	D	B	B
Approach Vol, veh/h		143			537			378			586	
Approach Delay, s/veh		29.2			31.9			21.5			26.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.5	49.8		32.7	16.7	40.6		32.7				
Change Period (Y+Rc), s	* 4.7	5.1		4.6	* 4.7	5.1		4.6				
Max Green Setting (Gmax), s	* 9.3	30.9		35.4	* 16	23.9		35.4				
Max Q Clear Time (g_c+I1), s	3.6	7.5		26.9	11.8	7.8		22.1				
Green Ext Time (p_c), s	0.0	3.2		0.5	0.3	2.4		3.3				

Intersection Summary	
HCM 6th Ctrl Delay	27.4
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary
2: Grizzly Island Road/Sunset Avenue & State Hwy 12

04/21/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	656	157	31	1242	78	241	125	5	138	113	299
Future Volume (veh/h)	229	656	157	31	1242	78	241	125	5	138	113	299
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1841	1885	1870	1841	1900	1885	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	241	691	165	33	1307	82	254	132	5	132	137	315
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	1	4	1	2	4	0	1	0	0	0	0	0
Cap, veh/h	293	1138	519	427	1707	786	305	323	270	219	230	379
Arrive On Green	0.08	0.33	0.33	0.24	0.49	0.49	0.17	0.17	0.17	0.12	0.12	0.12
Sat Flow, veh/h	3483	3497	1595	1781	3497	1609	1795	1900	1590	1810	1900	3127
Grp Volume(v), veh/h	241	691	165	33	1307	82	254	132	5	132	137	315
Grp Sat Flow(s),veh/h/ln	1742	1749	1595	1781	1749	1609	1795	1900	1590	1810	1900	1564
Q Serve(g_s), s	10.2	24.9	11.7	2.2	45.8	4.1	20.5	9.3	0.4	10.4	10.2	14.8
Cycle Q Clear(g_c), s	10.2	24.9	11.7	2.2	45.8	4.1	20.5	9.3	0.4	10.4	10.2	14.8
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	293	1138	519	427	1707	786	305	323	270	219	230	379
V/C Ratio(X)	0.82	0.61	0.32	0.08	0.77	0.10	0.83	0.41	0.02	0.60	0.59	0.83
Avail Cap(c_a), veh/h	439	1138	519	427	1707	786	484	512	428	318	334	550
HCM Platoon Ratio	1.00	1.00	1.00	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	0.98	0.98	0.98
Uniform Delay (d), s/veh	67.6	42.5	38.1	44.2	31.4	20.7	60.2	55.6	51.9	62.5	62.4	64.4
Incr Delay (d2), s/veh	7.6	2.4	1.6	0.0	3.3	0.3	3.6	0.3	0.0	1.9	1.8	6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	10.8	4.7	0.9	19.1	1.6	9.7	4.6	0.2	4.9	5.1	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	75.2	45.0	39.7	44.2	34.7	21.0	63.8	55.9	51.9	64.4	64.2	70.4
LnGrp LOS	E	D	D	D	C	C	E	E	D	E	E	E
Approach Vol, veh/h		1097			1422			391			584	
Approach Delay, s/veh		50.8			34.1			61.0			67.6	
Approach LOS		D			C			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.1	55.0		22.8	17.7	79.4		30.1				
Change Period (Y+Rc), s	6.2	* 6.2		4.6	5.1	6.2		4.6				
Max Green Setting (Gmax), s	12.3	* 49		26.4	18.9	43.8		40.4				
Max Q Clear Time (g_c+I1), s	14.2	26.9		16.8	12.2	47.8		22.5				
Green Ext Time (p_c), s	0.0	2.1		1.4	0.4	0.0		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	48.0
HCM 6th LOS	D

Notes

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

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	729	1587	16	0	85
Future Vol, veh/h	0	729	1587	16	0	85
Conflicting Peds, #/hr	0	0	0	4	0	7
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	275	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	2	3	3	0	2	0
Mvmt Flow	0	801	1744	18	0	93

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	883
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	293
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	290
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	23.2
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	290
HCM Lane V/C Ratio	-	-	-	0.322
HCM Control Delay (s)	-	-	-	23.2
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	1.4

Intersection	
Intersection Delay, s/veh	13.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	30	173	46	62	279	5	79	16	90	2	55	71
Future Vol, veh/h	30	173	46	62	279	5	79	16	90	2	55	71
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	0	2	5	0	2	0	2	2	2
Mvmt Flow	34	199	53	71	321	6	91	18	103	2	63	82
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	13.1	16.6	12	10.9
HCM LOS	B	C	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	43%	12%	18%	2%
Vol Thru, %	9%	69%	81%	43%
Vol Right, %	49%	18%	1%	55%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	185	249	346	128
LT Vol	79	30	62	2
Through Vol	16	173	279	55
RT Vol	90	46	5	71
Lane Flow Rate	213	286	398	147
Geometry Grp	1	1	1	1
Degree of Util (X)	0.345	0.443	0.604	0.241
Departure Headway (Hd)	5.845	5.568	5.469	5.906
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	610	641	656	602
Service Time	3.929	3.643	3.536	3.998
HCM Lane V/C Ratio	0.349	0.446	0.607	0.244
HCM Control Delay	12	13.1	16.6	10.9
HCM Lane LOS	B	B	C	B
HCM 95th-tile Q	1.5	2.3	4.1	0.9

HCM 6th Signalized Intersection Summary
5: Lawler Ranch Parkway /Emperor Drive & State Hwy 12

04/21/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	549	60	58	1138	10	166	24	61	16	19	168
Future Volume (veh/h)	124	549	60	58	1138	10	166	24	61	16	19	168
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	1885	1841	1900	1900	1841	1811	1870	1870	1870	1900	1870	1824
Adj Flow Rate, veh/h	129	572	62	60	1185	10	191	0	64	17	20	175
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	1	4	0	0	4	6	2	2	2	0	2	0
Cap, veh/h	216	1486	684	180	1413	620	405	0	180	254	23	203
Arrive On Green	0.12	0.42	0.42	0.10	0.40	0.40	0.11	0.00	0.11	0.14	0.14	0.14
Sat Flow, veh/h	1795	3497	1610	1810	3497	1535	3563	0	1585	1810	165	1442
Grp Volume(v), veh/h	129	572	62	60	1185	10	191	0	64	17	0	195
Grp Sat Flow(s),veh/h/ln	1795	1749	1610	1810	1749	1535	1781	0	1585	1810	0	1607
Q Serve(g_s), s	6.6	10.9	2.2	3.0	29.5	0.4	4.9	0.0	3.6	0.8	0.0	11.5
Cycle Q Clear(g_c), s	6.6	10.9	2.2	3.0	29.5	0.4	4.9	0.0	3.6	0.8	0.0	11.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.90
Lane Grp Cap(c), veh/h	216	1486	684	180	1413	620	405	0	180	254	0	226
V/C Ratio(X)	0.60	0.38	0.09	0.33	0.84	0.02	0.47	0.00	0.36	0.07	0.00	0.86
Avail Cap(c_a), veh/h	372	1810	833	225	1810	794	553	0	246	281	0	249
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.3	19.1	16.6	40.5	26.0	17.3	40.1	0.0	39.5	36.0	0.0	40.6
Incr Delay (d2), s/veh	1.0	0.2	0.1	0.4	2.9	0.0	0.9	0.0	1.2	0.0	0.0	22.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	4.0	0.8	1.3	11.5	0.1	2.2	0.0	1.5	0.4	0.0	5.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.3	19.3	16.7	40.9	28.9	17.3	41.0	0.0	40.7	36.1	0.0	62.9
LnGrp LOS	D	B	B	D	C	B	D	A	D	D	A	E
Approach Vol, veh/h		763			1255			255			212	
Approach Delay, s/veh		22.8			29.4			40.9			60.7	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.3	47.6		18.7	16.3	45.5		16.1
Change Period (Y+Rc), s	4.7	6.5		5.1	* 4.7	6.5		5.1
Max Green Setting (Gmax), s	12.3	50.0		15.0	* 20	50.0		15.0
Max Q Clear Time (g_c+I1), s	15.6	12.9		13.5	8.6	31.5		6.9
Green Ext Time (p_c), s	0.0	3.9		0.1	0.1	7.5		0.5

Intersection Summary	
HCM 6th Ctrl Delay	31.2
HCM 6th LOS	C

Notes

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

HCM 6th TWSC
6: State Hwy 12 & Woodlark Drive

04/21/2021

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	594	1104	4	0	160
Future Vol, veh/h	0	594	1104	4	0	160
Conflicting Peds, #/hr	0	0	0	5	0	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	260	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	2	4	4	0	2	0
Mvmt Flow	0	619	1150	4	0	167

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	583
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	461
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	457
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.3
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	457
HCM Lane V/C Ratio	-	-	-	0.365
HCM Control Delay (s)	-	-	-	17.3
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	1.6

HCM 6th Signalized Intersection Summary
7: Walters Road & Air Base Parkway

04/21/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	102	943	260	279	378	8	328	111	671	5	96	98
Future Volume (veh/h)	102	943	260	279	378	8	328	111	671	5	96	98
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	1737	1900	1841	1885	1885	1693	1870	1737	1870	1648	1752	1767
Adj Flow Rate, veh/h	109	1003	0	297	402	0	349	118	0	5	102	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	11	0	4	1	1	14	2	11	2	17	10	9
Cap, veh/h	133	1726		353	1789		379	488		10	131	
Arrive On Green	0.08	0.48	0.00	0.10	0.50	0.00	0.21	0.28	0.00	0.01	0.07	0.00
Sat Flow, veh/h	1654	3610	1560	3483	3582	1434	1781	1737	1585	1570	1752	0
Grp Volume(v), veh/h	109	1003	0	297	402	0	349	118	0	5	102	0
Grp Sat Flow(s),veh/h/ln	1654	1805	1560	1742	1791	1434	1781	1737	1585	1570	1752	0
Q Serve(g_s), s	7.8	24.1	0.0	10.1	7.6	0.0	23.0	6.3	0.0	0.4	6.9	0.0
Cycle Q Clear(g_c), s	7.8	24.1	0.0	10.1	7.6	0.0	23.0	6.3	0.0	0.4	6.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	133	1726		353	1789		379	488		10	131	
V/C Ratio(X)	0.82	0.58		0.84	0.22		0.92	0.24		0.50	0.78	
Avail Cap(c_a), veh/h	200	1726		377	1789		445	695		72	343	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	54.4	22.6	0.0	53.0	16.9	0.0	46.3	33.3	0.0	59.4	54.6	0.0
Incr Delay (d2), s/veh	15.2	1.4	0.0	14.9	0.3	0.0	22.5	0.3	0.0	33.5	9.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	9.8	0.0	5.0	3.0	0.0	12.2	2.6	0.0	0.2	3.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	69.5	24.1	0.0	67.9	17.2	0.0	68.8	33.6	0.0	92.9	64.2	0.0
LnGrp LOS	E	C		E	B		E	C		F	E	
Approach Vol, veh/h		1112	A		699	A		467	A		107	A
Approach Delay, s/veh		28.5			38.8			59.9			65.6	
Approach LOS		C			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.8	37.7	13.6	63.9	29.5	12.9	16.2	61.4
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.5	48.0	14.5	36.0	30.0	23.5	13.0	37.5
Max Q Clear Time (g_c+I1), s	2.4	8.3	9.8	9.6	25.0	8.9	12.1	26.1
Green Ext Time (p_c), s	0.0	0.6	0.1	2.3	0.5	0.4	0.1	4.8

Intersection Summary	
HCM 6th Ctrl Delay	39.3
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary
8: Walters Road & E Tabor Avenue

04/21/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	222	27	84	5	67	123	148	824	3	43	495	124
Future Volume (veh/h)	222	27	84	5	67	123	148	824	3	43	495	124
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1796	1900	1900	1796	1900	1841	1824	1900	1856	1796
Adj Flow Rate, veh/h	247	30	93	6	74	137	164	916	3	48	550	138
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	0	2	0	0	2	0	4	0	0	3	2
Cap, veh/h	366	110	342	14	103	190	210	1279	4	88	811	203
Arrive On Green	0.11	0.27	0.27	0.01	0.17	0.17	0.12	0.36	0.36	0.05	0.29	0.29
Sat Flow, veh/h	3456	408	1264	1810	597	1105	1810	3576	12	1810	2794	698
Grp Volume(v), veh/h	247	0	123	6	0	211	164	448	471	48	346	342
Grp Sat Flow(s),veh/h/ln	1728	0	1672	1810	0	1701	1810	1749	1839	1810	1763	1730
Q Serve(g_s), s	3.5	0.0	2.9	0.2	0.0	5.9	4.5	11.2	11.2	1.3	8.8	8.9
Cycle Q Clear(g_c), s	3.5	0.0	2.9	0.2	0.0	5.9	4.5	11.2	11.2	1.3	8.8	8.9
Prop In Lane	1.00		0.76	1.00		0.65	1.00		0.01	1.00		0.40
Lane Grp Cap(c), veh/h	366	0	452	14	0	293	210	625	658	88	511	502
V/C Ratio(X)	0.68	0.00	0.27	0.41	0.00	0.72	0.78	0.72	0.72	0.55	0.68	0.68
Avail Cap(c_a), veh/h	409	0	1089	179	0	1074	286	1035	1088	214	974	956
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.8	0.0	14.6	25.0	0.0	19.8	21.8	14.1	14.1	23.6	15.9	15.9
Incr Delay (d2), s/veh	3.8	0.0	0.3	17.9	0.0	3.3	9.3	1.6	1.5	5.2	1.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	1.0	0.1	0.0	2.4	2.1	3.6	3.7	0.6	3.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.6	0.0	14.9	42.9	0.0	23.1	31.1	15.6	15.5	28.8	17.5	17.5
LnGrp LOS	C	A	B	D	A	C	C	B	B	C	B	B
Approach Vol, veh/h		370			217			1083			736	
Approach Delay, s/veh		22.0			23.7			17.9			18.2	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.5	22.1	9.4	12.7	9.9	18.7	4.4	17.7
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	6.5	30.0	6.0	32.0	8.0	28.0	5.0	33.0
Max Q Clear Time (g_c+I1), s	3.5	13.2	5.5	7.9	6.5	10.9	2.2	4.9
Green Ext Time (p_c), s	0.0	4.9	0.0	1.3	0.1	3.6	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	19.2
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
9: Walters Road & Bella Vista Drive

04/21/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	158	18	4	63	37	103	4	616	13	19	435	108
Future Volume (veh/h)	158	18	4	63	37	103	4	616	13	19	435	108
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1900	1824	1696	1900	1900	1900	1856	1824	1900	1841	1824
Adj Flow Rate, veh/h	168	19	4	67	39	110	4	655	14	20	463	115
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	0	0	9	0	0	0	3	0	0	4	0
Cap, veh/h	207	23	5	112	65	153	8	1897	41	32	1531	378
Arrive On Green	0.13	0.13	0.13	0.10	0.10	0.10	0.00	0.54	0.54	0.02	0.55	0.55
Sat Flow, veh/h	1595	180	38	1164	678	1590	1810	3529	75	1810	2780	686
Grp Volume(v), veh/h	191	0	0	106	0	110	4	327	342	20	290	288
Grp Sat Flow(s),veh/h/ln	1813	0	0	1842	0	1590	1810	1763	1842	1810	1749	1717
Q Serve(g_s), s	9.2	0.0	0.0	5.0	0.0	6.0	0.2	9.5	9.5	1.0	8.0	8.1
Cycle Q Clear(g_c), s	9.2	0.0	0.0	5.0	0.0	6.0	0.2	9.5	9.5	1.0	8.0	8.1
Prop In Lane	0.88		0.02	0.63		1.00	1.00		0.04	1.00		0.40
Lane Grp Cap(c), veh/h	235	0	0	178	0	153	8	948	990	32	963	946
V/C Ratio(X)	0.81	0.00	0.00	0.60	0.00	0.72	0.52	0.35	0.35	0.63	0.30	0.30
Avail Cap(c_a), veh/h	328	0	0	313	0	270	151	948	990	151	963	946
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	0.0	0.0	39.0	0.0	39.5	44.7	11.8	11.8	43.9	10.9	10.9
Incr Delay (d2), s/veh	7.1	0.0	0.0	1.2	0.0	2.3	18.9	1.0	1.0	7.5	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.0	0.0	2.3	0.0	2.5	0.1	3.5	3.6	0.5	2.9	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.2	0.0	0.0	40.2	0.0	41.8	63.7	12.8	12.8	51.4	11.7	11.7
LnGrp LOS	D	A	A	D	A	D	E	B	B	D	B	B
Approach Vol, veh/h		191			216			673			598	
Approach Delay, s/veh		45.2			41.0			13.1			13.0	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.1	54.2		16.4	4.9	55.4		13.4
Change Period (Y+Rc), s	4.5	5.8		* 4.7	4.5	5.8		4.7
Max Green Setting (Gmax), s	7.5	31.2		* 16	7.5	31.2		15.3
Max Q Clear Time (g_c+I1), s	3.0	11.5		11.2	2.2	10.1		8.0
Green Ext Time (p_c), s	0.0	5.1		0.3	0.0	4.5		0.3

Intersection Summary	
HCM 6th Ctrl Delay	20.3
HCM 6th LOS	C

Notes

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

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

HCM 6th Signalized Intersection Summary
10: Walters Road & Pintail Drive

04/21/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	124	48	45	533	447	73
Future Volume (veh/h)	124	48	45	533	447	73
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	1885	1767	1811	1841	1841	1781
Adj Flow Rate, veh/h	135	52	49	579	486	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	9	6	4	4	3
Cap, veh/h	181	151	68	2776	2141	346
Arrive On Green	0.10	0.10	0.08	1.00	0.71	0.71
Sat Flow, veh/h	1795	1497	1725	3589	3106	488
Grp Volume(v), veh/h	135	52	49	579	281	284
Grp Sat Flow(s),veh/h/ln	1795	1497	1725	1749	1749	1753
Q Serve(g_s), s	6.6	2.9	2.5	0.0	5.0	5.0
Cycle Q Clear(g_c), s	6.6	2.9	2.5	0.0	5.0	5.0
Prop In Lane	1.00	1.00	1.00			0.28
Lane Grp Cap(c), veh/h	181	151	68	2776	1242	1245
V/C Ratio(X)	0.75	0.35	0.72	0.21	0.23	0.23
Avail Cap(c_a), veh/h	754	629	153	2776	1242	1245
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.98	0.98	1.00	1.00
Uniform Delay (d), s/veh	39.4	37.7	41.0	0.0	4.5	4.5
Incr Delay (d2), s/veh	6.1	1.4	13.3	0.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	2.5	1.2	0.1	1.3	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.4	39.1	54.3	0.2	4.6	4.6
LnGrp LOS	D	D	D	A	A	A
Approach Vol, veh/h	187			628	565	
Approach Delay, s/veh	43.7			4.4	4.6	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		76.7		13.3	7.5	69.2
Change Period (Y+Rc), s		5.3		* 4.2	4.0	5.3
Max Green Setting (Gmax), s		42.7		* 38	8.0	30.7
Max Q Clear Time (g_c+I1), s		2.0		8.6	4.5	7.0
Green Ext Time (p_c), s		3.9		0.6	0.0	3.1

Intersection Summary	
HCM 6th Ctrl Delay	9.8
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary
11: Walters Road & Mammoth Way/Montebello Drive

04/21/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	1	18	122	0	66	9	460	27	28	463	3
Future Volume (veh/h)	20	1	18	122	0	66	9	460	27	28	463	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900	1870	1870	1870	1900	1841	1810	1826	1841	1824
Adj Flow Rate, veh/h	21	1	19	128	0	69	9	484	28	29	487	3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	0	2	2	2	0	4	1	5	4	0
Cap, veh/h	295	12	223	280	0	221	20	2291	132	50	2492	15
Arrive On Green	0.14	0.14	0.14	0.14	0.00	0.14	0.01	0.68	0.68	0.03	0.70	0.70
Sat Flow, veh/h	1556	88	1596	1432	0	1585	1810	3360	194	1739	3563	22
Grp Volume(v), veh/h	22	0	19	128	0	69	9	251	261	29	239	251
Grp Sat Flow(s),veh/h/ln	1644	0	1596	1432	0	1585	1810	1749	1805	1739	1749	1837
Q Serve(g_s), s	0.0	0.0	0.9	6.5	0.0	3.5	0.4	4.8	4.8	1.5	4.3	4.3
Cycle Q Clear(g_c), s	1.0	0.0	0.9	7.5	0.0	3.5	0.4	4.8	4.8	1.5	4.3	4.3
Prop In Lane	0.95		1.00	1.00		1.00	1.00		0.11	1.00		0.01
Lane Grp Cap(c), veh/h	307	0	223	280	0	221	20	1192	1231	50	1223	1284
V/C Ratio(X)	0.07	0.00	0.09	0.46	0.00	0.31	0.44	0.21	0.21	0.58	0.20	0.20
Avail Cap(c_a), veh/h	725	0	688	689	0	683	161	1192	1231	155	1223	1284
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.98	0.98	0.98
Uniform Delay (d), s/veh	33.7	0.0	33.7	36.4	0.0	34.8	44.2	5.3	5.3	43.2	4.7	4.7
Incr Delay (d2), s/veh	0.2	0.0	0.3	2.5	0.0	1.7	29.4	0.4	0.4	20.6	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.4	2.8	0.0	1.4	0.4	1.4	1.5	0.9	1.2	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.9	0.0	34.1	38.9	0.0	36.5	73.6	5.7	5.7	63.7	5.1	5.0
LnGrp LOS	C	A	C	D	A	D	E	A	A	E	A	A
Approach Vol, veh/h		41			197			521			519	
Approach Delay, s/veh		34.0			38.1			6.9			8.3	
Approach LOS		C			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.6	66.7		16.8	5.0	68.2		16.8
Change Period (Y+Rc), s	4.0	5.3		* 4.2	4.0	5.3		* 4.2
Max Green Setting (Gmax), s	8.0	29.7		* 39	8.0	29.7		* 39
Max Q Clear Time (g_c+I1), s	3.5	6.8		3.0	2.4	6.3		9.5
Green Ext Time (p_c), s	0.0	5.3		0.3	0.0	5.1		1.9

Intersection Summary	
HCM 6th Ctrl Delay	13.2
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
12: Walters Road & Petersen Road

04/21/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	6	3	12	30	4	2	6	511	28	13	564	7
Future Volume (veh/h)	6	3	12	30	4	2	6	511	28	13	564	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.98	0.97		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	1767	1900	1900	1841	1900	1900	1900	1856	1781	1900	1841	1737
Adj Flow Rate, veh/h	7	3	13	33	4	0	7	562	0	14	620	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	9	0	0	4	0	0	0	3	8	0	4	11
Cap, veh/h	163	125	103	167	125		16	2676		30	2681	
Arrive On Green	0.07	0.07	0.07	0.07	0.07	0.00	0.01	0.76	0.00	0.02	0.77	0.00
Sat Flow, veh/h	1298	1900	1578	1354	1900	1610	1810	3526	1510	1810	3497	1472
Grp Volume(v), veh/h	7	3	13	33	4	0	7	562	0	14	620	0
Grp Sat Flow(s),veh/h/ln	1298	1900	1578	1354	1900	1610	1810	1763	1510	1810	1749	1472
Q Serve(g_s), s	0.5	0.1	0.7	2.1	0.2	0.0	0.3	4.1	0.0	0.7	4.5	0.0
Cycle Q Clear(g_c), s	0.6	0.1	0.7	2.2	0.2	0.0	0.3	4.1	0.0	0.7	4.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	163	125	103	167	125		16	2676		30	2681	
V/C Ratio(X)	0.04	0.02	0.13	0.20	0.03		0.43	0.21		0.47	0.23	
Avail Cap(c_a), veh/h	503	623	517	522	623		151	2676		151	2681	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	0.99	0.99	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	39.7	39.4	39.6	40.4	39.4	0.0	44.4	3.1	0.0	43.9	3.0	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.5	0.6	0.1	0.0	17.1	0.2	0.0	11.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.3	0.7	0.1	0.0	0.2	0.9	0.0	0.4	0.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.8	39.4	40.2	41.0	39.5	0.0	61.5	3.3	0.0	55.0	3.0	0.0
LnGrp LOS	D	D	D	D	D		E	A		E	A	
Approach Vol, veh/h		23			37	A		569	A		634	A
Approach Delay, s/veh		39.9			40.8			4.0			4.2	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	73.6		10.4	5.3	74.3		10.4
Change Period (Y+Rc), s	4.5	5.3		4.5	4.5	5.3		4.5
Max Green Setting (Gmax), s	7.5	38.7		29.5	7.5	38.7		29.5
Max Q Clear Time (g_c+I1), s	2.7	6.1		2.7	2.3	6.5		4.2
Green Ext Time (p_c), s	0.0	3.7		0.0	0.0	4.1		0.1

Intersection Summary	
HCM 6th Ctrl Delay	5.8
HCM 6th LOS	A

Notes

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

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	32	16	39	511	582	25
Future Volume (veh/h)	32	16	39	511	582	25
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	1900	1900	1870	1870	1870	1826
Adj Flow Rate, veh/h	35	18	43	562	640	27
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	0	2	2	2	5
Cap, veh/h	118	105	104	2903	2430	102
Arrive On Green	0.07	0.07	0.06	0.82	0.70	0.70
Sat Flow, veh/h	1810	1610	1781	3647	3568	146
Grp Volume(v), veh/h	35	18	43	562	327	340
Grp Sat Flow(s),veh/h/ln	1810	1610	1781	1777	1777	1844
Q Serve(g_s), s	1.7	1.0	2.1	3.1	6.1	6.1
Cycle Q Clear(g_c), s	1.7	1.0	2.1	3.1	6.1	6.1
Prop In Lane	1.00	1.00	1.00			0.08
Lane Grp Cap(c), veh/h	118	105	104	2903	1243	1290
V/C Ratio(X)	0.30	0.17	0.41	0.19	0.26	0.26
Avail Cap(c_a), veh/h	175	156	192	2903	1243	1290
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.99	0.99
Uniform Delay (d), s/veh	40.1	39.8	40.9	1.8	5.0	5.0
Incr Delay (d2), s/veh	1.4	0.8	2.6	0.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.4	1.0	0.6	1.6	1.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.5	40.5	43.5	1.9	5.1	5.1
LnGrp LOS	D	D	D	A	A	A
Approach Vol, veh/h	53			605	667	
Approach Delay, s/veh	41.2			4.9	5.1	
Approach LOS	D			A	A	

Timer - Assigned Phs	2			5	6	8
Phs Duration (G+Y+Rc), s	78.8			10.6	68.3	11.2
Change Period (Y+Rc), s	5.3			5.3	5.3	5.3
Max Green Setting (Gmax), s	43.7			9.7	28.7	8.7
Max Q Clear Time (g_c+I1), s	5.1			4.1	8.1	3.7
Green Ext Time (p_c), s	4.3			0.0	3.6	0.0

Intersection Summary	
HCM 6th Ctrl Delay	6.4
HCM 6th LOS	A

Notes

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

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	26	0	550	607	1
Future Vol, veh/h	0	26	0	550	607	1
Conflicting Peds, #/hr	0	5	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	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	30	0	625	690	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	351	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	645	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	642	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	642	-	-
HCM Lane V/C Ratio	-	0.046	-	-
HCM Control Delay (s)	-	10.9	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

HCM 6th Signalized Intersection Summary
15: Lawler Ranch Parkway /Walters Road & State Hwy 12 04/21/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	252	312	16	2	546	177	86	116	3	115	38	433
Future Volume (veh/h)	252	312	16	2	546	177	86	116	3	115	38	433
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1900	1900	1781	1870	1737	1870	1870	1870	1767	1870	1870
Adj Flow Rate, veh/h	265	328	17	2	575	186	71	150	3	80	97	456
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	0	0	8	2	11	2	2	2	9	2	2
Cap, veh/h	427	1335	591	8	885	365	247	518	220	335	373	621
Arrive On Green	0.13	0.37	0.37	0.00	0.25	0.25	0.14	0.14	0.14	0.20	0.20	0.20
Sat Flow, veh/h	3401	3610	1599	1697	3554	1463	1781	3741	1585	1682	1870	3114
Grp Volume(v), veh/h	265	328	17	2	575	186	71	150	3	80	97	456
Grp Sat Flow(s),veh/h/ln	1700	1805	1599	1697	1777	1463	1781	1870	1585	1682	1870	1557
Q Serve(g_s), s	5.3	4.5	0.5	0.1	10.3	7.8	2.6	2.6	0.1	2.9	3.1	9.8
Cycle Q Clear(g_c), s	5.3	4.5	0.5	0.1	10.3	7.8	2.6	2.6	0.1	2.9	3.1	9.8
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	427	1335	591	8	885	365	247	518	220	335	373	621
V/C Ratio(X)	0.62	0.25	0.03	0.24	0.65	0.51	0.29	0.29	0.01	0.24	0.26	0.73
Avail Cap(c_a), veh/h	1383	2531	1121	571	2491	1026	749	1574	667	708	787	1310
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.6	15.6	14.3	35.4	24.0	23.0	27.6	27.6	26.5	24.0	24.1	26.8
Incr Delay (d2), s/veh	1.5	0.1	0.0	14.2	0.8	1.1	0.6	0.3	0.0	0.4	0.4	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	1.8	0.2	0.1	3.9	2.5	1.1	1.1	0.0	1.1	1.3	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	15.7	14.3	49.6	24.8	24.1	28.2	27.9	26.5	24.4	24.5	28.5
LnGrp LOS	C	B	B	D	C	C	C	C	C	C	C	C
Approach Vol, veh/h		610			763			224			633	
Approach Delay, s/veh		22.3			24.7			28.0			27.4	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.5	32.1		19.5	13.2	23.5		15.2				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 24	50.0		30.0	* 29	50.0		30.0				
Max Q Clear Time (g_c+I1), s	2.1	6.5		11.8	7.3	12.3		4.6				
Green Ext Time (p_c), s	0.0	2.5		2.4	0.9	4.4		1.1				

Intersection Summary	
HCM 6th Ctrl Delay	25.1
HCM 6th LOS	C

Notes

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

Queues
1: Sunset Avenue /Sunset Avenue & Pintail Drive

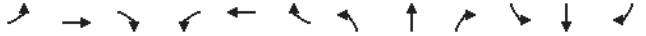
04/21/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	52	91	108	429	33	345	198	388
v/c Ratio	0.42	0.16	0.27	0.77	0.21	0.26	0.70	0.22
Control Delay	34.2	19.6	23.9	34.2	41.2	21.0	49.0	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.2	19.6	23.9	34.2	41.2	21.0	49.0	15.3
Queue Length 50th (ft)	23	34	46	195	18	68	106	67
Queue Length 95th (ft)	53	60	77	265	46	118	177	118
Internal Link Dist (ft)		402		619		2012		441
Turn Bay Length (ft)	105		75		105		105	
Base Capacity (vph)	162	735	521	720	186	1336	320	1786
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.12	0.21	0.60	0.18	0.26	0.62	0.22

Intersection Summary

Queues
2: Grizzly Island Road/Sunset Avenue & State Hwy 12

04/21/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	241	691	165	33	1307	82	254	132	5	129	135	315
v/c Ratio	0.67	0.38	0.18	0.23	0.81	0.10	0.78	0.38	0.01	0.69	0.69	0.53
Control Delay	74.1	26.0	4.9	67.4	40.3	7.1	73.6	54.8	0.0	81.8	81.2	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.1	26.0	4.9	67.4	40.3	7.1	73.6	54.8	0.0	81.8	81.2	9.0
Queue Length 50th (ft)	119	220	0	30	550	0	244	117	0	130	136	0
Queue Length 95th (ft)	162	369	54	67	#994	42	297	158	0	198	205	47
Internal Link Dist (ft)		867			689			342			2012	
Turn Bay Length (ft)	500		275	250		400	125			150		150
Base Capacity (vph)	436	1835	923	168	1621	788	489	519	534	301	315	759
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.38	0.18	0.20	0.81	0.10	0.52	0.25	0.01	0.43	0.43	0.42

Intersection Summary

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

Queues
5: Lawler Ranch Parkway /Emperor Drive & State Hwy 12

04/21/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	129	572	63	60	1185	10	99	99	64	17	195
v/c Ratio	0.55	0.41	0.09	0.28	0.97	0.02	0.38	0.38	0.17	0.06	0.50
Control Delay	62.1	29.6	0.2	60.6	55.0	0.0	49.1	48.9	1.0	46.1	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.1	29.6	0.2	60.6	55.0	0.0	49.1	48.9	1.0	46.1	14.0
Queue Length 50th (ft)	71	124	0	32	326	0	57	57	0	9	11
Queue Length 95th (ft)	#254	391	0	134	#1159	0	167	167	0	40	93
Internal Link Dist (ft)		1392			1435			342			1298
Turn Bay Length (ft)	425		255	200		230	215		215	125	
Base Capacity (vph)	352	1986	970	213	1712	827	311	316	425	334	442
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.29	0.06	0.28	0.69	0.01	0.32	0.31	0.15	0.05	0.44

Intersection Summary

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

Queues
7: Walters Road & Air Base Parkway

04/21/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	109	1003	277	297	402	9	349	118	714	5	206
v/c Ratio	0.64	0.74	0.37	0.73	0.29	0.01	0.87	0.18	0.85	0.07	0.77
Control Delay	68.8	38.1	5.0	62.6	28.3	0.0	67.0	23.5	26.0	57.2	58.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.8	38.1	5.0	62.6	28.3	0.0	67.0	23.5	26.0	57.2	58.2
Queue Length 50th (ft)	82	371	0	113	116	0	256	55	249	4	127
Queue Length 95th (ft)	143	#504	61	#181	175	0	#393	100	#478	18	202
Internal Link Dist (ft)		838			880			1074			219
Turn Bay Length (ft)	275		315	400		180			325	150	
Base Capacity (vph)	199	1359	757	412	1391	623	442	714	873	70	344
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.74	0.37	0.72	0.29	0.01	0.79	0.17	0.82	0.07	0.60

Intersection Summary

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

Queues
8: Walters Road & E Tabor Avenue

04/21/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	247	123	6	211	164	919	48	688
v/c Ratio	0.71	0.22	0.04	0.51	0.68	0.63	0.27	0.64
Control Delay	44.9	7.7	35.0	15.6	47.3	19.4	36.3	21.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.9	7.7	35.0	15.6	47.3	19.4	36.3	21.6
Queue Length 50th (ft)	44	7	2	31	57	143	16	98
Queue Length 95th (ft)	#157	46	16	89	#223	322	62	226
Internal Link Dist (ft)		1386		269		2251		1213
Turn Bay Length (ft)	95		125		180		270	
Base Capacity (vph)	346	962	151	964	242	1751	182	1622
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.71	0.13	0.04	0.22	0.68	0.52	0.26	0.42

Intersection Summary

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

Queues
9: Walters Road & Bella Vista Drive

04/21/2021

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	191	106	110	4	669	20	578
v/c Ratio	0.72	0.52	0.35	0.04	0.37	0.19	0.31
Control Delay	51.7	45.9	5.9	39.2	13.4	43.6	12.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.7	45.9	5.9	39.2	13.4	43.6	12.8
Queue Length 50th (ft)	104	58	0	2	129	11	77
Queue Length 95th (ft)	171	103	26	m11	140	33	166
Internal Link Dist (ft)	639	451			643		1927
Turn Bay Length (ft)			90	135		105	
Base Capacity (vph)	321	296	394	150	1803	150	1858
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.36	0.28	0.03	0.37	0.13	0.31

Intersection Summary

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

Queues
10: Walters Road & Pintail Drive

04/21/2021

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	135	52	49	579	565
v/c Ratio	0.41	0.17	0.36	0.23	0.26
Control Delay	33.8	7.6	53.6	7.2	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.8	7.6	53.6	7.2	12.6
Queue Length 50th (ft)	73	0	28	46	117
Queue Length 95th (ft)	86	21	67	119	231
Internal Link Dist (ft)	225			851	689
Turn Bay Length (ft)		150	130		
Base Capacity (vph)	750	652	151	2467	2155
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.18	0.08	0.32	0.23	0.26

Intersection Summary

Queues
11: Walters Road & Mammoth Way/Montebello Drive

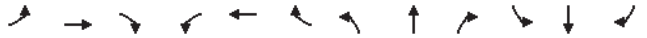
04/21/2021

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	22	19	128	69	9	512	29	490
v/c Ratio	0.08	0.05	0.46	0.18	0.06	0.23	0.19	0.21
Control Delay	25.0	0.3	34.4	5.8	48.3	4.8	57.3	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.0	0.3	34.4	5.8	48.3	4.8	57.3	3.0
Queue Length 50th (ft)	11	0	67	0	5	42	18	6
Queue Length 95th (ft)	23	0	90	23	22	4	48	40
Internal Link Dist (ft)	93		335			477		851
Turn Bay Length (ft)		50		125	100		120	
Base Capacity (vph)	623	739	596	725	160	2199	152	2305
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.03	0.21	0.10	0.06	0.23	0.19	0.21

Intersection Summary

Queues
12: Walters Road & Petersen Road

04/21/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	7	3	13	33	4	2	7	562	31	14	620	8
v/c Ratio	0.04	0.01	0.04	0.18	0.02	0.01	0.06	0.20	0.03	0.11	0.22	0.01
Control Delay	28.8	27.7	0.3	33.2	28.0	0.0	31.8	8.2	6.2	34.6	11.3	1.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.8	27.7	0.3	33.2	28.0	0.0	31.8	8.2	6.2	34.6	11.3	1.0
Queue Length 50th (ft)	4	2	0	18	2	0	4	25	0	8	32	0
Queue Length 95th (ft)	13	7	0	34	9	0	18	225	24	29	216	3
Internal Link Dist (ft)		417			560			510			413	
Turn Bay Length (ft)			180	115		200	85		185	100		75
Base Capacity (vph)	428	622	577	452	622	574	150	2829	1221	150	2807	1175
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.00	0.02	0.07	0.01	0.00	0.05	0.20	0.03	0.09	0.22	0.01

Intersection Summary

Queues
13: Walters Road & Walmart Main Driveway

04/21/2021

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	35	18	43	562	667
v/c Ratio	0.11	0.05	0.26	0.20	0.27
Control Delay	26.4	9.2	41.8	6.1	16.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.4	9.2	41.8	6.1	16.5
Queue Length 50th (ft)	19	0	23	31	17
Queue Length 95th (ft)	31	13	55	133	274
Internal Link Dist (ft)	149			326	510
Turn Bay Length (ft)			200		
Base Capacity (vph)	330	651	190	2782	2435
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.11	0.03	0.23	0.20	0.27

Intersection Summary

Queues

15: Lawler Ranch Parkway /Walters Road & State Hwy 12

04/21/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	265	328	17	2	575	186	69	144	3	80	81	456
v/c Ratio	0.51	0.20	0.02	0.01	0.63	0.37	0.24	0.24	0.01	0.34	0.33	0.57
Control Delay	41.0	18.3	0.1	50.5	34.1	7.5	33.8	31.8	0.0	44.5	43.9	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.0	18.3	0.1	50.5	34.1	7.5	33.8	31.8	0.0	44.5	43.9	7.6
Queue Length 50th (ft)	55	41	0	1	118	0	30	32	0	33	34	0
Queue Length 95th (ft)	173	163	0	11	328	62	94	82	0	134	135	55
Internal Link Dist (ft)		3194			827			385			265	
Turn Bay Length (ft)	390		275	215		300	175		90	125		190
Base Capacity (vph)	1237	2517	1150	508	2243	973	653	1365	709	598	634	1342
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.13	0.01	0.00	0.26	0.19	0.11	0.11	0.00	0.13	0.13	0.34

Intersection Summary

HCM 6th Signalized Intersection Summary

1: Sunset Avenue & Pintail Drive

04/21/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	76	25	111	86	131	21	428	114	219	412	58
Future Volume (veh/h)	58	76	25	111	86	131	21	428	114	219	412	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1753	1900	1885	1824	1900	1885	1767	1870	1885	1824
Adj Flow Rate, veh/h	64	84	28	123	96	146	23	476	127	243	458	64
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	0	5	0	1	0	0	1	4	2	1	0
Cap, veh/h	190	307	102	307	152	231	44	866	229	282	1400	195
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.02	0.31	0.31	0.16	0.44	0.44
Sat Flow, veh/h	1135	1362	454	1296	672	1022	1810	2792	740	1781	3154	438
Grp Volume(v), veh/h	64	0	112	123	0	242	23	304	299	243	259	263
Grp Sat Flow(s),veh/h/ln	1135	0	1815	1296	0	1695	1810	1791	1741	1781	1791	1802
Q Serve(g_s), s	4.9	0.0	4.6	7.8	0.0	11.6	1.1	12.7	12.9	12.0	8.5	8.6
Cycle Q Clear(g_c), s	16.5	0.0	4.6	12.4	0.0	11.6	1.1	12.7	12.9	12.0	8.5	8.6
Prop In Lane	1.00		0.25	1.00		0.60	1.00		0.42	1.00		0.24
Lane Grp Cap(c), veh/h	190	0	410	307	0	383	44	555	540	282	795	800
V/C Ratio(X)	0.34	0.00	0.27	0.40	0.00	0.63	0.52	0.55	0.55	0.86	0.33	0.33
Avail Cap(c_a), veh/h	317	0	613	452	0	572	247	555	540	342	795	800
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.69	0.69	0.69	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.9	0.0	28.8	33.9	0.0	31.5	43.4	25.8	25.9	36.9	16.3	16.3
Incr Delay (d2), s/veh	1.3	0.0	0.4	1.1	0.0	2.2	8.3	2.7	2.8	18.0	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	2.0	2.5	0.0	4.9	0.6	5.6	5.5	6.5	3.5	3.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.2	0.0	29.2	34.9	0.0	33.6	51.7	28.5	28.7	54.9	17.4	17.4
LnGrp LOS	D	A	C	C	A	C	D	C	C	D	B	B
Approach Vol, veh/h		176			365			626			765	
Approach Delay, s/veh		33.2			34.1			29.4			29.3	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	45.1		24.9	18.9	33.0		24.9				
Change Period (Y+Rc), s	* 4.7	5.1		4.6	* 4.7	5.1		4.6				
Max Green Setting (Gmax), s	* 12	23.9		30.4	* 17	27.9		30.4				
Max Q Clear Time (g_c+I1), s	3.1	10.6		18.5	14.0	14.9		14.4				
Green Ext Time (p_c), s	0.0	3.5		0.8	0.3	4.1		2.2				

Intersection Summary		
HCM 6th Ctrl Delay	30.6	
HCM 6th LOS	C	

Notes

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

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

HCM 6th Signalized Intersection Summary
2: Grizzly Island Road/Sunset Avenue & State Hwy 12

04/21/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	525	1520	146	61	852	153	101	139	18	273	97	233
Future Volume (veh/h)	525	1520	146	61	852	153	101	139	18	273	97	233
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1841	1885	1870	1841	1900	1885	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	536	1551	149	62	869	156	103	142	18	189	225	238
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	4	1	2	4	0	1	0	0	0	0	0
Cap, veh/h	589	1841	840	99	1434	660	283	299	250	217	228	375
Arrive On Green	0.17	0.53	0.53	0.06	0.41	0.41	0.16	0.16	0.16	0.12	0.12	0.12
Sat Flow, veh/h	3483	3497	1596	1781	3497	1609	1795	1900	1589	1810	1900	3126
Grp Volume(v), veh/h	536	1551	149	62	869	156	103	142	18	189	225	238
Grp Sat Flow(s),veh/h/ln	1742	1749	1596	1781	1749	1609	1795	1900	1589	1810	1900	1563
Q Serve(g_s), s	22.7	56.6	7.3	5.1	29.3	9.5	7.7	10.2	1.4	15.4	17.7	10.9
Cycle Q Clear(g_c), s	22.7	56.6	7.3	5.1	29.3	9.5	7.7	10.2	1.4	15.4	17.7	10.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	589	1841	840	99	1434	660	283	299	250	217	228	375
V/C Ratio(X)	0.91	0.84	0.18	0.63	0.61	0.24	0.36	0.47	0.07	0.87	0.99	0.63
Avail Cap(c_a), veh/h	650	1841	840	166	1434	660	479	507	424	217	228	375
HCM Platoon Ratio	1.00	1.00	1.00	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	0.97	0.97	0.97
Uniform Delay (d), s/veh	61.2	30.2	18.6	69.3	34.7	28.9	56.5	57.5	53.8	64.9	65.9	62.9
Incr Delay (d2), s/veh	16.1	4.9	0.5	2.4	1.9	0.8	0.3	0.4	0.0	28.4	54.8	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.1	23.5	2.7	2.4	12.4	3.7	3.6	5.0	0.6	8.8	12.0	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.3	35.1	19.0	71.8	36.6	29.7	56.8	58.0	53.9	93.3	120.7	65.9
LnGrp LOS	E	D	B	E	D	C	E	E	D	F	F	E
Approach Vol, veh/h		2236			1087			263			652	
Approach Delay, s/veh		44.2			37.6			57.2			92.7	
Approach LOS		D			D			E			F	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	13.0	85.2		23.1	30.5	67.7		28.7
Change Period (Y+Rc), s	4.7	6.2		5.1	5.1	6.2		5.1
Max Green Setting (Gmax), s	14.3	56.9		18.0	28.0	42.5		40.0
Max Q Clear Time (g_c+I1), s	11.7	58.6		19.7	24.7	31.3		12.2
Green Ext Time (p_c), s	0.0	0.0		0.0	0.7	2.3		0.5

Intersection Summary	
HCM 6th Ctrl Delay	50.8
HCM 6th LOS	D

Notes

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

HCM 6th TWSC
3: State Hwy 12 & Snow Drive

04/21/2021

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1860	1105	20	0	65
Future Vol, veh/h	0	1860	1105	20	0	65
Conflicting Peds, #/hr	0	0	0	4	0	7
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	275	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	2	3	3	0	2	0
Mvmt Flow	0	1918	1139	21	0	67

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	581
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	462
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	457
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	457
HCM Lane V/C Ratio	-	-	-	0.147
HCM Control Delay (s)	-	-	-	14.2
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.5

Intersection	
Intersection Delay, s/veh	18.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	74	271	75	28	185	4	78	70	172	3	42	41
Future Vol, veh/h	74	271	75	28	185	4	78	70	172	3	42	41
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	0	2	5	0	2	0	2	2	2
Mvmt Flow	81	298	82	31	203	4	86	77	189	3	46	45
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	23.2	13.5	16.8	11
HCM LOS	C	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	24%	18%	13%	3%
Vol Thru, %	22%	65%	85%	49%
Vol Right, %	54%	18%	2%	48%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	320	420	217	86
LT Vol	78	74	28	3
Through Vol	70	271	185	42
RT Vol	172	75	4	41
Lane Flow Rate	352	462	238	95
Geometry Grp	1	1	1	1
Degree of Util (X)	0.578	0.737	0.41	0.172
Departure Headway (Hd)	5.915	5.752	6.191	6.564
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	612	628	579	544
Service Time	3.939	3.778	4.242	4.626
HCM Lane V/C Ratio	0.575	0.736	0.411	0.175
HCM Control Delay	16.8	23.2	13.5	11
HCM Lane LOS	C	C	B	B
HCM 95th-tile Q	3.7	6.4	2	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	292	1306	174	36	874	20	113	33	34	17	27	109
Future Volume (veh/h)	292	1306	174	36	874	20	113	33	34	17	27	109
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	1885	1841	1900	1900	1841	1811	1870	1870	1870	1900	1870	1824
Adj Flow Rate, veh/h	295	1319	176	36	883	20	74	90	34	17	27	110
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	4	0	0	4	6	2	2	2	0	2	0
Cap, veh/h	333	1576	726	142	1202	527	212	223	189	214	38	155
Arrive On Green	0.19	0.45	0.45	0.08	0.34	0.34	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1795	3497	1610	1810	3497	1535	1781	1870	1585	1810	321	1309
Grp Volume(v), veh/h	295	1319	176	36	883	20	74	90	34	17	0	137
Grp Sat Flow(s),veh/h/ln	1795	1749	1610	1810	1749	1535	1781	1870	1585	1810	0	1631
Q Serve(g_s), s	14.7	30.5	6.2	1.7	20.3	0.8	3.5	4.1	1.8	0.8	0.0	7.4
Cycle Q Clear(g_c), s	14.7	30.5	6.2	1.7	20.3	0.8	3.5	4.1	1.8	0.8	0.0	7.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.80
Lane Grp Cap(c), veh/h	333	1576	726	142	1202	527	212	223	189	214	0	193
V/C Ratio(X)	0.88	0.84	0.24	0.25	0.73	0.04	0.35	0.40	0.18	0.08	0.00	0.71
Avail Cap(c_a), veh/h	724	1907	878	237	1907	837	291	306	259	296	0	267
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.4	22.2	15.5	39.7	26.4	20.0	37.1	37.4	36.4	36.0	0.0	38.9
Incr Delay (d2), s/veh	3.1	2.9	0.2	0.3	0.9	0.0	0.4	0.4	0.2	0.1	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	11.4	2.1	0.7	7.8	0.3	1.5	1.9	0.7	0.3	0.0	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.5	25.1	15.7	40.1	27.3	20.0	37.5	37.8	36.5	36.0	0.0	41.3
LnGrp LOS	D	C	B	D	C	C	D	D	D	D	A	D
Approach Vol, veh/h		1790			939			198			154	
Approach Delay, s/veh		26.6			27.7			37.5			40.7	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.9	47.8		15.9	21.7	38.0		16.0				
Change Period (Y+Rc), s	4.7	6.5		5.1	* 4.7	6.5		5.1				
Max Green Setting (Gmax), s	12.3	50.0		15.0	* 37	50.0		15.0				
Max Q Clear Time (g_c+I1), s	13.7	32.5		9.4	16.7	22.3		6.1				
Green Ext Time (p_c), s	0.0	8.8		0.1	0.4	6.1		0.3				

Intersection Summary	
HCM 6th Ctrl Delay	28.3
HCM 6th LOS	C

Notes

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

HCM 6th TWSC
6: State Hwy 12 & Woodlark Drive 04/21/2021

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	1361	836	16	0	89
Future Vol, veh/h	0	1361	836	16	0	89
Conflicting Peds, #/hr	0	0	0	5	0	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	260	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	4	4	0	2	0
Mvmt Flow	0	1433	880	17	0	94

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	448
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	564
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	560
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.7
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	560
HCM Lane V/C Ratio	-	-	-	0.167
HCM Control Delay (s)	-	-	-	12.7
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.6

HCM 6th Signalized Intersection Summary
7: Walters Road/Walter Road & Air Base Parkway 04/21/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰↰	↑↑	↱	↰	↑	↱	↰	↑	
Traffic Volume (veh/h)	109	553	331	683	792	8	178	127	553	7	117	118
Future Volume (veh/h)	109	553	331	683	792	8	178	127	553	7	117	118
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	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	1737	1900	1841	1885	1885	1693	1870	1737	1870	1648	1752	1767
Adj Flow Rate, veh/h	112	570	0	704	816	0	184	131	0	7	121	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	11	0	4	1	1	14	2	11	2	17	10	9
Cap, veh/h	136	1572		782	2069		214	344		14	152	
Arrive On Green	0.08	0.44	0.00	0.22	0.58	0.00	0.12	0.20	0.00	0.01	0.09	0.00
Sat Flow, veh/h	1654	3610	1560	3483	3582	1434	1781	1737	1585	1570	1752	0
Grp Volume(v), veh/h	112	570	0	704	816	0	184	131	0	7	121	0
Grp Sat Flow(s),veh/h/ln	1654	1805	1560	1742	1791	1434	1781	1737	1585	1570	1752	0
Q Serve(g_s), s	8.0	12.7	0.0	23.6	15.0	0.0	12.2	7.8	0.0	0.5	8.1	0.0
Cycle Q Clear(g_c), s	8.0	12.7	0.0	23.6	15.0	0.0	12.2	7.8	0.0	0.5	8.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	136	1572		782	2069		214	344		14	152	
V/C Ratio(X)	0.82	0.36		0.90	0.39		0.86	0.38		0.51	0.79	
Avail Cap(c_a), veh/h	221	1572		900	2069		315	588		73	365	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	54.2	22.7	0.0	45.2	13.9	0.0	51.8	41.7	0.0	59.2	53.7	0.0
Incr Delay (d2), s/veh	12.2	0.7	0.0	11.0	0.6	0.0	14.8	0.7	0.0	26.9	9.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	5.2	0.0	10.9	5.6	0.0	6.2	3.4	0.0	0.3	4.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.4	23.4	0.0	56.3	14.4	0.0	66.6	42.4	0.0	86.2	62.7	0.0
LnGrp LOS	E	C		E	B		E	D		F	E	
Approach Vol, veh/h		682	A		1520	A		315	A		128	A
Approach Delay, s/veh		30.4			33.8			56.5			64.0	
Approach LOS		C			C			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.0	27.8	13.9	73.3	18.4	14.4	30.9	56.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.6	40.6	16.0	41.8	21.2	25.0	31.0	26.8
Max Q Clear Time (g_c+I1), s	2.5	9.8	10.0	17.0	14.2	10.1	25.6	14.7
Green Ext Time (p_c), s	0.0	0.6	0.1	5.3	0.3	0.5	1.4	2.6

Intersection Summary	
HCM 6th Ctrl Delay	37.1
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary
8: Walters Road & E Tabor Avenue

04/21/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	229	36	152	5	24	49	141	629	5	83	761	229
Future Volume (veh/h)	229	36	152	5	24	49	141	629	5	83	761	229
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1796	1900	1900	1796	1900	1841	1824	1900	1856	1796
Adj Flow Rate, veh/h	236	37	157	5	25	51	145	648	5	86	785	236
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	2	0	0	2	0	4	0	0	3	2
Cap, veh/h	371	52	222	12	36	74	190	1572	12	125	1085	326
Arrive On Green	0.11	0.17	0.17	0.01	0.06	0.06	0.10	0.44	0.44	0.07	0.41	0.41
Sat Flow, veh/h	3456	316	1342	1810	558	1138	1810	3557	27	1810	2671	803
Grp Volume(v), veh/h	236	0	194	5	0	76	145	319	334	86	518	503
Grp Sat Flow(s),veh/h/ln	1728	0	1658	1810	0	1695	1810	1749	1836	1810	1763	1711
Q Serve(g_s), s	3.3	0.0	5.6	0.1	0.0	2.2	3.9	6.3	6.3	2.3	12.5	12.5
Cycle Q Clear(g_c), s	3.3	0.0	5.6	0.1	0.0	2.2	3.9	6.3	6.3	2.3	12.5	12.5
Prop In Lane	1.00		0.81	1.00		0.67	1.00		0.01	1.00		0.47
Lane Grp Cap(c), veh/h	371	0	274	12	0	110	190	773	811	125	716	695
V/C Ratio(X)	0.64	0.00	0.71	0.41	0.00	0.69	0.76	0.41	0.41	0.69	0.72	0.72
Avail Cap(c_a), veh/h	684	0	755	200	0	624	430	1225	1286	358	1165	1131
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.6	0.0	19.9	25.0	0.0	23.1	22.0	9.6	9.6	23.0	12.6	12.6
Incr Delay (d2), s/veh	1.8	0.0	3.3	20.8	0.0	7.5	6.2	0.4	0.3	6.5	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	2.1	0.1	0.0	1.0	1.7	1.7	1.8	1.1	3.8	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.4	0.0	23.3	45.8	0.0	30.6	28.2	10.0	10.0	29.4	14.0	14.1
LnGrp LOS	C	A	C	D	A	C	C	A	A	C	B	B
Approach Vol, veh/h		430			81			798			1107	
Approach Delay, s/veh		23.4			31.6			13.3			15.2	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	26.3	9.4	7.3	9.3	24.5	4.3	12.4
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	10.0	35.4	10.0	18.6	12.0	33.4	5.6	23.0
Max Q Clear Time (g_c+I1), s	14.3	8.3	5.3	4.2	5.9	14.5	2.1	7.6
Green Ext Time (p_c), s	0.1	3.7	0.3	0.3	0.2	6.0	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	16.6
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
9: Walters Road & Bella Vista Drive

04/21/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	9	6	49	2	57	7	705	60	49	720	82
Future Volume (veh/h)	66	9	6	49	2	57	7	705	60	49	720	82
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		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	1781	1900	1824	1696	1900	1900	1900	1856	1824	1900	1841	1824
Adj Flow Rate, veh/h	70	10	6	52	2	61	7	750	64	52	766	87
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	0	0	9	0	0	0	3	0	0	4	0
Cap, veh/h	136	19	12	154	6	140	13	1851	158	67	1876	213
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.01	0.56	0.56	0.04	0.59	0.59
Sat Flow, veh/h	1467	210	126	1746	67	1588	1810	3287	280	1810	3165	359
Grp Volume(v), veh/h	86	0	0	54	0	61	7	402	412	52	423	430
Grp Sat Flow(s),veh/h/ln	1802	0	0	1813	0	1588	1810	1763	1805	1810	1749	1776
Q Serve(g_s), s	4.1	0.0	0.0	2.5	0.0	3.3	0.3	11.6	11.6	2.6	11.7	11.7
Cycle Q Clear(g_c), s	4.1	0.0	0.0	2.5	0.0	3.3	0.3	11.6	11.6	2.6	11.7	11.7
Prop In Lane	0.81		0.07	0.96		1.00	1.00		0.16	1.00		0.20
Lane Grp Cap(c), veh/h	168	0	0	160	0	140	13	993	1016	67	1037	1053
V/C Ratio(X)	0.51	0.00	0.00	0.34	0.00	0.44	0.54	0.41	0.41	0.78	0.41	0.41
Avail Cap(c_a), veh/h	326	0	0	308	0	270	151	993	1016	151	1037	1053
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.9	0.0	0.0	38.6	0.0	38.9	44.5	11.1	11.1	43.0	9.8	9.8
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.5	0.0	0.8	12.5	1.2	1.2	7.0	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.0	1.1	0.0	1.3	0.2	4.2	4.3	1.2	4.0	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.8	0.0	0.0	39.0	0.0	39.7	57.0	12.4	12.3	50.0	11.0	11.0
LnGrp LOS	D	A	A	D	A	D	E	B	B	D	B	B
Approach Vol, veh/h		86			115			821			905	
Approach Delay, s/veh		39.8			39.4			12.7			13.3	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.8	56.5		13.1	5.1	59.2		12.6
Change Period (Y+Rc), s	4.5	5.8		* 4.7	4.5	5.8		4.7
Max Green Setting (Gmax), s	7.5	31.2		* 16	7.5	31.2		15.3
Max Q Clear Time (g_c+I1), s	14.6	13.6		6.1	2.3	13.7		5.3
Green Ext Time (p_c), s	0.0	6.1		0.2	0.0	6.5		0.2

Intersection Summary	
HCM 6th Ctrl Delay	15.8
HCM 6th LOS	B

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

HCM 6th Signalized Intersection Summary
10: Walters Road & Pintail Drive

04/21/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	103	76	59	663	652	126
Future Volume (veh/h)	103	76	59	663	652	126
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	1885	1767	1811	1841	1841	1781
Adj Flow Rate, veh/h	105	78	60	677	665	129
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	9	6	4	4	3
Cap, veh/h	178	148	76	2782	2066	400
Arrive On Green	0.10	0.10	0.09	1.00	0.71	0.71
Sat Flow, veh/h	1795	1497	1725	3589	3013	566
Grp Volume(v), veh/h	105	78	60	677	398	396
Grp Sat Flow(s),veh/h/ln	1795	1497	1725	1749	1749	1739
Q Serve(g_s), s	5.0	4.5	3.1	0.0	7.8	7.8
Cycle Q Clear(g_c), s	5.0	4.5	3.1	0.0	7.8	7.8
Prop In Lane	1.00	1.00	1.00			0.33
Lane Grp Cap(c), veh/h	178	148	76	2782	1236	1229
V/C Ratio(X)	0.59	0.53	0.79	0.24	0.32	0.32
Avail Cap(c_a), veh/h	754	629	153	2782	1236	1229
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.94	0.94	1.00	1.00
Uniform Delay (d), s/veh	38.8	38.5	40.6	0.0	5.0	5.0
Incr Delay (d2), s/veh	3.1	2.9	15.7	0.2	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	3.8	1.5	0.1	2.0	2.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.9	41.4	56.3	0.2	5.1	5.2
LnGrp LOS	D	D	E	A	A	A
Approach Vol, veh/h	183			737	794	
Approach Delay, s/veh	41.7			4.8	5.1	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		76.9		13.1	8.0	68.9
Change Period (Y+Rc), s		5.3		* 4.2	4.0	5.3
Max Green Setting (Gmax), s		42.7		* 38	8.0	30.7
Max Q Clear Time (g_c+I1), s		2.0		7.0	5.1	9.8
Green Ext Time (p_c), s		4.7		0.6	0.0	4.5

Intersection Summary	
HCM 6th Ctrl Delay	8.9
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary
11: Walters Road & Mammoth Way /Montebello Drive

04/21/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	3	18	76	2	39	15	667	170	42	659	17
Future Volume (veh/h)	8	3	18	76	2	39	15	667	170	42	659	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900	1870	1870	1870	1900	1841	1810	1826	1841	1824
Adj Flow Rate, veh/h	8	3	19	80	2	41	16	702	179	44	694	18
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	2	0	2	2	2	0	4	1	5	4	0
Cap, veh/h	193	62	179	234	5	178	33	1932	492	64	2505	65
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.02	0.70	0.70	0.04	0.72	0.72
Sat Flow, veh/h	1105	553	1593	1381	44	1585	1810	2758	703	1739	3483	90
Grp Volume(v), veh/h	11	0	19	82	0	41	16	445	436	44	348	364
Grp Sat Flow(s),veh/h/ln	1658	0	1593	1425	0	1585	1810	1749	1712	1739	1749	1824
Q Serve(g_s), s	0.0	0.0	1.0	4.3	0.0	2.1	0.8	9.2	9.2	2.2	6.3	6.3
Cycle Q Clear(g_c), s	0.5	0.0	1.0	4.8	0.0	2.1	0.8	9.2	9.2	2.2	6.3	6.3
Prop In Lane	0.73		1.00	0.98		1.00	1.00		0.41	1.00		0.05
Lane Grp Cap(c), veh/h	255	0	179	239	0	178	33	1225	1199	64	1258	1312
V/C Ratio(X)	0.04	0.00	0.11	0.34	0.00	0.23	0.48	0.36	0.36	0.68	0.28	0.28
Avail Cap(c_a), veh/h	705	0	651	657	0	648	161	1225	1199	155	1258	1312
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95
Uniform Delay (d), s/veh	35.7	0.0	35.9	37.5	0.0	36.4	43.8	5.4	5.4	42.8	4.4	4.4
Incr Delay (d2), s/veh	0.1	0.0	0.6	1.8	0.0	1.4	21.5	0.8	0.9	22.8	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.4	1.8	0.0	0.9	0.5	2.6	2.6	1.3	1.7	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.8	0.0	36.4	39.4	0.0	37.8	65.2	6.2	6.3	65.6	4.9	4.9
LnGrp LOS	D	A	D	D	A	D	E	A	A	E	A	A
Approach Vol, veh/h		30			123			897			756	
Approach Delay, s/veh		36.2			38.8			7.3			8.5	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.3	68.4		14.3	5.6	70.0		14.3				
Change Period (Y+Rc), s	4.0	5.3		* 4.2	4.0	5.3		* 4.2				
Max Green Setting (Gmax), s	8.3	31.7		* 37	8.0	31.7		* 37				
Max Q Clear Time (g_c+I1), s	4.2	11.2		3.0	2.8	8.3		6.8				
Green Ext Time (p_c), s	0.0	9.4		0.2	0.0	7.8		1.1				

Intersection Summary	
HCM 6th Ctrl Delay	10.4
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
12: Walters Road & Petersen Road

04/21/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	4	7	96	8	32	16	785	49	6	689	19
Future Volume (veh/h)	11	4	7	96	8	32	16	785	49	6	689	19
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		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	1767	1900	1900	1841	1900	1900	1900	1856	1781	1900	1841	1737
Adj Flow Rate, veh/h	11	4	7	98	8	0	16	801	0	6	703	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	9	0	0	4	0	0	0	3	8	0	4	11
Cap, veh/h	212	199	166	221	199		33	2568		14	2510	
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.00	0.02	0.73	0.00	0.01	0.72	0.00
Sat Flow, veh/h	1307	1900	1583	1367	1900	1610	1810	3526	1510	1810	3589	0
Grp Volume(v), veh/h	11	4	7	98	8	0	16	801	0	6	703	0
Grp Sat Flow(s),veh/h/ln	1307	1900	1583	1367	1900	1610	1810	1763	1510	1810	1749	0
Q Serve(g_s), s	0.7	0.2	0.4	6.2	0.3	0.0	0.8	7.2	0.0	0.3	6.4	0.0
Cycle Q Clear(g_c), s	1.0	0.2	0.4	6.4	0.3	0.0	0.8	7.2	0.0	0.3	6.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	212	199	166	221	199		33	2568		14	2510	
V/C Ratio(X)	0.05	0.02	0.04	0.44	0.04		0.48	0.31		0.43	0.28	
Avail Cap(c_a), veh/h	504	623	519	525	623		171	2568		171	2510	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	0.95	0.95	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.7	36.1	36.2	39.0	36.2	0.0	43.8	4.3	0.0	44.5	4.5	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.1	1.4	0.1	0.0	10.0	0.3	0.0	19.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.1	2.1	0.2	0.0	0.4	1.8	0.0	0.2	1.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.8	36.2	36.3	40.4	36.3	0.0	53.7	4.6	0.0	63.8	4.5	0.0
LnGrp LOS	D	D	D	D	D		D	A		E	A	
Approach Vol, veh/h		22			106	A		817	A		709	A
Approach Delay, s/veh		36.5			40.1			5.6			5.0	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	5.2	70.9	13.9	6.1	69.9	13.9
Change Period (Y+Rc), s	4.5	5.3	4.5	4.5	5.3	4.5
Max Green Setting (Gmax), s	8.5	37.7	29.5	8.5	37.7	29.5
Max Q Clear Time (g_c+I1), s	2.8	9.2	3.0	2.8	8.4	8.4
Green Ext Time (p_c), s	0.0	5.5	0.0	0.0	4.7	0.3

Intersection Summary	
HCM 6th Ctrl Delay	8.0
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary
13: Walters Road & Walmart Main Driveway

04/21/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	136	70	181	730	626	122
Future Volume (veh/h)	136	70	181	730	626	122
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	1900	1900	1870	1870	1870	1826
Adj Flow Rate, veh/h	140	72	187	753	645	126
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	2	2	2	5
Cap, veh/h	175	156	224	2792	1782	348
Arrive On Green	0.10	0.10	0.13	0.79	0.60	0.60
Sat Flow, veh/h	1810	1610	1781	3647	3058	578
Grp Volume(v), veh/h	140	72	187	753	386	385
Grp Sat Flow(s),veh/h/ln	1810	1610	1781	1777	1777	1766
Q Serve(g_s), s	6.8	3.8	9.2	5.2	10.0	10.0
Cycle Q Clear(g_c), s	6.8	3.8	9.2	5.2	10.0	10.0
Prop In Lane	1.00	1.00	1.00			0.33
Lane Grp Cap(c), veh/h	175	156	224	2792	1068	1061
V/C Ratio(X)	0.80	0.46	0.83	0.27	0.36	0.36
Avail Cap(c_a), veh/h	175	156	311	2792	1068	1061
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.96	0.96
Uniform Delay (d), s/veh	39.8	38.4	38.4	2.6	9.2	9.2
Incr Delay (d2), s/veh	22.6	2.1	13.0	0.2	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	1.6	4.8	1.3	3.2	3.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	62.4	40.6	51.4	2.9	9.4	9.4
LnGrp LOS	E	D	D	A	A	A
Approach Vol, veh/h	212			940	771	
Approach Delay, s/veh	55.0			12.5	9.4	
Approach LOS	E			B	A	

Timer - Assigned Phs	2	5	6	8
Phs Duration (G+Y+Rc), s	76.0	16.6	59.4	14.0
Change Period (Y+Rc), s	5.3	5.3	5.3	5.3
Max Green Setting (Gmax), s	44.7	15.7	23.7	8.7
Max Q Clear Time (g_c+I1), s	7.2	11.2	12.0	8.8
Green Ext Time (p_c), s	6.2	0.2	3.4	0.0

Intersection Summary	
HCM 6th Ctrl Delay	15.9
HCM 6th LOS	B

Notes

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

HCM 6th TWSC
14: Walters Road & Walmart Driveway 04/21/2021

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	84	0	913	720	1
Future Vol, veh/h	0	84	0	913	720	1
Conflicting Peds, #/hr	0	5	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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	88	0	961	758	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	385	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	613	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %					-	-
Mov Cap-1 Maneuver	-	610	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.9	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	610	-	-
HCM Lane V/C Ratio	-	0.145	-	-
HCM Control Delay (s)	-	11.9	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.5	-	-

HCM 6th Signalized Intersection Summary
15: Lawler Ranch Road/Walters Road & State Hwy 12 04/21/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	646	584	80	3	361	175	38	58	1	186	128	471
Future Volume (veh/h)	646	584	80	3	361	175	38	58	1	186	128	471
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1900	1900	1781	1870	1737	1870	1870	1870	1767	1870	1870
Adj Flow Rate, veh/h	653	590	81	3	365	177	32	67	1	158	170	476
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	4	0	0	8	2	11	2	2	2	9	2	2
Cap, veh/h	788	1570	696	12	748	308	193	404	171	343	381	635
Arrive On Green	0.23	0.44	0.44	0.01	0.21	0.21	0.11	0.11	0.11	0.20	0.20	0.20
Sat Flow, veh/h	3401	3610	1601	1697	3554	1462	1781	3741	1585	1682	1870	3116
Grp Volume(v), veh/h	653	590	81	3	365	177	32	67	1	158	170	476
Grp Sat Flow(s),veh/h/ln	1700	1805	1601	1697	1777	1462	1781	1870	1585	1682	1870	1558
Q Serve(g_s), s	15.2	9.2	2.5	0.1	7.5	9.1	1.4	1.4	0.0	6.9	6.6	12.0
Cycle Q Clear(g_c), s	15.2	9.2	2.5	0.1	7.5	9.1	1.4	1.4	0.0	6.9	6.6	12.0
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	788	1570	696	12	748	308	193	404	171	343	381	635
V/C Ratio(X)	0.83	0.38	0.12	0.24	0.49	0.58	0.17	0.17	0.01	0.46	0.45	0.75
Avail Cap(c_a), veh/h	1183	2165	960	488	2131	876	641	1346	570	605	673	1121
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.5	15.9	14.0	41.2	29.0	29.6	33.8	33.8	33.2	29.2	29.1	31.2
Incr Delay (d2), s/veh	3.2	0.1	0.1	9.9	0.5	1.7	0.4	0.2	0.0	1.0	0.8	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	3.7	0.9	0.1	3.0	3.1	0.6	0.6	0.0	2.7	2.9	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.6	16.1	14.1	51.1	29.4	31.3	34.2	34.0	33.2	30.1	29.9	33.0
LnGrp LOS	C	B	B	D	C	C	C	C	C	C	C	C
Approach Vol, veh/h		1324			545			100			804	
Approach Delay, s/veh		24.6			30.2			34.0			31.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	4.8	42.0	22.3	23.5	23.3	14.3
Change Period (Y+Rc), s	* 4.2	5.7	5.3	* 4.2	5.7	5.3
Max Green Setting (Gmax), s	* 24	50.0	30.0	* 29	50.0	30.0
Max Q Clear Time (g_c+I1), s	2.1	11.2	14.0	17.2	11.1	3.4
Green Ext Time (p_c), s	0.0	2.5	3.0	2.1	2.8	0.4

Intersection Summary	
HCM 6th Ctrl Delay	28.1
HCM 6th LOS	C

Notes
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
1: Sunset Avenue & Pintail Drive

04/21/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	64	112	123	242	23	603	243	522
v/c Ratio	0.52	0.32	0.52	0.62	0.16	0.37	0.77	0.23
Control Delay	44.7	25.8	38.7	26.0	40.2	16.7	52.6	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.7	25.8	38.7	26.0	40.2	16.7	52.6	9.4
Queue Length 50th (ft)	34	47	66	80	12	99	131	38
Queue Length 95th (ft)	61	75	96	124	36	193	#233	144
Internal Link Dist (ft)		402		619		2012		441
Turn Bay Length (ft)	105		75		105		105	
Base Capacity (vph)	226	620	432	637	246	1645	340	2272
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.18	0.28	0.38	0.09	0.37	0.71	0.23

Intersection Summary

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

Queues
2: Grizzly Island Road/Sunset Avenue & State Hwy 12

04/21/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	536	1551	149	62	869	156	103	142	18	187	191	238
v/c Ratio	0.85	0.85	0.17	0.50	0.64	0.22	0.35	0.45	0.05	0.93	0.92	0.44
Control Delay	72.9	37.4	10.6	80.8	41.1	5.9	57.3	60.0	0.2	111.3	109.1	9.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.9	37.4	10.6	80.8	41.1	5.9	57.3	60.0	0.2	111.3	109.1	9.4
Queue Length 50th (ft)	262	653	29	60	351	0	93	131	0	193	196	0
Queue Length 95th (ft)	#335	#1087	90	109	#527	56	133	174	0	#350	#354	44
Internal Link Dist (ft)		867			689			481			2012	
Turn Bay Length (ft)	500		275	250		400	125			150		150
Base Capacity (vph)	663	1818	879	165	1359	719	476	506	519	205	211	550
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.85	0.17	0.38	0.64	0.22	0.22	0.28	0.03	0.91	0.91	0.43

Intersection Summary

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

Queues
5: Lawler Ranch Parkway/Emperor Drive & State Hwy 12

04/21/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	295	1319	176	36	883	20	73	74	34	17	137
v/c Ratio	0.82	0.82	0.21	0.17	0.86	0.04	0.30	0.29	0.10	0.06	0.41
Control Delay	65.4	35.8	6.6	63.4	49.6	0.1	52.2	52.1	0.6	50.1	18.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.4	35.8	6.6	63.4	49.6	0.1	52.2	52.1	0.6	50.1	18.4
Queue Length 50th (ft)	173	384	5	20	252	0	45	45	0	10	15
Queue Length 95th (ft)	#613	#1192	74	96	#852	0	142	144	0	45	98
Internal Link Dist (ft)		1386			1441			861			1277
Turn Bay Length (ft)	425		255	200		230	215		215	125	
Base Capacity (vph)	649	2556	1231	212	1704	815	305	312	403	327	389
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.52	0.14	0.17	0.52	0.02	0.24	0.24	0.08	0.05	0.35

Intersection Summary

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

Queues
7: Walters Road/Walter Road & Air Base Parkway

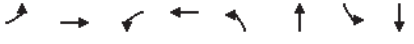
04/21/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	112	570	341	704	816	8	184	131	570	7	243
v/c Ratio	0.64	0.50	0.47	0.85	0.51	0.01	0.73	0.23	0.63	0.10	0.81
Control Delay	67.4	37.5	6.4	54.5	27.3	0.0	65.7	29.4	5.8	58.0	60.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.4	37.5	6.4	54.5	27.3	0.0	65.7	29.4	5.8	58.0	60.9
Queue Length 50th (ft)	84	192	0	268	240	0	137	70	0	5	154
Queue Length 95th (ft)	143	280	78	334	349	0	210	123	84	22	240
Internal Link Dist (ft)		831			1018			1074			197
Turn Bay Length (ft)	275		315	400		180			325	150	
Base Capacity (vph)	216	1151	727	903	1604	701	312	607	928	72	364
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.50	0.47	0.78	0.51	0.01	0.59	0.22	0.61	0.10	0.67

Intersection Summary

Queues
8: Walters Road & E Tabor Avenue

04/21/2021



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	236	194	5	76	145	653	86	1021
v/c Ratio	0.46	0.35	0.03	0.29	0.50	0.43	0.36	0.71
Control Delay	34.4	9.3	36.8	17.7	38.0	16.2	37.0	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.4	9.3	36.8	17.7	38.0	16.2	37.0	21.2
Queue Length 50th (ft)	50	12	2	10	60	104	36	191
Queue Length 95th (ft)	103	70	14	48	138	186	91	325
Internal Link Dist (ft)		1386		269		2251		1213
Turn Bay Length (ft)	95		125		180		270	
Base Capacity (vph)	588	742	172	571	370	2017	309	1920
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.26	0.03	0.13	0.39	0.32	0.28	0.53

Intersection Summary

Queues
9: Walters Road & Bella Vista Drive

04/21/2021

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	86	54	61	7	814	52	853
v/c Ratio	0.40	0.31	0.20	0.07	0.39	0.41	0.38
Control Delay	40.0	40.7	1.5	49.7	15.4	49.4	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	40.7	1.5	49.7	15.4	49.4	11.8
Queue Length 50th (ft)	45	29	0	3	220	29	106
Queue Length 95th (ft)	83	60	0	m15	321	65	273
Internal Link Dist (ft)	639	451			643		1927
Turn Bay Length (ft)			90	135		105	
Base Capacity (vph)	322	283	394	150	2080	150	2254
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.19	0.15	0.05	0.39	0.35	0.38

Intersection Summary

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

Queues
10: Walters Road & Pintail Drive

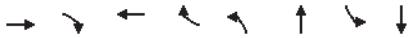
04/21/2021

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	105	78	60	677	794
v/c Ratio	0.34	0.24	0.43	0.26	0.35
Control Delay	32.9	7.4	55.8	2.6	19.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	32.9	7.4	55.8	2.6	19.4
Queue Length 50th (ft)	57	0	32	3	173
Queue Length 95th (ft)	70	26	56	123	296
Internal Link Dist (ft)	590			851	689
Turn Bay Length (ft)		150	130		
Base Capacity (vph)	750	667	151	2644	2239
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.14	0.12	0.40	0.26	0.35

Intersection Summary

Queues
11: Walters Road & Mammoth Way /Montebello Drive

04/21/2021



Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	11	19	82	41	16	881	44	712
v/c Ratio	0.04	0.05	0.34	0.12	0.10	0.39	0.29	0.28
Control Delay	24.7	0.3	32.9	2.0	40.9	15.4	33.1	13.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.7	0.3	32.9	2.0	40.9	15.4	33.1	13.8
Queue Length 50th (ft)	6	0	43	0	10	31	27	71
Queue Length 95th (ft)	14	0	61	7	32	339	63	284
Internal Link Dist (ft)	184		413			477		851
Turn Bay Length (ft)		50		125	100		120	
Base Capacity (vph)	656	705	551	692	160	2286	152	2520
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.03	0.15	0.06	0.10	0.39	0.29	0.28

Intersection Summary

Queues
12: Walters Road & Petersen Road

04/21/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	11	4	7	98	8	33	16	801	50	6	722
v/c Ratio	0.06	0.01	0.02	0.45	0.03	0.10	0.12	0.31	0.04	0.05	0.28
Control Delay	27.9	26.5	0.1	38.5	26.5	0.7	37.1	15.4	9.3	59.7	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	26.5	0.1	38.5	26.5	0.7	37.1	15.4	9.3	59.7	6.5
Queue Length 50th (ft)	6	2	0	53	4	0	9	144	3	4	101
Queue Length 95th (ft)	16	9	0	80	13	1	m29	277	30	m14	23
Internal Link Dist (ft)		417			560			505			413
Turn Bay Length (ft)			180	115		200	85		185	100	
Base Capacity (vph)	427	622	577	451	622	574	170	2612	1133	170	2564
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.01	0.01	0.22	0.01	0.06	0.09	0.31	0.04	0.04	0.28

