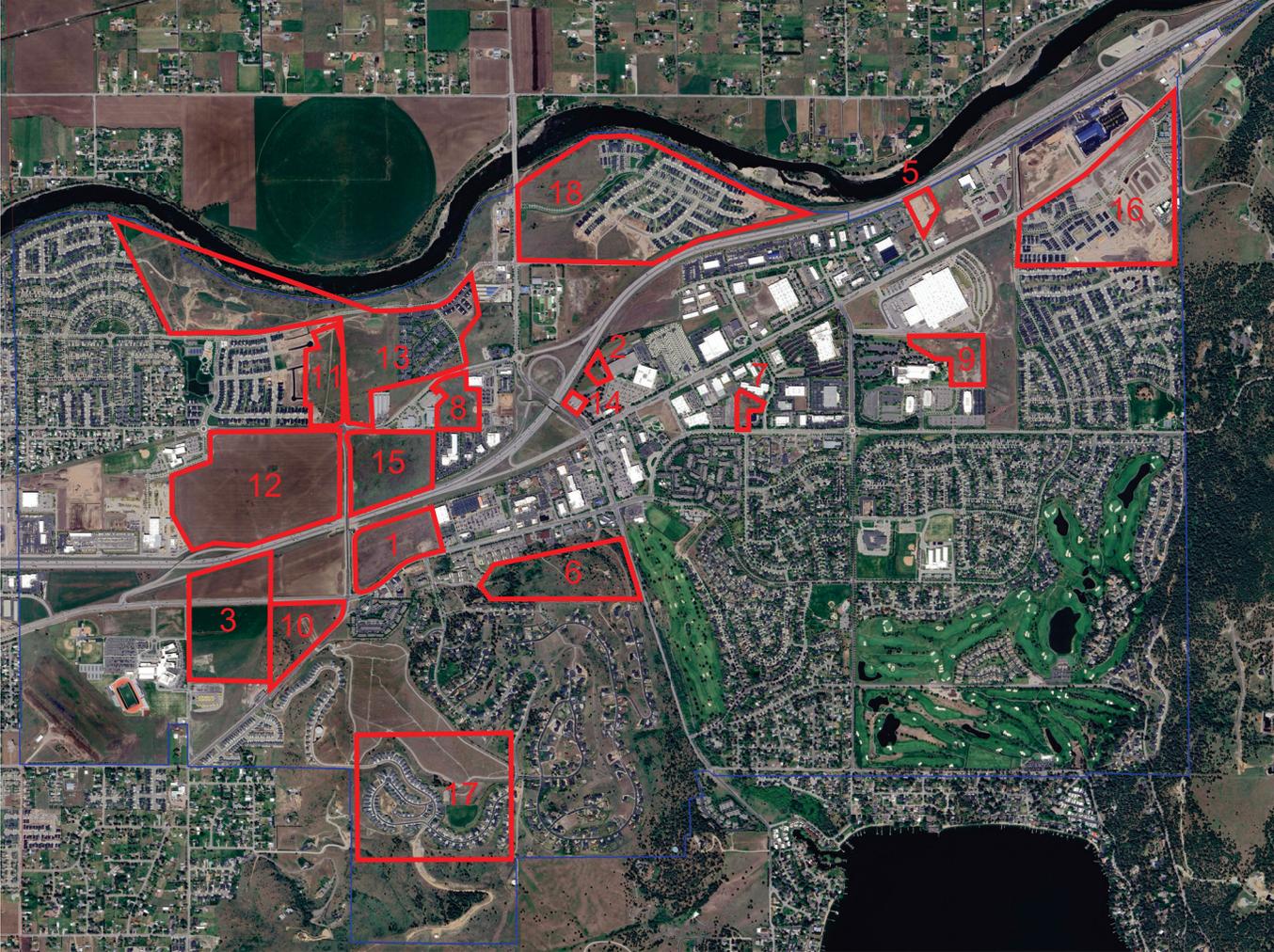


Appendix B

Short-Term Growth Information

Development	Portion Complete by 2028	Sq Ft (1,000)	Units	ITE Land Use	ITE Code	ITE Rate			Directional Split %				Build out Adjustment	Generated Trips								
						AM	PM	Daily	AM		PM			AM			PM			Daily		
									Enter	Exit	Enter	Exit		In	Out	Total	In	Out	Total	In	Out	Total
1 Top Golf	All	-	-	-	Various	-	-	-	-	-	-	-	-	153	107	260	232	232	464	2,887	2,887	5,774
2 HA Commerce Center	All	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Warehousing		48.4	100	Warehousing	150	0.17	0.18	1.71	0.77	0.23	0.28	0.72		6	2	8	2	7	9	41	42	83
Business Hotel		-	-	-	312	0.36	0.31	4.02	0.39	0.61	0.55	0.45		14	22	36	17	14	31	201	201	402
General Office Building		12.1	-	-	710	1.52	1.44	10.84	0.88	0.12	0.17	0.83		16	2	18	3	14	17	66	65	131
Total		-	-	-	-	-	-	-	-	-	-	-	-	36	26	62	22	35	57	308	308	616
3 Centennial County Vista BSP	Residential Only	1176	1176	Multi-Family Housing	220	0.4	0.51	6.74	0.24	0.76	0.63	0.37	50%	56	179	235	189	111	300	1,982	1,981	3,963
5 Horman Warehouse	All	15	15	Warehousing	150	-	-	-	0.72	0.28	0.36	0.64		9	4	13	4	6	10	47	48	97
6 Legacy Ridge Mixed Use (Jakes Townhomes)	Residential Only	560	560	Multi-Family Housing	220	-	-	-	0.24	0.76	0.63	0.37		47	150	197	165	97	262	1,832	1,832	3,664
7 Legacy Church	All	20.5	-	Church	560	0.32	0.49	7.6	0.62	0.38	0.44	0.56		4	3	7	4	6	10	78	78	156
8 RCW Truck Sales	All	47	-	Recreational Vehicle Sales	842	0.85	0.77	5	0.54	0.46	0.37	0.63		22	18	40	13	23	36	118	117	235
9 Signal Apartments	All	240	240	Multi-Family Housing	220	-	-	-	0.24	0.76	0.63	0.37		27	86	113	86	51	137	809	809	1,618
10 Neighborly development (Stanley)	Residential Only	288	288	Multi-Family Housing	220	-	-	-	0.24	0.76	0.63	0.37		27	85	112	91	53	144	961	960	1,921
11 River Crossing 3rd Addition	105 Homes	105	105	Single-Family Housing	210	0.7	0.94	9.43	0.25	0.75	0.63	0.37		19	55	74	62	37	99	495	495	990
12 Telido Station	Residential Only	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Single-Family Housing		96	96	Single-Family Housing	215	-	-	-	0.25	0.75	0.61	0.39	50%	6	16	22	16	11	27	171	170	341
Multi-Family Housing		648	648	Multi-Family Housing	220	-	-	-	0.24	0.76	0.63	0.37	50%	30	93	123	101	59	160	1,076	1,076	2,152
Total		-	-	-	-	-	-	-	-	-	-	-	-	36	109	145	117	70	187	1,247	1,246	2,493
13 River Crossing East and River Crossing 2020	105 Homes	105	105	Single-Family Housing	210	0.7	0.94	9.43	0.25	0.75	0.63	0.37		19	55	74	62	37	99	495	495	990
14 Car Wash	All	1	1	Automated Car Wash	948	25.83	77.5	387.5	0.5	0.5	0.5	0.5		13	13	26	39	39	78	194	194	388
16 Lemmar	275 Homes (Mix of SF and condos)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Single-Family Housing		95	95	Single-Family Housing	210	0.7	0.94	9.43	0.25	0.75	0.63	0.37		17	50	67	56	33	89	448	448	896
Multi-Family Housing		180	180	Multi-Family Housing	220	0.4	0.51	6.74	0.24	0.76	0.63	0.37		17	55	72	58	34	92	607	606	1,213
Total		-	-	-	-	-	-	-	-	-	-	-	-	34	105	139	114	67	161	1,055	1,054	2,109
17 Legacy Ridge West	68 Homes (All SF)	68	68	-	210	0.7	0.94	9.43	0.25	0.75	0.63	0.37		12	36	48	40	24	64	321	320	641
18 Thrutina	105 Homes (mix of SF and condos)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Single-Family Housing		55	55	Single-Family Housing	210	0.7	0.94	9.43	0.25	0.75	0.63	0.37		10	29	39	33	19	52	260	259	519
Multi-Family Housing		50	50	Multi-Family Housing	220	0.4	0.51	6.74	0.24	0.76	0.63	0.37		5	15	20	16	10	26	169	168	337
Total		-	-	-	-	-	-	-	-	-	-	-	-	15	44	59	49	29	78	429	427	856

*From memo from City
** Parametrix calculation



Appendix C

Travel Demand Modeling

Appendix: Travel Demand Model

2024 Travel Demand Model Refinement

This section summarizes the changes made to the 2022 SRTC Model.

To get the granular analysis data for the City of Liberty Lake we sub-divided the TAZs 4421, and 4460. This is shown in Table 1. The number of households and employees in the TAZs were adjusted to get the correct household and employment distribution from 2022 to 2024. In the network adjustment, Kramer Parkway bridge over I-90 was added in the network. Number of centroid connectors were added and adjusted to represent the sub-divided TAZs.

Table 1: 2024 Land Use Summary

TAZ	2022 Original SRTC Model		2024 Land Capacity Analysis Information	
	Households	Employees	Households	Employees
4421	3	1129	3	1129
4421A	0	0	0	100
4421B	0	0	0	0
4422C	3	1129	3	1029
4422	916	203	1026	203
4450	1284	477	1284	477
4460	309	5240	446	5240
4460A	309	23	446	23
4460B	0	1164	0	1164
4460C	0	793	0	793
4460D	0	1630	0	1630
4460E	0	1630	0	1630
4470	75	279	75	279
4480	1082	149	1247	149
4490	800	39	937	39
4500	800	205	800	205

2046 Travel Demand Model Refinement

Parametrix worked with the city staff to get the correct growth in the land use scenario of the City of Liberty Lake. First the SRTC model land use inputs were interpolated to get 2046 data. This data was revised based on the growth assumptions from the City of Liberty Lake. The future land use is shown in Table 2. The network was edited to include number of

centroid connectors to represent correct demand in each sub-divided TAZs. The centroid connectors were also edited to update the weight on these connectors to re-run the model. This weight difference helped to adjust the number of trips loaded on the network based on the new sub-divided TAZs.

Table 1: 2046 Land Use Summary

TAZ	2046 Land Capacity Analysis Information		2050 SRTC Model	
	Households	Employees	Households	Employees
4421	802	3602	802	1636
4421A	329	725	329	1169
4421B	86	1171	86	0
4422C	387	1705	387	467
4422	2638	702	2638	333
4450	1623	477	1623	652
4460	1096	7474	1096	5798
4460A	1096	849	1096	980
4460B	0	1473	0	1069
4460C	0	1228	0	866
4460D	0	1652	0	1395
4460E	0	2273	0	1488
4470	76	1499	76	282
4480	2111	760	2111	216
4490	1305	39	1305	72
4500	1031	205	1031	245

Model edit and run steps

Following section defines the steps taken to edit the SRTC Visum model and run it.

- 1) Set up a new scenario in the scenario window. Add modifications created in the following step in it.

Edit project						
Basic settings Scenarios Modifications Procedure parameter sets Global layouts Comparison patterns User-def. attributes Distributed computing Multi-user mode						
Number: 5	Description	Modifications	Procedure parameter set	Global layout	Calculation state	F
1	2022 Analysis Year	...	1 Model Runner	0 without global layout	Calculated	
2	2050 No Build	1	1 Model Runner	0 without global layout	Calculated	
3	2050 E+C	1,2,3,4,5,6,7,8,9,10,11,1	1 Model Runner	0 without global layout	Calculated	
4	Reporting Comparison	...	2 Reporting Comparison	0 without global layout	Calculated (not up-to-date)	
5	2024 Analysis Year Liberty Lak	65	1 Model Runner	0 without global layout	(!) Calculated	

2) Create modifications in the Modifications window. Use edit button to edit the modifications.