Intersection Summary

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

Queues
13: Walters Road & Walmart Main Driveway

04/21/2021

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	140	72	187	753	771
v/c Ratio	0.32	0.15	0.70	0.33	0.52
Control Delay	27.7	6.1	50.6	9.3	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	27.7	6.1	50.6	9.3	15.8
Queue Length 50th (ft)	65	0	101	93	41
Queue Length 95th (ft)	93	26	169	182	#317
Internal Link Dist (ft)	149			338	505
Turn Bay Length (ft)			200		
Base Capacity (vph)	438	666	308	2267	1494
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	0.11	0.61	0.33	0.52

Intersection Summary

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

Queues
15: Lawler Ranch Road/Walters Road & State Hwy 12

04/21/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	653	590	81	3	365	177	32	65	1	156	161	476
v/c Ratio	0.63	0.31	0.09	0.02	0.53	0.42	0.13	0.13	0.00	0.58	0.55	0.55
Control Delay	37.9	19.5	6.3	58.0	42.7	9.8	41.3	40.1	0.0	52.9	50.7	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	19.5	6.3	58.0	42.7	9.8	41.3	40.1	0.0	52.9	50.7	6.8
Queue Length 50th (ft)	162	94	0	2	103	0	18	18	0	87	89	0
Queue Length 95th (ft)	#546	324	40	15	236	67	60	50	0	253	255	55
Internal Link Dist (ft)		3194			827			385			265	
Turn Bay Length (ft)	390		275	215		300	175		90	125		190
Base Capacity (vph)	1040	2127	985	427	1884	843	551	1154	615	502	552	1214
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.28	0.08	0.01	0.19	0.21	0.06	0.06	0.00	0.31	0.29	0.39

Intersection Summary

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

HCM 6th Signalized Intersection Summary
1: Sunset Avenue /Sunset Avenue & Pintail Drive

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	73	9	98	225	168	31	289	40	181	361	32
Future Volume (veh/h)	47	73	9	98	225	168	31	289	40	181	361	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1668	1870	1885	1810	1900	1796	1639	1870	1856	1824
Adj Flow Rate, veh/h	52	81	10	109	250	187	34	321	44	201	401	36
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	0	11	2	1	1	0	7	13	2	3	0
Cap, veh/h	164	524	65	446	316	236	58	1173	159	240	1609	144
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.03	0.39	0.39	0.13	0.49	0.49
Sat Flow, veh/h	951	1658	205	1301	1000	748	1810	3015	409	1781	3271	292
Grp Volume(v), veh/h	52	0	91	109	0	437	34	180	185	201	215	222
Grp Sat Flow(s),veh/h/ln	951	0	1862	1301	0	1747	1810	1706	1718	1781	1763	1800
Q Serve(g_s), s	4.8	0.0	3.2	5.9	0.0	20.5	1.7	6.5	6.6	9.9	6.4	6.4
Cycle Q Clear(g_c), s	25.3	0.0	3.2	9.1	0.0	20.5	1.7	6.5	6.6	9.9	6.4	6.4
Prop In Lane	1.00		0.11	1.00		0.43	1.00		0.24	1.00		0.16
Lane Grp Cap(c), veh/h	164	0	589	446	0	552	58	664	669	240	867	886
V/C Ratio(X)	0.32	0.00	0.15	0.24	0.00	0.79	0.59	0.27	0.28	0.84	0.25	0.25
Avail Cap(c_a), veh/h	237	0	732	546	0	687	187	664	669	323	867	886
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	0.0	22.1	25.4	0.0	28.1	43.0	18.8	18.8	38.0	13.2	13.2
Incr Delay (d2), s/veh	1.4	0.0	0.2	0.4	0.0	5.5	10.2	0.3	0.3	14.7	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.4	1.9	0.0	9.3	0.9	2.5	2.6	5.2	2.5	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.0	0.0	22.3	25.7	0.0	33.5	53.2	19.0	19.1	52.7	13.9	13.9
LnGrp LOS	D	A	C	C	A	C	D	B	B	D	B	B
Approach Vol, veh/h		143			546			399			638	
Approach Delay, s/veh		29.1			32.0			22.0			26.1	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	49.4		33.1	16.8	40.1		33.1				
Change Period (Y+Rc), s	* 4.7	5.1		4.6	* 4.7	5.1		4.6				
Max Green Setting (Gmax), s	* 9.3	30.9		35.4	* 16	23.9		35.4				
Max Q Clear Time (g_c+I1), s	3.7	8.4		27.3	11.9	8.6		22.5				
Green Ext Time (p_c), s	0.0	3.6		0.5	0.3	2.5		3.3				

Intersection Summary	
HCM 6th Ctrl Delay	27.3
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary
2: Grizzly Island Road/Sunset Avenue & State Hwy 12

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	239	714	196	54	1318	83	288	127	34	153	114	324
Future Volume (veh/h)	239	714	196	54	1318	83	288	127	34	153	114	324
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1648	1885	1752	1737	1826	1885	1870	1604	1885	1885	1856
Adj Flow Rate, veh/h	252	752	206	57	1387	87	303	134	36	140	149	341
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	17	1	10	11	5	1	2	20	1	1	3
Cap, veh/h	302	1019	519	343	1483	695	347	362	260	236	248	403
Arrive On Green	0.09	0.33	0.33	0.21	0.45	0.45	0.19	0.19	0.19	0.13	0.13	0.13
Sat Flow, veh/h	3401	3131	1595	1668	3300	1546	1795	1870	1344	1795	1885	3061
Grp Volume(v), veh/h	252	752	206	57	1387	87	303	134	36	140	149	341
Grp Sat Flow(s),veh/h/ln	1700	1566	1595	1668	1650	1546	1795	1870	1344	1795	1885	1531
Q Serve(g_s), s	10.9	32.0	15.0	4.2	59.9	4.9	24.6	9.3	3.3	11.0	11.2	16.3
Cycle Q Clear(g_c), s	10.9	32.0	15.0	4.2	59.9	4.9	24.6	9.3	3.3	11.0	11.2	16.3
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	302	1019	519	343	1483	695	347	362	260	236	248	403
V/C Ratio(X)	0.83	0.74	0.40	0.17	0.94	0.13	0.87	0.37	0.14	0.59	0.60	0.85
Avail Cap(c_a), veh/h	429	1019	519	343	1483	695	484	504	362	316	332	539
HCM Platoon Ratio	1.00	1.00	1.00	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	0.98	0.98	0.98
Uniform Delay (d), s/veh	67.2	44.9	39.2	49.0	39.2	24.1	58.7	52.6	50.1	61.3	61.4	63.6
Incr Delay (d2), s/veh	9.4	4.8	2.3	0.1	12.3	0.4	9.5	0.2	0.1	1.7	1.7	8.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	12.7	6.1	1.7	25.5	1.8	12.2	4.5	1.1	5.1	5.5	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	76.6	49.7	41.5	49.1	51.6	24.5	68.2	52.8	50.2	63.1	63.1	71.9
LnGrp LOS	E	D	D	D	D	C	E	D	D	E	E	E
Approach Vol, veh/h		1210			1531			473			630	
Approach Delay, s/veh		53.9			49.9			62.5			67.8	
Approach LOS		D			D			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	55.0		24.3	18.4	73.6		33.6				
Change Period (Y+Rc), s	6.2	* 6.2		4.6	5.1	6.2		4.6				
Max Green Setting (Gmax), s	12.3	* 49		26.4	18.9	43.8		40.4				
Max Q Clear Time (g_c+I1), s	10.2	34.0		18.3	12.9	61.9		26.6				
Green Ext Time (p_c), s	0.0	2.2		1.4	0.4	0.0		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	55.7
HCM 6th LOS	E

Notes

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

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	832	1703	18	0	86
Future Vol, veh/h	0	832	1703	18	0	86
Conflicting Peds, #/hr	0	0	0	4	0	7
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	275	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	13	9	0	0	0
Mvmt Flow	0	914	1871	20	0	95

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	947
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	266
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	263
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	26.2
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	263
HCM Lane V/C Ratio	-	-	-	0.359
HCM Control Delay (s)	-	-	-	26.2
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	1.6

Intersection	
Intersection Delay, s/veh	14.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	31	177	49	64	287	5	81	16	91	2	57	72
Future Vol, veh/h	31	177	49	64	287	5	81	16	91	2	57	72
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	5	2	2	4	20	1	0	2	0	2	2
Mvmt Flow	36	203	56	74	330	6	93	18	105	2	66	83
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	13.6	17.9	12.4	11.1
HCM LOS	B	C	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	43%	12%	18%	2%
Vol Thru, %	9%	69%	81%	44%
Vol Right, %	48%	19%	1%	55%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	188	257	356	131
LT Vol	81	31	64	2
Through Vol	16	177	287	57
RT Vol	91	49	5	72
Lane Flow Rate	216	295	409	151
Geometry Grp	1	1	1	1
Degree of Util (X)	0.358	0.464	0.633	0.254
Departure Headway (Hd)	5.962	5.655	5.566	6.083
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	596	632	642	595
Service Time	4.061	3.748	3.65	4.083
HCM Lane V/C Ratio	0.362	0.467	0.637	0.254
HCM Control Delay	12.4	13.6	17.9	11.1
HCM Lane LOS	B	B	C	B
HCM 95th-tile Q	1.6	2.5	4.5	1

HCM 6th Signalized Intersection Summary
5: Lawler Ranch Parkway /Emperor Drive & State Hwy 12

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	644	60	59	1235	11	167	24	62	20	19	170
Future Volume (veh/h)	124	644	60	59	1235	11	167	24	62	20	19	170
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1648	1900	1870	1707	1900	1841	1900	1870	1796	1900	1810
Adj Flow Rate, veh/h	129	671	62	61	1286	11	192	0	65	21	20	177
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	17	0	2	13	0	4	0	2	7	0	1
Cap, veh/h	200	1430	735	170	1427	708	369	0	167	236	23	202
Arrive On Green	0.11	0.46	0.46	0.10	0.44	0.44	0.11	0.00	0.11	0.14	0.14	0.14
Sat Flow, veh/h	1781	3131	1610	1781	3244	1610	3506	0	1585	1711	166	1467
Grp Volume(v), veh/h	129	671	62	61	1286	11	192	0	65	21	0	197
Grp Sat Flow(s),veh/h/ln	1781	1566	1610	1781	1622	1610	1753	0	1585	1711	0	1632
Q Serve(g_s), s	7.2	15.5	2.3	3.4	38.4	0.4	5.4	0.0	4.0	1.1	0.0	12.4
Cycle Q Clear(g_c), s	7.2	15.5	2.3	3.4	38.4	0.4	5.4	0.0	4.0	1.1	0.0	12.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.90
Lane Grp Cap(c), veh/h	200	1430	735	170	1427	708	369	0	167	236	0	225
V/C Ratio(X)	0.65	0.47	0.08	0.36	0.90	0.02	0.52	0.00	0.39	0.09	0.00	0.88
Avail Cap(c_a), veh/h	341	1499	771	205	1553	771	503	0	228	246	0	234
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.4	19.6	16.0	44.3	27.2	16.5	44.2	0.0	43.6	39.3	0.0	44.1
Incr Delay (d2), s/veh	1.3	0.2	0.0	0.5	7.2	0.0	1.1	0.0	1.5	0.1	0.0	26.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	5.2	0.8	1.4	14.7	0.1	2.4	0.0	1.6	0.5	0.0	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.7	19.9	16.1	44.7	34.4	16.5	45.4	0.0	45.1	39.4	0.0	71.0
LnGrp LOS	D	B	B	D	C	B	D	A	D	D	A	E
Approach Vol, veh/h		862			1358			257			218	
Approach Delay, s/veh		23.5			34.7			45.3			68.0	
Approach LOS		C			C			D			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.7	54.2		19.5	16.4	52.4		16.1
Change Period (Y+Rc), s	4.7	6.5		5.1	* 4.7	6.5		5.1
Max Green Setting (Gmax), s	12.3	50.0		15.0	* 20	50.0		15.0
Max Q Clear Time (g_c+I1), s	15.4	17.5		14.4	9.2	40.4		7.4
Green Ext Time (p_c), s	0.0	4.7		0.1	0.1	5.5		0.5

Intersection Summary	
HCM 6th Ctrl Delay	34.8
HCM 6th LOS	C

Notes

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

HCM 6th TWSC
6: State Hwy 12 & Woodlark Drive

04/29/2021

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	694	1197	4	0	164
Future Vol, veh/h	0	694	1197	4	0	164
Conflicting Peds, #/hr	0	0	0	5	0	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	260	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	15	12	0	0	1
Mvmt Flow	0	723	1247	4	0	171

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	632
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.31
Pot Cap-1 Maneuver	0	-	-	-	0	426
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	423
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	19.2
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	423
HCM Lane V/C Ratio	-	-	-	0.404
HCM Control Delay (s)	-	-	-	19.2
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	1.9

HCM 6th Signalized Intersection Summary
7: Walters Road & Air Base Parkway

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	878	261	350	424	8	330	112	720	5	98	100
Future Volume (veh/h)	104	878	261	350	424	8	330	112	720	5	98	100
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	1752	1870	1781	1870	1796	1707	1856	1707	1870	1604	1693	1604
Adj Flow Rate, veh/h	111	934	0	372	451	0	351	119	0	5	104	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	10	2	8	2	7	13	3	13	2	20	14	20
Cap, veh/h	135	1604		425	1683		380	488		10	131	
Arrive On Green	0.08	0.45	0.00	0.12	0.49	0.00	0.21	0.29	0.00	0.01	0.08	0.00
Sat Flow, veh/h	1668	3554	1510	3456	3413	1447	1767	1707	1585	1527	1693	0
Grp Volume(v), veh/h	111	934	0	372	451	0	351	119	0	5	104	0
Grp Sat Flow(s),veh/h/ln	1668	1777	1510	1728	1706	1447	1767	1707	1585	1527	1693	0
Q Serve(g_s), s	7.9	23.5	0.0	12.7	9.3	0.0	23.4	6.4	0.0	0.4	7.2	0.0
Cycle Q Clear(g_c), s	7.9	23.5	0.0	12.7	9.3	0.0	23.4	6.4	0.0	0.4	7.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	135	1604		425	1683		380	488		10	131	
V/C Ratio(X)	0.82	0.58		0.88	0.27		0.92	0.24		0.51	0.79	
Avail Cap(c_a), veh/h	224	1604		432	1683		434	654		70	310	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	54.3	24.5	0.0	51.7	17.8	0.0	46.2	32.9	0.0	59.4	54.4	0.0
Incr Delay (d2), s/veh	11.5	1.6	0.0	17.8	0.4	0.0	23.8	0.3	0.0	35.9	10.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	9.5	0.0	6.3	3.5	0.0	12.4	2.6	0.0	0.3	3.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.8	26.1	0.0	69.5	18.1	0.0	70.0	33.1	0.0	95.3	64.6	0.0
LnGrp LOS	E	C		E	B		E	C		F	E	
Approach Vol, veh/h		1045	A		823	A		470	A		109	A
Approach Delay, s/veh		30.3			41.4			60.7			66.0	
Approach LOS		C			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.8	38.3	13.7	63.2	29.8	13.3	18.7	58.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.5	46.0	16.1	36.4	29.5	22.0	15.0	37.5
Max Q Clear Time (g_c+I1), s	2.4	8.4	9.9	11.3	25.4	9.2	14.7	25.5
Green Ext Time (p_c), s	0.0	0.6	0.1	2.7	0.4	0.4	0.0	4.6

Intersection Summary	
HCM 6th Ctrl Delay	41.4
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary
8: Walters Road & E Tabor Avenue

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	232	27	84	6	68	123	169	898	4	44	576	131
Future Volume (veh/h)	232	27	84	6	68	123	169	898	4	44	576	131
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1900	1767	1900	1900	1810	1885	1826	1824	1826	1767	1781
Adj Flow Rate, veh/h	258	30	93	7	76	137	188	998	4	49	640	146
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	0	4	0	0	1	1	5	0	5	9	3
Cap, veh/h	360	108	336	17	103	186	233	1408	6	82	854	195
Arrive On Green	0.11	0.27	0.27	0.01	0.17	0.17	0.13	0.40	0.40	0.05	0.31	0.31
Sat Flow, veh/h	3428	408	1264	1810	608	1095	1795	3544	14	1739	2715	618
Grp Volume(v), veh/h	258	0	123	7	0	213	188	489	513	49	395	391
Grp Sat Flow(s),veh/h/ln	1714	0	1672	1810	0	1703	1795	1735	1823	1739	1678	1655
Q Serve(g_s), s	4.2	0.0	3.3	0.2	0.0	6.8	5.8	13.5	13.5	1.6	12.1	12.1
Cycle Q Clear(g_c), s	4.2	0.0	3.3	0.2	0.0	6.8	5.8	13.5	13.5	1.6	12.1	12.1
Prop In Lane	1.00		0.76	1.00		0.64	1.00		0.01	1.00		0.37
Lane Grp Cap(c), veh/h	360	0	445	17	0	289	233	689	724	82	528	521
V/C Ratio(X)	0.72	0.00	0.28	0.42	0.00	0.74	0.81	0.71	0.71	0.60	0.75	0.75
Avail Cap(c_a), veh/h	360	0	967	159	0	955	252	912	958	183	823	812
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.7	0.0	16.6	28.1	0.0	22.5	24.1	14.4	14.4	26.7	17.5	17.5
Incr Delay (d2), s/veh	6.6	0.0	0.3	16.0	0.0	3.6	16.2	1.7	1.6	6.7	2.2	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	1.2	0.2	0.0	2.8	3.2	4.4	4.6	0.7	4.1	4.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.3	0.0	16.9	44.1	0.0	26.1	40.4	16.1	16.1	33.4	19.7	19.7
LnGrp LOS	C	A	B	D	A	C	D	B	B	C	B	B
Approach Vol, veh/h		381			220			1190			835	
Approach Delay, s/veh		26.7			26.7			19.9			20.5	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	26.7	10.0	13.7	11.4	22.0	4.5	19.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	6.0	30.0	6.0	32.0	8.0	28.0	5.0	33.0
Max Q Clear Time (g_c+I1), s	3.6	15.5	6.2	8.8	7.8	14.1	2.2	5.3
Green Ext Time (p_c), s	0.0	5.1	0.0	1.3	0.0	3.9	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	21.7
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
9: Walters Road & Bella Vista Drive

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	18	4	64	38	106	4	698	13	21	512	110
Future Volume (veh/h)	160	18	4	64	38	106	4	698	13	21	512	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1810	1811	1824	1753	1900	1900	1900	1811	1710	1900	1767	1739
Adj Flow Rate, veh/h	170	19	4	68	40	113	4	743	14	22	545	117
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	6	0	5	0	0	0	6	8	0	9	6
Cap, veh/h	206	23	5	114	67	156	8	1827	34	34	1494	320
Arrive On Green	0.14	0.14	0.14	0.10	0.10	0.10	0.00	0.53	0.53	0.02	0.54	0.54
Sat Flow, veh/h	1522	170	36	1160	682	1591	1810	3455	65	1810	2750	588
Grp Volume(v), veh/h	193	0	0	108	0	113	4	370	387	22	332	330
Grp Sat Flow(s),veh/h/ln	1728	0	0	1842	0	1591	1810	1721	1799	1810	1678	1660
Q Serve(g_s), s	9.8	0.0	0.0	5.1	0.0	6.2	0.2	11.6	11.6	1.1	10.1	10.2
Cycle Q Clear(g_c), s	9.8	0.0	0.0	5.1	0.0	6.2	0.2	11.6	11.6	1.1	10.1	10.2
Prop In Lane	0.88		0.02	0.63		1.00	1.00		0.04	1.00		0.35
Lane Grp Cap(c), veh/h	234	0	0	181	0	156	8	910	951	34	912	902
V/C Ratio(X)	0.83	0.00	0.00	0.60	0.00	0.72	0.52	0.41	0.41	0.65	0.36	0.37
Avail Cap(c_a), veh/h	313	0	0	313	0	270	151	910	951	151	912	902
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	0.0	0.0	38.9	0.0	39.4	44.7	12.7	12.7	43.9	11.7	11.7
Incr Delay (d2), s/veh	9.6	0.0	0.0	1.2	0.0	2.4	18.9	1.3	1.3	7.4	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	0.0	2.3	0.0	2.5	0.1	4.2	4.4	0.5	3.5	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.5	0.0	0.0	40.0	0.0	41.8	63.7	14.1	14.0	51.3	12.8	12.9
LnGrp LOS	D	A	A	D	A	D	E	B	B	D	B	B
Approach Vol, veh/h		193			221			761			684	
Approach Delay, s/veh		47.5			40.9			14.3			14.1	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	53.4		16.9	4.9	54.7		13.5
Change Period (Y+Rc), s	4.5	5.8		* 4.7	4.5	5.8		4.7
Max Green Setting (Gmax), s	7.5	31.2		* 16	7.5	31.2		15.3
Max Q Clear Time (g_c+I1), s	13.1	13.6		11.8	2.2	12.2		8.2
Green Ext Time (p_c), s	0.0	5.6		0.3	0.0	5.1		0.3

Intersection Summary	
HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C

Notes

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

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

HCM 6th Signalized Intersection Summary
10: Walters Road & Pintail Drive

04/29/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	128	49	54	607	521	77
Future Volume (veh/h)	128	49	54	607	521	77
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	1885	1737	1722	1796	1796	1739
Adj Flow Rate, veh/h	139	53	59	660	566	84
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	11	12	7	7	6
Cap, veh/h	185	152	73	2701	2095	310
Arrive On Green	0.10	0.10	0.09	1.00	0.70	0.70
Sat Flow, veh/h	1795	1472	1640	3503	3072	441
Grp Volume(v), veh/h	139	53	59	660	323	327
Grp Sat Flow(s),veh/h/ln	1795	1472	1640	1706	1706	1717
Q Serve(g_s), s	6.8	3.0	3.2	0.0	6.3	6.3
Cycle Q Clear(g_c), s	6.8	3.0	3.2	0.0	6.3	6.3
Prop In Lane	1.00	1.00	1.00			0.26
Lane Grp Cap(c), veh/h	185	152	73	2701	1199	1206
V/C Ratio(X)	0.75	0.35	0.81	0.24	0.27	0.27
Avail Cap(c_a), veh/h	754	618	146	2701	1199	1206
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.97	0.97	1.00	1.00
Uniform Delay (d), s/veh	39.2	37.6	40.6	0.0	4.9	4.9
Incr Delay (d2), s/veh	6.0	1.4	17.9	0.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	2.6	1.5	0.1	1.6	1.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.3	38.9	58.6	0.2	5.0	5.0
LnGrp LOS	D	D	E	A	A	A
Approach Vol, veh/h	192			719	650	
Approach Delay, s/veh	43.5			5.0	5.0	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		76.5		13.5	8.0	68.5
Change Period (Y+Rc), s		5.3		* 4.2	4.0	5.3
Max Green Setting (Gmax), s		42.7		* 38	8.0	30.7
Max Q Clear Time (g_c+I1), s		2.0		8.8	5.2	8.3
Green Ext Time (p_c), s		4.6		0.6	0.0	3.6

Intersection Summary	
HCM 6th Ctrl Delay	9.8
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary
11: Walters Road & Mammoth Way/Montebello Drive

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	1	18	126	0	67	10	539	29	28	540	3
Future Volume (veh/h)	20	1	18	126	0	67	10	539	29	28	540	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1811	1900	1796	1767	1589	1811	1824
Adj Flow Rate, veh/h	21	1	19	133	0	71	11	567	31	29	568	3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	6	0	7	4	21	6	0
Cap, veh/h	303	13	227	287	0	218	24	2235	122	43	2437	13
Arrive On Green	0.14	0.14	0.14	0.14	0.00	0.14	0.01	0.68	0.68	0.03	0.69	0.69
Sat Flow, veh/h	1581	89	1597	1454	0	1535	1810	3290	180	1513	3510	19
Grp Volume(v), veh/h	22	0	19	133	0	71	11	294	304	29	278	293
Grp Sat Flow(s),veh/h/ln	1671	0	1597	1454	0	1535	1810	1706	1763	1513	1721	1808
Q Serve(g_s), s	0.0	0.0	0.9	6.7	0.0	3.7	0.5	6.0	6.0	1.7	5.3	5.3
Cycle Q Clear(g_c), s	0.9	0.0	0.9	7.7	0.0	3.7	0.5	6.0	6.0	1.7	5.3	5.3
Prop In Lane	0.95		1.00	1.00		1.00	1.00		0.10	1.00		0.01
Lane Grp Cap(c), veh/h	316	0	227	287	0	218	24	1159	1198	43	1195	1255
V/C Ratio(X)	0.07	0.00	0.08	0.46	0.00	0.33	0.46	0.25	0.25	0.67	0.23	0.23
Avail Cap(c_a), veh/h	736	0	688	699	0	662	161	1159	1198	134	1195	1255
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	33.5	0.0	33.5	36.3	0.0	34.7	44.1	5.6	5.6	43.3	5.0	5.0
Incr Delay (d2), s/veh	0.2	0.0	0.3	2.5	0.0	1.8	26.0	0.5	0.5	30.9	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.4	2.9	0.0	1.5	0.4	1.8	1.8	1.0	1.5	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	0.0	33.8	38.8	0.0	36.6	70.1	6.1	6.1	74.2	5.4	5.4
LnGrp LOS	C	A	C	D	A	D	E	A	A	E	A	A
Approach Vol, veh/h		41			204			609			600	
Approach Delay, s/veh		33.8			38.0			7.3			8.8	
Approach LOS		C			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.6	66.4		17.0	5.2	67.8		17.0
Change Period (Y+Rc), s	4.0	5.3		* 4.2	4.0	5.3		* 4.2
Max Green Setting (Gmax), s	8.0	29.7		* 39	8.0	29.7		* 39
Max Q Clear Time (g_c+I1), s	3.7	8.0		2.9	2.5	7.3		9.7
Green Ext Time (p_c), s	0.0	6.2		0.3	0.0	6.0		2.0

Intersection Summary	
HCM 6th Ctrl Delay	12.9
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
12: Walters Road & Petersen Road

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	3	12	31	4	2	7	593	28	13	646	8
Future Volume (veh/h)	7	3	12	31	4	2	7	593	28	13	646	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.98	0.97		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	1648	1411	1530	1707	1900	1900	1885	1781	1218	877	1841	1900
Adj Flow Rate, veh/h	8	3	13	34	4	0	8	652	0	14	710	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	17	33	25	13	0	0	1	8	46	69	4	0
Cap, veh/h	158	94	84	161	126		18	2567		14	2675	
Arrive On Green	0.07	0.07	0.07	0.07	0.07	0.00	0.01	0.51	0.00	0.02	0.76	0.00
Sat Flow, veh/h	1211	1411	1270	1256	1900	1610	1795	3385	1032	836	3497	1610
Grp Volume(v), veh/h	8	3	13	34	4	0	8	652	0	14	710	0
Grp Sat Flow(s),veh/h/ln	1211	1411	1270	1256	1900	1610	1795	1692	1032	836	1749	1610
Q Serve(g_s), s	0.6	0.2	0.9	2.3	0.2	0.0	0.4	9.8	0.0	1.5	5.4	0.0
Cycle Q Clear(g_c), s	0.7	0.2	0.9	2.5	0.2	0.0	0.4	9.8	0.0	1.5	5.4	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	158	94	84	161	126		18	2567		14	2675	
V/C Ratio(X)	0.05	0.03	0.15	0.21	0.03		0.44	0.25		1.02	0.27	
Avail Cap(c_a), veh/h	475	462	416	489	623		150	2567		70	2675	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.98	0.98	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	39.7	39.3	39.6	40.5	39.3	0.0	44.4	7.8	0.0	44.3	3.1	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.8	0.6	0.1	0.0	15.7	0.2	0.0	119.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.3	0.7	0.1	0.0	0.2	2.8	0.0	0.7	1.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.8	39.5	40.5	41.1	39.4	0.0	60.2	8.0	0.0	163.3	3.2	0.0
LnGrp LOS	D	D	D	D	D		E	A		F	A	
Approach Vol, veh/h		24			38	A		660	A		724	A
Approach Delay, s/veh		40.1			41.0			8.6			6.3	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	73.6		10.5	5.4	74.1		10.5
Change Period (Y+Rc), s	4.5	5.3		4.5	4.5	5.3		4.5
Max Green Setting (Gmax), s	7.5	38.7		29.5	7.5	38.7		29.5
Max Q Clear Time (g_c+I1), s	3.5	11.8		2.9	2.4	7.4		4.5
Green Ext Time (p_c), s	0.0	4.3		0.0	0.0	4.9		0.1

Intersection Summary	
HCM 6th Ctrl Delay	8.8
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary
13: Walters Road & Walmart Main Driveway

04/29/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	33	16	40	599	670	25
Future Volume (veh/h)	33	16	40	599	670	25
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	1900	1811	1752	1737	1826	1841
Adj Flow Rate, veh/h	36	18	44	658	736	27
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	6	10	11	5	4
Cap, veh/h	119	101	99	2694	2383	87
Arrive On Green	0.07	0.07	0.06	0.82	0.70	0.70
Sat Flow, veh/h	1810	1535	1668	3387	3504	125
Grp Volume(v), veh/h	36	18	44	658	374	389
Grp Sat Flow(s),veh/h/ln	1810	1535	1668	1650	1735	1803
Q Serve(g_s), s	1.7	1.0	2.3	4.1	7.5	7.5
Cycle Q Clear(g_c), s	1.7	1.0	2.3	4.1	7.5	7.5
Prop In Lane	1.00	1.00	1.00			0.07
Lane Grp Cap(c), veh/h	119	101	99	2694	1211	1259
V/C Ratio(X)	0.30	0.18	0.44	0.24	0.31	0.31
Avail Cap(c_a), veh/h	175	148	180	2694	1211	1259
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.98	0.98
Uniform Delay (d), s/veh	40.1	39.7	40.9	1.9	5.2	5.2
Incr Delay (d2), s/veh	1.4	0.8	3.1	0.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.4	1.0	0.8	1.9	2.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.5	40.6	44.0	2.1	5.4	5.4
LnGrp LOS	D	D	D	A	A	A
Approach Vol, veh/h	54			702	763	
Approach Delay, s/veh	41.2			4.7	5.4	
Approach LOS	D			A	A	

Timer - Assigned Phs	2		5	6	8
Phs Duration (G+Y+Rc), s	78.8		10.6	68.1	11.2
Change Period (Y+Rc), s	5.3		5.3	5.3	5.3
Max Green Setting (Gmax), s	43.7		9.7	28.7	8.7
Max Q Clear Time (g_c+I1), s	6.1		4.3	9.5	3.7
Green Ext Time (p_c), s	5.3		0.0	4.1	0.0

Intersection Summary		
HCM 6th Ctrl Delay		6.3
HCM 6th LOS		A

Notes

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

HCM 6th TWSC
14: Walters Road & Walmart Driveway

04/29/2021

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	26	0	0	28	0	612	15	13	682	1
Future Vol, veh/h	0	0	26	0	0	28	0	612	15	13	682	1
Conflicting Peds, #/hr	0	0	5	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	11	0	0	5	0
Mvmt Flow	0	0	30	0	0	32	0	695	17	15	775	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	393	-	-	356	-	0	0	712	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	-	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	612	0	0	646	0	-	-	897	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	609	-	-	646	-	-	-	897	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.2	10.9	0	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	609	646	897	-	-
HCM Lane V/C Ratio	-	-	0.049	0.049	0.016	-	-
HCM Control Delay (s)	-	-	11.2	10.9	9.1	-	-
HCM Lane LOS	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0.2	0.2	0.1	-	-

HCM 6th Signalized Intersection Summary
15: Lawler Ranch Parkway /Walters Road & State Hwy 12 04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	303	361	16	2	588	192	86	127	3	132	46	467
Future Volume (veh/h)	303	361	16	2	588	192	86	127	3	132	46	467
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1574	1900	1900	1589	1589	1885	1856	1900	1752	1722	1856
Adj Flow Rate, veh/h	319	380	17	2	619	202	75	156	3	94	112	492
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	22	0	0	21	21	1	3	0	10	12	3
Cap, veh/h	433	1222	654	9	851	377	222	460	199	346	357	641
Arrive On Green	0.13	0.41	0.41	0.00	0.28	0.28	0.12	0.12	0.12	0.21	0.21	0.21
Sat Flow, veh/h	3291	2991	1600	1810	3019	1339	1795	3711	1610	1668	1722	3092
Grp Volume(v), veh/h	319	380	17	2	619	202	75	156	3	94	112	492
Grp Sat Flow(s),veh/h/ln	1646	1495	1600	1810	1509	1339	1795	1856	1610	1668	1722	1546
Q Serve(g_s), s	7.5	6.9	0.5	0.1	14.9	10.2	3.1	3.1	0.1	3.8	4.4	12.0
Cycle Q Clear(g_c), s	7.5	6.9	0.5	0.1	14.9	10.2	3.1	3.1	0.1	3.8	4.4	12.0
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	433	1222	654	9	851	377	222	460	199	346	357	641
V/C Ratio(X)	0.74	0.31	0.03	0.23	0.73	0.54	0.34	0.34	0.02	0.27	0.31	0.77
Avail Cap(c_a), veh/h	1189	1862	996	541	1880	834	671	1386	602	623	643	1155
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.5	16.1	14.2	39.8	26.0	24.4	32.2	32.2	30.9	26.7	27.0	30.0
Incr Delay (d2), s/veh	2.5	0.1	0.0	12.4	1.2	1.2	0.9	0.4	0.0	0.4	0.5	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	2.3	0.2	0.1	4.9	3.0	1.4	1.4	0.1	1.4	1.7	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.0	16.2	14.2	52.2	27.3	25.6	33.1	32.6	30.9	27.1	27.5	32.0
LnGrp LOS	D	B	B	D	C	C	C	C	C	C	C	C
Approach Vol, veh/h		716			823			234			698	
Approach Delay, s/veh		25.0			26.9			32.7			30.6	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.6	38.5		22.0	14.8	28.3		15.2				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 24	50.0		30.0	* 29	50.0		30.0				
Max Q Clear Time (g_c+I1), s	2.1	8.9		14.0	9.5	16.9		5.1				
Green Ext Time (p_c), s	0.0	3.1		2.6	1.1	4.9		1.2				

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

Notes

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

Queues
1: Sunset Avenue /Sunset Avenue & Pintail Drive

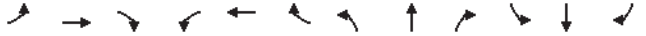
04/26/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	52	91	109	437	34	365	201	437
v/c Ratio	0.42	0.16	0.28	0.77	0.22	0.30	0.71	0.25
Control Delay	33.3	19.3	23.7	34.2	41.2	21.9	49.3	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.3	19.3	23.7	34.2	41.2	21.9	49.3	16.0
Queue Length 50th (ft)	23	34	46	198	18	74	107	78
Queue Length 95th (ft)	53	60	78	272	47	127	179	134
Internal Link Dist (ft)		402		619		2012		441
Turn Bay Length (ft)	105		75		105		105	
Base Capacity (vph)	162	730	510	717	186	1236	320	1735
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.12	0.21	0.61	0.18	0.30	0.63	0.25

Intersection Summary

Queues
2: Grizzly Island Road/Sunset Avenue & State Hwy 12

04/26/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	252	752	206	57	1387	87	303	134	36	137	144	341
v/c Ratio	0.70	0.51	0.24	0.40	0.97	0.12	0.84	0.36	0.10	0.69	0.70	0.55
Control Delay	75.1	32.4	4.8	72.4	59.3	8.3	77.6	52.6	0.5	80.5	80.3	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.1	32.4	4.8	72.4	59.3	8.3	77.6	52.6	0.5	80.5	80.3	8.7
Queue Length 50th (ft)	124	272	0	53	686	3	290	115	0	137	145	0
Queue Length 95th (ft)	170	425	59	102	#1113	47	365	163	0	206	214	48
Internal Link Dist (ft)		867			689			342			2012	
Turn Bay Length (ft)	500		275	250		400	125			150		150
Base Capacity (vph)	424	1474	871	156	1424	711	484	504	459	298	312	766
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.51	0.24	0.37	0.97	0.12	0.63	0.27	0.08	0.46	0.46	0.45

Intersection Summary

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

Queues
5: Lawler Ranch Parkway /Emperor Drive & State Hwy 12

04/26/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	129	671	63	61	1286	11	99	100	65	21	197
v/c Ratio	0.62	0.47	0.08	0.33	0.97	0.01	0.42	0.41	0.18	0.09	0.53
Control Delay	70.1	30.1	0.2	65.6	54.4	0.0	54.1	53.8	1.1	49.2	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.1	30.1	0.2	65.6	54.4	0.0	54.1	53.8	1.1	49.2	15.0
Queue Length 50th (ft)	85	156	0	39	395	0	68	68	0	13	13
Queue Length 95th (ft)	#256	485	0	135	#1348	0	168	169	0	48	93
Internal Link Dist (ft)		1392			1435			342			1298
Turn Bay Length (ft)	425		255	200		230	215		215	125	
Base Capacity (vph)	309	1565	872	185	1397	790	277	284	401	284	418
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.43	0.07	0.33	0.92	0.01	0.36	0.35	0.16	0.07	0.47

Intersection Summary

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

Queues
7: Walters Road & Air Base Parkway

04/29/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	111	934	278	372	451	9	351	119	766	5	210
v/c Ratio	0.63	0.74	0.39	0.82	0.35	0.01	0.89	0.18	0.89	0.07	0.81
Control Delay	66.9	39.5	5.3	66.7	29.7	0.0	68.9	23.5	29.3	57.2	63.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.9	39.5	5.3	66.7	29.7	0.0	68.9	23.5	29.3	57.2	63.7
Queue Length 50th (ft)	83	354	0	144	137	0	258	54	276	4	130
Queue Length 95th (ft)	142	439	61	#229	197	0	#407	104	#591	18	#217
Internal Link Dist (ft)		838			880			1074			219
Turn Bay Length (ft)	275		315	400		180			325	150	
Base Capacity (vph)	220	1262	712	455	1286	617	430	691	881	68	305
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.74	0.39	0.82	0.35	0.01	0.82	0.17	0.87	0.07	0.69

Intersection Summary

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

Queues
8: Walters Road & E Tabor Avenue

04/26/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	258	123	7	213	188	1002	49	786
v/c Ratio	0.79	0.23	0.05	0.53	0.82	0.65	0.30	0.70
Control Delay	52.8	8.0	36.2	16.8	63.1	19.9	38.7	22.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.8	8.0	36.2	16.8	63.1	19.9	38.7	22.9
Queue Length 50th (ft)	51	8	3	36	72	163	18	120
Queue Length 95th (ft)	#165	46	18	91	#261	#393	64	272
Internal Link Dist (ft)		1386		269		2251		1213
Turn Bay Length (ft)	95		125		180		270	
Base Capacity (vph)	325	906	144	927	228	1646	164	1472
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.14	0.05	0.23	0.82	0.61	0.30	0.53

Intersection Summary

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

Queues
9: Walters Road & Bella Vista Drive

04/26/2021

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	193	108	113	4	757	22	662
v/c Ratio	0.72	0.52	0.36	0.04	0.43	0.20	0.37
Control Delay	51.7	45.6	6.4	38.0	14.7	43.9	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.7	45.6	6.4	38.0	14.7	43.9	13.7
Queue Length 50th (ft)	105	59	0	2	149	12	94
Queue Length 95th (ft)	172	104	28	m8	221	35	199
Internal Link Dist (ft)	639	451			643		1927
Turn Bay Length (ft)			90	135		105	
Base Capacity (vph)	324	303	394	150	1749	150	1773
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.36	0.29	0.03	0.43	0.15	0.37

Intersection Summary

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

Queues
10: Walters Road & Pintail Drive

04/26/2021

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	139	53	59	660	650
v/c Ratio	0.42	0.17	0.45	0.28	0.32
Control Delay	33.9	7.6	56.3	8.8	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	7.6	56.3	8.8	14.0
Queue Length 50th (ft)	75	0	35	56	141
Queue Length 95th (ft)	89	22	77	171	263
Internal Link Dist (ft)	225			851	689
Turn Bay Length (ft)		150	130		
Base Capacity (vph)	750	641	143	2393	2011
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.19	0.08	0.41	0.28	0.32

Intersection Summary

Queues
11: Walters Road & Mammoth Way/Montebello Drive

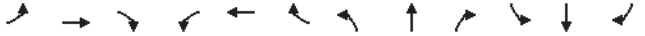
04/26/2021

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	22	19	133	71	11	598	29	571
v/c Ratio	0.08	0.05	0.46	0.19	0.07	0.28	0.22	0.25
Control Delay	25.0	0.3	34.4	6.1	46.3	4.5	57.1	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.0	0.3	34.4	6.1	46.3	4.5	57.1	4.6
Queue Length 50th (ft)	11	0	70	0	5	49	18	6
Queue Length 95th (ft)	23	0	93	24	25	4	48	72
Internal Link Dist (ft)	93		335			477		851
Turn Bay Length (ft)		50		125	100		120	
Base Capacity (vph)	622	739	608	700	160	2133	132	2257
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.03	0.22	0.10	0.07	0.28	0.22	0.25

Intersection Summary

Queues
12: Walters Road & Petersen Road

04/26/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	8	3	13	34	4	2	8	652	31	14	710	9
v/c Ratio	0.05	0.02	0.05	0.20	0.02	0.01	0.07	0.24	0.03	0.18	0.25	0.01
Control Delay	28.9	27.7	0.4	33.8	27.8	0.0	31.0	8.6	6.0	38.9	10.1	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.9	27.7	0.4	33.8	27.8	0.0	31.0	8.6	6.0	38.9	10.1	0.6
Queue Length 50th (ft)	4	2	0	19	2	0	5	32	0	8	54	0
Queue Length 95th (ft)	13	7	0	35	9	0	m17	259	25	29	205	m2
Internal Link Dist (ft)		417			560			510			413	
Turn Bay Length (ft)			180	115		200	85		185	100		75
Base Capacity (vph)	399	468	472	415	622	574	148	2694	905	89	2801	1300
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.01	0.03	0.08	0.01	0.00	0.05	0.24	0.03	0.16	0.25	0.01

Intersection Summary

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

Queues
13: Walters Road & Walmart Main Driveway

04/26/2021

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	36	18	44	658	763
v/c Ratio	0.11	0.05	0.28	0.26	0.32
Control Delay	26.5	9.2	42.6	6.6	16.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	9.2	42.6	6.6	16.4
Queue Length 50th (ft)	19	0	24	37	17
Queue Length 95th (ft)	31	13	56	163	308
Internal Link Dist (ft)	149			326	510
Turn Bay Length (ft)			200		
Base Capacity (vph)	331	615	176	2556	2367
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.11	0.03	0.25	0.26	0.32

Intersection Summary

Queues

15: Lawler Ranch Parkway /Walters Road & State Hwy 12

04/26/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	319	380	17	2	619	202	73	152	3	92	95	492
v/c Ratio	0.58	0.26	0.02	0.01	0.71	0.39	0.28	0.28	0.01	0.40	0.41	0.60
Control Delay	46.4	18.3	0.1	58.5	38.6	7.3	42.1	39.3	0.0	51.1	51.1	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.4	18.3	0.1	58.5	38.6	7.3	42.1	39.3	0.0	51.1	51.1	7.9
Queue Length 50th (ft)	79	52	0	1	147	0	39	41	0	46	48	0
Queue Length 95th (ft)	230	199	0	13	402	66	118	104	0	168	172	58
Internal Link Dist (ft)		3194			827			385			265	
Turn Bay Length (ft)	390		275	215		300	175		90	125		190
Base Capacity (vph)	1060	1881	1056	488	1682	827	586	1206	654	527	537	1259
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.20	0.02	0.00	0.37	0.24	0.12	0.13	0.00	0.17	0.18	0.39

Intersection Summary

HCM 6th Signalized Intersection Summary

1: Sunset Avenue & Pintail Drive

04/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	79	26	119	86	131	21	466	122	220	459	58
Future Volume (veh/h)	58	79	26	119	86	131	21	466	122	220	459	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1753	1900	1885	1824	1900	1885	1767	1870	1885	1824
Adj Flow Rate, veh/h	64	88	29	132	96	146	23	518	136	244	510	64
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	0	5	0	1	0	0	1	4	2	1	0
Cap, veh/h	190	309	102	303	152	231	44	868	227	283	1422	178
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.02	0.31	0.31	0.16	0.44	0.44
Sat Flow, veh/h	1135	1366	450	1290	672	1022	1810	2801	732	1781	3200	400
Grp Volume(v), veh/h	64	0	117	132	0	242	23	330	324	244	285	289
Grp Sat Flow(s),veh/h/ln	1135	0	1816	1290	0	1695	1810	1791	1742	1781	1791	1809
Q Serve(g_s), s	4.9	0.0	4.8	8.5	0.0	11.6	1.1	14.0	14.2	12.0	9.4	9.5
Cycle Q Clear(g_c), s	16.5	0.0	4.8	13.3	0.0	11.6	1.1	14.0	14.2	12.0	9.4	9.5
Prop In Lane	1.00		0.25	1.00		0.60	1.00		0.42	1.00		0.22
Lane Grp Cap(c), veh/h	190	0	410	303	0	383	44	555	540	283	796	804
V/C Ratio(X)	0.34	0.00	0.29	0.44	0.00	0.63	0.52	0.59	0.60	0.86	0.36	0.36
Avail Cap(c_a), veh/h	317	0	613	447	0	572	247	555	540	342	796	804
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.68	0.68	0.68	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.9	0.0	28.8	34.3	0.0	31.5	43.4	26.3	26.3	36.9	16.5	16.5
Incr Delay (d2), s/veh	1.3	0.0	0.5	1.2	0.0	2.1	8.2	3.2	3.3	18.1	1.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	2.1	2.8	0.0	4.9	0.6	6.2	6.1	6.5	3.9	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.2	0.0	29.3	35.5	0.0	33.6	51.6	29.4	29.6	55.0	17.8	17.8
LnGrp LOS	D	A	C	D	A	C	D	C	C	E	B	B
Approach Vol, veh/h		181			374			677			818	
Approach Delay, s/veh		33.1			34.3			30.3			28.9	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	45.1		24.9	19.0	33.0		24.9				
Change Period (Y+Rc), s	* 4.7	5.1		4.6	* 4.7	5.1		4.6				
Max Green Setting (Gmax), s	* 12	23.9		30.4	* 17	27.9		30.4				
Max Q Clear Time (g_c+I1), s	3.1	11.5		18.5	14.0	16.2		15.3				
Green Ext Time (p_c), s	0.0	3.7		0.8	0.3	4.2		2.2				

Intersection Summary		
HCM 6th Ctrl Delay		30.7
HCM 6th LOS		C

Notes

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

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

HCM 6th Signalized Intersection Summary
2: Grizzly Island Road/Sunset Avenue & State Hwy 12

04/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	551	1614	221	127	924	169	170	146	85	293	107	251
Future Volume (veh/h)	551	1614	221	127	924	169	170	146	85	293	107	251
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1841	1885	1870	1841	1900	1885	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	562	1647	226	130	943	172	173	149	87	204	242	256
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	4	1	2	4	0	1	0	0	0	0	0
Cap, veh/h	611	1737	793	152	1412	650	283	299	250	217	228	375
Arrive On Green	0.18	0.50	0.50	0.09	0.40	0.40	0.16	0.16	0.16	0.12	0.12	0.12
Sat Flow, veh/h	3483	3497	1596	1781	3497	1609	1795	1900	1589	1810	1900	3126
Grp Volume(v), veh/h	562	1647	226	130	943	172	173	149	87	204	242	256
Grp Sat Flow(s),veh/h/ln	1742	1749	1596	1781	1749	1609	1795	1900	1589	1810	1900	1563
Q Serve(g_s), s	23.8	67.2	12.5	10.8	33.0	10.7	13.5	10.8	7.3	16.8	18.0	11.8
Cycle Q Clear(g_c), s	23.8	67.2	12.5	10.8	33.0	10.7	13.5	10.8	7.3	16.8	18.0	11.8
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	611	1737	793	152	1412	650	283	299	250	217	228	375
V/C Ratio(X)	0.92	0.95	0.29	0.86	0.67	0.26	0.61	0.50	0.35	0.94	1.06	0.68
Avail Cap(c_a), veh/h	650	1737	793	166	1412	650	479	507	424	217	228	375
HCM Platoon Ratio	1.00	1.00	1.00	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	0.96	0.96	0.96
Uniform Delay (d), s/veh	60.8	35.9	22.1	67.7	36.5	29.9	58.9	57.8	56.3	65.5	66.0	63.3
Incr Delay (d2), s/veh	17.8	12.4	0.9	29.4	2.5	1.0	0.8	0.5	0.3	43.0	75.5	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.8	29.7	4.7	6.1	14.1	4.2	6.3	5.3	3.0	10.3	13.5	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.6	48.3	23.0	97.1	39.0	30.9	59.7	58.2	56.6	108.5	141.5	67.7
LnGrp LOS	E	D	C	F	D	C	E	E	E	F	F	E
Approach Vol, veh/h		2435			1245			409			702	
Approach Delay, s/veh		52.9			44.0			58.5			105.0	
Approach LOS		D			D			E			F	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.5	80.7		23.1	31.4	66.8		28.7
Change Period (Y+Rc), s	4.7	6.2		5.1	5.1	6.2		5.1
Max Green Setting (Gmax), s	12.8	56.9		18.0	28.0	42.5		40.0
Max Q Clear Time (g_c+I1), s	12.8	69.2		20.0	25.8	35.0		15.5
Green Ext Time (p_c), s	0.0	0.0		0.0	0.5	2.1		0.6

Intersection Summary	
HCM 6th Ctrl Delay	58.7
HCM 6th LOS	E

Notes

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

HCM 6th TWSC
3: State Hwy 12 & Snow Drive

04/26/2021

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	2044	1261	23	0	68
Future Vol, veh/h	0	2044	1261	23	0	68
Conflicting Peds, #/hr	0	0	0	4	0	7
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	275	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	3	3	0	0	0
Mvmt Flow	0	2107	1300	24	0	70

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	661
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	410
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	406
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.7
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	406
HCM Lane V/C Ratio	-	-	-	0.173
HCM Control Delay (s)	-	-	-	15.7
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.6

Intersection	
Intersection Delay, s/veh	20.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	77	285	81	28	199	4	81	72	175	3	44	45
Future Vol, veh/h	77	285	81	28	199	4	81	72	175	3	44	45
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	3	0	0	5	0	0	0	1	0	0	0
Mvmt Flow	85	313	89	31	219	4	89	79	192	3	48	49
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	27.4	14.5	18.2	11.4
HCM LOS	D	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	17%	12%	3%
Vol Thru, %	22%	64%	86%	48%
Vol Right, %	53%	18%	2%	49%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	328	443	231	92
LT Vol	81	77	28	3
Through Vol	72	285	199	44
RT Vol	175	81	4	45
Lane Flow Rate	360	487	254	101
Geometry Grp	1	1	1	1
Degree of Util (X)	0.609	0.79	0.449	0.19
Departure Headway (Hd)	6.08	5.842	6.363	6.757
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	591	618	564	529
Service Time	4.132	3.89	4.421	4.831
HCM Lane V/C Ratio	0.609	0.788	0.45	0.191
HCM Control Delay	18.2	27.4	14.5	11.4
HCM Lane LOS	C	D	B	B
HCM 95th-tile Q	4.1	7.6	2.3	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	298	1458	179	37	1017	21	118	34	35	23	27	111
Future Volume (veh/h)	298	1458	179	37	1017	21	118	34	35	23	27	111
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	1885	1841	1900	1900	1841	1811	1900	1900	1796	1796	1900	1824
Adj Flow Rate, veh/h	301	1473	181	37	1027	21	76	93	35	23	27	112
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	4	0	0	4	6	0	0	7	7	0	0
Cap, veh/h	337	1665	767	141	1281	562	204	214	172	192	36	150
Arrive On Green	0.19	0.48	0.48	0.08	0.37	0.37	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1795	3497	1610	1810	3497	1535	1810	1900	1522	1711	322	1334
Grp Volume(v), veh/h	301	1473	181	37	1027	21	76	93	35	23	0	139
Grp Sat Flow(s),veh/h/ln	1795	1749	1610	1810	1749	1535	1810	1900	1522	1711	0	1656
Q Serve(g_s), s	15.9	37.0	6.4	1.9	25.6	0.9	3.8	4.4	2.0	1.2	0.0	7.9
Cycle Q Clear(g_c), s	15.9	37.0	6.4	1.9	25.6	0.9	3.8	4.4	2.0	1.2	0.0	7.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.81
Lane Grp Cap(c), veh/h	337	1665	767	141	1281	562	204	214	172	192	0	186
V/C Ratio(X)	0.89	0.88	0.24	0.26	0.80	0.04	0.37	0.43	0.20	0.12	0.00	0.75
Avail Cap(c_a), veh/h	685	1802	830	224	1802	791	280	294	235	264	0	256
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.5	23.0	15.0	42.1	27.6	19.8	39.9	40.2	39.1	38.7	0.0	41.7
Incr Delay (d2), s/veh	3.3	5.4	0.2	0.4	1.8	0.0	0.4	0.5	0.2	0.1	0.0	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	14.4	2.1	0.8	10.0	0.3	1.7	2.1	0.8	0.5	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.8	28.4	15.2	42.5	29.4	19.8	40.3	40.7	39.3	38.8	0.0	46.1
LnGrp LOS	D	C	B	D	C	B	D	D	D	D	A	D
Approach Vol, veh/h		1955			1085			204			162	
Approach Delay, s/veh		29.2			29.7			40.3			45.1	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.3	52.7		16.0	22.9	42.0		16.1
Change Period (Y+Rc), s	4.7	6.5		5.1	* 4.7	6.5		5.1
Max Green Setting (Gmax), s	12.3	50.0		15.0	* 37	50.0		15.0
Max Q Clear Time (g_c+I1), s	13.9	39.0		9.9	17.9	27.6		6.4
Green Ext Time (p_c), s	0.0	7.2		0.1	0.4	6.9		0.3

Intersection Summary	
HCM 6th Ctrl Delay	30.8
HCM 6th LOS	C

Notes

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

HCM 6th TWSC
6: State Hwy 12 & Woodlark Drive 04/26/2021

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	1521	970	16	0	100
Future Vol, veh/h	0	1521	970	16	0	100
Conflicting Peds, #/hr	0	0	0	5	0	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	260	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	4	4	0	0	0
Mvmt Flow	0	1601	1021	17	0	105

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	519
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	507
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	503
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	14
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	503
HCM Lane V/C Ratio	-	-	-	0.209
HCM Control Delay (s)	-	-	-	14
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.8

HCM 6th Signalized Intersection Summary
7: Walters Road/Walter Road & Air Base Parkway 04/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑	↱	↰↰	↑↑	↱	↰	↑	↱	↰	↑	
Traffic Volume (veh/h)	114	618	345	800	815	8	179	133	655	7	122	123
Future Volume (veh/h)	114	618	345	800	815	8	179	133	655	7	122	123
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	1737	1900	1841	1885	1885	1693	1870	1737	1870	1648	1752	1767
Adj Flow Rate, veh/h	118	637	0	825	840	0	185	137	0	7	126	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	11	0	4	1	1	14	2	11	2	17	10	9
Cap, veh/h	142	1457		879	2042		215	351		14	158	
Arrive On Green	0.09	0.40	0.00	0.25	0.57	0.00	0.12	0.20	0.00	0.01	0.09	0.00
Sat Flow, veh/h	1654	3610	1560	3483	3582	1434	1781	1737	1585	1570	1752	0
Grp Volume(v), veh/h	118	637	0	825	840	0	185	137	0	7	126	0
Grp Sat Flow(s),veh/h/ln	1654	1805	1560	1742	1791	1434	1781	1737	1585	1570	1752	0
Q Serve(g_s), s	8.4	15.3	0.0	27.8	15.8	0.0	12.2	8.2	0.0	0.5	8.5	0.0
Cycle Q Clear(g_c), s	8.4	15.3	0.0	27.8	15.8	0.0	12.2	8.2	0.0	0.5	8.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	142	1457		879	2042		215	351		14	158	
V/C Ratio(X)	0.83	0.44		0.94	0.41		0.86	0.39		0.51	0.80	
Avail Cap(c_a), veh/h	221	1457		900	2042		315	588		73	365	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	54.0	25.9	0.0	43.9	14.5	0.0	51.8	41.5	0.0	59.2	53.5	0.0
Incr Delay (d2), s/veh	14.0	1.0	0.0	16.8	0.6	0.0	14.9	0.7	0.0	26.9	8.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	6.4	0.0	13.5	5.9	0.0	6.2	3.5	0.0	0.3	4.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.0	26.9	0.0	60.8	15.1	0.0	66.7	42.2	0.0	86.2	62.4	0.0
LnGrp LOS	E	C		E	B		E	D		F	E	
Approach Vol, veh/h		755	A		1665	A		322	A		133	A
Approach Delay, s/veh		33.3			37.7			56.3			63.7	
Approach LOS		C			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.0	28.2	14.3	72.4	18.5	14.8	34.3	52.4
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.6	40.6	16.0	41.8	21.2	25.0	31.0	26.8
Max Q Clear Time (g_c+I1), s	2.5	10.2	10.4	17.8	14.2	10.5	29.8	17.3
Green Ext Time (p_c), s	0.0	0.7	0.1	5.4	0.3	0.5	0.4	2.6

Intersection Summary	
HCM 6th Ctrl Delay	39.8
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary
8: Walters Road & E Tabor Avenue

04/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	245	37	158	7	25	49	161	728	7	84	872	253
Future Volume (veh/h)	245	37	158	7	25	49	161	728	7	84	872	253
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1796	1900	1900	1796	1900	1841	1824	1900	1856	1796
Adj Flow Rate, veh/h	253	38	163	7	26	51	166	751	7	87	899	261
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	2	0	0	2	0	4	0	0	3	2
Cap, veh/h	376	51	217	17	35	69	213	1718	16	119	1163	337
Arrive On Green	0.11	0.16	0.16	0.01	0.06	0.06	0.12	0.48	0.48	0.07	0.43	0.43
Sat Flow, veh/h	3456	313	1345	1810	573	1124	1810	3550	33	1810	2696	781
Grp Volume(v), veh/h	253	0	201	7	0	77	166	370	388	87	587	573
Grp Sat Flow(s),veh/h/ln	1728	0	1658	1810	0	1698	1810	1749	1835	1810	1763	1715
Q Serve(g_s), s	4.0	0.0	6.6	0.2	0.0	2.5	5.1	7.9	7.9	2.7	16.2	16.3
Cycle Q Clear(g_c), s	4.0	0.0	6.6	0.2	0.0	2.5	5.1	7.9	7.9	2.7	16.2	16.3
Prop In Lane	1.00		0.81	1.00		0.66	1.00		0.02	1.00		0.46
Lane Grp Cap(c), veh/h	376	0	268	17	0	105	213	846	888	119	760	740
V/C Ratio(X)	0.67	0.00	0.75	0.42	0.00	0.73	0.78	0.44	0.44	0.73	0.77	0.77
Avail Cap(c_a), veh/h	605	0	668	177	0	553	380	1084	1137	317	1031	1003
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.5	0.0	22.9	28.1	0.0	26.3	24.5	9.7	9.7	26.2	13.8	13.9
Incr Delay (d2), s/veh	2.1	0.0	4.2	16.0	0.0	9.5	6.0	0.4	0.3	8.4	2.5	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	2.6	0.2	0.0	1.2	2.3	2.2	2.3	1.3	5.3	5.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.6	0.0	27.1	44.1	0.0	35.9	30.5	10.0	10.0	34.6	16.4	16.5
LnGrp LOS	C	A	C	D	A	D	C	B	A	C	B	B
Approach Vol, veh/h		454			84			924			1247	
Approach Delay, s/veh		26.8			36.5			13.7			17.7	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	31.6	10.2	7.5	10.7	28.6	4.5	13.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	0.0	35.4	10.0	18.6	12.0	33.4	5.6	23.0
Max Q Clear Time (g_c+I1), s	4.7	9.9	6.0	4.5	7.1	18.3	2.2	8.6
Green Ext Time (p_c), s	0.1	4.4	0.3	0.3	0.2	6.4	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	18.5
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
9: Walters Road & Bella Vista Drive

04/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	9	6	51	2	58	7	822	63	50	829	83
Future Volume (veh/h)	67	9	6	51	2	58	7	822	63	50	829	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		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	1781	1900	1824	1696	1900	1900	1900	1856	1824	1900	1841	1824
Adj Flow Rate, veh/h	71	10	6	54	2	62	7	874	67	53	882	88
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	0	0	9	0	0	0	3	0	0	4	0
Cap, veh/h	137	19	12	155	6	141	13	1864	143	68	1902	190
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.01	0.56	0.56	0.04	0.59	0.59
Sat Flow, veh/h	1471	207	124	1748	65	1588	1810	3318	254	1810	3211	320
Grp Volume(v), veh/h	87	0	0	56	0	62	7	464	477	53	480	490
Grp Sat Flow(s),veh/h/ln	1802	0	0	1813	0	1588	1810	1763	1809	1810	1749	1783
Q Serve(g_s), s	4.1	0.0	0.0	2.6	0.0	3.3	0.3	14.1	14.1	2.6	13.9	13.9
Cycle Q Clear(g_c), s	4.1	0.0	0.0	2.6	0.0	3.3	0.3	14.1	14.1	2.6	13.9	13.9
Prop In Lane	0.82		0.07	0.96		1.00	1.00		0.14	1.00		0.18
Lane Grp Cap(c), veh/h	168	0	0	160	0	141	13	990	1016	68	1036	1056
V/C Ratio(X)	0.52	0.00	0.00	0.35	0.00	0.44	0.54	0.47	0.47	0.78	0.46	0.46
Avail Cap(c_a), veh/h	326	0	0	308	0	270	151	990	1016	151	1036	1056
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.9	0.0	0.0	38.6	0.0	38.9	44.5	11.7	11.7	42.9	10.3	10.3
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.5	0.0	0.8	12.5	1.6	1.6	6.9	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.0	1.2	0.0	1.3	0.2	5.1	5.2	1.3	4.8	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.8	0.0	0.0	39.1	0.0	39.7	57.0	13.3	13.3	49.8	11.8	11.8
LnGrp LOS	D	A	A	D	A	D	E	B	B	D	B	B
Approach Vol, veh/h		87			118			948			1023	
Approach Delay, s/veh		39.8			39.4			13.6			13.8	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.9	56.4		13.1	5.1	59.1		12.7
Change Period (Y+Rc), s	4.5	5.8		* 4.7	4.5	5.8		4.7
Max Green Setting (Gmax), s	7.5	31.2		* 16	7.5	31.2		15.3
Max Q Clear Time (g_c+I1), s	4.6	16.1		6.1	2.3	15.9		5.3
Green Ext Time (p_c), s	0.0	6.6		0.2	0.0	6.9		0.2

Intersection Summary	
HCM 6th Ctrl Delay	16.1
HCM 6th LOS	B

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

HCM 6th Signalized Intersection Summary
10: Walters Road & Pintail Drive

04/26/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	110	81	75	774	757	134
Future Volume (veh/h)	110	81	75	774	757	134
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	1885	1767	1811	1841	1841	1781
Adj Flow Rate, veh/h	112	83	77	790	772	137
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	9	6	4	4	3
Cap, veh/h	178	149	97	2781	2061	366
Arrive On Green	0.10	0.10	0.11	1.00	0.69	0.69
Sat Flow, veh/h	1795	1497	1725	3589	3060	527
Grp Volume(v), veh/h	112	83	77	790	455	454
Grp Sat Flow(s),veh/h/ln	1795	1497	1725	1749	1749	1746
Q Serve(g_s), s	5.4	4.8	3.9	0.0	9.7	9.7
Cycle Q Clear(g_c), s	5.4	4.8	3.9	0.0	9.7	9.7
Prop In Lane	1.00	1.00	1.00			0.30
Lane Grp Cap(c), veh/h	178	149	97	2781	1214	1212
V/C Ratio(X)	0.63	0.56	0.79	0.28	0.37	0.37
Avail Cap(c_a), veh/h	754	629	153	2781	1214	1212
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.90	0.90	1.00	1.00
Uniform Delay (d), s/veh	38.9	38.7	39.4	0.0	5.7	5.7
Incr Delay (d2), s/veh	3.6	3.3	12.3	0.2	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	4.1	1.8	0.1	2.6	2.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.6	41.9	51.7	0.2	5.9	5.9
LnGrp LOS	D	D	D	A	A	A
Approach Vol, veh/h	195			867	909	
Approach Delay, s/veh	42.3			4.8	5.9	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		76.9		13.1	9.1	67.8
Change Period (Y+Rc), s		5.3		* 4.2	4.0	5.3
Max Green Setting (Gmax), s		42.7		* 38	8.0	30.7
Max Q Clear Time (g_c+I1), s		2.0		7.4	5.9	11.7
Green Ext Time (p_c), s		5.7		0.6	0.0	5.2

Intersection Summary	
HCM 6th Ctrl Delay	9.0
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary
11: Walters Road & Mammoth Way /Montebello Drive

04/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	3	18	82	2	41	15	792	183	44	766	17
Future Volume (veh/h)	8	3	18	82	2	41	15	792	183	44	766	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1841	1810	1826	1841	1824
Adj Flow Rate, veh/h	8	3	19	86	2	43	16	834	193	46	806	18
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	4	1	5	4	0
Cap, veh/h	196	64	179	237	5	181	33	1971	456	66	2514	56
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.02	0.70	0.70	0.04	0.72	0.72
Sat Flow, veh/h	1129	564	1593	1405	41	1610	1810	2818	652	1739	3497	78
Grp Volume(v), veh/h	11	0	19	88	0	43	16	518	509	46	403	421
Grp Sat Flow(s),veh/h/ln	1693	0	1593	1447	0	1610	1810	1749	1721	1739	1749	1826
Q Serve(g_s), s	0.0	0.0	1.0	4.6	0.0	2.2	0.8	11.4	11.4	2.4	7.6	7.6
Cycle Q Clear(g_c), s	0.5	0.0	1.0	5.1	0.0	2.2	0.8	11.4	11.4	2.4	7.6	7.6
Prop In Lane	0.73		1.00	0.98		1.00	1.00		0.38	1.00		0.04
Lane Grp Cap(c), veh/h	260	0	179	242	0	181	33	1223	1204	66	1257	1313
V/C Ratio(X)	0.04	0.00	0.11	0.36	0.00	0.24	0.48	0.42	0.42	0.70	0.32	0.32
Avail Cap(c_a), veh/h	716	0	651	665	0	658	161	1223	1204	155	1257	1313
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91
Uniform Delay (d), s/veh	35.6	0.0	35.9	37.6	0.0	36.4	43.8	5.8	5.8	42.8	4.6	4.6
Incr Delay (d2), s/veh	0.1	0.0	0.5	2.0	0.0	1.4	21.5	1.1	1.1	22.6	0.6	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	0.2	0.0	0.4	1.9	0.0	0.9	0.5	3.3	3.2	1.4	2.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.8	0.0	36.4	39.6	0.0	37.8	65.2	6.9	6.9	65.4	5.2	5.2
LnGrp LOS	D	A	D	D	A	D	E	A	A	E	A	A
Approach Vol, veh/h		30			131			1043			870	
Approach Delay, s/veh		36.2			39.0			7.8			8.4	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.4	68.2		14.3	5.6	70.0		14.3				
Change Period (Y+Rc), s	4.0	5.3		* 4.2	4.0	5.3		* 4.2				
Max Green Setting (Gmax), s	3.0	31.7		* 37	8.0	31.7		* 37				
Max Q Clear Time (g_c+I1), s	4.6	13.4		3.0	2.8	9.6		7.1				
Green Ext Time (p_c), s	0.0	10.3		0.2	0.0	9.0		1.2				

Intersection Summary	
HCM 6th Ctrl Delay	10.4
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
12: Walters Road & Petersen Road

04/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	4	7	97	8	33	17	920	49	6	802	20
Future Volume (veh/h)	12	4	7	97	8	33	17	920	49	6	802	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		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	1767	1900	1900	1841	1900	1900	1900	1856	1781	1900	1841	1737
Adj Flow Rate, veh/h	12	4	7	99	8	0	17	939	0	6	818	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	9	0	0	4	0	0	0	3	8	0	4	11
Cap, veh/h	213	201	167	222	201		35	2565		14	2504	
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.00	0.02	0.73	0.00	0.01	0.72	0.00
Sat Flow, veh/h	1307	1900	1583	1367	1900	1610	1810	3526	1510	1810	3589	0
Grp Volume(v), veh/h	12	4	7	99	8	0	17	939	0	6	818	0
Grp Sat Flow(s),veh/h/ln	1307	1900	1583	1367	1900	1610	1810	1763	1510	1810	1749	0
Q Serve(g_s), s	0.7	0.2	0.4	6.3	0.3	0.0	0.8	8.9	0.0	0.3	7.8	0.0
Cycle Q Clear(g_c), s	1.1	0.2	0.4	6.5	0.3	0.0	0.8	8.9	0.0	0.3	7.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	213	201	167	222	201		35	2565		14	2504	
V/C Ratio(X)	0.06	0.02	0.04	0.45	0.04		0.49	0.37		0.43	0.33	
Avail Cap(c_a), veh/h	504	623	519	525	623		171	2565		171	2504	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	0.93	0.93	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.6	36.1	36.1	39.0	36.1	0.0	43.7	4.6	0.0	44.5	4.7	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.1	1.4	0.1	0.0	9.5	0.4	0.0	19.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.1	2.2	0.2	0.0	0.5	2.2	0.0	0.2	1.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.7	36.1	36.2	40.4	36.2	0.0	53.2	4.9	0.0	63.8	4.8	0.0
LnGrp LOS	D	D	D	D	D		D	A		E	A	
Approach Vol, veh/h		23			107	A		956	A		824	A
Approach Delay, s/veh		36.5			40.1			5.8			5.2	
Approach LOS		D			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.2	70.8		14.0	6.2	69.7		14.0
Change Period (Y+Rc), s	4.5	5.3		4.5	4.5	5.3		4.5
Max Green Setting (Gmax), s	8.5	37.7		29.5	8.5	37.7		29.5
Max Q Clear Time (g_c+I1), s	2.8	10.9		3.1	2.8	9.8		8.5
Green Ext Time (p_c), s	0.0	6.7		0.0	0.0	5.7		0.3

Intersection Summary	
HCM 6th Ctrl Delay	7.8
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary
13: Walters Road & Walmart Main Driveway

04/26/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	136	70	182	869	742	122
Future Volume (veh/h)	136	70	182	869	742	122
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	1900	1900	1885	1841	1826	1900
Adj Flow Rate, veh/h	140	72	188	896	765	126
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	0	0	1	4	5	0
Cap, veh/h	175	156	225	2747	1792	295
Arrive On Green	0.10	0.10	0.13	0.79	0.60	0.60
Sat Flow, veh/h	1810	1610	1795	3589	3073	491
Grp Volume(v), veh/h	140	72	188	896	445	446
Grp Sat Flow(s),veh/h/ln	1810	1610	1795	1749	1735	1738
Q Serve(g_s), s	6.8	3.8	9.2	6.6	12.4	12.4
Cycle Q Clear(g_c), s	6.8	3.8	9.2	6.6	12.4	12.4
Prop In Lane	1.00	1.00	1.00			0.28
Lane Grp Cap(c), veh/h	175	156	225	2747	1043	1044
V/C Ratio(X)	0.80	0.46	0.83	0.33	0.43	0.43
Avail Cap(c_a), veh/h	175	156	313	2747	1043	1044
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.95	0.95
Uniform Delay (d), s/veh	39.8	38.4	38.4	2.8	9.6	9.6
Incr Delay (d2), s/veh	22.6	2.1	12.8	0.3	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	1.6	4.8	1.6	3.9	3.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	62.4	40.6	51.2	3.1	9.9	9.9
LnGrp LOS	E	D	D	A	A	A
Approach Vol, veh/h	212			1084	891	
Approach Delay, s/veh	55.0			11.4	9.9	
Approach LOS	E			B	A	

Timer - Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		76.0			16.6	59.4		14.0
Change Period (Y+Rc), s		5.3			5.3	5.3		5.3
Max Green Setting (Gmax), s		44.7			15.7	23.7		8.7
Max Q Clear Time (g_c+I1), s		8.6			11.2	14.4		8.8
Green Ext Time (p_c), s		7.7			0.2	3.5		0.0

Intersection Summary	
HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B

Notes

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

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	84	0	0	36	0	1024	21	17	823	1
Future Vol, veh/h	0	0	84	0	0	36	0	1024	21	17	823	1
Conflicting Peds, #/hr	0	0	5	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	0	5	0
Mvmt Flow	0	0	88	0	0	38	0	1078	22	18	866	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	439	-	-	550	-	0	0	1100	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	-	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	571	0	0	484	0	-	-	642	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	568	-	-	484	-	-	-	642	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.5	13.1	0	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	568	484	642	-	-
HCM Lane V/C Ratio	-	-	0.156	0.078	0.028	-	-
HCM Control Delay (s)	-	-	12.5	13.1	10.8	-	-
HCM Lane LOS	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.5	0.3	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	744	640	84	3	420	199	39	67	1	198	139	546
Future Volume (veh/h)	744	640	84	3	420	199	39	67	1	198	139	546
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1752	1885	1900	1781	1737	1900	1841	1900	1767	1856	1870
Adj Flow Rate, veh/h	752	646	85	3	424	201	36	73	1	170	182	552
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	10	1	0	8	11	0	4	0	9	3	2
Cap, veh/h	865	1508	720	13	711	307	181	369	161	373	411	691
Arrive On Green	0.25	0.45	0.45	0.01	0.21	0.21	0.10	0.10	0.10	0.22	0.22	0.22
Sat Flow, veh/h	3456	3328	1589	1810	3385	1462	1810	3681	1610	1682	1856	3120
Grp Volume(v), veh/h	752	646	85	3	424	201	36	73	1	170	182	552
Grp Sat Flow(s),veh/h/ln	1728	1664	1589	1810	1692	1462	1810	1841	1610	1682	1856	1560
Q Serve(g_s), s	19.6	12.4	2.9	0.2	10.6	11.9	1.7	1.7	0.1	8.2	8.0	15.7
Cycle Q Clear(g_c), s	19.6	12.4	2.9	0.2	10.6	11.9	1.7	1.7	0.1	8.2	8.0	15.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	865	1508	720	13	711	307	181	369	161	373	411	691
V/C Ratio(X)	0.87	0.43	0.12	0.23	0.60	0.65	0.20	0.20	0.01	0.46	0.44	0.80
Avail Cap(c_a), veh/h	1065	1768	844	461	1798	776	577	1173	513	536	591	994
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.8	17.5	14.9	46.5	33.6	34.0	38.9	38.9	38.1	31.7	31.6	34.6
Incr Delay (d2), s/veh	6.7	0.2	0.1	8.7	0.8	2.4	0.5	0.3	0.0	0.9	0.7	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	4.7	1.1	0.1	4.2	4.1	0.8	0.8	0.0	3.3	3.5	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.5	17.7	14.9	55.1	34.4	36.4	39.4	39.1	38.1	32.6	32.4	37.7
LnGrp LOS	D	B	B	E	C	D	D	D	D	C	C	D
Approach Vol, veh/h		1483			628			110			904	
Approach Delay, s/veh		29.1			35.1			39.2			35.6	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.9	48.3		26.2	27.8	25.5		14.7				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 24	50.0		30.0	* 29	50.0		30.0				
Max Q Clear Time (g_c+I1), s	2.2	14.4		17.7	21.6	13.9		3.7				
Green Ext Time (p_c), s	0.0	2.9		3.1	1.9	3.3		0.5				

Intersection Summary	
HCM 6th Ctrl Delay	32.6
HCM 6th LOS	C

Notes

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

Queues
1: Sunset Avenue & Pintail Drive

04/26/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	64	117	132	242	23	654	244	574
v/c Ratio	0.49	0.33	0.55	0.61	0.16	0.40	0.77	0.25
Control Delay	42.7	26.0	39.9	25.5	40.2	17.4	52.8	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.7	26.0	39.9	25.5	40.2	17.4	52.8	9.8
Queue Length 50th (ft)	34	49	71	79	12	112	131	45
Queue Length 95th (ft)	61	78	103	124	36	212	#234	160
Internal Link Dist (ft)		402		619		2012		441
Turn Bay Length (ft)	105		75		105		105	
Base Capacity (vph)	231	621	425	637	246	1633	340	2261
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.19	0.31	0.38	0.09	0.40	0.72	0.25

Intersection Summary

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

Queues
2: Grizzly Island Road/Sunset Avenue & State Hwy 12

04/26/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	562	1647	226	130	943	172	173	149	87	200	208	256
v/c Ratio	0.86	1.00	0.27	0.76	0.71	0.24	0.58	0.47	0.23	0.98	0.99	0.45
Control Delay	72.6	59.6	12.8	91.9	43.8	5.9	65.1	60.6	2.8	121.4	122.9	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.6	59.6	12.8	91.9	43.8	5.9	65.1	60.6	2.8	121.4	122.9	9.2
Queue Length 50th (ft)	273	805	55	125	399	0	164	138	0	208	216	0
Queue Length 95th (ft)	#370	#1194	137	#238	#618	58	211	182	10	#384	#397	46
Internal Link Dist (ft)		867			689			481			2012	
Turn Bay Length (ft)	500		275	250		400	125			150		150
Base Capacity (vph)	676	1654	825	181	1328	716	476	506	519	205	211	566
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	1.00	0.27	0.72	0.71	0.24	0.36	0.29	0.17	0.98	0.99	0.45

Intersection Summary

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

Queues
5: Lawler Ranch Parkway/Emperor Drive & State Hwy 12

04/26/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	301	1473	181	37	1027	21	76	77	35	23	139
v/c Ratio	0.84	0.87	0.21	0.19	0.92	0.04	0.32	0.31	0.11	0.10	0.43
Control Delay	69.2	37.0	7.9	66.2	53.8	0.1	55.0	54.9	0.6	52.6	19.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.2	37.0	7.9	66.2	53.8	0.1	55.0	54.9	0.6	52.6	19.1
Queue Length 50th (ft)	191	462	11	23	320	0	50	51	0	14	17
Queue Length 95th (ft)	#630	#1422	95	97	#1069	0	147	148	0	55	98
Internal Link Dist (ft)		1386			1441			861			1277
Turn Bay Length (ft)	425		255	200		230	215		215	125	
Base Capacity (vph)	610	2403	1164	199	1602	774	296	303	378	291	378
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.61	0.16	0.19	0.64	0.03	0.26	0.25	0.09	0.08	0.37

Intersection Summary

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

Queues
7: Walters Road/Walter Road & Air Base Parkway

04/26/2021

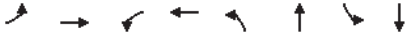
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	118	637	356	825	840	8	185	137	675	7	253
v/c Ratio	0.66	0.61	0.51	0.90	0.53	0.01	0.73	0.24	0.73	0.10	0.82
Control Delay	68.1	42.1	6.8	56.5	28.3	0.0	65.8	29.2	9.9	58.0	61.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.1	42.1	6.8	56.5	28.3	0.0	65.8	29.2	9.9	58.0	61.8
Queue Length 50th (ft)	88	239	0	305	254	0	138	73	44	5	162
Queue Length 95th (ft)	150	316	81	#438	362	0	212	127	189	22	250
Internal Link Dist (ft)		831			1018			1074			197
Turn Bay Length (ft)	275		315	400		180			325	150	
Base Capacity (vph)	217	1038	700	931	1577	691	312	611	945	72	364
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.61	0.51	0.89	0.53	0.01	0.59	0.22	0.71	0.10	0.70