Edit project

Basic settings | Scenarios | Modifications | Procedure parameter sets | Global layouts | Comparison patterns | User-def. attributes | Distributed computing | Multi-us

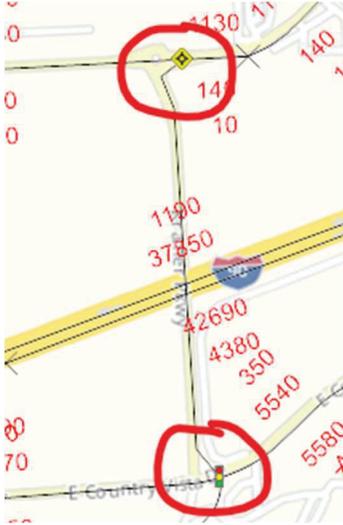
Number: 63	Number	Load order	Code	Description
50	52	52	Spotted Rd realignment	Spotted Rd realignment and overpass/interchange with Airport Dr
51	53	53	US2/Campus roundabout	US 2/Campus should be a roundabout and south leg should be c
52	54	54	6th/12th Connection to Sunset Hwy	6th/12th Connection on east end to Sunset Hwy
53	55	55	Sprague Avenue from University to He	Sprague Avenue from University to Herald will be 3 lanes in 2050
54	56	56	21st Ave from SpoKo Fuel RAB to Rus	21st Avenue should be active from the SpoKo Fuel RAB to Russe
55	57	57	US2/Craig Roundabout	Roundabout at US2 and Craig Rd
56	58	58	US2/Lundstrom Roundabout	Roundabout at US 2 and Lundstrom
57	59	59	US2/Lawson Roundabout	Roundabout at US 2 and Lawson
58	60	60	US2/Garfield Roundabout	Roundabout at US 2 and Garfield
59	61	61	US2/Spotted Roundabout	Roundabout at US 2 and Spotted
60	62	62	US2/Day Mt Spokane Roundabout	Roundabout at US 2 and Day Mt Spokane
61	63	63	US2/Deer Park-Milan Roundabout	Roundabout at US 2 and Deer Park-Milan
62	64	64	TAZ Edit	TAZ Edit for Liberty Lake
63	65	65	Base 2024	Base Edit for 2024 Liberty Lake

3) Base 2024 version edit
Added Kramer Pkwy

List (Links)

Number: 66.376	Length	TypeNo	VDF_TYPENO	TSysSet	Name	Num Lanes	VOPrT	MID_LINK	MEDIAN	AUX_LANES	AREATYP	EXT_COUNT	EXT_ZONE	PROGRES_FACTOR	TT_CORRIDO	VOL_CORRIDO	VOL_CORRIDO	CapPrT
66361	0.263mi	17	5	a.b.k.c.sch.tv	Flint	2	35mph	0.00	0	0	Urban			1.00				449
66362	0.263mi	17	5	a.b.k.c.sch.tv	Flint	2	35mph	0.00	0	0	Urban			1.00				2300
66363	0.162mi	19	7	...	4th	1	25mph	0.00	0	0	Urban			0.00				0
66364	0.162mi	19	7	...	4th	1	25mph	0.00	0	0	Urban			0.00				0
66365	0.089mi	19	7	a.b.k.c.sch.tv	4th	1	25mph	0.00	0	0	Urban			0.00				0
66366	0.089mi	19	7	a.b.k.c.sch.tv	4th	1	25mph	0.00	0	0	Urban			0.00				0
66367	0.345mi	19	7	...	4th	1	25mph	0.00	0	0	Urban			0.00				0
66368	0.345mi	19	7	...	4th	1	25mph	0.00	0	0	Urban			0.00				0
66369	0.047mi	19	7	a.b.k.c.sch.tv	4th	1	25mph	0.00	0	0	Urban			0.00				0
66370	0.047mi	19	7	a.b.k.c.sch.tv	4th	1	25mph	0.00	0	0	Urban			0.00				0
66371	1.141mi	9	7	a.b.k.c.sch.tv	Thorpe	1	25mph	0.00	0	0	Rural			1.00				384
66372	1.141mi	9	7	a.b.k.c.sch.tv	Thorpe	1	25mph	0.00	0	0	Rural			1.00				700
66373	0.812mi	9	7	a.b.k.c.sch.tv	Thorpe	1	25mph	0.00	0	0	Rural			1.00				700
66374	0.812mi	9	7	a.b.k.c.sch.tv	Thorpe	1	25mph	0.00	0	0	Rural			1.00				384
66375	0.525mi	17	5	a.b.k.c.sch.tv	Kramer Pkwy	1	35mph	0.00	0	0	Urban			1.00				900
66376	0.525mi	17	5	a.b.k.c.sch.tv	Kramer Pkwy	1	35mph	0.00	0	0	Urban			1.00				900

- 4) Edited intersections at Kramer Pkwy to match current configuration of Roundabout in north and signalized intersection in south.



- 5) Edited the land use values in the Zones (TAZ) list.

Keeping employment values constant, only altering HH values.

- 6) For Base and Future Versions – Pseudo Split

Edit TAZ 4421 and 4460 with allowing connector share based on Each single OD pair. And PrT based on By shares.

Edit zone 4421

Number: 4421
 Type: 0
 Code: Int
 Name: Internal Zone Centroid

Basis: Connectors | OD demand | DStrata | User-defined

PrT
 Origin connectors: By shares, Absolute
 Destination connectors: By shares, Absolute
 Method for connector shares: Each single OD pair

PuT
 Connectors: By shares, Absolute

Edit zone 4460

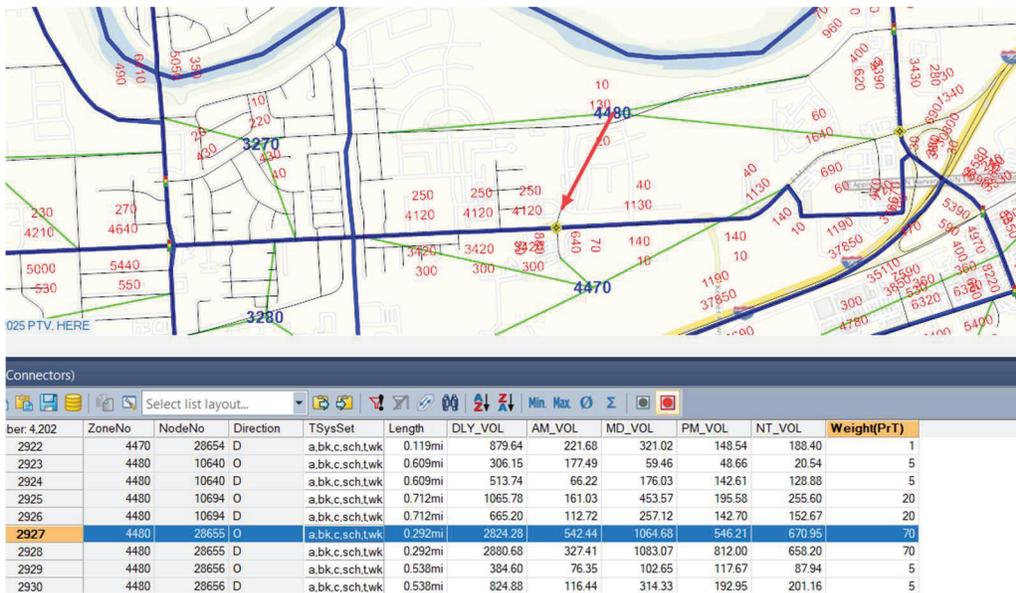
Number: 4460
 Type: 0
 Code: Int
 Name: Internal Zone Centroid

Basis: Connectors | OD demand | DStrata | User-defined

PrT
 Origin connectors: By shares, Absolute
 Destination connectors: By shares, Absolute
 Method for connector shares: Each single OD pair

PuT
 Connectors: By shares, Absolute

7) Edit connector weight based on percentage of the household and employment numbers



TAZ	2022 Original SRTC Model		2024 Land Capacity Analysis Information		TAZ	2046 Land Capacity Analysis Information		2050 SRTC Model	
	Households	Employees	Households	Employees		Households	Employees	Households	Employees
4421	3	1129	3	1129	4421	802	3602	802	1636
4421A	0	0	0	100	4421A	329	725	329	1169
4421B	0	0	0	0	4421B	86	1171	86	0
4422C	3	1129	3	1029	4422C	387	1705	387	467
4422	916	203	1026	203	4422	2638	702	2638	333
4450	1284	477	1284	477	4450	1623	477	1623	652
4460	309	5240	446	5240	4460	1096	7474	1096	5798
4460A	309	23	446	23	4460A	1096	849	1096	980
4460B	0	1164	0	1164	4460B	0	1473	0	1069
4460C	0	793	0	793	4460C	0	1228	0	866
4460D	0	1630	0	1630	4460D	0	1652	0	1395
4460E	0	1630	0	1630	4460E	0	2273	0	1488
4470	75	279	75	279	4470	76	1499	76	282
4480	1082	149	1247	149	4480	2111	760	2111	216
4490	800	39	937	39	4490	1305	39	1305	72
4500	800	205	800	205	4500	1031	205	1031	245

Appendix D

Existing Conditions Analysis Results (2025)

AM Peak Hour

HCM 6th TWSC
1: Country Vista Dr & I-90 Ramps

09/16/2025

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑		↘	↘
Traffic Vol, veh/h	142	528	543	55	26	105
Future Vol, veh/h	142	528	543	55	26	105
Conflicting Peds, #/hr	1	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	125	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	6	5	6	2	0	3
Mvmt Flow	180	668	687	70	33	133

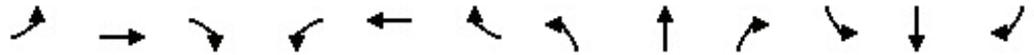
Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	758	0	-	0	1417 380
Stage 1	-	-	-	-	723 -
Stage 2	-	-	-	-	694 -
Critical Hdwy	4.22	-	-	-	6.8 6.96
Critical Hdwy Stg 1	-	-	-	-	5.8 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	2.26	-	-	-	3.5 3.33
Pot Cap-1 Maneuver	823	-	-	-	130 615
Stage 1	-	-	-	-	447 -
Stage 2	-	-	-	-	462 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	822	-	-	-	101 614
Mov Cap-2 Maneuver	-	-	-	-	226 -
Stage 1	-	-	-	-	349 -
Stage 2	-	-	-	-	462 -

Approach	EB	WB	SB
HCM Control Delay, s	2.2	0	14.7
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	822	-	-	-	226	614
HCM Lane V/C Ratio	0.219	-	-	-	0.146	0.216
HCM Control Delay (s)	10.6	-	-	-	23.6	12.5
HCM Lane LOS	B	-	-	-	C	B
HCM 95th %tile Q(veh)	0.8	-	-	-	0.5	0.8

HCM 6th Signalized Intersection Summary
 2: N Kramer Pkwy & Country Vista Dr

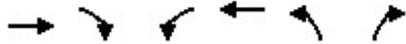
09/16/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	64	339	23	56	559	75	101	77	152	79	29	133
Future Volume (veh/h)	64	339	23	56	559	75	101	77	152	79	29	133
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	1796	1900	1870	1841	1900	1900	1856	1885	1856	1856	1870
Adj Flow Rate, veh/h	83	440	30	73	726	97	131	100	197	103	38	173
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	3	7	0	2	4	0	0	3	1	3	3	2
Cap, veh/h	300	1088	74	424	1030	138	398	133	261	318	65	294
Arrive On Green	0.05	0.34	0.34	0.05	0.33	0.33	0.08	0.24	0.24	0.07	0.22	0.22
Sat Flow, veh/h	1767	3243	220	1781	3101	414	1810	558	1100	1767	291	1326
Grp Volume(v), veh/h	83	231	239	73	409	414	131	0	297	103	0	211
Grp Sat Flow(s),veh/h/ln	1767	1706	1757	1781	1749	1766	1810	0	1658	1767	0	1617
Q Serve(g_s), s	1.7	6.0	6.0	1.5	11.7	11.7	3.1	0.0	9.6	2.5	0.0	6.7
Cycle Q Clear(g_c), s	1.7	6.0	6.0	1.5	11.7	11.7	3.1	0.0	9.6	2.5	0.0	6.7
Prop In Lane	1.00		0.13	1.00		0.23	1.00		0.66	1.00		0.82
Lane Grp Cap(c), veh/h	300	572	589	424	581	587	398	0	394	318	0	359
V/C Ratio(X)	0.28	0.40	0.41	0.17	0.70	0.71	0.33	0.00	0.75	0.32	0.00	0.59
Avail Cap(c_a), veh/h	533	757	779	664	776	784	581	0	735	525	0	717
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	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	12.8	14.7	14.7	11.8	16.7	16.7	15.5	0.0	20.4	16.2	0.0	20.0
Incr Delay (d2), s/veh	0.7	0.7	0.6	0.3	2.5	2.5	0.7	0.0	4.2	0.8	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.2	3.9	4.0	1.0	8.1	8.1	2.2	0.0	6.9	1.8	0.0	4.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.5	15.3	15.3	12.1	19.2	19.2	16.2	0.0	24.5	17.0	0.0	22.2
LnGrp LOS	B	B	B	B	B	B	B	A	C	B	A	C
Approach Vol, veh/h		553			896			428				314
Approach Delay, s/veh		15.1			18.7			22.0				20.5
Approach LOS		B			B			C				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.3	23.8	9.2	17.3	7.4	23.6	8.3	18.2				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	25.5	10.5	25.5	10.5	25.5	10.5	25.5				
Max Q Clear Time (g_c+I1), s	3.5	8.0	5.1	8.7	3.7	13.7	4.5	11.6				
Green Ext Time (p_c), s	0.1	3.6	0.2	1.5	0.1	5.4	0.2	2.1				
Intersection Summary												
HCM 6th Ctrl Delay				18.7								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary
 3: Legacy Ridge Dr. & Country Vista Dr