Intersection Summary

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

Queues
8: Walters Road & E Tabor Avenue

04/26/2021



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	253	201	7	77	166	758	87	1160
v/c Ratio	0.56	0.39	0.05	0.32	0.61	0.45	0.41	0.81
Control Delay	38.0	9.6	37.7	18.8	43.3	16.0	40.0	25.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	9.6	37.7	18.8	43.3	16.0	40.0	25.3
Queue Length 50th (ft)	60	14	3	12	76	126	40	237
Queue Length 95th (ft)	110	71	17	49	#174	222	93	#430
Internal Link Dist (ft)		1386		269		2251		1213
Turn Bay Length (ft)	95		125		180		270	
Base Capacity (vph)	495	653	145	490	312	1780	260	1658
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.31	0.05	0.16	0.53	0.43	0.33	0.70

Intersection Summary

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

Queues
9: Walters Road & Bella Vista Drive

04/26/2021

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	87	56	62	7	941	53	970
v/c Ratio	0.41	0.31	0.21	0.07	0.45	0.42	0.43
Control Delay	40.1	41.0	1.5	52.9	15.7	49.6	12.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.1	41.0	1.5	52.9	15.7	49.6	12.5
Queue Length 50th (ft)	45	31	0	3	269	29	127
Queue Length 95th (ft)	84	62	0	m13	367	66	324
Internal Link Dist (ft)	639	451			643		1927
Turn Bay Length (ft)			90	135		105	
Base Capacity (vph)	322	283	394	150	2080	150	2253
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.20	0.16	0.05	0.45	0.35	0.43

Intersection Summary

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

Queues
10: Walters Road & Pintail Drive

04/26/2021

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	112	83	77	790	909
v/c Ratio	0.36	0.25	0.54	0.32	0.44
Control Delay	33.2	7.2	60.4	2.9	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.2	7.2	60.4	2.9	21.1
Queue Length 50th (ft)	61	0	46	3	216
Queue Length 95th (ft)	74	27	73	128	337
Internal Link Dist (ft)	590			851	689
Turn Bay Length (ft)		150	130		
Base Capacity (vph)	750	670	151	2495	2089
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.12	0.51	0.32	0.44

Intersection Summary

Queues
11: Walters Road & Mammoth Way /Montebello Drive

04/26/2021

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	11	19	88	43	16	1027	46	824
v/c Ratio	0.04	0.05	0.35	0.12	0.10	0.45	0.31	0.33
Control Delay	24.6	0.3	33.1	2.2	34.1	14.5	31.4	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.6	0.3	33.1	2.2	34.1	14.5	31.4	15.1
Queue Length 50th (ft)	6	0	47	0	10	51	28	107
Queue Length 95th (ft)	14	0	65	8	m24	393	61	325
Internal Link Dist (ft)	184		413			477		851
Turn Bay Length (ft)		50		125	100		120	
Base Capacity (vph)	658	705	561	705	160	2283	152	2515
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.03	0.16	0.06	0.10	0.45	0.30	0.33

Intersection Summary

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

Queues
12: Walters Road & Petersen Road

04/26/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	12	4	7	99	8	34	17	939	50	6	838
v/c Ratio	0.06	0.01	0.02	0.45	0.03	0.11	0.13	0.36	0.04	0.05	0.34
Control Delay	28.1	26.5	0.1	38.5	26.5	0.7	35.5	13.5	7.1	55.8	7.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.1	26.5	0.1	38.5	26.5	0.7	35.5	13.5	7.1	55.8	7.5
Queue Length 50th (ft)	6	2	0	54	4	0	10	169	3	4	82
Queue Length 95th (ft)	17	9	0	81	13	2	m25	264	23	m11	310
Internal Link Dist (ft)		417			560			505			413
Turn Bay Length (ft)			180	115		200	85		185	100	
Base Capacity (vph)	427	622	577	451	622	574	170	2610	1131	170	2474
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.01	0.01	0.22	0.01	0.06	0.10	0.36	0.04	0.04	0.34

Intersection Summary

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

Queues

13: Walters Road & Walmart Main Driveway

04/26/2021

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	140	72	188	896	891
v/c Ratio	0.32	0.15	0.70	0.40	0.60
Control Delay	27.7	6.1	50.4	10.0	22.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	27.7	6.1	50.4	10.0	22.4
Queue Length 50th (ft)	65	0	101	117	84
Queue Length 95th (ft)	93	26	170	227	#404
Internal Link Dist (ft)	149			338	505
Turn Bay Length (ft)			200		
Base Capacity (vph)	438	666	311	2223	1473
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	0.11	0.60	0.40	0.60

Intersection Summary

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

Queues

15: Lawler Ranch Road/Walters Road & State Hwy 12

04/26/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	752	646	85	3	424	201	35	72	1	166	174	552
v/c Ratio	0.73	0.37	0.10	0.02	0.62	0.45	0.14	0.14	0.00	0.59	0.57	0.58
Control Delay	41.6	20.8	6.2	60.0	44.9	9.4	42.9	41.8	0.0	53.4	51.7	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.6	20.8	6.2	60.0	44.9	9.4	42.9	41.8	0.0	53.4	51.7	6.6
Queue Length 50th (ft)	209	111	0	2	125	0	21	22	0	97	102	0
Queue Length 95th (ft)	#659	367	41	15	278	71	63	54	0	268	276	57
Internal Link Dist (ft)		3194			827			385			265	
Turn Bay Length (ft)	390		275	215		300	175		90	125		190
Base Capacity (vph)	1027	1874	949	447	1724	834	546	1103	611	487	530	1243
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.34	0.09	0.01	0.25	0.24	0.06	0.07	0.00	0.34	0.33	0.44

Intersection Summary

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

HCM 6th Signalized Intersection Summary
1: Sunset Avenue /Sunset Avenue & Pintail Drive

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	73	9	98	225	168	31	294	40	181	397	32
Future Volume (veh/h)	47	73	9	98	225	168	31	294	40	181	397	32
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1668	1870	1885	1810	1900	1811	1639	1870	1870	1824
Adj Flow Rate, veh/h	52	81	10	109	250	187	34	327	44	201	441	36
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	0	11	2	1	1	0	6	13	2	2	0
Cap, veh/h	164	524	65	446	316	236	58	1186	158	240	1636	133
Arrive On Green	0.32	0.32	0.32	0.32	0.32	0.32	0.03	0.39	0.39	0.13	0.49	0.49
Sat Flow, veh/h	951	1658	205	1301	1000	748	1810	3047	406	1781	3325	270
Grp Volume(v), veh/h	52	0	91	109	0	437	34	183	188	201	235	242
Grp Sat Flow(s),veh/h/ln	951	0	1862	1301	0	1747	1810	1721	1733	1781	1777	1819
Q Serve(g_s), s	4.8	0.0	3.2	5.9	0.0	20.5	1.7	6.6	6.7	9.9	7.0	7.0
Cycle Q Clear(g_c), s	25.3	0.0	3.2	9.1	0.0	20.5	1.7	6.6	6.7	9.9	7.0	7.0
Prop In Lane	1.00		0.11	1.00		0.43	1.00		0.23	1.00		0.15
Lane Grp Cap(c), veh/h	164	0	589	446	0	552	58	670	675	240	874	895
V/C Ratio(X)	0.32	0.00	0.15	0.24	0.00	0.79	0.59	0.27	0.28	0.84	0.27	0.27
Avail Cap(c_a), veh/h	237	0	732	546	0	687	187	670	675	323	874	895
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.86	0.86	0.86	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	0.0	22.1	25.4	0.0	28.1	43.0	18.8	18.8	38.0	13.4	13.4
Incr Delay (d2), s/veh	1.4	0.0	0.2	0.4	0.0	5.5	10.2	0.3	0.3	14.7	0.8	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	1.4	1.9	0.0	9.3	0.9	2.5	2.6	5.2	2.8	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.0	0.0	22.3	25.7	0.0	33.5	53.2	19.1	19.1	52.7	14.1	14.1
LnGrp LOS	D	A	C	C	A	C	D	B	B	D	B	B
Approach Vol, veh/h		143			546			405			678	
Approach Delay, s/veh		29.1			32.0			22.0			25.6	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.6	49.4		33.1	16.8	40.1		33.1				
Change Period (Y+Rc), s	* 4.7	5.1		4.6	* 4.7	5.1		4.6				
Max Green Setting (Gmax), s	* 9.3	30.9		35.4	* 16	23.9		35.4				
Max Q Clear Time (g_c+I1), s	3.7	9.0		27.3	11.9	8.7		22.5				
Green Ext Time (p_c), s	0.0	4.0		0.5	0.3	2.6		3.3				

Intersection Summary	
HCM 6th Ctrl Delay	27.0
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary
2: Grizzly Island Road/Sunset Avenue & State Hwy 12

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	239	792	196	54	1341	88	288	127	34	192	114	324
Future Volume (veh/h)	239	792	196	54	1341	88	288	127	34	192	114	324
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1648	1885	1752	1722	1826	1885	1870	1604	1885	1885	1856
Adj Flow Rate, veh/h	252	834	206	57	1412	93	303	134	36	161	177	341
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	17	1	10	12	5	1	2	20	1	1	3
Cap, veh/h	302	1019	519	342	1468	694	347	362	260	238	250	405
Arrive On Green	0.09	0.33	0.33	0.20	0.45	0.45	0.19	0.19	0.19	0.13	0.13	0.13
Sat Flow, veh/h	3401	3131	1595	1668	3272	1546	1795	1870	1344	1795	1885	3062
Grp Volume(v), veh/h	252	834	206	57	1412	93	303	134	36	161	177	341
Grp Sat Flow(s),veh/h/ln	1700	1566	1595	1668	1636	1546	1795	1870	1344	1795	1885	1531
Q Serve(g_s), s	10.9	36.7	15.0	4.2	62.8	5.3	24.6	9.3	3.3	12.8	13.5	16.3
Cycle Q Clear(g_c), s	10.9	36.7	15.0	4.2	62.8	5.3	24.6	9.3	3.3	12.8	13.5	16.3
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	302	1019	519	342	1468	694	347	362	260	238	250	405
V/C Ratio(X)	0.83	0.82	0.40	0.17	0.96	0.13	0.87	0.37	0.14	0.68	0.71	0.84
Avail Cap(c_a), veh/h	429	1019	519	342	1468	694	484	504	362	316	332	539
HCM Platoon Ratio	1.00	1.00	1.00	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	0.97	0.97	0.97
Uniform Delay (d), s/veh	67.2	46.5	39.2	49.1	40.1	24.3	58.7	52.6	50.1	62.0	62.3	63.5
Incr Delay (d2), s/veh	9.4	7.3	2.3	0.1	16.0	0.4	9.5	0.2	0.1	2.7	3.6	7.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	14.9	6.1	1.7	27.1	2.0	12.2	4.5	1.1	6.0	6.7	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	76.6	53.9	41.5	49.2	56.1	24.7	68.2	52.8	50.2	64.7	65.9	71.4
LnGrp LOS	E	D	D	D	E	C	E	D	D	E	E	E
Approach Vol, veh/h		1292			1562			473			679	
Approach Delay, s/veh		56.3			54.0			62.5			68.4	
Approach LOS		E			D			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	36.9	55.0		24.5	18.4	73.5		33.6				
Change Period (Y+Rc), s	6.2	* 6.2		4.6	5.1	6.2		4.6				
Max Green Setting (Gmax), s	12.3	* 49		26.4	18.9	43.8		40.4				
Max Q Clear Time (g_c+I1), s	10.2	38.7		18.3	12.9	64.8		26.6				
Green Ext Time (p_c), s	0.0	2.2		1.6	0.4	0.0		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	58.2
HCM 6th LOS	E

Notes

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

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	949	1732	18	0	86
Future Vol, veh/h	0	949	1732	18	0	86
Conflicting Peds, #/hr	0	0	0	4	0	7
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	275	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	0	12	10	0	0	0
Mvmt Flow	0	1043	1903	20	0	95

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	963
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	259
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	256
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	27.1
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	256
HCM Lane V/C Ratio	-	-	-	0.369
HCM Control Delay (s)	-	-	-	27.1
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	1.6

Intersection	
Intersection Delay, s/veh	15
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	31	184	49	64	289	5	81	16	94	4	57	72
Future Vol, veh/h	31	184	49	64	289	5	81	16	94	4	57	72
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	3	5	2	2	4	20	1	0	2	0	2	2
Mvmt Flow	36	211	56	74	332	6	93	18	108	5	66	83
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	14.1	18.3	12.7	11.3
HCM LOS	B	C	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	42%	12%	18%	3%
Vol Thru, %	8%	70%	81%	43%
Vol Right, %	49%	19%	1%	54%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	191	264	358	133
LT Vol	81	31	64	4
Through Vol	16	184	289	57
RT Vol	94	49	5	72
Lane Flow Rate	220	303	411	153
Geometry Grp	1	1	1	1
Degree of Util (X)	0.373	0.48	0.641	0.261
Departure Headway (Hd)	6.109	5.809	5.715	6.15
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	593	625	638	587
Service Time	4.109	3.809	3.715	4.161
HCM Lane V/C Ratio	0.371	0.485	0.644	0.261
HCM Control Delay	12.7	14.1	18.3	11.3
HCM Lane LOS	B	B	C	B
HCM 95th-tile Q	1.7	2.6	4.6	1

HCM 6th Signalized Intersection Summary
5: Lawler Ranch Parkway /Emperor Drive & State Hwy 12

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	761	60	59	1264	11	167	24	68	20	19	170
Future Volume (veh/h)	124	761	60	59	1264	11	167	24	68	20	19	170
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1663	1900	1870	1707	1900	1841	1900	1870	1796	1900	1810
Adj Flow Rate, veh/h	129	793	62	61	1317	11	192	0	71	21	20	177
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	16	0	2	13	0	4	0	2	7	0	1
Cap, veh/h	198	1457	742	169	1443	716	365	0	165	235	23	202
Arrive On Green	0.11	0.46	0.46	0.09	0.44	0.44	0.10	0.00	0.10	0.14	0.14	0.14
Sat Flow, veh/h	1781	3159	1610	1781	3244	1610	3506	0	1585	1711	166	1467
Grp Volume(v), veh/h	129	793	62	61	1317	11	192	0	71	21	0	197
Grp Sat Flow(s),veh/h/ln	1781	1580	1610	1781	1622	1610	1753	0	1585	1711	0	1632
Q Serve(g_s), s	7.3	19.1	2.3	3.4	40.1	0.4	5.5	0.0	4.4	1.1	0.0	12.5
Cycle Q Clear(g_c), s	7.3	19.1	2.3	3.4	40.1	0.4	5.5	0.0	4.4	1.1	0.0	12.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.90
Lane Grp Cap(c), veh/h	198	1457	742	169	1443	716	365	0	165	235	0	225
V/C Ratio(X)	0.65	0.54	0.08	0.36	0.91	0.02	0.53	0.00	0.43	0.09	0.00	0.88
Avail Cap(c_a), veh/h	337	1496	762	202	1536	762	498	0	225	243	0	232
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.0	20.5	16.0	44.8	27.4	16.4	44.8	0.0	44.4	39.8	0.0	44.7
Incr Delay (d2), s/veh	1.4	0.4	0.0	0.5	8.4	0.0	1.2	0.0	1.8	0.1	0.0	27.6
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	3.2	6.4	0.8	1.5	15.5	0.1	2.4	0.0	1.8	0.5	0.0	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.4	20.9	16.0	45.3	35.8	16.4	46.0	0.0	46.1	39.8	0.0	72.3
LnGrp LOS	D	C	B	D	D	B	D	A	D	D	A	E
Approach Vol, veh/h		984			1389			263			218	
Approach Delay, s/veh		23.9			36.1			46.1			69.2	
Approach LOS		C			D			D			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	14.7	55.2		19.6	16.4	53.5		16.1
Change Period (Y+Rc), s	4.7	6.5		5.1	* 4.7	6.5		5.1
Max Green Setting (Gmax), s	12.3	50.0		15.0	* 20	50.0		15.0
Max Q Clear Time (g_c+I1), s	15.4	21.1		14.5	9.3	42.1		7.5
Green Ext Time (p_c), s	0.0	5.6		0.0	0.1	4.9		0.5

Intersection Summary	
HCM 6th Ctrl Delay	35.3
HCM 6th LOS	D

Notes

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

HCM 6th TWSC
6: State Hwy 12 & Woodlark Drive

04/29/2021

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	817	1226	4	0	164
Future Vol, veh/h	0	817	1226	4	0	164
Conflicting Peds, #/hr	0	0	0	5	0	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	260	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	14	13	0	0	1
Mvmt Flow	0	851	1277	4	0	171

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	647
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.31
Pot Cap-1 Maneuver	0	-	-	-	0	416
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	413
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	19.7
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	413
HCM Lane V/C Ratio	-	-	-	0.414
HCM Control Delay (s)	-	-	-	19.7
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	2

HCM 6th Signalized Intersection Summary
7: Walters Road & Air Base Parkway

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	878	282	408	424	8	332	112	731	5	98	100
Future Volume (veh/h)	104	878	282	408	424	8	332	112	731	5	98	100
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	1752	1870	1796	1856	1796	1707	1856	1707	1856	1604	1693	1604
Adj Flow Rate, veh/h	111	934	0	434	451	0	353	119	0	5	104	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	10	2	7	3	7	13	3	13	3	20	14	20
Cap, veh/h	135	1595		426	1679		382	490		10	131	
Arrive On Green	0.08	0.45	0.00	0.12	0.49	0.00	0.22	0.29	0.00	0.01	0.08	0.00
Sat Flow, veh/h	1668	3554	1522	3428	3413	1447	1767	1707	1572	1527	1693	0
Grp Volume(v), veh/h	111	934	0	434	451	0	353	119	0	5	104	0
Grp Sat Flow(s),veh/h/ln	1668	1777	1522	1714	1706	1447	1767	1707	1572	1527	1693	0
Q Serve(g_s), s	7.9	23.6	0.0	14.9	9.3	0.0	23.5	6.4	0.0	0.4	7.2	0.0
Cycle Q Clear(g_c), s	7.9	23.6	0.0	14.9	9.3	0.0	23.5	6.4	0.0	0.4	7.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	135	1595		426	1679		382	490		10	131	
V/C Ratio(X)	0.82	0.59		1.02	0.27		0.92	0.24		0.51	0.79	
Avail Cap(c_a), veh/h	222	1595		426	1679		436	656		70	310	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	54.3	24.7	0.0	52.5	17.8	0.0	46.1	32.8	0.0	59.4	54.4	0.0
Incr Delay (d2), s/veh	11.5	1.6	0.0	48.7	0.4	0.0	23.9	0.3	0.0	35.9	10.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	9.6	0.0	9.0	3.5	0.0	12.5	2.6	0.0	0.3	3.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.8	26.3	0.0	101.2	18.2	0.0	70.0	33.0	0.0	95.3	64.6	0.0
LnGrp LOS	E	C		F	B		E	C		F	E	
Approach Vol, veh/h		1045	A		885	A		472	A		109	A
Approach Delay, s/veh		30.5			58.9			60.7			66.0	
Approach LOS		C			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.8	38.5	13.7	63.0	29.9	13.3	18.9	57.9
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.5	46.1	16.0	36.4	29.6	22.0	14.9	37.5
Max Q Clear Time (g_c+I1), s	2.4	8.4	9.9	11.3	25.5	9.2	16.9	25.6
Green Ext Time (p_c), s	0.0	0.6	0.1	2.7	0.4	0.4	0.0	4.5

Intersection Summary	
HCM 6th Ctrl Delay	47.7
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary
8: Walters Road & E Tabor Avenue

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	232	27	89	11	68	123	171	911	5	44	655	131
Future Volume (veh/h)	232	27	89	11	68	123	171	911	5	44	655	131
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1900	1781	1900	1900	1810	1885	1826	1824	1826	1781	1781
Adj Flow Rate, veh/h	258	30	99	12	76	137	190	1012	6	49	728	146
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	3	0	3	0	0	1	1	5	0	5	8	3
Cap, veh/h	343	98	325	27	102	184	234	1478	9	81	938	188
Arrive On Green	0.10	0.25	0.25	0.02	0.17	0.17	0.13	0.42	0.42	0.05	0.33	0.33
Sat Flow, veh/h	3428	388	1281	1810	608	1095	1795	3536	21	1739	2809	563
Grp Volume(v), veh/h	258	0	129	12	0	213	190	496	522	49	438	436
Grp Sat Flow(s),veh/h/ln	1714	0	1669	1810	0	1703	1795	1735	1822	1739	1692	1680
Q Serve(g_s), s	4.4	0.0	3.7	0.4	0.0	7.1	6.2	14.0	14.0	1.7	14.0	14.0
Cycle Q Clear(g_c), s	4.4	0.0	3.7	0.4	0.0	7.1	6.2	14.0	14.0	1.7	14.0	14.0
Prop In Lane	1.00		0.77	1.00		0.64	1.00		0.01	1.00		0.34
Lane Grp Cap(c), veh/h	343	0	423	27	0	287	234	725	762	81	565	561
V/C Ratio(X)	0.75	0.00	0.31	0.44	0.00	0.74	0.81	0.68	0.68	0.61	0.78	0.78
Avail Cap(c_a), veh/h	343	0	919	151	0	909	240	868	912	174	791	785
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.2	0.0	18.1	29.3	0.0	23.7	25.3	14.2	14.2	28.0	17.9	17.9
Incr Delay (d2), s/veh	9.0	0.0	0.4	10.7	0.0	3.8	18.3	1.7	1.7	7.1	3.2	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	1.4	0.2	0.0	3.0	3.5	4.6	4.8	0.8	5.0	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.2	0.0	18.5	39.9	0.0	27.5	43.6	16.0	15.9	35.1	21.2	21.2
LnGrp LOS	D	A	B	D	A	C	D	B	B	D	C	C
Approach Vol, veh/h		387			225			1208			923	
Approach Delay, s/veh		29.6			28.2			20.3			21.9	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	29.0	10.0	14.1	11.8	24.0	4.9	19.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	6.8	30.0	6.0	32.0	8.0	28.0	5.0	33.0
Max Q Clear Time (g_c+I1), s	3.7	16.0	6.4	9.1	8.2	16.0	2.4	5.7
Green Ext Time (p_c), s	0.0	5.1	0.0	1.3	0.0	4.0	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	22.8
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
9: Walters Road & Bella Vista Drive

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	18	4	69	38	106	4	714	13	21	601	110
Future Volume (veh/h)	160	18	4	69	38	106	4	714	13	21	601	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1810	1811	1824	1753	1900	1900	1900	1796	1710	1900	1781	1739
Adj Flow Rate, veh/h	170	19	4	73	40	113	4	760	14	22	639	117
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	6	0	5	0	0	0	7	8	0	8	6
Cap, veh/h	206	23	5	117	64	157	8	1812	33	34	1552	284
Arrive On Green	0.14	0.14	0.14	0.10	0.10	0.10	0.00	0.53	0.53	0.02	0.54	0.54
Sat Flow, veh/h	1522	170	36	1189	652	1591	1810	3428	63	1810	2857	522
Grp Volume(v), veh/h	193	0	0	113	0	113	4	378	396	22	378	378
Grp Sat Flow(s),veh/h/ln	1728	0	0	1841	0	1591	1810	1706	1785	1810	1692	1687
Q Serve(g_s), s	9.8	0.0	0.0	5.3	0.0	6.2	0.2	12.1	12.1	1.1	11.8	11.9
Cycle Q Clear(g_c), s	9.8	0.0	0.0	5.3	0.0	6.2	0.2	12.1	12.1	1.1	11.8	11.9
Prop In Lane	0.88		0.02	0.65		1.00	1.00		0.04	1.00		0.31
Lane Grp Cap(c), veh/h	234	0	0	181	0	157	8	902	944	34	919	916
V/C Ratio(X)	0.83	0.00	0.00	0.62	0.00	0.72	0.52	0.42	0.42	0.65	0.41	0.41
Avail Cap(c_a), veh/h	313	0	0	313	0	270	151	902	944	151	919	916
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	0.0	0.0	39.0	0.0	39.4	44.7	12.8	12.8	43.9	12.1	12.1
Incr Delay (d2), s/veh	9.6	0.0	0.0	1.3	0.0	2.3	18.9	1.4	1.4	7.4	1.4	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	0.0	2.5	0.0	2.5	0.1	4.4	4.5	0.5	4.2	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.5	0.0	0.0	40.3	0.0	41.7	63.7	14.3	14.2	51.3	13.5	13.5
LnGrp LOS	D	A	A	D	A	D	E	B	B	D	B	B
Approach Vol, veh/h		193			226			778			778	
Approach Delay, s/veh		47.5			41.0			14.5			14.5	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	53.4		16.9	4.9	54.7		13.6
Change Period (Y+Rc), s	4.5	5.8		* 4.7	4.5	5.8		4.7
Max Green Setting (Gmax), s	7.5	31.2		* 16	7.5	31.2		15.3
Max Q Clear Time (g_c+I1), s	3.1	14.1		11.8	2.2	13.9		8.2
Green Ext Time (p_c), s	0.0	5.7		0.3	0.0	5.7		0.3

Intersection Summary	
HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C

Notes

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

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

HCM 6th Signalized Intersection Summary
10: Walters Road & Pintail Drive

04/29/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	128	64	57	623	615	77
Future Volume (veh/h)	128	64	57	623	615	77
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	1885	1781	1737	1796	1811	1739
Adj Flow Rate, veh/h	139	70	62	677	668	84
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	8	11	7	6	6
Cap, veh/h	187	157	77	2698	2151	270
Arrive On Green	0.10	0.10	0.09	1.00	0.70	0.70
Sat Flow, veh/h	1795	1510	1654	3503	3166	386
Grp Volume(v), veh/h	139	70	62	677	373	379
Grp Sat Flow(s),veh/h/ln	1795	1510	1654	1706	1721	1742
Q Serve(g_s), s	6.8	3.9	3.3	0.0	7.5	7.5
Cycle Q Clear(g_c), s	6.8	3.9	3.3	0.0	7.5	7.5
Prop In Lane	1.00	1.00	1.00			0.22
Lane Grp Cap(c), veh/h	187	157	77	2698	1203	1218
V/C Ratio(X)	0.75	0.45	0.80	0.25	0.31	0.31
Avail Cap(c_a), veh/h	754	634	147	2698	1203	1218
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.97	0.97	1.00	1.00
Uniform Delay (d), s/veh	39.2	37.9	40.4	0.0	5.2	5.2
Incr Delay (d2), s/veh	5.8	2.0	16.8	0.2	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	3.4	1.6	0.1	1.9	2.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.0	39.9	57.2	0.2	5.3	5.3
LnGrp LOS	D	D	E	A	A	A
Approach Vol, veh/h	209			739	752	
Approach Delay, s/veh	43.3			5.0	5.3	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		76.4		13.6	8.2	68.3
Change Period (Y+Rc), s		5.3		* 4.2	4.0	5.3
Max Green Setting (Gmax), s		42.7		* 38	8.0	30.7
Max Q Clear Time (g_c+I1), s		2.0		8.8	5.3	9.5
Green Ext Time (p_c), s		4.8		0.6	0.0	4.3

Intersection Summary	
HCM 6th Ctrl Delay	9.9
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary
11: Walters Road & Mammoth Way/Montebello Drive

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	1	18	126	0	67	10	559	30	28	649	3
Future Volume (veh/h)	20	1	18	126	0	67	10	559	30	28	649	3
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1811	1900	1781	1767	1589	1826	1824
Adj Flow Rate, veh/h	21	1	19	133	0	71	11	588	32	29	683	3
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	6	0	8	4	21	5	0
Cap, veh/h	303	13	227	287	0	218	24	2217	120	43	2460	11
Arrive On Green	0.14	0.14	0.14	0.14	0.00	0.14	0.01	0.68	0.68	0.03	0.69	0.69
Sat Flow, veh/h	1581	89	1597	1454	0	1535	1810	3264	177	1513	3542	16
Grp Volume(v), veh/h	22	0	19	133	0	71	11	305	315	29	334	352
Grp Sat Flow(s),veh/h/ln	1671	0	1597	1454	0	1535	1810	1692	1749	1513	1735	1823
Q Serve(g_s), s	0.0	0.0	0.9	6.7	0.0	3.7	0.5	6.3	6.4	1.7	6.6	6.6
Cycle Q Clear(g_c), s	0.9	0.0	0.9	7.7	0.0	3.7	0.5	6.3	6.4	1.7	6.6	6.6
Prop In Lane	0.95		1.00	1.00		1.00	1.00		0.10	1.00		0.01
Lane Grp Cap(c), veh/h	316	0	227	287	0	218	24	1149	1188	43	1205	1266
V/C Ratio(X)	0.07	0.00	0.08	0.46	0.00	0.33	0.46	0.26	0.27	0.67	0.28	0.28
Avail Cap(c_a), veh/h	736	0	688	699	0	662	161	1149	1188	134	1205	1266
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.94	0.94	0.94
Uniform Delay (d), s/veh	33.5	0.0	33.5	36.3	0.0	34.7	44.1	5.6	5.7	43.3	5.2	5.2
Incr Delay (d2), s/veh	0.2	0.0	0.3	2.5	0.0	1.8	26.0	0.6	0.5	30.3	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.4	2.9	0.0	1.5	0.4	1.8	1.9	1.0	1.9	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	0.0	33.8	38.8	0.0	36.6	70.1	6.2	6.2	73.6	5.7	5.7
LnGrp LOS	C	A	C	D	A	D	E	A	A	E	A	A
Approach Vol, veh/h		41			204			631			715	
Approach Delay, s/veh		33.8			38.0			7.3			8.5	
Approach LOS		C			D			A			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.6	66.4		17.0	5.2	67.8		17.0
Change Period (Y+Rc), s	4.0	5.3		* 4.2	4.0	5.3		* 4.2
Max Green Setting (Gmax), s	8.0	29.7		* 39	8.0	29.7		* 39
Max Q Clear Time (g_c+I1), s	13.7	8.4		2.9	2.5	8.6		9.7
Green Ext Time (p_c), s	0.0	6.5		0.3	0.0	7.2		2.0

Intersection Summary	
HCM 6th Ctrl Delay	12.5
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
12: Walters Road & Petersen Road

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	5	12	64	4	16	7	600	111	72	696	8
Future Volume (veh/h)	7	5	12	64	4	16	7	600	111	72	696	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		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	1648	1604	1530	1233	1900	1411	1885	1781	1441	1618	1856	1900
Adj Flow Rate, veh/h	8	5	13	70	4	0	8	659	0	79	765	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	17	20	25	45	0	33	1	8	31	19	3	0
Cap, veh/h	203	164	130	171	195		18	2287		97	2569	
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.00	0.01	0.45	0.00	0.06	0.73	0.00
Sat Flow, veh/h	1223	1604	1273	914	1900	1196	1795	3385	1221	1541	3526	1610
Grp Volume(v), veh/h	8	5	13	70	4	0	8	659	0	79	765	0
Grp Sat Flow(s),veh/h/ln	1223	1604	1273	914	1900	1196	1795	1692	1221	1541	1763	1610
Q Serve(g_s), s	0.5	0.3	0.8	6.7	0.2	0.0	0.4	11.0	0.0	4.6	6.8	0.0
Cycle Q Clear(g_c), s	0.7	0.3	0.8	7.0	0.2	0.0	0.4	11.0	0.0	4.6	6.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	203	164	130	171	195		18	2287		97	2569	
V/C Ratio(X)	0.04	0.03	0.10	0.41	0.02		0.44	0.29		0.82	0.30	
Avail Cap(c_a), veh/h	479	526	417	377	623		150	2287		128	2569	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.95	0.95	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.6	36.4	36.6	39.5	36.3	0.0	44.4	11.0	0.0	41.7	4.2	0.0
Incr Delay (d2), s/veh	0.1	0.1	0.3	1.6	0.0	0.0	15.3	0.3	0.0	25.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.3	1.6	0.1	0.0	0.2	3.9	0.0	2.3	1.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.7	36.4	37.0	41.1	36.4	0.0	59.7	11.3	0.0	66.7	4.3	0.0
LnGrp LOS	D	D	D	D	D		E	B		E	A	
Approach Vol, veh/h		26			74	A		667	A		844	A
Approach Delay, s/veh		36.8			40.8			11.9			10.1	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.2	66.1		13.7	5.4	70.9		13.7
Change Period (Y+Rc), s	4.5	5.3		4.5	4.5	5.3		4.5
Max Green Setting (Gmax), s	7.5	38.7		29.5	7.5	38.7		29.5
Max Q Clear Time (g_c+I1), s	10.6	13.0		2.8	2.4	8.8		9.0
Green Ext Time (p_c), s	0.0	4.3		0.0	0.0	5.3		0.3

Intersection Summary	
HCM 6th Ctrl Delay	12.7
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
13: Walters Road & Walmart Main Driveway

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	0	16	6	0	7	40	682	61	49	703	25
Future Volume (veh/h)	33	0	16	6	0	7	40	682	61	49	703	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1811	1900	1900	1900	1752	1722	1900	1900	1796	1841
Adj Flow Rate, veh/h	36	0	18	7	0	8	44	749	66	53	773	27
Peak Hour Factor	0.91	0.92	0.91	0.92	0.92	0.92	0.91	0.91	0.92	0.92	0.91	0.91
Percent Heavy Veh, %	0	0	6	0	0	0	10	12	0	0	7	4
Cap, veh/h	60	0	119	16	0	80	99	2003	176	74	2123	74
Arrive On Green	0.03	0.00	0.07	0.01	0.00	0.05	0.06	0.66	0.66	0.04	0.63	0.63
Sat Flow, veh/h	1810	0	1605	1810	0	1610	1668	3042	268	1810	3364	117
Grp Volume(v), veh/h	36	0	18	7	0	8	44	403	412	53	392	408
Grp Sat Flow(s),veh/h/ln	1810	0	1605	1810	0	1610	1668	1636	1674	1810	1706	1775
Q Serve(g_s), s	1.8	0.0	0.9	0.3	0.0	0.4	2.3	10.0	10.0	2.6	9.9	9.9
Cycle Q Clear(g_c), s	1.8	0.0	0.9	0.3	0.0	0.4	2.3	10.0	10.0	2.6	9.9	9.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.16	1.00		0.07
Lane Grp Cap(c), veh/h	60	0	119	16	0	80	99	1077	1102	74	1077	1120
V/C Ratio(X)	0.60	0.00	0.15	0.43	0.00	0.10	0.44	0.37	0.37	0.72	0.36	0.36
Avail Cap(c_a), veh/h	171	0	209	131	0	174	198	1077	1102	191	1077	1120
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	42.9	0.0	39.0	44.4	0.0	40.8	40.9	7.0	7.0	42.7	7.9	8.0
Incr Delay (d2), s/veh	9.4	0.0	0.6	17.3	0.0	0.5	3.1	1.0	1.0	11.8	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.4	0.2	0.0	0.2	1.0	3.3	3.4	1.4	2.9	3.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.4	0.0	39.6	61.7	0.0	41.4	44.0	8.0	7.9	54.4	8.1	8.1
LnGrp LOS	D	A	D	E	A	D	D	A	A	D	A	A
Approach Vol, veh/h		54			15			859			853	
Approach Delay, s/veh		48.1			50.8			9.8			11.0	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	64.6	5.3	12.0	10.6	62.1	7.5	9.8
Change Period (Y+Rc), s	4.5	5.3	4.5	5.3	5.3	5.3	4.5	5.3
Max Green Setting (Gmax), s	9.5	42.7	6.5	11.7	10.7	40.7	8.5	9.7
Max Q Clear Time (g_c+I1), s	4.6	12.0	2.3	2.9	4.3	11.9	3.8	2.4
Green Ext Time (p_c), s	0.0	6.0	0.0	0.0	0.0	4.9	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	11.9
HCM 6th LOS	B

Notes

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

HCM 6th TWSC
14: Walters Road & Walmart Driveway

04/29/2021

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	26	0	0	28	0	757	15	13	721	1
Future Vol, veh/h	0	0	26	0	0	28	0	757	15	13	721	1
Conflicting Peds, #/hr	0	0	5	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	11	0	0	7	0
Mvmt Flow	0	0	30	0	0	32	0	860	17	15	819	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	415	-	-	439	-	0	0	877	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	-	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	592	0	0	571	0	-	-	779	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	589	-	-	571	-	-	-	779	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.4	11.7	0	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	589	571	779	-	-
HCM Lane V/C Ratio	-	-	0.05	0.056	0.019	-	-
HCM Control Delay (s)	-	-	11.4	11.7	9.7	-	-
HCM Lane LOS	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0.2	0.2	0.1	-	-

HCM 6th Signalized Intersection Summary
15: Lawler Ranch Parkway /Walters Road & State Hwy 12 04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	426	361	16	2	588	210	86	130	3	140	48	496
Future Volume (veh/h)	426	361	16	2	588	210	86	130	3	140	48	496
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1574	1900	1900	1589	1559	1885	1856	1900	1678	1737	1826
Adj Flow Rate, veh/h	448	380	17	2	619	221	76	158	3	99	118	522
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	22	0	0	21	23	1	3	0	15	11	5
Cap, veh/h	560	1314	704	9	828	361	200	414	180	343	372	653
Arrive On Green	0.17	0.44	0.44	0.00	0.27	0.27	0.11	0.11	0.11	0.21	0.21	0.21
Sat Flow, veh/h	3291	2991	1601	1810	3019	1314	1795	3711	1610	1598	1737	3044
Grp Volume(v), veh/h	448	380	17	2	619	221	76	158	3	99	118	522
Grp Sat Flow(s),veh/h/ln	1646	1495	1601	1810	1509	1314	1795	1856	1610	1598	1737	1522
Q Serve(g_s), s	11.7	7.3	0.5	0.1	16.7	13.1	3.5	3.5	0.1	4.6	5.1	14.5
Cycle Q Clear(g_c), s	11.7	7.3	0.5	0.1	16.7	13.1	3.5	3.5	0.1	4.6	5.1	14.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	560	1314	704	9	828	361	200	414	180	343	372	653
V/C Ratio(X)	0.80	0.29	0.02	0.23	0.75	0.61	0.38	0.38	0.02	0.29	0.32	0.80
Avail Cap(c_a), veh/h	1069	1674	896	486	1690	736	603	1247	541	537	583	1023
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.6	16.1	14.2	44.3	29.6	28.3	36.8	36.8	35.3	29.4	29.6	33.3
Incr Delay (d2), s/veh	2.7	0.1	0.0	12.5	1.4	1.7	1.2	0.6	0.0	0.5	0.5	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	2.5	0.2	0.1	5.7	3.9	1.6	1.6	0.1	1.7	2.1	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.3	16.2	14.2	56.7	30.9	30.0	38.0	37.4	35.3	29.8	30.1	35.8
LnGrp LOS	D	B	B	E	C	C	D	D	D	C	C	D
Approach Vol, veh/h		845			842			237			739	
Approach Delay, s/veh		27.9			30.7			37.5			34.1	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.6	45.0		24.4	19.4	30.2		15.3				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 24	50.0		30.0	* 29	50.0		30.0				
Max Q Clear Time (g_c+I1), s	2.1	9.3		16.5	13.7	18.7		5.5				
Green Ext Time (p_c), s	0.0	3.1		2.6	1.5	4.9		1.2				

Intersection Summary		
HCM 6th Ctrl Delay		31.4
HCM 6th LOS		C

Notes

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

Queues
1: Sunset Avenue /Sunset Avenue & Pintail Drive

04/26/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	52	91	109	437	34	371	201	477
v/c Ratio	0.42	0.16	0.28	0.77	0.22	0.30	0.71	0.27
Control Delay	33.3	19.3	23.7	34.2	41.2	21.9	49.3	16.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.3	19.3	23.7	34.2	41.2	21.9	49.3	16.2
Queue Length 50th (ft)	23	34	46	198	18	76	107	87
Queue Length 95th (ft)	53	60	78	272	47	128	179	147
Internal Link Dist (ft)		402		619		2012		441
Turn Bay Length (ft)	105		75		105		105	
Base Capacity (vph)	162	730	510	717	186	1247	320	1752
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.12	0.21	0.61	0.18	0.30	0.63	0.27

Intersection Summary

Queues
2: Grizzly Island Road/Sunset Avenue & State Hwy 12

04/26/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	252	855	206	57	1433	93	303	134	36	158	164	341
v/c Ratio	0.70	0.59	0.24	0.40	1.04	0.13	0.85	0.36	0.10	0.72	0.72	0.52
Control Delay	75.1	35.3	5.8	72.4	76.0	9.5	78.9	52.9	0.5	80.7	80.0	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.1	35.3	5.8	72.4	76.0	9.5	78.9	52.9	0.5	80.7	80.0	8.2
Queue Length 50th (ft)	124	335	6	53	~799	6	290	115	0	157	164	0
Queue Length 95th (ft)	170	501	67	102	#1167	53	370	165	0	232	238	48
Internal Link Dist (ft)		867			689			342			2012	
Turn Bay Length (ft)	500		275	250		400	125			150		150
Base Capacity (vph)	424	1443	851	156	1379	696	481	501	457	298	310	766
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.59	0.24	0.37	1.04	0.13	0.63	0.27	0.08	0.53	0.53	0.45

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Queues
5: Lawler Ranch Parkway /Emperor Drive & State Hwy 12

04/26/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	129	814	63	61	1338	11	99	100	71	21	197
v/c Ratio	0.64	0.56	0.08	0.34	0.98	0.01	0.42	0.42	0.20	0.09	0.53
Control Delay	71.5	31.5	0.2	66.0	55.8	0.0	54.7	54.4	1.2	49.3	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.5	31.5	0.2	66.0	55.8	0.0	54.7	54.4	1.2	49.3	15.1
Queue Length 50th (ft)	85	202	0	39	422	0	68	68	0	13	13
Queue Length 95th (ft)	#256	612	0	135	#1419	0	168	169	0	48	93
Internal Link Dist (ft)		1392			1435			342			1298
Turn Bay Length (ft)	425		255	200		230	215		215	125	
Base Capacity (vph)	301	1589	877	181	1361	773	271	278	396	278	413
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.51	0.07	0.34	0.98	0.01	0.37	0.36	0.18	0.08	0.48

Intersection Summary

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

Queues
7: Walters Road & Air Base Parkway

04/29/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	111	934	300	434	451	9	353	119	778	5	210
v/c Ratio	0.63	0.79	0.43	0.83	0.35	0.01	0.89	0.18	0.91	0.07	0.81
Control Delay	67.1	42.7	5.4	64.9	29.7	0.0	68.8	23.5	31.8	57.2	63.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.1	42.7	5.4	64.9	29.7	0.0	68.8	23.5	31.8	57.2	63.7
Queue Length 50th (ft)	83	354	0	172	137	0	259	54	294	4	130
Queue Length 95th (ft)	142	439	63	#289	197	0	#409	104	#616	18	#217
Internal Link Dist (ft)		838			880			1074			219
Turn Bay Length (ft)	275		315	400		180			325	150	
Base Capacity (vph)	218	1183	704	520	1283	616	432	693	875	68	305
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.79	0.43	0.83	0.35	0.01	0.82	0.17	0.89	0.07	0.69

Intersection Summary

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

Queues
8: Walters Road & E Tabor Avenue

04/26/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	258	129	12	213	190	1028	49	883
v/c Ratio	0.82	0.24	0.09	0.53	0.86	0.65	0.31	0.75
Control Delay	55.7	7.9	36.7	17.1	68.5	19.9	39.2	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.7	7.9	36.7	17.1	68.5	19.9	39.2	24.5
Queue Length 50th (ft)	52	8	4	37	75	168	18	142
Queue Length 95th (ft)	#165	47	24	91	#264	#411	64	#342
Internal Link Dist (ft)		1386		269		2251		1213
Turn Bay Length (ft)	95		125		180		270	
Base Capacity (vph)	316	891	140	905	222	1628	160	1443
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.14	0.09	0.24	0.86	0.63	0.31	0.61

Intersection Summary

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

Queues
9: Walters Road & Bella Vista Drive

04/26/2021

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	193	113	113	4	783	22	765
v/c Ratio	0.72	0.53	0.35	0.04	0.45	0.20	0.43
Control Delay	51.7	46.0	6.3	45.2	12.8	43.9	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.7	46.0	6.3	45.2	12.8	43.9	14.6
Queue Length 50th (ft)	105	62	0	2	80	12	116
Queue Length 95th (ft)	172	109	28	m8	260	35	239
Internal Link Dist (ft)	639	451			643		1927
Turn Bay Length (ft)			90	135		105	
Base Capacity (vph)	324	303	394	150	1727	150	1785
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.37	0.29	0.03	0.45	0.15	0.43

Intersection Summary

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

Queues

10: Walters Road & Pintail Drive

04/26/2021

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	139	70	62	687	761
v/c Ratio	0.42	0.21	0.47	0.29	0.38
Control Delay	33.9	7.2	57.1	8.2	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	7.2	57.1	8.2	14.2
Queue Length 50th (ft)	75	0	37	23	172
Queue Length 95th (ft)	89	24	80	175	303
Internal Link Dist (ft)	225			851	689
Turn Bay Length (ft)		150	130		
Base Capacity (vph)	750	668	144	2393	2029
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.19	0.10	0.43	0.29	0.38

Intersection Summary

Queues

11: Walters Road & Mammoth Way/Montebello Drive

04/26/2021

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	22	19	133	71	11	630	29	695
v/c Ratio	0.08	0.05	0.46	0.19	0.07	0.30	0.22	0.31
Control Delay	25.0	0.3	34.4	6.1	56.0	4.3	56.4	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.0	0.3	34.4	6.1	56.0	4.3	56.4	5.9
Queue Length 50th (ft)	11	0	70	0	7	42	18	7
Queue Length 95th (ft)	23	0	93	24	m22	24	48	110
Internal Link Dist (ft)	93		335			477		851
Turn Bay Length (ft)		50		125	100		120	
Base Capacity (vph)	622	739	608	700	160	2114	132	2278
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.03	0.22	0.10	0.07	0.30	0.22	0.31

Intersection Summary

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

Queues
12: Walters Road & Petersen Road

04/26/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	8	5	13	107	4	27	8	659	157	88	765	9
v/c Ratio	0.04	0.02	0.04	0.60	0.01	0.10	0.07	0.31	0.19	0.71	0.30	0.01
Control Delay	25.4	24.8	0.3	45.5	24.8	0.7	31.6	20.3	12.3	69.4	9.2	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.4	24.8	0.3	45.5	24.8	0.7	31.6	20.3	12.3	69.4	9.2	0.2
Queue Length 50th (ft)	4	2	0	57	2	0	4	120	0	55	52	0
Queue Length 95th (ft)	13	10	0	92	9	0	m12	272	98	#129	183	m1
Internal Link Dist (ft)		417			560			510			413	
Turn Bay Length (ft)			180	115		200	85		185	100		75
Base Capacity (vph)	399	518	472	323	622	446	148	2143	846	126	2531	1171
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.01	0.03	0.33	0.01	0.06	0.05	0.31	0.19	0.70	0.30	0.01

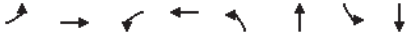
Intersection Summary

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

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

Queues
13: Walters Road & Walmart Main Driveway

04/29/2021



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	36	18	7	8	44	851	53	836
v/c Ratio	0.23	0.04	0.06	0.02	0.28	0.35	0.33	0.33
Control Delay	41.3	0.1	40.2	0.0	42.0	8.5	38.7	9.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.3	0.1	40.2	0.0	42.0	8.5	38.7	9.1
Queue Length 50th (ft)	19	0	4	0	24	104	32	38
Queue Length 95th (ft)	48	0	18	0	55	232	53	317
Internal Link Dist (ft)		149		315		326		510
Turn Bay Length (ft)					200		275	
Base Capacity (vph)	176	493	131	463	195	2438	182	2516
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.04	0.05	0.02	0.23	0.35	0.29	0.33

Intersection Summary

Queues

15: Lawler Ranch Parkway /Walters Road & State Hwy 12

04/26/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	469	380	17	2	619	234	74	154	3	105	107	543
v/c Ratio	0.72	0.25	0.02	0.01	0.73	0.44	0.30	0.30	0.01	0.47	0.46	0.62
Control Delay	50.1	18.4	0.1	64.0	42.4	7.6	47.1	43.8	0.0	55.5	54.7	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.1	18.4	0.1	64.0	42.4	7.6	47.1	43.8	0.0	55.5	54.7	7.9
Queue Length 50th (ft)	134	56	0	1	173	0	46	48	0	61	62	0
Queue Length 95th (ft)	#368	205	0	14	418	74	124	109	0	190	193	59
Internal Link Dist (ft)		3194			827			385			265	
Turn Bay Length (ft)	390		275	215		300	175		90	125		190
Base Capacity (vph)	963	1760	993	444	1529	775	535	1102	606	458	478	1208
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.22	0.02	0.00	0.40	0.30	0.14	0.14	0.00	0.23	0.22	0.45

Intersection Summary

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

HCM 6th Signalized Intersection Summary

7: Walters Road & Air Base Parkway

05/05/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	104	878	282	408	424	8	332	112	731	5	98	100
Future Volume (veh/h)	104	878	282	408	424	8	332	112	731	5	98	100
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	1752	1870	1796	1856	1796	1707	1856	1707	1856	1604	1693	1604
Adj Flow Rate, veh/h	111	934	0	434	451	0	353	119	0	5	104	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	10	2	7	3	7	13	3	13	3	20	14	20
Cap, veh/h	135	1535		484	1680		382	490		10	131	
Arrive On Green	0.08	0.43	0.00	0.14	0.49	0.00	0.22	0.29	0.00	0.01	0.08	0.00
Sat Flow, veh/h	1668	3554	1522	3428	3413	1447	1767	1707	1572	1527	1693	0
Grp Volume(v), veh/h	111	934	0	434	451	0	353	119	0	5	104	0
Grp Sat Flow(s),veh/h/ln	1668	1777	1522	1714	1706	1447	1767	1707	1572	1527	1693	0
Q Serve(g_s), s	7.9	24.3	0.0	14.9	9.3	0.0	23.5	6.4	0.0	0.4	7.2	0.0
Cycle Q Clear(g_c), s	7.9	24.3	0.0	14.9	9.3	0.0	23.5	6.4	0.0	0.4	7.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	135	1535		484	1680		382	490		10	131	
V/C Ratio(X)	0.82	0.61		0.90	0.27		0.92	0.24		0.51	0.79	
Avail Cap(c_a), veh/h	224	1535		486	1680		436	640		70	295	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	54.3	26.3	0.0	50.7	17.8	0.0	46.1	32.8	0.0	59.4	54.4	0.0
Incr Delay (d2), s/veh	11.5	1.8	0.0	19.0	0.4	0.0	23.9	0.3	0.0	35.9	10.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	10.0	0.0	7.4	3.5	0.0	12.5	2.6	0.0	0.3	3.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.8	28.1	0.0	69.7	18.2	0.0	70.0	33.0	0.0	95.3	64.7	0.0
LnGrp LOS	E	C		E	B		E	C		F	E	
Approach Vol, veh/h		1045	A		885	A		472	A		109	A
Approach Delay, s/veh		32.1			43.5			60.7			66.1	
Approach LOS		C			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.8	38.4	13.7	63.1	29.9	13.3	20.9	55.8
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.5	45.0	16.1	37.4	29.6	20.9	17.0	36.5
Max Q Clear Time (g_c+I1), s	2.4	8.4	9.9	11.3	25.5	9.2	16.9	26.3
Green Ext Time (p_c), s	0.0	0.6	0.1	2.7	0.4	0.3	0.0	4.1

Intersection Summary	
HCM 6th Ctrl Delay	42.9
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary
12: Walters Road & Petersen Road

05/06/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	5	12	64	4	16	7	600	111	72	696	8
Future Volume (veh/h)	7	5	12	64	4	16	7	600	111	72	696	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		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	1648	1604	1530	1233	1900	1411	1885	1781	1441	1618	1856	1900
Adj Flow Rate, veh/h	8	5	13	70	4	0	8	659	0	79	765	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	17	20	25	45	0	33	1	8	31	19	3	0
Cap, veh/h	16	59	47	80	180		18	2109		98	2384	
Arrive On Green	0.01	0.04	0.04	0.07	0.09	0.00	0.02	1.00	0.00	0.06	0.68	0.00
Sat Flow, veh/h	1570	1604	1270	1174	1900	1196	1795	3385	1221	1541	3526	1610
Grp Volume(v), veh/h	8	5	13	70	4	0	8	659	0	79	765	0
Grp Sat Flow(s),veh/h/ln	1570	1604	1270	1174	1900	1196	1795	1692	1221	1541	1763	1610
Q Serve(g_s), s	0.5	0.3	0.9	5.3	0.2	0.0	0.4	0.0	0.0	4.6	8.1	0.0
Cycle Q Clear(g_c), s	0.5	0.3	0.9	5.3	0.2	0.0	0.4	0.0	0.0	4.6	8.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	16	59	47	80	180		18	2109		98	2384	
V/C Ratio(X)	0.51	0.08	0.28	0.88	0.02		0.44	0.31		0.81	0.32	
Avail Cap(c_a), veh/h	96	151	120	202	391		110	2109		231	2384	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.95	0.95	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	44.3	41.9	42.2	41.6	37.0	0.0	43.8	0.0	0.0	41.6	6.0	0.0
Incr Delay (d2), s/veh	22.9	0.6	3.2	24.3	0.0	0.0	15.3	0.4	0.0	14.4	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.1	0.3	2.1	0.1	0.0	0.2	0.1	0.0	2.0	2.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.2	42.5	45.4	65.9	37.0	0.0	59.1	0.4	0.0	56.0	6.1	0.0
LnGrp LOS	E	D	D	E	D		E	A		E	A	
Approach Vol, veh/h		26			74	A		667	A		844	A
Approach Delay, s/veh		51.5			64.3			1.1			10.8	
Approach LOS		D			E			A			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.2	61.4	10.6	7.8	5.4	66.2	5.4	13.0				
Change Period (Y+Rc), s	4.5	5.3	4.5	4.5	4.5	5.3	4.5	4.5				
Max Green Setting (Gmax), s	13.5	33.7	15.5	8.5	5.5	41.7	5.5	18.5				
Max Q Clear Time (g_c+I1), s	6.6	2.0	7.3	2.9	2.4	10.1	2.5	2.2				
Green Ext Time (p_c), s	0.1	4.5	0.1	0.0	0.0	5.3	0.0	0.0				

Intersection Summary		
HCM 6th Ctrl Delay		9.9
HCM 6th LOS		A

Notes

User approved pedestrian interval to be less than phase max green.
Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
15: Lawler Ranch Parkway /Walters Road & State Hwy 12

05/05/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	426	361	16	2	588	210	86	130	3	140	48	496
Future Volume (veh/h)	426	361	16	2	588	210	86	130	3	140	48	496
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1574	1900	1900	1589	1559	1885	1856	1900	1678	1737	1826
Adj Flow Rate, veh/h	448	380	17	2	619	221	76	158	3	99	118	522
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	22	0	0	21	23	1	3	0	15	11	5
Cap, veh/h	564	1319	706	9	829	361	202	417	181	337	366	641
Arrive On Green	0.17	0.44	0.44	0.00	0.27	0.27	0.11	0.11	0.11	0.21	0.21	0.21
Sat Flow, veh/h	3291	2991	1601	1810	3019	1314	1795	3711	1610	1598	1737	3043
Grp Volume(v), veh/h	448	380	17	2	619	221	76	158	3	99	118	522
Grp Sat Flow(s),veh/h/ln	1646	1495	1601	1810	1509	1314	1795	1856	1610	1598	1737	1522
Q Serve(g_s), s	11.6	7.2	0.5	0.1	16.6	13.0	3.5	3.5	0.1	4.6	5.1	14.5
Cycle Q Clear(g_c), s	11.6	7.2	0.5	0.1	16.6	13.0	3.5	3.5	0.1	4.6	5.1	14.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	564	1319	706	9	829	361	202	417	181	337	366	641
V/C Ratio(X)	0.79	0.29	0.02	0.23	0.75	0.61	0.38	0.38	0.02	0.29	0.32	0.81
Avail Cap(c_a), veh/h	1253	2479	1327	183	1659	722	621	1283	557	463	503	881
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.3	15.9	14.0	44.0	29.4	28.1	36.5	36.5	35.0	29.5	29.7	33.4
Incr Delay (d2), s/veh	2.6	0.1	0.0	12.5	1.4	1.7	1.2	0.6	0.0	0.5	0.5	4.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.8	2.4	0.2	0.1	5.6	3.9	1.6	1.6	0.1	1.7	2.1	5.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.9	16.0	14.0	56.5	30.7	29.8	37.7	37.1	35.1	30.0	30.2	37.6
LnGrp LOS	D	B	B	E	C	C	D	D	D	C	C	D
Approach Vol, veh/h		845			842			237			739	
Approach Delay, s/veh		27.6			30.5			37.3			35.4	
Approach LOS		C			C			D			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.6	44.9		24.0	19.4	30.1		15.3				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 9	73.6		25.7	* 34	48.8		30.7				
Max Q Clear Time (g_c+I1), s	2.1	9.2		16.5	13.6	18.6		5.5				
Green Ext Time (p_c), s	0.0	3.1		2.2	1.6	4.9		1.2				

Intersection Summary		
HCM 6th Ctrl Delay		31.5
HCM 6th LOS		C

Notes

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

Queues
7: Walters Road & Air Base Parkway

05/05/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	111	934	300	434	451	9	353	119	778	5	210
v/c Ratio	0.63	0.77	0.42	0.87	0.35	0.01	0.89	0.18	0.90	0.07	0.82
Control Delay	66.9	41.7	5.5	68.3	29.4	0.0	68.8	23.8	30.8	57.2	65.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.9	41.7	5.5	68.3	29.4	0.0	68.8	23.8	30.8	57.2	65.6
Queue Length 50th (ft)	83	359	0	170	138	0	259	54	281	4	130
Queue Length 95th (ft)	142	#452	64	#264	195	0	#409	106	#609	18	#235
Internal Link Dist (ft)		838			880			1074			219
Turn Bay Length (ft)	275		315	400		180			325	150	
Base Capacity (vph)	220	1211	713	503	1291	619	432	685	877	68	291
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.77	0.42	0.86	0.35	0.01	0.82	0.17	0.89	0.07	0.72

Intersection Summary

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

Queues
12: Walters Road & Petersen Road

05/06/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	8	5	13	70	4	18	8	659	122	79	765	9
v/c Ratio	0.08	0.03	0.04	0.49	0.01	0.05	0.07	0.32	0.14	0.48	0.30	0.01
Control Delay	40.4	36.8	0.2	47.8	28.2	0.3	55.4	7.9	0.7	48.9	4.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.4	36.8	0.2	47.8	28.2	0.3	55.4	7.9	0.7	48.9	4.9	0.0
Queue Length 50th (ft)	4	3	0	38	2	0	5	40	1	49	19	0
Queue Length 95th (ft)	18	13	0	76	11	0	m14	54	0	76	267	m0
Internal Link Dist (ft)		417			560			510			413	
Turn Bay Length (ft)			180	115		200	85		185	100		75
Base Capacity (vph)	104	156	348	214	417	411	109	2059	850	227	2560	1213
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.03	0.04	0.33	0.01	0.04	0.07	0.32	0.14	0.35	0.30	0.01

Intersection Summary

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

Queues

15: Lawler Ranch Parkway /Walters Road & State Hwy 12

05/05/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	448	380	17	2	619	221	74	154	3	98	100	522
v/c Ratio	0.68	0.25	0.02	0.01	0.73	0.42	0.30	0.30	0.01	0.45	0.44	0.62
Control Delay	48.3	17.9	0.1	64.0	42.5	7.8	46.3	43.1	0.0	55.7	55.0	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.3	17.9	0.1	64.0	42.5	7.8	46.3	43.1	0.0	55.7	55.0	8.1
Queue Length 50th (ft)	122	54	0	1	164	0	43	46	0	54	55	0
Queue Length 95th (ft)	323	201	0	13	428	74	126	110	0	183	186	59
Internal Link Dist (ft)		3194			827			385			265	
Turn Bay Length (ft)	390		275	215		300	175		90	125		190
Base Capacity (vph)	1148	2266	1255	170	1525	767	556	1146	626	401	420	1110
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.17	0.01	0.01	0.41	0.29	0.13	0.13	0.00	0.24	0.24	0.47

Intersection Summary

HCM 6th Signalized Intersection Summary

1: Sunset Avenue & Pintail Drive

04/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	79	26	119	86	131	21	492	122	220	478	58
Future Volume (veh/h)	58	79	26	119	86	131	21	492	122	220	478	58
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1753	1900	1885	1824	1900	1900	1767	1870	1885	1824
Adj Flow Rate, veh/h	64	88	29	132	96	146	23	547	136	244	531	64
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	0	5	0	1	0	0	0	4	2	1	0
Cap, veh/h	190	309	102	303	152	231	44	886	219	283	1429	172
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.02	0.31	0.31	0.16	0.44	0.44
Sat Flow, veh/h	1135	1366	450	1290	672	1022	1810	2859	708	1781	3216	386
Grp Volume(v), veh/h	64	0	117	132	0	242	23	345	338	244	295	300
Grp Sat Flow(s),veh/h/ln	1135	0	1816	1290	0	1695	1810	1805	1762	1781	1791	1811
Q Serve(g_s), s	4.9	0.0	4.8	8.5	0.0	11.6	1.1	14.7	14.8	12.0	9.9	9.9
Cycle Q Clear(g_c), s	16.5	0.0	4.8	13.3	0.0	11.6	1.1	14.7	14.8	12.0	9.9	9.9
Prop In Lane	1.00		0.25	1.00		0.60	1.00		0.40	1.00		0.21
Lane Grp Cap(c), veh/h	190	0	410	303	0	383	44	560	546	283	796	805
V/C Ratio(X)	0.34	0.00	0.29	0.44	0.00	0.63	0.52	0.62	0.62	0.86	0.37	0.37
Avail Cap(c_a), veh/h	317	0	613	447	0	572	247	560	546	342	796	805
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.69	0.69	0.69	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.9	0.0	28.8	34.3	0.0	31.5	43.4	26.5	26.5	36.9	16.6	16.6
Incr Delay (d2), s/veh	1.3	0.0	0.5	1.2	0.0	2.1	8.3	3.5	3.6	18.1	1.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	2.1	2.8	0.0	4.9	0.6	6.6	6.5	6.5	4.1	4.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.2	0.0	29.3	35.5	0.0	33.6	51.7	30.0	30.1	55.0	18.0	18.0
LnGrp LOS	D	A	C	D	A	C	D	C	C	E	B	B
Approach Vol, veh/h		181			374			706			839	
Approach Delay, s/veh		33.1			34.3			30.8			28.7	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	45.1		24.9	19.0	33.0		24.9				
Change Period (Y+Rc), s	* 4.7	5.1		4.6	* 4.7	5.1		4.6				
Max Green Setting (Gmax), s	* 12	23.9		30.4	* 17	27.9		30.4				
Max Q Clear Time (g_c+I1), s	3.1	11.9		18.5	14.0	16.8		15.3				
Green Ext Time (p_c), s	0.0	3.8		0.8	0.3	4.3		2.2				

Intersection Summary		
HCM 6th Ctrl Delay	30.8	
HCM 6th LOS	C	

Notes

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

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

HCM 6th Signalized Intersection Summary
2: Grizzly Island Road/Sunset Avenue & State Hwy 12

04/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	551	1654	221	127	1000	195	170	146	85	312	107	251
Future Volume (veh/h)	551	1654	221	127	1000	195	170	146	85	312	107	251
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1841	1885	1870	1841	1900	1885	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	562	1688	226	130	1020	199	173	149	87	214	255	256
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	4	1	2	4	0	1	0	0	0	0	0
Cap, veh/h	611	1737	793	152	1412	650	283	299	250	217	228	375
Arrive On Green	0.18	0.50	0.50	0.09	0.40	0.40	0.16	0.16	0.16	0.12	0.12	0.12
Sat Flow, veh/h	3483	3497	1596	1781	3497	1609	1795	1900	1589	1810	1900	3126
Grp Volume(v), veh/h	562	1688	226	130	1020	199	173	149	87	214	255	256
Grp Sat Flow(s),veh/h/ln	1742	1749	1596	1781	1749	1609	1795	1900	1589	1810	1900	1563
Q Serve(g_s), s	23.8	70.4	12.5	10.8	36.8	12.6	13.5	10.8	7.3	17.7	18.0	11.8
Cycle Q Clear(g_c), s	23.8	70.4	12.5	10.8	36.8	12.6	13.5	10.8	7.3	17.7	18.0	11.8
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	611	1737	793	152	1412	650	283	299	250	217	228	375
V/C Ratio(X)	0.92	0.97	0.29	0.86	0.72	0.31	0.61	0.50	0.35	0.99	1.12	0.68
Avail Cap(c_a), veh/h	650	1737	793	166	1412	650	479	507	424	217	228	375
HCM Platoon Ratio	1.00	1.00	1.00	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	0.96	0.96	0.96
Uniform Delay (d), s/veh	60.8	36.7	22.1	67.7	37.6	30.4	58.9	57.8	56.3	65.9	66.0	63.3
Incr Delay (d2), s/veh	17.8	15.8	0.9	29.4	3.2	1.2	0.8	0.5	0.3	55.5	93.9	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.8	31.9	4.7	6.1	15.8	5.0	6.3	5.3	3.0	11.5	14.6	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	78.6	52.6	23.0	97.1	40.9	31.6	59.7	58.2	56.6	121.4	159.9	67.7
LnGrp LOS	E	D	C	F	D	C	E	E	E	F	F	E
Approach Vol, veh/h		2476			1349			409			725	
Approach Delay, s/veh		55.8			44.9			58.5			116.0	
Approach LOS		E			D			E			F	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	17.5	80.7		23.1	31.4	66.8		28.7
Change Period (Y+Rc), s	4.7	6.2		5.1	5.1	6.2		5.1
Max Green Setting (Gmax), s	12.8	56.9		18.0	28.0	42.5		40.0
Max Q Clear Time (g_c+I1), s	12.8	72.4		20.0	25.8	38.8		15.5
Green Ext Time (p_c), s	0.0	0.0		0.0	0.5	1.5		0.6

Intersection Summary	
HCM 6th Ctrl Delay	61.9
HCM 6th LOS	E

Notes

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

HCM 6th TWSC
3: State Hwy 12 & Snow Drive

04/26/2021

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	2103	1363	23	0	68
Future Vol, veh/h	0	2103	1363	23	0	68
Conflicting Peds, #/hr	0	0	0	4	0	7
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	275	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	3	3	0	0	0
Mvmt Flow	0	2168	1405	24	0	70

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	714
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	378
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	374
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.8
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	374
HCM Lane V/C Ratio	-	-	-	0.187
HCM Control Delay (s)	-	-	-	16.8
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.7

Intersection	
Intersection Delay, s/veh	21.2
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	77	288	81	29	204	4	82	72	176	4	44	45
Future Vol, veh/h	77	288	81	29	204	4	82	72	176	4	44	45
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	0	2	0	0	5	0	0	0	1	0	0	0
Mvmt Flow	85	316	89	32	224	4	90	79	193	4	48	49
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	28.5	14.9	18.6	11.6
HCM LOS	D	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	17%	12%	4%
Vol Thru, %	22%	65%	86%	47%
Vol Right, %	53%	18%	2%	48%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	330	446	237	93
LT Vol	82	77	29	4
Through Vol	72	288	204	44
RT Vol	176	81	4	45
Lane Flow Rate	363	490	260	102
Geometry Grp	1	1	1	1
Degree of Util (X)	0.617	0.801	0.463	0.194
Departure Headway (Hd)	6.128	5.883	6.402	6.826
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	587	613	560	523
Service Time	4.182	3.934	4.464	4.904
HCM Lane V/C Ratio	0.618	0.799	0.464	0.195
HCM Control Delay	18.6	28.5	14.9	11.6
HCM Lane LOS	C	D	B	B
HCM 95th-tile Q	4.2	7.9	2.4	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	298	1517	179	37	1119	22	118	34	38	23	27	111
Future Volume (veh/h)	298	1517	179	37	1119	22	118	34	38	23	27	111
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	1885	1841	1900	1900	1841	1826	1900	1900	1811	1796	1900	1824
Adj Flow Rate, veh/h	301	1532	181	37	1130	22	76	93	38	23	27	112
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	1	4	0	0	4	5	0	0	6	7	0	0
Cap, veh/h	336	1730	796	139	1344	595	196	206	167	185	35	144
Arrive On Green	0.19	0.49	0.49	0.08	0.38	0.38	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1795	3497	1610	1810	3497	1547	1810	1900	1535	1711	322	1334
Grp Volume(v), veh/h	301	1532	181	37	1130	22	76	93	38	23	0	139
Grp Sat Flow(s),veh/h/ln	1795	1749	1610	1810	1749	1547	1810	1900	1535	1711	0	1656
Q Serve(g_s), s	16.5	39.8	6.5	1.9	29.7	0.9	3.9	4.6	2.3	1.2	0.0	8.3
Cycle Q Clear(g_c), s	16.5	39.8	6.5	1.9	29.7	0.9	3.9	4.6	2.3	1.2	0.0	8.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.81
Lane Grp Cap(c), veh/h	336	1730	796	139	1344	595	196	206	167	185	0	179
V/C Ratio(X)	0.90	0.89	0.23	0.27	0.84	0.04	0.39	0.45	0.23	0.12	0.00	0.78
Avail Cap(c_a), veh/h	658	1731	797	215	1731	766	269	282	228	254	0	246
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	40.1	23.0	14.5	44.0	28.3	19.4	41.9	42.2	41.2	40.7	0.0	43.8
Incr Delay (d2), s/veh	3.5	5.9	0.1	0.4	3.1	0.0	0.5	0.6	0.3	0.1	0.0	6.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.2	15.6	2.1	0.8	11.8	0.3	1.8	2.2	0.9	0.5	0.0	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.6	28.9	14.7	44.3	31.4	19.5	42.4	42.8	41.4	40.8	0.0	50.4
LnGrp LOS	D	C	B	D	C	B	D	D	D	D	A	D
Approach Vol, veh/h		2014			1189			207			162	
Approach Delay, s/veh		29.8			31.6			42.4			49.0	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.5	56.5		16.0	23.6	45.3		16.1				
Change Period (Y+Rc), s	4.7	6.5		5.1	* 4.7	6.5		5.1				
Max Green Setting (Gmax), s	12.8	50.0		15.0	* 37	50.0		15.0				
Max Q Clear Time (g_c+I1), s	13.9	41.8		10.3	18.5	31.7		6.6				
Green Ext Time (p_c), s	0.0	5.9		0.1	0.4	7.1		0.3				

Intersection Summary	
HCM 6th Ctrl Delay	32.0
HCM 6th LOS	C

Notes

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

HCM 6th TWSC
6: State Hwy 12 & Woodlark Drive 04/26/2021

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1583	1073	16	0	100
Future Vol, veh/h	0	1583	1073	16	0	100
Conflicting Peds, #/hr	0	0	0	5	0	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	260	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	4	4	0	0	0
Mvmt Flow	0	1666	1129	17	0	105

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	573
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	468
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	464
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	464
HCM Lane V/C Ratio	-	-	-	0.227
HCM Control Delay (s)	-	-	-	15
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.9

HCM 6th Signalized Intersection Summary
7: Walters Road/Walter Road & Air Base Parkway 04/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	618	355	830	815	8	189	133	691	7	122	123
Future Volume (veh/h)	114	618	355	830	815	8	189	133	691	7	122	123
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	1737	1900	1841	1870	1885	1693	1870	1737	1870	1648	1752	1767
Adj Flow Rate, veh/h	118	637	0	856	840	0	195	137	0	7	126	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	11	0	4	2	1	14	2	11	2	17	10	9
Cap, veh/h	142	1416		893	2022		225	360		14	158	
Arrive On Green	0.09	0.39	0.00	0.26	0.56	0.00	0.13	0.21	0.00	0.01	0.09	0.00
Sat Flow, veh/h	1654	3610	1560	3456	3582	1434	1781	1737	1585	1570	1752	0
Grp Volume(v), veh/h	118	637	0	856	840	0	195	137	0	7	126	0
Grp Sat Flow(s),veh/h/ln	1654	1805	1560	1728	1791	1434	1781	1737	1585	1570	1752	0
Q Serve(g_s), s	8.4	15.6	0.0	29.3	16.0	0.0	12.9	8.1	0.0	0.5	8.5	0.0
Cycle Q Clear(g_c), s	8.4	15.6	0.0	29.3	16.0	0.0	12.9	8.1	0.0	0.5	8.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	142	1416		893	2022		225	360		14	158	
V/C Ratio(X)	0.83	0.45		0.96	0.42		0.87	0.38		0.51	0.80	
Avail Cap(c_a), veh/h	221	1416		893	2022		315	588		73	365	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	54.0	26.9	0.0	43.9	14.9	0.0	51.5	40.9	0.0	59.2	53.5	0.0
Incr Delay (d2), s/veh	14.0	1.0	0.0	20.7	0.6	0.0	16.7	0.7	0.0	26.9	8.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	6.6	0.0	14.5	6.1	0.0	6.6	3.5	0.0	0.3	4.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.0	28.0	0.0	64.6	15.5	0.0	68.1	41.6	0.0	86.2	62.4	0.0
LnGrp LOS	E	C		E	B		E	D		F	E	
Approach Vol, veh/h		755	A		1696	A		332	A		133	A
Approach Delay, s/veh		34.2			40.3			57.2			63.7	
Approach LOS		C			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.0	28.9	14.3	71.7	19.1	14.8	35.0	51.1
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.6	40.6	16.0	41.8	21.2	25.0	31.0	26.8
Max Q Clear Time (g_c+I1), s	2.5	10.1	10.4	18.0	14.9	10.5	31.3	17.6
Green Ext Time (p_c), s	0.0	0.7	0.1	5.4	0.3	0.5	0.0	2.6

Intersection Summary		
HCM 6th Ctrl Delay	41.7	
HCM 6th LOS	D	

Notes

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

HCM 6th Signalized Intersection Summary
8: Walters Road & E Tabor Avenue

04/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	245	37	161	9	25	49	171	774	11	84	913	253
Future Volume (veh/h)	245	37	161	9	25	49	171	774	11	84	913	253
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1810	1900	1900	1796	1900	1841	1824	1900	1856	1796
Adj Flow Rate, veh/h	253	38	166	9	26	51	176	798	11	87	941	261
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	0	1	0	0	2	0	4	0	0	3	2
Cap, veh/h	371	50	217	21	38	74	224	1750	24	116	1189	329
Arrive On Green	0.11	0.16	0.16	0.01	0.07	0.07	0.12	0.50	0.50	0.06	0.44	0.44
Sat Flow, veh/h	3456	309	1349	1810	573	1124	1810	3532	49	1810	2728	755
Grp Volume(v), veh/h	253	0	204	9	0	77	176	395	414	87	607	595
Grp Sat Flow(s),veh/h/ln	1728	0	1657	1810	0	1698	1810	1749	1832	1810	1763	1720
Q Serve(g_s), s	4.2	0.0	7.0	0.3	0.0	2.7	5.6	8.8	8.8	2.8	17.7	17.8
Cycle Q Clear(g_c), s	4.2	0.0	7.0	0.3	0.0	2.7	5.6	8.8	8.8	2.8	17.7	17.8
Prop In Lane	1.00		0.81	1.00		0.66	1.00		0.03	1.00		0.44
Lane Grp Cap(c), veh/h	371	0	267	21	0	111	224	867	908	116	768	750
V/C Ratio(X)	0.68	0.00	0.76	0.43	0.00	0.69	0.79	0.46	0.46	0.75	0.79	0.79
Avail Cap(c_a), veh/h	578	0	638	170	0	528	363	1036	1085	303	985	961
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.7	0.0	24.0	29.3	0.0	27.3	25.4	9.8	9.8	27.5	14.5	14.5
Incr Delay (d2), s/veh	2.2	0.0	4.5	13.2	0.0	7.5	6.0	0.4	0.4	9.4	3.4	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	2.9	0.2	0.0	1.2	2.5	2.5	2.7	1.4	6.1	6.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.9	0.0	28.5	42.5	0.0	34.8	31.5	10.2	10.2	36.9	17.9	18.1
LnGrp LOS	C	A	C	D	A	C	C	B	B	D	B	B
Approach Vol, veh/h		457			86			985			1289	
Approach Delay, s/veh		28.2			35.6			14.0			19.3	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.8	33.6	10.4	7.9	11.4	30.1	4.7	13.6
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	10.6	35.4	10.0	18.6	12.0	33.4	5.6	23.0
Max Q Clear Time (g_c+I1), s	4.8	10.8	6.2	4.7	7.6	19.8	2.3	9.0
Green Ext Time (p_c), s	0.1	4.8	0.3	0.3	0.2	6.2	0.0	0.9

Intersection Summary	
HCM 6th Ctrl Delay	19.4
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
9: Walters Road & Bella Vista Drive

04/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	67	9	6	53	2	58	7	882	66	50	874	83
Future Volume (veh/h)	67	9	6	53	2	58	7	882	66	50	874	83
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		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	1781	1900	1824	1696	1900	1900	1900	1856	1824	1900	1841	1824
Adj Flow Rate, veh/h	71	10	6	56	2	62	7	938	70	53	930	88
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	0	0	9	0	0	0	3	0	0	4	0
Cap, veh/h	137	19	12	155	6	141	13	1867	139	68	1911	181
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.01	0.56	0.56	0.04	0.59	0.59
Sat Flow, veh/h	1471	207	124	1750	63	1588	1810	3325	248	1810	3229	305
Grp Volume(v), veh/h	87	0	0	58	0	62	7	497	511	53	504	514
Grp Sat Flow(s),veh/h/ln	1802	0	0	1813	0	1588	1810	1763	1811	1810	1749	1785
Q Serve(g_s), s	4.1	0.0	0.0	2.7	0.0	3.3	0.3	15.5	15.5	2.6	14.9	14.9
Cycle Q Clear(g_c), s	4.1	0.0	0.0	2.7	0.0	3.3	0.3	15.5	15.5	2.6	14.9	14.9
Prop In Lane	0.82		0.07	0.97		1.00	1.00		0.14	1.00		0.17
Lane Grp Cap(c), veh/h	168	0	0	161	0	141	13	990	1017	68	1035	1057
V/C Ratio(X)	0.52	0.00	0.00	0.36	0.00	0.44	0.54	0.50	0.50	0.78	0.49	0.49
Avail Cap(c_a), veh/h	326	0	0	308	0	270	151	990	1017	151	1035	1057
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.9	0.0	0.0	38.6	0.0	38.9	44.5	12.1	12.1	42.9	10.5	10.5
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.5	0.0	0.8	12.5	1.8	1.8	6.9	1.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.0	1.2	0.0	1.3	0.2	5.6	5.8	1.3	5.2	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.8	0.0	0.0	39.1	0.0	39.7	57.0	13.9	13.8	49.8	12.2	12.1
LnGrp LOS	D	A	A	D	A	D	E	B	B	D	B	B
Approach Vol, veh/h		87			120			1015			1071	
Approach Delay, s/veh		39.8			39.4			14.1			14.0	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.9	56.3		13.1	5.1	59.1		12.7
Change Period (Y+Rc), s	4.5	5.8		* 4.7	4.5	5.8		4.7
Max Green Setting (Gmax), s	7.5	31.2		* 16	7.5	31.2		15.3
Max Q Clear Time (g_c+I1), s	4.6	17.5		6.1	2.3	16.9		5.3
Green Ext Time (p_c), s	0.0	6.7		0.2	0.0	7.0		0.2