09/16/2025



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (veh/h)	546	38	35	592	89	47
Future Volume (veh/h)	546	38	35	592	89	47
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	1841	1781	1856	1841	1885	1900
Adj Flow Rate, veh/h	620	43	40	673	101	53
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	4	8	3	4	1	0
Cap, veh/h	1320	91	512	2062	185	166
Arrive On Green	0.40	0.40	0.04	0.59	0.10	0.10
Sat Flow, veh/h	3410	230	1767	3589	1795	1610
Grp Volume(v), veh/h	326	337	40	673	101	53
Grp Sat Flow(s),veh/h/ln	1749	1799	1767	1749	1795	1610
Q Serve(g_s), s	4.0	4.1	0.3	2.9	1.6	0.9
Cycle Q Clear(g_c), s	4.0	4.1	0.3	2.9	1.6	0.9
Prop In Lane		0.13	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	696	716	512	2062	185	166
V/C Ratio(X)	0.47	0.47	0.08	0.33	0.55	0.32
Avail Cap(c_a), veh/h	1524	1568	1079	4840	1564	1403
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.5	6.5	4.3	3.1	12.5	12.2
Incr Delay (d2), s/veh	0.7	0.7	0.1	0.1	3.6	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.7	1.7	0.1	0.4	1.2	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.2	7.2	4.4	3.2	16.0	13.7
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	663			713	154	
Approach Delay, s/veh	7.2			3.3	15.2	
Approach LOS	A			A	B	
Timer - Assigned Phs	1	2			6	8
Phs Duration (G+Y+Rc), s	5.6	16.1			21.8	7.5
Change Period (Y+Rc), s	4.5	4.5			4.5	4.5
Max Green Setting (Gmax), s	10.5	25.5			40.5	25.5
Max Q Clear Time (g_c+1/3), s	12.3	6.1			4.9	3.6
Green Ext Time (p_c), s	0.0	5.6			7.6	0.7
Intersection Summary						
HCM 6th Ctrl Delay			6.2			
HCM 6th LOS			A			

MOVEMENT SUMMARY

Site: 101 [Mission_Harvard AM (Site Folder: General)]

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
South: Harvard Rd														
3	L2	196	5.0	196	5.0	0.354	10.2	LOS B	2.4	62.8	0.29	0.53	0.29	35.8
8	T1	228	3.0	228	3.0	0.354	4.2	LOS A	2.4	62.8	0.29	0.53	0.29	35.8
Approach		424	3.9	424	3.9	0.354	7.0	LOS A	2.4	62.8	0.29	0.53	0.29	35.8
East: I-90 Off-ramp														
1	L2	128	2.0	128	2.0	0.289	12.6	LOS B	1.6	41.1	0.61	0.75	0.61	34.7
6	T1	77	4.0	77	4.0	0.289	6.8	LOS A	1.6	41.1	0.61	0.75	0.61	34.6
16	R2	50	4.0	50	4.0	0.289	6.8	LOS A	1.6	41.1	0.61	0.75	0.61	33.6
Approach		255	3.0	255	3.0	0.289	9.7	LOS A	1.6	41.1	0.61	0.75	0.61	34.5
North: Harvard Rd														
4	T1	514	3.0	514	3.0	0.626	8.5	LOS A	5.7	145.4	0.75	0.82	0.88	35.4
14	R2	71	5.0	71	5.0	0.626	8.7	LOS A	5.7	145.4	0.75	0.82	0.88	34.3
Approach		585	3.2	585	3.2	0.626	8.5	LOS A	5.7	145.4	0.75	0.82	0.88	35.3
West: Mission Ave														
5	L2	66	4.0	66	4.0	0.436	14.7	LOS B	3.1	79.4	0.80	0.89	0.85	34.6
12	R2	247	4.0	247	4.0	0.436	8.8	LOS A	3.1	79.4	0.80	0.89	0.85	33.5
Approach		313	4.0	313	4.0	0.436	10.1	LOS B	3.1	79.4	0.80	0.89	0.85	33.7
All Vehicles		1577	3.5	1577	3.5	0.626	8.6	LOS A	5.7	145.4	0.61	0.74	0.67	35.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

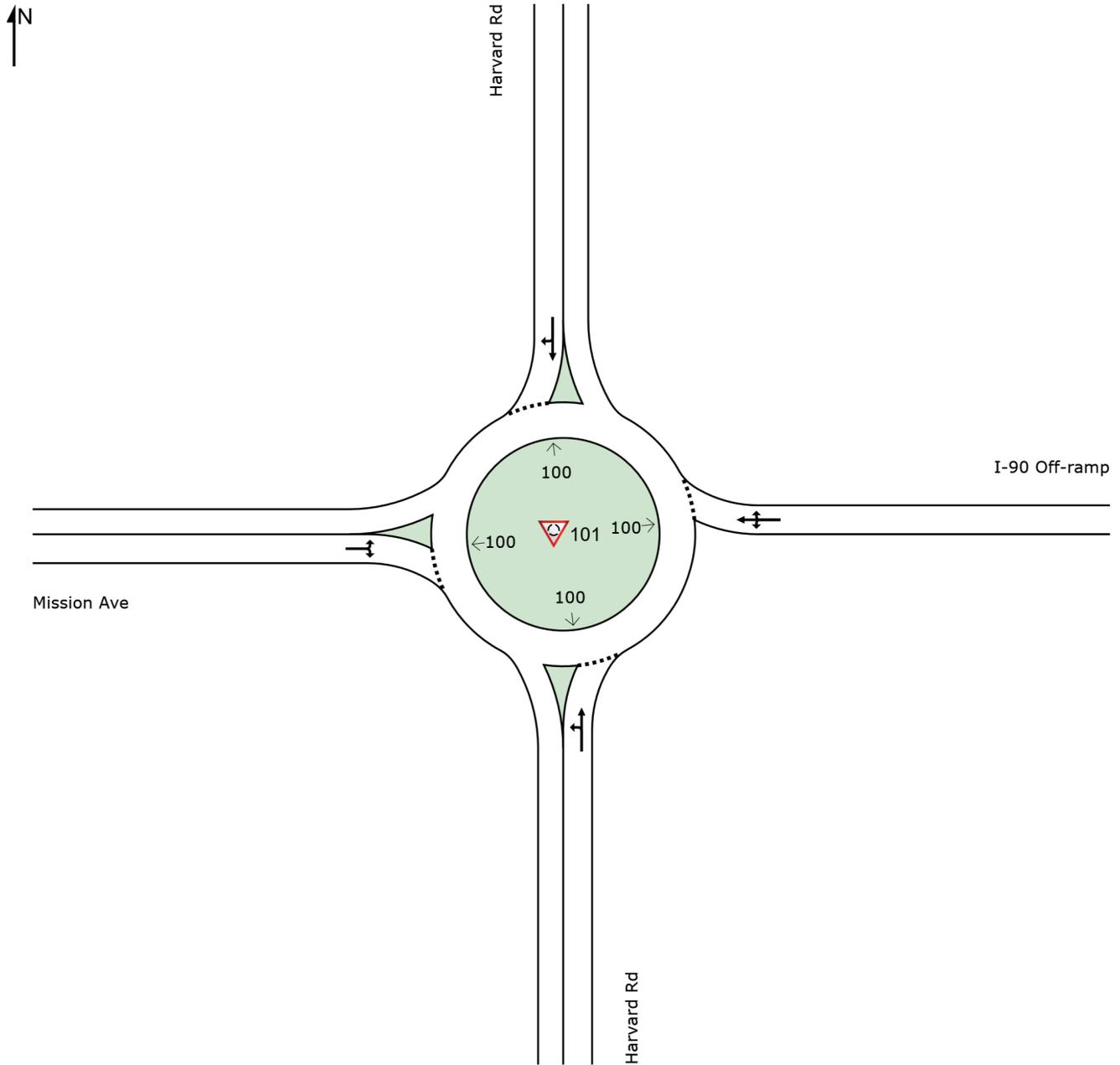
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 101 [Mission_Harvard AM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



HCM 6th Signalized Intersection Summary

6: Appleway Ave & Liberty Lake Rd

09/16/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	141	606	240	63	17	494	85	416	66	226	255	80
Future Volume (veh/h)	141	606	240	63	17	494	85	416	66	226	255	80
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										
Adj Sat Flow, veh/h/ln	1841	1826	1826	1707	1470	1811	1811	1856	1811	1856	1870	1781
Adj Flow Rate, veh/h	157	673	267	70	19	549	94	462	73	251	283	0
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, %	4	5	5	13	29	6	6	3	6	3	2	8
Cap, veh/h	200	1081	482	88	370	680	125	737	321	308	1054	
Arrive On Green	0.11	0.31	0.31	0.05	0.25	0.25	0.07	0.21	0.21	0.17	0.30	0.00
Sat Flow, veh/h	1753	3469	1547	1626	1470	2701	1725	3526	1535	1767	3554	1510
Grp Volume(v), veh/h	157	673	267	70	19	549	94	462	73	251	283	0
Grp Sat Flow(s),veh/h/ln	1753	1735	1547	1626	1470	1351	1725	1763	1535	1767	1777	1510
Q Serve(g_s), s	6.2	11.9	10.3	3.1	0.7	13.7	3.8	8.6	2.8	9.8	4.4	0.0
Cycle Q Clear(g_c), s	6.2	11.9	10.3	3.1	0.7	13.7	3.8	8.6	2.8	9.8	4.4	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	200	1081	482	88	370	680	125	737	321	308	1054	
V/C Ratio(X)	0.78	0.62	0.55	0.79	0.05	0.81	0.75	0.63	0.23	0.82	0.27	
Avail Cap(c_a), veh/h	513	1694	755	476	718	1319	601	1475	642	518	1239	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	30.9	21.1	20.5	33.5	20.3	25.2	32.6	25.8	23.6	28.5	19.3	0.0
Incr Delay (d2), s/veh	6.6	0.8	1.4	14.7	0.1	2.3	12.0	1.3	0.5	7.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	5.2	8.2	6.6	2.7	0.4	7.8	3.5	6.4	1.9	8.1	3.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.5	21.9	22.0	48.2	20.4	27.5	44.6	27.1	24.1	35.8	19.4	0.0
LnGrp LOS	D	C	C	D	C	C	D	C	C	D	B	
Approach Vol, veh/h		1097			638			629			534	
Approach Delay, s/veh		24.2			29.6			29.3			27.1	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.5	20.0	7.9	27.3	10.2	26.3	12.2	23.0				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0				
Max Green Setting (Gmax), s	21.0	30.0	21.0	35.0	25.0	25.0	21.0	35.0				
Max Q Clear Time (g_c+ll), s	11.8	10.6	5.1	13.9	5.8	6.4	8.2	15.7				
Green Ext Time (p_c), s	0.8	4.4	0.1	8.0	0.3	1.7	0.3	2.3				

Intersection Summary

HCM 6th Ctrl Delay	27.0
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary

7: Liberty Lake Rd & Country Vista Dr.

09/16/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	196	382	59	16	375	126	123	179	18	117	93	256
Future Volume (veh/h)	196	382	59	16	375	126	123	179	18	117	93	256
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										
Adj Sat Flow, veh/h/ln	1826	1856	1796	1811	1856	1841	1841	1870	1900	1856	1826	1826
Adj Flow Rate, veh/h	218	424	66	18	417	140	137	199	20	130	103	284
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, %	5	3	7	6	3	4	4	2	0	3	5	5
Cap, veh/h	418	1022	158	366	589	196	354	799	80	504	417	372
Arrive On Green	0.13	0.33	0.33	0.02	0.23	0.23	0.08	0.24	0.24	0.08	0.24	0.24
Sat Flow, veh/h	1739	3060	473	1725	2599	864	1753	3264	325	1767	1735	1547
Grp Volume(v), veh/h	218	243	247	18	281	276	137	107	112	130	103	284
Grp Sat Flow(s),veh/h/ln	1739	1763	1770	1725	1763	1700	1753	1777	1812	1767	1735	1547
Q Serve(g_s), s	4.6	5.6	5.7	0.4	7.7	7.9	3.0	2.6	2.6	2.8	2.5	9.0
Cycle Q Clear(g_c), s	4.6	5.6	5.7	0.4	7.7	7.9	3.0	2.6	2.6	2.8	2.5	9.0
Prop In Lane	1.00		0.27	1.00		0.51	1.00		0.18	1.00		1.00
Lane Grp Cap(c), veh/h	418	589	592	366	400	385	354	435	444	504	417	372
V/C Ratio(X)	0.52	0.41	0.42	0.05	0.70	0.72	0.39	0.25	0.25	0.26	0.25	0.76
Avail Cap(c_a), veh/h	895	854	858	1023	854	824	905	1198	1222	1067	1170	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	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	12.5	13.5	13.6	15.2	18.7	18.8	13.9	16.0	16.0	13.2	16.1	18.6
Incr Delay (d2), s/veh	0.4	0.2	0.2	0.0	0.9	0.9	0.3	0.1	0.1	0.1	0.1	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(95%),veh/ln	2.8	3.5	3.6	0.3	5.3	5.2	1.9	1.7	1.8	1.8	1.6	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.8	13.7	13.7	15.2	19.6	19.7	14.1	16.1	16.1	13.3	16.3	19.8
LnGrp LOS	B	B	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h		708			575			356			517	
Approach Delay, s/veh		13.4			19.5			15.3			17.5	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	17.4	4.9	22.1	8.5	17.2	10.6	16.4				
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5				
Max Green Setting (Gmax), s	21.0	35.5	21.0	25.5	21.0	35.5	21.0	25.5				
Max Q Clear Time (g_c+14), s	14.8	4.6	2.4	7.7	5.0	11.0	6.6	9.9				
Green Ext Time (p_c), s	0.1	0.8	0.0	1.8	0.2	1.7	0.3	2.1				
Intersection Summary												
HCM 6th Ctrl Delay					16.3							
HCM 6th LOS					B							

Intersection						
Int Delay, s/veh	5.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↖		↖	↖
Traffic Vol, veh/h	311	247	256	8	3	242
Future Vol, veh/h	311	247	256	8	3	242
Conflicting Peds, #/hr	3	0	0	3	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	5	2	2	0	0	4
Mvmt Flow	362	287	298	9	3	281

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	310	0	-	0	1175 157
Stage 1	-	-	-	-	306 -
Stage 2	-	-	-	-	869 -
Critical Hdwy	4.2	-	-	-	6.8 6.98
Critical Hdwy Stg 1	-	-	-	-	5.8 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	2.25	-	-	-	3.5 3.34
Pot Cap-1 Maneuver	1226	-	-	-	188 854
Stage 1	-	-	-	-	726 -
Stage 2	-	-	-	-	376 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1223	-	-	-	132 852
Mov Cap-2 Maneuver	-	-	-	-	132 -
Stage 1	-	-	-	-	510 -
Stage 2	-	-	-	-	375 -

Approach	EB	WB	SB
HCM Control Delay, s	5.1	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1223	-	-	-	132	852
HCM Lane V/C Ratio	0.296	-	-	-	0.026	0.33
HCM Control Delay (s)	9.2	-	-	-	33	11.3
HCM Lane LOS	A	-	-	-	D	B
HCM 95th %tile Q(veh)	1.2	-	-	-	0.1	1.4

HCM 6th Signalized Intersection Summary

9: Signal Dr & Appleway Ave

09/16/2025



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (veh/h)	716	102	15	377	231	21
Future Volume (veh/h)	716	102	15	377	231	21
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	1841	1796	1796	1752	1885	1900
Adj Flow Rate, veh/h	833	119	17	438	269	24
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	4	7	7	10	1	0
Cap, veh/h	1270	181	328	1868	366	329
Arrive On Green	0.41	0.41	0.02	0.56	0.20	0.20
Sat Flow, veh/h	3164	439	1711	3416	1795	1610
Grp Volume(v), veh/h	474	478	17	438	269	24
Grp Sat Flow(s),veh/h/ln	1749	1762	1711	1664	1795	1610
Q Serve(g_s), s	8.4	8.4	0.2	2.5	5.4	0.5
Cycle Q Clear(g_c), s	8.4	8.4	0.2	2.5	5.4	0.5
Prop In Lane		0.25	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	723	728	328	1868	366	329
V/C Ratio(X)	0.66	0.66	0.05	0.23	0.73	0.07
Avail Cap(c_a), veh/h	1140	1149	968	3906	1217	1092
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.0	9.0	6.6	4.3	14.3	12.3
Incr Delay (d2), s/veh	1.0	1.0	0.1	0.1	2.9	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.3	4.3	0.1	0.8	3.7	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.1	10.1	6.7	4.3	17.1	12.4
LnGrp LOS	B	B	A	A	B	B
Approach Vol, veh/h				455	293	
Approach Delay, s/veh				4.4	16.8	
Approach LOS				A	B	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	5.7	20.9		11.8		26.5
Change Period (Y+Rc), s	5.0	5.0		4.0		5.0
Max Green Setting (Gmax), s	15.0	25.0		26.0		45.0
Max Q Clear Time (g_c+I1), s	2.2	10.4		7.4		4.5
Green Ext Time (p_c), s	0.0	5.5		0.8		3.3
Intersection Summary						
HCM 6th Ctrl Delay			9.7			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary

10: Madson St & Appleway Ave

09/16/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	522	46	14	378	10	6	6	9	12	1	21
Future Volume (veh/h)	77	522	46	14	378	10	6	6	9	12	1	21
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										
Adj Sat Flow, veh/h/ln	1826	1841	1841	1900	1767	1900	1648	1900	1900	1648	418	1826
Adj Flow Rate, veh/h	92	621	55	17	450	12	7	7	11	14	1	25
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	5	4	4	0	9	0	17	0	0	17	100	5
Cap, veh/h	528	1189	105	435	989	26	171	21	33	423	3	71
Arrive On Green	0.07	0.37	0.37	0.02	0.30	0.30	0.05	0.05	0.05	0.01	0.21	0.21
Sat Flow, veh/h	1739	3250	287	1810	3340	89	452	452	710	1570	14	343
Grp Volume(v), veh/h	92	334	342	17	226	236	25	0	0	14	0	26
Grp Sat Flow(s),veh/h/ln	1739	1749	1789	1810	1678	1751	1614	0	0	1570	0	356
Q Serve(g_s), s	1.1	4.6	4.6	0.2	3.3	3.4	0.5	0.0	0.0	0.2	0.0	1.9
Cycle Q Clear(g_c), s	1.1	4.6	4.6	0.2	3.3	3.4	0.5	0.0	0.0	0.2	0.0	1.9
Prop In Lane	1.00		0.16	1.00		0.05	0.28		0.44	1.00		0.96
Lane Grp Cap(c), veh/h	528	640	654	435	497	518	225	0	0	423	0	74
V/C Ratio(X)	0.17	0.52	0.52	0.04	0.45	0.46	0.11	0.00	0.00	0.03	0.00	0.35
Avail Cap(c_a), veh/h	1570	2030	2077	1645	1948	2032	1523	0	0	1452	0	594
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.7	7.6	7.6	7.4	8.8	8.8	14.1	0.0	0.0	11.8	0.0	10.4
Incr Delay (d2), s/veh	0.2	0.7	0.6	0.0	0.7	0.6	0.2	0.0	0.0	0.0	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.5	2.1	2.1	0.1	1.6	1.7	0.3	0.0	0.0	0.1	0.0	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.8	8.3	8.3	7.4	9.4	9.4	14.4	0.0	0.0	11.8	0.0	13.2
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	B
Approach Vol, veh/h		768			479			25				40
Approach Delay, s/veh		8.1			9.3			14.4				12.7
Approach LOS		A			A			B				B
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.5	15.7		10.4	6.7	13.6	4.9	5.4				
Change Period (Y+Rc), s	4.0	4.5		4.0	4.5	4.5	4.5	4.0				
Max Green Setting (Gmax), s	1.0	35.5		51.0	20.5	35.5	20.5	26.0				
Max Q Clear Time (g_c+1), s	12.2	6.6		3.9	3.1	5.4	2.2	2.5				
Green Ext Time (p_c), s	0.0	4.6		0.1	0.2	3.0	0.0	0.1				

Intersection Summary

HCM 6th Ctrl Delay	8.8
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary

11: Molter Rd & Appleway Ave

09/16/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	241	166	106	303	20	86	18	91	9	3	9
Future Volume (veh/h)	84	241	166	106	303	20	86	18	91	9	3	9
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										
Adj Sat Flow, veh/h/ln	1885	1826	1841	1870	1781	1826	1722	1900	1870	1574	1900	1574
Adj Flow Rate, veh/h	91	262	180	115	329	22	93	20	99	10	3	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	5	4	2	8	5	12	0	2	22	0	22
Cap, veh/h	482	476	316	446	819	54	420	272	227	307	162	113
Arrive On Green	0.06	0.24	0.24	0.07	0.25	0.25	0.07	0.14	0.14	0.01	0.09	0.09
Sat Flow, veh/h	1795	1997	1325	1781	3221	214	1640	1900	1585	1499	1900	1334
Grp Volume(v), veh/h	91	226	216	115	172	179	93	20	99	10	3	10
Grp Sat Flow(s),veh/h/ln	1795	1735	1587	1781	1692	1743	1640	1900	1585	1499	1900	1334
Q Serve(g_s), s	1.3	4.0	4.2	1.7	3.0	3.0	1.8	0.3	2.0	0.2	0.1	0.2
Cycle Q Clear(g_c), s	1.3	4.0	4.2	1.7	3.0	3.0	1.8	0.3	2.0	0.2	0.1	0.2
Prop In Lane	1.00		0.83	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	482	414	379	446	430	443	420	272	227	307	162	113
V/C Ratio(X)	0.19	0.55	0.57	0.26	0.40	0.40	0.22	0.07	0.44	0.03	0.02	0.09
Avail Cap(c_a), veh/h	912	932	853	845	909	936	799	1021	852	740	1021	717
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.3	11.8	11.9	9.2	10.9	11.0	13.5	13.1	13.8	14.6	14.8	14.9
Incr Delay (d2), s/veh	0.2	1.1	1.3	0.3	0.9	0.8	0.3	0.2	1.9	0.0	0.1	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(95%),veh/ln	0.7	2.4	2.3	0.9	1.7	1.8	1.0	0.2	1.3	0.1	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.5	12.9	13.2	9.5	11.8	11.8	13.8	13.3	15.7	14.7	14.9	15.4
LnGrp LOS	A	B	B	A	B	B	B	B	B	B	B	B
Approach Vol, veh/h		533			466			212			23	
Approach Delay, s/veh		12.5			11.2			14.6			15.0	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.8	10.1	6.5	14.0	6.8	8.0	7.1	13.4				
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	4.5	5.0	4.5	5.0				
Max Green Setting (Gmax), s	10.5	19.0	10.5	19.0	10.5	19.0	10.5	19.0				
Max Q Clear Time (g_c+1/2), s	12.2	4.0	3.3	5.0	3.8	2.2	3.7	6.2				
Green Ext Time (p_c), s	0.0	0.5	0.1	2.3	0.1	0.0	0.1	2.2				
Intersection Summary												
HCM 6th Ctrl Delay				12.4								
HCM 6th LOS				B								

MOVEMENT SUMMARY

Site: 101 [Mission_Molter AM (Site Folder: General)]

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Molter Rd														
3	L2	101	2.0	101	2.0	0.224	10.8	LOS B	1.2	29.1	0.39	0.58	0.39	35.8
8	T1	128	1.0	128	1.0	0.224	4.8	LOS A	1.2	29.1	0.39	0.58	0.39	35.7
18	R2	20	1.0	20	1.0	0.224	4.9	LOS A	1.2	29.1	0.39	0.58	0.39	34.7
Approach		249	1.4	249	1.4	0.224	7.3	LOS A	1.2	29.1	0.39	0.58	0.39	35.7
East: Mission Ave														
1	L2	17	2.0	17	2.0	0.253	11.3	LOS B	1.3	34.4	0.47	0.56	0.47	36.4
6	T1	193	2.0	193	2.0	0.253	5.3	LOS A	1.3	34.4	0.47	0.56	0.47	36.4
16	R2	53	4.0	53	4.0	0.253	5.5	LOS A	1.3	34.4	0.47	0.56	0.47	35.2
Approach		263	2.4	263	2.4	0.253	5.7	LOS A	1.3	34.4	0.47	0.56	0.47	36.1
North: Molter Rd														
7	L2	32	4.0	32	4.0	0.171	11.3	LOS B	0.9	22.2	0.46	0.59	0.46	36.1
4	T1	91	4.0	91	4.0	0.171	5.4	LOS A	0.9	22.2	0.46	0.59	0.46	36.0
14	R2	46	8.0	46	8.0	0.171	5.6	LOS A	0.9	22.2	0.46	0.59	0.46	34.8
Approach		169	5.1	169	5.1	0.171	6.6	LOS A	0.9	22.2	0.46	0.59	0.46	35.7
West: Mission Ave														
5	L2	59	4.0	59	4.0	0.236	10.5	LOS B	1.3	32.6	0.34	0.52	0.34	36.4
2	T1	115	4.0	115	4.0	0.236	4.6	LOS A	1.3	32.6	0.34	0.52	0.34	36.4
12	R2	94	4.0	94	4.0	0.236	4.7	LOS A	1.3	32.6	0.34	0.52	0.34	35.2
Approach		268	4.0	268	4.0	0.236	5.9	LOS A	1.3	32.6	0.34	0.52	0.34	36.0
All Vehicles		949	3.1	949	3.1	0.253	6.3	LOS A	1.3	34.4	0.41	0.56	0.41	35.9