Intersection Summary	
HCM 6th Ctrl Delay	16.4
HCM 6th LOS	B

Notes

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

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

HCM 6th Signalized Intersection Summary
10: Walters Road & Pintail Drive

04/26/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	110	87	85	837	804	134
Future Volume (veh/h)	110	87	85	837	804	134
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	1885	1781	1826	1841	1841	1781
Adj Flow Rate, veh/h	112	89	87	854	820	137
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	8	5	4	4	3
Cap, veh/h	178	150	110	2781	2062	344
Arrive On Green	0.10	0.10	0.13	1.00	0.69	0.69
Sat Flow, veh/h	1795	1510	1739	3589	3090	501
Grp Volume(v), veh/h	112	89	87	854	478	479
Grp Sat Flow(s),veh/h/ln	1795	1510	1739	1749	1749	1751
Q Serve(g_s), s	5.4	5.1	4.4	0.0	10.6	10.6
Cycle Q Clear(g_c), s	5.4	5.1	4.4	0.0	10.6	10.6
Prop In Lane	1.00	1.00	1.00			0.29
Lane Grp Cap(c), veh/h	178	150	110	2781	1203	1204
V/C Ratio(X)	0.63	0.59	0.79	0.31	0.40	0.40
Avail Cap(c_a), veh/h	754	634	155	2781	1203	1204
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.88	0.88	1.00	1.00
Uniform Delay (d), s/veh	38.9	38.8	38.8	0.0	6.0	6.0
Incr Delay (d2), s/veh	3.6	3.7	15.1	0.3	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	4.4	2.1	0.1	2.9	2.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.5	42.5	53.9	0.3	6.3	6.3
LnGrp LOS	D	D	D	A	A	A
Approach Vol, veh/h	201			941	957	
Approach Delay, s/veh	42.5			5.2	6.3	
Approach LOS	D			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		76.9		13.1	9.7	67.2
Change Period (Y+Rc), s		5.3		* 4.2	4.0	5.3
Max Green Setting (Gmax), s		42.7		* 38	8.0	30.7
Max Q Clear Time (g_c+I1), s		2.0		7.4	6.4	12.6
Green Ext Time (p_c), s		6.4		0.6	0.0	5.4

Intersection Summary	
HCM 6th Ctrl Delay	9.3
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary
11: Walters Road & Mammoth Way /Montebello Drive

04/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	3	18	82	2	41	15	866	184	44	819	17
Future Volume (veh/h)	8	3	18	82	2	41	15	866	184	44	819	17
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1841	1810	1826	1841	1824
Adj Flow Rate, veh/h	8	3	19	86	2	43	16	912	194	46	862	18
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	0	0	0	0	0	0	0	4	1	5	4	0
Cap, veh/h	196	64	179	237	5	181	33	2006	426	66	2519	53
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.02	0.70	0.70	0.04	0.72	0.72
Sat Flow, veh/h	1129	564	1593	1405	41	1610	1810	2868	610	1739	3503	73
Grp Volume(v), veh/h	11	0	19	88	0	43	16	556	550	46	430	450
Grp Sat Flow(s),veh/h/ln	1693	0	1593	1447	0	1610	1810	1749	1729	1739	1749	1827
Q Serve(g_s), s	0.0	0.0	1.0	4.6	0.0	2.2	0.8	12.6	12.6	2.4	8.3	8.3
Cycle Q Clear(g_c), s	0.5	0.0	1.0	5.1	0.0	2.2	0.8	12.6	12.6	2.4	8.3	8.3
Prop In Lane	0.73		1.00	0.98		1.00	1.00		0.35	1.00		0.04
Lane Grp Cap(c), veh/h	260	0	179	242	0	181	33	1223	1209	66	1257	1314
V/C Ratio(X)	0.04	0.00	0.11	0.36	0.00	0.24	0.48	0.45	0.46	0.70	0.34	0.34
Avail Cap(c_a), veh/h	716	0	651	665	0	658	161	1223	1209	155	1257	1314
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90
Uniform Delay (d), s/veh	35.6	0.0	35.9	37.6	0.0	36.4	43.8	6.0	6.0	42.8	4.7	4.7
Incr Delay (d2), s/veh	0.1	0.0	0.5	2.0	0.0	1.4	21.5	1.2	1.2	22.4	0.7	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.4	1.9	0.0	0.9	0.5	3.6	3.6	1.4	2.2	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.8	0.0	36.4	39.6	0.0	37.8	65.2	7.2	7.2	65.2	5.4	5.4
LnGrp LOS	D	A	D	D	A	D	E	A	A	E	A	A
Approach Vol, veh/h		30			131			1122			926	
Approach Delay, s/veh		36.2			39.0			8.0			8.3	
Approach LOS		D			D			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.4	68.2		14.3	5.6	70.0		14.3				
Change Period (Y+Rc), s	4.0	5.3		* 4.2	4.0	5.3		* 4.2				
Max Green Setting (Gmax), s	8.0	31.7		* 37	8.0	31.7		* 37				
Max Q Clear Time (g_c+I1), s	14.6	14.6		3.0	2.8	10.3		7.1				
Green Ext Time (p_c), s	0.0	10.6		0.2	0.0	9.5		1.2				

Intersection Summary	
HCM 6th Ctrl Delay	10.4
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
12: Walters Road & Petersen Road

04/26/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	5	7	174	8	81	19	947	92	35	827	20
Future Volume (veh/h)	12	5	7	174	8	81	19	947	92	35	827	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		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	1767	1900	1900	1767	1900	1856	1900	1856	1693	1811	1841	1737
Adj Flow Rate, veh/h	12	5	7	178	8	0	19	966	0	36	844	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	9	0	0	9	0	3	0	3	14	6	4	11
Cap, veh/h	297	321	269	300	321		38	2254		57	2278	
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.00	0.01	0.43	0.00	0.03	0.65	0.00
Sat Flow, veh/h	1315	1900	1593	1319	1900	1572	1810	3526	1434	1725	3589	0
Grp Volume(v), veh/h	12	5	7	178	8	0	19	966	0	36	844	0
Grp Sat Flow(s),veh/h/ln	1315	1900	1593	1319	1900	1572	1810	1763	1434	1725	1749	0
Q Serve(g_s), s	0.7	0.2	0.3	11.7	0.3	0.0	0.9	17.3	0.0	1.9	10.0	0.0
Cycle Q Clear(g_c), s	1.0	0.2	0.3	11.9	0.3	0.0	0.9	17.3	0.0	1.9	10.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	297	321	269	300	321		38	2254		57	2278	
V/C Ratio(X)	0.04	0.02	0.03	0.59	0.02		0.50	0.43		0.63	0.37	
Avail Cap(c_a), veh/h	507	623	522	509	623		171	2254		163	2278	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.91	0.91	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.6	31.2	31.2	36.1	31.2	0.0	43.9	14.2	0.0	43.0	7.2	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.9	0.0	0.0	8.9	0.5	0.0	11.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.1	3.8	0.1	0.0	0.5	7.2	0.0	0.9	2.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.7	31.2	31.3	38.0	31.3	0.0	52.8	14.8	0.0	54.0	7.3	0.0
LnGrp LOS	C	C	C	D	C		D	B		D	A	
Approach Vol, veh/h		24			186	A		985	A		880	A
Approach Delay, s/veh		31.5			37.7			15.5			9.2	
Approach LOS		C			D			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.5	62.8		19.7	6.4	63.9		19.7
Change Period (Y+Rc), s	4.5	5.3		4.5	4.5	5.3		4.5
Max Green Setting (Gmax), s	3.5	37.7		29.5	8.5	37.7		29.5
Max Q Clear Time (g_c+I1), s	3.0	19.3		3.0	2.9	12.0		13.9
Green Ext Time (p_c), s	0.0	6.1		0.0	0.0	5.8		0.5

Intersection Summary	
HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
13: Walters Road & Walmart Main Driveway

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	0	70	47	0	29	182	912	30	24	819	122
Future Volume (veh/h)	136	0	70	47	0	29	182	912	30	24	819	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1885	1826	1900	1900	1811	1900
Adj Flow Rate, veh/h	140	0	72	51	0	32	188	940	33	26	844	126
Peak Hour Factor	0.97	0.92	0.97	0.92	0.92	0.92	0.97	0.97	0.92	0.92	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	1	5	0	0	6	0
Cap, veh/h	174	0	230	72	0	140	225	1957	69	48	1395	208
Arrive On Green	0.10	0.00	0.14	0.04	0.00	0.09	0.13	0.57	0.57	0.03	0.46	0.46
Sat Flow, veh/h	1810	0	1607	1810	0	1610	1795	3419	120	1810	3003	448
Grp Volume(v), veh/h	140	0	72	51	0	32	188	477	496	26	484	486
Grp Sat Flow(s),veh/h/ln	1810	0	1607	1810	0	1610	1795	1735	1804	1810	1721	1730
Q Serve(g_s), s	6.8	0.0	3.6	2.5	0.0	1.7	9.2	14.6	14.6	1.3	18.8	18.8
Cycle Q Clear(g_c), s	6.8	0.0	3.6	2.5	0.0	1.7	9.2	14.6	14.6	1.3	18.8	18.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.07	1.00		0.26
Lane Grp Cap(c), veh/h	174	0	230	72	0	140	225	993	1033	48	799	804
V/C Ratio(X)	0.80	0.00	0.31	0.70	0.00	0.23	0.83	0.48	0.48	0.54	0.61	0.61
Avail Cap(c_a), veh/h	251	0	246	135	0	143	313	993	1033	111	799	804
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.90	0.90	0.90
Uniform Delay (d), s/veh	39.8	0.0	34.6	42.7	0.0	38.3	38.4	11.3	11.3	43.3	18.0	18.0
Incr Delay (d2), s/veh	11.5	0.0	0.8	11.7	0.0	0.8	12.8	1.7	1.6	8.3	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	1.5	1.3	0.0	0.7	4.8	5.6	5.8	0.7	6.9	6.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.3	0.0	35.3	54.4	0.0	39.1	51.2	13.0	12.9	51.5	19.1	19.1
LnGrp LOS	D	A	D	D	A	D	D	B	B	D	B	B
Approach Vol, veh/h		212			83			1161			996	
Approach Delay, s/veh		45.9			48.5			19.2			20.0	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.9	56.8	8.1	18.2	16.6	47.1	13.2	13.1
Change Period (Y+Rc), s	4.5	5.3	4.5	5.3	5.3	5.3	4.5	5.3
Max Green Setting (Gmax), s	5.5	44.4	6.7	13.8	15.7	33.4	12.5	8.0
Max Q Clear Time (g_c+I1), s	3.3	16.6	4.5	5.6	11.2	20.8	8.8	3.7
Green Ext Time (p_c), s	0.0	7.2	0.0	0.2	0.2	4.6	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	22.8
HCM 6th LOS	C

Notes

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

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	84	0	0	36	0	1097	21	17	947	1
Future Vol, veh/h	0	0	84	0	0	36	0	1097	21	17	947	1
Conflicting Peds, #/hr	0	0	5	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	5	0
Mvmt Flow	0	0	88	0	0	38	0	1155	22	18	997	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	504	-	-	589	-	0	0	1177	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	-	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	518	0	0	457	0	-	-	601	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	516	-	-	457	-	-	-	601	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.4	13.6	0	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	516	457	601	-	-
HCM Lane V/C Ratio	-	-	0.171	0.083	0.03	-	-
HCM Control Delay (s)	-	-	13.4	13.6	11.2	-	-
HCM Lane LOS	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.6	0.3	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	806	640	84	3	420	208	39	69	1	211	147	649
Future Volume (veh/h)	806	640	84	3	420	208	39	69	1	211	147	649
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1752	1885	1900	1781	1722	1900	1841	1900	1752	1870	1856
Adj Flow Rate, veh/h	814	646	85	3	424	210	36	74	1	180	193	656
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	10	1	0	8	12	0	4	0	10	2	3
Cap, veh/h	892	1532	731	13	709	303	166	337	147	410	460	762
Arrive On Green	0.26	0.46	0.46	0.01	0.21	0.21	0.09	0.09	0.09	0.25	0.25	0.25
Sat Flow, veh/h	3456	3328	1589	1810	3385	1449	1810	3681	1610	1668	1870	3100
Grp Volume(v), veh/h	814	646	85	3	424	210	36	74	1	180	193	656
Grp Sat Flow(s),veh/h/ln	1728	1664	1589	1810	1692	1449	1810	1841	1610	1668	1870	1550
Q Serve(g_s), s	24.0	13.6	3.2	0.2	11.9	14.1	1.9	2.0	0.1	9.6	9.1	21.3
Cycle Q Clear(g_c), s	24.0	13.6	3.2	0.2	11.9	14.1	1.9	2.0	0.1	9.6	9.1	21.3
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	892	1532	731	13	709	303	166	337	147	410	460	762
V/C Ratio(X)	0.91	0.42	0.12	0.23	0.60	0.69	0.22	0.22	0.01	0.44	0.42	0.86
Avail Cap(c_a), veh/h	954	1585	757	414	1612	690	517	1052	460	477	534	886
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.8	19.0	16.2	51.8	37.5	38.4	44.2	44.2	43.4	33.5	33.3	37.9
Incr Delay (d2), s/veh	12.4	0.2	0.1	8.8	0.8	2.8	0.7	0.3	0.0	0.7	0.6	7.7
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	11.6	5.3	1.2	0.1	4.8	5.0	0.9	0.9	0.0	3.8	4.0	8.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.2	19.2	16.2	60.6	38.3	41.2	44.9	44.5	43.4	34.2	33.9	45.6
LnGrp LOS	D	B	B	E	D	D	D	D	D	C	C	D
Approach Vol, veh/h		1545			637			111			1029	
Approach Delay, s/veh		35.3			39.4			44.6			41.4	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	5.0	54.0	31.1	31.3	27.7	14.9
Change Period (Y+Rc), s	* 4.2	5.7	5.3	* 4.2	5.7	5.3
Max Green Setting (Gmax), s	* 24	50.0	30.0	* 29	50.0	30.0
Max Q Clear Time (g_c+I1), s	2.2	15.6	23.3	26.0	16.1	4.0
Green Ext Time (p_c), s	0.0	2.9	2.6	1.1	3.3	0.5

Intersection Summary	
HCM 6th Ctrl Delay	38.3
HCM 6th LOS	D

Notes

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

Queues
1: Sunset Avenue & Pintail Drive

04/26/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	64	117	132	242	23	683	244	595
v/c Ratio	0.49	0.33	0.55	0.61	0.16	0.41	0.77	0.26
Control Delay	42.7	26.0	39.9	25.5	40.2	17.7	52.8	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.7	26.0	39.9	25.5	40.2	17.7	52.8	9.8
Queue Length 50th (ft)	34	49	71	79	12	119	131	47
Queue Length 95th (ft)	61	78	103	124	36	224	#234	166
Internal Link Dist (ft)		402		619		2012		441
Turn Bay Length (ft)	105		75		105		105	
Base Capacity (vph)	231	621	425	637	246	1647	340	2264
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.19	0.31	0.38	0.09	0.41	0.72	0.26

Intersection Summary

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

Queues
2: Grizzly Island Road/Sunset Avenue & State Hwy 12

04/26/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	562	1697	226	130	1033	199	173	149	87	210	217	256
v/c Ratio	0.86	1.03	0.27	0.76	0.78	0.27	0.58	0.47	0.23	1.02	1.03	0.45
Control Delay	72.6	67.1	13.3	91.9	46.2	5.7	65.1	60.6	2.8	132.3	132.3	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.6	67.1	13.3	91.9	46.2	5.7	65.1	60.6	2.8	132.3	132.3	9.2
Queue Length 50th (ft)	273	853	57	125	454	0	164	138	0	~228	~237	0
Queue Length 95th (ft)	#370	#1246	141	#238	#716	62	211	182	10	#408	#418	46
Internal Link Dist (ft)		867			689			481			2012	
Turn Bay Length (ft)	500		275	250		400	125			150		150
Base Capacity (vph)	676	1654	823	181	1328	732	476	506	519	205	211	566
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	1.03	0.27	0.72	0.78	0.27	0.36	0.29	0.17	1.02	1.03	0.45

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Queues
5: Lawler Ranch Parkway/Emperor Drive & State Hwy 12

04/26/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	301	1541	181	37	1142	22	76	77	38	23	139
v/c Ratio	0.85	0.87	0.20	0.20	0.95	0.04	0.33	0.33	0.12	0.10	0.44
Control Delay	73.3	36.1	8.4	68.5	56.1	0.1	57.5	57.3	0.7	54.5	19.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.3	36.1	8.4	68.5	56.1	0.1	57.5	57.3	0.7	54.5	19.8
Queue Length 50th (ft)	200	501	14	24	381	0	53	54	0	15	18
Queue Length 95th (ft)	#630	#1521	103	97	#1241	0	147	148	0	55	98
Internal Link Dist (ft)		1386			1441			861			1277
Turn Bay Length (ft)	425		255	200		230	215		215	125	
Base Capacity (vph)	576	2269	1105	188	1512	744	282	289	369	278	366
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.68	0.16	0.20	0.76	0.03	0.27	0.27	0.10	0.08	0.38

Intersection Summary

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

Queues
7: Walters Road/Walter Road & Air Base Parkway

04/26/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	118	637	366	859	840	8	195	137	718	7	253
v/c Ratio	0.66	0.65	0.53	0.90	0.54	0.01	0.75	0.24	0.78	0.10	0.82
Control Delay	68.1	44.2	7.1	55.5	28.7	0.0	66.7	28.8	12.6	58.0	61.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.1	44.2	7.1	55.5	28.7	0.0	66.7	28.8	12.6	58.0	61.8
Queue Length 50th (ft)	88	246	0	314	257	0	146	72	68	5	162
Queue Length 95th (ft)	150	316	82	#471	362	0	223	127	251	22	250
Internal Link Dist (ft)		831			1018			1074			197
Turn Bay Length (ft)	275		315	400		180			325	150	
Base Capacity (vph)	217	975	687	953	1562	686	312	615	947	72	364
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.65	0.53	0.90	0.54	0.01	0.63	0.22	0.76	0.10	0.70

Intersection Summary

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

Queues
8: Walters Road & E Tabor Avenue

04/26/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	253	204	9	77	176	814	87	1205
v/c Ratio	0.57	0.39	0.06	0.33	0.65	0.47	0.42	0.82
Control Delay	38.7	9.5	38.0	18.9	45.5	16.2	40.7	25.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	9.5	38.0	18.9	45.5	16.2	40.7	25.9
Queue Length 50th (ft)	60	14	4	12	81	138	40	252
Queue Length 95th (ft)	110	72	20	49	#189	242	93	#458
Internal Link Dist (ft)		1386		269		2251		1213
Turn Bay Length (ft)	95		125		180		270	
Base Capacity (vph)	479	643	141	475	302	1735	251	1608
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.32	0.06	0.16	0.58	0.47	0.35	0.75

Intersection Summary

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

Queues
9: Walters Road & Bella Vista Drive

04/26/2021

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	87	58	62	7	1014	53	1021
v/c Ratio	0.41	0.33	0.21	0.07	0.49	0.42	0.45
Control Delay	40.1	41.2	1.5	46.7	16.1	49.6	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.1	41.2	1.5	46.7	16.1	49.6	12.9
Queue Length 50th (ft)	45	32	0	3	191	29	137
Queue Length 95th (ft)	84	63	0	m12	#394	66	347
Internal Link Dist (ft)	639	451			643		1927
Turn Bay Length (ft)			90	135		105	
Base Capacity (vph)	322	283	394	150	2081	150	2253
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.20	0.16	0.05	0.49	0.35	0.45

Intersection Summary

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

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

Queues
10: Walters Road & Pintail Drive

04/26/2021

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	112	89	87	859	960
v/c Ratio	0.36	0.27	0.60	0.34	0.46
Control Delay	33.2	7.1	55.1	4.2	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	33.2	7.1	55.1	4.2	21.5
Queue Length 50th (ft)	61	0	35	3	235
Queue Length 95th (ft)	74	27	#99	172	354
Internal Link Dist (ft)	590			851	689
Turn Bay Length (ft)		150	130		
Base Capacity (vph)	750	679	152	2495	2092
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.13	0.57	0.34	0.46

Intersection Summary

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

Queues
11: Walters Road & Mammoth Way /Montebello Drive

04/26/2021

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	11	19	88	43	16	1111	46	883
v/c Ratio	0.04	0.05	0.35	0.12	0.10	0.49	0.31	0.35
Control Delay	24.6	0.3	33.1	2.2	29.1	19.9	30.6	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.6	0.3	33.1	2.2	29.1	19.9	30.6	15.5
Queue Length 50th (ft)	6	0	47	0	8	172	28	124
Queue Length 95th (ft)	14	0	65	8	m19	#434	m56	346
Internal Link Dist (ft)	184		413			477		851
Turn Bay Length (ft)		50		125	100		120	
Base Capacity (vph)	658	705	561	705	160	2287	152	2515
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.03	0.16	0.06	0.10	0.49	0.30	0.35

Intersection Summary

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

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

Queues
12: Walters Road & Petersen Road

04/26/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	12	5	7	197	8	88	19	966	108	39	864
v/c Ratio	0.06	0.02	0.02	0.70	0.02	0.22	0.15	0.47	0.12	0.28	0.40
Control Delay	25.9	24.6	0.1	45.0	23.6	6.9	35.6	17.3	8.9	43.5	10.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.9	24.6	0.1	45.0	23.6	6.9	35.6	17.3	8.9	43.5	10.6
Queue Length 50th (ft)	6	3	0	105	4	0	11	127	0	18	151
Queue Length 95th (ft)	17	10	0	154	13	32	m25	302	56	48	321
Internal Link Dist (ft)		417			560			505			413
Turn Bay Length (ft)			180	115		200	85		185	100	
Base Capacity (vph)	427	622	577	430	622	563	170	2075	883	160	2152
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.01	0.01	0.46	0.01	0.16	0.11	0.47	0.12	0.24	0.40

Intersection Summary

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

Queues
13: Walters Road & Walmart Main Driveway

04/29/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	140	72	51	32	188	988	26	990
v/c Ratio	0.62	0.15	0.38	0.09	0.72	0.46	0.22	0.62
Control Delay	49.7	0.7	48.0	0.4	52.6	11.8	48.1	24.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.7	0.7	48.0	0.4	52.6	11.8	48.1	24.6
Queue Length 50th (ft)	76	0	28	0	101	147	16	283
Queue Length 95th (ft)	136	0	65	0	#176	260	m30	342
Internal Link Dist (ft)		149		259		338		505
Turn Bay Length (ft)					200		275	
Base Capacity (vph)	250	510	139	376	291	2169	116	1599
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.14	0.37	0.09	0.65	0.46	0.22	0.62

Intersection Summary

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

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

Queues
15: Lawler Ranch Road/Walters Road & State Hwy 12

04/26/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	823	646	85	3	424	215	35	74	1	180	188	668
v/c Ratio	0.81	0.37	0.10	0.02	0.62	0.47	0.14	0.15	0.00	0.61	0.58	0.63
Control Delay	45.2	21.3	6.2	60.3	45.5	9.4	43.6	42.6	0.0	53.9	51.5	6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.2	21.3	6.2	60.3	45.5	9.4	43.6	42.6	0.0	53.9	51.5	6.5
Queue Length 50th (ft)	244	116	0	2	129	0	21	23	0	108	112	0
Queue Length 95th (ft)	#743	367	41	15	278	74	63	55	0	290	297	59
Internal Link Dist (ft)		3194			827			385			265	
Turn Bay Length (ft)	390		275	215		300	175		90	125		190
Base Capacity (vph)	1011	1846	936	440	1699	825	538	1088	604	475	524	1306
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.35	0.09	0.01	0.25	0.26	0.07	0.07	0.00	0.38	0.36	0.51

Intersection Summary

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

HCM 6th Signalized Intersection Summary
7: Walters Road/Walter Road & Air Base Parkway

05/05/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	114	618	355	830	815	8	189	133	691	7	122	123
Future Volume (veh/h)	114	618	355	830	815	8	189	133	691	7	122	123
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	1737	1900	1841	1870	1885	1693	1870	1737	1870	1648	1752	1767
Adj Flow Rate, veh/h	118	637	0	856	840	0	195	137	0	7	126	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	11	0	4	2	1	14	2	11	2	17	10	9
Cap, veh/h	142	1416		893	2022		225	360		14	158	
Arrive On Green	0.09	0.39	0.00	0.26	0.56	0.00	0.13	0.21	0.00	0.01	0.09	0.00
Sat Flow, veh/h	1654	3610	1560	3456	3582	1434	1781	1737	1585	1570	1752	0
Grp Volume(v), veh/h	118	637	0	856	840	0	195	137	0	7	126	0
Grp Sat Flow(s),veh/h/ln	1654	1805	1560	1728	1791	1434	1781	1737	1585	1570	1752	0
Q Serve(g_s), s	8.4	15.6	0.0	29.3	16.0	0.0	12.9	8.1	0.0	0.5	8.5	0.0
Cycle Q Clear(g_c), s	8.4	15.6	0.0	29.3	16.0	0.0	12.9	8.1	0.0	0.5	8.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	142	1416		893	2022		225	360		14	158	
V/C Ratio(X)	0.83	0.45		0.96	0.42		0.87	0.38		0.51	0.80	
Avail Cap(c_a), veh/h	221	1416		893	2022		315	588		73	365	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	54.0	26.9	0.0	43.9	14.9	0.0	51.5	40.9	0.0	59.2	53.5	0.0
Incr Delay (d2), s/veh	14.0	1.0	0.0	20.7	0.6	0.0	16.7	0.7	0.0	26.9	8.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	6.6	0.0	14.5	6.1	0.0	6.6	3.5	0.0	0.3	4.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.0	28.0	0.0	64.6	15.5	0.0	68.1	41.6	0.0	86.2	62.4	0.0
LnGrp LOS	E	C		E	B		E	D		F	E	
Approach Vol, veh/h		755	A		1696	A		332	A		133	A
Approach Delay, s/veh		34.2			40.3			57.2			63.7	
Approach LOS		C			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.0	28.9	14.3	71.7	19.1	14.8	35.0	51.1
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.6	40.6	16.0	41.8	21.2	25.0	31.0	26.8
Max Q Clear Time (g_c+I1), s	2.5	10.1	10.4	18.0	14.9	10.5	31.3	17.6
Green Ext Time (p_c), s	0.0	0.7	0.1	5.4	0.3	0.5	0.0	2.6

Intersection Summary	
HCM 6th Ctrl Delay	41.7
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary
12: Walters Road & Petersen Road

05/06/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	5	7	174	8	81	19	947	92	35	827	20
Future Volume (veh/h)	12	5	7	174	8	81	19	947	92	35	827	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		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	1767	1900	1900	1767	1900	1856	1900	1856	1693	1811	1841	1737
Adj Flow Rate, veh/h	12	5	7	178	8	0	19	966	0	36	844	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	9	0	0	9	0	3	0	3	14	6	4	11
Cap, veh/h	24	54	45	214	268		38	2125		57	2150	
Arrive On Green	0.01	0.03	0.03	0.13	0.14	0.00	0.04	1.00	0.00	0.03	0.61	0.00
Sat Flow, veh/h	1682	1900	1578	1682	1900	1572	1810	3526	1434	1725	3589	0
Grp Volume(v), veh/h	12	5	7	178	8	0	19	966	0	36	844	0
Grp Sat Flow(s),veh/h/ln	1682	1900	1578	1682	1900	1572	1810	1763	1434	1725	1749	0
Q Serve(g_s), s	0.6	0.2	0.4	9.3	0.3	0.0	0.9	0.0	0.0	1.9	11.0	0.0
Cycle Q Clear(g_c), s	0.6	0.2	0.4	9.3	0.3	0.0	0.9	0.0	0.0	1.9	11.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	24	54	45	214	268		38	2125		57	2150	
V/C Ratio(X)	0.50	0.09	0.16	0.83	0.03		0.50	0.45		0.63	0.39	
Avail Cap(c_a), veh/h	93	179	149	346	464		101	2125		125	2150	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.88	0.88	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	44.0	42.6	42.7	38.4	33.4	0.0	42.6	0.0	0.0	43.0	8.8	0.0
Incr Delay (d2), s/veh	14.8	0.7	1.6	9.0	0.0	0.0	8.7	0.6	0.0	11.1	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.1	0.2	4.3	0.2	0.0	0.5	0.2	0.0	0.9	3.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.8	43.3	44.3	47.3	33.4	0.0	51.3	0.6	0.0	54.0	8.9	0.0
LnGrp LOS	E	D	D	D	C		D	A		D	A	
Approach Vol, veh/h		24			186	A		985	A		880	A
Approach Delay, s/veh		51.4			46.7			1.6			10.8	
Approach LOS		D			D			A			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	59.6	15.9	7.0	6.4	60.6	5.8	17.2
Change Period (Y+Rc), s	4.5	5.3	4.5	4.5	4.5	5.3	4.5	4.5
Max Green Setting (Gmax), s	6.5	37.7	18.5	8.5	5.0	39.2	5.0	22.0
Max Q Clear Time (g_c+I1), s	3.9	2.0	11.3	2.4	2.9	13.0	2.6	2.3
Green Ext Time (p_c), s	0.0	7.4	0.3	0.0	0.0	5.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
15: Lawler Ranch Road/Walters Road & State Hwy 12

05/05/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	806	640	84	3	420	208	39	69	1	211	147	649
Future Volume (veh/h)	806	640	84	3	420	208	39	69	1	211	147	649
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1752	1885	1900	1781	1722	1900	1841	1900	1752	1870	1856
Adj Flow Rate, veh/h	814	646	85	3	424	210	36	74	1	180	193	656
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	10	1	0	8	12	0	4	0	10	2	3
Cap, veh/h	944	1571	750	13	698	299	159	324	142	410	460	762
Arrive On Green	0.27	0.47	0.47	0.01	0.21	0.21	0.09	0.09	0.09	0.25	0.25	0.25
Sat Flow, veh/h	3456	3328	1589	1810	3385	1449	1810	3681	1610	1668	1870	3100
Grp Volume(v), veh/h	814	646	85	3	424	210	36	74	1	180	193	656
Grp Sat Flow(s),veh/h/ln	1728	1664	1589	1810	1692	1449	1810	1841	1610	1668	1870	1550
Q Serve(g_s), s	24.6	13.9	3.3	0.2	12.5	14.8	2.0	2.1	0.1	10.0	9.5	22.2
Cycle Q Clear(g_c), s	24.6	13.9	3.3	0.2	12.5	14.8	2.0	2.1	0.1	10.0	9.5	22.2
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	944	1571	750	13	698	299	159	324	142	410	460	762
V/C Ratio(X)	0.86	0.41	0.11	0.23	0.61	0.70	0.23	0.23	0.01	0.44	0.42	0.86
Avail Cap(c_a), veh/h	1664	2660	1270	149	1352	579	177	359	157	482	541	896
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	19.0	16.1	54.1	39.5	40.4	46.5	46.5	45.6	35.0	34.8	39.6
Incr Delay (d2), s/veh	2.5	0.2	0.1	8.8	0.9	3.0	0.7	0.4	0.0	0.7	0.6	7.6
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	10.7	5.4	1.2	0.1	5.0	5.3	0.9	1.0	0.0	4.0	4.2	9.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.4	19.1	16.2	62.9	40.4	43.4	47.2	46.9	45.6	35.7	35.4	47.1
LnGrp LOS	D	B	B	E	D	D	D	D	D	D	D	D
Approach Vol, veh/h		1545			637			111			1029	
Approach Delay, s/veh		30.2			41.5			47.0			42.9	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.0	57.4		32.2	34.1	28.3		15.0				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 9	87.6		31.7	* 53	43.8		10.7				
Max Q Clear Time (g_c+I1), s	2.2	15.9		24.2	26.6	16.8		4.1				
Green Ext Time (p_c), s	0.0	2.9		2.7	3.4	3.3		0.2				

Intersection Summary												
HCM 6th Ctrl Delay			36.8									
HCM 6th LOS			D									

Notes

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

User approved volume balancing among the lanes for turning movement.

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

Queues
7: Walters Road/Walter Road & Air Base Parkway

05/05/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	118	637	366	856	840	8	195	137	712	7	253
v/c Ratio	0.66	0.65	0.53	0.90	0.54	0.01	0.75	0.24	0.77	0.10	0.82
Control Delay	68.1	44.1	7.1	55.6	28.7	0.0	66.7	28.8	12.2	58.0	61.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.1	44.1	7.1	55.6	28.7	0.0	66.7	28.8	12.2	58.0	61.8
Queue Length 50th (ft)	88	246	0	313	257	0	146	72	64	5	162
Queue Length 95th (ft)	150	316	82	#469	362	0	223	127	242	22	250
Internal Link Dist (ft)		831			1018			1074			197
Turn Bay Length (ft)	275		315	400		180			325	150	
Base Capacity (vph)	217	978	688	950	1562	686	312	615	947	72	364
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.65	0.53	0.90	0.54	0.01	0.63	0.22	0.75	0.10	0.70

Intersection Summary

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

Queues
12: Walters Road & Petersen Road

05/06/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	12	5	7	178	8	83	19	966	94	36	864
v/c Ratio	0.11	0.03	0.02	0.67	0.02	0.20	0.19	0.46	0.10	0.31	0.40
Control Delay	42.4	37.8	0.1	47.7	25.2	2.4	49.8	8.7	0.2	38.7	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.4	37.8	0.1	47.7	25.2	2.4	49.8	8.7	0.2	38.7	15.1
Queue Length 50th (ft)	7	3	0	96	4	0	11	120	0	21	147
Queue Length 95th (ft)	24	13	0	157	15	10	m26	111	m0	40	338
Internal Link Dist (ft)		417			560			505			413
Turn Bay Length (ft)			180	115		200	85		185	100	
Base Capacity (vph)	106	179	324	340	497	503	100	2105	923	122	2183
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.03	0.02	0.52	0.02	0.17	0.19	0.46	0.10	0.30	0.40

Intersection Summary

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

Queues
15: Lawler Ranch Road/Walters Road & State Hwy 12

05/05/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	814	646	85	3	424	210	35	74	1	177	184	656
v/c Ratio	0.78	0.37	0.09	0.02	0.62	0.46	0.15	0.16	0.00	0.60	0.56	0.62
Control Delay	45.6	20.1	5.3	70.0	50.0	10.3	51.3	49.6	0.0	58.3	55.9	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.6	20.1	5.3	70.0	50.0	10.3	51.3	49.6	0.0	58.3	55.9	6.8
Queue Length 50th (ft)	253	121	0	2	136	0	24	25	0	112	115	0
Queue Length 95th (ft)	594	366	38	17	328	81	74	66	0	327	334	61
Internal Link Dist (ft)		3194			827			385			265	
Turn Bay Length (ft)	390		275	215		300	175		90	125		190
Base Capacity (vph)	1826	2631	1298	163	1475	742	242	490	334	498	550	1328
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.25	0.07	0.02	0.29	0.28	0.14	0.15	0.00	0.36	0.33	0.49

Intersection Summary

HCM 6th Signalized Intersection Summary
12: Walters Road & Petersen Road

05/05/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	7	12	275	5	125	7	674	194	135	752	8
Future Volume (veh/h)	7	7	12	275	5	125	7	674	194	135	752	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		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	1648	1604	1530	1233	1900	1411	1885	1781	1441	1618	1856	1900
Adj Flow Rate, veh/h	8	8	13	302	5	0	8	741	0	148	826	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	17	20	25	45	0	33	1	8	31	19	3	0
Cap, veh/h	483	526	423	379	623		18	1455		128	1774	
Arrive On Green	0.33	0.33	0.33	0.33	0.33	0.00	0.00	0.14	0.00	0.08	0.50	0.00
Sat Flow, veh/h	1237	1604	1289	923	1900	1196	1795	3385	1221	1541	3526	1610
Grp Volume(v), veh/h	8	8	13	302	5	0	8	741	0	148	826	0
Grp Sat Flow(s),veh/h/ln	1237	1604	1289	923	1900	1196	1795	1692	1221	1541	1763	1610
Q Serve(g_s), s	0.4	0.3	0.6	29.2	0.2	0.0	0.4	18.2	0.0	7.5	13.7	0.0
Cycle Q Clear(g_c), s	0.6	0.3	0.6	29.5	0.2	0.0	0.4	18.2	0.0	7.5	13.7	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	483	526	423	379	623		18	1455		128	1774	
V/C Ratio(X)	0.02	0.02	0.03	0.80	0.01		0.44	0.51		1.15	0.47	
Avail Cap(c_a), veh/h	483	526	423	379	623		150	1455		128	1774	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.84	0.84	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	20.6	20.4	20.5	30.5	20.4	0.0	44.6	29.8	0.0	41.2	14.5	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	11.2	0.0	0.0	13.6	1.1	0.0	126.1	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.1	0.2	7.5	0.1	0.0	0.2	8.3	0.0	7.2	4.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.6	20.4	20.6	41.8	20.4	0.0	58.2	30.9	0.0	167.4	14.7	0.0
LnGrp LOS	C	C	C	D	C		E	C		F	B	
Approach Vol, veh/h		29			307	A		749	A		974	A
Approach Delay, s/veh		20.5			41.4			31.2			37.9	
Approach LOS		C			D			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	44.0		34.0	5.4	50.6		34.0				
Change Period (Y+Rc), s	4.5	5.3		4.5	4.5	5.3		4.5				
Max Green Setting (Gmax), s	7.5	38.7		29.5	7.5	38.7		29.5				
Max Q Clear Time (g_c+I1), s	9.5	20.2		2.6	2.4	15.7		31.5				
Green Ext Time (p_c), s	0.0	4.5		0.1	0.0	5.4		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			35.7									
HCM 6th LOS			D									

Notes

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

HCM 6th Signalized Intersection Summary
13: Walters Road & Walmart Main Driveway

05/05/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	0	16	78	0	81	40	765	136	105	914	25
Future Volume (veh/h)	33	0	16	78	0	81	40	765	136	105	914	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1811	1900	1900	1900	1752	1722	1900	1900	1796	1841
Adj Flow Rate, veh/h	36	0	18	85	0	88	44	841	148	114	1004	27
Peak Hour Factor	0.91	0.92	0.91	0.92	0.92	0.92	0.91	0.91	0.92	0.92	0.91	0.91
Percent Heavy Veh, %	0	0	6	0	0	0	10	12	0	0	7	4
Cap, veh/h	60	0	139	109	0	184	99	1544	272	144	1924	52
Arrive On Green	0.03	0.00	0.09	0.06	0.00	0.11	0.06	0.56	0.56	0.08	0.57	0.57
Sat Flow, veh/h	1810	0	1605	1810	0	1610	1668	2781	489	1810	3395	91
Grp Volume(v), veh/h	36	0	18	85	0	88	44	495	494	114	505	526
Grp Sat Flow(s),veh/h/ln	1810	0	1605	1810	0	1610	1668	1636	1634	1810	1706	1780
Q Serve(g_s), s	1.8	0.0	0.9	4.2	0.0	4.6	2.3	17.4	17.4	5.6	16.4	16.4
Cycle Q Clear(g_c), s	1.8	0.0	0.9	4.2	0.0	4.6	2.3	17.4	17.4	5.6	16.4	16.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		0.05
Lane Grp Cap(c), veh/h	60	0	139	109	0	184	99	908	907	144	967	1009
V/C Ratio(X)	0.60	0.00	0.13	0.78	0.00	0.48	0.44	0.54	0.54	0.79	0.52	0.52
Avail Cap(c_a), veh/h	171	0	209	131	0	184	198	908	907	191	967	1009
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.80	0.80	0.80
Uniform Delay (d), s/veh	42.9	0.0	37.9	41.7	0.0	37.3	40.9	12.8	12.8	40.7	12.0	12.0
Incr Delay (d2), s/veh	9.4	0.0	0.4	21.4	0.0	1.9	3.1	2.3	2.3	12.3	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.4	2.5	0.0	1.9	1.0	6.4	6.4	2.9	5.3	5.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.4	0.0	38.4	63.1	0.0	39.3	44.0	15.1	15.1	53.0	12.4	12.4
LnGrp LOS	D	A	D	E	A	D	D	B	B	D	B	B
Approach Vol, veh/h		54			173			1033			1145	
Approach Delay, s/veh		47.7			51.0			16.3			16.4	
Approach LOS		D			D			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.7	55.3	9.9	13.1	10.6	56.3	7.5	15.6				
Change Period (Y+Rc), s	4.5	5.3	4.5	5.3	5.3	5.3	4.5	5.3				
Max Green Setting (Gmax), s	7.5	42.7	6.5	11.7	10.7	40.7	8.5	9.7				
Max Q Clear Time (g_c+I1), s	6.6	19.4	6.2	2.9	4.3	18.4	3.8	6.6				
Green Ext Time (p_c), s	0.0	7.2	0.0	0.0	0.0	6.4	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			19.6									
HCM 6th LOS			B									

Notes

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

HCM 6th TWSC
14: Walters Road & Walmart Driveway 05/05/2021

Intersection												
Int Delay, s/veh	0.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	26	0	0	28	0	914	15	13	1004	1
Future Vol, veh/h	0	0	26	0	0	28	0	914	15	13	1004	1
Conflicting Peds, #/hr	0	0	5	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	11	0	0	7	0
Mvmt Flow	0	0	30	0	0	32	0	1039	17	15	1141	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	576	-	-	528	-	0	0	1056	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	-	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	466	0	0	500	0	-	-	667	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	464	-	-	500	-	-	-	667	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.3	12.7	0	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	464	500	667	-	-
HCM Lane V/C Ratio	-	-	0.064	0.064	0.022	-	-
HCM Control Delay (s)	-	-	13.3	12.7	10.5	-	-
HCM Lane LOS	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.2	0.2	0.1	-	-

HCM 6th Signalized Intersection Summary
15: Lawler Ranch Parkway /Walters Road & State Hwy 12 05/05/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	565	361	16	2	588	224	86	135	3	164	67	736
Future Volume (veh/h)	565	361	16	2	588	224	86	135	3	164	67	736
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1574	1900	1900	1589	1559	1885	1856	1900	1678	1737	1826
Adj Flow Rate, veh/h	595	380	17	2	619	236	78	161	3	122	142	775
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	22	0	0	21	23	1	3	0	15	11	5
Cap, veh/h	696	1401	750	9	791	344	168	348	151	385	418	735
Arrive On Green	0.21	0.47	0.47	0.00	0.26	0.26	0.09	0.09	0.09	0.24	0.24	0.24
Sat Flow, veh/h	3291	2991	1602	1810	3019	1314	1795	3711	1610	1598	1737	3050
Grp Volume(v), veh/h	595	380	17	2	619	236	78	161	3	122	142	775
Grp Sat Flow(s),veh/h/ln	1646	1495	1602	1810	1509	1314	1795	1856	1610	1598	1737	1525
Q Serve(g_s), s	18.6	8.3	0.6	0.1	20.3	17.2	4.4	4.4	0.2	6.7	7.2	25.7
Cycle Q Clear(g_c), s	18.6	8.3	0.6	0.1	20.3	17.2	4.4	4.4	0.2	6.7	7.2	25.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	696	1401	750	9	791	344	168	348	151	385	418	735
V/C Ratio(X)	0.86	0.27	0.02	0.23	0.78	0.69	0.46	0.46	0.02	0.32	0.34	1.05
Avail Cap(c_a), veh/h	1043	2063	1105	153	1381	601	517	1068	463	385	418	735
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	17.3	15.2	52.9	36.6	35.4	45.8	45.8	43.9	33.3	33.5	40.5
Incr Delay (d2), s/veh	4.7	0.1	0.0	12.6	1.7	2.4	2.0	1.0	0.1	0.5	0.5	48.6
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	8.0	2.9	0.2	0.1	7.2	5.4	2.0	2.1	0.1	2.6	3.0	14.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.2	17.4	15.2	65.5	38.3	37.9	47.8	46.8	44.0	33.7	34.0	89.1
LnGrp LOS	D	B	B	E	D	D	D	D	D	C	C	F
Approach Vol, veh/h		992			857			242			1039	
Approach Delay, s/veh		34.0			38.2			47.1			75.1	
Approach LOS		C			D			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	55.7		31.0	26.8	33.6		15.3				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 9	73.6		25.7	* 34	48.8		30.7				
Max Q Clear Time (g_c+I1), s	2.1	10.3		27.7	20.6	22.3		6.4				
Green Ext Time (p_c), s	0.0	3.1		0.0	2.0	4.8		1.2				

Intersection Summary		
HCM 6th Ctrl Delay	49.8	
HCM 6th LOS	D	

Notes
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues

12: Walters Road & Petersen Road

05/05/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	8	8	13	302	5	137	8	741	213	148	826	9
v/c Ratio	0.03	0.02	0.04	0.96	0.01	0.29	0.07	0.51	0.32	1.17	0.43	0.01
Control Delay	20.9	20.7	0.2	73.7	20.6	5.8	24.9	26.2	12.5	175.2	11.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.9	20.7	0.2	73.7	20.6	5.8	24.9	26.2	12.5	175.2	11.6	0.1
Queue Length 50th (ft)	3	3	0	165	2	0	5	235	57	~103	86	0
Queue Length 95th (ft)	13	13	0	#327	10	40	m8	295	133	#229	173	m0
Internal Link Dist (ft)		417			560			510			413	
Turn Bay Length (ft)			180	115		200	85		185	100		75
Base Capacity (vph)	398	518	472	322	622	483	148	1462	659	126	1910	901
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.02	0.03	0.94	0.01	0.28	0.05	0.51	0.32	1.17	0.43	0.01

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Queues
13: Walters Road & Walmart Main Driveway

05/05/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	36	18	85	88	44	989	114	1031
v/c Ratio	0.25	0.05	0.40	0.19	0.28	0.54	0.58	0.47
Control Delay	42.9	0.2	44.3	0.9	42.0	15.6	44.3	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.9	0.2	44.3	0.9	42.0	15.6	44.3	17.2
Queue Length 50th (ft)	20	0	39	0	24	201	52	247
Queue Length 95th (ft)	49	0	#117	0	55	275	m112	m346
Internal Link Dist (ft)		149		315		326		510
Turn Bay Length (ft)					200		275	
Base Capacity (vph)	170	415	211	473	195	1865	209	2174
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.04	0.40	0.19	0.23	0.53	0.55	0.47

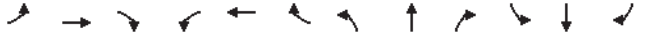
Intersection Summary

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

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

Queues
15: Lawler Ranch Parkway /Walters Road & State Hwy 12

05/05/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	595	380	17	2	619	236	76	157	3	121	123	775
v/c Ratio	0.78	0.24	0.02	0.01	0.75	0.45	0.32	0.32	0.01	0.53	0.51	0.72
Control Delay	52.1	18.1	0.1	68.0	47.2	8.0	52.0	48.3	0.0	60.6	59.4	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.1	18.1	0.1	68.0	47.2	8.0	52.0	48.3	0.0	60.6	59.4	8.2
Queue Length 50th (ft)	193	62	0	1	201	0	54	56	0	80	81	0
Queue Length 95th (ft)	#485	201	0	13	428	76	129	113	0	221	224	65
Internal Link Dist (ft)		3194			827			385			265	
Turn Bay Length (ft)	390		275	215		300	175		90	125		190
Base Capacity (vph)	1021	2029	1133	151	1356	714	498	1026	573	357	375	1237
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.19	0.02	0.01	0.46	0.33	0.15	0.15	0.01	0.34	0.33	0.63

Intersection Summary

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

HCM 6th Signalized Intersection Summary
12: Walters Road & Petersen Road

05/06/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	8	7	293	9	156	22	990	211	125	909	20
Future Volume (veh/h)	12	8	7	293	9	156	22	990	211	125	909	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		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	1767	1900	1900	1767	1900	1856	1900	1856	1693	1811	1841	1737
Adj Flow Rate, veh/h	12	8	7	299	9	0	22	1010	0	128	928	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	9	0	0	9	0	3	0	3	14	6	4	11
Cap, veh/h	412	484	408	412	484		43	1745		157	1968	
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.00	0.01	0.16	0.00	0.09	0.56	0.00
Sat Flow, veh/h	1319	1900	1599	1320	1900	1572	1810	3526	1434	1725	3589	0
Grp Volume(v), veh/h	12	8	7	299	9	0	22	1010	0	128	928	0
Grp Sat Flow(s),veh/h/ln	1319	1900	1599	1320	1900	1572	1810	1763	1434	1725	1749	0
Q Serve(g_s), s	0.6	0.3	0.3	19.7	0.3	0.0	1.1	23.8	0.0	6.6	14.2	0.0
Cycle Q Clear(g_c), s	0.9	0.3	0.3	20.0	0.3	0.0	1.1	23.8	0.0	6.6	14.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	412	484	408	412	484		43	1745		157	1968	
V/C Ratio(X)	0.03	0.02	0.02	0.73	0.02		0.52	0.58		0.81	0.47	
Avail Cap(c_a), veh/h	508	623	524	509	623		171	1745		163	1968	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.66	0.66	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	25.5	25.1	25.1	32.6	25.1	0.0	44.1	29.0	0.0	40.1	11.7	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	4.0	0.0	0.0	6.3	0.9	0.0	25.5	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.1	6.6	0.1	0.0	0.5	11.2	0.0	3.8	4.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.5	25.1	25.1	36.5	25.1	0.0	50.4	29.9	0.0	65.6	11.9	0.0
LnGrp LOS	C	C	C	D	C		D	C		E	B	
Approach Vol, veh/h		27			308	A		1032	A		1056	A
Approach Delay, s/veh		25.3			36.2			30.3			18.4	
Approach LOS		C			D			C			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.7	49.9		27.4	6.6	55.9		27.4				
Change Period (Y+Rc), s	4.5	5.3		4.5	4.5	5.3		4.5				
Max Green Setting (Gmax), s	8.5	37.7		29.5	8.5	37.7		29.5				
Max Q Clear Time (g_c+I1), s	8.6	25.8		2.9	3.1	16.2		22.0				
Green Ext Time (p_c), s	0.0	5.1		0.0	0.0	6.1		0.6				
Intersection Summary												
HCM 6th Ctrl Delay			25.8									
HCM 6th LOS			C									

Notes

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

HCM 6th Signalized Intersection Summary
13: Walters Road & Walmart Main Driveway

05/06/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	0	70	132	0	75	182	1031	131	107	939	122
Future Volume (veh/h)	136	0	70	132	0	75	182	1031	131	107	939	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1885	1826	1900	1900	1811	1900
Adj Flow Rate, veh/h	140	0	72	143	0	82	188	1063	142	116	968	126
Peak Hour Factor	0.97	0.92	0.97	0.92	0.92	0.92	0.97	0.97	0.92	0.92	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	1	5	0	0	6	0
Cap, veh/h	174	0	178	135	0	143	225	1649	220	111	1417	184
Arrive On Green	0.10	0.00	0.11	0.07	0.00	0.09	0.13	0.54	0.54	0.06	0.46	0.46
Sat Flow, veh/h	1810	0	1606	1810	0	1610	1795	3076	410	1810	3062	398
Grp Volume(v), veh/h	140	0	72	143	0	82	188	599	606	116	544	550
Grp Sat Flow(s),veh/h/ln	1810	0	1606	1810	0	1610	1795	1735	1752	1810	1721	1739
Q Serve(g_s), s	6.8	0.0	3.8	6.7	0.0	4.4	9.2	22.0	22.1	5.5	22.4	22.4
Cycle Q Clear(g_c), s	6.8	0.0	3.8	6.7	0.0	4.4	9.2	22.0	22.1	5.5	22.4	22.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.23	1.00		0.23
Lane Grp Cap(c), veh/h	174	0	178	135	0	143	225	930	939	111	796	805
V/C Ratio(X)	0.80	0.00	0.41	1.06	0.00	0.57	0.83	0.64	0.65	1.05	0.68	0.68
Avail Cap(c_a), veh/h	251	0	246	135	0	143	313	930	939	111	796	805
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.80	0.80	0.80
Uniform Delay (d), s/veh	39.8	0.0	37.3	41.7	0.0	39.4	38.4	14.8	14.8	42.3	19.0	19.0
Incr Delay (d2), s/veh	11.5	0.0	1.5	94.9	0.0	5.4	12.8	3.4	3.4	90.2	1.9	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	1.5	6.5	0.0	1.9	4.8	8.9	9.0	5.1	8.3	8.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.3	0.0	38.7	136.6	0.0	44.8	51.2	18.2	18.2	132.4	20.9	20.9
LnGrp LOS	D	A	D	F	A	D	D	B	B	F	C	C
Approach Vol, veh/h		212			225			1393			1210	
Approach Delay, s/veh		47.0			103.1			22.7			31.6	
Approach LOS		D			F			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	53.5	11.2	15.3	16.6	46.9	13.2	13.3				
Change Period (Y+Rc), s	4.5	5.3	4.5	5.3	5.3	5.3	4.5	5.3				
Max Green Setting (Gmax), s	5.5	44.4	6.7	13.8	15.7	33.4	12.5	8.0				
Max Q Clear Time (g_c+I1), s	7.5	24.1	8.7	5.8	11.2	24.4	8.8	6.4				
Green Ext Time (p_c), s	0.0	8.6	0.0	0.2	0.2	4.3	0.1	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			33.9									
HCM 6th LOS			C									

Notes

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

HCM 6th TWSC
14: Walters Road & Walmart Driveway 05/06/2021

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	84	0	0	36	0	1317	21	17	1152	1
Future Vol, veh/h	0	0	84	0	0	36	0	1317	21	17	1152	1
Conflicting Peds, #/hr	0	0	5	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	5	0
Mvmt Flow	0	0	88	0	0	38	0	1386	22	18	1213	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	612	-	-	704	-	0	0	1408	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	-	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	441	0	0	384	0	-	-	491	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	439	-	-	384	-	-	-	491	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.3	15.4	0	0.2
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	439	384	491	-	-
HCM Lane V/C Ratio	-	-	0.201	0.099	0.036	-	-
HCM Control Delay (s)	-	-	15.3	15.4	12.6	-	-
HCM Lane LOS	-	-	C	C	B	-	-
HCM 95th %tile Q(veh)	-	-	0.7	0.3	0.1	-	-

HCM 6th Signalized Intersection Summary
15: Lawler Ranch Road/Walters Road & State Hwy 12 05/06/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1000	640	84	3	420	228	39	75	1	228	160	824
Future Volume (veh/h)	1000	640	84	3	420	228	39	75	1	228	160	824
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1752	1885	1900	1781	1722	1900	1841	1900	1752	1870	1856
Adj Flow Rate, veh/h	1010	646	85	3	424	230	38	77	1	196	210	832
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	10	1	0	8	12	0	4	0	10	2	3
Cap, veh/h	880	1543	737	13	731	313	155	315	138	440	493	818
Arrive On Green	0.25	0.46	0.46	0.01	0.22	0.22	0.09	0.09	0.09	0.26	0.26	0.26
Sat Flow, veh/h	3456	3328	1589	1810	3385	1449	1810	3681	1610	1668	1870	3103
Grp Volume(v), veh/h	1010	646	85	3	424	230	38	77	1	196	210	832
Grp Sat Flow(s),veh/h/ln	1728	1664	1589	1810	1692	1449	1810	1841	1610	1668	1870	1552
Q Serve(g_s), s	29.0	14.7	3.5	0.2	12.8	16.8	2.2	2.2	0.1	11.2	10.6	30.0
Cycle Q Clear(g_c), s	29.0	14.7	3.5	0.2	12.8	16.8	2.2	2.2	0.1	11.2	10.6	30.0
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	880	1543	737	13	731	313	155	315	138	440	493	818
V/C Ratio(X)	1.15	0.42	0.12	0.23	0.58	0.74	0.25	0.24	0.01	0.45	0.43	1.02
Avail Cap(c_a), veh/h	880	1543	737	382	1487	637	477	970	424	440	493	818
HCM Platoon Ratio	1.00	1.00	1.00	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	42.4	20.3	17.3	56.2	40.0	41.6	48.6	48.6	47.6	35.0	34.8	41.9
Incr Delay (d2), s/veh	79.5	0.2	0.1	8.8	0.7	3.4	0.8	0.4	0.0	0.7	0.6	35.8
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	22.1	5.8	1.3	0.1	5.2	6.0	1.0	1.0	0.0	4.5	4.7	15.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	121.9	20.5	17.4	65.0	40.7	44.9	49.4	49.0	47.6	35.7	35.4	77.8
LnGrp LOS	F	C	B	E	D	D	D	D	D	D	D	F
Approach Vol, veh/h		1741			657			116			1238	
Approach Delay, s/veh		79.2			42.3			49.1			63.9	
Approach LOS		E			D			D			E	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	5.0	58.5	35.3	33.2	30.3	15.0
Change Period (Y+Rc), s	* 4.2	5.7	5.3	* 4.2	5.7	5.3
Max Green Setting (Gmax), s	* 24	50.0	30.0	* 29	50.0	30.0
Max Q Clear Time (g_c+I1), s	2.2	16.7	32.0	31.0	18.8	4.2
Green Ext Time (p_c), s	0.0	2.9	0.0	0.0	3.4	0.5

Intersection Summary	
HCM 6th Ctrl Delay	66.7
HCM 6th LOS	E

Notes
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues

12: Walters Road & Petersen Road

05/06/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	12	8	7	299	9	159	22	1010	215	128	948
v/c Ratio	0.04	0.02	0.02	0.84	0.02	0.30	0.17	0.61	0.27	0.80	0.49
Control Delay	21.5	21.0	0.1	50.3	21.0	5.3	32.8	34.2	14.0	75.3	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.5	21.0	0.1	50.3	21.0	5.3	32.8	34.2	14.0	75.3	14.4
Queue Length 50th (ft)	5	3	0	156	4	0	12	320	47	74	175
Queue Length 95th (ft)	17	13	0	#245	14	41	m19	325	m79	#159	344
Internal Link Dist (ft)		417			560			505			413
Turn Bay Length (ft)			180	115		200	85		185	100	
Base Capacity (vph)	427	622	577	428	622	611	170	1655	782	160	1943
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.01	0.01	0.70	0.01	0.26	0.13	0.61	0.27	0.80	0.49

Intersection Summary

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

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

Queues
13: Walters Road & Walmart Main Driveway

05/06/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	140	72	143	82	188	1205	116	1094
v/c Ratio	0.57	0.16	0.82	0.22	0.70	0.71	0.73	0.76
Control Delay	46.2	0.8	78.1	1.3	50.4	20.2	72.7	28.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.2	0.8	78.1	1.3	50.4	20.2	72.7	28.2
Queue Length 50th (ft)	76	0	~91	0	101	264	~72	287
Queue Length 95th (ft)	136	0	#207	0	170	342	m#163	#418
Internal Link Dist (ft)		149		259		338		505
Turn Bay Length (ft)					200		275	
Base Capacity (vph)	257	476	174	376	311	1720	158	1447
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.15	0.82	0.22	0.60	0.70	0.73	0.76

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Queues
15: Lawler Ranch Road/Walters Road & State Hwy 12

05/06/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1010	646	85	3	424	230	35	80	1	193	199	832
v/c Ratio	1.03	0.38	0.10	0.02	0.63	0.49	0.15	0.17	0.00	0.61	0.56	0.68
Control Delay	75.7	22.2	6.3	61.3	46.6	9.5	44.7	43.9	0.0	52.6	50.0	6.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.7	22.2	6.3	61.3	46.6	9.5	44.7	43.9	0.0	52.6	50.0	6.3
Queue Length 50th (ft)	~363	125	0	2	134	0	23	26	0	117	120	0
Queue Length 95th (ft)	#964	367	41	15	278	76	63	58	0	310	313	62
Internal Link Dist (ft)		3194			827			385			265	
Turn Bay Length (ft)	390		275	215		300	175		90	125		190
Base Capacity (vph)	983	1795	913	428	1651	815	524	1061	591	462	512	1403
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.36	0.09	0.01	0.26	0.28	0.07	0.08	0.00	0.42	0.39	0.59

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

HCM 6th Signalized Intersection Summary
12: Walters Road & Petersen Road

05/05/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	7	12	275	5	125	7	674	194	135	752	8
Future Volume (veh/h)	7	7	12	275	5	125	7	674	194	135	752	8
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		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	1648	1604	1530	1233	1900	1411	1885	1781	1441	1618	1856	1900
Adj Flow Rate, veh/h	8	8	13	302	5	0	8	741	0	148	826	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	17	20	25	45	0	33	1	8	31	19	3	0
Cap, veh/h	448	65	52	323	58		348	824		357	993	
Arrive On Green	0.29	0.04	0.04	0.28	0.03	0.00	0.39	0.49	0.00	0.23	0.28	0.00
Sat Flow, veh/h	1570	1604	1270	1174	1900	1196	1795	3385	1221	1541	3526	1610
Grp Volume(v), veh/h	8	8	13	302	5	0	8	741	0	148	826	0
Grp Sat Flow(s),veh/h/ln	1570	1604	1270	1174	1900	1196	1795	1692	1221	1541	1763	1610
Q Serve(g_s), s	0.3	0.4	0.9	22.6	0.2	0.0	0.2	18.0	0.0	7.3	19.8	0.0
Cycle Q Clear(g_c), s	0.3	0.4	0.9	22.6	0.2	0.0	0.2	18.0	0.0	7.3	19.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	448	65	52	323	58		348	824		357	993	
V/C Ratio(X)	0.02	0.12	0.25	0.93	0.09		0.02	0.90		0.41	0.83	
Avail Cap(c_a), veh/h	448	151	120	346	633		348	929		357	1222	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.86	0.86	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	23.1	41.6	41.8	31.8	42.4	0.0	22.3	22.1	0.0	29.4	30.3	0.0
Incr Delay (d2), s/veh	0.0	0.8	2.5	31.0	0.6	0.0	0.0	13.0	0.0	0.8	8.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.2	0.3	9.0	0.1	0.0	0.1	6.0	0.0	2.6	8.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.1	42.5	44.4	62.8	43.0	0.0	22.3	35.1	0.0	30.1	38.4	0.0
LnGrp LOS	C	D	D	E	D		C	D		C	D	
Approach Vol, veh/h		29			307	A		749	A		974	A
Approach Delay, s/veh		38.0			62.5			35.0			37.2	
Approach LOS		D			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.4	27.2	29.3	8.2	21.9	30.6	30.2	7.3
Change Period (Y+Rc), s	4.5	5.3	4.5	4.5	4.5	5.3	4.5	4.5
Max Green Setting (Gmax), s	11.5	24.7	26.5	8.5	5.0	31.2	5.0	30.0
Max Q Clear Time (g_c+I1), s	9.3	20.0	24.6	2.9	2.2	21.8	2.3	2.2
Green Ext Time (p_c), s	0.1	1.9	0.2	0.0	0.0	3.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	40.2
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
13: Walters Road & Walmart Main Driveway

05/05/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	0	16	78	0	81	40	765	136	105	914	25
Future Volume (veh/h)	33	0	16	78	0	81	40	765	136	105	914	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1811	1900	1900	1900	1752	1722	1900	1900	1796	1841
Adj Flow Rate, veh/h	36	0	18	85	0	88	44	841	148	114	1004	27
Peak Hour Factor	0.91	0.92	0.91	0.92	0.92	0.92	0.91	0.91	0.92	0.92	0.91	0.91
Percent Heavy Veh, %	0	0	6	0	0	0	10	12	0	0	7	4
Cap, veh/h	107	0	139	110	0	142	99	980	172	495	1924	52
Arrive On Green	0.06	0.00	0.09	0.06	0.00	0.09	0.06	0.35	0.35	0.55	1.00	1.00
Sat Flow, veh/h	1810	0	1605	1810	0	1610	1668	2781	489	1810	3395	91
Grp Volume(v), veh/h	36	0	18	85	0	88	44	495	494	114	505	526
Grp Sat Flow(s),veh/h/ln	1810	0	1605	1810	0	1610	1668	1636	1634	1810	1706	1780
Q Serve(g_s), s	1.7	0.0	0.9	4.2	0.0	4.7	2.3	25.3	25.3	2.9	0.0	0.0
Cycle Q Clear(g_c), s	1.7	0.0	0.9	4.2	0.0	4.7	2.3	25.3	25.3	2.9	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		0.05
Lane Grp Cap(c), veh/h	107	0	139	110	0	142	99	576	576	495	967	1008
V/C Ratio(X)	0.34	0.00	0.13	0.77	0.00	0.62	0.44	0.86	0.86	0.23	0.52	0.52
Avail Cap(c_a), veh/h	123	0	173	199	0	242	150	696	695	495	967	1008
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.82	0.82	0.82
Uniform Delay (d), s/veh	40.6	0.0	38.0	41.6	0.0	39.6	40.9	27.1	27.1	15.5	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.0	0.4	10.8	0.0	4.4	3.1	15.3	15.3	0.2	1.7	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.4	2.2	0.0	2.0	1.0	11.4	11.4	1.1	0.4	0.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.4	0.0	38.4	52.5	0.0	43.9	44.0	42.3	42.4	15.7	1.7	1.6
LnGrp LOS	D	A	D	D	A	D	D	D	D	B	A	A
Approach Vol, veh/h		54			173			1033			1145	
Approach Delay, s/veh		41.1			48.1			42.4			3.0	
Approach LOS		D			D			D			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	37.0	10.0	13.1	10.6	56.3	9.8	13.2
Change Period (Y+Rc), s	5.3	* 5.3	4.5	5.3	5.3	5.3	4.5	5.3
Max Green Setting (Gmax), s	4.5	* 38	9.9	9.7	8.1	41.9	6.1	13.5
Max Q Clear Time (g_c+I1), s	4.3	27.3	6.2	2.9	4.3	2.0	3.7	6.7
Green Ext Time (p_c), s	0.1	4.4	0.1	0.0	0.0	7.2	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	24.0
HCM 6th LOS	C

Notes

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

HCM 6th TWSC
14: Walters Road & Walmart Driveway 05/05/2021

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	26	0	0	28	0	914	15	13	1004	1
Future Vol, veh/h	0	0	26	0	0	28	0	914	15	13	1004	1
Conflicting Peds, #/hr	0	0	5	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	88	88	88	88	88	88	88	88	88
Heavy Vehicles, %	0	0	0	0	0	0	0	11	0	0	7	0
Mvmt Flow	0	0	30	0	0	32	0	1039	17	15	1141	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	576	-	-	528	-	0	0	1056	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	-	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	466	0	0	500	0	-	-	667	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	464	-	-	500	-	-	-	667	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.3	12.7	0	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	464	500	667	-	-
HCM Lane V/C Ratio	-	-	0.064	0.064	0.022	-	-
HCM Control Delay (s)	-	-	13.3	12.7	10.5	-	-
HCM Lane LOS	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.2	0.2	0.1	-	-

HCM 6th Signalized Intersection Summary
15: Walters Road & State Hwy 12 05/05/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	565	361	16	2	588	224	86	135	3	164	67	736
Future Volume (veh/h)	565	361	16	2	588	224	86	135	3	164	67	736
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1574	1900	1900	1589	1559	1885	1856	1900	1678	1737	1826
Adj Flow Rate, veh/h	595	380	17	2	619	236	78	161	3	122	142	775
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	8	22	0	0	21	23	1	3	0	15	11	5
Cap, veh/h	923	1631	874	9	815	355	199	411	178	178	193	1201
Arrive On Green	0.28	0.55	0.55	0.00	0.27	0.27	0.11	0.11	0.11	0.04	0.04	0.04
Sat Flow, veh/h	3291	2991	1603	1810	3019	1314	1795	3711	1610	1598	1737	2997
Grp Volume(v), veh/h	595	380	17	2	619	236	78	161	3	122	142	775
Grp Sat Flow(s),veh/h/ln	1646	1495	1603	1810	1509	1314	1795	1856	1610	1598	1737	1499
Q Serve(g_s), s	14.3	6.0	0.4	0.1	17.0	14.4	3.6	3.6	0.1	6.8	7.3	10.0
Cycle Q Clear(g_c), s	14.3	6.0	0.4	0.1	17.0	14.4	3.6	3.6	0.1	6.8	7.3	10.0
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	923	1631	874	9	815	355	199	411	178	178	193	1201
V/C Ratio(X)	0.64	0.23	0.02	0.23	0.76	0.67	0.39	0.39	0.02	0.69	0.74	0.65
Avail Cap(c_a), veh/h	923	1631	874	181	1275	555	199	412	179	178	193	1201
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
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	28.4	10.7	9.4	44.6	30.2	29.2	37.2	37.2	35.6	41.8	42.0	23.8
Incr Delay (d2), s/veh	1.6	0.3	0.0	12.5	1.5	2.2	1.3	0.6	0.0	10.6	13.6	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	2.0	0.2	0.1	5.8	4.4	1.6	1.6	0.1	3.2	3.9	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.0	11.0	9.4	57.1	31.7	31.4	38.4	37.8	35.7	52.4	55.7	25.0
LnGrp LOS	C	B	A	E	C	C	D	D	D	D	E	C
Approach Vol, veh/h		992			857			242			1039	
Approach Delay, s/veh		22.4			31.6			38.0			32.4	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	4.6	54.8	15.3	29.4	30.0	15.3
Change Period (Y+Rc), s	* 4.2	5.7	5.3	* 4.2	5.7	5.3
Max Green Setting (Gmax), s	* 9	40.5	10.0	* 12	38.0	10.0
Max Q Clear Time (g_c+I1), s	2.1	8.0	12.0	16.3	19.0	5.6
Green Ext Time (p_c), s	0.0	3.0	0.0	0.0	4.4	0.4

Intersection Summary	
HCM 6th Ctrl Delay	29.4
HCM 6th LOS	C

Notes
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues

12: Walters Road & Petersen Road

05/05/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	8	8	13	302	5	137	8	741	213	148	826	9
v/c Ratio	0.07	0.06	0.04	0.88	0.01	0.27	0.08	0.58	0.34	0.80	0.44	0.01
Control Delay	40.0	38.4	0.2	57.7	19.8	2.4	35.4	12.8	3.4	64.0	19.3	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.0	38.4	0.2	57.7	19.8	2.4	35.4	12.8	3.4	64.0	19.3	0.0
Queue Length 50th (ft)	4	4	0	155	2	0	5	100	0	54	95	0
Queue Length 95th (ft)	18	18	0	#301	10	13	m11	#179	41	#170	326	m0
Internal Link Dist (ft)		417			560			510			413	
Turn Bay Length (ft)			180	115		200	85		185	100		75
Base Capacity (vph)	107	149	352	372	673	552	99	1287	625	193	1881	939
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.05	0.04	0.81	0.01	0.25	0.08	0.58	0.34	0.77	0.44	0.01

Intersection Summary

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

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

Queues
13: Walters Road & Walmart Main Driveway

05/05/2021

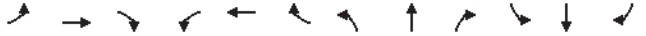
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	36	18	85	88	44	989	114	1031
v/c Ratio	0.23	0.05	0.39	0.18	0.30	0.51	0.55	0.47
Control Delay	40.5	0.2	41.9	0.9	56.7	6.4	36.3	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.5	0.2	41.9	0.9	56.7	6.4	36.3	8.2
Queue Length 50th (ft)	20	0	40	0	26	45	68	223
Queue Length 95th (ft)	47	0	92	0	m42	94	65	94
Internal Link Dist (ft)		149		315		326		510
Turn Bay Length (ft)					200		275	
Base Capacity (vph)	159	401	236	555	147	1942	250	2201
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.04	0.36	0.16	0.30	0.51	0.46	0.47

Intersection Summary

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

Queues
15: Walters Road & State Hwy 12

05/05/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	595	380	17	2	619	236	76	157	3	121	123	775
v/c Ratio	0.73	0.23	0.02	0.01	0.70	0.43	0.42	0.42	0.01	0.73	0.71	0.63
Control Delay	39.9	11.0	0.1	36.5	31.7	5.2	45.2	41.2	0.0	57.0	53.4	20.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.9	11.0	0.1	36.5	31.7	5.2	45.2	41.2	0.0	57.0	53.4	20.4
Queue Length 50th (ft)	157	48	0	1	165	0	45	46	0	74	75	103
Queue Length 95th (ft)	#343	101	0	8	181	42	93	79	0	#168	#165	#256
Internal Link Dist (ft)		3194			827			385			265	
Turn Bay Length (ft)	390		275	215		300	175		90	125		190
Base Capacity (vph)	818	1678	978	180	1259	682	180	371	311	165	174	1236
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.23	0.02	0.01	0.49	0.35	0.42	0.42	0.01	0.73	0.71	0.63

Intersection Summary

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

HCM 6th Signalized Intersection Summary
12: Walters Road & Petersen Road

05/06/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	8	7	293	9	156	22	990	211	125	909	20
Future Volume (veh/h)	12	8	7	293	9	156	22	990	211	125	909	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		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	1767	1900	1900	1767	1900	1856	1900	1856	1693	1811	1841	1737
Adj Flow Rate, veh/h	12	8	7	299	9	0	22	1010	0	128	928	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	9	0	0	9	0	3	0	3	14	6	4	11
Cap, veh/h	23	59	49	331	407		498	1802		155	1113	
Arrive On Green	0.01	0.03	0.03	0.20	0.21	0.00	0.18	0.34	0.00	0.09	0.32	0.00
Sat Flow, veh/h	1682	1900	1570	1682	1900	1572	1810	3526	1434	1725	3589	0
Grp Volume(v), veh/h	12	8	7	299	9	0	22	1010	0	128	928	0
Grp Sat Flow(s),veh/h/ln	1682	1900	1570	1682	1900	1572	1810	1763	1434	1725	1749	0
Q Serve(g_s), s	0.8	0.5	0.5	19.1	0.4	0.0	1.1	25.6	0.0	8.0	27.1	0.0
Cycle Q Clear(g_c), s	0.8	0.5	0.5	19.1	0.4	0.0	1.1	25.6	0.0	8.0	27.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	23	59	49	331	407		498	1802		155	1113	
V/C Ratio(X)	0.51	0.13	0.14	0.90	0.02		0.04	0.56		0.82	0.83	
Avail Cap(c_a), veh/h	76	147	121	436	553		498	1802		212	1548	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.71	0.71	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	53.9	51.8	51.8	43.2	34.1	0.0	32.9	26.1	0.0	49.2	34.8	0.0
Incr Delay (d2), s/veh	16.1	1.0	1.3	18.2	0.0	0.0	0.0	0.9	0.0	17.0	7.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.2	0.2	9.5	0.2	0.0	0.5	11.3	0.0	4.1	12.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.0	52.9	53.2	61.3	34.2	0.0	33.0	27.0	0.0	66.2	42.2	0.0
LnGrp LOS	E	D	D	E	C		C	C		E	D	
Approach Vol, veh/h		27			308	A		1032	A		1056	A
Approach Delay, s/veh		60.6			60.5			27.1			45.1	
Approach LOS		E			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.4	61.5	26.1	7.9	35.6	40.3	6.0	28.0
Change Period (Y+Rc), s	4.5	5.3	4.5	4.5	5.3	* 5.3	4.5	4.5
Max Green Setting (Gmax), s	13.5	40.7	28.5	8.5	5.5	* 49	5.0	32.0
Max Q Clear Time (g_c+I1), s	10.0	27.6	21.1	2.5	3.1	29.1	2.8	2.4
Green Ext Time (p_c), s	0.1	5.4	0.6	0.0	0.0	5.9	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	39.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
13: Walters Road & Walmart Main Driveway

05/06/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	136	0	70	132	0	75	182	1031	131	107	939	122
Future Volume (veh/h)	136	0	70	132	0	75	182	1031	131	107	939	122
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1885	1826	1900	1900	1811	1900
Adj Flow Rate, veh/h	140	0	72	143	0	82	188	1063	142	116	968	126
Peak Hour Factor	0.97	0.92	0.97	0.92	0.92	0.92	0.97	0.97	0.92	0.92	0.97	0.97
Percent Heavy Veh, %	0	0	0	0	0	0	1	5	0	0	6	0
Cap, veh/h	173	0	117	173	0	117	522	1239	165	440	1088	142
Arrive On Green	0.10	0.00	0.07	0.10	0.00	0.07	0.29	0.40	0.40	0.32	0.47	0.47
Sat Flow, veh/h	1810	0	1604	1810	0	1610	1795	3076	410	1810	3062	398
Grp Volume(v), veh/h	140	0	72	143	0	82	188	599	606	116	544	550
Grp Sat Flow(s),veh/h/ln	1810	0	1604	1810	0	1610	1795	1735	1752	1810	1721	1739
Q Serve(g_s), s	8.3	0.0	4.8	8.5	0.0	5.5	9.1	34.6	34.8	5.2	31.6	31.7
Cycle Q Clear(g_c), s	8.3	0.0	4.8	8.5	0.0	5.5	9.1	34.6	34.8	5.2	31.6	31.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.23	1.00		0.23
Lane Grp Cap(c), veh/h	173	0	117	173	0	117	522	699	706	440	611	618
V/C Ratio(X)	0.81	0.00	0.62	0.83	0.00	0.70	0.36	0.86	0.86	0.26	0.89	0.89
Avail Cap(c_a), veh/h	239	0	141	239	0	142	522	831	839	440	730	738
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.82	0.82	0.82
Uniform Delay (d), s/veh	48.7	0.0	49.5	48.8	0.0	49.8	30.9	30.0	30.0	29.9	27.0	27.1
Incr Delay (d2), s/veh	13.3	0.0	5.5	15.4	0.0	11.2	0.4	12.9	12.9	0.3	14.9	14.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	0.0	2.1	4.6	0.0	2.6	4.0	16.5	16.8	2.2	13.2	13.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.0	0.0	55.0	64.2	0.0	61.0	31.3	42.8	42.9	30.2	42.0	41.9
LnGrp LOS	E	A	D	E	A	E	C	D	D	C	D	D
Approach Vol, veh/h		212			225			1393			1210	
Approach Delay, s/veh		59.6			63.1			41.3			40.8	
Approach LOS		E			E			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.0	49.6	15.0	13.3	37.3	44.4	15.0	13.3
Change Period (Y+Rc), s	5.3	* 5.3	4.5	5.3	5.3	5.3	4.5	5.3
Max Green Setting (Gmax), s	6.5	* 53	14.5	9.7	18.7	46.7	14.5	9.7
Max Q Clear Time (g_c+I1), s	7.2	36.8	10.5	6.8	11.1	33.7	10.3	7.5
Green Ext Time (p_c), s	0.1	7.6	0.1	0.1	0.3	5.4	0.1	0.1

Intersection Summary	
HCM 6th Ctrl Delay	44.0
HCM 6th LOS	D

Notes

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

HCM 6th TWSC
14: Walters Road & Walmart Driveway 05/06/2021

Intersection												
Int Delay, s/veh	0.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	84	0	0	36	0	1317	21	17	1152	1
Future Vol, veh/h	0	0	84	0	0	36	0	1317	21	17	1152	1
Conflicting Peds, #/hr	0	0	5	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	5	0
Mvmt Flow	0	0	88	0	0	38	0	1386	22	18	1213	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	612	-	-	704	-	0	0	1408	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	-	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	441	0	0	384	0	-	-	491	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	439	-	-	384	-	-	-	491	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.3	15.4	0	0.2
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	439	384	491	-	-
HCM Lane V/C Ratio	-	-	0.201	0.099	0.036	-	-
HCM Control Delay (s)	-	-	15.3	15.4	12.6	-	-
HCM Lane LOS	-	-	C	C	B	-	-
HCM 95th %tile Q(veh)	-	-	0.7	0.3	0.1	-	-