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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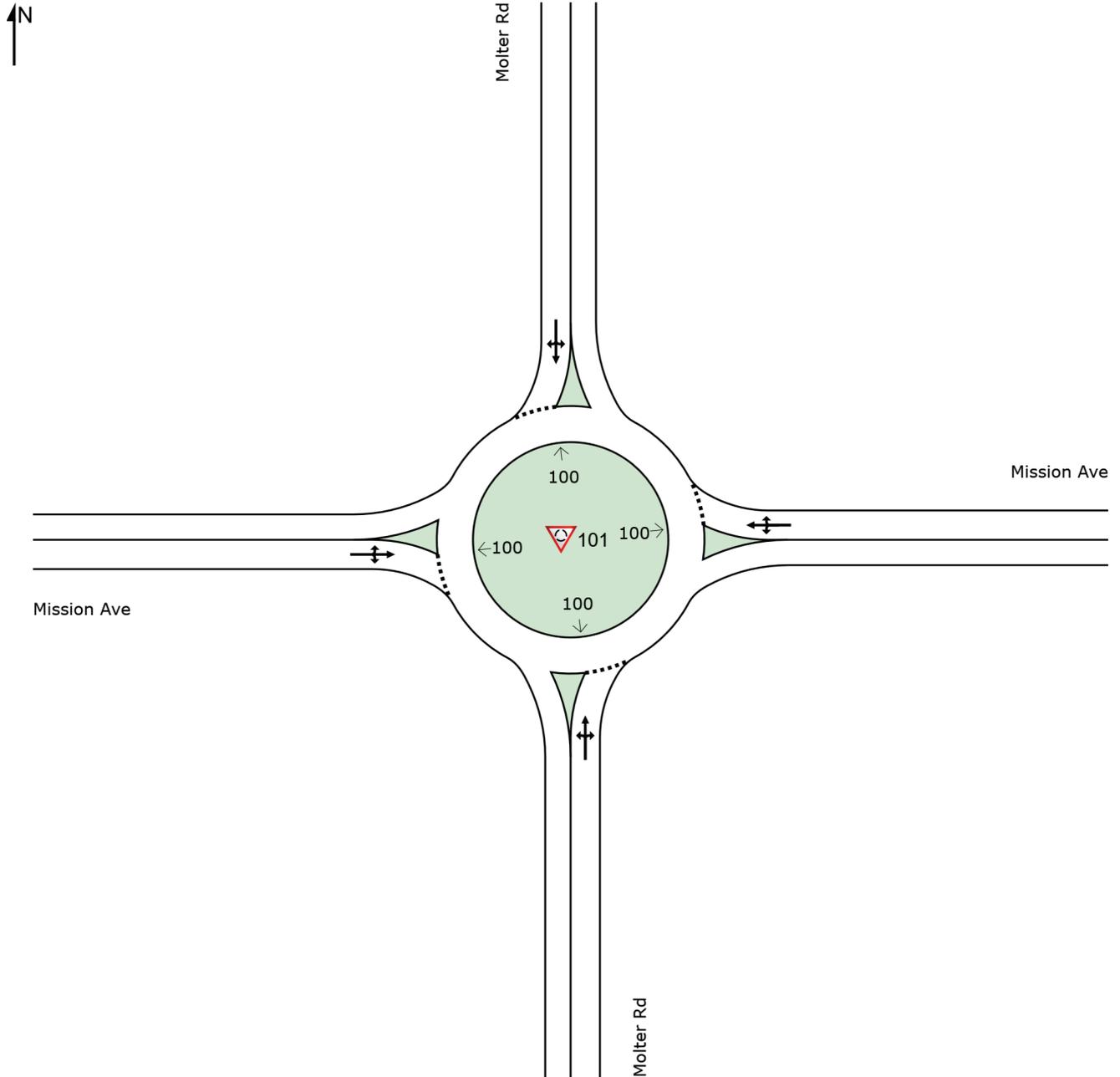
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SITE LAYOUT

Site: 101 [Mission_Molter AM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 Site: 101 [Mission_Harvest AM (Site Folder: General)]

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
South: Harvest Pkwy														
3	L2	112	4.0	112	4.0	0.234	10.9	LOS B	1.2	31.5	0.40	0.60	0.40	35.7
8	T1	32	1.0	32	1.0	0.234	4.8	LOS A	1.2	31.5	0.40	0.60	0.40	35.7
18	R2	110	4.0	110	4.0	0.234	5.0	LOS A	1.2	31.5	0.40	0.60	0.40	34.5
Approach		254	3.6	254	3.6	0.234	7.5	LOS A	1.2	31.5	0.40	0.60	0.40	35.2
East: Mission Ave														
1	L2	156	3.0	156	3.0	0.256	10.6	LOS B	1.4	35.4	0.35	0.59	0.35	35.5
6	T1	110	3.0	110	3.0	0.256	4.6	LOS A	1.4	35.4	0.35	0.59	0.35	35.4
16	R2	25	3.0	25	3.0	0.256	4.7	LOS A	1.4	35.4	0.35	0.59	0.35	34.4
Approach		291	3.0	291	3.0	0.256	7.8	LOS A	1.4	35.4	0.35	0.59	0.35	35.4
North: Harvest Pkwy														
7	L2	35	1.0	35	1.0	0.107	11.5	LOS B	0.5	13.0	0.47	0.62	0.47	35.8
4	T1	35	1.0	35	1.0	0.107	5.5	LOS A	0.5	13.0	0.47	0.62	0.47	35.7
14	R2	36	1.0	36	1.0	0.107	5.6	LOS A	0.5	13.0	0.47	0.62	0.47	34.6
Approach		106	1.0	106	1.0	0.107	7.5	LOS A	0.5	13.0	0.47	0.62	0.47	35.4
West: Mission Ave														
5	L2	7	3.0	7	3.0	0.253	11.0	LOS B	1.3	33.8	0.41	0.53	0.41	36.8
2	T1	160	3.0	160	3.0	0.253	5.0	LOS A	1.3	33.8	0.41	0.53	0.41	36.7
12	R2	107	3.0	107	3.0	0.253	5.1	LOS A	1.3	33.8	0.41	0.53	0.41	35.5
Approach		274	3.0	274	3.0	0.253	5.2	LOS A	1.3	33.8	0.41	0.53	0.41	36.2
All Vehicles		925	2.9	925	2.9	0.256	6.9	LOS A	1.4	35.4	0.40	0.58	0.40	35.6

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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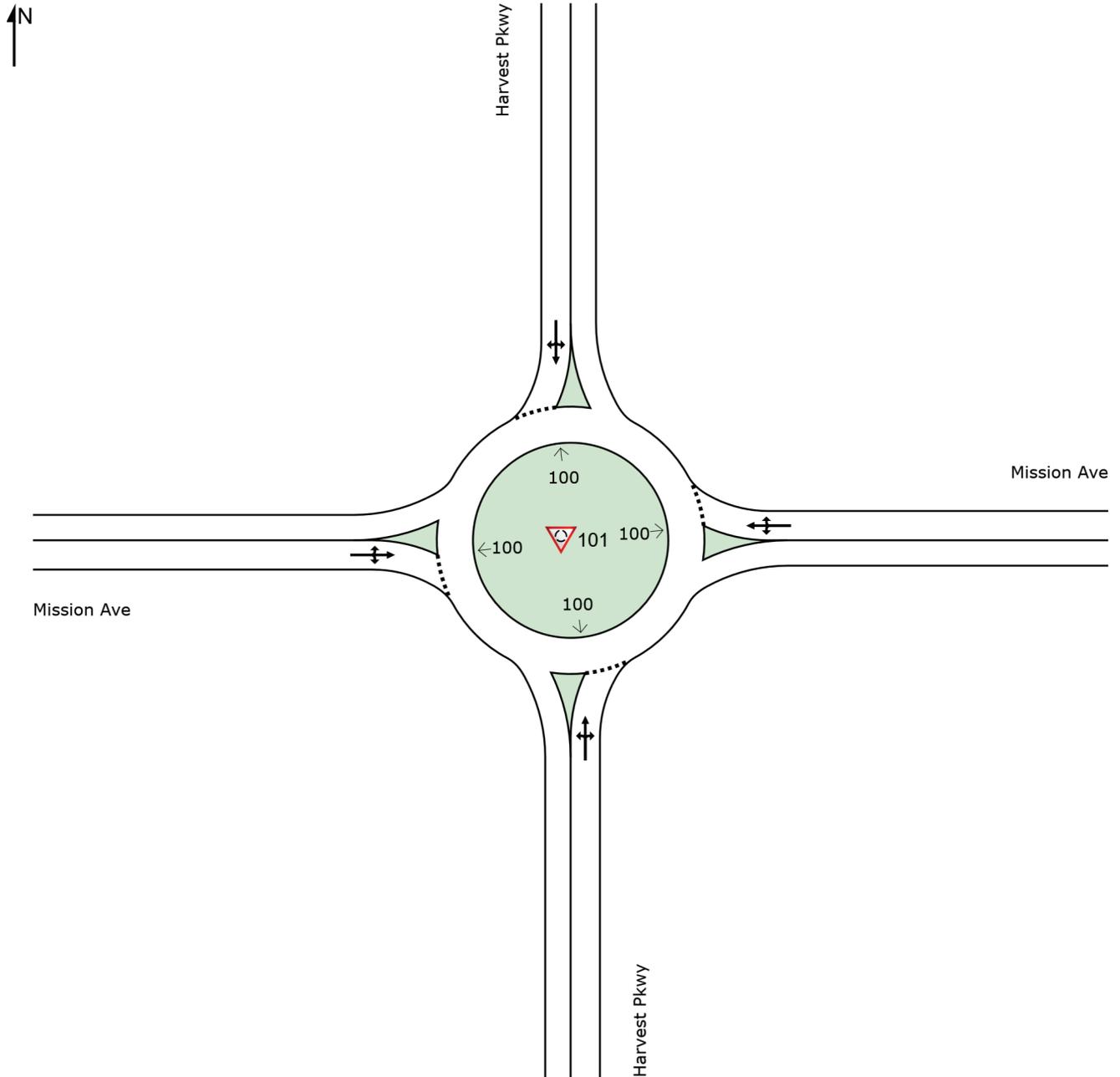
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SITE LAYOUT

Site: 101 [Mission_Harvest AM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



HCM 6th TWSC
 14: N. Country Vista Blvd & Appleway Ave

09/16/2025

Intersection						
Int Delay, s/veh	3.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	173	62	32	309	138	56
Future Vol, veh/h	173	62	32	309	138	56
Conflicting Peds, #/hr	0	1	1	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	6	8	6	8	3	4
Mvmt Flow	186	67	34	332	148	60

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	254	0	621 222
Stage 1	-	-	-	-	221 -
Stage 2	-	-	-	-	400 -
Critical Hdwy	-	-	4.16	-	6.43 6.24
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	-	-	2.254	-	3.527 3.336
Pot Cap-1 Maneuver	-	-	1288	-	449 813
Stage 1	-	-	-	-	813 -
Stage 2	-	-	-	-	675 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1287	-	437 812
Mov Cap-2 Maneuver	-	-	-	-	525 -
Stage 1	-	-	-	-	812 -
Stage 2	-	-	-	-	657 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	13.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	525	812	-	-	1287	-
HCM Lane V/C Ratio	0.283	0.074	-	-	0.027	-
HCM Control Delay (s)	14.5	9.8	-	-	7.9	-
HCM Lane LOS	B	A	-	-	A	-
HCM 95th %tile Q(veh)	1.2	0.2	-	-	0.1	-

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↕			↕	
Traffic Vol, veh/h	40	41	11	8	125	7	15	27	10	6	24	121
Future Vol, veh/h	40	41	11	8	125	7	15	27	10	6	24	121
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	5	0	0	0	0	13	7	10	17	0	3
Mvmt Flow	47	48	13	9	145	8	17	31	12	7	28	141
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	8.7	9.3	8.5	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	29%	100%	0%	100%	0%	4%
Vol Thru, %	52%	0%	79%	0%	95%	16%
Vol Right, %	19%	0%	21%	0%	5%	80%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	52	40	52	8	132	151
LT Vol	15	40	0	8	0	6
Through Vol	27	0	41	0	125	24
RT Vol	10	0	11	0	7	121
Lane Flow Rate	60	47	60	9	153	176
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.083	0.075	0.087	0.015	0.219	0.219
Departure Headway (Hd)	4.966	5.773	5.154	5.67	5.129	4.485
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	720	620	693	630	698	799
Service Time	3.01	3.519	2.9	3.414	2.873	2.518
HCM Lane V/C Ratio	0.083	0.076	0.087	0.014	0.219	0.22
HCM Control Delay	8.5	9	8.4	8.5	9.3	8.8
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.3	0.2	0.3	0	0.8	0.8

Intersection

Intersection Delay, s/veh 11.4
 Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	65	119	46	10	95	23	43	100	24	35	47	57
Future Vol, veh/h	65	119	46	10	95	23	43	100	24	35	47	57
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	3	0	2	0	1	0	0	2	0	3	2	7
Mvmt Flow	88	161	62	14	128	31	58	135	32	47	64	77
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left		NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	13	10.6	10.9	10.3
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	28%	8%	100%	0%
Vol Thru, %	0%	81%	52%	74%	0%	45%
Vol Right, %	0%	19%	20%	18%	0%	55%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	43	124	230	128	35	104
LT Vol	43	0	65	10	35	0
Through Vol	0	100	119	95	0	47
RT Vol	0	24	46	23	0	57
Lane Flow Rate	58	168	311	173	47	141
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.107	0.281	0.463	0.265	0.089	0.229
Departure Headway (Hd)	6.657	6.045	5.362	5.519	6.779	5.862
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	538	593	671	649	528	611
Service Time	4.406	3.793	3.403	3.567	4.53	3.612
HCM Lane V/C Ratio	0.108	0.283	0.463	0.267	0.089	0.231
HCM Control Delay	10.2	11.2	13	10.6	10.2	10.4
HCM Lane LOS	B	B	B	B	B	B
HCM 95th-tile Q	0.4	1.1	2.5	1.1	0.3	0.9

Intersection

Intersection Delay, s/veh 7.7

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	14	37	4	0	52	30	10	45	1	17	22	1
Future Vol, veh/h	14	37	4	0	52	30	10	45	1	17	22	1
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	0	5	0	0	4	3	0	0	100	6	0	0
Mvmt Flow	17	46	5	0	64	37	12	56	1	21	27	1
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	7.7	7.6	7.7	7.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	18%	25%	0%	42%
Vol Thru, %	80%	67%	63%	55%
Vol Right, %	2%	7%	37%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	56	55	82	40
LT Vol	10	14	0	17
Through Vol	45	37	52	22
RT Vol	1	4	30	1
Lane Flow Rate	69	68	101	49
Geometry Grp	1	1	1	1
Degree of Util (X)	0.082	0.079	0.113	0.062
Departure Headway (Hd)	4.255	4.191	4.005	4.519
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	828	841	880	798
Service Time	2.353	2.288	2.098	2.519
HCM Lane V/C Ratio	0.083	0.081	0.115	0.061
HCM Control Delay	7.7	7.7	7.6	7.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.3	0.4	0.2

MOVEMENT SUMMARY

 Site: 101 [Mission_Kramer AM (Site Folder: General)]

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
South: Kramer Pkwy														
3	L2	140	2.0	140	2.0	0.185	10.5	LOS B	0.9	22.8	0.31	0.60	0.31	35.3
18	R2	76	2.0	76	2.0	0.185	4.6	LOS A	0.9	22.8	0.31	0.60	0.31	34.2
Approach		216	2.0	216	2.0	0.185	8.4	LOS A	0.9	22.8	0.31	0.60	0.31	34.9
East: Mission Ave														
1	L2	57	6.0	57	6.0	0.203	10.5	LOS B	1.0	26.7	0.32	0.51	0.32	36.2
6	T1	170	6.0	170	6.0	0.203	4.6	LOS A	1.0	26.7	0.32	0.51	0.32	36.2
Approach		227	6.0	227	6.0	0.203	6.1	LOS A	1.0	26.7	0.32	0.51	0.32	36.2
West: Mission Ave														
2	T1	141	6.0	141	6.0	0.267	4.2	LOS A	1.5	37.6	0.22	0.43	0.22	37.4
12	R2	184	3.0	184	3.0	0.267	4.2	LOS A	1.5	37.6	0.22	0.43	0.22	36.3
Approach		325	4.3	325	4.3	0.267	4.2	LOS A	1.5	37.6	0.22	0.43	0.22	36.7
All Vehicles		768	4.2	768	4.2	0.267	5.9	LOS A	1.5	37.6	0.27	0.50	0.27	36.1

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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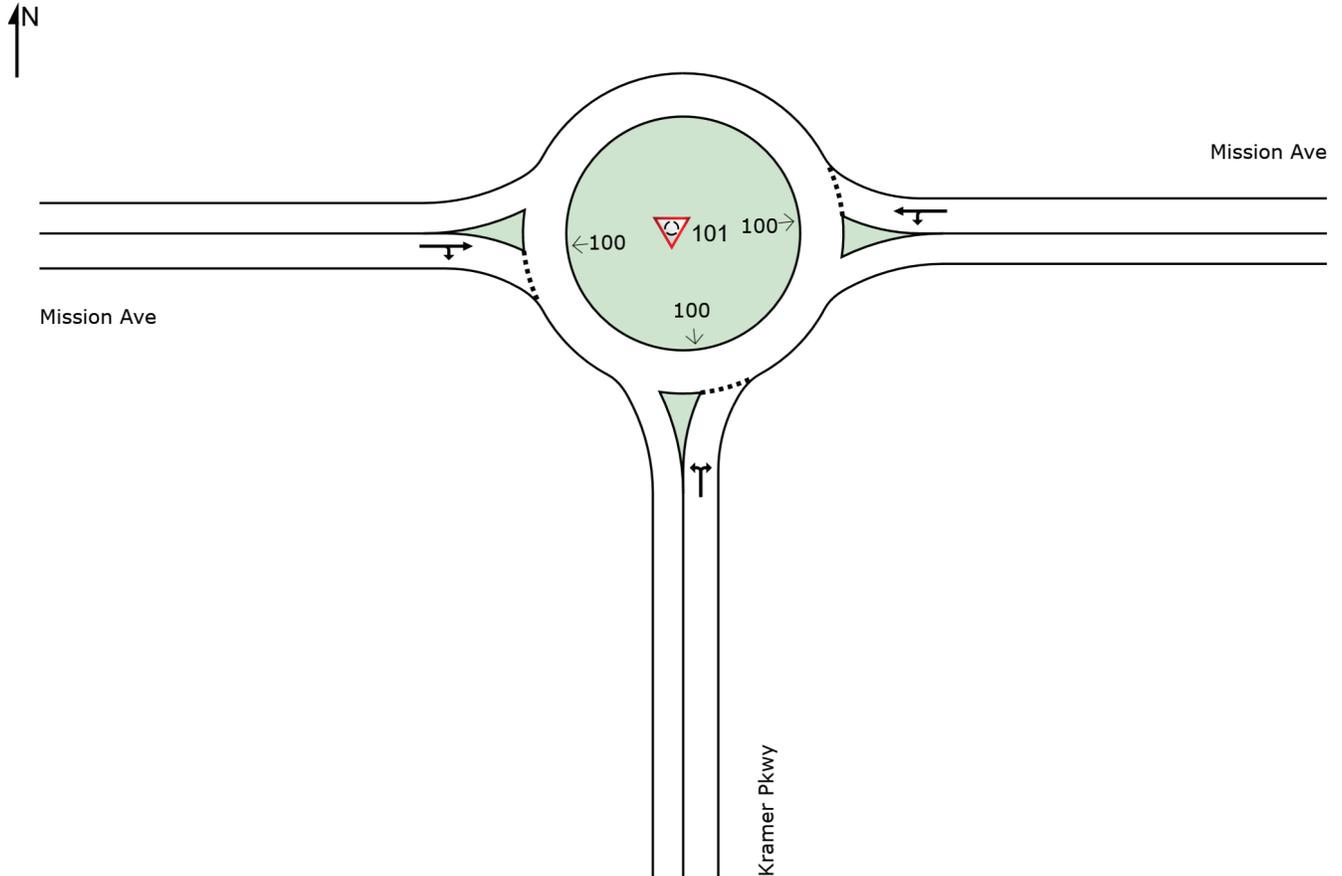
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SITE LAYOUT

Site: 101 [Mission_Kramer AM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



HCM 6th Signalized Intersection Summary

19: Harvard Rd & N Indiana Avenue

09/16/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	16	3	25	25	3	5	15	309	20	3	535	11
Future Volume (veh/h)	16	3	25	25	3	5	15	309	20	3	535	11
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	1781	1411	1900	1900	1856	1826	1900	1841	1767
Adj Flow Rate, veh/h	19	3	29	29	3	6	17	359	23	3	622	13
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	0	0	8	33	0	0	3	5	0	4	9
Cap, veh/h	35	7	72	48	24	48	454	1336	85	558	1341	28
Arrive On Green	0.02	0.05	0.05	0.03	0.06	0.06	0.02	0.40	0.40	0.00	0.38	0.38
Sat Flow, veh/h	1810	153	1480	1697	420	840	1810	3365	215	1810	3503	73
Grp Volume(v), veh/h	19	0	32	29	0	9	17	187	195	3	310	325
Grp Sat Flow(s),veh/h/ln	1810	0	1634	1697	0	1260	1810	1763	1817	1810	1749	1828
Q Serve(g_s), s	0.3	0.0	0.6	0.5	0.0	0.2	0.2	2.3	2.4	0.0	4.3	4.3
Cycle Q Clear(g_c), s	0.3	0.0	0.6	0.5	0.0	0.2	0.2	2.3	2.4	0.0	4.3	4.3
Prop In Lane	1.00		0.91	1.00		0.67	1.00		0.12	1.00		0.04
Lane Grp Cap(c), veh/h	35	0	80	48	0	73	454	700	721	558	669	700
V/C Ratio(X)	0.54	0.00	0.40	0.60	0.00	0.12	0.04	0.27	0.27	0.01	0.46	0.46
Avail Cap(c_a), veh/h	334	0	879	417	0	755	1257	2412	2486	885	1908	1995
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.8	0.0	15.0	15.6	0.0	14.5	6.2	6.6	6.6	6.2	7.5	7.5
Incr Delay (d2), s/veh	12.3	0.0	4.6	11.5	0.0	1.1	0.0	0.3	0.3	0.0	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(95%),veh/ln	0.4	0.0	0.5	0.6	0.0	0.1	0.1	1.1	1.1	0.0	2.1	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.1	0.0	19.6	27.2	0.0	15.6	6.2	6.9	6.9	6.2	8.2	8.2
LnGrp LOS	C	A	B	C	A	B	A	A	A	A	A	A
Approach Vol, veh/h	51			38			399			638		
Approach Delay, s/veh	22.8			24.4			6.9			8.2		
Approach LOS	C			C			A			A		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	17.0	4.6	6.4	4.1	17.4	4.9	6.1				
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5				
Max Green Setting (Gmax), s	15.0	35.5	6.0	19.5	6.0	44.5	8.0	17.5				
Max Q Clear Time (g_c+I), s	12.2	6.3	2.3	2.2	2.0	4.4	2.5	2.6				
Green Ext Time (p_c), s	0.0	6.1	0.0	0.0	0.0	3.6	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay			9.0									
HCM 6th LOS			A									

HCM 6th TWSC
20: Harvard Rd & E Wellington Parkway

09/16/2025

Intersection												
Int Delay, s/veh	0.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗	↖	↗		↖	↗	
Traffic Vol, veh/h	1	1	5	20	1	3	10	305	15	1	524	4
Future Vol, veh/h	1	1	5	20	1	3	10	305	15	1	524	4
Conflicting Peds, #/hr	2	0	0	0	0	2	2	0	0	0	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	50	-	-	55	150	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	0	4	0
Mvmt Flow	1	1	5	22	1	3	11	335	16	1	576	4