HCM 6th Signalized Intersection Summary
15: Lawler Ranch Road/Walters Road & State Hwy 12 05/06/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	1000	640	84	3	420	228	39	75	1	228	160	824
Future Volume (veh/h)	1000	640	84	3	420	228	39	75	1	228	160	824
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1752	1885	1900	1781	1722	1900	1841	1900	1752	1870	1856
Adj Flow Rate, veh/h	1010	646	85	3	424	230	38	77	1	196	210	832
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	10	1	0	8	12	0	4	0	10	2	3
Cap, veh/h	883	2006	959	13	1154	495	160	325	142	193	216	1155
Arrive On Green	0.26	0.60	0.60	0.01	0.34	0.34	0.09	0.09	0.09	0.04	0.04	0.04
Sat Flow, veh/h	3456	3328	1591	1810	3385	1453	1810	3681	1610	1668	1870	3050
Grp Volume(v), veh/h	1010	646	85	3	424	230	38	77	1	196	210	832
Grp Sat Flow(s),veh/h/ln	1728	1664	1591	1810	1692	1453	1810	1841	1610	1668	1870	1525
Q Serve(g_s), s	28.1	10.5	2.5	0.2	10.4	13.6	2.2	2.1	0.1	12.7	12.3	0.0
Cycle Q Clear(g_c), s	28.1	10.5	2.5	0.2	10.4	13.6	2.2	2.1	0.1	12.7	12.3	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	883	2006	959	13	1154	495	160	325	142	193	216	1155
V/C Ratio(X)	1.14	0.32	0.09	0.23	0.37	0.46	0.24	0.24	0.01	1.02	0.97	0.72
Avail Cap(c_a), veh/h	883	2006	959	148	1169	502	176	358	157	193	216	1155
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.0	10.8	9.2	54.3	27.3	28.4	46.7	46.7	45.7	52.9	52.7	33.2
Incr Delay (d2), s/veh	78.3	0.4	0.2	8.8	0.2	0.7	0.8	0.4	0.0	69.5	53.2	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.5	3.9	0.9	0.1	4.0	4.6	1.0	1.0	0.0	9.3	9.3	10.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	119.2	11.2	9.4	63.1	27.5	29.1	47.5	47.1	45.8	122.4	105.9	35.4
LnGrp LOS	F	B	A	E	C	C	D	D	D	F	F	D
Approach Vol, veh/h		1741			657			116			1238	
Approach Delay, s/veh		73.8			28.2			47.2			61.2	
Approach LOS		E			C			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.0	72.0		18.0	33.8	43.2		15.0				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	5.7	* 5.7		5.3				
Max Green Setting (Gmax), s	* 9	57.1		12.7	28.1	* 38		10.7				
Max Q Clear Time (g_c+I1), s	2.2	12.5		14.7	30.1	15.6		4.2				
Green Ext Time (p_c), s	0.0	2.9		0.0	0.0	3.2		0.2				

Intersection Summary		
HCM 6th Ctrl Delay	60.8	
HCM 6th LOS	E	

Notes

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

Queues

12: Walters Road & Petersen Road

05/06/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	12	8	7	299	9	159	22	1010	215	128	948
v/c Ratio	0.15	0.06	0.03	0.83	0.02	0.32	0.17	0.58	0.27	0.69	0.46
Control Delay	54.5	48.4	0.1	59.9	27.0	5.7	29.6	8.7	1.9	65.9	17.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.5	48.4	0.1	59.9	27.0	5.7	29.6	8.7	1.9	65.9	17.6
Queue Length 50th (ft)	8	5	0	200	5	0	13	58	2	87	137
Queue Length 95th (ft)	29	22	0	291	17	45	m0	233	25	#153	350
Internal Link Dist (ft)		417			560			505			413
Turn Bay Length (ft)			180	115		200	85		185	100	
Base Capacity (vph)	82	146	275	429	582	586	126	1738	791	209	2103
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.05	0.03	0.70	0.02	0.27	0.17	0.58	0.27	0.61	0.45

Intersection Summary

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

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

Queues
13: Walters Road & Walmart Main Driveway

05/06/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	140	72	143	82	188	1205	116	1094
v/c Ratio	0.64	0.19	0.67	0.22	0.73	0.65	0.59	0.65
Control Delay	59.2	1.1	61.9	1.4	52.6	9.6	57.7	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	59.2	1.1	61.9	1.4	52.6	9.6	57.7	13.4
Queue Length 50th (ft)	95	0	97	0	140	82	81	326
Queue Length 95th (ft)	158	0	164	0	m198	112	m143	156
Internal Link Dist (ft)		149		259		338		505
Turn Bay Length (ft)					200		275	
Base Capacity (vph)	248	396	242	392	305	1855	223	1695
Starvation Cap Reductn	0	0	0	0	0	0	0	54
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.18	0.59	0.21	0.62	0.65	0.52	0.67

Intersection Summary

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

Queues
15: Lawler Ranch Road/Walters Road & State Hwy 12

05/06/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	1010	646	85	3	424	230	35	80	1	193	199	832
v/c Ratio	0.69	0.30	0.08	0.02	0.62	0.49	0.23	0.26	0.00	1.08	1.00	0.45
Control Delay	31.3	10.3	1.2	47.0	42.8	7.5	50.3	48.8	0.0	123.2	99.6	3.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.3	10.3	1.2	47.0	42.8	7.5	50.3	48.8	0.0	123.2	99.6	3.2
Queue Length 50th (ft)	294	96	0	2	148	0	25	29	0	~162	~153	0
Queue Length 95th (ft)	#561	180	13	11	161	53	61	54	0	#310	#301	73
Internal Link Dist (ft)		3194			827			385			265	
Turn Bay Length (ft)	390		275	215		300	175		90	125		190
Base Capacity (vph)	1471	2126	1077	147	1154	640	159	323	317	179	199	1862
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.30	0.08	0.02	0.37	0.36	0.22	0.25	0.00	1.08	1.00	0.45

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

HCM 6th Signalized Intersection Summary
1: Sunset Avenue /Sunset Avenue & Pintail Drive

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	76	12	103	236	176	38	306	42	207	351	52
Future Volume (veh/h)	49	76	12	103	236	176	38	306	42	207	351	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1668	1870	1885	1810	1900	1796	1639	1870	1856	1824
Adj Flow Rate, veh/h	49	76	12	103	236	176	38	306	42	207	351	52
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	0	11	2	1	1	0	7	13	2	3	0
Cap, veh/h	163	482	76	428	302	225	62	1208	164	246	1555	228
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.03	0.40	0.40	0.14	0.50	0.50
Sat Flow, veh/h	973	1601	253	1305	1001	746	1810	3015	410	1781	3080	452
Grp Volume(v), veh/h	49	0	88	103	0	412	38	172	176	207	199	204
Grp Sat Flow(s),veh/h/ln	973	0	1853	1305	0	1747	1810	1706	1718	1781	1763	1770
Q Serve(g_s), s	4.4	0.0	3.1	5.7	0.0	19.4	1.9	6.0	6.2	10.2	5.7	5.8
Cycle Q Clear(g_c), s	23.8	0.0	3.1	8.8	0.0	19.4	1.9	6.0	6.2	10.2	5.7	5.8
Prop In Lane	1.00		0.14	1.00		0.43	1.00		0.24	1.00		0.26
Lane Grp Cap(c), veh/h	163	0	558	428	0	526	62	684	688	246	890	893
V/C Ratio(X)	0.30	0.00	0.16	0.24	0.00	0.78	0.62	0.25	0.26	0.84	0.22	0.23
Avail Cap(c_a), veh/h	253	0	729	548	0	687	187	684	688	323	890	893
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.78	0.78	0.78	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	0.0	23.1	26.3	0.0	28.7	42.9	18.0	18.0	37.8	12.5	12.5
Incr Delay (d2), s/veh	1.3	0.0	0.2	0.4	0.0	4.9	9.7	0.2	0.2	15.5	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	1.4	1.8	0.0	8.7	1.0	2.3	2.4	5.4	2.2	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.9	0.0	23.2	26.6	0.0	33.6	52.5	18.2	18.2	53.3	13.0	13.1
LnGrp LOS	D	A	C	C	A	C	D	B	B	D	B	B
Approach Vol, veh/h		137			515			386			610	
Approach Delay, s/veh		29.5			32.2			21.6			26.7	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	50.5		31.7	17.1	41.2		31.7				
Change Period (Y+Rc), s	* 4.7	5.1		4.6	* 4.7	5.1		4.6				
Max Green Setting (Gmax), s	* 9.3	30.9		35.4	* 16	23.9		35.4				
Max Q Clear Time (g_c+I1), s	3.9	7.8		25.8	12.2	8.2		21.4				
Green Ext Time (p_c), s	0.0	3.4		0.5	0.3	2.4		3.3				

Intersection Summary	
HCM 6th Ctrl Delay	27.5
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary
2: Grizzly Island Road/Sunset Avenue & State Hwy 12

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	241	1162	193	103	1621	133	284	133	34	148	119	333
Future Volume (veh/h)	241	1162	193	103	1621	133	284	133	34	148	119	333
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1648	1885	1752	1737	1826	1885	1870	1604	1885	1885	1856
Adj Flow Rate, veh/h	241	1162	193	103	1621	133	284	133	34	134	139	145
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	17	1	10	11	5	1	2	20	1	1	3
Cap, veh/h	270	1651	842	137	1773	831	292	304	218	151	158	253
Arrive On Green	0.08	0.53	0.53	0.08	0.54	0.54	0.16	0.16	0.16	0.08	0.08	0.08
Sat Flow, veh/h	3401	3131	1596	1668	3300	1547	1795	1870	1341	1795	1885	3014
Grp Volume(v), veh/h	241	1162	193	103	1621	133	284	133	34	134	139	145
Grp Sat Flow(s),veh/h/ln	1700	1566	1596	1668	1650	1547	1795	1870	1341	1795	1885	1507
Q Serve(g_s), s	10.5	41.8	9.8	9.1	67.0	6.5	23.6	9.6	3.3	11.1	10.9	6.9
Cycle Q Clear(g_c), s	10.5	41.8	9.8	9.1	67.0	6.5	23.6	9.6	3.3	11.1	10.9	6.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	270	1651	842	137	1773	831	292	304	218	151	158	253
V/C Ratio(X)	0.89	0.70	0.23	0.75	0.91	0.16	0.97	0.44	0.16	0.89	0.88	0.57
Avail Cap(c_a), veh/h	270	1651	842	153	1773	831	292	304	218	151	158	253
HCM Platoon Ratio	1.00	1.00	1.00	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	0.98	0.98	0.98
Uniform Delay (d), s/veh	68.4	26.6	19.1	67.4	31.6	17.6	62.5	56.6	54.0	68.0	67.9	66.1
Incr Delay (d2), s/veh	29.0	2.5	0.6	14.1	8.8	0.4	44.8	0.4	0.1	41.5	37.7	2.6
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	5.6	15.3	3.6	4.3	26.8	2.3	14.5	4.6	1.1	6.8	6.9	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	97.4	29.2	19.7	81.4	40.4	18.0	107.2	57.0	54.1	109.5	105.7	68.7
LnGrp LOS	F	C	B	F	D	B	F	E	D	F	F	E
Approach Vol, veh/h		1596			1857			451			418	
Approach Delay, s/veh		38.3			41.0			88.4			94.1	
Approach LOS		D			D			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.5	85.3		17.2	17.0	86.8		29.0				
Change Period (Y+Rc), s	6.2	* 6.2		4.6	5.1	6.2		4.6				
Max Green Setting (Gmax), s	3.8	* 79		12.6	11.9	80.6		24.4				
Max Q Clear Time (g_c+I1), s	11.1	43.8		13.1	12.5	69.0		25.6				
Green Ext Time (p_c), s	0.0	4.2		0.0	0.0	4.9		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	50.1
HCM 6th LOS	D

Notes

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

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	1192	2060	19	0	90
Future Vol, veh/h	0	1192	2060	19	0	90
Conflicting Peds, #/hr	0	0	0	4	0	7
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	275	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	13	9	0	0	0
Mvmt Flow	0	1192	2060	19	0	90

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1041
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	230
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	228
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	30.7
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	228
HCM Lane V/C Ratio	-	-	-	0.395
HCM Control Delay (s)	-	-	-	30.7
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	1.8

Intersection	
Intersection Delay, s/veh	13.8
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	32	192	51	70	332	8	86	17	95	5	59	75
Future Vol, veh/h	32	192	51	70	332	8	86	17	95	5	59	75
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	3	5	2	2	4	20	1	0	2	0	2	2
Mvmt Flow	32	192	51	70	332	8	86	17	95	5	59	75
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12.6	16.8	11.7	10.6
HCM LOS	B	C	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	43%	12%	17%	4%
Vol Thru, %	9%	70%	81%	42%
Vol Right, %	48%	19%	2%	54%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	198	275	410	139
LT Vol	86	32	70	5
Through Vol	17	192	332	59
RT Vol	95	51	8	75
Lane Flow Rate	198	275	410	139
Geometry Grp	1	1	1	1
Degree of Util (X)	0.321	0.422	0.615	0.225
Departure Headway (Hd)	5.837	5.518	5.4	5.84
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	612	649	664	610
Service Time	3.911	3.584	3.459	3.922
HCM Lane V/C Ratio	0.324	0.424	0.617	0.228
HCM Control Delay	11.7	12.6	16.8	10.6
HCM Lane LOS	B	B	C	B
HCM 95th-tile Q	1.4	2.1	4.2	0.9

HCM 6th Signalized Intersection Summary
5: Lawler Ranch Parkway /Emperor Drive & State Hwy 12

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	1066	63	79	1656	12	175	25	71	40	20	177
Future Volume (veh/h)	130	1066	63	79	1656	12	175	25	71	40	20	177
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1648	1900	1870	1707	1900	1841	1900	1870	1796	1900	1810
Adj Flow Rate, veh/h	130	1066	63	79	1656	12	193	0	71	40	20	43
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	17	0	2	13	0	4	0	2	7	0	1
Cap, veh/h	200	1524	784	184	1550	769	368	0	167	172	54	116
Arrive On Green	0.11	0.49	0.49	0.10	0.48	0.48	0.11	0.00	0.11	0.10	0.10	0.10
Sat Flow, veh/h	1781	3131	1610	1781	3244	1610	3506	0	1585	1711	536	1153
Grp Volume(v), veh/h	130	1066	63	79	1656	12	193	0	71	40	0	63
Grp Sat Flow(s),veh/h/ln	1781	1566	1610	1781	1622	1610	1753	0	1585	1711	0	1689
Q Serve(g_s), s	7.3	27.7	2.2	4.4	50.0	0.4	5.5	0.0	4.4	2.3	0.0	3.6
Cycle Q Clear(g_c), s	7.3	27.7	2.2	4.4	50.0	0.4	5.5	0.0	4.4	2.3	0.0	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.68
Lane Grp Cap(c), veh/h	200	1524	784	184	1550	769	368	0	167	172	0	170
V/C Ratio(X)	0.65	0.70	0.08	0.43	1.07	0.02	0.52	0.00	0.43	0.23	0.00	0.37
Avail Cap(c_a), veh/h	340	1524	784	204	1550	769	503	0	227	245	0	242
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.5	20.9	14.3	44.0	27.3	14.4	44.3	0.0	43.9	43.3	0.0	44.0
Incr Delay (d2), s/veh	1.3	1.4	0.0	0.6	43.6	0.0	1.2	0.0	1.7	0.3	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	9.3	0.7	1.9	26.3	0.1	2.4	0.0	1.8	1.0	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.8	22.3	14.4	44.6	70.9	14.4	45.5	0.0	45.6	43.6	0.0	44.5
LnGrp LOS	D	C	B	D	F	B	D	A	D	D	A	D
Approach Vol, veh/h		1259			1747			264			103	
Approach Delay, s/veh		24.4			69.3			45.5			44.1	
Approach LOS		C			E			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.5	57.4		15.6	16.4	56.5		16.1
Change Period (Y+Rc), s	4.7	6.5		5.1	* 4.7	6.5		5.1
Max Green Setting (Gmax), s	11.3	50.0		15.0	* 20	50.0		15.0
Max Q Clear Time (g_c+I1), s	10.4	29.7		5.6	9.3	52.0		7.5
Green Ext Time (p_c), s	0.0	7.2		0.2	0.1	0.0		0.5

Intersection Summary	
HCM 6th Ctrl Delay	49.9
HCM 6th LOS	D

Notes

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

HCM 6th TWSC
6: State Hwy 12 & Woodlark Drive

04/29/2021

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1166	1682	4	0	169
Future Vol, veh/h	0	1166	1682	4	0	169
Conflicting Peds, #/hr	0	0	0	5	0	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	260	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	15	12	0	0	1
Mvmt Flow	0	1166	1682	4	0	169

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	849
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.31
Pot Cap-1 Maneuver	0	-	-	-	0	306
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	304
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	30.7
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	304
HCM Lane V/C Ratio	-	-	-	0.556
HCM Control Delay (s)	-	-	-	30.7
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	3.2

HCM 6th Signalized Intersection Summary
7: Walters Road & Air Base Parkway

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	259	896	273	540	414	26	346	296	707	10	655	288
Future Volume (veh/h)	259	896	273	540	414	26	346	296	707	10	655	288
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	1752	1870	1781	1870	1796	1707	1856	1707	1870	1604	1693	1604
Adj Flow Rate, veh/h	259	896	0	540	414	0	346	296	0	10	655	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	10	2	8	2	7	13	3	13	2	20	14	20
Cap, veh/h	286	1060		518	944		324	1319		18	756	
Arrive On Green	0.17	0.30	0.00	0.15	0.28	0.00	0.18	0.41	0.00	0.01	0.24	0.00
Sat Flow, veh/h	1668	3554	1510	3456	3413	1447	1767	3244	1585	1527	3300	0
Grp Volume(v), veh/h	259	896	0	540	414	0	346	296	0	10	655	0
Grp Sat Flow(s),veh/h/ln	1668	1777	1510	1728	1706	1447	1767	1622	1585	1527	1608	0
Q Serve(g_s), s	18.3	28.4	0.0	18.0	12.0	0.0	22.0	7.1	0.0	0.8	23.5	0.0
Cycle Q Clear(g_c), s	18.3	28.4	0.0	18.0	12.0	0.0	22.0	7.1	0.0	0.8	23.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	286	1060		518	944		324	1319		18	756	
V/C Ratio(X)	0.91	0.85		1.04	0.44		1.07	0.22		0.55	0.87	
Avail Cap(c_a), veh/h	349	1060		518	944		324	1338		70	884	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	48.8	39.5	0.0	51.0	35.7	0.0	49.0	23.2	0.0	59.0	44.1	0.0
Incr Delay (d2), s/veh	23.2	8.3	0.0	50.8	1.5	0.0	69.2	0.1	0.0	24.0	8.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	13.0	0.0	11.1	5.0	0.0	15.6	2.7	0.0	0.4	10.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.9	47.8	0.0	101.8	37.2	0.0	118.2	23.3	0.0	82.9	52.1	0.0
LnGrp LOS	E	D		F	D		F	C		F	D	
Approach Vol, veh/h		1155	A		954	A		642	A		665	A
Approach Delay, s/veh		53.2			73.8			74.4			52.6	
Approach LOS		D			E			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.4	52.8	24.6	37.2	26.0	32.2	22.0	39.8
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.5	49.5	25.1	23.9	22.0	33.0	18.0	31.0
Max Q Clear Time (g_c+I1), s	2.8	9.1	20.3	14.0	24.0	25.5	20.0	30.4
Green Ext Time (p_c), s	0.0	1.9	0.3	1.6	0.0	2.7	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	62.8
HCM 6th LOS	E

Notes

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

HCM 6th Signalized Intersection Summary
8: Walters Road & E Tabor Avenue

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	254	28	88	11	70	129	163	900	6	45	881	520
Future Volume (veh/h)	254	28	88	11	70	129	163	900	6	45	881	520
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	1900	1767	1900	1900	1810	1885	1826	1824	1826	1767	1781
Adj Flow Rate, veh/h	254	28	88	11	70	129	163	900	6	45	881	520
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	0	4	0	0	1	1	5	0	5	9	3
Cap, veh/h	321	90	284	24	86	159	195	1994	13	62	1006	582
Arrive On Green	0.09	0.22	0.22	0.01	0.14	0.14	0.11	0.56	0.56	0.04	0.49	0.49
Sat Flow, veh/h	3428	404	1268	1810	599	1103	1795	3533	24	1739	2047	1185
Grp Volume(v), veh/h	254	0	116	11	0	199	163	442	464	45	719	682
Grp Sat Flow(s),veh/h/ln	1714	0	1672	1810	0	1701	1795	1735	1822	1739	1678	1553
Q Serve(g_s), s	7.2	0.0	5.7	0.6	0.0	11.2	8.8	14.7	14.7	2.5	37.6	39.2
Cycle Q Clear(g_c), s	7.2	0.0	5.7	0.6	0.0	11.2	8.8	14.7	14.7	2.5	37.6	39.2
Prop In Lane	1.00		0.76	1.00		0.65	1.00		0.01	1.00		0.76
Lane Grp Cap(c), veh/h	321	0	375	24	0	245	195	979	1028	62	825	763
V/C Ratio(X)	0.79	0.00	0.31	0.46	0.00	0.81	0.83	0.45	0.45	0.72	0.87	0.89
Avail Cap(c_a), veh/h	348	0	627	92	0	552	237	1020	1071	159	919	850
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.8	0.0	31.9	48.3	0.0	40.9	43.1	12.6	12.6	47.1	22.3	22.7
Incr Delay (d2), s/veh	11.1	0.0	0.5	13.2	0.0	6.4	18.9	0.3	0.3	14.4	8.5	11.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	2.3	0.4	0.0	5.1	4.8	5.0	5.3	1.3	15.0	14.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.8	0.0	32.4	61.5	0.0	47.3	62.0	12.9	12.9	61.5	30.9	33.7
LnGrp LOS	D	A	C	E	A	D	E	B	B	E	C	C
Approach Vol, veh/h		370			210			1069			1446	
Approach Delay, s/veh		47.8			48.1			20.4			33.2	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	59.7	13.2	18.2	14.7	52.5	5.3	26.1
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	9.0	58.0	10.0	32.0	13.0	54.0	5.0	37.0
Max Q Clear Time (g_c+I1), s	14.5	16.7	9.2	13.2	10.8	41.2	2.6	7.7
Green Ext Time (p_c), s	0.0	6.0	0.1	1.1	0.1	7.3	0.0	0.6

Intersection Summary	
HCM 6th Ctrl Delay	31.5
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
9: Walters Road & Bella Vista Drive

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	167	19	6	67	40	110	4	698	16	22	790	114
Future Volume (veh/h)	167	19	6	67	40	110	4	698	16	22	790	114
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		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	1810	1811	1824	1753	1900	1900	1900	1811	1710	1900	1767	1739
Adj Flow Rate, veh/h	167	19	6	67	40	110	4	698	16	22	790	114
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	6	0	5	0	0	0	6	8	0	9	6
Cap, veh/h	202	23	7	111	66	153	8	1826	42	34	1606	232
Arrive On Green	0.13	0.13	0.13	0.10	0.10	0.10	0.00	0.53	0.53	0.02	0.55	0.55
Sat Flow, veh/h	1501	171	54	1154	689	1590	1810	3439	79	1810	2943	425
Grp Volume(v), veh/h	192	0	0	107	0	110	4	349	365	22	450	454
Grp Sat Flow(s),veh/h/ln	1726	0	0	1842	0	1590	1810	1721	1797	1810	1678	1690
Q Serve(g_s), s	9.7	0.0	0.0	5.0	0.0	6.0	0.2	10.7	10.8	1.1	15.0	15.0
Cycle Q Clear(g_c), s	9.7	0.0	0.0	5.0	0.0	6.0	0.2	10.7	10.8	1.1	15.0	15.0
Prop In Lane	0.87		0.03	0.63		1.00	1.00		0.04	1.00		0.25
Lane Grp Cap(c), veh/h	233	0	0	178	0	153	8	914	954	34	916	922
V/C Ratio(X)	0.83	0.00	0.00	0.60	0.00	0.72	0.52	0.38	0.38	0.65	0.49	0.49
Avail Cap(c_a), veh/h	313	0	0	313	0	270	151	914	954	151	916	922
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	0.0	0.0	39.0	0.0	39.5	44.7	12.4	12.4	43.9	12.7	12.7
Incr Delay (d2), s/veh	9.5	0.0	0.0	1.2	0.0	2.3	18.9	1.2	1.2	7.4	1.9	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	0.0	2.3	0.0	2.5	0.1	3.9	4.1	0.5	5.3	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.4	0.0	0.0	40.2	0.0	41.8	63.7	13.6	13.6	51.3	14.6	14.6
LnGrp LOS	D	A	A	D	A	D	E	B	B	D	B	B
Approach Vol, veh/h		192			217			718			926	
Approach Delay, s/veh		47.4			41.0			13.9			15.5	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	53.6		16.8	4.9	54.9		13.4
Change Period (Y+Rc), s	4.5	5.8		* 4.7	4.5	5.8		4.7
Max Green Setting (Gmax), s	7.5	31.2		* 16	7.5	31.2		15.3
Max Q Clear Time (g_c+I1), s	3.0	12.8		11.7	2.2	17.0		8.0
Green Ext Time (p_c), s	0.0	5.4		0.3	0.0	6.2		0.3

Intersection Summary		
HCM 6th Ctrl Delay	20.6	
HCM 6th LOS	C	

Notes

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

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

HCM 6th Signalized Intersection Summary
10: Walters Road & Pintail Drive

04/29/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	144	50	75	644	801	78
Future Volume (veh/h)	144	50	75	644	801	78
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	1885	1737	1722	1796	1796	1739
Adj Flow Rate, veh/h	144	50	75	644	801	78
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	11	12	7	7	6
Cap, veh/h	190	156	93	2692	2160	210
Arrive On Green	0.11	0.11	0.11	1.00	0.69	0.69
Sat Flow, veh/h	1795	1472	1640	3503	3232	306
Grp Volume(v), veh/h	144	50	75	644	435	444
Grp Sat Flow(s),veh/h/ln	1795	1472	1640	1706	1706	1741
Q Serve(g_s), s	7.0	2.8	4.0	0.0	9.6	9.6
Cycle Q Clear(g_c), s	7.0	2.8	4.0	0.0	9.6	9.6
Prop In Lane	1.00	1.00	1.00			0.18
Lane Grp Cap(c), veh/h	190	156	93	2692	1173	1197
V/C Ratio(X)	0.76	0.32	0.81	0.24	0.37	0.37
Avail Cap(c_a), veh/h	754	618	146	2692	1173	1197
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.97	0.97	1.00	1.00
Uniform Delay (d), s/veh	39.1	37.2	39.4	0.0	5.9	5.9
Incr Delay (d2), s/veh	6.1	1.2	15.7	0.2	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	2.4	1.9	0.1	2.5	2.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	45.2	38.4	55.1	0.2	6.1	6.1
LnGrp LOS	D	D	E	A	A	A
Approach Vol, veh/h	194			719	879	
Approach Delay, s/veh	43.5			5.9	6.1	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		76.3		13.7	9.1	67.2
Change Period (Y+Rc), s		5.3		* 4.2	4.0	5.3
Max Green Setting (Gmax), s		42.7		* 38	8.0	30.7
Max Q Clear Time (g_c+I1), s		2.0		9.0	6.0	11.6
Green Ext Time (p_c), s		4.5		0.6	0.0	5.0

Intersection Summary	
HCM 6th Ctrl Delay	10.1
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
11: Walters Road & Mammoth Way/Montebello Drive

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	1	19	130	0	94	73	580	32	29	808	52
Future Volume (veh/h)	21	1	19	130	0	94	73	580	32	29	808	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1811	1900	1796	1767	1589	1811	1824
Adj Flow Rate, veh/h	21	1	19	130	0	94	73	580	32	29	808	52
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	6	0	7	4	21	6	0
Cap, veh/h	302	13	227	286	0	218	95	2234	123	43	2151	138
Arrive On Green	0.14	0.14	0.14	0.14	0.00	0.14	0.05	0.68	0.68	0.03	0.66	0.66
Sat Flow, veh/h	1576	89	1597	1454	0	1535	1810	3288	181	1513	3282	211
Grp Volume(v), veh/h	22	0	19	130	0	94	73	301	311	29	424	436
Grp Sat Flow(s),veh/h/ln	1666	0	1597	1454	0	1535	1810	1706	1763	1513	1721	1772
Q Serve(g_s), s	0.0	0.0	0.9	6.5	0.0	5.0	3.6	6.2	6.2	1.7	10.1	10.1
Cycle Q Clear(g_c), s	0.9	0.0	0.9	7.5	0.0	5.0	3.6	6.2	6.2	1.7	10.1	10.1
Prop In Lane	0.95		1.00	1.00		1.00	1.00		0.10	1.00		0.12
Lane Grp Cap(c), veh/h	315	0	227	286	0	218	95	1159	1198	43	1128	1162
V/C Ratio(X)	0.07	0.00	0.08	0.45	0.00	0.43	0.77	0.26	0.26	0.67	0.38	0.38
Avail Cap(c_a), veh/h	736	0	688	699	0	662	161	1159	1198	134	1128	1162
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.91	0.91	0.91
Uniform Delay (d), s/veh	33.5	0.0	33.5	36.2	0.0	35.3	42.1	5.6	5.6	43.3	7.1	7.1
Incr Delay (d2), s/veh	0.2	0.0	0.3	2.4	0.0	2.9	23.5	0.5	0.5	29.5	0.9	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.4	2.8	0.0	2.0	2.2	1.8	1.9	1.0	3.1	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	0.0	33.9	38.6	0.0	38.2	65.6	6.2	6.1	72.8	8.0	7.9
LnGrp LOS	C	A	C	D	A	D	E	A	A	E	A	A
Approach Vol, veh/h		41			224			685			889	
Approach Delay, s/veh		33.8			38.4			12.5			10.1	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.6	66.4		17.0	8.7	64.3		17.0
Change Period (Y+Rc), s	4.0	5.3		* 4.2	4.0	5.3		* 4.2
Max Green Setting (Gmax), s	8.0	29.7		* 39	8.0	29.7		* 39
Max Q Clear Time (g_c+I1), s	13.7	8.2		2.9	5.6	12.1		9.5
Green Ext Time (p_c), s	0.0	6.4		0.3	0.1	8.3		2.2

Intersection Summary	
HCM 6th Ctrl Delay	15.0
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
12: Walters Road & Petersen Road

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	3	13	32	4	2	7	816	29	14	737	15
Future Volume (veh/h)	12	3	13	32	4	2	7	816	29	14	737	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.98	0.97		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	1648	1411	1530	1707	1900	1900	1885	1781	1218	877	1841	1900
Adj Flow Rate, veh/h	12	3	13	32	4	0	7	816	0	14	737	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	17	33	25	13	0	0	1	8	46	69	4	0
Cap, veh/h	157	92	83	159	124		16	2571		14	2683	
Arrive On Green	0.07	0.07	0.07	0.07	0.07	0.00	0.00	0.25	0.00	0.02	0.77	0.00
Sat Flow, veh/h	1211	1411	1270	1256	1900	1610	1795	3385	1032	836	3497	1610
Grp Volume(v), veh/h	12	3	13	32	4	0	7	816	0	14	737	0
Grp Sat Flow(s),veh/h/ln	1211	1411	1270	1256	1900	1610	1795	1692	1032	836	1749	1610
Q Serve(g_s), s	0.8	0.2	0.9	2.2	0.2	0.0	0.4	17.7	0.0	1.5	5.6	0.0
Cycle Q Clear(g_c), s	1.0	0.2	0.9	2.4	0.2	0.0	0.4	17.7	0.0	1.5	5.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	157	92	83	159	124		16	2571		14	2683	
V/C Ratio(X)	0.08	0.03	0.16	0.20	0.03		0.44	0.32		1.02	0.27	
Avail Cap(c_a), veh/h	475	462	416	489	623		150	2571		70	2683	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.95	0.95	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	39.9	39.4	39.7	40.5	39.4	0.0	44.6	14.7	0.0	44.3	3.1	0.0
Incr Delay (d2), s/veh	0.2	0.1	0.9	0.6	0.1	0.0	16.8	0.3	0.0	119.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.3	0.7	0.1	0.0	0.2	7.9	0.0	0.7	1.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.1	39.6	40.6	41.1	39.5	0.0	61.4	15.0	0.0	163.3	3.1	0.0
LnGrp LOS	D	D	D	D	D		E	B		F	A	
Approach Vol, veh/h		28			36	A		823	A		751	A
Approach Delay, s/veh		40.3			41.0			15.4			6.1	
Approach LOS		D			D			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	73.7		10.4	5.3	74.3		10.4
Change Period (Y+Rc), s	4.5	5.3		4.5	4.5	5.3		4.5
Max Green Setting (Gmax), s	7.5	38.7		29.5	7.5	38.7		29.5
Max Q Clear Time (g_c+I1), s	3.5	19.7		3.0	2.4	7.6		4.4
Green Ext Time (p_c), s	0.0	5.1		0.1	0.0	5.1		0.1

Intersection Summary	
HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
13: Walters Road & Walmart Main Driveway 04/29/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	60	27	61	796	733	51
Future Volume (veh/h)	60	27	61	796	733	51
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	1900	1811	1752	1737	1826	1841
Adj Flow Rate, veh/h	60	27	61	796	733	51
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	6	10	11	5	4
Cap, veh/h	143	121	116	2652	2221	154
Arrive On Green	0.08	0.08	0.07	0.80	0.67	0.67
Sat Flow, veh/h	1810	1535	1668	3387	3382	229
Grp Volume(v), veh/h	60	27	61	796	386	398
Grp Sat Flow(s),veh/h/ln	1810	1535	1668	1650	1735	1785
Q Serve(g_s), s	2.8	1.5	3.2	5.6	8.4	8.4
Cycle Q Clear(g_c), s	2.8	1.5	3.2	5.6	8.4	8.4
Prop In Lane	1.00	1.00	1.00			0.13
Lane Grp Cap(c), veh/h	143	121	116	2652	1171	1205
V/C Ratio(X)	0.42	0.22	0.53	0.30	0.33	0.33
Avail Cap(c_a), veh/h	175	148	180	2652	1171	1205
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.98	0.98
Uniform Delay (d), s/veh	39.5	38.9	40.4	2.3	6.1	6.1
Incr Delay (d2), s/veh	2.0	0.9	3.7	0.3	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.6	1.4	1.2	2.3	2.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.5	39.8	44.1	2.6	6.3	6.3
LnGrp LOS	D	D	D	A	A	A
Approach Vol, veh/h	87			857	784	
Approach Delay, s/veh	40.9			5.5	6.3	
Approach LOS	D			A	A	

Timer - Assigned Phs	2		5	6	8
Phs Duration (G+Y+Rc), s	77.6		11.6	66.0	12.4
Change Period (Y+Rc), s	5.3		5.3	5.3	5.3
Max Green Setting (Gmax), s	43.7		9.7	28.7	8.7
Max Q Clear Time (g_c+I1), s	7.6		5.2	10.4	4.8
Green Ext Time (p_c), s	6.7		0.0	4.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Notes

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

HCM 6th TWSC
14: Walters Road & Walmart Driveway 04/29/2021

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	35	0	0	28	0	829	15	13	747	1
Future Vol, veh/h	0	0	35	0	0	28	0	829	15	13	747	1
Conflicting Peds, #/hr	0	0	5	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	11	0	0	5	0
Mvmt Flow	0	0	35	0	0	28	0	829	15	13	747	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	379	-	-	422	-	0	0	844	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	-	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	625	0	0	586	0	-	-	801	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	622	-	-	586	-	-	-	801	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.1	11.5	0	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	622	586	801	-	-
HCM Lane V/C Ratio	-	-	0.056	0.048	0.016	-	-
HCM Control Delay (s)	-	-	11.1	11.5	9.6	-	-
HCM Lane LOS	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	0	-	-

HCM 6th Signalized Intersection Summary
15: Lawler Ranch Parkway /Walters Road & State Hwy 12 04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	461	678	17	2	997	258	99	127	3	134	45	602
Future Volume (veh/h)	461	678	17	2	997	258	99	127	3	134	45	602
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1574	1900	1900	1589	1589	1885	1856	1900	1752	1722	1856
Adj Flow Rate, veh/h	461	678	17	2	997	258	75	160	3	90	107	602
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	8	22	0	0	21	21	1	3	0	10	12	3
Cap, veh/h	538	1577	845	9	1113	495	147	304	132	364	376	676
Arrive On Green	0.16	0.53	0.53	0.00	0.37	0.37	0.08	0.08	0.08	0.22	0.22	0.22
Sat Flow, veh/h	3291	2991	1603	1810	3019	1341	1795	3711	1610	1668	1722	3095
Grp Volume(v), veh/h	461	678	17	2	997	258	75	160	3	90	107	602
Grp Sat Flow(s),veh/h/ln	1646	1495	1603	1810	1509	1341	1795	1856	1610	1668	1722	1547
Q Serve(g_s), s	16.7	16.9	0.6	0.1	38.0	18.4	4.9	5.1	0.2	5.4	6.3	23.1
Cycle Q Clear(g_c), s	16.7	16.9	0.6	0.1	38.0	18.4	4.9	5.1	0.2	5.4	6.3	23.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	538	1577	845	9	1113	495	147	304	132	364	376	676
V/C Ratio(X)	0.86	0.43	0.02	0.23	0.90	0.52	0.51	0.53	0.02	0.25	0.28	0.89
Avail Cap(c_a), veh/h	781	1577	845	355	1235	549	441	911	395	409	423	759
HCM Platoon Ratio	1.00	1.00	1.00	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	49.7	17.7	13.8	60.6	36.4	30.2	53.8	53.9	51.6	39.5	39.8	46.4
Incr Delay (d2), s/veh	6.5	0.2	0.0	12.7	8.2	0.9	2.7	1.4	0.1	0.4	0.4	11.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	5.9	0.2	0.1	14.4	5.8	2.3	2.4	0.1	2.2	2.7	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.3	17.8	13.8	73.3	44.6	31.0	56.5	55.3	51.7	39.8	40.2	58.2
LnGrp LOS	E	B	B	E	D	C	E	E	D	D	D	E
Approach Vol, veh/h		1156			1257			238			799	
Approach Delay, s/veh		33.1			41.9			55.6			53.7	
Approach LOS		C			D			E			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.8	70.2		32.0	24.2	50.8		15.3				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 24	50.0		30.0	* 29	50.0		30.0				
Max Q Clear Time (g_c+I1), s	2.1	18.9		25.1	18.7	40.0		7.1				
Green Ext Time (p_c), s	0.0	5.8		1.6	1.3	5.0		1.2				

Intersection Summary			
HCM 6th Ctrl Delay		42.6	
HCM 6th LOS		D	

Notes

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

Queues
1: Sunset Avenue /Sunset Avenue & Pintail Drive

05/03/2021

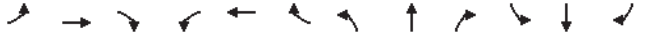
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	49	88	103	412	38	348	207	403
v/c Ratio	0.39	0.16	0.27	0.76	0.24	0.27	0.72	0.23
Control Delay	32.6	19.4	24.4	34.2	41.6	21.0	50.0	14.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.6	19.4	24.4	34.2	41.6	21.0	50.0	14.8
Queue Length 50th (ft)	22	33	45	189	21	68	110	66
Queue Length 95th (ft)	50	58	74	252	50	121	#185	122
Internal Link Dist (ft)		402		619		2012		441
Turn Bay Length (ft)	105		75		105		105	
Base Capacity (vph)	171	726	512	717	186	1276	320	1771
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.12	0.20	0.57	0.20	0.27	0.65	0.23

Intersection Summary

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

Queues
2: Grizzly Island Road/Sunset Avenue & State Hwy 12

05/03/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	241	1162	193	103	1621	133	284	133	34	130	137	333
v/c Ratio	0.90	0.71	0.21	0.69	0.93	0.15	0.98	0.44	0.10	0.92	0.92	0.70
Control Delay	102.5	30.0	2.8	89.0	42.5	2.9	109.4	61.8	0.6	122.6	121.8	23.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.5	30.0	2.8	89.0	42.5	2.9	109.4	61.8	0.6	122.6	121.8	23.2
Queue Length 50th (ft)	122	442	0	99	748	0	281	119	0	134	142	34
Queue Length 95th (ft)	#204	527	39	#186	#884	32	#472	189	0	#274	#285	93
Internal Link Dist (ft)		867			689			342			2012	
Turn Bay Length (ft)	500		275	250		400	125			150		150
Base Capacity (vph)	267	1626	933	150	1747	877	290	303	331	142	149	477
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.71	0.21	0.69	0.93	0.15	0.98	0.44	0.10	0.92	0.92	0.70

Intersection Summary

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

Queues
5: Lawler Ranch Parkway /Emperor Drive & State Hwy 12

05/03/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	130	1066	63	79	1656	12	100	100	71	40	197
v/c Ratio	0.64	0.73	0.08	0.44	1.22	0.02	0.43	0.42	0.20	0.18	0.53
Control Delay	71.5	34.3	0.2	66.4	136.6	0.0	54.8	54.4	1.2	50.5	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.5	34.3	0.2	66.4	136.6	0.0	54.8	54.4	1.2	50.5	15.1
Queue Length 50th (ft)	86	298	0	51	~677	0	69	68	0	25	13
Queue Length 95th (ft)	#259	#976	0	#192	#1853	0	169	169	0	76	93
Internal Link Dist (ft)		1392			1435			342			1298
Turn Bay Length (ft)	425		255	200		230	215		215	125	
Base Capacity (vph)	301	1574	876	180	1359	772	271	278	396	278	413
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.68	0.07	0.44	1.22	0.02	0.37	0.36	0.18	0.14	0.48

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Queues
7: Walters Road & Air Base Parkway

05/03/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	259	896	273	540	414	26	346	296	707	10	943
v/c Ratio	0.84	0.98	0.46	1.05	0.56	0.06	1.08	0.19	0.70	0.15	1.10
Control Delay	70.5	69.8	6.9	102.7	45.6	0.3	119.0	19.2	11.9	60.0	100.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.5	69.8	6.9	102.7	45.6	0.3	119.0	19.2	11.9	60.0	100.1
Queue Length 50th (ft)	191	364	0	~234	154	0	~299	65	118	8	~418
Queue Length 95th (ft)	#310	#502	68	#345	210	0	#487	109	315	26	#552
Internal Link Dist (ft)		838			880			1074			219
Turn Bay Length (ft)	275		315	400		180			325	150	
Base Capacity (vph)	343	914	588	514	744	436	321	1519	1006	68	858
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.98	0.46	1.05	0.56	0.06	1.08	0.19	0.70	0.15	1.10

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Queues
8: Walters Road & E Tabor Avenue

05/03/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	254	116	11	199	163	906	45	1401
v/c Ratio	0.77	0.23	0.13	0.65	0.75	0.48	0.36	0.88
Control Delay	65.3	11.8	57.3	36.8	69.1	17.3	58.6	30.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.3	11.8	57.3	36.8	69.1	17.3	58.6	30.6
Queue Length 50th (ft)	89	14	7	84	109	187	30	383
Queue Length 95th (ft)	#190	62	29	158	#261	339	76	#707
Internal Link Dist (ft)		1386		269		2251		1213
Turn Bay Length (ft)	95		125		180		270	
Base Capacity (vph)	328	640	87	575	224	1929	149	1722
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.18	0.13	0.35	0.73	0.47	0.30	0.81

Intersection Summary

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

Queues
9: Walters Road & Bella Vista Drive

05/03/2021

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	192	107	110	4	714	22	904
v/c Ratio	0.72	0.52	0.35	0.04	0.41	0.20	0.51
Control Delay	51.2	45.6	5.9	39.8	14.2	43.9	15.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	45.6	5.9	39.8	14.2	43.9	15.8
Queue Length 50th (ft)	104	59	0	2	136	12	146
Queue Length 95th (ft)	170	104	26	m9	234	35	298
Internal Link Dist (ft)	639	451			643		1927
Turn Bay Length (ft)			90	135		105	
Base Capacity (vph)	325	303	394	150	1753	150	1783
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.35	0.28	0.03	0.41	0.15	0.51

Intersection Summary

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

Queues
10: Walters Road & Pintail Drive

05/03/2021

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	144	50	75	644	879
v/c Ratio	0.43	0.16	0.56	0.27	0.44
Control Delay	34.1	7.6	64.7	7.5	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	7.6	64.7	7.5	14.5
Queue Length 50th (ft)	78	0	46	8	210
Queue Length 95th (ft)	92	21	#95	147	347
Internal Link Dist (ft)	225			851	689
Turn Bay Length (ft)		150	130		
Base Capacity (vph)	750	640	143	2387	2008
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.19	0.08	0.52	0.27	0.44

Intersection Summary

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

Queues
11: Walters Road & Mammoth Way/Montebello Drive

05/03/2021

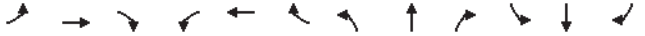
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	22	19	130	94	73	612	29	860
v/c Ratio	0.08	0.05	0.45	0.24	0.46	0.29	0.22	0.43
Control Delay	25.0	0.3	34.3	6.5	48.0	9.5	54.5	7.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.0	0.3	34.3	6.5	48.0	9.5	54.5	7.4
Queue Length 50th (ft)	11	0	68	0	22	3	18	11
Queue Length 95th (ft)	23	0	91	30	91	101	m42	157
Internal Link Dist (ft)	93		335			477		851
Turn Bay Length (ft)		50		125	100		120	
Base Capacity (vph)	623	739	608	710	160	2138	132	1980
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.03	0.21	0.13	0.46	0.29	0.22	0.43

Intersection Summary

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

Queues
12: Walters Road & Petersen Road

05/03/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	12	3	13	32	4	2	7	816	29	14	737	15
v/c Ratio	0.07	0.02	0.05	0.19	0.02	0.01	0.06	0.30	0.03	0.18	0.26	0.01
Control Delay	29.8	27.7	0.4	33.4	27.8	0.0	29.0	10.9	6.6	41.0	7.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.8	27.7	0.4	33.4	27.8	0.0	29.0	10.9	6.6	41.0	7.2	0.3
Queue Length 50th (ft)	6	2	0	17	2	0	3	132	1	8	84	0
Queue Length 95th (ft)	17	7	0	34	9	0	m11	325	19	m22	122	m1
Internal Link Dist (ft)		417			560			510			413	
Turn Bay Length (ft)			180	115		200	85		185	100		75
Base Capacity (vph)	399	468	472	415	622	574	148	2693	905	89	2802	1301
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.01	0.03	0.08	0.01	0.00	0.05	0.30	0.03	0.16	0.26	0.01

Intersection Summary

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

Queues
13: Walters Road & Walmart Main Driveway

05/03/2021

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	60	27	61	796	784
v/c Ratio	0.16	0.07	0.38	0.34	0.39
Control Delay	25.3	8.0	45.0	8.6	15.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	8.0	45.0	8.6	15.4
Queue Length 50th (ft)	27	0	33	100	117
Queue Length 95th (ft)	46	16	72	206	315
Internal Link Dist (ft)	149			326	510
Turn Bay Length (ft)			200		
Base Capacity (vph)	386	620	176	2317	1996
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.16	0.04	0.35	0.34	0.39

Intersection Summary

Queues

15: Lawler Ranch Parkway /Walters Road & State Hwy 12

05/03/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	461	678	17	2	997	258	73	153	3	88	91	602
v/c Ratio	0.81	0.38	0.02	0.02	0.82	0.39	0.34	0.35	0.01	0.48	0.49	0.70
Control Delay	63.4	18.1	0.1	67.0	42.2	10.0	54.1	51.5	0.0	64.8	64.9	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.4	18.1	0.1	67.0	42.2	10.0	54.1	51.5	0.0	64.8	64.9	9.3
Queue Length 50th (ft)	172	114	0	1	338	21	59	61	0	66	68	0
Queue Length 95th (ft)	#347	378	0	13	#836	132	119	106	0	163	168	61
Internal Link Dist (ft)		3194			827			385			265	
Turn Bay Length (ft)	390		275	215		300	175		90	125		190
Base Capacity (vph)	764	1780	1004	352	1213	657	432	889	511	380	387	1128
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.38	0.02	0.01	0.82	0.39	0.17	0.17	0.01	0.23	0.24	0.53

Intersection Summary

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

HCM 6th Signalized Intersection Summary

1: Sunset Avenue & Pintail Drive

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	83	46	165	90	137	24	459	125	230	450	61
Future Volume (veh/h)	61	83	46	165	90	137	24	459	125	230	450	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1753	1900	1885	1824	1900	1885	1767	1870	1885	1824
Adj Flow Rate, veh/h	61	83	46	165	90	137	24	459	125	230	450	61
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	0	5	0	1	0	0	1	4	2	1	0
Cap, veh/h	216	271	150	306	159	242	45	861	233	269	1381	186
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.03	0.31	0.31	0.15	0.44	0.44
Sat Flow, veh/h	1150	1146	635	1277	672	1023	1810	2779	751	1781	3168	427
Grp Volume(v), veh/h	61	0	129	165	0	227	24	295	289	230	253	258
Grp Sat Flow(s),veh/h/ln	1150	0	1782	1277	0	1695	1810	1791	1738	1781	1791	1804
Q Serve(g_s), s	4.4	0.0	5.4	11.0	0.0	10.6	1.2	12.2	12.4	11.3	8.4	8.5
Cycle Q Clear(g_c), s	15.1	0.0	5.4	16.4	0.0	10.6	1.2	12.2	12.4	11.3	8.4	8.5
Prop In Lane	1.00		0.36	1.00		0.60	1.00		0.43	1.00		0.24
Lane Grp Cap(c), veh/h	216	0	422	306	0	401	45	555	539	269	781	787
V/C Ratio(X)	0.28	0.00	0.31	0.54	0.00	0.57	0.53	0.53	0.54	0.85	0.32	0.33
Avail Cap(c_a), veh/h	333	0	602	435	0	573	247	555	539	342	781	787
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.61	0.61	0.61	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	0.0	28.3	35.0	0.0	30.3	43.3	25.6	25.7	37.2	16.7	16.7
Incr Delay (d2), s/veh	0.9	0.0	0.5	1.8	0.0	1.6	7.3	2.2	2.3	16.5	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	2.3	3.5	0.0	4.5	0.6	5.3	5.3	6.0	3.5	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.8	0.0	28.8	36.8	0.0	31.8	50.7	27.9	28.0	53.7	17.8	17.8
LnGrp LOS	D	A	C	D	A	C	D	C	C	D	B	B
Approach Vol, veh/h		190			392			608			741	
Approach Delay, s/veh		31.7			33.9			28.8			28.9	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	44.4		25.9	18.3	33.0		25.9				
Change Period (Y+Rc), s	* 4.7	5.1		4.6	* 4.7	5.1		4.6				
Max Green Setting (Gmax), s	* 12	23.9		30.4	* 17	27.9		30.4				
Max Q Clear Time (g_c+I1), s	3.2	10.5		17.1	13.3	14.4		18.4				
Green Ext Time (p_c), s	0.0	3.5		0.9	0.3	4.1		2.0				

Intersection Summary		
HCM 6th Ctrl Delay	30.2	
HCM 6th LOS	C	

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	553	1841	218	129	1159	167	168	146	135	298	105	253
Future Volume (veh/h)	553	1841	218	129	1159	167	168	146	135	298	105	253
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1841	1885	1870	1841	1900	1885	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	553	1841	218	129	1159	167	168	146	135	202	240	253
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	4	1	2	4	0	1	0	0	0	0	0
Cap, veh/h	605	1945	887	138	1598	735	190	201	167	217	228	375
Arrive On Green	0.17	0.56	0.56	0.08	0.46	0.46	0.11	0.11	0.11	0.12	0.12	0.12
Sat Flow, veh/h	3483	3497	1596	1781	3497	1609	1795	1900	1578	1810	1900	3126
Grp Volume(v), veh/h	553	1841	218	129	1159	167	168	146	135	202	240	253
Grp Sat Flow(s),veh/h/ln	1742	1749	1596	1781	1749	1609	1795	1900	1578	1810	1900	1563
Q Serve(g_s), s	23.4	74.0	10.5	10.8	40.4	9.4	13.8	11.2	12.5	16.6	18.0	11.6
Cycle Q Clear(g_c), s	23.4	74.0	10.5	10.8	40.4	9.4	13.8	11.2	12.5	16.6	18.0	11.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	605	1945	887	138	1598	735	190	201	167	217	228	375
V/C Ratio(X)	0.91	0.95	0.25	0.94	0.73	0.23	0.88	0.72	0.81	0.93	1.05	0.67
Avail Cap(c_a), veh/h	662	1945	887	138	1598	735	190	201	167	217	228	375
HCM Platoon Ratio	1.00	1.00	1.00	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	0.95	0.95	0.95
Uniform Delay (d), s/veh	60.9	31.2	17.1	68.8	33.1	24.7	66.1	64.9	65.5	65.4	66.0	63.2
Incr Delay (d2), s/veh	16.4	11.2	0.7	56.9	2.9	0.7	34.0	10.7	22.9	40.5	72.6	4.2
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	11.5	31.6	3.9	7.0	17.0	3.7	8.2	6.1	6.2	10.1	13.3	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.3	42.4	17.8	125.7	36.0	25.4	100.1	75.6	88.5	105.9	138.6	67.4
LnGrp LOS	E	D	B	F	D	C	F	E	F	F	F	E
Approach Vol, veh/h		2612			1455			449			695	
Approach Delay, s/veh		47.8			42.7			88.7			103.2	
Approach LOS		D			D			F			F	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.3	89.6		23.1	31.2	74.7		21.0
Change Period (Y+Rc), s	4.7	6.2		5.1	5.1	6.2		5.1
Max Green Setting (Gmax), s	11.3	83.4		18.0	28.5	66.1		15.9
Max Q Clear Time (g_c+I1), s	12.8	76.0		20.0	25.4	42.4		15.8
Green Ext Time (p_c), s	0.0	4.3		0.0	0.7	4.0		0.0

Intersection Summary	
HCM 6th Ctrl Delay	57.3
HCM 6th LOS	E

Notes

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

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	2410	1389	29	0	144
Future Vol, veh/h	0	2410	1389	29	0	144
Conflicting Peds, #/hr	0	0	0	4	0	7
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	275	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	3	3	0	0	0
Mvmt Flow	0	2410	1389	29	0	144

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	706
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	383
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	379
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	20.2
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	379
HCM Lane V/C Ratio	-	-	-	0.38
HCM Control Delay (s)	-	-	-	20.2
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	1.7

Intersection	
Intersection Delay, s/veh	19
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	81	307	82	29	202	7	104	73	181	7	44	45
Future Vol, veh/h	81	307	82	29	202	7	104	73	181	7	44	45
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	3	0	0	5	0	0	0	1	0	0	0
Mvmt Flow	81	307	82	29	202	7	104	73	181	7	44	45
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	24.5	13.7	17.4	11.1
HCM LOS	C	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	29%	17%	12%	7%
Vol Thru, %	20%	65%	85%	46%
Vol Right, %	51%	17%	3%	47%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	358	470	238	96
LT Vol	104	81	29	7
Through Vol	73	307	202	44
RT Vol	181	82	7	45
Lane Flow Rate	358	470	238	96
Geometry Grp	1	1	1	1
Degree of Util (X)	0.593	0.756	0.413	0.176
Departure Headway (Hd)	5.962	5.788	6.244	6.602
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	605	630	576	540
Service Time	4.014	3.788	4.301	4.675
HCM Lane V/C Ratio	0.592	0.746	0.413	0.178
HCM Control Delay	17.4	24.5	13.7	11.1
HCM Lane LOS	C	C	B	B
HCM 95th-tile Q	3.9	6.8	2	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	307	1943	183	93	1282	49	119	36	58	21	28	115
Future Volume (veh/h)	307	1943	183	93	1282	49	119	36	58	21	28	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	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	1885	1841	1900	1900	1841	1811	1900	1900	1796	1796	1900	1824
Adj Flow Rate, veh/h	307	1943	183	93	1282	49	78	94	58	21	28	115
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	4	0	0	4	6	0	0	7	7	0	0
Cap, veh/h	339	1744	803	186	1443	633	181	190	152	177	34	138
Arrive On Green	0.19	0.50	0.50	0.10	0.41	0.41	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1795	3497	1610	1810	3497	1535	1810	1900	1522	1711	324	1332
Grp Volume(v), veh/h	307	1943	183	93	1282	49	78	94	58	21	0	143
Grp Sat Flow(s),veh/h/ln	1795	1749	1610	1810	1749	1535	1810	1900	1522	1711	0	1656
Q Serve(g_s), s	18.4	54.7	7.1	5.3	37.3	2.1	4.5	5.1	3.9	1.2	0.0	9.3
Cycle Q Clear(g_c), s	18.4	54.7	7.1	5.3	37.3	2.1	4.5	5.1	3.9	1.2	0.0	9.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.80
Lane Grp Cap(c), veh/h	339	1744	803	186	1443	633	181	190	152	177	0	172
V/C Ratio(X)	0.91	1.11	0.23	0.50	0.89	0.08	0.43	0.49	0.38	0.12	0.00	0.83
Avail Cap(c_a), veh/h	605	1744	803	198	1592	699	247	260	208	234	0	226
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.6	27.5	15.6	46.6	29.9	19.6	46.5	46.8	46.2	44.7	0.0	48.3
Incr Delay (d2), s/veh	4.3	60.1	0.1	0.8	6.1	0.1	0.6	0.7	0.6	0.1	0.0	14.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.2	34.6	2.4	2.4	15.5	0.7	2.0	2.5	1.5	0.5	0.0	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.9	87.6	15.7	47.4	36.1	19.6	47.1	47.5	46.8	44.8	0.0	62.5
LnGrp LOS	D	F	B	D	D	B	D	D	D	D	A	E
Approach Vol, veh/h		2433			1424			230			164	
Approach Delay, s/veh		77.2			36.2			47.2			60.3	
Approach LOS		E			D			D			E	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	16.0	61.2	16.5	25.4	51.8	16.1
Change Period (Y+Rc), s	4.7	6.5	5.1	* 4.7	6.5	5.1
Max Green Setting (Gmax), s	12.3	50.0	15.0	* 37	50.0	15.0
Max Q Clear Time (g_c+I1), s	7.3	56.7	11.3	20.4	39.3	7.1
Green Ext Time (p_c), s	0.0	0.0	0.1	0.4	6.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	61.2
HCM 6th LOS	E

Notes

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

HCM 6th TWSC
6: State Hwy 12 & Woodlark Drive 04/29/2021

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1956	1355	114	0	97
Future Vol, veh/h	0	1956	1355	114	0	97
Conflicting Peds, #/hr	0	0	0	5	0	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	260	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	4	4	0	0	0
Mvmt Flow	0	1956	1355	114	0	97

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	686
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	395
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	392
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.2
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	392
HCM Lane V/C Ratio	-	-	-	0.247
HCM Control Delay (s)	-	-	-	17.2
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	1

HCM 6th Signalized Intersection Summary
7: Walters Road/Walter Road & Air Base Parkway 04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	368	604	361	746	834	14	188	794	833	7	571	236
Future Volume (veh/h)	368	604	361	746	834	14	188	794	833	7	571	236
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	1737	1900	1841	1885	1885	1693	1870	1737	1870	1648	1752	1767
Adj Flow Rate, veh/h	368	604	0	746	834	0	188	794	0	7	571	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	11	0	4	1	1	14	2	11	2	17	10	9
Cap, veh/h	388	1206		809	1188		211	1026		13	669	
Arrive On Green	0.23	0.33	0.00	0.23	0.33	0.00	0.12	0.31	0.00	0.01	0.20	0.00
Sat Flow, veh/h	1654	3610	1560	3483	3582	1434	1781	3300	1585	1570	3416	0
Grp Volume(v), veh/h	368	604	0	746	834	0	188	794	0	7	571	0
Grp Sat Flow(s),veh/h/ln	1654	1805	1560	1742	1791	1434	1781	1650	1585	1570	1664	0
Q Serve(g_s), s	30.7	18.7	0.0	29.3	28.4	0.0	14.6	30.6	0.0	0.6	23.2	0.0
Cycle Q Clear(g_c), s	30.7	18.7	0.0	29.3	28.4	0.0	14.6	30.6	0.0	0.6	23.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	388	1206		809	1188		211	1026		13	669	
V/C Ratio(X)	0.95	0.50		0.92	0.70		0.89	0.77		0.52	0.85	
Avail Cap(c_a), veh/h	402	1206		883	1188		211	1110		62	856	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	52.8	37.3	0.0	52.5	40.7	0.0	60.8	43.8	0.0	69.1	53.9	0.0
Incr Delay (d2), s/veh	31.5	1.5	0.0	14.2	3.5	0.0	34.3	3.2	0.0	28.3	6.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.7	8.3	0.0	14.0	12.6	0.0	8.5	12.6	0.0	0.4	10.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.2	38.8	0.0	66.7	44.2	0.0	95.2	47.0	0.0	97.4	60.7	0.0
LnGrp LOS	F	D		E	D		F	D		F	E	
Approach Vol, veh/h		972	A		1580	A		982	A		578	A
Approach Delay, s/veh		56.0			54.9			56.2			61.1	
Approach LOS		E			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.2	47.5	36.8	50.5	20.6	32.2	36.5	50.8
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.5	47.1	34.0	37.4	16.6	36.0	35.5	35.9
Max Q Clear Time (g_c+I1), s	2.6	32.6	32.7	30.4	16.6	25.2	31.3	20.7
Green Ext Time (p_c), s	0.0	4.4	0.2	2.9	0.0	3.0	1.2	3.1

Intersection Summary		
HCM 6th Ctrl Delay		56.3
HCM 6th LOS		E

Notes

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

HCM 6th Signalized Intersection Summary
8: Walters Road & E Tabor Avenue

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	533	39	198	10	25	51	154	1265	11	88	934	312
Future Volume (veh/h)	533	39	198	10	25	51	154	1265	11	88	934	312
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1796	1900	1900	1796	1900	1841	1824	1900	1856	1796
Adj Flow Rate, veh/h	533	39	198	10	25	51	154	1265	11	88	934	312
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	0	2	0	0	2	0	4	0	0	3	2
Cap, veh/h	529	54	275	23	33	67	197	1705	15	115	1130	376
Arrive On Green	0.15	0.20	0.20	0.01	0.06	0.06	0.11	0.48	0.48	0.06	0.43	0.43
Sat Flow, veh/h	3456	272	1380	1810	558	1138	1810	3553	31	1810	2599	864
Grp Volume(v), veh/h	533	0	237	10	0	76	154	623	653	88	632	614
Grp Sat Flow(s),veh/h/ln	1728	0	1652	1810	0	1695	1810	1749	1835	1810	1763	1700
Q Serve(g_s), s	10.0	0.0	8.8	0.4	0.0	2.9	5.4	18.8	18.8	3.1	20.7	20.9
Cycle Q Clear(g_c), s	10.0	0.0	8.8	0.4	0.0	2.9	5.4	18.8	18.8	3.1	20.7	20.9
Prop In Lane	1.00		0.84	1.00		0.67	1.00		0.02	1.00		0.51
Lane Grp Cap(c), veh/h	529	0	329	23	0	100	197	839	881	115	766	739
V/C Ratio(X)	1.01	0.00	0.72	0.44	0.00	0.76	0.78	0.74	0.74	0.77	0.83	0.83
Avail Cap(c_a), veh/h	529	0	581	155	0	483	332	947	994	277	901	869
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.7	0.0	24.5	32.0	0.0	30.3	28.4	13.7	13.7	30.1	16.3	16.3
Incr Delay (d2), s/veh	41.1	0.0	3.0	12.4	0.0	11.3	6.7	2.8	2.7	10.2	5.5	6.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.8	0.0	3.4	0.2	0.0	1.4	2.5	6.3	6.6	1.6	7.8	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.8	0.0	27.4	44.5	0.0	41.6	35.1	16.5	16.4	40.3	21.8	22.3
LnGrp LOS	F	A	C	D	A	D	D	B	B	D	C	C
Approach Vol, veh/h		770			86			1430			1334	
Approach Delay, s/veh		56.1			41.9			18.4			23.3	
Approach LOS		E			D			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.1	35.4	14.0	7.8	11.1	32.4	4.8	17.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	0.1	35.4	10.0	18.6	12.0	33.4	5.6	23.0
Max Q Clear Time (g_c+I1), s	1.1	20.8	12.0	4.9	7.4	22.9	2.4	10.8
Green Ext Time (p_c), s	0.1	6.8	0.0	0.2	0.1	5.5	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	28.8
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
9: Walters Road & Bella Vista Drive

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	9	9	53	2	60	19	1271	66	54	1039	87
Future Volume (veh/h)	69	9	9	53	2	60	19	1271	66	54	1039	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		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	1781	1900	1824	1696	1900	1900	1900	1856	1824	1900	1841	1824
Adj Flow Rate, veh/h	69	9	9	53	2	60	19	1271	66	54	1039	87
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	0	0	9	0	0	0	3	0	0	4	0
Cap, veh/h	133	17	17	154	6	140	30	1914	99	70	1904	159
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.02	0.56	0.56	0.04	0.58	0.58
Sat Flow, veh/h	1422	185	185	1747	66	1588	1810	3409	177	1810	3266	273
Grp Volume(v), veh/h	87	0	0	55	0	60	19	656	681	54	556	570
Grp Sat Flow(s),veh/h/ln	1793	0	0	1813	0	1588	1810	1763	1824	1810	1749	1791
Q Serve(g_s), s	4.2	0.0	0.0	2.6	0.0	3.2	0.9	23.4	23.5	2.7	17.5	17.5
Cycle Q Clear(g_c), s	4.2	0.0	0.0	2.6	0.0	3.2	0.9	23.4	23.5	2.7	17.5	17.5
Prop In Lane	0.79		0.10	0.96		1.00	1.00		0.10	1.00		0.15
Lane Grp Cap(c), veh/h	167	0	0	160	0	140	30	989	1024	70	1019	1044
V/C Ratio(X)	0.52	0.00	0.00	0.34	0.00	0.43	0.62	0.66	0.66	0.78	0.55	0.55
Avail Cap(c_a), veh/h	325	0	0	308	0	270	151	989	1024	151	1019	1044
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.9	0.0	0.0	38.6	0.0	38.9	44.0	13.8	13.8	42.9	11.5	11.5
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.5	0.0	0.8	7.5	3.5	3.4	6.7	2.1	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.0	1.2	0.0	1.3	0.5	8.7	9.0	1.3	6.2	6.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.8	0.0	0.0	39.1	0.0	39.7	51.5	17.3	17.2	49.6	13.6	13.5
LnGrp LOS	D	A	A	D	A	D	D	B	B	D	B	B
Approach Vol, veh/h		87			115			1356			1180	
Approach Delay, s/veh		39.8			39.4			17.7			15.2	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.0	56.3		13.1	6.0	58.3		12.6
Change Period (Y+Rc), s	4.5	5.8		* 4.7	4.5	5.8		4.7
Max Green Setting (Gmax), s	7.5	31.2		* 16	7.5	31.2		15.3
Max Q Clear Time (g_c+I1), s	4.7	25.5		6.2	2.9	19.5		5.2
Green Ext Time (p_c), s	0.0	4.3		0.2	0.0	6.7		0.2

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

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

HCM 6th Signalized Intersection Summary
10: Walters Road & Pintail Drive

04/29/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	225	83	66	1136	938	153
Future Volume (veh/h)	225	83	66	1136	938	153
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	1885	1767	1811	1841	1841	1781
Adj Flow Rate, veh/h	225	83	66	1136	938	153
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	9	6	4	4	3
Cap, veh/h	276	230	83	2590	1950	318
Arrive On Green	0.15	0.15	0.10	1.00	0.65	0.65
Sat Flow, veh/h	1795	1497	1725	3589	3102	491
Grp Volume(v), veh/h	225	83	66	1136	545	546
Grp Sat Flow(s),veh/h/ln	1795	1497	1725	1749	1749	1752
Q Serve(g_s), s	10.9	4.5	3.4	0.0	14.3	14.4
Cycle Q Clear(g_c), s	10.9	4.5	3.4	0.0	14.3	14.4
Prop In Lane	1.00	1.00	1.00			0.28
Lane Grp Cap(c), veh/h	276	230	83	2590	1133	1135
V/C Ratio(X)	0.81	0.36	0.79	0.44	0.48	0.48
Avail Cap(c_a), veh/h	754	629	153	2590	1133	1135
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.82	0.82	1.00	1.00
Uniform Delay (d), s/veh	36.8	34.1	40.2	0.0	8.1	8.1
Incr Delay (d2), s/veh	5.8	0.9	12.7	0.4	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	3.9	1.6	0.2	4.3	4.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.6	35.1	52.9	0.4	8.4	8.4
LnGrp LOS	D	D	D	A	A	A
Approach Vol, veh/h	308			1202	1091	
Approach Delay, s/veh	40.6			3.3	8.4	
Approach LOS	D			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		71.9		18.1	8.4	63.6
Change Period (Y+Rc), s		5.3		* 4.2	4.0	5.3
Max Green Setting (Gmax), s		42.7		* 38	8.0	30.7
Max Q Clear Time (g_c+I1), s		2.0		12.9	5.4	16.4
Green Ext Time (p_c), s		9.5		0.9	0.0	5.7

Intersection Summary	
HCM 6th Ctrl Delay	9.9
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary
11: Walters Road & Mammoth Way /Montebello Drive

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	3	19	85	2	43	16	1113	185	46	929	18
Future Volume (veh/h)	8	3	19	85	2	43	16	1113	185	46	929	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1841	1810	1826	1841	1824
Adj Flow Rate, veh/h	8	3	19	85	2	43	16	1113	185	46	929	18
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	4	1	5	4	0
Cap, veh/h	196	63	179	237	5	181	33	2099	348	66	2523	49
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.02	0.70	0.70	0.04	0.72	0.72
Sat Flow, veh/h	1128	563	1593	1405	42	1610	1810	3001	497	1739	3509	68
Grp Volume(v), veh/h	11	0	19	87	0	43	16	647	651	46	463	484
Grp Sat Flow(s),veh/h/ln	1691	0	1593	1447	0	1610	1810	1749	1750	1739	1749	1828
Q Serve(g_s), s	0.0	0.0	1.0	4.6	0.0	2.2	0.8	15.9	16.0	2.4	9.1	9.1
Cycle Q Clear(g_c), s	0.5	0.0	1.0	5.0	0.0	2.2	0.8	15.9	16.0	2.4	9.1	9.1
Prop In Lane	0.73		1.00	0.98		1.00	1.00		0.28	1.00		0.04
Lane Grp Cap(c), veh/h	260	0	179	242	0	181	33	1223	1224	66	1257	1315
V/C Ratio(X)	0.04	0.00	0.11	0.36	0.00	0.24	0.48	0.53	0.53	0.70	0.37	0.37
Avail Cap(c_a), veh/h	716	0	651	666	0	658	161	1223	1224	155	1257	1315
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.83	0.83	0.83
Uniform Delay (d), s/veh	35.6	0.0	35.9	37.6	0.0	36.4	43.8	6.5	6.5	42.8	4.8	4.8
Incr Delay (d2), s/veh	0.1	0.0	0.5	1.9	0.0	1.4	21.5	1.6	1.7	20.9	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.4	1.9	0.0	0.9	0.5	4.6	4.7	1.4	2.4	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.8	0.0	36.4	39.5	0.0	37.8	65.2	8.1	8.1	63.6	5.5	5.5
LnGrp LOS	D	A	D	D	A	D	E	A	A	E	A	A
Approach Vol, veh/h		30			130			1314			993	
Approach Delay, s/veh		36.2			39.0			8.8			8.2	
Approach LOS		D			D			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.4	68.2		14.3	5.6	70.0		14.3				
Change Period (Y+Rc), s	4.0	5.3		* 4.2	4.0	5.3		* 4.2				
Max Green Setting (Gmax), s	8.0	31.7		* 37	8.0	31.7		* 37				
Max Q Clear Time (g_c+I1), s	4.6	18.0		3.0	2.8	11.1		7.0				
Green Ext Time (p_c), s	0.0	10.2		0.2	0.0	10.1		1.2				

Intersection Summary	
HCM 6th Ctrl Delay	10.5
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
12: Walters Road & Petersen Road

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	4	7	105	8	35	18	1162	56	8	1153	27
Future Volume (veh/h)	19	4	7	105	8	35	18	1162	56	8	1153	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		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	1767	1900	1900	1841	1900	1900	1900	1856	1781	1900	1841	1737
Adj Flow Rate, veh/h	19	4	7	105	8	0	18	1162	0	8	1153	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	9	0	0	4	0	0	0	3	8	0	4	11
Cap, veh/h	220	210	175	228	210		36	2541		18	2485	
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.00	0.01	0.48	0.00	0.01	0.71	0.00
Sat Flow, veh/h	1308	1900	1584	1368	1900	1610	1810	3526	1510	1810	3589	0
Grp Volume(v), veh/h	19	4	7	105	8	0	18	1162	0	8	1153	0
Grp Sat Flow(s),veh/h/ln	1308	1900	1584	1368	1900	1610	1810	1763	1510	1810	1749	0
Q Serve(g_s), s	1.2	0.2	0.4	6.7	0.3	0.0	0.9	19.7	0.0	0.4	12.8	0.0
Cycle Q Clear(g_c), s	1.5	0.2	0.4	6.8	0.3	0.0	0.9	19.7	0.0	0.4	12.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	220	210	175	228	210		36	2541		18	2485	
V/C Ratio(X)	0.09	0.02	0.04	0.46	0.04		0.49	0.46		0.44	0.46	
Avail Cap(c_a), veh/h	504	623	519	526	623		171	2541		171	2485	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.67	0.67	0.67	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.88	0.88	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.4	35.7	35.8	38.7	35.8	0.0	43.9	11.6	0.0	44.3	5.6	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.1	1.4	0.1	0.0	8.8	0.5	0.0	15.7	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.1	0.1	2.3	0.2	0.0	0.5	8.1	0.0	0.2	3.2	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.6	35.7	35.9	40.2	35.8	0.0	52.8	12.1	0.0	60.0	5.8	0.0
LnGrp LOS	D	D	D	D	D		D	B		E	A	
Approach Vol, veh/h		30			113	A		1180	A		1161	A
Approach Delay, s/veh		36.3			39.9			12.7			6.1	
Approach LOS		D			D			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.4	70.2		14.4	6.3	69.3		14.4
Change Period (Y+Rc), s	4.5	5.3		4.5	4.5	5.3		4.5
Max Green Setting (Gmax), s	8.5	37.7		29.5	8.5	37.7		29.5
Max Q Clear Time (g_c+I1), s	2.4	21.7		3.5	2.9	14.8		8.8
Green Ext Time (p_c), s	0.0	7.0		0.1	0.0	8.2		0.3

Intersection Summary	
HCM 6th Ctrl Delay	11.2
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
13: Walters Road & Walmart Main Driveway

04/29/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	165	81	205	1077	1122	149
Future Volume (veh/h)	165	81	205	1077	1122	149
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	1900	1900	1885	1841	1826	1900
Adj Flow Rate, veh/h	165	81	205	1077	1122	149
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	1	4	5	0
Cap, veh/h	175	156	242	2747	1822	241
Arrive On Green	0.10	0.10	0.14	0.79	0.59	0.59
Sat Flow, veh/h	1810	1610	1795	3589	3170	408
Grp Volume(v), veh/h	165	81	205	1077	631	640
Grp Sat Flow(s),veh/h/ln	1810	1610	1795	1749	1735	1752
Q Serve(g_s), s	8.2	4.3	10.0	8.6	21.0	21.1
Cycle Q Clear(g_c), s	8.2	4.3	10.0	8.6	21.0	21.1
Prop In Lane	1.00	1.00	1.00			0.23
Lane Grp Cap(c), veh/h	175	156	242	2747	1026	1037
V/C Ratio(X)	0.94	0.52	0.85	0.39	0.61	0.62
Avail Cap(c_a), veh/h	175	156	313	2747	1026	1037
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.88	0.88
Uniform Delay (d), s/veh	40.4	38.7	38.0	3.0	11.8	11.8
Incr Delay (d2), s/veh	51.6	3.1	15.3	0.4	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	1.8	5.4	2.1	6.9	7.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	92.0	41.7	53.3	3.4	12.8	12.8
LnGrp LOS	F	D	D	A	B	B
Approach Vol, veh/h	246			1282	1271	
Approach Delay, s/veh	75.5			11.4	12.8	
Approach LOS	E			B	B	

Timer - Assigned Phs		2			5	6		8
Phs Duration (G+Y+Rc), s		76.0			17.5	58.5		14.0
Change Period (Y+Rc), s		5.3			5.3	5.3		5.3
Max Green Setting (Gmax), s		44.7			15.7	23.7		8.7
Max Q Clear Time (g_c+I1), s		10.6			12.0	23.1		10.2
Green Ext Time (p_c), s		9.8			0.2	0.4		0.0

Intersection Summary	
HCM 6th Ctrl Delay	17.7
HCM 6th LOS	B

Notes

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

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	93	0	0	36	0	1246	21	17	1186	1
Future Vol, veh/h	0	0	93	0	0	36	0	1246	21	17	1186	1
Conflicting Peds, #/hr	0	0	5	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	0	5	0
Mvmt Flow	0	0	93	0	0	36	0	1246	21	17	1186	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	599	-	-	634	-	0	0	1267	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	-	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	450	0	0	427	0	-	-	555	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	448	-	-	427	-	-	-	555	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.1	14.2	0	0.2
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	448	427	555	-	-
HCM Lane V/C Ratio	-	-	0.208	0.084	0.031	-	-
HCM Control Delay (s)	-	-	15.1	14.2	11.7	-	-
HCM Lane LOS	-	-	C	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.8	0.3	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	882	969	88	3	655	321	41	65	1	410	139	733
Future Volume (veh/h)	882	969	88	3	655	321	41	65	1	410	139	733
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1752	1885	1900	1781	1737	1900	1841	1900	1767	1856	1870
Adj Flow Rate, veh/h	882	969	88	3	655	321	35	73	1	274	329	733
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	10	1	0	8	11	0	4	0	9	3	2
Cap, veh/h	818	1667	796	13	918	397	144	293	128	412	455	765
Arrive On Green	0.24	0.50	0.50	0.01	0.27	0.27	0.08	0.08	0.08	0.24	0.24	0.24
Sat Flow, veh/h	3456	3328	1590	1810	3385	1464	1810	3681	1610	1682	1856	3125
Grp Volume(v), veh/h	882	969	88	3	655	321	35	73	1	274	329	733
Grp Sat Flow(s),veh/h/ln	1728	1664	1590	1810	1692	1464	1810	1841	1610	1682	1856	1562
Q Serve(g_s), s	29.0	25.1	3.6	0.2	21.4	25.1	2.2	2.3	0.1	18.0	19.9	28.3
Cycle Q Clear(g_c), s	29.0	25.1	3.6	0.2	21.4	25.1	2.2	2.3	0.1	18.0	19.9	28.3
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	818	1667	796	13	918	397	144	293	128	412	455	765
V/C Ratio(X)	1.08	0.58	0.11	0.23	0.71	0.81	0.24	0.25	0.01	0.66	0.72	0.96
Avail Cap(c_a), veh/h	818	1667	796	355	1382	598	443	902	394	412	455	765
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	46.7	21.5	16.2	60.5	40.3	41.7	52.9	52.9	51.9	41.7	42.4	45.6
Incr Delay (d2), s/veh	54.6	0.5	0.1	8.9	1.0	5.0	0.9	0.4	0.0	4.0	5.6	22.7
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	18.7	9.9	1.3	0.1	8.7	9.2	1.0	1.1	0.0	7.7	9.5	13.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	101.3	22.0	16.2	69.4	41.4	46.6	53.8	53.4	51.9	45.7	48.1	68.3
LnGrp LOS	F	C	B	E	D	D	D	D	D	D	D	E
Approach Vol, veh/h		1939			979			109			1336	
Approach Delay, s/veh		57.8			43.2			53.5			58.7	
Approach LOS		E			D			D			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	67.0		35.3	33.2	38.9		15.1				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 24	50.0		30.0	* 29	50.0		30.0				
Max Q Clear Time (g_c+I1), s	2.2	27.1		30.3	31.0	27.1		4.3				
Green Ext Time (p_c), s	0.0	4.3		0.0	0.0	5.2		0.5				

Intersection Summary	
HCM 6th Ctrl Delay	54.7
HCM 6th LOS	D

Notes

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

Queues
1: Sunset Avenue & Pintail Drive

05/03/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	61	129	165	227	24	584	230	511
v/c Ratio	0.37	0.33	0.65	0.53	0.16	0.37	0.74	0.23
Control Delay	33.9	22.3	43.1	21.5	40.2	17.6	50.5	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	22.3	43.1	21.5	40.2	17.6	50.5	10.2
Queue Length 50th (ft)	30	47	88	68	13	102	122	44
Queue Length 95th (ft)	57	79	128	114	37	186	#208	141
Internal Link Dist (ft)		402		619		2012		441
Turn Bay Length (ft)	105		75		105		105	
Base Capacity (vph)	270	616	411	636	246	1579	340	2192
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.21	0.40	0.36	0.10	0.37	0.68	0.23

Intersection Summary

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

Queues
2: Grizzly Island Road/Sunset Avenue & State Hwy 12

05/03/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	553	1841	218	129	1159	167	168	146	135	200	203	253
v/c Ratio	0.88	0.95	0.23	0.95	0.74	0.21	0.89	0.73	0.47	0.98	0.96	0.45
Control Delay	76.2	44.0	6.2	131.8	38.0	3.9	107.1	85.6	15.9	121.3	117.3	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.2	44.0	6.2	131.8	38.0	3.9	107.1	85.6	15.9	121.3	117.3	9.3
Queue Length 50th (ft)	272	868	32	128	495	0	165	141	3	208	211	0
Queue Length 95th (ft)	#355	#1071	74	#265	584	44	#305	#240	69	#384	#385	46
Internal Link Dist (ft)		867			689			481			2012	
Turn Bay Length (ft)	500		275	250		400	125			150		150
Base Capacity (vph)	658	1929	953	136	1561	808	189	201	286	205	211	563
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.95	0.23	0.95	0.74	0.21	0.89	0.73	0.47	0.98	0.96	0.45

Intersection Summary

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

Queues
5: Lawler Ranch Parkway/Emperor Drive & State Hwy 12

05/03/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	307	1943	183	93	1282	49	76	79	58	21	143
v/c Ratio	0.91	1.15	0.22	0.55	0.94	0.07	0.35	0.36	0.19	0.10	0.47
Control Delay	85.5	106.4	11.4	74.6	53.1	0.2	60.2	60.1	1.3	56.1	20.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.5	106.4	11.4	74.6	53.1	0.2	60.2	60.1	1.3	56.1	20.3
Queue Length 50th (ft)	225	~851	25	68	458	0	58	61	0	15	20
Queue Length 95th (ft)	#648	#2113	137	#262	#1449	0	147	150	0	52	100
Internal Link Dist (ft)		1386			1441			861			1277
Turn Bay Length (ft)	425		255	200		230	215		215	125	
Base Capacity (vph)	519	2046	999	170	1364	678	261	267	350	256	349
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.95	0.18	0.55	0.94	0.07	0.29	0.30	0.17	0.08	0.41

Intersection Summary

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

Queues
7: Walters Road/Walter Road & Air Base Parkway

05/03/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	368	604	361	746	834	14	188	794	833	7	807
v/c Ratio	0.96	0.62	0.64	0.90	0.85	0.03	0.91	0.63	0.86	0.12	0.96
Control Delay	88.1	48.4	25.7	66.0	58.1	0.1	103.5	37.7	21.9	69.3	70.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.1	48.4	25.7	66.0	58.1	0.1	103.5	37.7	21.9	69.3	70.9
Queue Length 50th (ft)	330	260	133	335	384	0	171	297	240	6	366
Queue Length 95th (ft)	#524	326	249	413	#477	0	#316	411	#592	24	#501
Internal Link Dist (ft)		831			1018			1074			197
Turn Bay Length (ft)	275		315	400		180			325	150	
Base Capacity (vph)	394	979	566	879	977	460	209	1267	968	60	841
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.62	0.64	0.85	0.85	0.03	0.90	0.63	0.86	0.12	0.96

Intersection Summary

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

Queues
8: Walters Road & E Tabor Avenue

05/03/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	533	237	10	76	154	1276	88	1246
v/c Ratio	1.14	0.43	0.07	0.33	0.60	0.75	0.43	0.84
Control Delay	119.7	9.1	38.2	18.8	43.5	22.0	41.0	26.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	119.7	9.1	38.2	18.8	43.5	22.0	41.0	26.7
Queue Length 50th (ft)	~165	14	5	12	70	263	40	264
Queue Length 95th (ft)	#304	77	21	48	#157	#489	93	#483
Internal Link Dist (ft)		1386		269		2251		1213
Turn Bay Length (ft)	95		125		180		270	
Base Capacity (vph)	468	648	137	465	295	1708	246	1572
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.37	0.07	0.16	0.52	0.75	0.36	0.79

Intersection Summary

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

Queues
9: Walters Road & Bella Vista Drive

05/03/2021

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	87	55	60	19	1337	54	1126
v/c Ratio	0.41	0.31	0.20	0.18	0.67	0.42	0.52
Control Delay	39.2	40.8	1.5	53.0	21.8	49.9	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	40.8	1.5	53.0	21.8	49.9	15.9
Queue Length 50th (ft)	44	30	0	8	72	30	158
Queue Length 95th (ft)	83	61	0	m23	#616	67	#450
Internal Link Dist (ft)	639	451			643		1927
Turn Bay Length (ft)			90	135		105	
Base Capacity (vph)	323	283	394	150	2008	150	2167
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.19	0.15	0.13	0.67	0.36	0.52

Intersection Summary

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

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

Queues
10: Walters Road & Pintail Drive

05/03/2021

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	225	83	66	1136	1091
v/c Ratio	0.58	0.21	0.47	0.48	0.56
Control Delay	35.7	6.2	51.5	6.8	25.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	35.7	6.2	51.5	6.8	25.2
Queue Length 50th (ft)	120	0	37	122	311
Queue Length 95th (ft)	139	27	m54	431	#442
Internal Link Dist (ft)	590			851	689
Turn Bay Length (ft)		150	130		
Base Capacity (vph)	750	670	151	2346	1951
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.30	0.12	0.44	0.48	0.56

Intersection Summary

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

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

Queues
11: Walters Road & Mammoth Way /Montebello Drive

05/03/2021

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	11	19	87	43	16	1298	46	947
v/c Ratio	0.04	0.05	0.35	0.12	0.10	0.57	0.31	0.38
Control Delay	24.5	0.3	33.0	2.2	32.6	16.3	25.5	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.5	0.3	33.0	2.2	32.6	16.3	25.5	18.9
Queue Length 50th (ft)	6	0	46	0	8	133	27	220
Queue Length 95th (ft)	14	0	64	8	m20	#563	m46	370
Internal Link Dist (ft)	184		413			477		851
Turn Bay Length (ft)		50		125	100		120	
Base Capacity (vph)	659	705	561	705	160	2296	152	2515
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.03	0.16	0.06	0.10	0.57	0.30	0.38

Intersection Summary

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

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

Queues
12: Walters Road & Petersen Road

05/03/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	19	4	7	105	8	35	18	1162	56	8	1180
v/c Ratio	0.09	0.01	0.02	0.47	0.03	0.11	0.14	0.45	0.05	0.07	0.48
Control Delay	28.6	26.0	0.1	39.0	26.4	0.8	35.4	12.9	6.7	49.4	10.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.6	26.0	0.1	39.0	26.4	0.8	35.4	12.9	6.7	49.4	10.2
Queue Length 50th (ft)	10	2	0	57	4	0	10	173	1	4	47
Queue Length 95th (ft)	23	9	0	85	13	2	m22	336	m27	m13	422
Internal Link Dist (ft)		417			560			505			413
Turn Bay Length (ft)			180	115		200	85		185	100	
Base Capacity (vph)	427	622	577	451	622	574	170	2599	1127	170	2466
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.01	0.01	0.23	0.01	0.06	0.11	0.45	0.05	0.05	0.48

Intersection Summary

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

Queues
13: Walters Road & Walmart Main Driveway

05/03/2021

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	165	81	205	1077	1271
v/c Ratio	0.38	0.16	0.74	0.48	0.87
Control Delay	28.9	5.9	52.4	10.9	32.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	28.9	5.9	52.4	10.9	32.7
Queue Length 50th (ft)	78	0	110	151	277
Queue Length 95th (ft)	108	28	#190	290	#663
Internal Link Dist (ft)	149			338	505
Turn Bay Length (ft)			200		
Base Capacity (vph)	438	672	311	2221	1453
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.38	0.12	0.66	0.48	0.87

Intersection Summary

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

Queues
15: Lawler Ranch Road/Walters Road & State Hwy 12

05/04/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	882	969	88	3	655	321	34	72	1	271	278	733
v/c Ratio	1.06	0.57	0.10	0.02	0.76	0.53	0.16	0.17	0.00	0.74	0.72	0.61
Control Delay	93.2	26.1	6.5	68.3	50.6	7.7	52.6	51.5	0.0	60.6	58.7	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.2	26.1	6.5	68.3	50.6	7.7	52.6	51.5	0.0	60.6	58.7	5.9
Queue Length 50th (ft)	~390	252	3	2	248	0	27	29	0	202	206	0
Queue Length 95th (ft)	#889	602	44	16	440	85	68	59	0	#566	#565	62
Internal Link Dist (ft)		3194			827			385			265	
Turn Bay Length (ft)	390		275	215		300	175		90	125		190
Base Capacity (vph)	834	1715	874	363	1401	785	448	905	521	395	418	1249
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.06	0.57	0.10	0.01	0.47	0.41	0.08	0.08	0.00	0.69	0.67	0.59

Intersection Summary

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

HCM 6th Signalized Intersection Summary
1: Sunset Avenue /Sunset Avenue & Pintail Drive

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	49	76	12	103	236	176	38	311	42	207	387	52
Future Volume (veh/h)	49	76	12	103	236	176	38	311	42	207	387	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1668	1870	1885	1810	1900	1796	1639	1870	1856	1824
Adj Flow Rate, veh/h	49	76	12	103	236	176	38	311	42	207	387	52
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	0	11	2	1	1	0	7	13	2	3	0
Cap, veh/h	163	482	76	428	302	225	62	1211	162	246	1576	210
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.03	0.40	0.40	0.14	0.50	0.50
Sat Flow, veh/h	973	1601	253	1305	1001	746	1810	3021	404	1781	3123	417
Grp Volume(v), veh/h	49	0	88	103	0	412	38	174	179	207	217	222
Grp Sat Flow(s),veh/h/ln	973	0	1853	1305	0	1747	1810	1706	1719	1781	1763	1777
Q Serve(g_s), s	4.4	0.0	3.1	5.7	0.0	19.4	1.9	6.1	6.3	10.2	6.3	6.4
Cycle Q Clear(g_c), s	23.8	0.0	3.1	8.8	0.0	19.4	1.9	6.1	6.3	10.2	6.3	6.4
Prop In Lane	1.00		0.14	1.00		0.43	1.00		0.24	1.00		0.23
Lane Grp Cap(c), veh/h	163	0	558	428	0	526	62	684	689	246	890	897
V/C Ratio(X)	0.30	0.00	0.16	0.24	0.00	0.78	0.62	0.25	0.26	0.84	0.24	0.25
Avail Cap(c_a), veh/h	253	0	729	548	0	687	187	684	689	323	890	897
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.79	0.79	0.79	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	0.0	23.1	26.3	0.0	28.7	42.9	18.0	18.0	37.8	12.6	12.6
Incr Delay (d2), s/veh	1.3	0.0	0.2	0.4	0.0	4.9	9.8	0.2	0.2	15.5	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	1.4	1.8	0.0	8.7	1.0	2.3	2.4	5.4	2.5	2.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.9	0.0	23.2	26.6	0.0	33.6	52.7	18.2	18.3	53.3	13.2	13.3
LnGrp LOS	D	A	C	C	A	C	D	B	B	D	B	B
Approach Vol, veh/h		137			515			391			646	
Approach Delay, s/veh		29.5			32.2			21.6			26.1	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	50.5		31.7	17.1	41.2		31.7				
Change Period (Y+Rc), s	* 4.7	5.1		4.6	* 4.7	5.1		4.6				
Max Green Setting (Gmax), s	* 9.3	30.9		35.4	* 16	23.9		35.4				
Max Q Clear Time (g_c+I1), s	3.9	8.4		25.8	12.2	8.3		21.4				
Green Ext Time (p_c), s	0.0	3.7		0.5	0.3	2.5		3.3				

Intersection Summary	
HCM 6th Ctrl Delay	27.2
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary
2: Grizzly Island Road/Sunset Avenue & State Hwy 12

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	241	1240	193	103	1644	138	284	133	34	187	119	333
Future Volume (veh/h)	241	1240	193	103	1644	138	284	133	34	187	119	333
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1648	1885	1752	1737	1826	1885	1870	1604	1885	1885	1856
Adj Flow Rate, veh/h	241	1240	193	103	1644	138	284	133	34	153	167	145
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	4	17	1	10	11	5	1	2	20	1	1	3
Cap, veh/h	270	1651	842	137	1773	831	292	304	218	151	158	253
Arrive On Green	0.08	0.53	0.53	0.08	0.54	0.54	0.16	0.16	0.16	0.08	0.08	0.08
Sat Flow, veh/h	3401	3131	1596	1668	3300	1547	1795	1870	1341	1795	1885	3014
Grp Volume(v), veh/h	241	1240	193	103	1644	138	284	133	34	153	167	145
Grp Sat Flow(s),veh/h/ln	1700	1566	1596	1668	1650	1547	1795	1870	1341	1795	1885	1507
Q Serve(g_s), s	10.5	46.5	9.8	9.1	68.9	6.8	23.6	9.6	3.3	12.6	12.6	6.9
Cycle Q Clear(g_c), s	10.5	46.5	9.8	9.1	68.9	6.8	23.6	9.6	3.3	12.6	12.6	6.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	270	1651	842	137	1773	831	292	304	218	151	158	253
V/C Ratio(X)	0.89	0.75	0.23	0.75	0.93	0.17	0.97	0.44	0.16	1.01	1.05	0.57
Avail Cap(c_a), veh/h	270	1651	842	153	1773	831	292	304	218	151	158	253
HCM Platoon Ratio	1.00	1.00	1.00	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	0.98	0.98	0.98
Uniform Delay (d), s/veh	68.4	27.7	19.1	67.4	32.0	17.6	62.5	56.6	54.0	68.7	68.7	66.1
Incr Delay (d2), s/veh	29.0	3.2	0.6	14.1	9.9	0.4	44.8	0.4	0.1	76.4	86.0	2.6
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	5.6	17.0	3.6	4.3	27.8	2.4	14.5	4.6	1.1	9.0	9.8	2.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	97.4	30.9	19.7	81.4	41.9	18.1	107.2	57.0	54.1	145.1	154.7	68.7
LnGrp LOS	F	C	B	F	D	B	F	E	D	F	F	E
Approach Vol, veh/h		1674			1885			451			465	
Approach Delay, s/veh		39.2			42.3			88.4			124.7	
Approach LOS		D			D			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.5	85.3		17.2	17.0	86.8		29.0				
Change Period (Y+Rc), s	6.2	* 6.2		4.6	5.1	6.2		4.6				
Max Green Setting (Gmax), s	3.8	* 79		12.6	11.9	80.6		24.4				
Max Q Clear Time (g_c+I1), s	11.1	48.5		14.6	12.5	70.9		25.6				
Green Ext Time (p_c), s	0.0	4.6		0.0	0.0	4.5		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	54.4
HCM 6th LOS	D

Notes

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

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑	↱		↱
Traffic Vol, veh/h	0	1309	2089	19	0	90
Future Vol, veh/h	0	1309	2089	19	0	90
Conflicting Peds, #/hr	0	0	0	4	0	7
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	275	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	13	9	0	0	0
Mvmt Flow	0	1309	2089	19	0	90

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1056
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	225
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	223
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	31.7
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	223
HCM Lane V/C Ratio	-	-	-	0.404
HCM Control Delay (s)	-	-	-	31.7
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	1.8

Intersection	
Intersection Delay, s/veh	14
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	32	199	51	70	333	8	86	17	98	7	59	75
Future Vol, veh/h	32	199	51	70	333	8	86	17	98	7	59	75
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	3	5	2	2	4	20	1	0	2	0	2	2
Mvmt Flow	32	199	51	70	333	8	86	17	98	7	59	75
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12.9	17	11.8	10.8
HCM LOS	B	C	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	43%	11%	17%	5%
Vol Thru, %	8%	71%	81%	42%
Vol Right, %	49%	18%	2%	53%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	201	282	411	141
LT Vol	86	32	70	7
Through Vol	17	199	333	59
RT Vol	98	51	8	75
Lane Flow Rate	201	282	411	141
Geometry Grp	1	1	1	1
Degree of Util (X)	0.327	0.435	0.62	0.231
Departure Headway (Hd)	5.865	5.547	5.435	5.886
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	609	646	662	605
Service Time	3.946	3.618	3.498	3.973
HCM Lane V/C Ratio	0.33	0.437	0.621	0.233
HCM Control Delay	11.8	12.9	17	10.8
HCM Lane LOS	B	B	C	B
HCM 95th-tile Q	1.4	2.2	4.3	0.9

HCM 6th Signalized Intersection Summary
5: Lawler Ranch Parkway /Emperor Drive & State Hwy 12

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	1183	63	79	1685	12	175	25	77	40	20	177
Future Volume (veh/h)	130	1183	63	79	1685	12	175	25	77	40	20	177
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1648	1900	1870	1707	1900	1841	1900	1870	1796	1900	1810
Adj Flow Rate, veh/h	130	1183	63	79	1685	12	193	0	77	40	20	43
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	17	0	2	13	0	4	0	2	7	0	1
Cap, veh/h	200	1524	784	184	1550	769	368	0	167	172	54	116
Arrive On Green	0.11	0.49	0.49	0.10	0.48	0.48	0.11	0.00	0.11	0.10	0.10	0.10
Sat Flow, veh/h	1781	3131	1610	1781	3244	1610	3506	0	1585	1711	536	1153
Grp Volume(v), veh/h	130	1183	63	79	1685	12	193	0	77	40	0	63
Grp Sat Flow(s),veh/h/ln	1781	1566	1610	1781	1622	1610	1753	0	1585	1711	0	1689
Q Serve(g_s), s	7.3	32.6	2.2	4.4	50.0	0.4	5.5	0.0	4.8	2.3	0.0	3.6
Cycle Q Clear(g_c), s	7.3	32.6	2.2	4.4	50.0	0.4	5.5	0.0	4.8	2.3	0.0	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.68
Lane Grp Cap(c), veh/h	200	1524	784	184	1550	769	368	0	167	172	0	170
V/C Ratio(X)	0.65	0.78	0.08	0.43	1.09	0.02	0.52	0.00	0.46	0.23	0.00	0.37
Avail Cap(c_a), veh/h	340	1524	784	204	1550	769	503	0	227	245	0	242
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.5	22.1	14.3	44.0	27.3	14.4	44.3	0.0	44.0	43.3	0.0	44.0
Incr Delay (d2), s/veh	1.3	2.6	0.0	0.6	50.4	0.0	1.2	0.0	2.0	0.3	0.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	11.1	0.7	1.9	27.8	0.1	2.4	0.0	2.0	1.0	0.0	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.8	24.7	14.4	44.6	77.7	14.4	45.5	0.0	46.0	43.6	0.0	44.5
LnGrp LOS	D	C	B	D	F	B	D	A	D	D	A	D
Approach Vol, veh/h		1376			1776			270			103	
Approach Delay, s/veh		26.3			75.8			45.6			44.1	
Approach LOS		C			E			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	15.5	57.4		15.6	16.4	56.5		16.1
Change Period (Y+Rc), s	4.7	6.5		5.1	* 4.7	6.5		5.1
Max Green Setting (Gmax), s	11.3	50.0		15.0	* 20	50.0		15.0
Max Q Clear Time (g_c+I1), s	10.4	34.6		5.6	9.3	52.0		7.5
Green Ext Time (p_c), s	0.0	7.1		0.2	0.1	0.0		0.5

Intersection Summary	
HCM 6th Ctrl Delay	53.3
HCM 6th LOS	D

Notes

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

HCM 6th TWSC
6: State Hwy 12 & Woodlark Drive

04/29/2021

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1289	1711	4	0	169
Future Vol, veh/h	0	1289	1711	4	0	169
Conflicting Peds, #/hr	0	0	0	5	0	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	260	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	15	12	0	0	1
Mvmt Flow	0	1289	1711	4	0	169

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	864
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.31
Pot Cap-1 Maneuver	0	-	-	-	0	299
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	297
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	32
HCM LOS			D

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	297
HCM Lane V/C Ratio	-	-	-	0.569
HCM Control Delay (s)	-	-	-	32
HCM Lane LOS	-	-	-	D
HCM 95th %tile Q(veh)	-	-	-	3.3

HCM 6th Signalized Intersection Summary
7: Walters Road & Air Base Parkway

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	259	896	294	560	414	26	348	302	711	10	693	288
Future Volume (veh/h)	259	896	294	560	414	26	348	302	711	10	693	288
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	1752	1870	1781	1870	1796	1707	1856	1707	1870	1604	1693	1604
Adj Flow Rate, veh/h	259	896	0	560	414	0	348	302	0	10	693	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	10	2	8	2	7	13	3	13	2	20	14	20
Cap, veh/h	286	1025		518	911		324	1351		18	787	
Arrive On Green	0.17	0.29	0.00	0.15	0.27	0.00	0.18	0.42	0.00	0.01	0.24	0.00
Sat Flow, veh/h	1668	3554	1510	3456	3413	1447	1767	3244	1585	1527	3300	0
Grp Volume(v), veh/h	259	896	0	560	414	0	348	302	0	10	693	0
Grp Sat Flow(s),veh/h/ln	1668	1777	1510	1728	1706	1447	1767	1622	1585	1527	1608	0
Q Serve(g_s), s	18.3	28.8	0.0	18.0	12.1	0.0	22.0	7.2	0.0	0.8	24.9	0.0
Cycle Q Clear(g_c), s	18.3	28.8	0.0	18.0	12.1	0.0	22.0	7.2	0.0	0.8	24.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	286	1025		518	911		324	1351		18	787	
V/C Ratio(X)	0.91	0.87		1.08	0.45		1.07	0.22		0.55	0.88	
Avail Cap(c_a), veh/h	349	1025		518	911		324	1351		70	884	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	48.8	40.6	0.0	51.0	36.7	0.0	49.0	22.5	0.0	59.0	43.6	0.0
Incr Delay (d2), s/veh	23.2	10.3	0.0	63.0	1.6	0.0	71.1	0.1	0.0	24.0	9.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	13.4	0.0	12.0	5.1	0.0	15.8	2.7	0.0	0.4	11.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.9	50.9	0.0	114.0	38.3	0.0	120.1	22.6	0.0	82.9	53.1	0.0
LnGrp LOS	E	D		F	D		F	C		F	D	
Approach Vol, veh/h		1155	A		974	A		650	A		703	A
Approach Delay, s/veh		55.6			81.8			74.8			53.5	
Approach LOS		E			F			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.4	54.0	24.6	36.0	26.0	33.4	22.0	38.6
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.5	49.5	25.1	23.9	22.0	33.0	18.0	31.0
Max Q Clear Time (g_c+I1), s	2.8	9.2	20.3	14.1	24.0	26.9	20.0	30.8
Green Ext Time (p_c), s	0.0	1.9	0.3	1.6	0.0	2.5	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	66.1
HCM 6th LOS	E

Notes

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

HCM 6th Signalized Intersection Summary
8: Walters Road & E Tabor Avenue

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	254	28	93	16	70	129	165	913	7	45	960	520
Future Volume (veh/h)	254	28	93	16	70	129	165	913	7	45	960	520
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	1900	1767	1900	1900	1810	1885	1826	1824	1826	1767	1781
Adj Flow Rate, veh/h	254	28	93	16	70	129	165	913	7	45	960	520
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	0	4	0	0	1	1	5	0	5	9	3
Cap, veh/h	317	84	279	32	85	157	196	2028	16	61	1062	561
Arrive On Green	0.09	0.22	0.22	0.02	0.14	0.14	0.11	0.57	0.57	0.04	0.50	0.50
Sat Flow, veh/h	3428	386	1283	1810	599	1103	1795	3529	27	1739	2122	1121
Grp Volume(v), veh/h	254	0	121	16	0	199	165	449	471	45	754	726
Grp Sat Flow(s),veh/h/ln	1714	0	1669	1810	0	1701	1795	1735	1821	1739	1678	1565
Q Serve(g_s), s	7.5	0.0	6.3	0.9	0.0	11.7	9.3	15.3	15.3	2.6	42.1	44.6
Cycle Q Clear(g_c), s	7.5	0.0	6.3	0.9	0.0	11.7	9.3	15.3	15.3	2.6	42.1	44.6
Prop In Lane	1.00		0.77	1.00		0.65	1.00		0.01	1.00		0.72
Lane Grp Cap(c), veh/h	317	0	363	32	0	243	196	997	1046	61	840	783
V/C Ratio(X)	0.80	0.00	0.33	0.50	0.00	0.82	0.84	0.45	0.45	0.74	0.90	0.93
Avail Cap(c_a), veh/h	332	0	599	88	0	528	226	997	1046	152	878	819
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.9	0.0	34.1	50.2	0.0	42.9	45.1	12.6	12.6	49.3	23.4	24.0
Incr Delay (d2), s/veh	12.7	0.0	0.5	11.3	0.0	6.7	21.6	0.3	0.3	15.7	11.7	16.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	0.0	2.6	0.5	0.0	5.3	5.2	5.3	5.6	1.4	17.5	18.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.6	0.0	34.6	61.5	0.0	49.6	66.6	12.9	12.9	65.0	35.1	40.0
LnGrp LOS	E	A	C	E	A	D	E	B	B	E	D	D
Approach Vol, veh/h		375			215			1085			1525	
Approach Delay, s/veh		50.8			50.5			21.1			38.3	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.6	63.3	13.5	18.7	15.3	55.6	5.8	26.4
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	9.6	58.0	10.0	32.0	13.0	54.0	5.0	37.0
Max Q Clear Time (g_c+I1), s	11.6	17.3	9.5	13.7	11.3	46.6	2.9	8.3
Green Ext Time (p_c), s	0.0	6.1	0.0	1.1	0.1	5.1	0.0	0.7

Intersection Summary	
HCM 6th Ctrl Delay	34.8
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
9: Walters Road & Bella Vista Drive

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	167	19	6	72	40	110	4	713	16	22	879	114
Future Volume (veh/h)	167	19	6	72	40	110	4	713	16	22	879	114
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		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	1810	1811	1824	1753	1900	1900	1900	1811	1710	1900	1767	1739
Adj Flow Rate, veh/h	167	19	6	72	40	110	4	713	16	22	879	114
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	6	0	5	0	0	0	6	8	0	9	6
Cap, veh/h	202	23	7	114	64	154	8	1826	41	34	1629	211
Arrive On Green	0.13	0.13	0.13	0.10	0.10	0.10	0.00	0.53	0.53	0.02	0.55	0.55
Sat Flow, veh/h	1501	171	54	1183	657	1590	1810	3440	77	1810	2987	387
Grp Volume(v), veh/h	192	0	0	112	0	110	4	356	373	22	494	499
Grp Sat Flow(s),veh/h/ln	1726	0	0	1841	0	1590	1810	1721	1797	1810	1678	1696
Q Serve(g_s), s	9.7	0.0	0.0	5.3	0.0	6.0	0.2	11.0	11.0	1.1	17.1	17.1
Cycle Q Clear(g_c), s	9.7	0.0	0.0	5.3	0.0	6.0	0.2	11.0	11.0	1.1	17.1	17.1
Prop In Lane	0.87		0.03	0.64		1.00	1.00		0.04	1.00		0.23
Lane Grp Cap(c), veh/h	233	0	0	178	0	154	8	913	954	34	915	925
V/C Ratio(X)	0.83	0.00	0.00	0.63	0.00	0.72	0.52	0.39	0.39	0.65	0.54	0.54
Avail Cap(c_a), veh/h	313	0	0	313	0	270	151	913	954	151	915	925
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.9	0.0	0.0	39.1	0.0	39.4	44.7	12.5	12.5	43.9	13.2	13.2
Incr Delay (d2), s/veh	9.5	0.0	0.0	1.4	0.0	2.3	18.9	1.3	1.2	7.4	2.3	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	0.0	0.0	2.4	0.0	2.5	0.1	4.0	4.2	0.5	6.1	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.4	0.0	0.0	40.5	0.0	41.8	63.7	13.7	13.7	51.3	15.5	15.4
LnGrp LOS	D	A	A	D	A	D	E	B	B	D	B	B
Approach Vol, veh/h		192			222			733			1015	
Approach Delay, s/veh		47.4			41.1			14.0			16.2	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.2	53.6		16.8	4.9	54.9		13.4
Change Period (Y+Rc), s	4.5	5.8		* 4.7	4.5	5.8		4.7
Max Green Setting (Gmax), s	7.5	31.2		* 16	7.5	31.2		15.3
Max Q Clear Time (g_c+I1), s	13.1	13.0		11.7	2.2	19.1		8.0
Green Ext Time (p_c), s	0.0	5.5		0.3	0.0	6.2		0.3

Intersection Summary	
HCM 6th Ctrl Delay	20.8
HCM 6th LOS	C

Notes

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

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

HCM 6th Signalized Intersection Summary
10: Walters Road & Pintail Drive

04/29/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	144	65	78	660	895	78
Future Volume (veh/h)	144	65	78	660	895	78
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	1885	1737	1722	1796	1796	1739
Adj Flow Rate, veh/h	144	65	78	660	895	78
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	11	12	7	7	6
Cap, veh/h	191	157	97	2689	2174	189
Arrive On Green	0.11	0.11	0.12	1.00	0.68	0.68
Sat Flow, veh/h	1795	1472	1640	3503	3266	277
Grp Volume(v), veh/h	144	65	78	660	481	492
Grp Sat Flow(s),veh/h/ln	1795	1472	1640	1706	1706	1746
Q Serve(g_s), s	7.0	3.7	4.2	0.0	11.1	11.1
Cycle Q Clear(g_c), s	7.0	3.7	4.2	0.0	11.1	11.1
Prop In Lane	1.00	1.00	1.00			0.16
Lane Grp Cap(c), veh/h	191	157	97	2689	1168	1195
V/C Ratio(X)	0.75	0.41	0.81	0.25	0.41	0.41
Avail Cap(c_a), veh/h	754	618	146	2689	1168	1195
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.97	0.97	1.00	1.00
Uniform Delay (d), s/veh	39.1	37.6	39.2	0.0	6.2	6.2
Incr Delay (d2), s/veh	5.9	1.7	17.0	0.2	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	3.2	2.0	0.1	3.0	3.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	44.9	39.3	56.2	0.2	6.5	6.5
LnGrp LOS	D	D	E	A	A	A
Approach Vol, veh/h	209			738	973	
Approach Delay, s/veh	43.2			6.1	6.5	
Approach LOS	D			A	A	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		76.2		13.8	9.3	66.9
Change Period (Y+Rc), s		5.3		* 4.2	4.0	5.3
Max Green Setting (Gmax), s		42.7		* 38	8.0	30.7
Max Q Clear Time (g_c+I1), s		2.0		9.0	6.2	13.1
Green Ext Time (p_c), s		4.6		0.6	0.0	5.4

Intersection Summary	
HCM 6th Ctrl Delay	10.3
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
11: Walters Road & Mammoth Way/Montebello Drive

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	21	1	19	130	0	94	73	600	32	29	916	52
Future Volume (veh/h)	21	1	19	130	0	94	73	600	32	29	916	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1811	1900	1796	1767	1589	1811	1824
Adj Flow Rate, veh/h	21	1	19	130	0	94	73	600	32	29	916	52
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	6	0	7	4	21	6	0
Cap, veh/h	302	13	227	286	0	218	95	2238	119	43	2169	123
Arrive On Green	0.14	0.14	0.14	0.14	0.00	0.14	0.05	0.68	0.68	0.03	0.66	0.66
Sat Flow, veh/h	1576	89	1597	1454	0	1535	1810	3295	176	1513	3309	188
Grp Volume(v), veh/h	22	0	19	130	0	94	73	310	322	29	476	492
Grp Sat Flow(s),veh/h/ln	1666	0	1597	1454	0	1535	1810	1706	1764	1513	1721	1777
Q Serve(g_s), s	0.0	0.0	0.9	6.5	0.0	5.0	3.6	6.4	6.4	1.7	11.9	11.9
Cycle Q Clear(g_c), s	0.9	0.0	0.9	7.5	0.0	5.0	3.6	6.4	6.4	1.7	11.9	11.9
Prop In Lane	0.95		1.00	1.00		1.00	1.00		0.10	1.00		0.11
Lane Grp Cap(c), veh/h	315	0	227	286	0	218	95	1159	1198	43	1128	1164
V/C Ratio(X)	0.07	0.00	0.08	0.45	0.00	0.43	0.77	0.27	0.27	0.67	0.42	0.42
Avail Cap(c_a), veh/h	736	0	688	699	0	662	161	1159	1198	134	1128	1164
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.88	0.88	0.88
Uniform Delay (d), s/veh	33.5	0.0	33.5	36.2	0.0	35.3	42.1	5.7	5.7	43.3	7.4	7.4
Incr Delay (d2), s/veh	0.2	0.0	0.3	2.4	0.0	2.9	23.5	0.6	0.5	28.6	1.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.4	2.8	0.0	2.0	2.2	1.9	1.9	1.0	3.7	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.7	0.0	33.9	38.6	0.0	38.2	65.6	6.2	6.2	71.9	8.4	8.4
LnGrp LOS	C	A	C	D	A	D	E	A	A	E	A	A
Approach Vol, veh/h		41			224			705			997	
Approach Delay, s/veh		33.8			38.4			12.4			10.2	
Approach LOS		C			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.6	66.4		17.0	8.7	64.3		17.0
Change Period (Y+Rc), s	4.0	5.3		* 4.2	4.0	5.3		* 4.2
Max Green Setting (Gmax), s	8.0	29.7		* 39	8.0	29.7		* 39
Max Q Clear Time (g_c+I1), s	13.7	8.4		2.9	5.6	13.9		9.5
Green Ext Time (p_c), s	0.0	6.6		0.3	0.1	8.8		2.2

Intersection Summary	
HCM 6th Ctrl Delay	14.7
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
12: Walters Road & Petersen Road

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	5	13	65	4	16	7	822	112	73	786	15
Future Volume (veh/h)	12	5	13	65	4	16	7	822	112	73	786	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.98	0.98		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	1648	1411	1530	1707	1900	1900	1885	1781	1218	877	1841	1900
Adj Flow Rate, veh/h	12	5	13	65	4	0	7	822	0	73	786	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	17	33	25	13	0	0	1	8	46	69	4	0
Cap, veh/h	177	115	103	178	154		16	2290		70	2626	
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.00	0.00	0.22	0.00	0.08	0.75	0.00
Sat Flow, veh/h	1217	1411	1270	1260	1900	1610	1795	3385	1032	836	3497	1610
Grp Volume(v), veh/h	12	5	13	65	4	0	7	822	0	73	786	0
Grp Sat Flow(s),veh/h/ln	1217	1411	1270	1260	1900	1610	1795	1692	1032	836	1749	1610
Q Serve(g_s), s	0.8	0.3	0.9	4.5	0.2	0.0	0.4	18.5	0.0	7.5	6.5	0.0
Cycle Q Clear(g_c), s	1.0	0.3	0.9	4.8	0.2	0.0	0.4	18.5	0.0	7.5	6.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	177	115	103	178	154		16	2290		70	2626	
V/C Ratio(X)	0.07	0.04	0.13	0.36	0.03		0.44	0.36		1.05	0.30	
Avail Cap(c_a), veh/h	477	462	416	489	623		150	2290		70	2626	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.92	0.92	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	38.5	38.1	38.4	40.3	38.1	0.0	44.6	18.5	0.0	41.2	3.6	0.0
Incr Delay (d2), s/veh	0.2	0.2	0.5	1.2	0.1	0.0	16.3	0.4	0.0	121.8	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	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.1	0.3	1.4	0.1	0.0	0.2	8.3	0.0	3.8	1.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.7	38.3	38.9	41.6	38.1	0.0	60.9	18.9	0.0	163.1	3.7	0.0
LnGrp LOS	D	D	D	D	D		E	B		F	A	
Approach Vol, veh/h		30			69	A		829	A		859	A
Approach Delay, s/veh		38.7			41.4			19.2			17.2	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.0	66.2		11.8	5.3	72.9		11.8
Change Period (Y+Rc), s	4.5	5.3		4.5	4.5	5.3		4.5
Max Green Setting (Gmax), s	7.5	38.7		29.5	7.5	38.7		29.5
Max Q Clear Time (g_c+I1), s	19.5	20.5		3.0	2.4	8.5		6.8
Green Ext Time (p_c), s	0.0	5.0		0.1	0.0	5.5		0.2

Intersection Summary	
HCM 6th Ctrl Delay	19.4
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
13: Walters Road & Walmart Main Driveway

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	0	27	6	0	7	61	879	61	49	766	51
Future Volume (veh/h)	60	0	27	6	0	7	61	879	61	49	766	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1811	1870	1870	1870	1752	1737	1870	1870	1826	1841
Adj Flow Rate, veh/h	60	0	27	6	0	7	61	879	61	49	766	51
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	6	2	2	2	10	11	2	2	5	4
Cap, veh/h	78	0	145	14	0	89	116	2015	140	70	1995	133
Arrive On Green	0.04	0.00	0.09	0.01	0.00	0.06	0.07	0.64	0.64	0.04	0.60	0.60
Sat Flow, veh/h	1810	0	1580	1781	0	1585	1668	3131	217	1781	3301	220
Grp Volume(v), veh/h	60	0	27	6	0	7	61	463	477	49	402	415
Grp Sat Flow(s),veh/h/ln	1810	0	1580	1781	0	1585	1668	1650	1698	1781	1735	1786
Q Serve(g_s), s	3.0	0.0	1.4	0.3	0.0	0.4	3.2	12.5	12.5	2.4	10.8	10.8
Cycle Q Clear(g_c), s	3.0	0.0	1.4	0.3	0.0	0.4	3.2	12.5	12.5	2.4	10.8	10.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.12
Lane Grp Cap(c), veh/h	78	0	145	14	0	89	116	1062	1093	70	1048	1080
V/C Ratio(X)	0.77	0.00	0.19	0.44	0.00	0.08	0.53	0.44	0.44	0.70	0.38	0.38
Avail Cap(c_a), veh/h	211	0	240	109	0	153	198	1062	1093	148	1048	1080
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	42.6	0.0	37.8	44.5	0.0	40.3	40.4	7.9	7.9	42.7	9.2	9.2
Incr Delay (d2), s/veh	14.5	0.0	0.6	20.1	0.0	0.4	3.7	1.3	1.3	11.5	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	0.6	0.2	0.0	0.2	1.4	4.3	4.4	1.3	3.4	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.1	0.0	38.4	64.6	0.0	40.6	44.1	9.3	9.2	54.3	9.4	9.4
LnGrp LOS	E	A	D	E	A	D	D	A	A	D	A	A
Approach Vol, veh/h		87			13			1001			866	
Approach Delay, s/veh		51.3			51.7			11.4			11.9	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	63.2	5.2	13.5	11.6	59.7	8.4	10.4
Change Period (Y+Rc), s	4.5	5.3	4.5	5.3	5.3	5.3	4.5	5.3
Max Green Setting (Gmax), s	7.5	43.7	5.5	13.7	10.7	39.7	10.5	8.7
Max Q Clear Time (g_c+I1), s	14.4	14.5	2.3	3.4	5.2	12.8	5.0	2.4
Green Ext Time (p_c), s	0.0	7.1	0.0	0.0	0.0	5.0	0.0	0.0

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

Notes

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

HCM 6th TWSC
14: Walters Road & Walmart Driveway

04/29/2021

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	35	0	0	28	0	973	15	13	785	1
Future Vol, veh/h	0	0	35	0	0	28	0	973	15	13	785	1
Conflicting Peds, #/hr	0	0	5	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	11	0	0	5	0
Mvmt Flow	0	0	35	0	0	28	0	973	15	13	785	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	398	-	-	494	-	0	0	988	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	-	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	607	0	0	526	0	-	-	708	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	604	-	-	526	-	-	-	708	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.3	12.2	0	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	604	526	708	-	-
HCM Lane V/C Ratio	-	-	0.058	0.053	0.018	-	-
HCM Control Delay (s)	-	-	11.3	12.2	10.2	-	-
HCM Lane LOS	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.2	0.2	0.1	-	-

HCM 6th Signalized Intersection Summary
15: Lawler Ranch Parkway /Walters Road & State Hwy 12 04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	584	678	17	2	997	276	99	130	3	142	47	631
Future Volume (veh/h)	584	678	17	2	997	276	99	130	3	142	47	631
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1574	1900	1900	1589	1589	1885	1856	1900	1752	1722	1856
Adj Flow Rate, veh/h	584	678	17	2	997	276	76	162	3	94	113	631
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	8	22	0	0	21	21	1	3	0	10	12	3
Cap, veh/h	643	1638	878	9	1078	479	134	278	121	366	377	678
Arrive On Green	0.20	0.55	0.55	0.00	0.36	0.36	0.07	0.07	0.07	0.22	0.22	0.22
Sat Flow, veh/h	3291	2991	1603	1810	3019	1341	1795	3711	1610	1668	1722	3095
Grp Volume(v), veh/h	584	678	17	2	997	276	76	162	3	94	113	631
Grp Sat Flow(s),veh/h/ln	1646	1495	1603	1810	1509	1341	1795	1856	1610	1668	1722	1547
Q Serve(g_s), s	23.2	17.7	0.6	0.1	42.3	22.3	5.5	5.6	0.2	6.2	7.3	26.7
Cycle Q Clear(g_c), s	23.2	17.7	0.6	0.1	42.3	22.3	5.5	5.6	0.2	6.2	7.3	26.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	643	1638	878	9	1078	479	134	278	121	366	377	678
V/C Ratio(X)	0.91	0.41	0.02	0.23	0.92	0.58	0.57	0.58	0.02	0.26	0.30	0.93
Avail Cap(c_a), veh/h	715	1638	878	325	1130	502	403	834	362	375	387	695
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	52.5	17.7	13.8	66.2	41.2	34.7	59.7	59.7	57.2	43.1	43.6	51.1
Incr Delay (d2), s/veh	14.6	0.2	0.0	12.8	12.3	1.5	3.7	1.9	0.1	0.4	0.4	19.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.0	6.2	0.2	0.1	16.8	7.2	2.6	2.7	0.1	2.6	3.1	12.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	67.1	17.8	13.8	79.0	53.5	36.2	63.3	61.7	57.3	43.5	44.0	70.1
LnGrp LOS	E	B	B	E	D	D	E	E	E	D	D	E
Approach Vol, veh/h		1279			1275			241			838	
Approach Delay, s/veh		40.3			49.8			62.1			63.6	
Approach LOS		D			D			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.8	78.8		34.5	30.3	53.4		15.3				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 24	50.0		30.0	* 29	50.0		30.0				
Max Q Clear Time (g_c+I1), s	2.1	19.7		28.7	25.2	44.3		7.6				
Green Ext Time (p_c), s	0.0	5.7		0.5	0.9	3.3		1.2				

Intersection Summary			
HCM 6th Ctrl Delay		50.4	
HCM 6th LOS		D	

Notes

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

Queues
1: Sunset Avenue /Sunset Avenue & Pintail Drive

04/30/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	49	88	103	412	38	353	207	439
v/c Ratio	0.39	0.16	0.27	0.76	0.24	0.28	0.72	0.25
Control Delay	32.6	19.4	24.4	34.2	41.6	21.0	50.0	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.6	19.4	24.4	34.2	41.6	21.0	50.0	15.1
Queue Length 50th (ft)	22	33	45	189	21	69	110	74
Queue Length 95th (ft)	50	58	74	252	50	123	#185	133
Internal Link Dist (ft)		402		619		2012		441
Turn Bay Length (ft)	105		75		105		105	
Base Capacity (vph)	171	726	512	717	186	1276	320	1773
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.12	0.20	0.57	0.20	0.28	0.65	0.25

Intersection Summary

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

Queues
2: Grizzly Island Road/Sunset Avenue & State Hwy 12

04/30/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	241	1240	193	103	1644	138	284	133	34	150	156	333
v/c Ratio	0.90	0.76	0.21	0.69	0.94	0.16	0.98	0.44	0.10	1.06	1.05	0.70
Control Delay	102.5	31.9	3.5	89.0	44.3	2.9	109.4	61.8	0.6	154.5	152.4	23.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.5	31.9	3.5	89.0	44.3	2.9	109.4	61.8	0.6	154.5	152.4	23.4
Queue Length 50th (ft)	122	492	6	99	770	0	281	119	0	~168	~174	35
Queue Length 95th (ft)	#204	586	45	#186	#961	33	#472	189	0	#326	#334	93
Internal Link Dist (ft)		867			689			342			2012	
Turn Bay Length (ft)	500		275	250		400	125			150		150
Base Capacity (vph)	267	1626	928	150	1747	879	290	303	331	142	148	476
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.76	0.21	0.69	0.94	0.16	0.98	0.44	0.10	1.06	1.05	0.70

Intersection Summary

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

Queues
5: Lawler Ranch Parkway /Emperor Drive & State Hwy 12

04/30/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	130	1183	63	79	1685	12	100	100	77	40	197
v/c Ratio	0.64	0.81	0.08	0.44	1.24	0.02	0.43	0.42	0.21	0.18	0.53
Control Delay	71.5	36.8	0.2	66.4	145.5	0.0	54.8	54.4	1.3	50.5	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.5	36.8	0.2	66.4	145.5	0.0	54.8	54.4	1.3	50.5	15.1
Queue Length 50th (ft)	86	352	0	51	~699	0	69	68	0	25	13
Queue Length 95th (ft)	#259	#1137	0	#192	#1890	0	169	169	0	76	93
Internal Link Dist (ft)		1392			1435			342			1298
Turn Bay Length (ft)	425		255	200		230	215		215	125	
Base Capacity (vph)	301	1574	876	180	1359	772	271	278	396	278	413
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.75	0.07	0.44	1.24	0.02	0.37	0.36	0.19	0.14	0.48

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Queues
7: Walters Road & Air Base Parkway

04/30/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	259	896	294	560	414	26	348	302	711	10	981
v/c Ratio	0.84	0.98	0.49	1.09	0.56	0.06	1.08	0.20	0.71	0.15	1.14
Control Delay	70.5	69.8	6.9	113.8	45.6	0.3	120.7	19.2	12.1	60.0	116.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.5	69.8	6.9	113.8	45.6	0.3	120.7	19.2	12.1	60.0	116.7
Queue Length 50th (ft)	191	364	0	~251	154	0	~302	66	122	8	~453
Queue Length 95th (ft)	#310	#502	69	#364	210	0	#489	111	321	26	#588
Internal Link Dist (ft)		838			880			1074			219
Turn Bay Length (ft)	275		315	400		180			325	150	
Base Capacity (vph)	343	914	604	514	744	436	321	1519	1006	68	857
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.98	0.49	1.09	0.56	0.06	1.08	0.20	0.71	0.15	1.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Queues
8: Walters Road & E Tabor Avenue

04/30/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	254	121	16	199	165	920	45	1480
v/c Ratio	0.81	0.26	0.19	0.66	0.79	0.47	0.37	0.90
Control Delay	69.8	12.3	59.2	37.8	73.8	17.1	59.5	32.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.8	12.3	59.2	37.8	73.8	17.1	59.5	32.7
Queue Length 50th (ft)	89	14	11	84	111	191	30	433
Queue Length 95th (ft)	#190	63	37	158	#264	345	76	#788
Internal Link Dist (ft)		1386		269		2251		1213
Turn Bay Length (ft)	95		125		180		270	
Base Capacity (vph)	314	619	83	554	214	1943	143	1648
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.20	0.19	0.36	0.77	0.47	0.31	0.90

Intersection Summary

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

Queues
9: Walters Road & Bella Vista Drive

04/30/2021

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	192	112	110	4	729	22	993
v/c Ratio	0.72	0.53	0.34	0.04	0.42	0.20	0.56
Control Delay	51.2	46.0	5.9	45.0	12.7	43.9	16.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	46.0	5.9	45.0	12.7	43.9	16.9
Queue Length 50th (ft)	104	61	0	2	70	12	168
Queue Length 95th (ft)	170	107	26	m9	247	35	339
Internal Link Dist (ft)	639	451			643		1927
Turn Bay Length (ft)			90	135		105	
Base Capacity (vph)	325	303	394	150	1746	150	1779
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.37	0.28	0.03	0.42	0.15	0.56

Intersection Summary

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

Queues
10: Walters Road & Pintail Drive

04/30/2021

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	144	65	78	660	973
v/c Ratio	0.43	0.20	0.58	0.28	0.48
Control Delay	34.1	7.3	65.0	7.4	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	34.1	7.3	65.0	7.4	15.0
Queue Length 50th (ft)	78	0	47	7	242
Queue Length 95th (ft)	92	24	#100	148	380
Internal Link Dist (ft)	225			851	689
Turn Bay Length (ft)		150	130		
Base Capacity (vph)	750	648	143	2387	2009
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.19	0.10	0.55	0.28	0.48

Intersection Summary

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

Queues
11: Walters Road & Mammoth Way/Montebello Drive

04/30/2021

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	22	19	130	94	73	632	29	968
v/c Ratio	0.08	0.05	0.45	0.24	0.46	0.30	0.22	0.49
Control Delay	25.0	0.3	34.3	6.5	62.8	9.1	53.6	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.0	0.3	34.3	6.5	62.8	9.1	53.6	7.9
Queue Length 50th (ft)	11	0	68	0	45	56	18	13
Queue Length 95th (ft)	23	0	91	30	91	117	m38	185
Internal Link Dist (ft)	93		335			477		851
Turn Bay Length (ft)		50		125	100		120	
Base Capacity (vph)	623	739	608	710	160	2137	132	1981
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.03	0.21	0.13	0.46	0.30	0.22	0.49

Intersection Summary

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

Queues
12: Walters Road & Petersen Road

04/30/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	12	5	13	65	4	16	7	822	112	73	786	15
v/c Ratio	0.07	0.02	0.05	0.35	0.01	0.05	0.06	0.39	0.15	0.82	0.30	0.01
Control Delay	28.5	27.0	0.4	36.7	26.8	0.3	28.7	16.8	10.0	93.2	6.8	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.5	27.0	0.4	36.7	26.8	0.3	28.7	16.8	10.0	93.2	6.8	0.2
Queue Length 50th (ft)	6	3	0	35	2	0	4	140	0	45	71	0
Queue Length 95th (ft)	17	10	0	57	9	0	m8	330	86	#128	111	m0
Internal Link Dist (ft)		417			560			510			413	
Turn Bay Length (ft)			180	115		200	85		185	100		75
Base Capacity (vph)	399	468	472	414	622	574	148	2128	744	89	2626	1224
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.01	0.03	0.16	0.01	0.03	0.05	0.39	0.15	0.82	0.30	0.01

Intersection Summary

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

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

Queues
13: Walters Road & Walmart Main Driveway

04/30/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	60	27	6	7	61	940	49	817
v/c Ratio	0.34	0.06	0.05	0.02	0.37	0.41	0.33	0.36
Control Delay	42.5	0.3	40.2	0.1	44.0	9.4	45.8	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.5	0.3	40.2	0.1	44.0	9.4	45.8	9.3
Queue Length 50th (ft)	32	0	3	0	33	119	31	26
Queue Length 95th (ft)	69	0	15	0	71	262	51	322
Internal Link Dist (ft)		149		212		326		510
Turn Bay Length (ft)					200		275	
Base Capacity (vph)	214	518	116	415	195	2313	159	2279
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.05	0.05	0.02	0.31	0.41	0.31	0.36

Intersection Summary

Queues

15: Lawler Ranch Parkway /Walters Road & State Hwy 12

04/30/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	584	678	17	2	997	276	74	155	3	94	95	631
v/c Ratio	0.83	0.37	0.02	0.02	0.88	0.43	0.36	0.36	0.01	0.52	0.51	0.72
Control Delay	61.5	18.1	0.1	69.0	49.4	10.6	57.3	54.8	0.0	68.0	67.7	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.5	18.1	0.1	69.0	49.4	10.6	57.3	54.8	0.0	68.0	67.7	9.3
Queue Length 50th (ft)	230	116	0	2	380	26	63	67	0	76	76	0
Queue Length 95th (ft)	#511	384	0	13	#850	140	121	108	0	171	173	61
Internal Link Dist (ft)		3194			827			385			265	
Turn Bay Length (ft)	390		275	215		300	175		90	125		190
Base Capacity (vph)	716	1822	1025	330	1137	638	407	836	488	356	362	1117
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	0.37	0.02	0.01	0.88	0.43	0.18	0.19	0.01	0.26	0.26	0.56

Intersection Summary

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

HCM 6th Signalized Intersection Summary

12: Walters Road & Petersen Road

05/06/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	5	13	65	4	16	7	822	112	73	786	15
Future Volume (veh/h)	12	5	13	65	4	16	7	822	112	73	786	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		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	1648	1411	1530	1707	1900	1900	1885	1781	1218	877	1841	1900
Adj Flow Rate, veh/h	12	5	13	65	4	0	7	822	0	73	786	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	17	33	25	13	0	0	1	8	46	69	4	0
Cap, veh/h	105	51	45	82	37		16	2141		78	2508	
Arrive On Green	0.07	0.04	0.04	0.05	0.02	0.00	0.02	1.00	0.00	0.09	0.72	0.00
Sat Flow, veh/h	1570	1411	1267	1626	1900	1610	1795	3385	1032	836	3497	1610
Grp Volume(v), veh/h	12	5	13	65	4	0	7	822	0	73	786	0
Grp Sat Flow(s),veh/h/ln	1570	1411	1267	1626	1900	1610	1795	1692	1032	836	1749	1610
Q Serve(g_s), s	0.7	0.3	0.9	4.0	0.2	0.0	0.4	0.0	0.0	8.7	8.2	0.0
Cycle Q Clear(g_c), s	0.7	0.3	0.9	4.0	0.2	0.0	0.4	0.0	0.0	8.7	8.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	105	51	45	82	37		16	2141		78	2508	
V/C Ratio(X)	0.11	0.10	0.29	0.80	0.11		0.44	0.38		0.94	0.31	
Avail Cap(c_a), veh/h	105	120	108	203	295		99	2141		155	2508	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.92	0.92	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	43.9	46.6	37.8	47.0	48.2	0.0	48.9	0.0	0.0	45.0	5.2	0.0
Incr Delay (d2), s/veh	0.5	0.8	3.4	15.8	1.3	0.0	16.7	0.5	0.0	33.5	0.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.1	0.4	2.0	0.1	0.0	0.2	0.1	0.0	2.5	2.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	44.4	47.5	41.2	62.8	49.5	0.0	65.6	0.5	0.0	78.5	5.5	0.0
LnGrp LOS	D	D	D	E	D		E	A		E	A	
Approach Vol, veh/h		30			69	A		829	A		859	A
Approach Delay, s/veh		43.5			62.0			1.0			11.7	
Approach LOS		D			E			A			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.8	68.6	9.5	8.1	5.4	77.0	11.2	6.4
Change Period (Y+Rc), s	4.5	5.3	4.5	4.5	4.5	5.3	4.5	4.5
Max Green Setting (Gmax), s	18.5	41.7	12.5	8.5	5.5	54.7	5.5	15.5
Max Q Clear Time (g_c+I1), s	10.7	2.0	6.0	2.9	2.4	10.2	2.7	2.2
Green Ext Time (p_c), s	0.1	6.1	0.1	0.0	0.0	5.8	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
13: Walters Road & Walmart Main Driveway

06/18/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	0	27	6	0	7	61	879	61	49	766	51
Future Volume (veh/h)	60	0	27	6	0	7	61	879	61	49	766	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1811	1870	1870	1870	1752	1737	1870	1870	1826	1841
Adj Flow Rate, veh/h	60	0	27	6	0	7	61	879	61	49	766	51
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	6	2	2	2	10	11	2	2	5	4
Cap, veh/h	78	0	117	41	0	85	1390	1073	74	635	890	59
Arrive On Green	0.04	0.00	0.07	0.02	0.00	0.05	0.43	0.34	0.34	0.71	0.54	0.54
Sat Flow, veh/h	1810	0	1579	1781	0	1585	3237	3131	217	1781	3301	220
Grp Volume(v), veh/h	60	0	27	6	0	7	61	463	477	49	402	415
Grp Sat Flow(s),veh/h/ln	1810	0	1579	1781	0	1585	1618	1650	1698	1781	1735	1786
Q Serve(g_s), s	3.3	0.0	1.6	0.3	0.0	0.4	1.1	25.7	25.7	0.8	19.9	20.0
Cycle Q Clear(g_c), s	3.3	0.0	1.6	0.3	0.0	0.4	1.1	25.7	25.7	0.8	19.9	20.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.13	1.00		0.12
Lane Grp Cap(c), veh/h	78	0	117	41	0	85	1390	565	582	635	468	481
V/C Ratio(X)	0.77	0.00	0.23	0.15	0.00	0.08	0.04	0.82	0.82	0.08	0.86	0.86
Avail Cap(c_a), veh/h	208	0	232	98	0	138	1390	837	861	635	862	888
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.96	0.96	0.96
Uniform Delay (d), s/veh	47.3	0.0	43.6	47.9	0.0	45.0	16.6	30.0	30.0	9.4	21.4	21.4
Incr Delay (d2), s/veh	14.4	0.0	1.0	1.7	0.0	0.4	0.0	12.5	12.2	0.0	17.8	17.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	0.7	0.2	0.0	0.2	0.4	11.9	12.2	0.3	7.3	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.8	0.0	44.6	49.6	0.0	45.4	16.6	42.5	42.2	9.4	39.2	38.8
LnGrp LOS	E	A	D	D	A	D	B	D	D	A	D	D
Approach Vol, veh/h		87			13			1001			866	
Approach Delay, s/veh		56.4			47.3			40.8			37.3	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	40.9	39.6	6.8	12.7	48.3	32.3	8.8	10.7
Change Period (Y+Rc), s	5.3	* 5.3	4.5	5.3	5.3	5.3	4.5	5.3
Max Green Setting (Gmax), s	9.5	* 51	5.5	14.7	9.7	49.7	11.5	8.7
Max Q Clear Time (g_c+I1), s	2.8	27.7	2.3	3.6	3.1	22.0	5.3	2.4
Green Ext Time (p_c), s	0.0	6.6	0.0	0.0	0.1	5.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	40.0
HCM 6th LOS	D

Notes

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

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

HCM 6th TWSC
14: Walters Road & Walmart Driveway

05/06/2021

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	35	0	0	28	0	973	15	13	785	1
Future Vol, veh/h	0	0	35	0	0	28	0	973	15	13	785	1
Conflicting Peds, #/hr	0	0	5	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	11	0	0	5	0
Mvmt Flow	0	0	35	0	0	28	0	973	15	13	785	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	398	-	-	494	-	0	0	988	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	-	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	607	0	0	526	0	-	-	708	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	604	-	-	526	-	-	-	708	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.3	12.2	0	0.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	604	526	708	-	-
HCM Lane V/C Ratio	-	-	0.058	0.053	0.018	-	-
HCM Control Delay (s)	-	-	11.3	12.2	10.2	-	-
HCM Lane LOS	-	-	B	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.2	0.2	0.1	-	-

HCM 6th Signalized Intersection Summary
15: Lawler Ranch Parkway /Walters Road & State Hwy 12 05/06/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	584	678	17	2	997	276	99	130	3	142	47	631
Future Volume (veh/h)	584	678	17	2	997	276	99	130	3	142	47	631
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1574	1900	1900	1589	1589	1885	1856	1900	1752	1722	1856
Adj Flow Rate, veh/h	584	678	17	2	997	276	76	162	3	94	113	631
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	8	22	0	0	21	21	1	3	0	10	12	3
Cap, veh/h	763	1765	946	9	1097	487	179	371	161	167	172	1032
Arrive On Green	0.23	0.59	0.59	0.00	0.36	0.36	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	3291	2991	1603	1810	3019	1341	1795	3711	1610	1668	1722	3035
Grp Volume(v), veh/h	584	678	17	2	997	276	76	162	3	94	113	631
Grp Sat Flow(s),veh/h/ln	1646	1495	1603	1810	1509	1341	1795	1856	1610	1668	1722	1517
Q Serve(g_s), s	16.6	12.0	0.4	0.1	31.4	16.5	4.0	4.1	0.2	5.4	6.3	10.0
Cycle Q Clear(g_c), s	16.6	12.0	0.4	0.1	31.4	16.5	4.0	4.1	0.2	5.4	6.3	10.0
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	763	1765	946	9	1097	487	179	371	161	167	172	1032
V/C Ratio(X)	0.77	0.38	0.02	0.23	0.91	0.57	0.42	0.44	0.02	0.56	0.66	0.61
Avail Cap(c_a), veh/h	763	1765	946	163	1147	510	264	546	237	167	172	1032
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.9	10.9	8.5	49.6	30.3	25.5	42.3	42.4	40.6	42.9	43.3	28.1
Incr Delay (d2), s/veh	4.7	0.6	0.0	12.5	10.4	1.3	1.6	0.8	0.0	4.3	8.7	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	4.0	0.2	0.1	11.9	5.0	1.8	1.9	0.1	2.3	3.0	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.5	11.5	8.5	62.1	40.6	26.9	43.9	43.2	40.6	47.2	52.0	29.2
LnGrp LOS	D	B	A	E	D	C	D	D	D	D	D	C
Approach Vol, veh/h		1279			1275			241			838	
Approach Delay, s/veh		24.7			37.7			43.4			34.3	
Approach LOS		C			D			D			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.7	64.7		15.3	27.4	42.0		15.3				
Change Period (Y+Rc), s	* 4.2	5.7		5.3	* 4.2	5.7		5.3				
Max Green Setting (Gmax), s	* 9	45.8		10.0	* 17	38.0		14.7				
Max Q Clear Time (g_c+I1), s	2.1	14.0		12.0	18.6	33.4		6.1				
Green Ext Time (p_c), s	0.0	5.8		0.0	0.0	2.8		0.7				

Intersection Summary			
HCM 6th Ctrl Delay		32.7	
HCM 6th LOS		C	

Notes

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

Queues
12: Walters Road & Petersen Road

05/06/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	12	5	13	65	4	16	7	822	112	73	786	15
v/c Ratio	0.12	0.04	0.04	0.42	0.02	0.05	0.07	0.38	0.14	0.57	0.30	0.01
Control Delay	46.3	43.2	0.2	49.4	35.0	0.2	54.9	5.0	0.6	57.0	6.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.3	43.2	0.2	49.4	35.0	0.2	54.9	5.0	0.6	57.0	6.8	0.0
Queue Length 50th (ft)	7	3	0	40	2	0	5	17	0	45	49	0
Queue Length 95th (ft)	25	15	0	78	12	0	m12	93	0	86	201	0
Internal Link Dist (ft)		417			560			510			413	
Turn Bay Length (ft)			180	115		200	85		185	100		75
Base Capacity (vph)	98	121	310	207	324	413	98	2151	787	197	2669	1264
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.04	0.04	0.31	0.01	0.04	0.07	0.38	0.14	0.37	0.29	0.01

Intersection Summary

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

Queues
13: Walters Road & Walmart Main Driveway

06/18/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	60	27	6	7	61	940	49	817
v/c Ratio	0.37	0.06	0.05	0.02	0.17	0.41	0.33	0.35
Control Delay	48.6	0.3	42.3	0.1	44.1	6.2	54.9	6.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.6	0.3	42.3	0.1	44.1	6.2	54.9	6.4
Queue Length 50th (ft)	37	0	4	0	21	27	32	127
Queue Length 95th (ft)	75	0	16	0	m31	m376	73	267
Internal Link Dist (ft)		149		212		326		510
Turn Bay Length (ft)					200		275	
Base Capacity (vph)	208	515	123	397	376	2296	174	2361
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.05	0.05	0.02	0.16	0.41	0.28	0.35

Intersection Summary

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

Queues
15: Lawler Ranch Parkway /Walters Road & State Hwy 12

05/06/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	584	678	17	2	997	276	74	155	3	94	95	631
v/c Ratio	0.85	0.38	0.02	0.01	0.90	0.42	0.41	0.41	0.01	0.61	0.60	0.59
Control Delay	51.9	12.4	0.1	42.0	42.3	4.7	47.7	44.4	0.0	53.4	52.7	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.9	12.4	0.1	42.0	42.3	4.7	47.7	44.4	0.0	53.4	52.7	16.1
Queue Length 50th (ft)	185	97	0	1	306	0	49	52	0	68	68	60
Queue Length 95th (ft)	#322	207	0	8	#428	51	94	81	0	#133	#132	269
Internal Link Dist (ft)		3194			827			385			265	
Turn Bay Length (ft)	390		275	215		300	175		90	125		190
Base Capacity (vph)	689	1769	1017	162	1133	670	239	491	390	155	158	1071
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.38	0.02	0.01	0.88	0.41	0.31	0.32	0.01	0.61	0.60	0.59

Intersection Summary

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

HCM 6th Signalized Intersection Summary
1: Sunset Avenue & Pintail Drive

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	61	83	46	165	90	137	24	485	125	230	469	61
Future Volume (veh/h)	61	83	46	165	90	137	24	485	125	230	469	61
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1753	1900	1885	1824	1900	1885	1767	1870	1885	1824
Adj Flow Rate, veh/h	61	83	46	165	90	137	24	485	125	230	469	61
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	0	5	0	1	0	0	1	4	2	1	0
Cap, veh/h	216	271	150	306	159	242	45	873	223	269	1389	180
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.03	0.31	0.31	0.15	0.44	0.44
Sat Flow, veh/h	1150	1146	635	1277	672	1023	1810	2815	721	1781	3185	412
Grp Volume(v), veh/h	61	0	129	165	0	227	24	307	303	230	263	267
Grp Sat Flow(s),veh/h/ln	1150	0	1782	1277	0	1695	1810	1791	1744	1781	1791	1806
Q Serve(g_s), s	4.4	0.0	5.4	11.0	0.0	10.6	1.2	12.9	13.0	11.3	8.7	8.8
Cycle Q Clear(g_c), s	15.1	0.0	5.4	16.4	0.0	10.6	1.2	12.9	13.0	11.3	8.7	8.8
Prop In Lane	1.00		0.36	1.00		0.60	1.00		0.41	1.00		0.23
Lane Grp Cap(c), veh/h	216	0	422	306	0	401	45	555	541	269	781	788
V/C Ratio(X)	0.28	0.00	0.31	0.54	0.00	0.57	0.53	0.55	0.56	0.85	0.34	0.34
Avail Cap(c_a), veh/h	333	0	602	435	0	573	247	555	541	342	781	788
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.63	0.63	0.63	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.9	0.0	28.3	35.0	0.0	30.3	43.3	25.9	25.9	37.2	16.8	16.8
Incr Delay (d2), s/veh	0.9	0.0	0.5	1.8	0.0	1.6	7.6	2.5	2.6	16.5	1.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	2.3	3.5	0.0	4.5	0.6	5.6	5.6	6.0	3.6	3.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.8	0.0	28.8	36.8	0.0	31.8	50.9	28.4	28.6	53.7	17.9	18.0
LnGrp LOS	D	A	C	D	A	C	D	C	C	D	B	B
Approach Vol, veh/h		190			392			634			760	
Approach Delay, s/veh		31.7			33.9			29.3			28.8	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	44.4		25.9	18.3	33.0		25.9				
Change Period (Y+Rc), s	* 4.7	5.1		4.6	* 4.7	5.1		4.6				
Max Green Setting (Gmax), s	* 12	23.9		30.4	* 17	27.9		30.4				
Max Q Clear Time (g_c+I1), s	3.2	10.8		17.1	13.3	15.0		18.4				
Green Ext Time (p_c), s	0.0	3.5		0.9	0.3	4.1		2.0				

Intersection Summary			
HCM 6th Ctrl Delay		30.2	
HCM 6th LOS		C	

Notes

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

HCM 6th Signalized Intersection Summary
2: Grizzly Island Road/Sunset Avenue & State Hwy 12

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	553	1881	218	129	1235	192	168	146	135	317	105	253
Future Volume (veh/h)	553	1881	218	129	1235	192	168	146	135	317	105	253
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1841	1885	1870	1841	1900	1885	1900	1900	1900	1900	1900
Adj Flow Rate, veh/h	553	1881	218	129	1235	192	168	146	135	211	253	253
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	4	1	2	4	0	1	0	0	0	0	0
Cap, veh/h	605	1945	887	138	1598	735	190	201	167	217	228	375
Arrive On Green	0.17	0.56	0.56	0.08	0.46	0.46	0.11	0.11	0.11	0.12	0.12	0.12
Sat Flow, veh/h	3483	3497	1596	1781	3497	1609	1795	1900	1578	1810	1900	3126
Grp Volume(v), veh/h	553	1881	218	129	1235	192	168	146	135	211	253	253
Grp Sat Flow(s),veh/h/ln	1742	1749	1596	1781	1749	1609	1795	1900	1578	1810	1900	1563
Q Serve(g_s), s	23.4	77.5	10.5	10.8	44.5	11.0	13.8	11.2	12.5	17.4	18.0	11.6
Cycle Q Clear(g_c), s	23.4	77.5	10.5	10.8	44.5	11.0	13.8	11.2	12.5	17.4	18.0	11.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	605	1945	887	138	1598	735	190	201	167	217	228	375
V/C Ratio(X)	0.91	0.97	0.25	0.94	0.77	0.26	0.88	0.72	0.81	0.97	1.11	0.67
Avail Cap(c_a), veh/h	662	1945	887	138	1598	735	190	201	167	217	228	375
HCM Platoon Ratio	1.00	1.00	1.00	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	0.95	0.95	0.95
Uniform Delay (d), s/veh	60.9	32.0	17.1	68.8	34.2	25.1	66.1	64.9	65.5	65.7	66.0	63.2
Incr Delay (d2), s/veh	16.4	14.0	0.7	56.9	3.7	0.9	34.0	10.7	22.9	51.3	90.7	4.2
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	11.5	33.7	3.9	7.0	18.8	4.3	8.2	6.1	6.2	11.1	14.4	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.3	46.0	17.8	125.7	37.9	26.0	100.1	75.6	88.5	117.0	156.7	67.4
LnGrp LOS	E	D	B	F	D	C	F	E	F	F	F	E
Approach Vol, veh/h		2652			1556			449			717	
Approach Delay, s/veh		50.2			43.7			88.7			113.5	
Approach LOS		D			D			F			F	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.3	89.6		23.1	31.2	74.7		21.0
Change Period (Y+Rc), s	4.7	6.2		5.1	5.1	6.2		5.1
Max Green Setting (Gmax), s	11.3	83.4		18.0	28.5	66.1		15.9
Max Q Clear Time (g_c+I1), s	12.8	79.5		20.0	25.4	46.5		15.8
Green Ext Time (p_c), s	0.0	2.7		0.0	0.7	4.2		0.0

Intersection Summary	
HCM 6th Ctrl Delay	60.0
HCM 6th LOS	E

Notes

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

HCM 6th TWSC
3: State Hwy 12 & Snow Drive

04/29/2021

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	2469	1491	29	0	144
Future Vol, veh/h	0	2469	1491	29	0	144
Conflicting Peds, #/hr	0	0	0	4	0	7
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	275	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	3	3	0	0	0
Mvmt Flow	0	2469	1491	29	0	144

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	757
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	355
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	351
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	22.2
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	351
HCM Lane V/C Ratio	-	-	-	0.41
HCM Control Delay (s)	-	-	-	22.2
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	1.9

Intersection	
Intersection Delay, s/veh	19.3
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	81	309	82	30	206	7	105	73	182	7	44	45
Future Vol, veh/h	81	309	82	30	206	7	105	73	182	7	44	45
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles, %	0	3	0	0	5	0	0	0	1	0	0	0
Mvmt Flow	81	309	82	30	206	7	105	73	182	7	44	45
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	25	13.9	17.7	11.2
HCM LOS	C	B	C	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	29%	17%	12%	7%
Vol Thru, %	20%	65%	85%	46%
Vol Right, %	51%	17%	3%	47%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	360	472	243	96
LT Vol	105	81	30	7
Through Vol	73	309	206	44
RT Vol	182	82	7	45
Lane Flow Rate	360	472	243	96
Geometry Grp	1	1	1	1
Degree of Util (X)	0.599	0.762	0.423	0.177
Departure Headway (Hd)	5.991	5.815	6.268	6.645
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	601	628	573	538
Service Time	4.043	3.815	4.326	4.719
HCM Lane V/C Ratio	0.599	0.752	0.424	0.178
HCM Control Delay	17.7	25	13.9	11.2
HCM Lane LOS	C	C	B	B
HCM 95th-tile Q	4	7	2.1	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	307	2002	183	93	1384	50	119	36	61	21	28	115
Future Volume (veh/h)	307	2002	183	93	1384	50	119	36	61	21	28	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	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	1885	1841	1900	1900	1841	1811	1900	1900	1796	1796	1900	1824
Adj Flow Rate, veh/h	307	2002	183	93	1384	50	78	94	61	21	28	115
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	4	0	0	4	6	0	0	7	7	0	0
Cap, veh/h	338	1796	827	180	1486	652	174	183	147	176	33	137
Arrive On Green	0.19	0.51	0.51	0.10	0.42	0.42	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1795	3497	1610	1810	3497	1535	1810	1900	1522	1711	324	1332
Grp Volume(v), veh/h	307	2002	183	93	1384	50	78	94	61	21	0	143
Grp Sat Flow(s),veh/h/ln	1795	1749	1610	1810	1749	1535	1810	1900	1522	1711	0	1656
Q Serve(g_s), s	19.1	58.6	7.1	5.6	43.0	2.2	4.6	5.4	4.3	1.3	0.0	9.7
Cycle Q Clear(g_c), s	19.1	58.6	7.1	5.6	43.0	2.2	4.6	5.4	4.3	1.3	0.0	9.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.80
Lane Grp Cap(c), veh/h	338	1796	827	180	1486	652	174	183	147	176	0	171
V/C Ratio(X)	0.91	1.11	0.22	0.52	0.93	0.08	0.45	0.51	0.42	0.12	0.00	0.84
Avail Cap(c_a), veh/h	582	1796	827	190	1533	673	238	250	200	225	0	218
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.4	27.8	15.2	48.7	31.2	19.5	48.7	49.0	48.5	46.5	0.0	50.2
Incr Delay (d2), s/veh	6.0	60.1	0.1	0.8	10.4	0.0	0.7	0.8	0.7	0.1	0.0	16.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.7	36.5	2.4	2.5	18.7	0.8	2.1	2.6	1.7	0.6	0.0	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.4	87.8	15.4	49.6	41.6	19.5	49.4	49.8	49.2	46.6	0.0	66.7
LnGrp LOS	D	F	B	D	D	B	D	D	D	D	A	E
Approach Vol, veh/h		2492			1527			233			164	
Approach Delay, s/veh		78.0			41.4			49.5			64.1	
Approach LOS		E			D			D			E	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	16.1	65.1	16.9	26.2	55.0	16.1
Change Period (Y+Rc), s	4.7	6.5	5.1	* 4.7	6.5	5.1
Max Green Setting (Gmax), s	12.3	50.0	15.0	* 37	50.0	15.0
Max Q Clear Time (g_c+I1), s	7.6	60.6	11.7	21.1	45.0	7.4
Green Ext Time (p_c), s	0.0	0.0	0.1	0.4	3.5	0.3

Intersection Summary	
HCM 6th Ctrl Delay	63.3
HCM 6th LOS	E

Notes

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

HCM 6th TWSC
6: State Hwy 12 & Woodlark Drive 04/29/2021

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	0	2018	1458	114	0	97
Future Vol, veh/h	0	2018	1458	114	0	97
Conflicting Peds, #/hr	0	0	0	5	0	3
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	Stop
Storage Length	-	-	-	260	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	0	4	4	0	0	0
Mvmt Flow	0	2018	1458	114	0	97

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	737
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.3
Pot Cap-1 Maneuver	0	-	-	-	0	365
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	362
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	18.5
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	362
HCM Lane V/C Ratio	-	-	-	0.268
HCM Control Delay (s)	-	-	-	18.5
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	1.1

HCM 6th Signalized Intersection Summary
7: Walters Road/Walter Road & Air Base Parkway 04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	368	604	372	760	834	14	198	830	833	7	587	236
Future Volume (veh/h)	368	604	372	760	834	14	198	830	833	7	587	236
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	1737	1900	1841	1885	1885	1693	1870	1737	1870	1648	1752	1767
Adj Flow Rate, veh/h	368	604	0	760	834	0	198	830	0	7	587	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	11	0	4	1	1	14	2	11	2	17	10	9
Cap, veh/h	388	1177		820	1171		211	1042		13	684	
Arrive On Green	0.23	0.33	0.00	0.24	0.33	0.00	0.12	0.32	0.00	0.01	0.21	0.00
Sat Flow, veh/h	1654	3610	1560	3483	3582	1434	1781	3300	1585	1570	3416	0
Grp Volume(v), veh/h	368	604	0	760	834	0	198	830	0	7	587	0
Grp Sat Flow(s),veh/h/ln	1654	1805	1560	1742	1791	1434	1781	1650	1585	1570	1664	0
Q Serve(g_s), s	30.7	19.0	0.0	29.9	28.6	0.0	15.4	32.2	0.0	0.6	23.8	0.0
Cycle Q Clear(g_c), s	30.7	19.0	0.0	29.9	28.6	0.0	15.4	32.2	0.0	0.6	23.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	388	1177		820	1171		211	1042		13	684	
V/C Ratio(X)	0.95	0.51		0.93	0.71		0.94	0.80		0.52	0.86	
Avail Cap(c_a), veh/h	402	1177		883	1171		211	1110		62	856	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	52.8	38.2	0.0	52.3	41.3	0.0	61.2	43.8	0.0	69.1	53.6	0.0
Incr Delay (d2), s/veh	31.5	1.6	0.0	14.9	3.7	0.0	44.6	3.9	0.0	28.3	7.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.7	8.4	0.0	14.3	12.8	0.0	9.5	13.4	0.0	0.4	10.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	84.2	39.8	0.0	67.2	45.0	0.0	105.8	47.7	0.0	97.4	60.9	0.0
LnGrp LOS	F	D		E	D		F	D		F	E	
Approach Vol, veh/h		972	A		1594	A		1028	A		594	A
Approach Delay, s/veh		56.6			55.6			58.9			61.3	
Approach LOS		E			E			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.2	48.2	36.8	49.8	20.6	32.8	37.0	49.6
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	5.5	47.1	34.0	37.4	16.6	36.0	35.5	35.9
Max Q Clear Time (g_c+I1), s	2.6	34.2	32.7	30.6	17.4	25.8	31.9	21.0
Green Ext Time (p_c), s	0.0	4.3	0.2	2.8	0.0	3.0	1.1	3.1

Intersection Summary	
HCM 6th Ctrl Delay	57.5
HCM 6th LOS	E

Notes

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

HCM 6th Signalized Intersection Summary
8: Walters Road & E Tabor Avenue

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	533	39	200	12	25	51	164	1311	15	88	974	312
Future Volume (veh/h)	533	39	200	12	25	51	164	1311	15	88	974	312
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1900	1796	1900	1900	1796	1900	1841	1824	1900	1856	1796
Adj Flow Rate, veh/h	533	39	200	12	25	51	164	1311	15	88	974	312
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	0	2	0	0	2	0	4	0	0	3	2
Cap, veh/h	515	52	267	27	33	67	207	1737	20	115	1155	368
Arrive On Green	0.15	0.19	0.19	0.01	0.06	0.06	0.11	0.49	0.49	0.06	0.44	0.44
Sat Flow, veh/h	3456	269	1382	1810	558	1138	1810	3542	41	1810	2630	838
Grp Volume(v), veh/h	533	0	239	12	0	76	164	647	679	88	651	635
Grp Sat Flow(s),veh/h/ln	1728	0	1651	1810	0	1695	1810	1749	1833	1810	1763	1705
Q Serve(g_s), s	10.0	0.0	9.2	0.4	0.0	3.0	5.9	20.1	20.1	3.2	22.0	22.3
Cycle Q Clear(g_c), s	10.0	0.0	9.2	0.4	0.0	3.0	5.9	20.1	20.1	3.2	22.0	22.3
Prop In Lane	1.00		0.84	1.00		0.67	1.00		0.02	1.00		0.49
Lane Grp Cap(c), veh/h	515	0	319	27	0	100	207	857	899	115	774	749
V/C Ratio(X)	1.04	0.00	0.75	0.44	0.00	0.76	0.79	0.75	0.76	0.77	0.84	0.85
Avail Cap(c_a), veh/h	515	0	566	151	0	470	324	922	967	270	877	849
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.6	0.0	25.6	32.8	0.0	31.1	28.9	13.8	13.8	30.9	16.7	16.8
Incr Delay (d2), s/veh	49.0	0.0	3.6	11.0	0.0	11.3	7.0	3.3	3.2	10.2	6.7	7.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	0.0	3.6	0.3	0.0	1.5	2.7	6.9	7.2	1.6	8.5	8.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.5	0.0	29.1	43.8	0.0	42.4	35.9	17.2	17.0	41.1	23.4	24.2
LnGrp LOS	F	A	C	D	A	D	D	B	B	D	C	C
Approach Vol, veh/h		772			88			1490			1374	
Approach Delay, s/veh		62.5			42.6			19.2			24.9	
Approach LOS		E			D			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	36.9	14.0	7.9	11.7	33.5	5.0	16.9
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	10.0	35.4	10.0	18.6	12.0	33.4	5.6	23.0
Max Q Clear Time (g_c+I1), s	5.2	22.1	12.0	5.0	7.9	24.3	2.4	11.2
Green Ext Time (p_c), s	0.1	6.7	0.0	0.2	0.1	5.1	0.0	1.0

Intersection Summary	
HCM 6th Ctrl Delay	30.8
HCM 6th LOS	C

HCM 6th Signalized Intersection Summary
9: Walters Road & Bella Vista Drive

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	69	9	9	55	2	60	19	1331	69	54	1084	87
Future Volume (veh/h)	69	9	9	55	2	60	19	1331	69	54	1084	87
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		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	1781	1900	1824	1696	1900	1900	1900	1856	1824	1900	1841	1824
Adj Flow Rate, veh/h	69	9	9	55	2	60	19	1331	69	54	1084	87
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	3	0	0	9	0	0	0	3	0	0	4	0
Cap, veh/h	133	17	17	155	6	140	30	1913	99	70	1910	153
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.02	0.56	0.56	0.04	0.58	0.58
Sat Flow, veh/h	1422	185	185	1749	64	1588	1810	3410	176	1810	3279	263
Grp Volume(v), veh/h	87	0	0	57	0	60	19	687	713	54	578	593
Grp Sat Flow(s),veh/h/ln	1793	0	0	1813	0	1588	1810	1763	1824	1810	1749	1793
Q Serve(g_s), s	4.2	0.0	0.0	2.7	0.0	3.2	0.9	25.2	25.4	2.7	18.5	18.6
Cycle Q Clear(g_c), s	4.2	0.0	0.0	2.7	0.0	3.2	0.9	25.2	25.4	2.7	18.5	18.6
Prop In Lane	0.79		0.10	0.96		1.00	1.00		0.10	1.00		0.15
Lane Grp Cap(c), veh/h	167	0	0	160	0	140	30	989	1023	70	1019	1045
V/C Ratio(X)	0.52	0.00	0.00	0.36	0.00	0.43	0.62	0.69	0.70	0.78	0.57	0.57
Avail Cap(c_a), veh/h	325	0	0	308	0	270	151	989	1023	151	1019	1045
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.9	0.0	0.0	38.6	0.0	38.9	44.0	14.2	14.2	42.9	11.7	11.7
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.5	0.0	0.8	7.5	4.0	3.9	6.7	2.3	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	0.0	1.2	0.0	1.3	0.5	9.5	9.8	1.3	6.6	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	39.8	0.0	0.0	39.1	0.0	39.6	51.5	18.2	18.2	49.6	14.0	13.9
LnGrp LOS	D	A	A	D	A	D	D	B	B	D	B	B
Approach Vol, veh/h		87			117			1419			1225	
Approach Delay, s/veh		39.8			39.4			18.6			15.5	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	8.0	56.3		13.1	6.0	58.2		12.7
Change Period (Y+Rc), s	4.5	5.8		* 4.7	4.5	5.8		4.7
Max Green Setting (Gmax), s	7.5	31.2		* 16	7.5	31.2		15.3
Max Q Clear Time (g_c+I1), s	4.7	27.4		6.2	2.9	20.6		5.2
Green Ext Time (p_c), s	0.0	3.1		0.2	0.0	6.5		0.2

Intersection Summary	
HCM 6th Ctrl Delay	18.8
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
10: Walters Road & Pintail Drive

04/29/2021

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	225	89	76	1199	985	153
Future Volume (veh/h)	225	89	76	1199	985	153
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	1885	1767	1811	1841	1841	1781
Adj Flow Rate, veh/h	225	89	76	1199	985	153
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	1	9	6	4	4	3
Cap, veh/h	277	231	96	2589	1942	301
Arrive On Green	0.15	0.15	0.11	1.00	0.64	0.64
Sat Flow, veh/h	1795	1497	1725	3589	3126	471
Grp Volume(v), veh/h	225	89	76	1199	567	571
Grp Sat Flow(s),veh/h/ln	1795	1497	1725	1749	1749	1756
Q Serve(g_s), s	10.9	4.8	3.9	0.0	15.6	15.6
Cycle Q Clear(g_c), s	10.9	4.8	3.9	0.0	15.6	15.6
Prop In Lane	1.00	1.00	1.00			0.27
Lane Grp Cap(c), veh/h	277	231	96	2589	1120	1124
V/C Ratio(X)	0.81	0.39	0.79	0.46	0.51	0.51
Avail Cap(c_a), veh/h	754	629	153	2589	1120	1124
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.79	0.79	1.00	1.00
Uniform Delay (d), s/veh	36.8	34.2	39.5	0.0	8.6	8.6
Incr Delay (d2), s/veh	5.7	1.1	10.9	0.5	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.2	4.2	1.8	0.2	4.7	4.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	42.5	35.3	50.4	0.5	9.0	9.0
LnGrp LOS	D	D	D	A	A	A
Approach Vol, veh/h	314			1275	1138	
Approach Delay, s/veh	40.5			3.4	9.0	
Approach LOS	D			A	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		71.9		18.1	9.0	62.9
Change Period (Y+Rc), s		5.3		* 4.2	4.0	5.3
Max Green Setting (Gmax), s		42.7		* 38	8.0	30.7
Max Q Clear Time (g_c+I1), s		2.0		12.9	5.9	17.6
Green Ext Time (p_c), s		10.3		1.0	0.0	5.7

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
11: Walters Road & Mammoth Way /Montebello Drive

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	3	19	85	2	43	16	1187	185	46	982	18
Future Volume (veh/h)	8	3	19	85	2	43	16	1187	185	46	982	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1841	1810	1826	1841	1824
Adj Flow Rate, veh/h	8	3	19	85	2	43	16	1187	185	46	982	18
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	0	0	0	0	0	0	4	1	5	4	0
Cap, veh/h	196	63	179	237	5	181	33	2121	329	66	2526	46
Arrive On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.02	0.70	0.70	0.04	0.72	0.72
Sat Flow, veh/h	1128	563	1593	1405	42	1610	1810	3033	471	1739	3513	64
Grp Volume(v), veh/h	11	0	19	87	0	43	16	682	690	46	489	511
Grp Sat Flow(s),veh/h/ln	1691	0	1593	1447	0	1610	1810	1749	1754	1739	1749	1829
Q Serve(g_s), s	0.0	0.0	1.0	4.6	0.0	2.2	0.8	17.3	17.5	2.4	9.8	9.8
Cycle Q Clear(g_c), s	0.5	0.0	1.0	5.0	0.0	2.2	0.8	17.3	17.5	2.4	9.8	9.8
Prop In Lane	0.73		1.00	0.98		1.00	1.00		0.27	1.00		0.04
Lane Grp Cap(c), veh/h	260	0	179	242	0	181	33	1223	1227	66	1257	1315
V/C Ratio(X)	0.04	0.00	0.11	0.36	0.00	0.24	0.48	0.56	0.56	0.70	0.39	0.39
Avail Cap(c_a), veh/h	716	0	651	666	0	658	161	1223	1227	155	1257	1315
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.81	0.81	0.81
Uniform Delay (d), s/veh	35.6	0.0	35.9	37.6	0.0	36.4	43.8	6.7	6.7	42.8	4.9	4.9
Incr Delay (d2), s/veh	0.1	0.0	0.5	1.9	0.0	1.4	21.5	1.8	1.9	20.4	0.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.4	1.9	0.0	0.9	0.5	5.0	5.1	1.3	2.6	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.8	0.0	36.4	39.5	0.0	37.8	65.2	8.5	8.6	63.2	5.7	5.6
LnGrp LOS	D	A	D	D	A	D	E	A	A	E	A	A
Approach Vol, veh/h		30			130			1388			1046	
Approach Delay, s/veh		36.2			39.0			9.2			8.2	
Approach LOS		D			D			A			A	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.4	68.2		14.3	5.6	70.0		14.3				
Change Period (Y+Rc), s	4.0	5.3		* 4.2	4.0	5.3		* 4.2				
Max Green Setting (Gmax), s	8.0	31.7		* 37	8.0	31.7		* 37				
Max Q Clear Time (g_c+I1), s	4.6	19.5		3.0	2.8	11.8		7.0				
Green Ext Time (p_c), s	0.0	9.6		0.2	0.0	10.5		1.2				

Intersection Summary	
HCM 6th Ctrl Delay	10.6
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
12: Walters Road & Petersen Road

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	5	7	182	8	83	20	1189	99	37	1177	27
Future Volume (veh/h)	19	5	7	182	8	83	20	1189	99	37	1177	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.99	0.99		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	1767	1900	1900	1841	1900	1900	1900	1856	1781	1900	1841	1737
Adj Flow Rate, veh/h	19	5	7	182	8	0	20	1189	0	37	1177	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	9	0	0	4	0	0	0	3	8	0	4	11
Cap, veh/h	294	316	265	306	316		40	2260		61	2283	
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.00	0.02	0.64	0.00	0.03	0.65	0.00
Sat Flow, veh/h	1315	1900	1593	1374	1900	1610	1810	3526	1510	1810	3589	0
Grp Volume(v), veh/h	19	5	7	182	8	0	20	1189	0	37	1177	0
Grp Sat Flow(s),veh/h/ln	1315	1900	1593	1374	1900	1610	1810	1763	1510	1810	1749	0
Q Serve(g_s), s	1.1	0.2	0.3	11.5	0.3	0.0	1.0	16.4	0.0	1.8	15.9	0.0
Cycle Q Clear(g_c), s	1.4	0.2	0.3	11.7	0.3	0.0	1.0	16.4	0.0	1.8	15.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	294	316	265	306	316		40	2260		61	2283	
V/C Ratio(X)	0.06	0.02	0.03	0.60	0.03		0.51	0.53		0.61	0.52	
Avail Cap(c_a), veh/h	506	623	522	527	623		171	2260		171	2283	
HCM Platoon Ratio	1.00	1.00	1.00	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	0.00	0.81	0.81	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.0	31.3	31.4	36.2	31.4	0.0	43.5	8.7	0.0	42.9	8.2	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.0	1.9	0.0	0.0	7.9	0.7	0.0	9.5	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.1	0.1	3.9	0.1	0.0	0.5	5.1	0.0	0.9	4.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.1	31.4	31.4	38.1	31.4	0.0	51.4	9.5	0.0	52.4	8.4	0.0
LnGrp LOS	C	C	C	D	C		D	A		D	A	
Approach Vol, veh/h		31			190	A		1209	A		1214	A
Approach Delay, s/veh		31.8			37.8			10.2			9.7	
Approach LOS		C			D			B			A	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.5	63.0		19.5	6.5	64.0		19.5
Change Period (Y+Rc), s	4.5	5.3		4.5	4.5	5.3		4.5
Max Green Setting (Gmax), s	3.5	37.7		29.5	8.5	37.7		29.5
Max Q Clear Time (g_c+I1), s	3.8	18.4		3.4	3.0	17.9		13.7
Green Ext Time (p_c), s	0.0	7.9		0.1	0.0	7.9		0.5

Intersection Summary	
HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary
13: Walters Road & Walmart Main Driveway

04/29/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	0	81	47	0	29	205	1120	30	24	1199	149
Future Volume (veh/h)	165	0	81	47	0	29	205	1120	30	24	1199	149
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900	1870	1870	1870	1885	1841	1870	1870	1826	1900
Adj Flow Rate, veh/h	165	0	81	47	0	29	205	1120	30	24	1199	149
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	0	2	2	2	1	4	2	2	5	0
Cap, veh/h	202	0	254	68	0	138	160	1943	52	45	1508	187
Arrive On Green	0.11	0.00	0.16	0.04	0.00	0.09	0.09	0.56	0.56	0.03	0.49	0.49
Sat Flow, veh/h	1810	0	1582	1781	0	1585	1795	3479	93	1781	3106	385
Grp Volume(v), veh/h	165	0	81	47	0	29	205	563	587	24	668	680
Grp Sat Flow(s),veh/h/ln	1810	0	1582	1781	0	1585	1795	1749	1824	1781	1735	1757
Q Serve(g_s), s	8.0	0.0	4.1	2.3	0.0	1.5	8.0	18.9	18.9	1.2	29.0	29.3
Cycle Q Clear(g_c), s	8.0	0.0	4.1	2.3	0.0	1.5	8.0	18.9	18.9	1.2	29.0	29.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.05	1.00		0.22
Lane Grp Cap(c), veh/h	202	0	254	68	0	138	160	976	1018	45	842	853
V/C Ratio(X)	0.82	0.00	0.32	0.69	0.00	0.21	1.28	0.58	0.58	0.54	0.79	0.80
Avail Cap(c_a), veh/h	314	0	545	99	0	359	160	976	1018	101	842	853
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.81	0.81	0.81
Uniform Delay (d), s/veh	39.1	0.0	33.4	42.7	0.0	38.2	41.0	12.9	12.9	43.4	19.4	19.4
Incr Delay (d2), s/veh	9.1	0.0	0.7	11.5	0.0	0.7	167.1	2.5	2.4	7.9	4.3	4.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.0	1.6	1.2	0.0	0.6	10.9	7.4	7.7	0.6	11.1	11.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.2	0.0	34.1	54.3	0.0	38.9	208.1	15.4	15.3	51.3	23.6	23.8
LnGrp LOS	D	A	C	D	A	D	F	B	B	D	C	C
Approach Vol, veh/h		246			76			1355			1372	
Approach Delay, s/veh		43.6			48.4			44.5			24.2	
Approach LOS		D			D			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.8	55.5	8.0	19.7	13.3	49.0	14.6	13.1
Change Period (Y+Rc), s	4.5	5.3	4.5	5.3	5.3	5.3	4.5	5.3
Max Green Setting (Gmax), s	5.1	29.3	5.0	31.0	8.0	25.6	15.6	20.4
Max Q Clear Time (g_c+I1), s	3.2	20.9	4.3	6.1	10.0	31.3	10.0	3.5
Green Ext Time (p_c), s	0.0	4.7	0.0	0.4	0.0	0.0	0.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	35.4
HCM 6th LOS	D

Notes

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

HCM 6th TWSC
14: Walters Road & Walmart Driveway 04/29/2021

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	93	0	0	36	0	1319	21	17	1310	1
Future Vol, veh/h	0	0	93	0	0	36	0	1319	21	17	1310	1
Conflicting Peds, #/hr	0	0	5	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	100	100	100	100	100	100	100	100	100	100	100	100
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	0	5	0
Mvmt Flow	0	0	93	0	0	36	0	1319	21	17	1310	1

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	-	-	661	-	-	670	-	0	0	1340	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	-	-	6.9	-	-	-	4.1	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	-	-	3.3	-	-	-	2.2	-	-
Pot Cap-1 Maneuver	0	0	410	0	0	404	0	-	-	521	-	-
Stage 1	0	0	-	0	0	-	0	-	-	-	-	-
Stage 2	0	0	-	0	0	-	0	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	-	408	-	-	404	-	-	-	521	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.4	14.8	0	0.2
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	408	404	521	-	-
HCM Lane V/C Ratio	-	-	0.228	0.089	0.033	-	-
HCM Control Delay (s)	-	-	16.4	14.8	12.1	-	-
HCM Lane LOS	-	-	C	B	B	-	-
HCM 95th %tile Q(veh)	-	-	0.9	0.3	0.1	-	-

HCM 6th Signalized Intersection Summary
15: Lawler Ranch Road/Walters Road & State Hwy 12 05/04/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	944	969	88	3	655	330	41	66	1	423	147	836
Future Volume (veh/h)	944	969	88	3	655	330	41	66	1	423	147	836
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1752	1885	1900	1781	1737	1900	1841	1900	1767	1856	1870
Adj Flow Rate, veh/h	944	969	88	3	655	330	36	73	1	285	340	836
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	10	1	0	8	11	0	4	0	9	3	2
Cap, veh/h	813	1677	801	13	933	403	143	292	128	410	452	761
Arrive On Green	0.24	0.50	0.50	0.01	0.28	0.28	0.08	0.08	0.08	0.24	0.24	0.24
Sat Flow, veh/h	3456	3328	1590	1810	3385	1464	1810	3681	1610	1682	1856	3125
Grp Volume(v), veh/h	944	969	88	3	655	330	36	73	1	285	340	836
Grp Sat Flow(s),veh/h/ln	1728	1664	1590	1810	1692	1464	1810	1841	1610	1682	1856	1562
Q Serve(g_s), s	29.0	25.1	3.6	0.2	21.4	26.0	2.3	2.3	0.1	19.0	20.9	30.0
Cycle Q Clear(g_c), s	29.0	25.1	3.6	0.2	21.4	26.0	2.3	2.3	0.1	19.0	20.9	30.0
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	813	1677	801	13	933	403	143	292	128	410	452	761
V/C Ratio(X)	1.16	0.58	0.11	0.23	0.70	0.82	0.25	0.25	0.01	0.70	0.75	1.10
Avail Cap(c_a), veh/h	813	1677	801	352	1373	594	441	896	392	410	452	761
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	47.1	21.4	16.1	60.8	40.1	41.7	53.3	53.3	52.3	42.5	43.2	46.6
Incr Delay (d2), s/veh	85.8	0.5	0.1	8.9	1.0	5.7	0.9	0.4	0.0	5.1	7.0	63.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	22.2	9.9	1.3	0.1	8.7	9.6	1.1	1.1	0.0	8.2	10.2	18.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	132.9	21.9	16.1	69.8	41.1	47.4	54.2	53.7	52.3	47.5	50.2	109.7
LnGrp LOS	F	C	B	E	D	D	D	D	D	D	D	F
Approach Vol, veh/h		2001			988			110			1461	
Approach Delay, s/veh		74.0			43.3			53.9			83.7	
Approach LOS		E			D			D			F	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	5.1	67.8	35.3	33.2	39.7	15.1
Change Period (Y+Rc), s	* 4.2	5.7	5.3	* 4.2	5.7	5.3
Max Green Setting (Gmax), s	* 24	50.0	30.0	* 29	50.0	30.0
Max Q Clear Time (g_c+I1), s	2.2	27.1	32.0	31.0	28.0	4.3
Green Ext Time (p_c), s	0.0	4.3	0.0	0.0	5.2	0.5

Intersection Summary	
HCM 6th Ctrl Delay	70.0
HCM 6th LOS	E

Notes
User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Queues
1: Sunset Avenue & Pintail Drive

04/30/2021

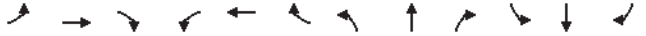
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	61	129	165	227	24	610	230	530
v/c Ratio	0.37	0.33	0.65	0.53	0.16	0.39	0.74	0.24
Control Delay	33.9	22.3	43.1	21.5	40.2	18.0	50.5	10.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.9	22.3	43.1	21.5	40.2	18.0	50.5	10.3
Queue Length 50th (ft)	30	47	88	68	13	108	122	46
Queue Length 95th (ft)	57	79	128	114	37	196	#208	147
Internal Link Dist (ft)		402		619		2012		441
Turn Bay Length (ft)	105		75		105		105	
Base Capacity (vph)	270	616	411	636	246	1581	340	2194
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.21	0.40	0.36	0.10	0.39	0.68	0.24

Intersection Summary

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

Queues
2: Grizzly Island Road/Sunset Avenue & State Hwy 12

04/30/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	553	1881	218	129	1235	192	168	146	135	209	213	253
v/c Ratio	0.88	0.98	0.23	0.95	0.79	0.23	0.89	0.73	0.47	1.02	1.01	0.45
Control Delay	76.2	47.7	6.4	131.8	40.2	3.8	107.1	85.6	15.9	131.3	128.4	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.2	47.7	6.4	131.8	40.2	3.8	107.1	85.6	15.9	131.3	128.4	9.3
Queue Length 50th (ft)	272	910	33	128	545	0	165	141	3	~223	~225	0
Queue Length 95th (ft)	#355	#1113	76	#265	641	47	#305	#240	69	#406	#410	46
Internal Link Dist (ft)		867			689			481			2012	
Turn Bay Length (ft)	500		275	250		400	125			150		150
Base Capacity (vph)	658	1929	952	136	1561	822	189	201	286	205	211	563
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.98	0.23	0.95	0.79	0.23	0.89	0.73	0.47	1.02	1.01	0.45

Intersection Summary

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

Queues
5: Lawler Ranch Parkway/Emperor Drive & State Hwy 12

04/30/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	307	2002	183	93	1384	50	76	79	61	21	143
v/c Ratio	0.91	1.18	0.22	0.55	1.01	0.07	0.35	0.36	0.19	0.10	0.47
Control Delay	85.5	120.6	11.9	74.6	67.7	0.2	60.2	60.1	1.4	56.1	20.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.5	120.6	11.9	74.6	67.7	0.2	60.2	60.1	1.4	56.1	20.3
Queue Length 50th (ft)	225	~901	26	68	519	0	58	61	0	15	20
Queue Length 95th (ft)	#648	#2197	141	#262	#1600	0	147	150	0	52	100
Internal Link Dist (ft)		1386			1441			861			1277
Turn Bay Length (ft)	425		255	200		230	215		215	125	
Base Capacity (vph)	519	2046	997	170	1364	678	261	267	350	256	349
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.98	0.18	0.55	1.01	0.07	0.29	0.30	0.17	0.08	0.41

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Queues
7: Walters Road/Walter Road & Air Base Parkway

04/30/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	368	604	372	760	834	14	198	830	833	7	823
v/c Ratio	0.96	0.62	0.67	0.91	0.86	0.03	0.95	0.65	0.86	0.12	0.98
Control Delay	88.1	48.8	27.8	66.8	58.4	0.1	110.6	38.5	21.9	69.3	75.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.1	48.8	27.8	66.8	58.4	0.1	110.6	38.5	21.9	69.3	75.3
Queue Length 50th (ft)	330	260	147	343	384	0	182	315	240	6	377
Queue Length 95th (ft)	#524	326	268	#430	#477	0	#338	434	#592	24	#518
Internal Link Dist (ft)		831			1018			1074			197
Turn Bay Length (ft)	275		315	400		180			325	150	
Base Capacity (vph)	394	968	559	879	973	459	209	1270	969	60	840
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.62	0.67	0.86	0.86	0.03	0.95	0.65	0.86	0.12	0.98

Intersection Summary

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

Queues
8: Walters Road & E Tabor Avenue

04/30/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	533	239	12	76	164	1326	88	1286
v/c Ratio	1.17	0.44	0.09	0.33	0.64	0.77	0.44	0.85
Control Delay	132.8	9.1	38.5	19.0	45.6	22.7	41.3	27.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	132.8	9.1	38.5	19.0	45.6	22.7	41.3	27.3
Queue Length 50th (ft)	~165	14	6	12	75	280	40	278
Queue Length 95th (ft)	#304	77	24	48	#171	#522	93	#510
Internal Link Dist (ft)		1386		269		2251		1213
Turn Bay Length (ft)	95		125		180		270	
Base Capacity (vph)	454	636	133	453	286	1733	239	1527
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.17	0.38	0.09	0.17	0.57	0.77	0.37	0.84

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Queues
9: Walters Road & Bella Vista Drive

04/30/2021

Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	87	57	60	19	1400	54	1171
v/c Ratio	0.41	0.32	0.20	0.18	0.70	0.42	0.54
Control Delay	39.2	41.1	1.5	52.7	21.9	49.9	16.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.2	41.1	1.5	52.7	21.9	49.9	16.3
Queue Length 50th (ft)	44	31	0	9	72	30	168
Queue Length 95th (ft)	83	63	0	m22	#659	67	#479
Internal Link Dist (ft)	639	451			643		1927
Turn Bay Length (ft)			90	135		105	
Base Capacity (vph)	323	283	394	150	2007	150	2168
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.20	0.15	0.13	0.70	0.36	0.54

Intersection Summary

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

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

Queues

10: Walters Road & Pintail Drive

04/30/2021

Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	225	89	76	1199	1138
v/c Ratio	0.58	0.23	0.54	0.51	0.58
Control Delay	35.7	6.1	50.7	8.9	25.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	35.7	6.1	50.7	8.9	25.9
Queue Length 50th (ft)	120	0	34	251	326
Queue Length 95th (ft)	139	27	m60	453	#473
Internal Link Dist (ft)	590			851	689
Turn Bay Length (ft)		150	130		
Base Capacity (vph)	750	674	151	2346	1948
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.30	0.13	0.50	0.51	0.58

Intersection Summary

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

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

Queues

11: Walters Road & Mammoth Way /Montebello Drive

04/30/2021

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	11	19	87	43	16	1372	46	1000
v/c Ratio	0.04	0.05	0.35	0.12	0.10	0.60	0.31	0.40
Control Delay	24.5	0.3	33.0	2.2	29.7	23.5	25.0	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.5	0.3	33.0	2.2	29.7	23.5	25.0	19.2
Queue Length 50th (ft)	6	0	46	0	8	287	26	243
Queue Length 95th (ft)	14	0	64	8	m16	#613	m43	389
Internal Link Dist (ft)	184		413			477		851
Turn Bay Length (ft)		50		125	100		120	
Base Capacity (vph)	659	705	561	705	160	2297	152	2515
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.03	0.16	0.06	0.10	0.60	0.30	0.40

Intersection Summary

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

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

Queues
12: Walters Road & Petersen Road

04/30/2021

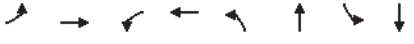
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	19	5	7	182	8	83	20	1189	99	37	1204
v/c Ratio	0.08	0.01	0.02	0.66	0.02	0.22	0.15	0.56	0.11	0.26	0.55
Control Delay	26.2	24.0	0.1	43.1	24.2	7.1	35.0	18.3	10.4	40.4	14.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.2	24.0	0.1	43.1	24.2	7.1	35.0	18.3	10.4	40.4	14.5
Queue Length 50th (ft)	9	2	0	97	4	0	11	156	0	15	300
Queue Length 95th (ft)	23	10	0	141	13	31	m22	357	m58	46	433
Internal Link Dist (ft)		417			560			505			413
Turn Bay Length (ft)			180	115		200	85		185	100	
Base Capacity (vph)	427	622	577	450	622	575	170	2124	941	170	2195
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.01	0.01	0.40	0.01	0.14	0.12	0.56	0.11	0.22	0.55

Intersection Summary

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

Queues
13: Walters Road & Walmart Main Driveway

04/30/2021



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	165	81	47	29	205	1150	24	1348
v/c Ratio	0.59	0.18	0.48	0.08	1.30	0.55	0.20	0.79
Control Delay	44.0	0.9	58.1	0.4	208.2	17.3	50.5	26.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.0	0.9	58.1	0.4	208.2	17.3	50.5	26.0
Queue Length 50th (ft)	83	0	27	0	~150	138	10	346
Queue Length 95th (ft)	150	0	#68	0	#286	#498	m24	#697
Internal Link Dist (ft)		149		195		338		505
Turn Bay Length (ft)					200		275	
Base Capacity (vph)	323	693	98	531	158	2083	119	1713
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.12	0.48	0.05	1.30	0.55	0.20	0.79

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Queues
15: Lawler Ranch Road/Walters Road & State Hwy 12

05/04/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	944	969	88	3	655	330	34	73	1	283	287	836
v/c Ratio	1.15	0.57	0.10	0.02	0.76	0.54	0.16	0.17	0.00	0.75	0.72	0.64
Control Delay	123.9	26.4	6.5	68.7	50.9	7.8	52.8	51.7	0.0	61.0	58.6	5.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	123.9	26.4	6.5	68.7	50.9	7.8	52.8	51.7	0.0	61.0	58.6	5.9
Queue Length 50th (ft)	~442	252	3	2	248	0	27	29	0	212	213	0
Queue Length 95th (ft)	#968	602	44	16	440	87	68	59	0	#596	#590	63
Internal Link Dist (ft)		3194			827			385			265	
Turn Bay Length (ft)	390		275	215		300	175		90	125		190
Base Capacity (vph)	822	1699	867	357	1380	783	442	893	516	389	412	1319
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.15	0.57	0.10	0.01	0.47	0.42	0.08	0.08	0.00	0.73	0.70	0.63

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

HCM 6th Signalized Intersection Summary
12: Walters Road & Petersen Road

05/06/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	19	5	7	182	8	83	20	1189	99	37	1177	27
Future Volume (veh/h)	19	5	7	182	8	83	20	1189	99	37	1177	27
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		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	1767	1900	1900	1841	1900	1900	1900	1856	1781	1900	1841	1737
Adj Flow Rate, veh/h	19	5	7	182	8	0	20	1189	0	37	1177	0
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	9	0	0	4	0	0	0	3	8	0	4	11
Cap, veh/h	193	51	42	213	64		521	2325		54	1380	
Arrive On Green	0.11	0.03	0.03	0.12	0.03	0.00	0.58	1.00	0.00	0.03	0.39	0.00
Sat Flow, veh/h	1682	1900	1568	1753	1900	1610	1810	3526	1510	1810	3589	0
Grp Volume(v), veh/h	19	5	7	182	8	0	20	1189	0	37	1177	0
Grp Sat Flow(s),veh/h/ln	1682	1900	1568	1753	1900	1610	1810	1763	1510	1810	1749	0
Q Serve(g_s), s	1.2	0.3	0.5	11.8	0.5	0.0	0.6	0.0	0.0	2.3	35.6	0.0
Cycle Q Clear(g_c), s	1.2	0.3	0.5	11.8	0.5	0.0	0.6	0.0	0.0	2.3	35.6	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	193	51	42	213	64		521	2325		54	1380	
V/C Ratio(X)	0.10	0.10	0.17	0.85	0.13		0.04	0.51		0.68	0.85	
Avail Cap(c_a), veh/h	193	139	115	355	428		521	2325		117	1770	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	0.83	0.83	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	46.0	55.1	55.2	49.9	54.4	0.0	17.6	0.0	0.0	55.7	32.0	0.0
Incr Delay (d2), s/veh	0.2	0.8	1.8	10.1	0.9	0.0	0.0	0.7	0.0	13.9	6.8	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.2	0.2	5.8	0.2	0.0	0.2	0.2	0.0	1.3	15.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	46.2	55.9	57.0	60.1	55.3	0.0	17.7	0.7	0.0	69.6	38.9	0.0
LnGrp LOS	D	E	E	E	E		B	A		E	D	
Approach Vol, veh/h		31			190	A		1209	A		1214	A
Approach Delay, s/veh		50.2			59.9			1.0			39.8	
Approach LOS		D			E			A			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.0	81.8	18.6	7.6	38.7	51.1	17.8	8.4
Change Period (Y+Rc), s	4.5	5.3	4.5	4.5	5.3	* 5.3	4.5	4.5
Max Green Setting (Gmax), s	7.5	57.7	23.5	8.5	6.5	* 59	5.9	26.1
Max Q Clear Time (g_c+I1), s	4.3	2.0	13.8	2.5	2.6	37.6	3.2	2.5
Green Ext Time (p_c), s	0.0	10.6	0.3	0.0	0.0	8.2	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	23.6
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

HCM 6th Signalized Intersection Summary
13: Walters Road & Walmart Main Driveway

06/18/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	0	81	47	0	29	205	1120	30	24	1199	149
Future Volume (veh/h)	165	0	81	47	0	29	205	1120	30	24	1199	149
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900	1870	1870	1870	1885	1841	1870	1870	1826	1900
Adj Flow Rate, veh/h	165	0	81	47	0	29	205	1120	30	24	1199	149
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	0	2	0	2	2	2	1	4	2	2	5	0
Cap, veh/h	196	0	117	183	0	109	857	2196	59	41	1247	154
Arrive On Green	0.11	0.00	0.07	0.10	0.00	0.07	0.25	0.63	0.63	0.05	0.80	0.80
Sat Flow, veh/h	1810	0	1579	1781	0	1585	3483	3479	93	1781	3106	385
Grp Volume(v), veh/h	165	0	81	47	0	29	205	563	587	24	668	680
Grp Sat Flow(s),veh/h/ln	1810	0	1579	1781	0	1585	1742	1749	1824	1781	1735	1757
Q Serve(g_s), s	10.4	0.0	5.8	2.8	0.0	2.0	5.5	20.3	20.3	1.5	38.3	39.2
Cycle Q Clear(g_c), s	10.4	0.0	5.8	2.8	0.0	2.0	5.5	20.3	20.3	1.5	38.3	39.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.05	1.00		0.22
Lane Grp Cap(c), veh/h	196	0	117	183	0	109	857	1104	1151	41	696	705
V/C Ratio(X)	0.84	0.00	0.69	0.26	0.00	0.27	0.24	0.51	0.51	0.58	0.96	0.96
Avail Cap(c_a), veh/h	292	0	423	183	0	245	857	1104	1151	91	752	762
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.83	0.83	0.83
Uniform Delay (d), s/veh	50.8	0.0	52.4	48.0	0.0	51.3	35.0	11.6	11.6	54.8	10.6	10.7
Incr Delay (d2), s/veh	13.3	0.0	7.1	0.7	0.0	1.3	0.7	1.7	1.6	10.2	22.6	23.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	2.6	1.3	0.0	0.8	2.4	8.0	8.3	0.8	8.3	8.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	64.1	0.0	59.5	48.7	0.0	52.6	35.7	13.3	13.2	65.0	33.2	34.1
LnGrp LOS	E	A	E	D	A	D	D	B	B	E	C	C
Approach Vol, veh/h		246			76			1355			1372	
Approach Delay, s/veh		62.6			50.2			16.7			34.2	
Approach LOS		E			D			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.2	78.5	16.4	13.9	33.8	51.9	17.0	13.2
Change Period (Y+Rc), s	4.5	5.3	4.5	5.3	5.3	5.3	4.5	5.3
Max Green Setting (Gmax), s	5.9	53.9	5.5	31.1	8.7	50.3	18.7	17.9
Max Q Clear Time (g_c+I1), s	3.5	22.3	4.8	7.8	7.5	41.2	12.4	4.0
Green Ext Time (p_c), s	0.0	9.5	0.0	0.4	0.1	5.3	0.2	0.1

Intersection Summary	
HCM 6th Ctrl Delay	29.1
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary
15: Lawler Ranch Road/Walters Road & State Hwy 12

05/06/2021

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	944	969	88	3	655	330	41	66	1	423	147	836
Future Volume (veh/h)	944	969	88	3	655	330	41	66	1	423	147	836
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1752	1885	1900	1781	1737	1900	1841	1900	1767	1856	1870
Adj Flow Rate, veh/h	944	969	88	3	655	330	36	73	1	285	340	836
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Percent Heavy Veh, %	2	10	1	0	8	11	0	4	0	9	3	2
Cap, veh/h	1023	1763	842	13	771	333	151	308	135	341	376	1570
Arrive On Green	0.30	0.53	0.53	0.01	0.23	0.23	0.08	0.08	0.08	0.07	0.07	0.07
Sat Flow, veh/h	3456	3328	1590	1810	3385	1462	1810	3681	1610	1682	1856	3115
Grp Volume(v), veh/h	944	969	88	3	655	330	36	73	1	285	340	836
Grp Sat Flow(s),veh/h/ln	1728	1664	1590	1810	1692	1462	1810	1841	1610	1682	1856	1558
Q Serve(g_s), s	30.7	22.4	3.2	0.2	21.5	26.1	2.2	2.2	0.1	19.4	21.1	0.0
Cycle Q Clear(g_c), s	30.7	22.4	3.2	0.2	21.5	26.1	2.2	2.2	0.1	19.4	21.1	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	1023	1763	842	13	771	333	151	308	135	341	376	1570
V/C Ratio(X)	0.92	0.55	0.10	0.23	0.85	0.99	0.24	0.24	0.01	0.84	0.90	0.53
Avail Cap(c_a), veh/h	1096	1763	842	140	771	333	167	340	149	344	379	1575
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.6	18.1	13.6	57.3	42.9	44.7	49.7	49.7	48.7	52.2	53.0	24.7
Incr Delay (d2), s/veh	12.2	1.2	0.2	8.9	8.9	46.5	0.8	0.4	0.0	16.1	24.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.7	8.8	1.2	0.1	9.5	13.3	1.0	1.0	0.0	10.2	13.0	9.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.7	19.3	13.8	66.1	51.7	91.2	50.5	50.1	48.7	68.3	77.2	25.0
LnGrp LOS	D	B	B	E	D	F	D	D	D	E	E	C
Approach Vol, veh/h		2001			988			110			1461	
Approach Delay, s/veh		34.4			65.0			50.2			45.6	
Approach LOS		C			E			D			D	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	5.0	67.1	28.8	40.0	32.1	15.0
Change Period (Y+Rc), s	* 4.2	5.7	5.3	5.7	* 5.7	5.3
Max Green Setting (Gmax), s	* 9	52.1	23.7	36.8	* 24	10.7
Max Q Clear Time (g_c+I1), s	2.2	24.4	23.1	32.7	28.1	4.2
Green Ext Time (p_c), s	0.0	4.5	0.4	1.6	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	45.0
HCM 6th LOS	D

Notes

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

Queues
12: Walters Road & Petersen Road

05/06/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	19	5	7	182	8	83	20	1189	99	37	1204
v/c Ratio	0.15	0.04	0.02	0.70	0.03	0.25	0.20	0.51	0.10	0.35	0.51
Control Delay	51.5	51.0	0.1	60.6	41.6	1.8	39.1	6.4	0.4	61.2	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.5	51.0	0.1	60.6	41.6	1.8	39.1	6.4	0.4	61.2	13.2
Queue Length 50th (ft)	14	4	0	131	5	0	12	123	1	27	143
Queue Length 95th (ft)	40	16	0	196	18	0	m28	82	1	63	431
Internal Link Dist (ft)		417			560			505			413
Turn Bay Length (ft)			180	115		200	85		185	100	
Base Capacity (vph)	130	139	300	352	427	477	104	2313	1034	116	2361
Starvation Cap Reductn	0	0	0	0	0	0	0	107	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.04	0.02	0.52	0.02	0.17	0.19	0.54	0.10	0.32	0.51

Intersection Summary

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

Queues
13: Walters Road & Walmart Main Driveway

06/18/2021

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	165	81	47	29	205	1150	24	1348
v/c Ratio	0.57	0.22	0.29	0.10	0.79	0.53	0.24	0.70
Control Delay	51.7	1.4	54.0	0.7	54.8	6.6	70.8	15.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	51.7	1.4	54.0	0.7	54.8	6.6	70.8	15.6
Queue Length 50th (ft)	119	0	32	0	83	80	18	417
Queue Length 95th (ft)	168	0	#88	0	m#118	312	m37	#187
Internal Link Dist (ft)		149		195		338		505
Turn Bay Length (ft)					200		275	
Base Capacity (vph)	327	583	160	418	260	2169	100	1927
Starvation Cap Reductn	0	0	0	0	0	0	0	45
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.50	0.14	0.29	0.07	0.79	0.53	0.24	0.72

Intersection Summary

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

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

Queues

15: Lawler Ranch Road/Walters Road & State Hwy 12

05/06/2021

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	944	969	88	3	655	330	34	73	1	283	287	836
v/c Ratio	0.78	0.51	0.09	0.02	0.92	0.59	0.24	0.25	0.00	0.91	0.88	0.46
Control Delay	40.5	17.8	2.1	50.0	64.0	8.8	53.7	51.7	0.0	53.4	47.0	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.5	17.8	2.1	50.0	64.0	8.8	53.7	51.7	0.0	53.4	47.0	0.6
Queue Length 50th (ft)	341	221	0	2	253	0	26	28	0	232	234	0
Queue Length 95th (ft)	#434	364	19	12	#369	80	62	53	0	m#303	m#298	m0
Internal Link Dist (ft)		3194			827			385			265	
Turn Bay Length (ft)	390		275	215		300	175		90	125		190
Base Capacity (vph)	1208	1899	971	140	713	564	151	306	301	321	339	1816
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.51	0.09	0.02	0.92	0.59	0.23	0.24	0.00	0.88	0.85	0.46

Intersection Summary

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

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

AM Scenarios						Existing			Near Term			Near Term plus Project				Cumulative			Cumulative plus Project			
	Direction	Lanes	Type	LOS Std	Capacity	Volume	v/c	LOS	Volume	v/c	LOS	Volume	v/c	LOS	v/c increase	Volume	v/c	LOS	Volume	v/c	LOS	v/c increase
SR 12 Sunset Ave to Emperor	EB	2	Expressway	F	2800	762	0.27	A	865	0.31	B	982	0.35	B	0.04	1303	0.47	B	1419	0.51	C	0.04
SR 12 Emperor to Walters	EB	2	Expressway	F	2800	599	0.21	A	703	0.25	A	826	0.30	A	0.04	1168	0.42	B	1290	0.46	B	0.04
SR 12 Walters to Emperor	WB	2	Expressway	F	2800	1136	0.41	B	1223	0.44	B	1252	0.45	B	0.01	1723	0.62	C	1752	0.63	C	0.01
SR 12 Emperor to Sunset	WB	2	Expressway	F	2800	1412	0.50	C	1514	0.54	C	1542	0.55	C	0.01	1933	0.69	C	1961	0.70	C	0.01
Air Base Pkwy - Walters to Peabody	EB	2	Arterial	E	2800	1619	0.58	A	1603	0.57	A	1614	0.58	A	0.00	1613	0.58	A	1617	0.58	A	0.00
Air Base Pkwy - Peabody to Walters	WB	2	Arterial	E	2800	665	0.24	A	782	0.28	A	840	0.30	A	0.02	980	0.35	A	1000	0.36	A	0.01
Walters Road - Air Base to E Tabor	SB	2	Arterial	E	1800	649	0.36	A	730	0.41	A	809	0.45	A	0.04	1457	0.81	D	1536	0.85	D	0.04
Walters Road - E Tabor to Air Base	NB	2	Arterial	E	1800	1131	0.63	B	1208	0.67	B	1221	0.68	B	0.01	1316	0.73	C	1329	0.74	C	0.01
Walters Road - Bella Vista to Pintail	SB	2	Arterial	E	1800	511	0.28	A	589	0.33	A	683	0.38	A	0.05	871	0.48	A	965	0.54	A	0.05
Walters Road - Pintail to Montebello	SB	2	Arterial	E	1800	495	0.28	A	571	0.32	A	680	0.38	A	0.06	870	0.48	A	979	0.54	A	0.06
Walters Road - Montebello to Peterson	SB	2	Arterial	E	1800	594	0.33	A	676	0.38	A	785	0.44	A	0.06	862	0.48	A	970	0.54	A	0.06
Walters Road - Peterson to Montebello	NB	2	Arterial	E	1800	508	0.28	A	590	0.33	A	611	0.34	A	0.01	758	0.42	A	778	0.43	A	0.01
Walters Road - Montebello to Pintail	NB	2	Arterial	E	1800	562	0.31	A	644	0.36	A	663	0.37	A	0.01	707	0.39	A	727	0.40	A	0.01
Walters Road - Pintail to Bella Vista	NB	2	Arterial	E	1800	568	0.32	A	725	0.40	A	741	0.41	A	0.01	753	0.42	A	761	0.42	A	0.00

PM Scenarios						Existing			Near Term			Near Term plus Project				Cumulative			Cumulative plus Project			
	Direction	Lanes	Type	LOS Std	Capacity	Volume	v/c	LOS	Volume	v/c	LOS	Volume	v/c	LOS	v/c increase	Volume	v/c	LOS	Volume	v/c	LOS	v/c increase
SR 12 - Sunset Ave to Emperor	EB	2	Expressway	F	2800	1792	0.64	C	1964	0.70	C	2023	0.72	D	0.02	2354	0.84	D	2413	0.86	D	0.02
SR 12 - Emperor to Walters	EB	2	Expressway	F	2800	1334	0.48	C	1506	0.54	C	1554	0.56	C	0.02	1981	0.71	D	2043	0.73	D	0.02
SR 12 - Walters to Emperor	WB	2	Expressway	F	2800	900	0.32	B	1040	0.37	B	1143	0.41	B	0.04	1427	0.51	C	1530	0.55	C	0.04
SR 12 - Emperor to Sunset	WB	2	Expressway	F	2800	1081	0.39	B	1244	0.44	B	1335	0.48	C	0.03	1486	0.53	C	1587	0.57	C	0.04
Air Base Pkwy - Walters to Peabody	EB	2	Arterial	E	2800	1113	0.40	A	1280	0.46	A	1316	0.47	A	0.01	1444	0.52	A	1444	0.52	A	0.00
Air Base Pkwy - Peabody to Walters	WB	2	Arterial	E	2800	1483	0.53	A	1623	0.58	A	1653	0.59	A	0.01	1594	0.57	A	1608	0.57	A	0.01
Walters Road - Air Base to E Tabor	SB	2	Arterial	E	1800	1102	0.61	B	1238	0.69	B	1279	0.71	C	0.02	1506	0.84	D	1547	0.86	D	0.02
Walters Road - E Tabor to Air Base	NB	2	Arterial	E	1800	883	0.49	A	995	0.55	A	1041	0.58	A	0.03	1812	1.01	**F**	1860	1.03	**F**	0.03
Walters Road - Bella Vista to Pintail	SB	2	Arterial	E	1800	777	0.43	A	889	0.49	A	936	0.52	A	0.03	1096	0.61	B	1143	0.64	B	0.03
Walters Road - Pintail to Montebello	SB	2	Arterial	E	1800	723	0.40	A	833	0.46	A	886	0.49	A	0.03	993	0.55	A	1060	0.59	A	0.04
Walters Road - Montebello to Peterson	SB	2	Arterial	E	1800	734	0.41	A	847	0.47	A	901	0.50	A	0.03	1111	0.62	B	1164	0.65	B	0.03
Walters Road - Peterson to Montebello	NB	2	Arterial	E	1800	840	0.47	A	978	0.54	A	1053	0.59	A	0.04	1265	0.70	C	1340	0.74	C	0.04
Walters Road - Montebello to Pintail	NB	2	Arterial	E	1800	718	0.40	A	845	0.47	A	919	0.51	A	0.04	1183	0.66	B	1257	0.70	B	0.04
Walters Road - Pintail to Bella Vista	NB	2	Arterial	E	1800	769	0.43	A	891	0.50	A	953	0.53	A	0.03	1359	0.76	C	1422	0.79	C	0.04

Warrant 3: Peak-Hour Volumes and Delay

City of Suisun City
Petersen Rd & Driveway 1

0

	Major Street	Minor Street
Street Name	Petersen Rd	Driveway 1
Direction	E-W	N-S
Number of Lanes	1	1
Approach Speed	25	25

Population less than 10,000? No
Date of Count: Saturday, January 0, 1900
Scenario: AM Near-Term + Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.03 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 12 vph

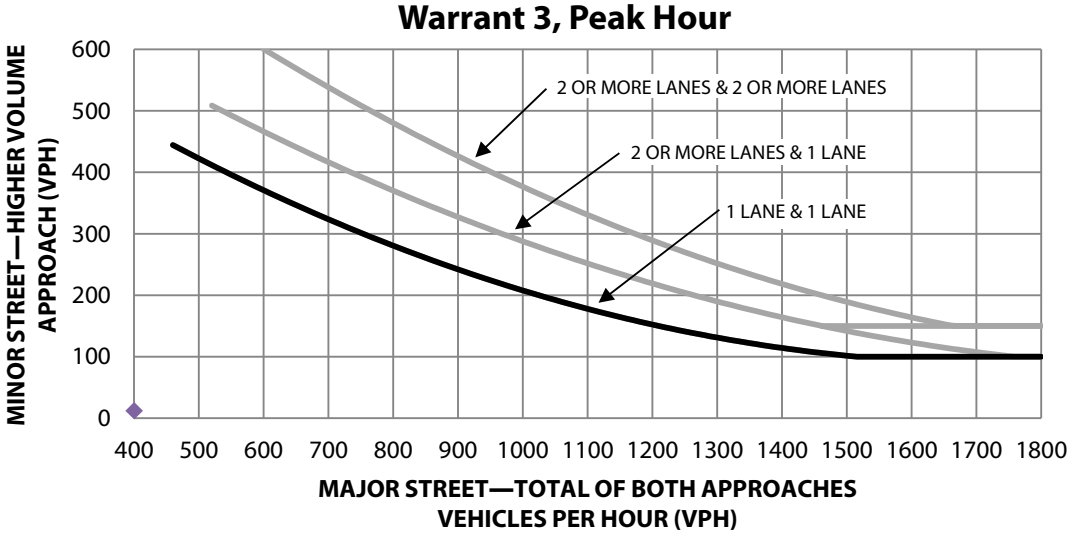
Condition A3 — Not Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 272 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

City of Suisun City
Petersen Rd & Driveway 2

0

	Major Street	Minor Street
Street Name	Petersen Rd	Driveway 2
Direction	E-W	N-S
Number of Lanes	1	1
Approach Speed	25	25

Population less than 10,000? No
Date of Count: Saturday, January 0, 1900
Scenario: AM Near-Term + Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.01 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 5 vph

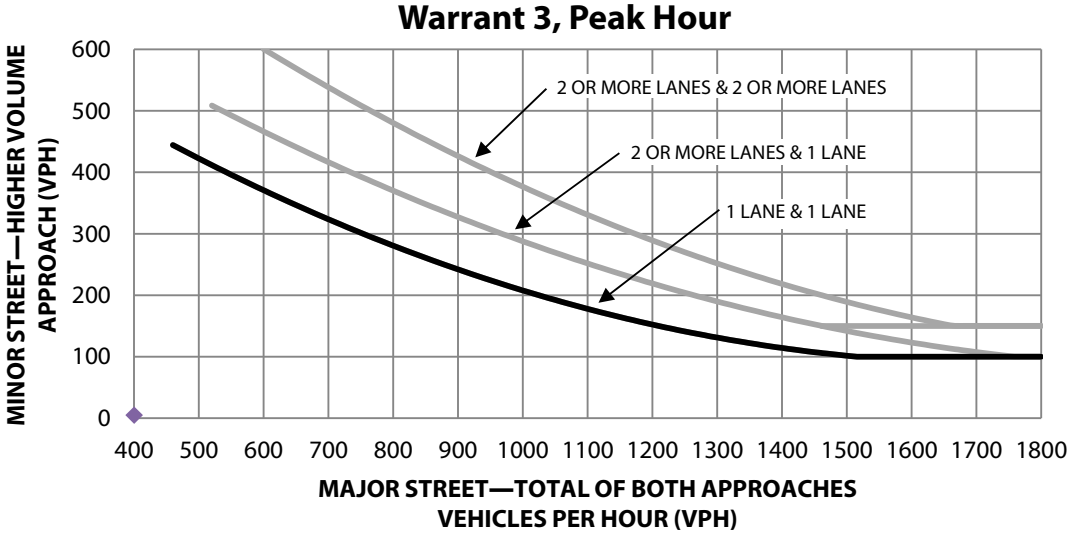
Condition A3 — Not Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 237 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

City of Suisun City
Petersen Rd & Driveway 3

0

	Major Street	Minor Street
Street Name	Petersen Rd	Driveway 3
Direction	E-W	N-S
Number of Lanes	1	1
Approach Speed	25	25

Population less than 10,000? No
Date of Count: Saturday, January 0, 1900
Scenario: AM Near-Term + Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.08 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 30 vph

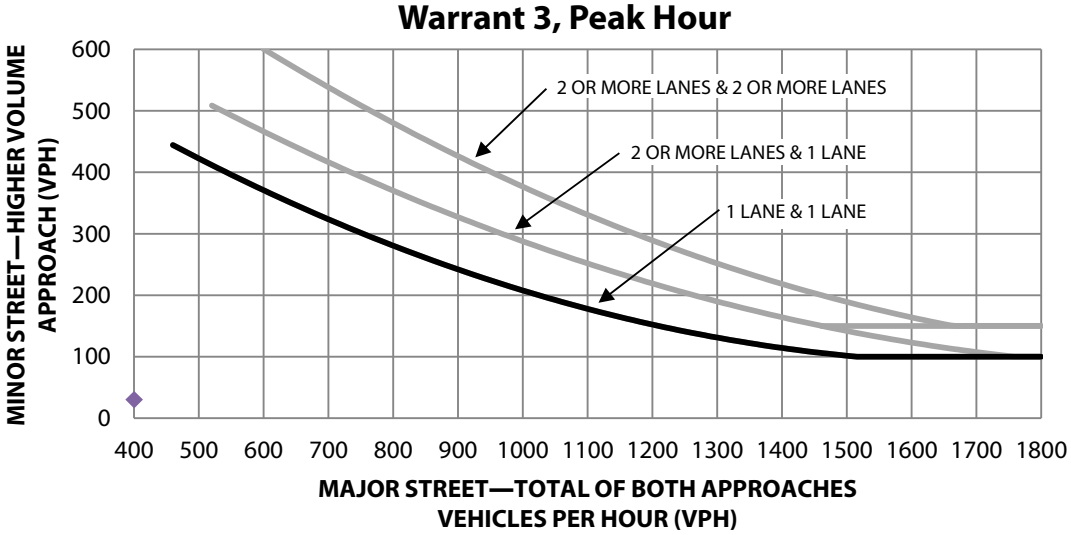
Condition A3 — Not Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 213 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

City of Suisun City
Petersen Rd & Driveway 1

0

	Major Street	Minor Street
Street Name	Petersen Rd	Driveway 1
Direction	E-W	N-S
Number of Lanes	1	1
Approach Speed	25	25

Population less than 10,000? No
Date of Count: Saturday, January 0, 1900
Scenario: PM Near-Term + Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.09 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 31 vph

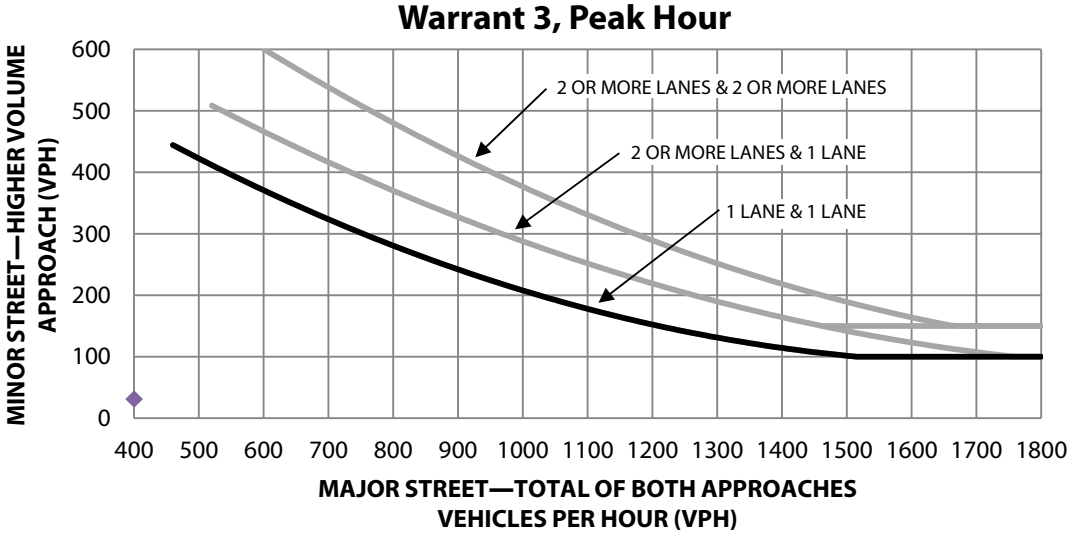
Condition A3 — Not Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 394 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

City of Suisun City
Petersen Rd & Driveway 2

0

	Major Street	Minor Street
Street Name	Petersen Rd	Driveway 2
Direction	E-W	N-S
Number of Lanes	1	1
Approach Speed	25	25

Population less than 10,000? No
Date of Count: Saturday, January 0, 1900
Scenario: PM Near-Term + Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.04 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 15 vph

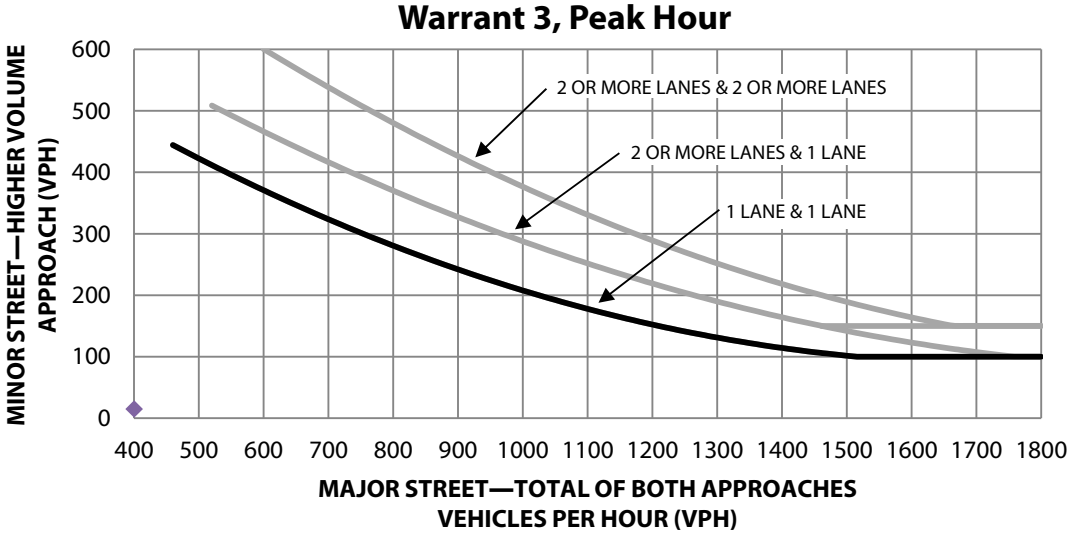
Condition A3 — Not Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 352 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

City of Suisun City
Petersen Rd & Driveway 3

0

	Major Street	Minor Street
Street Name	Petersen Rd	Driveway 3
Direction	E-W	N-S
Number of Lanes	1	1
Approach Speed	25	25

Population less than 10,000? No
Date of Count: Saturday, January 0, 1900
Scenario: PM Near-Term + Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.23 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 80 vph

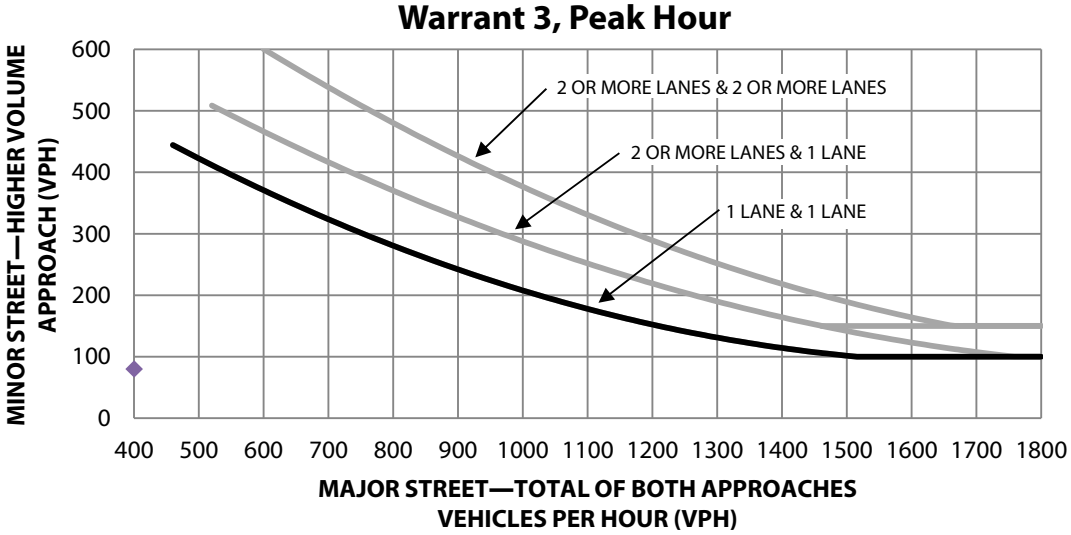
Condition A3 — Not Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 328 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

City of Suisun City
Petersen Rd & Driveway 1

0

	Major Street	Minor Street
Street Name	Petersen Rd	Driveway 1
Direction	E-W	N-S
Number of Lanes	1	1
Approach Speed	25	25

Population less than 10,000? No
Date of Count: Saturday, January 0, 1900
Scenario: AM Cumulative + Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.03 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 12 vph

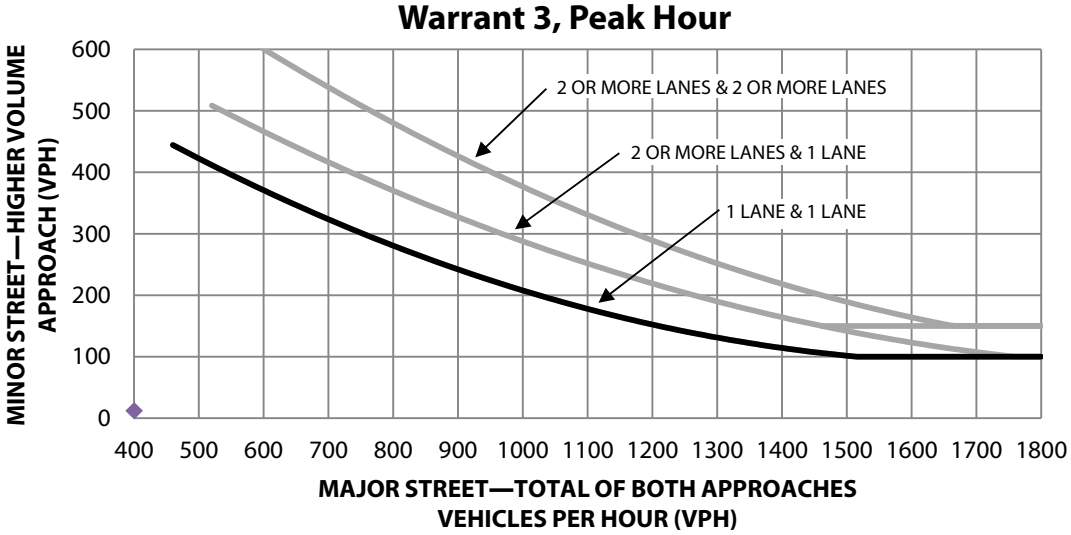
Condition A3 — Not Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 275 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

City of Suisun City
Petersen Rd & Driveway 2

0

	Major Street	Minor Street
Street Name	Petersen Rd	Driveway 2
Direction	E-W	N-S
Number of Lanes	1	1
Approach Speed	25	25

Population less than 10,000? No
Date of Count: Saturday, January 0, 1900
Scenario: AM Cumulative + Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.01 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 5 vph

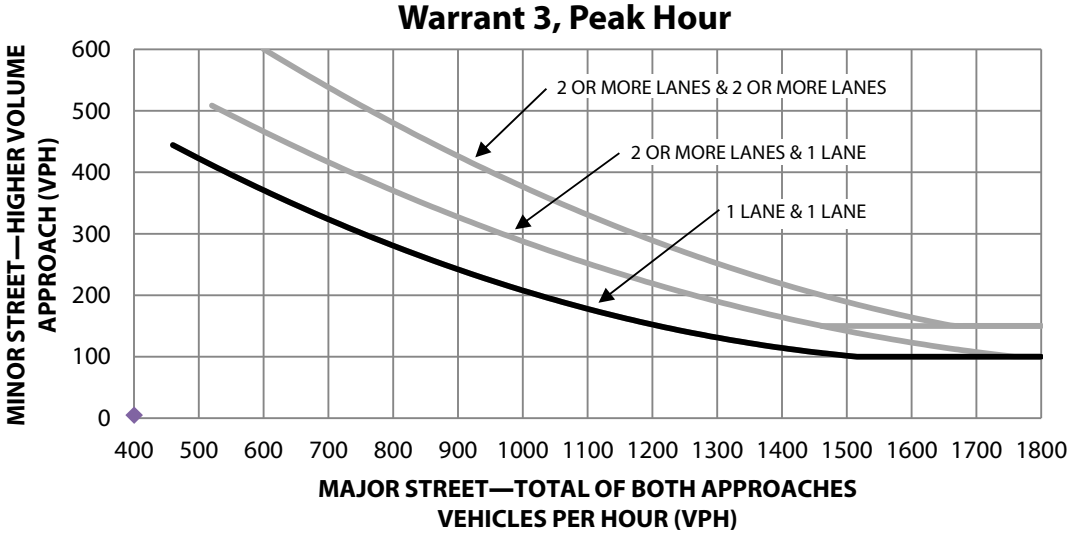
Condition A3 — Not Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 240 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

City of Suisun City
Petersen Rd & Driveway 3

0

	Major Street	Minor Street
Street Name	Petersen Rd	Driveway 3
Direction	E-W	N-S
Number of Lanes	1	1
Approach Speed	25	25

Population less than 10,000? No
Date of Count: Saturday, January 0, 1900
Scenario: AM Cumulative + Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.08 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 30 vph

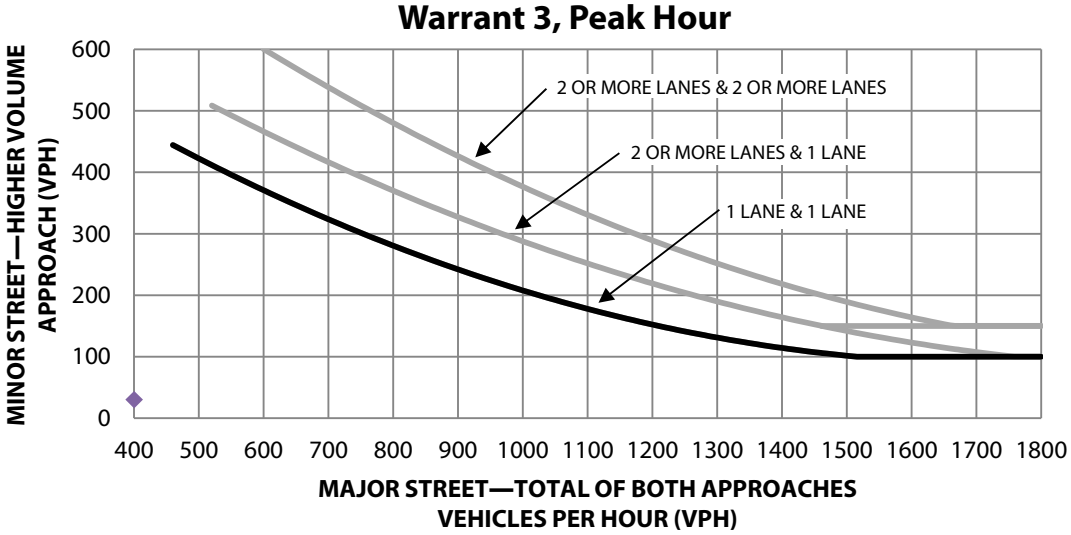
Condition A3 — Not Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 216 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

City of Suisun City
Petersen Rd & Driveway 1

0

	Major Street	Minor Street
Street Name	Petersen Rd	Driveway 1
Direction	E-W	N-S
Number of Lanes	1	1
Approach Speed	25	25

Population less than 10,000? No
Date of Count: Saturday, January 0, 1900
Scenario: PM Cumulative + Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.1 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 31 vph

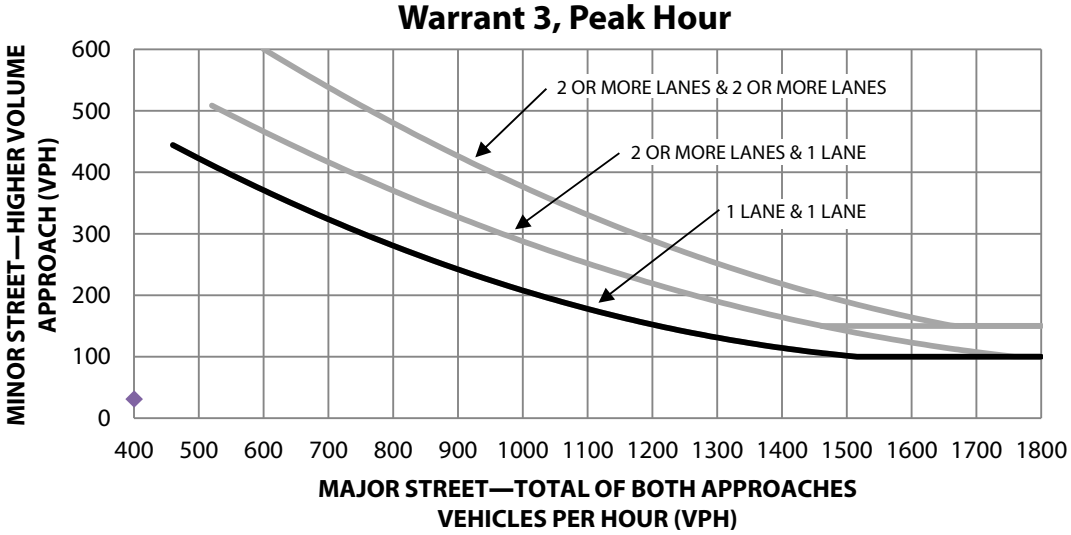
Condition A3 — Not Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 413 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

City of Suisun City
Petersen Rd & Driveway 2

0

	Major Street	Minor Street
Street Name	Petersen Rd	Driveway 2
Direction	E-W	N-S
Number of Lanes	1	1
Approach Speed	25	25

Population less than 10,000? No
Date of Count: Saturday, January 0, 1900
Scenario: PM Cumulative + Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.04 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 15 vph

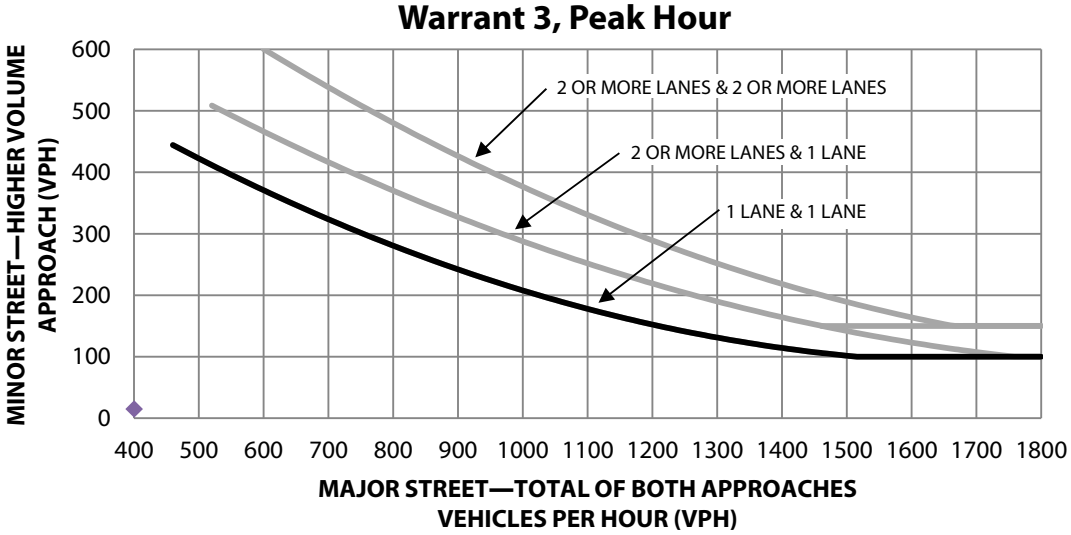
Condition A3 — Not Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 371 vph

Condition B — Not Met

The plotted point falls above the curve



Warrant 3: Peak-Hour Volumes and Delay

City of Suisun City
Petersen Rd & Driveway 3

0

	Major Street	Minor Street
Street Name	Petersen Rd	Driveway 3
Direction	E-W	N-S
Number of Lanes	1	1
Approach Speed	25	25

Population less than 10,000? No
Date of Count: Saturday, January 0, 1900
Scenario: PM Cumulative + Project

Warrant 3 Met?: Met when either Condition A or B is met — **No**

Condition A: Met when conditions A1, A2, and A3 are met — Not Met

Condition A1 — Not Met

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Minor Approach Delay: 0.23 vehicle-hours

Condition A2 — Not Met

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Minor Approach Volume: 80 vph

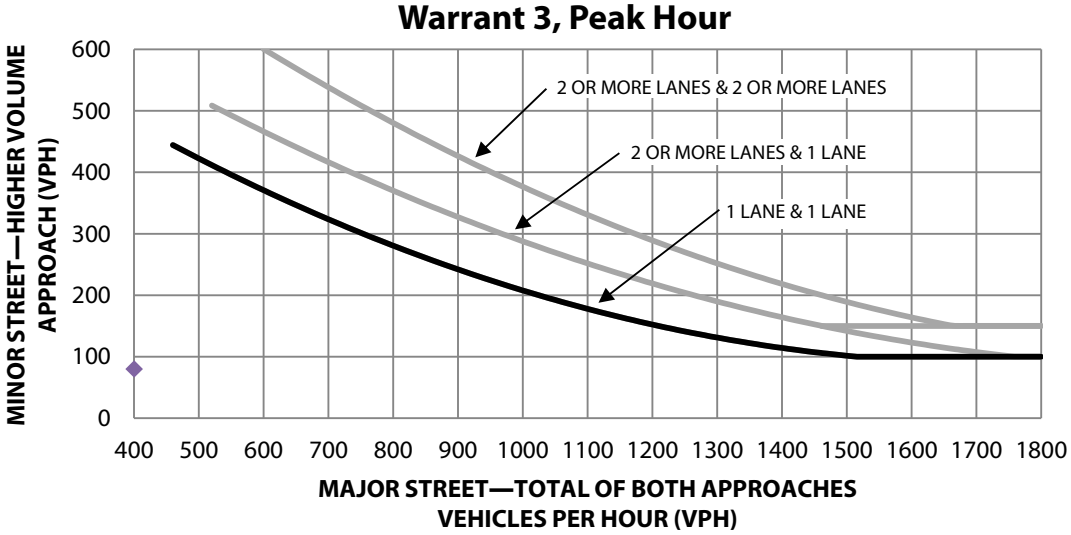
Condition A3 — Not Met

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more appraches or 650 vph for intersections with three approaches

Total Entering Volume: 347 vph

Condition B — Not Met

The plotted point falls above the curve



Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Petersen Road/Driveway 1
Study Scenario: AM Near-Term Plus Project

Direction of Analysis Street: East/West
Cross Street Intersects: From the South

Petersen Road
Eastbound Volumes (veh/hr)
Through Volume = 199
Right Turn Volume = 29

Petersen Road
Westbound Volumes (veh/hr)
107 = Through Volume
0 = Left Turn Volume

Driveway 1

Eastbound Speed Limit: 25 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Speed Limit: 25 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	832.6
Advancing Volume	Va =	228
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Eastbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

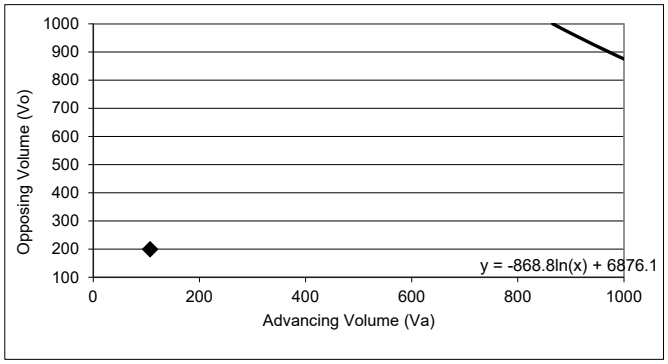
2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	610
Advancing Volume	Va =	228
If AV<Va then warrant is met		No

Right Turn Taper Warranted: **NO**

Westbound Left Turn Lane Warrants

Percentage Left Turns %lt 0.0 %
Advancing Volume Threshold AV 2176 veh/hr
If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 25 mph
Turn lane warranted if point falls to right of warrant threshold line

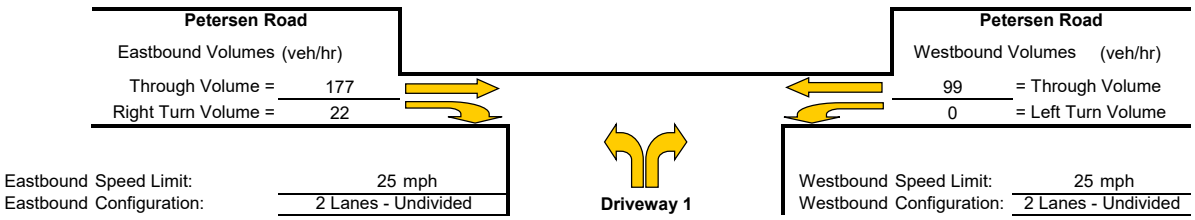
Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Petersen Road/Driveway 2
Study Scenario: AM Near-Term Plus Project

Direction of Analysis Street: East/West
Cross Street Intersects: From the South



Eastbound Speed Limit: 25 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Speed Limit: 25 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	885.1
Advancing Volume	Va =	199
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Eastbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	680
Advancing Volume	Va =	199
If AV<Va then warrant is met		No

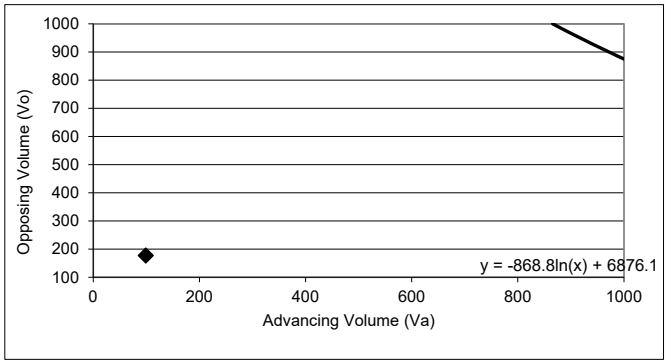
Right Turn Taper Warranted: **NO**

Westbound Left Turn Lane Warrants

Percentage Left Turns %lt 0.0 %

Advancing Volume Threshold AV 2232 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 25 mph

Turn lane warranted if point falls to right of warrant threshold line

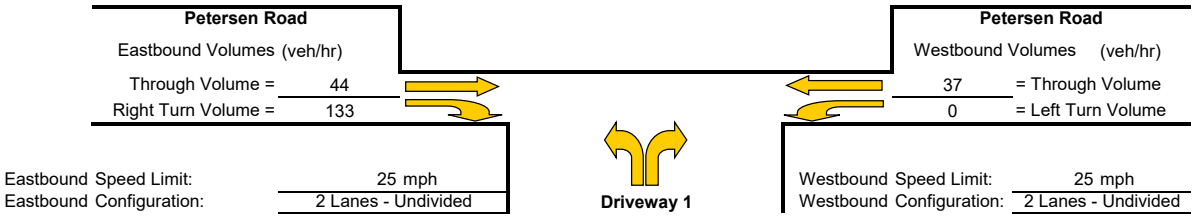
Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Petersen Road/Driveway 3
Study Scenario: AM Near-Term Plus Project

Direction of Analysis Street: East/West
Cross Street Intersects: From the South



Eastbound Speed Limit: 25 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Speed Limit: 25 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	52.4
Advancing Volume	Va =	177
If AV<Va then warrant is met		Yes

Right Turn Lane Warranted: **YES**

Eastbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

N/A

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	-
If AV<Va then warrant is met		-

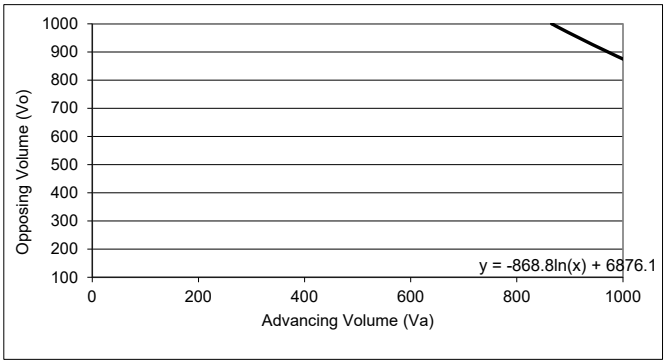
Right Turn Taper Warranted: **N/A**

Westbound Left Turn Lane Warrants

Percentage Left Turns %lt 0.0 %

Advancing Volume Threshold AV 2601 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 25 mph

Turn lane warranted if point falls to right of warrant threshold line

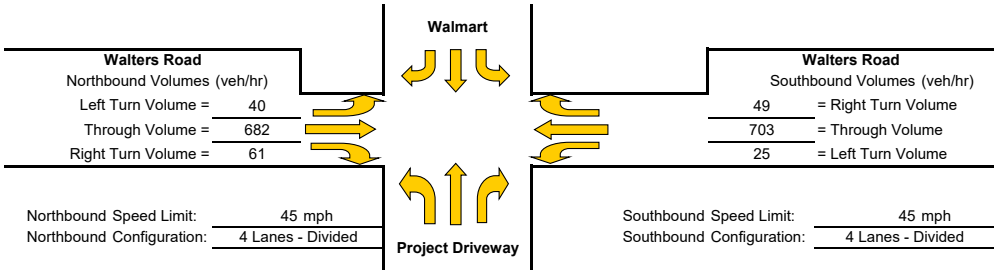
Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - 4 Legged Intersections

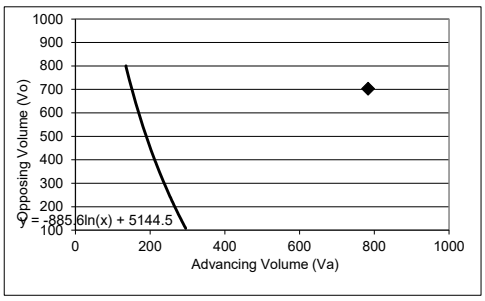
Study Intersection: Walters Road and Petersen Road
Study Scenario: AM Near-Term Plus Project

Direction of Analysis Street: North/South



Northbound Left Turn Lane Warrants

Left Turn Volume Threshold LtVol 32.6 veh/hr
Left Turn Volume Vl 40 veh/hr
If Vl>LtVol then warrant is met

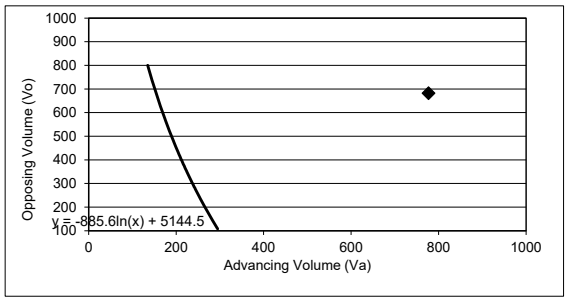


◆ Study Intersection

Left Turn Lane Warranted: **YES**

Southbound Left Turn Lane Warrants

Left Turn Volume Threshold LtVol 33.4 veh/hr
Left Turn Volume Vl 25 veh/hr
If Vl>LtVol then warrant is met



◆ Study Intersection

Left Turn Lane Warranted: **NO**

Note: If one direction has a left turn lane warranted, a left turn lane should be installed on the other side as well

Northbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane
   Advancing Volume Threshold: AV = 905.9
   Advancing Volume Va = 783
   If AV<Va then warrant is met No

Right Turn Lane Warranted: **NO**

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane
   Advancing Volume Threshold: AV = 1073.9
   Advancing Volume Va = 777
   If AV<Va then warrant is met Yes

Right Turn Lane Warranted: **NO**

Northbound Right Turn Taper Warrants

(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper
   Advancing Volume Threshold AV = -700
   Advancing Volume Va = 783
   If AV<Va then warrant is met Yes

Right Turn Taper Warranted: **YES**

Southbound Right Turn Taper Warrants

(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper
   Advancing Volume Threshold AV = -300
   Advancing Volume Va = 777
   If AV<Va then warrant is met Yes

Right Turn Taper Warranted: **YES**

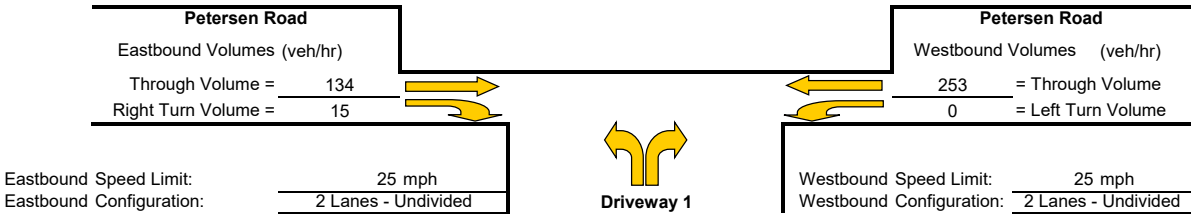
Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , Jan. 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981. The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, as adopted by AASHTO's "A Policy on Geometric Design of Highways and Streets", 6th Edition.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Petersen Road/Driveway 1
Study Scenario: PM Near-Term Plus Project

Direction of Analysis Street: East/West
Cross Street Intersects: From the South



Eastbound Speed Limit: 25 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Speed Limit: 25 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	937.6
Advancing Volume	Va =	149
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Eastbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	149
If AV<Va then warrant is met		-

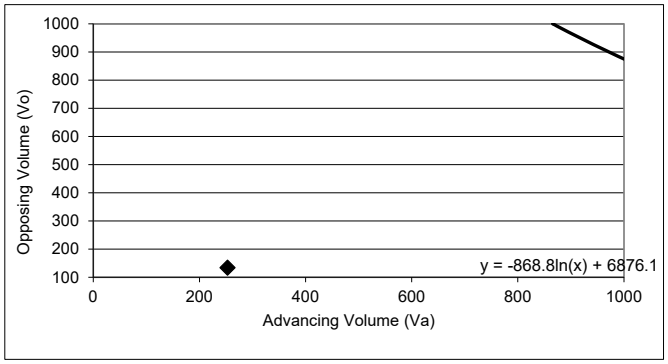
Right Turn Taper Warranted: **NO**

Westbound Left Turn Lane Warrants

Percentage Left Turns %lt 0.0 %

Advancing Volume Threshold AV 2345 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 25 mph

Turn lane warranted if point falls to right of warrant threshold line

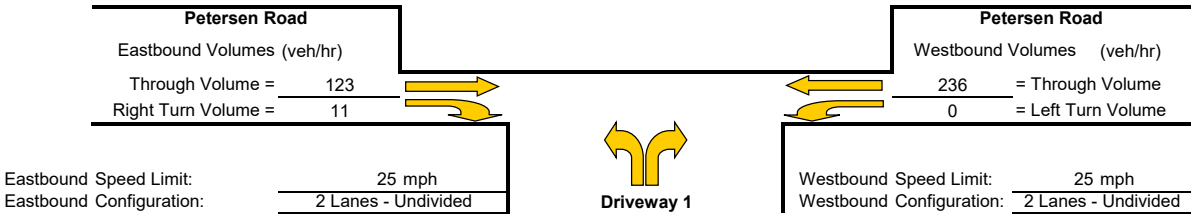
Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Petersen Road/Driveway 2
Study Scenario: PM Near-Term Plus Project

Direction of Analysis Street: East/West
Cross Street Intersects: From the South



Eastbound Speed Limit: 25 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Speed Limit: 25 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	967.6
Advancing Volume	Va =	134
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Eastbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	134
If AV<Va then warrant is met		-

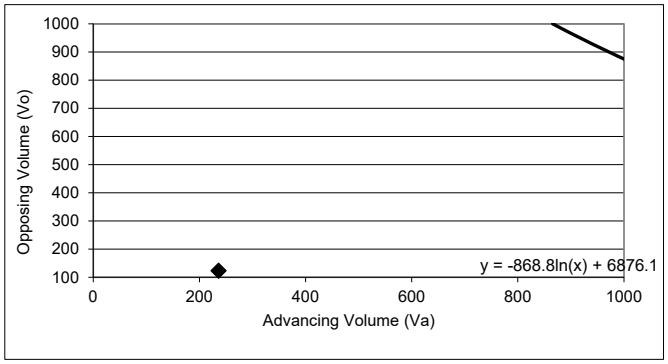
Right Turn Taper Warranted: **NO**

Westbound Left Turn Lane Warrants

Percentage Left Turns %lt 0.0 %

Advancing Volume Threshold AV 2375 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 25 mph

Turn lane warranted if point falls to right of warrant threshold line

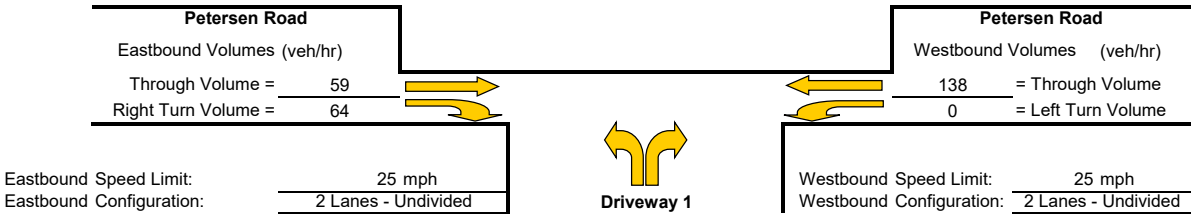
Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Petersen Road/Driveway 3
Study Scenario: PM Near-Term Plus Project

Direction of Analysis Street: East/West
Cross Street Intersects: From the South



Eastbound Speed Limit: 25 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Speed Limit: 25 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	570
Advancing Volume	Va =	123
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Eastbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	260
Advancing Volume	Va =	123
If AV<Va then warrant is met		No

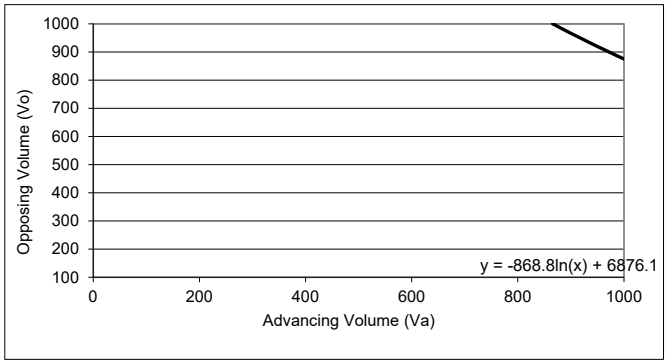
Right Turn Taper Warranted: **NO**

Westbound Left Turn Lane Warrants

Percentage Left Turns %lt 0.0 %

Advancing Volume Threshold AV 2557 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 25 mph

Turn lane warranted if point falls to right of warrant threshold line

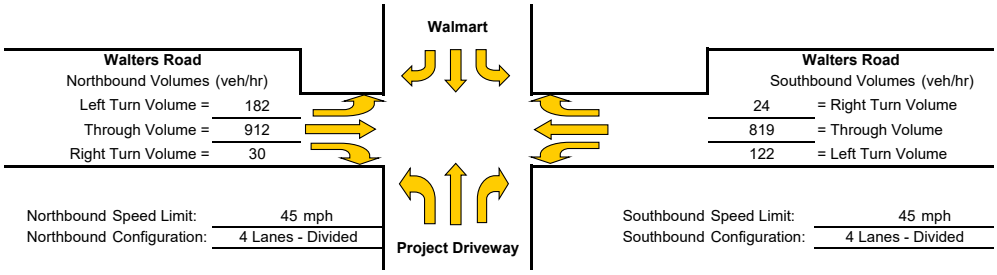
Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - 4 Legged Intersections

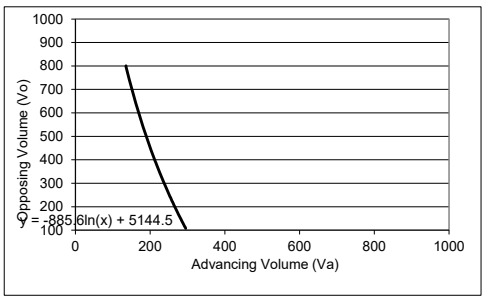
Study Intersection: Walters Road and Petersen Road
Study Scenario: PM Near-Term Plus Project

Direction of Analysis Street: North/South



Northbound Left Turn Lane Warrants

Left Turn Volume Threshold LtVol 29.1 veh/hr
Left Turn Volume Vl 182 veh/hr
If Vl>LtVol then warrant is met

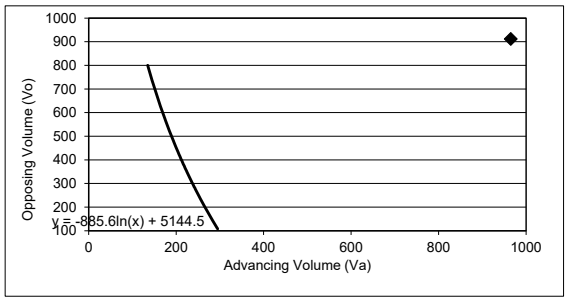


◆ Study Intersection

Left Turn Lane Warranted: **YES**

Southbound Left Turn Lane Warrants

Left Turn Volume Threshold LtVol 24.5 veh/hr
Left Turn Volume Vl 122 veh/hr
If Vl>LtVol then warrant is met



◆ Study Intersection

Left Turn Lane Warranted: **YES**

Note: If one direction has a left turn lane warranted, a left turn lane should be installed on the other side as well

Northbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED - Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold: AV = -
Advancing Volume Va = 1124
If AV<Va then warrant is met -

Right Turn Lane Warranted: **NO**

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED - Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold: AV = -
Advancing Volume Va = 965
If AV<Va then warrant is met Yes

Right Turn Lane Warranted: **NO**

Northbound Right Turn Taper Warrants

(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 40 vehicles

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold AV = 333.3
Advancing Volume Va = 1124
If AV<Va then warrant is met Yes

Right Turn Taper Warranted: **YES**

Southbound Right Turn Taper Warrants

(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold AV = 533.33
Advancing Volume Va = 965
If AV<Va then warrant is met Yes

Right Turn Taper Warranted: **YES**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , Jan. 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981. The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, as adopted by AASHTO's "A Policy on Geometric Design of Highways and Streets", 6th Edition.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Petersen Road/Driveway 1
Study Scenario: AM Cumulative Plus Project

Direction of Analysis Street: East/West
Cross Street Intersects: From the South

Petersen Road
Eastbound Volumes (veh/hr)
Through Volume = 167
Right Turn Volume = 23

Petersen Road
Westbound Volumes (veh/hr)
73 = Through Volume
0 = Left Turn Volume

Eastbound Speed Limit: 25 mph
Eastbound Configuration: 2 Lanes - Undivided

Driveway 1

Westbound Speed Limit: 25 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	877.6
Advancing Volume	Va =	190
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Eastbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

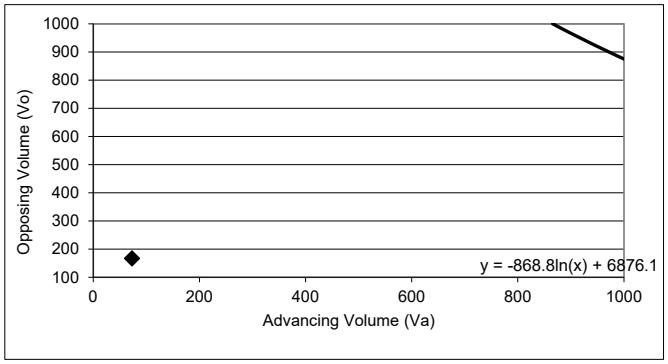
2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	670
Advancing Volume	Va =	190
If AV<Va then warrant is met		No

Right Turn Taper Warranted: **NO**

Westbound Left Turn Lane Warrants

Percentage Left Turns %lt 0.0 %
Advancing Volume Threshold AV 2258 veh/hr
If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 25 mph
Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Petersen Road/Driveway 2
Study Scenario: AM Cumulative Plus Project

Direction of Analysis Street: East/West
Cross Street Intersects: From the South

Petersen Road

Eastbound Volumes (veh/hr)

Through Volume = 148
Right Turn Volume = 19

Eastbound Speed Limit: 25 mph
Eastbound Configuration: 2 Lanes - Undivided

Driveway 1

Petersen Road

Westbound Volumes (veh/hr)

68 = Through Volume
0 = Left Turn Volume

Westbound Speed Limit: 25 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	907.6
Advancing Volume	Va =	167
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Eastbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	167
If AV<Va then warrant is met		-

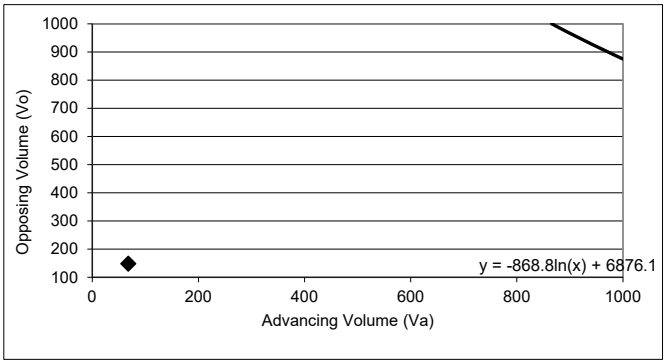
Right Turn Taper Warranted: **NO**

Westbound Left Turn Lane Warrants

Percentage Left Turns %lt 0.0 %

Advancing Volume Threshold AV 2308 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 25 mph

Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Petersen Road/Driveway 3
Study Scenario: AM Cumulative Plus Project

Direction of Analysis Street: East/West
Cross Street Intersects: From the South

Petersen Road

Eastbound Volumes (veh/hr)

Through Volume = 46
Right Turn Volume = 102

Eastbound Speed Limit: 25 mph
Eastbound Configuration: 2 Lanes - Undivided

Driveway 1

Petersen Road

Westbound Volumes (veh/hr)

38 = Through Volume
0 = Left Turn Volume

Westbound Speed Limit: 25 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	284.9
Advancing Volume	Va =	148
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Eastbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

WARRANTED - Exceeds 70 vehicles

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	148
If AV<Va then warrant is met		-

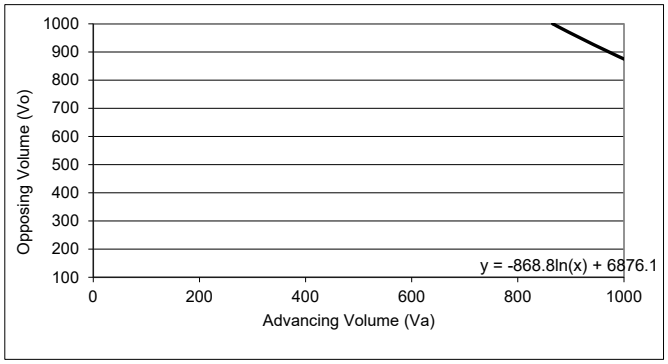
Right Turn Taper Warranted: **YES**

Westbound Left Turn Lane Warrants

Percentage Left Turns %lt 0.0 %

Advancing Volume Threshold AV 2595 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 25 mph

Turn lane warranted if point falls to right of warrant threshold line

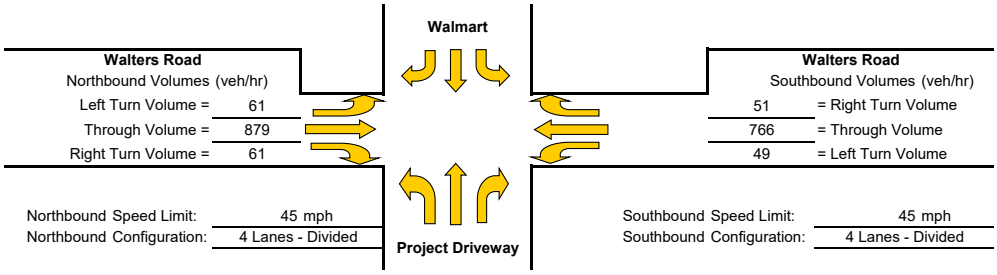
Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - 4 Legged Intersections

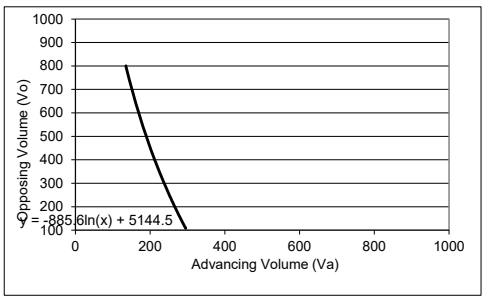
Study Intersection: Walters Road and Petersen Road
Study Scenario: AM Cumulative Plus Project

Direction of Analysis Street: North/South



Northbound Left Turn Lane Warrants

Left Turn Volume Threshold LtVol 30.3 veh/hr
Left Turn Volume Vl 61 veh/hr
If Vl>LtVol then warrant is met

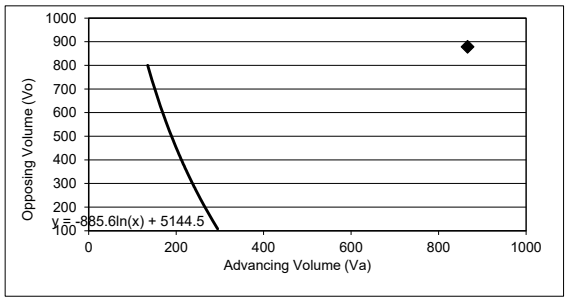


◆ Study Intersection

Left Turn Lane Warranted: **YES**

Southbound Left Turn Lane Warrants

Left Turn Volume Threshold LtVol 26.1 veh/hr
Left Turn Volume Vl 49 veh/hr
If Vl>LtVol then warrant is met



◆ Study Intersection

Left Turn Lane Warranted: **YES**

Note: If one direction has a left turn lane warranted, a left turn lane should be installed on the other side as well

Northbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane
Advancing Volume Threshold: AV = 905.9
Advancing Volume Va = 1001
If AV<Va then warrant is met Yes

Right Turn Lane Warranted: **YES**

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane
Advancing Volume Threshold: AV = 1045.9
Advancing Volume Va = 866
If AV<Va then warrant is met Yes

Right Turn Lane Warranted: **NO**

Northbound Right Turn Taper Warrants

(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper
Advancing Volume Threshold AV = -
Advancing Volume Va = -
If AV<Va then warrant is met -

Right Turn Taper Warranted: **-**

Southbound Right Turn Taper Warrants

(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper
Advancing Volume Threshold AV = -366.7
Advancing Volume Va = 866
If AV<Va then warrant is met Yes

Right Turn Taper Warranted: **YES**

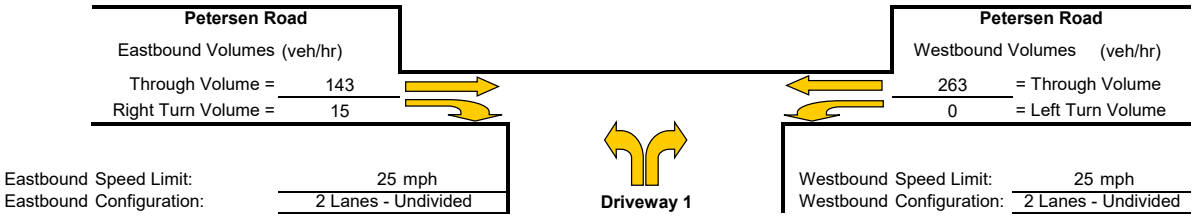
Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , Jan. 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981. The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, as adopted by AASHTO's "A Policy on Geometric Design of Highways and Streets", 6th Edition.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Petersen Road/Driveway 1
Study Scenario: PM Cumulative Plus Project

Direction of Analysis Street: East/West
Cross Street Intersects: From the South



Eastbound Speed Limit: 25 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Speed Limit: 25 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	937.6
Advancing Volume	Va =	158
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Eastbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	158
If AV<Va then warrant is met		-

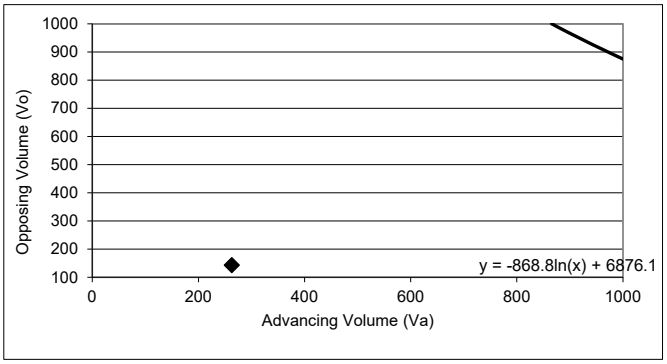
Right Turn Taper Warranted: **NO**

Westbound Left Turn Lane Warrants

Percentage Left Turns %lt 0.0 %

Advancing Volume Threshold AV 2321 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 25 mph

Turn lane warranted if point falls to right of warrant threshold line

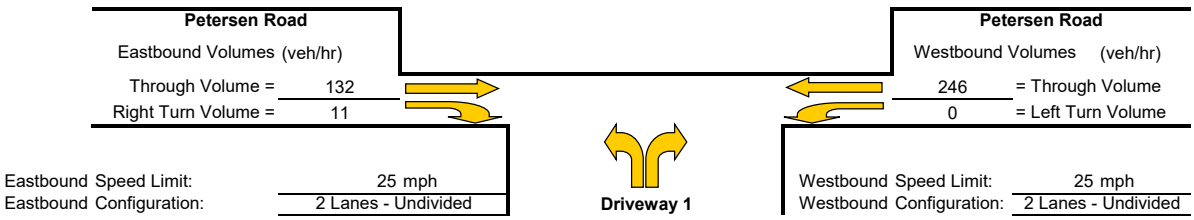
Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Petersen Road/Driveway 2
Study Scenario: PM Cumulative Plus Project

Direction of Analysis Street: East/West
Cross Street Intersects: From the South



Eastbound Speed Limit: 25 mph
Eastbound Configuration: 2 Lanes - Undivided

Westbound Speed Limit: 25 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	967.6
Advancing Volume	Va =	143
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Eastbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 20 vehicles

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	-
Advancing Volume	Va =	143
If AV<Va then warrant is met		-

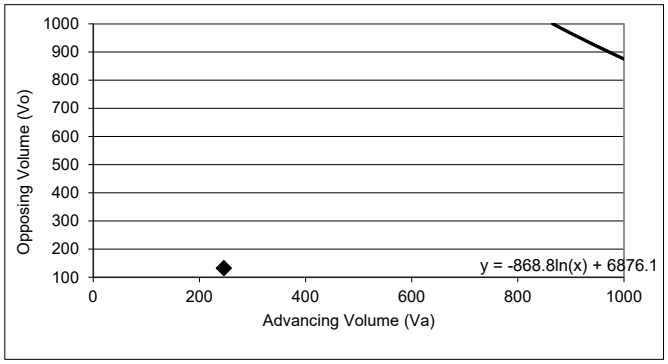
Right Turn Taper Warranted: **NO**

Westbound Left Turn Lane Warrants

Percentage Left Turns %lt 0.0 %

Advancing Volume Threshold AV 2351 veh/hr

If AV<Va then warrant is met



◆ Study Intersection

Two lane roadway warrant threshold for: 25 mph

Turn lane warranted if point falls to right of warrant threshold line

Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - Tee Intersections

Study Intersection: Petersen Road/Driveway 3
Study Scenario: PM Cumulative Plus Project

Direction of Analysis Street: East/West
Cross Street Intersects: From the South

Petersen Road
Eastbound Volumes (veh/hr)
Through Volume = 68
Right Turn Volume = 64

Petersen Road
Westbound Volumes (veh/hr)
148 = Through Volume
0 = Left Turn Volume

Eastbound Speed Limit: 25 mph
Eastbound Configuration: 2 Lanes - Undivided

Driveway 1

Westbound Speed Limit: 25 mph
Westbound Configuration: 2 Lanes - Undivided

Eastbound Right Turn Lane Warrants

1. Check for right turn volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold	AV =	570
Advancing Volume	Va =	132
If AV<Va then warrant is met		No

Right Turn Lane Warranted: **NO**

Eastbound Right Turn Taper Warrants
(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

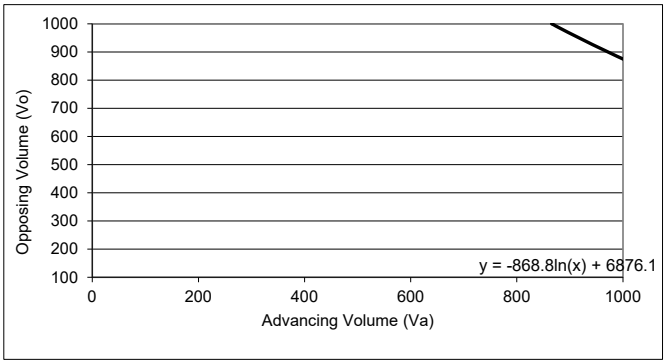
2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	260
Advancing Volume	Va =	132
If AV<Va then warrant is met		No

Right Turn Taper Warranted: **NO**

Westbound Left Turn Lane Warrants

Percentage Left Turns %lt 0.0 %
Advancing Volume Threshold AV 2530 veh/hr
If AV<Va then warrant is met



◆ Study Intersection
Two lane roadway warrant threshold for: 25 mph
Turn lane warranted if point falls to right of warrant threshold line

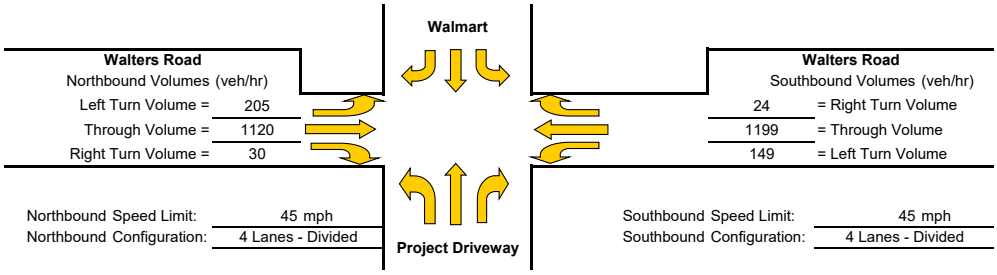
Left Turn Lane Warranted: **NO**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements*, January 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

Turn Lane Warrant Analysis - 4 Legged Intersections

Study Intersection: Walters Road and Petersen Road
Study Scenario: PM Cumulative Plus Project

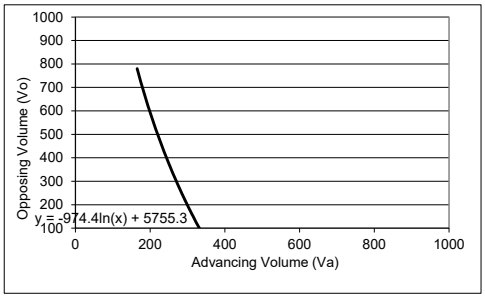
Direction of Analysis Street: North/South



Northbound Left Turn Lane Warrants

Left Turn Volume Threshold LtVol	14.6 veh/hr
Left Turn Volume Vl	205 veh/hr

If Vl>LtVol then warrant is met



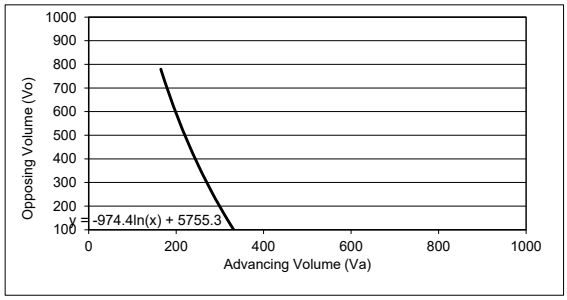
◆ Study Intersection

Left Turn Lane Warranted: **YES**

Southbound Left Turn Lane Warrants

Left Turn Volume Threshold LtVol	16.8 veh/hr
Left Turn Volume Vl	149 veh/hr

If Vl>LtVol then warrant is met



◆ Study Intersection

Left Turn Lane Warranted: **YES**

Note: If one direction has a left turn lane warranted, a left turn lane should be installed on the other side as well

Northbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED - Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold:	AV =	-
Advancing Volume	Va =	1355
If AV<Va then warrant is met		-

Right Turn Lane Warranted: **NO**

Southbound Right Turn Lane Warrants

1. Check for right turn volume criteria

NOT WARRANTED - Less than 40 vehicles

2. Check advance volume threshold criteria for turn lane

Advancing Volume Threshold:	AV =	-
Advancing Volume	Va =	1372
If AV<Va then warrant is met		Yes

Right Turn Lane Warranted: **NO**

Northbound Right Turn Taper Warrants

(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

NOT WARRANTED - Less than 40 vehicles

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	333.3
Advancing Volume	Va =	1355
If AV<Va then warrant is met		Yes

Right Turn Taper Warranted: **YES**

Southbound Right Turn Taper Warrants

(evaluate if right turn lane is unwarranted)

1. Check taper volume criteria

Thresholds not met, continue to next step

2. Check advance volume threshold criteria for taper

Advancing Volume Threshold	AV =	533.33
Advancing Volume	Va =	1372
If AV<Va then warrant is met		Yes

Right Turn Taper Warranted: **YES**

Methodology based on Washington State Transportation Center Research Report *Method For Prioritizing Intersection Improvements* , Jan. 1997.
The right turn lane and taper analysis is based on work conducted by Cottrell in 1981. The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, and modified by Kikuchi and Chakroborty in 1991.

The right turn lane and taper analysis is based on work conducted by Cottrell in 1981.
The left turn lane analysis is based on work conducted by M.D. Harmelink in 1967, as adopted by AASHTO's "A Policy on Geometric Design of Highways and Streets", 6th Edition.

Intersection Level Of Service Report
Intersection 47: Peterson Driveway 1

Control Type:	Two-way stop	Delay (sec / veh):	9.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	44	0	0	37
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	0	121	23	0	35
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	0	165	23	0	72
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	0	41	6	0	18
Total Analysis Volume [veh/h]	12	0	165	23	0	72
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.95	9.23	0.00	0.00	7.60	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.05	0.05	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.24	1.24	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.95		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.44					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 48: Peterson Driveway 2

Control Type:	Two-way stop	Delay (sec / veh):	9.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	44	0	0	37
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	0	102	19	0	30
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	0	146	19	0	67
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	37	5	0	17
Total Analysis Volume [veh/h]	5	0	146	19	0	67
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.73	9.07	0.00	0.00	7.55	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.49	0.49	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.73		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.21					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 49: Peterson Driveway 3

Control Type:	Two-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.035

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	44	0	0	37
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	30	0	0	102	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	0	44	102	0	37
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	0	11	26	0	9
Total Analysis Volume [veh/h]	30	0	44	102	0	37
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.33	8.89	0.00	0.00	7.51	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.11	0.11	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.70	2.70	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.33		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.31					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 47: Peterson Driveway 1

Control Type:	Two-way stop	Delay (sec / veh):	10.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.048

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	59	0	0	138
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	31	0	60	12	0	94
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	0	119	12	0	232
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	0	30	3	0	58
Total Analysis Volume [veh/h]	31	0	119	12	0	232
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.90	9.17	0.00	0.00	7.48	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.15	0.15	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.80	3.80	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.90		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.86					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 48: Peterson Driveway 2

Control Type:	Two-way stop	Delay (sec / veh):	10.6
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.023

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	59	0	0	138
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	15	0	51	9	0	80
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	0	110	9	0	218
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	0	28	2	0	55
Total Analysis Volume [veh/h]	15	0	110	9	0	218
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.56	8.96	0.00	0.00	7.45	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.07	0.07	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.74	1.74	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.56		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.45					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 49: Peterson Driveway 3

Control Type:	Two-way stop	Delay (sec / veh):	10.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.104

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	59	0	0	138
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	80	0	0	51	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	0	59	51	0	138
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	0	15	13	0	35
Total Analysis Volume [veh/h]	80	0	59	51	0	138
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.25	9.24	0.00	0.00	7.43	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.35	0.35	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	8.72	8.72	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.25		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	2.50					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 47: Peterson Driveway 1

Control Type:	Two-way stop	Delay (sec / veh):	10.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.016

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	46	0	0	38
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	0	121	23	0	35
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	12	0	167	23	0	73
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	0	42	6	0	18
Total Analysis Volume [veh/h]	12	0	167	23	0	73
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.97	9.25	0.00	0.00	7.60	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.05	0.05	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.24	1.24	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.97		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.43					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 48: Peterson Driveway 2

Control Type:	Two-way stop	Delay (sec / veh):	9.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	46	0	0	38
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	0	102	19	0	30
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	0	148	19	0	68
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	37	5	0	17
Total Analysis Volume [veh/h]	5	0	148	19	0	68
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.75	9.09	0.00	0.00	7.55	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.02	0.02	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.49	0.49	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.75		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.20					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 49: Peterson Driveway 3

Control Type:	Two-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.035

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	46	0	0	38
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	30	0	0	102	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	30	0	46	102	0	38
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	0	12	26	0	10
Total Analysis Volume [veh/h]	30	0	46	102	0	38
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.34	8.90	0.00	0.00	7.51	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.11	0.11	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	2.71	2.71	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.34		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.30					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 47: Peterson Driveway 1

Control Type:	Two-way stop	Delay (sec / veh):	11.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.050

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	68	0	0	148
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	31	0	60	12	0	94
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	0	128	12	0	242
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	0	32	3	0	61
Total Analysis Volume [veh/h]	31	0	128	12	0	242
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.06	9.23	0.00	0.00	7.49	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.16	0.16	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	3.90	3.90	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.06		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.83					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 48: Peterson Driveway 2

Control Type:	Two-way stop	Delay (sec / veh):	10.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.023

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	0	68	0	0	148
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	15	0	51	9	0	80
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	0	119	9	0	228
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	0	30	2	0	57
Total Analysis Volume [veh/h]	15	0	119	9	0	228
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.71	9.01	0.00	0.00	7.47	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.07	0.07	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	1.78	1.78	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.71		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.43					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 49: Peterson Driveway 3

Control Type:	Two-way stop	Delay (sec / veh):	10.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.107

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

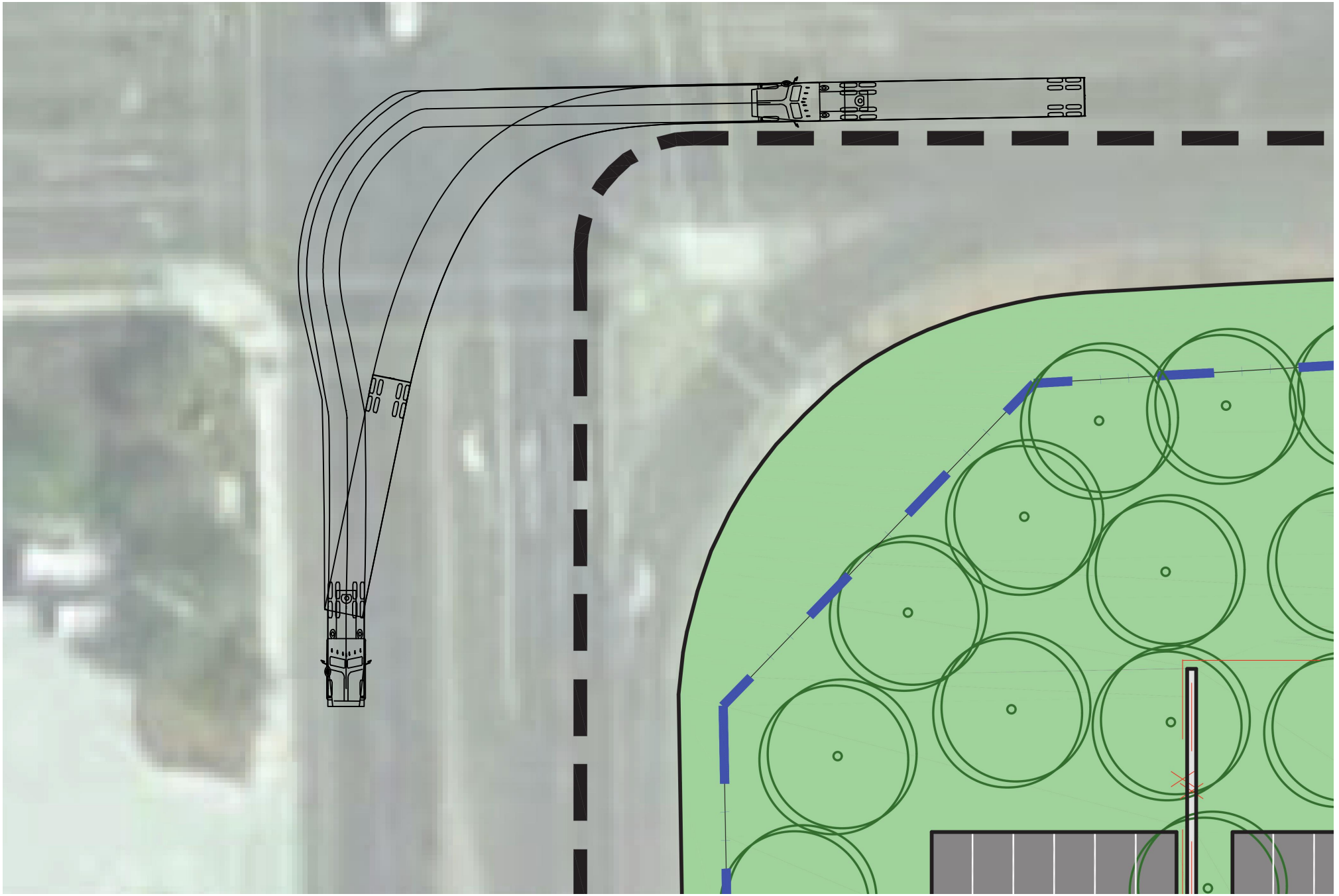
Name						
Base Volume Input [veh/h]	0	0	68	0	0	148
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	80	0	0	51	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	80	0	68	51	0	148
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	0	17	13	0	37
Total Analysis Volume [veh/h]	80	0	68	51	0	148
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.11	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.40	9.31	0.00	0.00	7.45	0.00
Movement LOS	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.36	0.36	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	8.96	8.96	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.40		0.00		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	2.40					
Intersection LOS	B					



FEHR PEERS

Memorandum

Date: January 17, 2024

To: Joe Livaich, Buzz Oates

From: Grace Chen and Ian Barnes, PE, Fehr & Peers

Subject: Big Data Passenger Vehicle and Light Duty Truck Trip Lengths and Project-Generated VMT Comparison Assessment for the Suisun Logistics Center Project in Suisun City, California

WC23-4048

This memorandum summarizes a Big Data-based passenger vehicle and light duty truck trip length assessment for sample sites in Fairfield and Suisun City, California. This memorandum also provides a comparison of project-generated VMT estimates for the Suisun Logistics Center project against similar sites considering Bay Area regional trip length averages for passenger vehicle and light duty truck trips as well as trip Bay Area regional length averages for medium and heavy truck trips. The aggregated total vehicle-miles traveled (VMT) was analyzed based on the Suisun Logistics Center project trip generation. This work is built off the data collected and summarized in the *Big Data Truck Trip Length Assessment for Sample Sites in Fairfield and Suisun City, California* memorandum completed by Fehr & Peers in September 2023.

The purpose of the assessment was to provide more direct observation measurements of travel patterns for passenger vehicle and light duty truck trips to supplement trip length assumptions used in the environmental documentation for the Suisun Logistics Center project in eastern Suisun City, California.

Trip Length Data Collection

Fehr & Peers previously obtained data from the StreetLight Data database to establish trip lengths associated with medium and heavy truck trips at sites similar to the proposed project in Suisun City. The Big Data pull included three aggregated industrial areas around Fairfield and Suisun City with similar uses. For this analysis, Fehr & Peers used the same Big Data pull setup while switching the focus of the pull to analyzing trips made by automobiles and light duty trucks. The data was then summarized using an approach similar to the medium and heavy duty truck trip analysis method.

The Big Data pull included approximately 16,548 observations over the three area for passenger vehicles and light duty trucks. The weekday daily average trip length data is summarized in **Table 1**. Medium and heavy truck average trip length from Fehr & Peers's previous work are also included for comparison purposes.

Table 1: Fairfield-Suisun City Big Data Average Trip Length

Vehicle Type	Total Sample Count*	Average Trip Length (miles)
Passenger Vehicles and Light Duty Trucks	16,548	13.2
Medium and Heavy Trucks	3,981	39.5
Total	**20,529**	**18.3**

Note: StreetLight Data's sample count are the counts of all trips in the StreetLight sample for all days in the data period.
Source: Fehr & Peers, January 2024.

Total Project-Generated VMT

Based on the Transportation Chapter of the *Suisun Logistics Center Project Draft EIR*, the proposed project is expected to generate an average of 3,726 trips per day, including 3,253 passenger vehicle or light duty truck trips and 473 medium and heavy duty truck trips. **Table 2** (located on the next page) presents a comparison between project-generated VMT estimate calculations using two data sources:

- Bay Area regional trip length data consisting of (1) data representing automobile and light duty truck commute trip lengths per the Draft EIR for the project and (2) a regional Big Data-based study of warehouse truck trips throughout the Bay Area
- Big Data-based trip length data for local sample sites in Fairfield and Suisun City

Table 2: Weekday Daily Project-Generated VMT Estimates

Vehicle Type	Project Trip Generation	Bay Area Average		Big Data	
		Trip Length (One-Way)	VMT	Trip Length (One-Way)	VMT
Passenger Vehicles and Light Duty Trucks	3,253	11.5[1]	37,410	13.2	42,940
Medium and Heavy Trucks	473	58.2[2]	27,529	39.5	18,684
Total	**3,726**	**-**	**64,938**	**-**	**61,623**

Notes:
1. Nine-County Bay Area Average VMT per employee is 23 miles per employee, which is around 11.5 miles one-way. See Appendix H, *Traffic Impact Study for the Giovannoni Logistics* W-Trans, July 2021.
2. See Appendix A, *Big Data Truck Trip Length Assessment for Sample Sites in Fairfield and Suisun City, California.* Fehr & Peers, September 2023.

The analysis presented in **Table 2** suggests that the proposed project would generate less total project-generated VMT than a similar site generally in the Bay Area. The difference in project-generated VMT using the Big Data samples is about 5.1% lower than the calculation using the Bay Area averages.

This concludes our assessment of Big Data passenger vehicle trip and light duty truck lengths and project-generated VMT for the proposed Suisun Logistics Center. Please call Grace Chen or Ian Barnes at (925) 930-7100 with any questions.

July 13, 2023

Mr. Joseph Livaich
Vice President
Buzz Oates
555 Capitol Mall, Suite 900
Sacramento, CA 95814

DRAFT Petersen Road Traffic Analysis

Dear Mr. Livaich;

This letter describes the traffic conditions along Peterson Road and in the surrounding area with and without the proposed Suisun Logistics Center in Suisun City. The area in question includes portions of Walters Road, State Route (SR) 12 and the Commercial Truck Gate serving Travis Air Force Base. Traffic data from the *Suisun Logistics Center Administrative Draft Environmental Impact Report*, 2021 (DEIR) was used to inform this analysis.

Existing Conditions

This section provides an overview of the current circulation network, traffic patterns, and related factors that contribute to the analysis.

Study Intersections

There are four key intersections in the study area (see enclosed map):

1. Petersen Road/Walters Road
2. Walmart Driveway/Walters Road
3. South Driveway/Walters Road
4. SR-12/Walters Road

Peterson Road/Walters Road is a signalized four-legged intersection with right turns channelized in the northbound, southbound, and eastbound directions. The current signal phasing has protected left turns for the northbound and southbound approaches while the eastbound and westbound approaches have a shared green phase, which makes left turns in both directions permissive. The northbound right-turn lane has a storage length of approximately 185-feet, and traffic turning right must yield to oncoming traffic. There are pedestrian phases on all approaches.

Walmart Driveway/Walters Road is currently a signalized tee intersection. The northbound approach has a protected left-turn phase. There are crosswalks on the north and west legs of the intersection. each with a pedestrian phase. The intersection would be converted to a four-legged intersection as part of the Suisun Logistics Center project.

South Driveway/Walters Road is a four-legged intersection that is access-controlled. Eastbound and westbound movements at the intersection are stop-controlled and drivers are only permitted to make right turns. There is a storage bay where southbound drivers make a left turn into a commercial plaza containing a gas station and convenience store.

SR-12/Walters Road is a four-legged signalized intersection. Left-turn movements on SR-12 have a protected phase, while the Walters Road and Lawler Ranch Parkway approaches are split phased. There is a 300-foot right-turn storage bay on westbound SR-12, and two left-turn lanes with 390-foot storage bays on eastbound SR-12. The Walters Road approach has four lanes, including two right-turn lanes toward westbound SR-12, and two lanes

left-turn lanes toward eastbound SR-12. The right-turn lanes have approximately 190 feet or storage and the single left-turn lane extends 105 feet.

Study Segments

Petersen Road is a three-lane arterial that provides access to the Travis Air Force Base commercial truck gate. There is a dedicated eastbound truck-only lane for Travis Air Force Base access. Petersen Road borders the northern edge of the proposed Logistics Center project site, intersecting Walters Road at the northwest corner of the project site. Petersen Road has a 45-mph speed limit, is primarily bordered by vacant land, and would also provide access to the proposed Logistics Center project.

SR-12 is designated by the Solano Transportation Authority (STA) as a Route of Regional Significance and is the major east-west corridor through Suisun City. It functions as a four-lane expressway from its junction with Interstate 80 (I-80) west of Suisun City to Walters Road at the eastern city limits. East of this segment it narrows to a two-lane rural major arterial. Access to Suisun City is provided at the Civic Center Drive interchange, at the signalized intersections with Marina Boulevard, Sunset Avenue-Grizzly Island Road, Emperor Drive-Lawler Ranch Parkway, and Walters Road-Lawler Ranch Parkway. The California Department of Transportation (Caltrans) operates SR-12 as a state highway.

Walters Road is a four-lane north-south arterial linking SR-12 with Air Base Parkway in Fairfield. It is designated by the STA as a Route of Regional Significance in Solano County. Walters Road forms the southern portion of the planned Jepson Parkway, a future travel corridor that is currently in the planning and environmental review stage. The Jepson Parkway Concept Plan defines a four-lane parkway connecting Walters Road at SR-12 to the Leisure Town interchange on I-80 in Vacaville. The purpose of the corridor is to provide improved intra-county mobility for residents of Solano County. It has a posted speed of 45 miles per hour (mph).

Traffic Volumes

At the time of the traffic study supporting the Suisun Logistics Center DEIR, the COVID-19 pandemic was affecting traffic volumes throughout the region and traffic counts were lower than what was previously considered typical volumes. As such, pre-pandemic historical traffic count data was applied in the analysis. The vehicle turning movement counts were collected at the study intersections in early November 2016 while area schools were still in session and not during holidays. Conditions during the a.m. and p.m. peak periods were evaluated to capture the highest potential impacts of the proposed project as well as the highest volumes on the local transportation network. The morning peak-hour typically occurs between 7:00 a.m. and 9:00 a.m. and reflects conditions during the home to work or school commute, while the p.m. peak-hour occurs between 4:00 p.m. and 6:00 p.m. and typically reflects the highest level of congestion during the homeward bound commute. To project the expected traffic volume change between 2016 and 2021 (the Logistics Center base analysis year), the 2035 Fairfield travel forecast model was reviewed to establish annual traffic growth rates. Along corridors where traffic increases were expected for certain movements, a straight-line growth rate was applied to create year 2021 traffic volumes.

Petersen Road

The 2016 weekday morning and evening peak period counts included vehicle classifications. Based on typical weekday counts at the Walters Road/Petersen Road intersection, the heavy vehicle volumes on Petersen Road east of Walters Road were determined. Of the occupied parcels on Petersen Road east of the Walter Road intersection, the trucks on Petersen Road were either headed to or from the refueling station/convenience store, self-storage center, sports field, City Public Works Corporation Yard, or the Travis Air Force Base Commercial Truck Gate.

During the morning two-hour peak period between 7:00 a.m. and 9:00 a.m., 11 trucks were counted traveling westbound and 39 traveling eastbound. During a single hour within that period, there were nine westbound and 23 eastbound trucks. During the evening peak period between 4:00 p.m. and 6:00 p.m., there was a total of eight westbound truck trips and seven eastbound. During a single hour, there were, at most, four westbound trucks and

six eastbound trucks on Petersen Road. During the morning and evening peak-hours, trucks represented 33 percent and 4 percent of the Petersen Road volumes, respectively.

Suisun Logistics Center

Construction of the Suisun Logistics Center would result in the vacant field east of Walters Road and south of Petersen Road being developed with 2,058,700 square feet of warehousing, which would serve the purpose of sorting and transshipment of items between trucks across six large warehouse buildings. Passenger vehicle (non-truck) access would be available on Walters Road via a new east leg at the intersection of Walters Road and the existing Walmart driveway. Additional access, including all truck access, would be via three driveways to be constructed on Petersen Road. There would be no direct vehicular access on SR-12. A copy of the site plan is enclosed.

Trip Generation

The trip generation for the proposed Logistic Center was estimated using standard rates published by the Institute of Transportation Engineers (ITE) in *Trip Generation Manual*, 10th Edition, 2017. After a review of several land use categories and their respective trip rates, it was determined that the trip generation rates for "High-Cube Fulfillment Center Warehouse" (ITE LU No. 155) most closely forecast the anticipated number of trips for the Logistic Center.

The Logistic Center is expected to generate an average of 3,726 trips per day, including 309 trips during the a.m. peak hour and 329 during the p.m. peak hour. Of these trips, the Logistic Center is expected to generate an average of 473 daily truck trips, including 41 during the morning peak hour and 21 during the evening peak hour. These new trips represent the increase in traffic associated with the Logistic Center compared to existing volumes. The Logistic Center trip generation is summarized in Table 1.

Table 1 – Trip Generation Summary

Land Use	Units	Daily		AM Peak Hour				PM Peak Hour			
	(ksf)	Rate	Trips	Rate	Trips	In	Out	Rate	Trips	In	Out
Logistic Center	2,058.7	1.81	3,726	0.15	309	250	59	0.16	329	128	201
Vehicle Type											
Trucks		0.23	473	0.02	41	20	21	0.01	21	9	12
Passenger Car			3,253		268	230	38		308	119	189
Total			**3,726**		**309**	**250**	**59**		**329**	**128**	**201**

Note: ksf = 1,000 square feet

Mitigation Measures to Address Potential Traffic Impacts from Proposed Suisun Logistic Center Project

Several transportation impacts were identified in the EIR as being directly related to the addition of logistic center-related traffic onto the roadway network. The EIR includes a detailed description of each impact and associated mitigation measures. The following mitigation measures were developed to address each impact (see enclosed map):

- Adjust the traffic signal timing at the SR-12/Walters Road intersection to account for the shift in vehicle volumes;
- Extend the westbound and southbound left-turn lanes at the Petersen Road/Walters Road intersection to contain maximum queues;
- Add protected left-turn phasing to the traffic signal for the Petersen Road approaches to Walters Road;

- Monitor future traffic volumes, and, if necessary, adjust turn lane lengths or signal timings at the Petersen Road/Walters Road, Walmart Driveway/Walters Road, and/or SR-12/Walters Road intersections, coordinate the signals at the Walmart Driveway/Walters Road and SR-12/Walters Road intersections, and/or add a southbound right-turn overlap to the traffic signal at the SR-12/Walters Road intersection; and
- Implement a program that discourages Logistics Center employees driving alone to and from the site.

The need for left- and right-turn lanes into the proposed Logistics Center project from Walters Road and Petersen Road was assessed, as was visibility for drivers leaving the project site. Several potential impacts to safety were identified, along the following mitigation measures to address these impacts:

- Add "KEEP CLEAR" pavement markings and signage to the dedicated eastbound truck lane on Petersen Road in front of the Logistics Center project site to enable drivers to exit the site and turn left onto Petersen Road;
- Prepare plans for a northbound right-turn lane at the Walmart Driveway/Walters Road intersection to improve access into the proposed Logistics Center project site;
- Demonstrate that on-site storage at the easternmost driveway on Petersen Road would accommodate at least 125 feet of queue space; and
- Split the traffic signal phasing at for the Petersen Road approaches to Walters Road so that the approaches are processed separately rather than at the same time, similar to the Walters Road and Lawler Ranch Parkway approaches to SR-12.

Operational Analysis

Level of Service

Level of Service (LOS) is used to rank traffic operation on various types of facilities based on traffic volumes and roadway capacity using a series of letter designations ranging from A to F. Generally, LOS A represents free flow conditions and LOS F represents forced flow or breakdown conditions. A unit of measure that indicates a level of delay generally accompanies the LOS designation.

Intersection Operation

The study intersections were analyzed using methodologies published in the *Highway Capacity Manual* (HCM), Transportation Research Board, 2018. This source contains methodologies for various types of intersection control, all of which are related to a measurement of delay in average number of seconds per vehicle. The intersection LOS table includes the overall LOS for each study intersection as well as the LOS for minor approaches where the side street is stop-controlled. In these cases, the "Intersection" LOS appears first with the "Minor Approach" LOS shown below it in italics.

The Near-Term Scenario reflects conditions projected to occur during the year 2023 and includes trips associated with any projects have been approved and would generate traffic prior to the year of 2023 that could influence the operation of local and regional roadways. Year 2023 operating conditions were estimated using the peak hour traffic volumes estimated for January 2021 plus the 2-year projected growth between 2021 and 2023 as predicted using the Fairfield 2035 Travel forecast model. The Near-Term Plus Logistics Center scenario reflects conditions with expected volumes in the year 2023 and the completion of the Center. A comparison between the service levels for the Near-Term and Near-Term Plus Logistic Center scenarios LOS is provided in Table 2. Proposed improvement measures associated with the logistics center project are also shown and a full description of these measures is described in the DEIR.

Table 2 – Peak Hour Intersection Levels of Service

Study Intersection *Approach*	Near-Term				Near Term + Logistics Center			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Petersen Rd/Walters Rd	8.8	A	7.8	A	12.7	B	15.0	B
See below for details.	-	-	-	-	9.9	A	10.1	B
2. Walmart Driveway/Walters Rd	6.3	A	15.0	B	11.9	B	22.8	C
3. South Driveway/Walters Rd	0.5	A	0.8	A	0.5	A	0.8	A
Eastbound (Driveway) Approach	*11.2*	*B*	*12.5*	*B*	*11.4*	*B*	*13.4*	*B*
Westbound (Driveway) Approach	*10.9*	*B*	*13.1*	*B*	*11.7*	*B*	*13.6*	*B*
4. SR-12/Walters Rd	27.9	C	32.6	C	31.4	C	38.3	D
See below for details.	-	-	-	-	31.5	C	36.8	D

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics;* Shaded cells = conditions with recommended improvements

Based on the operational goals established, no intersection deficiencies are expected. However, several potentially significant queueing deficiencies were identified.

Walters Road Fronting the Proposed Logistics Center Project Site – With the proposed Logistics Center, the following queueing deficiencies on Walters Road would be anticipated.

- At the Petersen Road/Walters Road intersection, the 115-foot westbound left-turn lane would be exceeded by about one to two car lengths, with an expected maximum queue length of 141 feet during the evening peak hour.
- At the Logistics Center Main Driveway/Walters Road intersection, the northbound left-turn storage lane of 200 feet would be exceeded by about four car lengths with projected queues of 286 feet during the evening peak-hour.
- At the Rio Vista Road (SR-12)/Walters Road–Lawler Ranch Parkway intersection, queues would exceed the two eastbound left-turn 390-foot storage lanes, such that traffic turning left would be queued as far back as 353 feet on the mainline lanes before reaching the storage bays during the evening peak hour.

Petersen Road/Walters Road – To mitigate the deficiencies to the left-turn lanes, restriping the southbound left-turn lane to 150 feet in length and the westbound left-turn lane to 200 feet long is recommended. Since the proposed Logistic Center would be expected to result primarily in westbound left- and right-turning vehicles and the eastbound opposing through volumes are expected to be low, the east–west signal phasing would be modified to add protected left-turn phasing.

Main Driveway/Walters Road – With traffic signal coordination alone, the queue length would be reduced to 217 feet. The northbound left-turn storage lane cannot be extended as the southbound left-turn storage lane into the 7-Eleven gas station and convenience store abuts it directly to the south. Thus, the queueing deficiency would be mitigated with the addition of a second northbound left-turn lane. It was also noted in the EIR that the addition of a turning lane would not be expected to result in a Vehicle Miles Traveled (VMT) impact. To address the queueing deficiency for the northbound left-turn lane at the Main Driveway/Walters Road intersection, it is recommended that, in addition to coordinating the traffic signals, a second northbound left-turn lane on Walters Road be included in Mitigation Measure TRANS-1e. However, given that the widening of the roadway to accommodate the additional turn lane would require property from the 7-Eleven project site, the mitigation to add another northbound left-turn lane may not be feasible due to lack of adequate right-of-way.

SR-12/Walters Road – As there is a shared southbound through/left-turn lane and the queue in both left-turn lanes is not expected to overflow into the adjacent upstream signalized intersection, the deficiency is considered less than significant. For the eastbound left-turn lane, optimizing the green time allocated to each movement would reduce the expected queue length to less than one vehicle length. Because the proposed improvements are subject to implementation by another agency (Caltrans), this mitigation would be feasible only with the active cooperation of that agency.

Intersection Queueing

The 95th percentile queueing was reviewed for the dedicated turn lanes at each study intersection. The 95th percentile queue is defined to be the queue length that has only a 5-percent probability of being exceeded during the analysis time period. These lengths were determined using methodologies from the HCM. At several intersections, the available storage is currently at capacity or exceeded for some movements. Summarized in Table 3 are the predicted queue lengths for approaches to intersections where queues are expected to exceed the existing available storage capacity. Conditions with the proposed mitigation measures are shown with an asterisk (*).

Table 3 – 95th Percentile Queues

Study Intersection Approach	Available Storage/Number of Lanes	95th Percentile Queues			
		Near-Term		Near-Term + Logistics Center	
		AM Peak	PM Peak	AM Peak	PM Peak
Petersen Rd/Walters Rd					
NB Right-Turn Lane	185/1	23	25	98	56
WB Left-Turn Lane	115/1	35	81	92	**154**
WB Left-Turn Lane*	200*/1	-	-	76*	157*
SR-12/Walters Rd					
SB Left-Turn Lane	105/1.5	**168**	**268**	**190**	**290**
SB Right-Turn Lane	190/1.5	58	57	59	59
EB Left-Turn Lane	390/2	230	**659**	368	**743**
EB Left-Turn Lane*	390/2	-	**-**	323*	**594***
WB Right-Turn Lane	300/1	66	71	74	74

Notes: All distances are measured in feet; NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; **Bold** text = deficient operation; *= with mitigations

Travis Air Force Base Truck Activity

The commercial truck access point to the Travis Air Force Base is located approximately 600 feet east of the Petersen Road/Lambrecht Drive intersection. There is an existing queueing bay with three lanes that extends approximately 400 feet. West of the Petersen Road/Lambrecht Drive intersection there is an auxiliary truck lane that extends approximately 4,500 feet between Lambrecht Drive and just east of Walters Road.

Traffic counts were collected on Petersen Road on June 13, 2023, to compare with pre-pandemic volumes in 2016 and the estimated Near-Term condition. Along Walters Road, north of SR-12, there has been an overall decrease in daily traffic volumes since 2016, from 19,538 vehicles counted in 2016 to 17,342 in 2023. Some of this is likely associated with the pandemic and the slower return to pre-pandemic traffic volumes as well as the post-pandemic continuation of hybrid work schedules wherein many workers continue to work from home part time. To provide

a more conservative analysis, the calculated Near-Term condition volumes based on growth factors were used in the quantitative analysis.

To support Air Base operations there are periods of high activity for traffic accessing the commercial truck access gate. For the purposes of this analysis, high activity is assumed to be approximately 8,000 trucks arriving and approximately 4,000 trucks departing from the base over a 48-hour period. Assuming an even hourly distribution, this equates to approximately 83 outbound trucks per hour and 167 inbound trucks per hour. Eighty percent of these trucks were assumed to be traveling to and from the I-80 corridor via SR-12 and Walters Road and 20 percent of trucks are assumed to be traveling to/from I-5 via SR-12 and Walters Road.

Intersection Operation

The High Activity Air Base truck traffic was applied to both the Near-Term and Near-Term plus Logistics Center conditions. The Near-Term plus Logistics Center scenario reflects conditions with expected volumes in the year 2023 plus the completion of the proposed Logistics Center project. A comparison between the operation for Near-Term plus High Activity and Near-Term plus Logistic Center plus High Activity Scenarios is provided in Table 4.

Table 4 – Peak Hour Intersection Levels of Service with High Activity for Travis Air Force Base

Study Intersection ***Approach***	**Near-Term + High Activity**				**Near-Term + L.C. + High Activity**			
	AM Peak		**PM Peak**		**AM Peak**		**PM Peak**	
	Delay	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1. Petersen Rd/Walters Rd	18.6	B	19.6	B	23.3	C	18.6	B
2. Walmart Driveway/Walters Rd	6.3	A	14.6	B	12.8	B	24.6	C
3. South Driveway/Walters Rd								
Eastbound (Driveway) Approach	*11.7*	*B*	*13.1*	*B*	*11.9*	*B*	*14.1*	*B*
Westbound (Driveway) Approach	*11.8*	*B*	*14.3*	*B*	*12.8*	*B*	*14.9*	*B*
4. SR-12/Walters Rd	38.4	D	58.6	E	46.3	D	75.8	E

Notes: Delay is measured in average seconds per vehicle; LOS = Level of Service; Results for minor approaches to two-way stop-controlled intersections are indicated in *italics;* L.C. = Logistic Center

Based on the operational analysis, the SR-12/Walters Road intersection would operate at LOS E during the p.m. peak hour with the combination of High Activity truck traffic for the Air Base and the proposed Logistics Center project.

Intersection Queueing

The 95th percentile queues were reviewed with the addition of high-activity truck volumes, and also with the proposed Logistics Center project. The calculated queues do not include consideration of the effect of delays caused by the Truck Gate inspections (e.g., the processing rate at the gate to allow trucks to access the Air Base). At several intersections, the available storage is currently at capacity or exceeded for some movements. For all conditions, the queues for westbound left turns exceed the available storage at Peterson Road/Walters Road, similarly, the queues for southbound left turns exceed capacity at SR-12/Walters Road. In the Near-Term Plus Logistic Center Plus High Activity p.m. peak period condition, westbound drivers approaching the Peterson Road/Walters Road intersection would enter the queue as far as 455 feet from the intersection. In addition, under all conditions, eastbound left-turn queues would be greater than the available storage. The queue for eastbound vehicles traveling from SR-12 to Walters Road would extend to more than 4,100 feet during the p.m. peak hour under the near-term plus Logistics Center plus High-Activity period condition. Summarized in Table 5 are the predicted queue lengths at key approaches along Walters Road.

Table 5 – 95th Percentile Queues with High Activity for Travis Air Force Base

Study Intersection Approach	Available Storage/Number of Lanes	95th Percentile Queues			
		Near-Term + High Activity		Near-Term + L.C. + High Activity	
		AM Peak	PM Peak	AM Peak	PM Peak
Petersen Rd/Walters Rd					
NB Right-Turn Lane	185/1	69	70	143	165
WB Left-Turn Lane	115/1	**153**	**233**	**176**	**455**
SR-12/Walters Rd					
SB Left-Turn Lane	105/1.5	**175**	**274**	**210**	**290**
SB Right-Turn Lane	190/1.5	154	154	184	185
EB Left-Turn Lane	390/2	**478**	**3,698**	**1,356**	**4,109**
WB Right-Turn Lane	300/1	202	164	205	161

Notes: All distances are measured in feet; NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; **Bold** text = deficient operation; L.C. = Logistic Center

Potential Circulation Options During High-Activity Periods

The length of truck queues extending back from the Commercial Truck Gate varies based on the exact number of trucks, duration of high activity event, and the arrival and processing rate at the Air Base gate. To address the periods of high activity overlapping with the proposed Logistics Center, several additional potential improvements have been identified. A summary of each improvement is provided below.

Off-Road Storage

There is an undeveloped 50-acre parcel with access directly onto Peterson Road just west of the Base commercial gate and east of the proposed Logistics Center site. This parcel may be developed as a temporary storage and sorting facility during times of high truck activity at the Base. Trucks arriving at the Base would enter this site and could then be sorted so that trucks with priority cargo would bypass other trucks and gain access to the Base more quickly. This site could also serve as extra storage capacity to alleviate the truck queue on Peterson Road. According to the Federal Highway Administration *Truck Parking Development Handbook,* a truck parking facility with a 45-degree angle herringbone drive-through configuration can accommodate approximately 14.4 trucks per acre. This includes space necessary for truck maneuvering around the site. Therefore, applying this estimation means that the 50-acre site has an approximate capacity to park 720 trucks. Since the off-road storage would provide capacity for trucks that are queued entering the Gate, this would not remedy the impacts of the high activity at the study intersections. However, the added storage capacity created by this off-road storage site located close to the Commercial Truck Gate has the potential to reduce queues from growing throughout the day along Peterson Road, Walters Road and SR-12.

Increase Capacity at Peterson Road

Widening Peterson Road between Walters Road and the Base Gate by constructing an additional eastbound lane would increase the overall queue capacity for trucks entering the Base. The existing auxiliary lane is approximately 4,500 feet long between Lambrecht Drive and just east of Walters Road. Assuming an average length per truck of 60 feet, the existing auxiliary lane would accommodate 75 trucks. An additional auxiliary lane would double the existing capacity to accommodate a total of 150 trucks. With this configuration, trucks could potentially be sorted into two lines, allowing trucks with higher priority an opportunity to bypass other trucks. Similar to the off-road storage, this would increase queuing capacity for trucks waiting to enter the Base, and therefore would have no effect on the study intersections. However, the added storage capacity created by this off-road storage site located

close to the Commercial Truck Gate has the potential to reduce queues from growing throughout the day along Peterson Road, Walters Road and SR-12.

Western Bypass of Walters Road to Access Petersen Road

Peterson Road currently terminates approximately 1,200-feet west of its intersection with Walters Road. This segment of Petersen Road is a four-lane roadway with an all-way stop-controlled intersection at Peterson Road and Fulmar Drive. A roughly triangular-shaped vacant parcel exists in the area between the Peterson Road terminus and SR-12, west of the Walmart store. Constructing a new roadway between SR-12 and the end of Peterson Road would create a connection so that trucks traveling toward the Base could access Peterson Road directly from SR-12 without traveling on Walters Road. Truck traffic would potentially benefit from improved travel times by bypassing congestion at the Walmart Driveway/Walters Road and South Logistics Center Driveway/Walters Road intersections, and not having to turn at the SR-12/Walters Road and Petersen Road/Walters Road intersections.

Air Base trucks originating from I-80 or I-5 would avoid turning onto Walters Road. Instead, they would take this bypass and subsequently reduce the eastbound and westbound left-turn queues at the SR-12/ Walters Road and Peterson Road/Walters Road intersections, respectively. Trucks would travel on Peterson Road straight through the Peterson Road/Walters Road intersection to and from the Air Base. This would also improve operations at the Walmart Driveway/Walters Road and South Logistic Center Driveway/ Walters Road intersections since fewer vehicles would be traveling along Walters Road.

SR-12 Direct Access Road to Petersen Road

Approximately 400 feet west of the Petersen Road/Lambrecht Drive intersection exists an unpaved single lane roadway that intersects with Petersen Road. Currently, there are no developments along this roadway. This roadway traverses an undeveloped privately-owned parcel and extends about one mile due south of Petersen Road and terminates just north of SR-12.

If trucks generated by high activity at the Base were to be routed along this connection, the Peterson Road/Walters Road, Walmart Driveway/Walters Road, and South Logistic Center Driveway/Walter Road intersections would experience improved operations as the Air Base trucks would not travel through these intersections. Trucks from I-80 would travel straight through the SR-12/Walters Road intersection instead of making a left turn, which would decrease queue lengths for eastbound left turns. However, between this new roadway and SR-12 is Union Creek, which follows the alignment of SR-12 toward the east and reaches wetlands toward the west. Building a roadway and bridge over the creek that connects SR-12 to Petersen Road via this existing roadway would require further environmental studies to investigate any potential impacts to Union Creek. In addition, this roadway and undeveloped parcels are currently owned by other entities.

Thank you for giving W-Trans the opportunity to provide these services. Please call if you have any questions.

Sincerely,

Kenny Jeong, PE
Senior Traffic Engineer

Mark Spencer, PE,
Senior Principal

MES/kbj/SCI004-1.L2

Enclosures:
Area Map
Logistics Center Site Plan
Proposed Logistics Center Transportation Improvements

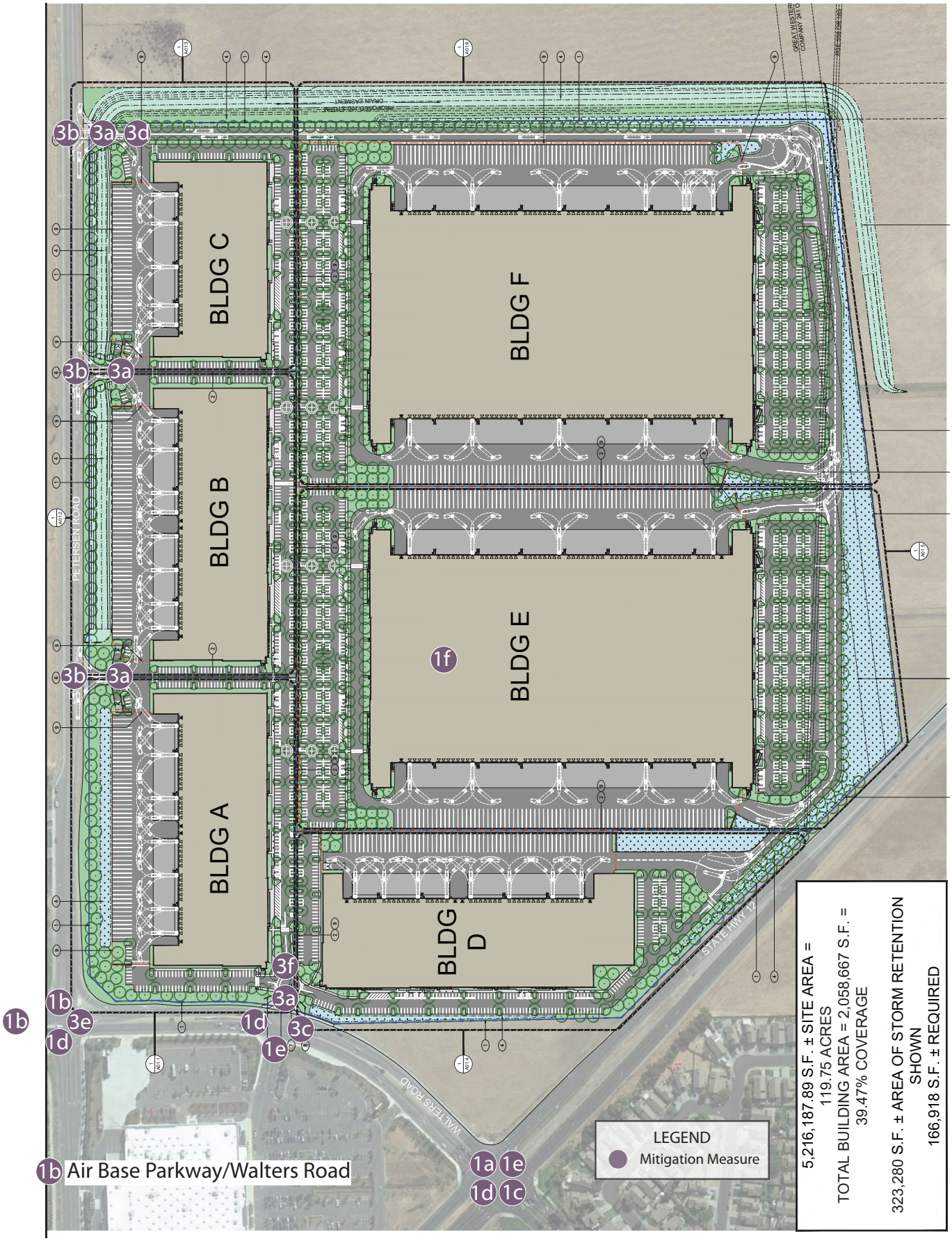

Smarty Paws
Irving H. Lambrecht
Sports Complex
Stoneyard Masonry
Four Seasons Self Storage
Travis AFB
Commercial Truck Gate
Walmart Supercenter
7-Eleven
Creative Stars Academy
Union Creek
Google
Layers

Source: RMW Architecture Interiors 5/21

sci004-1.ai 5/23

Transportation Study Summary for the Suisun Logistics Center Project

Site Plan



Source: RMW Architecture Interiors 5/21

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Transportation Study Summary for the Suisun Logistics Center Project

Mitigation Measure Locations

W-Trans