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	774	955	292	656	949	178	582	0	0	351	0	0
Stage 1	582	582	-	365	365	-	-	-	-	-	-	-
Stage 2	192	373	-	291	584	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	292	260	710	355	262	841	1002	-	-	1219	-	-
Stage 1	471	502	-	632	627	-	-	-	-	-	-	-
Stage 2	797	622	-	698	501	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	286	256	709	348	258	840	1000	-	-	1219	-	-
Mov Cap-2 Maneuver	286	256	-	348	258	-	-	-	-	-	-	-
Stage 1	465	500	-	625	620	-	-	-	-	-	-	-
Stage 2	782	615	-	691	499	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	12.5		15.4			0.3			0		
HCM LOS	B		C								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1000	-	-	270	709	342	840	1219	-	-
HCM Lane V/C Ratio	0.011	-	-	0.008	0.008	0.067	0.004	0.001	-	-
HCM Control Delay (s)	8.6	-	-	18.4	10.1	16.3	9.3	8	-	-
HCM Lane LOS	A	-	-	C	B	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0	0	0.2	0	0	-	-

HCM 6th TWSC
21: Signal Dr & Mission Ave

09/16/2025

Intersection												
Int Delay, s/veh	5.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↕	↕		↕	↕	
Traffic Vol, veh/h	25	255	6	2	266	180	16	50	6	103	6	9
Future Vol, veh/h	25	255	6	2	266	180	16	50	6	103	6	9
Conflicting Peds, #/hr	0	0	7	7	0	0	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	8	2	0	0	3	1	0	0	0	7	0	11
Mvmt Flow	27	277	7	2	289	196	17	54	7	112	7	10

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	485	0	0	291	0	0	744	831	288	756	736	389
Stage 1	-	-	-	-	-	-	342	342	-	391	391	-
Stage 2	-	-	-	-	-	-	402	489	-	365	345	-
Critical Hdwy	4.18	-	-	4.1	-	-	7.1	6.5	6.2	7.17	6.5	6.31
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.17	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.17	5.5	-
Follow-up Hdwy	2.272	-	-	2.2	-	-	3.5	4	3.3	3.563	4	3.399
Pot Cap-1 Maneuver	1047	-	-	1282	-	-	333	307	756	318	349	640
Stage 1	-	-	-	-	-	-	677	642	-	623	611	-
Stage 2	-	-	-	-	-	-	629	553	-	644	640	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1047	-	-	1275	-	-	314	297	752	266	337	639
Mov Cap-2 Maneuver	-	-	-	-	-	-	314	297	-	266	337	-
Stage 1	-	-	-	-	-	-	656	621	-	607	610	-
Stage 2	-	-	-	-	-	-	611	552	-	568	620	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.7			0			20			28		
HCM LOS							C			D		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	317	1047	-	-	1275	-	-	282
HCM Lane V/C Ratio	0.247	0.026	-	-	0.002	-	-	0.455
HCM Control Delay (s)	20	8.5	-	-	7.8	-	-	28
HCM Lane LOS	C	A	-	-	A	-	-	D
HCM 95th %tile Q(veh)	1	0.1	-	-	0	-	-	2.2

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↖		↖	
Traffic Vol, veh/h	34	306	383	3	6	7
Future Vol, veh/h	34	306	383	3	6	7
Conflicting Peds, #/hr	3	0	0	3	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	4	2	0	17	0
Mvmt Flow	39	348	435	3	7	8

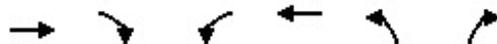
Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	441	0	-	0	867 440
Stage 1	-	-	-	-	440 -
Stage 2	-	-	-	-	427 -
Critical Hdwy	4.1	-	-	-	6.57 6.2
Critical Hdwy Stg 1	-	-	-	-	5.57 -
Critical Hdwy Stg 2	-	-	-	-	5.57 -
Follow-up Hdwy	2.2	-	-	-	3.653 3.3
Pot Cap-1 Maneuver	1130	-	-	-	305 621
Stage 1	-	-	-	-	619 -
Stage 2	-	-	-	-	627 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1127	-	-	-	293 619
Mov Cap-2 Maneuver	-	-	-	-	412 -
Stage 1	-	-	-	-	596 -
Stage 2	-	-	-	-	626 -

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1127	-	-	-	502
HCM Lane V/C Ratio	0.034	-	-	-	0.029
HCM Control Delay (s)	8.3	-	-	-	12.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.1

Lanes, Volumes, Timings
23: Ridgeline HS & Country Vista Dr

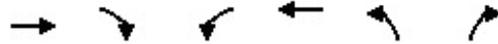
09/17/2025



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø14
Lane Configurations	↑↑		↵	↑↑	↵	↵	
Traffic Volume (vph)	310	244	89	425	173	95	
Future Volume (vph)	310	244	89	425	173	95	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)		75	100		100	0	
Storage Lanes		0	1		1	1	
Taper Length (ft)			25		25		
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00	
Frt	0.934					0.850	
Flt Protected			0.950		0.950		
Satd. Flow (prot)	3227	0	1805	3343	1787	1615	
Flt Permitted			0.950		0.950		
Satd. Flow (perm)	3227	0	1805	3343	1787	1615	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)	158					128	
Link Speed (mph)	30			30	30		
Link Distance (ft)	425			3165	712		
Travel Time (s)	9.7			71.9	16.2		
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	
Heavy Vehicles (%)	8%	0%	0%	8%	1%	0%	
Adj. Flow (vph)	419	330	120	574	234	128	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	749	0	120	574	234	128	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			12	12		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane	Yes			Yes	Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)		9	15		15	9	
Number of Detectors	2		1	2	1	1	
Detector Template	Thru		Left	Thru	Left	Right	
Leading Detector (ft)	100		20	100	20	20	
Trailing Detector (ft)	0		0	0	0	0	
Detector 1 Position(ft)	0		0	0	0	0	
Detector 1 Size(ft)	6		20	6	20	20	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	
Detector 2 Position(ft)	94			94			
Detector 2 Size(ft)	6			6			
Detector 2 Type	Cl+Ex			Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)	0.0			0.0			
Turn Type	NA		Prot	NA	Prot	Perm	
Protected Phases	2		1	6	8		14

Lanes, Volumes, Timings
23: Ridgeline HS & Country Vista Dr

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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø14
Permitted Phases							8
Detector Phase	2		1	6	8	8	
Switch Phase							
Minimum Initial (s)	7.0		4.0	4.0	7.0	7.0	4.0
Minimum Split (s)	26.5		9.5	36.5	21.5	21.5	25.0
Total Split (s)	40.0		30.0	70.0	30.0	30.0	25.0
Total Split (%)	32.0%		24.0%	56.0%	24.0%	24.0%	20%
Maximum Green (s)	34.5		24.5	64.5	26.0	26.0	21.0
Yellow Time (s)	4.5		4.5	4.5	3.0	3.0	3.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5		5.5	5.5	4.0	4.0	
Lead/Lag	Lag		Lead				
Lead-Lag Optimize?	Yes		Yes				
Vehicle Extension (s)	2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode	Min		None	Min	None	None	Ped
Walk Time (s)							6.0
Flash Dont Walk (s)							15.0
Pedestrian Calls (#/hr)							2
Act Effct Green (s)	23.3		10.9	40.0	16.9	16.9	
Actuated g/C Ratio	0.25		0.12	0.43	0.18	0.18	
v/c Ratio	0.80		0.56	0.40	0.72	0.32	
Control Delay	33.2		52.2	18.8	50.2	8.9	
Queue Delay	0.0		0.0	0.0	0.0	0.0	
Total Delay	33.2		52.2	18.8	50.2	8.9	
LOS	C		D	B	D	A	
Approach Delay	33.2			24.6	35.6		
Approach LOS	C			C	D		
Queue Length 50th (ft)	168		66	114	127	0	
Queue Length 95th (ft)	207		118	141	194	26	
Internal Link Dist (ft)	345			3085	632		
Turn Bay Length (ft)			100		100		
Base Capacity (vph)	1340		493	2408	518	559	
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	0.56		0.24	0.24	0.45	0.23	

Intersection Summary	
Area Type:	Other
Cycle Length:	125
Actuated Cycle Length:	92.5
Natural Cycle:	85
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.80
Intersection Signal Delay:	30.4
Intersection Capacity Utilization	43.4%
Analysis Period (min)	15
Intersection LOS:	C
ICU Level of Service	A

Lanes, Volumes, Timings
23: Ridgeline HS & Country Vista Dr

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Splits and Phases: 23: Ridgeline HS & Country Vista Dr



PM Peak Hour

HCM 6th TWSC
1: Country Vista Dr & I-90 Ramps

09/16/2025

Intersection						
Int Delay, s/veh	2.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑		↘	↘
Traffic Vol, veh/h	136	775	585	20	15	203
Future Vol, veh/h	136	775	585	20	15	203
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	125	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	3	5	2	0	0	2
Mvmt Flow	139	791	597	20	15	207

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	617	0	-	0	1281 309
Stage 1	-	-	-	-	607 -
Stage 2	-	-	-	-	674 -
Critical Hdwy	4.16	-	-	-	6.8 6.94
Critical Hdwy Stg 1	-	-	-	-	5.8 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	2.23	-	-	-	3.5 3.32
Pot Cap-1 Maneuver	952	-	-	-	160 687
Stage 1	-	-	-	-	512 -
Stage 2	-	-	-	-	473 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	952	-	-	-	137 687
Mov Cap-2 Maneuver	-	-	-	-	270 -
Stage 1	-	-	-	-	437 -
Stage 2	-	-	-	-	473 -

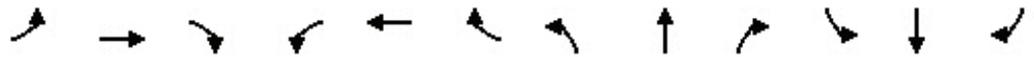
Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	13
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	952	-	-	-	270	687
HCM Lane V/C Ratio	0.146	-	-	-	0.057	0.302
HCM Control Delay (s)	9.4	-	-	-	19.1	12.5
HCM Lane LOS	A	-	-	-	C	B
HCM 95th %tile Q(veh)	0.5	-	-	-	0.2	1.3

HCM 6th Signalized Intersection Summary

2: N Kramer Pkwy & Country Vista Dr

09/16/2025

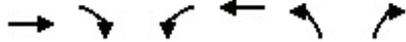


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	92	679	34	240	525	159	33	66	169	117	75	35
Future Volume (veh/h)	92	679	34	240	525	159	33	66	169	117	75	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	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	1885	1900	1885	1870	1885	1900	1856	1870	1870	1900	1900
Adj Flow Rate, veh/h	95	700	35	247	541	164	34	68	174	121	77	36
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, %	0	1	0	1	2	1	0	3	2	2	0	0
Cap, veh/h	377	1026	51	431	979	295	430	92	236	328	304	142
Arrive On Green	0.06	0.30	0.30	0.13	0.36	0.36	0.03	0.20	0.20	0.08	0.25	0.25
Sat Flow, veh/h	1810	3471	173	1795	2689	812	1810	462	1181	1781	1224	572
Grp Volume(v), veh/h	95	361	374	247	357	348	34	0	242	121	0	113
Grp Sat Flow(s),veh/h/ln	1810	1791	1854	1795	1777	1724	1810	0	1643	1781	0	1797
Q Serve(g_s), s	2.1	10.6	10.6	5.3	9.5	9.6	0.9	0.0	8.2	3.1	0.0	3.0
Cycle Q Clear(g_c), s	2.1	10.6	10.6	5.3	9.5	9.6	0.9	0.0	8.2	3.1	0.0	3.0
Prop In Lane	1.00		0.09	1.00		0.47	1.00		0.72	1.00		0.32
Lane Grp Cap(c), veh/h	377	529	548	431	647	627	430	0	329	328	0	446
V/C Ratio(X)	0.25	0.68	0.68	0.57	0.55	0.56	0.08	0.00	0.74	0.37	0.00	0.25
Avail Cap(c_a), veh/h	593	766	793	523	760	738	697	0	703	505	0	769
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	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	13.5	18.5	18.5	12.4	15.1	15.1	18.1	0.0	22.4	17.1	0.0	18.0
Incr Delay (d2), s/veh	0.5	2.2	2.1	1.7	1.0	1.1	0.1	0.0	4.5	1.0	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.5	7.7	7.9	3.6	6.5	6.4	0.6	0.0	6.0	2.2	0.0	2.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.0	20.7	20.7	14.2	16.1	16.2	18.2	0.0	26.9	18.1	0.0	18.4
LnGrp LOS	B	C	C	B	B	B	B	A	C	B	A	B
Approach Vol, veh/h		830			952			276			234	
Approach Delay, s/veh		19.9			15.6			25.8			18.2	
Approach LOS		B			B			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	12.0	22.1	6.2	19.3	7.9	26.2	9.1	16.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	25.5	10.5	25.5	10.5	25.5	10.5	25.5				
Max Q Clear Time (g_c+I1), s	7.3	12.6	2.9	5.0	4.1	11.6	5.1	10.2				
Green Ext Time (p_c), s	0.3	5.0	0.0	0.7	0.2	5.1	0.2	1.7				
Intersection Summary												
HCM 6th Ctrl Delay				18.7								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary

3: Legacy Ridge Dr. & Country Vista Dr

09/16/2025



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (veh/h)	687	64	85	765	61	46
Future Volume (veh/h)	687	64	85	765	61	46
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	1870	1900	1885	1900	1900
Adj Flow Rate, veh/h	731	68	90	814	65	49
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	1	2	0	1	0	0
Cap, veh/h	1431	133	536	2294	144	128
Arrive On Green	0.43	0.43	0.07	0.64	0.08	0.08
Sat Flow, veh/h	3407	308	1810	3676	1810	1610
Grp Volume(v), veh/h	395	404	90	814	65	49
Grp Sat Flow(s),veh/h/ln	1791	1830	1810	1791	1810	1610
Q Serve(g_s), s	5.2	5.2	0.7	3.4	1.1	0.9
Cycle Q Clear(g_c), s	5.2	5.2	0.7	3.4	1.1	0.9
Prop In Lane		0.17	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	773	790	536	2294	144	128
V/C Ratio(X)	0.51	0.51	0.17	0.35	0.45	0.38
Avail Cap(c_a), veh/h	1421	1451	1002	4513	1435	1277
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	6.7	6.7	4.2	2.7	14.1	14.0
Incr Delay (d2), s/veh	0.7	0.7	0.2	0.1	3.1	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.3	2.3	0.2	0.4	0.9	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	7.4	7.4	4.4	2.8	17.3	16.7
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	799			904	114	
Approach Delay, s/veh	7.4			3.0	17.0	
Approach LOS	A			A	B	
Timer - Assigned Phs	1	2		6	8	
Phs Duration (G+Y+Rc), s	6.7	18.4		25.1	7.1	
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	
Max Green Setting (Gmax), s	10.5	25.5		40.5	25.5	
Max Q Clear Time (g_c+1/2), s	12.5	7.2		5.4	3.1	
Green Ext Time (p_c), s	0.2	6.7		9.6	0.5	
Intersection Summary						
HCM 6th Ctrl Delay			5.8			
HCM 6th LOS			A			

MOVEMENT SUMMARY

Site: 101 [Mission_Harvard PM (Site Folder: General)]

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
South: Harvard Rd														
3	L2	228	2.0	228	2.0	0.620	11.0	LOS B	5.9	151.1	0.59	0.56	0.59	35.4
8	T1	477	2.0	477	2.0	0.620	5.1	LOS A	5.9	151.1	0.59	0.56	0.59	35.3
Approach		705	2.0	705	2.0	0.620	7.0	LOS A	5.9	151.1	0.59	0.56	0.59	35.4
East: I-90 Off-ramp														
1	L2	164	1.0	164	1.0	0.576	20.0	LOS B	5.2	131.8	0.93	1.08	1.21	31.5
6	T1	114	1.0	114	1.0	0.576	14.0	LOS B	5.2	131.8	0.93	1.08	1.21	31.5
16	R2	79	1.0	79	1.0	0.576	14.1	LOS B	5.2	131.8	0.93	1.08	1.21	30.6
Approach		357	1.0	357	1.0	0.576	16.8	LOS B	5.2	131.8	0.93	1.08	1.21	31.3
North: Harvard Rd														
4	T1	480	1.0	480	1.0	0.635	9.6	LOS A	6.1	153.6	0.83	0.91	1.02	34.8
14	R2	71	1.0	71	1.0	0.635	9.7	LOS A	6.1	153.6	0.83	0.91	1.02	33.8
Approach		551	1.0	551	1.0	0.635	9.6	LOS A	6.1	153.6	0.83	0.91	1.02	34.7
West: Mission Ave														
5	L2	140	1.0	140	1.0	0.645	17.7	LOS B	6.4	162.4	0.90	1.04	1.18	32.9
12	R2	338	2.0	338	2.0	0.645	11.9	LOS B	6.4	162.4	0.90	1.04	1.18	31.9
Approach		478	1.7	478	1.7	0.645	13.6	LOS B	6.4	162.4	0.90	1.04	1.18	32.1
All Vehicles		2091	1.5	2091	1.5	0.645	10.9	LOS B	6.4	162.4	0.78	0.85	0.94	33.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

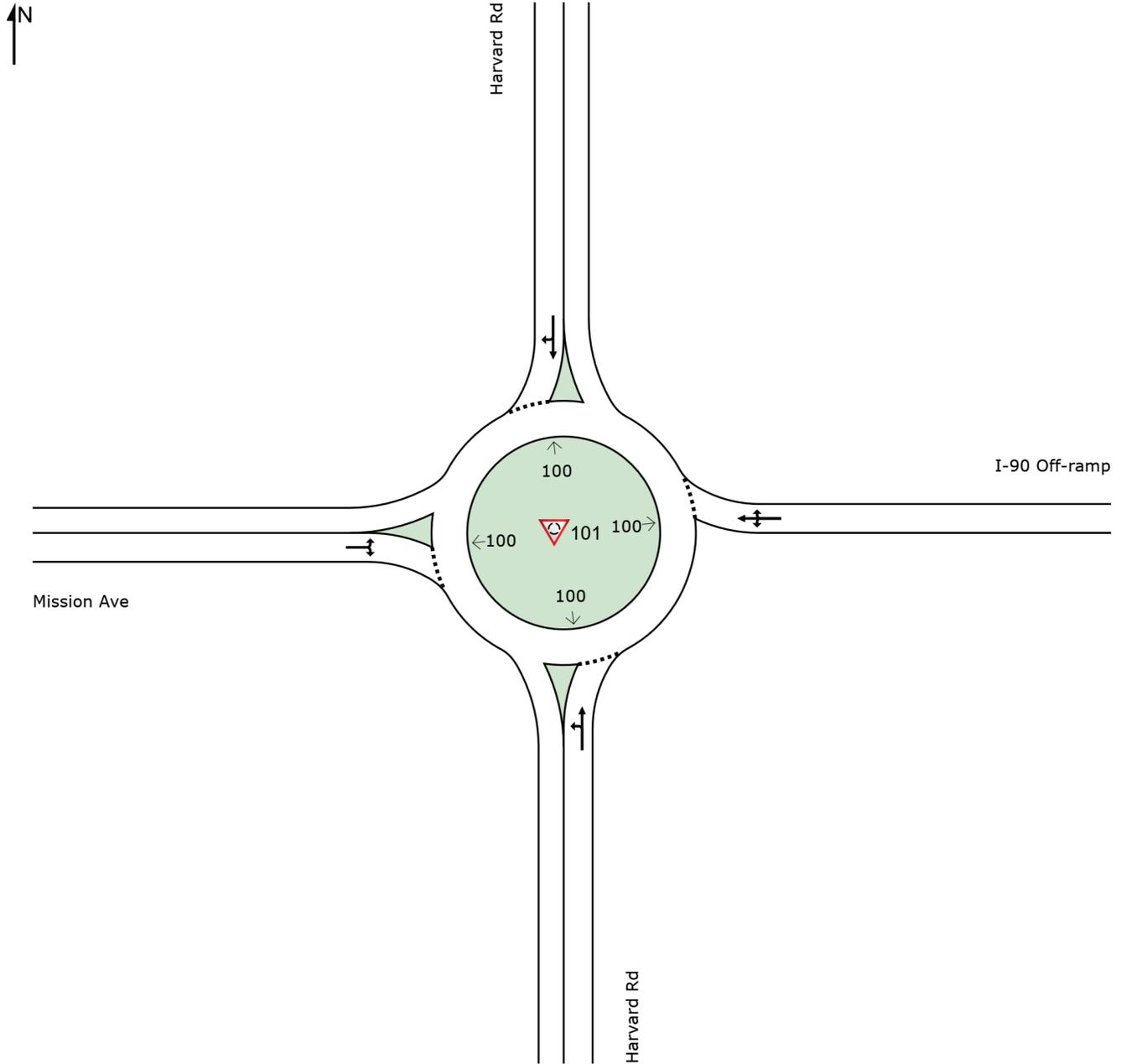
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 101 [Mission_Harvard PM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



HCM 6th Signalized Intersection Summary

6: Appleway Ave & Liberty Lake Rd

09/16/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	368	296	119	42	711	125	561	84	243	400	103
Future Volume (veh/h)	151	368	296	119	42	711	125	561	84	243	400	103
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	1870	1870	1856	1900	1870	1885	1885	1870	1885	1885	1885
Adj Flow Rate, veh/h	164	400	322	129	46	773	136	610	91	264	435	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	2	2	3	0	2	1	1	2	1	1	1
Cap, veh/h	199	1171	522	162	585	860	174	812	360	303	1034	
Arrive On Green	0.11	0.33	0.33	0.09	0.31	0.31	0.10	0.23	0.23	0.17	0.29	0.00
Sat Flow, veh/h	1767	3554	1585	1767	1900	2790	1795	3582	1585	1795	3582	1598
Grp Volume(v), veh/h	164	400	322	129	46	773	136	610	91	264	435	0
Grp Sat Flow(s),veh/h/ln	1767	1777	1585	1767	1900	1395	1795	1791	1585	1795	1791	1598
Q Serve(g_s), s	8.9	8.4	16.8	7.0	1.7	26.0	7.3	15.6	4.6	14.1	9.7	0.0
Cycle Q Clear(g_c), s	8.9	8.4	16.8	7.0	1.7	26.0	7.3	15.6	4.6	14.1	9.7	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	199	1171	522	162	585	860	174	812	360	303	1034	
V/C Ratio(X)	0.82	0.34	0.62	0.80	0.08	0.90	0.78	0.75	0.25	0.87	0.42	
Avail Cap(c_a), veh/h	378	1267	565	378	677	994	457	1094	484	384	1034	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	42.6	24.9	27.7	43.7	24.1	32.5	43.3	35.4	31.1	39.8	28.3	0.0
Incr Delay (d2), s/veh	8.2	0.2	2.2	8.7	0.1	10.0	10.4	2.5	0.5	17.4	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(95%),veh/ln	7.7	6.3	10.7	6.2	1.4	14.8	6.7	11.3	3.3	12.1	7.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.8	25.1	29.9	52.4	24.1	42.5	53.7	37.9	31.7	57.2	28.5	0.0
LnGrp LOS	D	C	C	D	C	D	D	D	C	E	C	
Approach Vol, veh/h		886			948			837			699	
Approach Delay, s/veh		31.6			42.9			39.8			39.4	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	20.6	27.3	13.0	37.4	14.5	33.4	15.1	35.3				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0				
Max Green Setting (Gmax), s	21.0	30.0	21.0	35.0	25.0	25.0	21.0	35.0				
Max Q Clear Time (g_c+11g), s	11.0	17.6	9.0	18.8	9.3	11.7	10.9	28.0				
Green Ext Time (p_c), s	0.5	4.7	0.2	4.9	0.5	2.3	0.3	2.2				

Intersection Summary

HCM 6th Ctrl Delay	38.4
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary

7: Liberty Lake Rd & Country Vista Dr.

09/16/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	301	481	153	43	513	128	101	143	19	243	182	259
Future Volume (veh/h)	301	481	153	43	513	128	101	143	19	243	182	259
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	1885	1870	1900	1870	1870	1885	1856	1900	1856	1885	1870
Adj Flow Rate, veh/h	320	512	163	46	546	136	107	152	20	259	194	276
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	1	2	0	2	2	1	3	0	3	1	2
Cap, veh/h	465	1011	320	365	717	178	311	463	60	514	409	365
Arrive On Green	0.16	0.38	0.38	0.04	0.25	0.25	0.07	0.15	0.15	0.15	0.23	0.23
Sat Flow, veh/h	1795	2676	848	1810	2821	700	1795	3138	407	1767	1791	1598
Grp Volume(v), veh/h	320	342	333	46	343	339	107	84	88	259	194	276
Grp Sat Flow(s),veh/h/ln	1795	1791	1733	1810	1777	1744	1795	1763	1782	1767	1791	1598
Q Serve(g_s), s	7.1	8.7	8.8	1.1	10.6	10.6	2.9	2.5	2.6	6.8	5.5	9.5
Cycle Q Clear(g_c), s	7.1	8.7	8.8	1.1	10.6	10.6	2.9	2.5	2.6	6.8	5.5	9.5
Prop In Lane	1.00		0.49	1.00		0.40	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	465	677	655	365	452	443	311	260	263	514	409	365
V/C Ratio(X)	0.69	0.51	0.51	0.13	0.76	0.76	0.34	0.32	0.33	0.50	0.47	0.76
Avail Cap(c_a), veh/h	816	772	747	942	766	752	822	1058	1070	874	1075	959
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.1	14.2	14.2	15.3	20.4	20.4	19.4	22.6	22.6	15.7	19.7	21.3
Incr Delay (d2), s/veh	0.7	0.2	0.2	0.1	1.0	1.0	0.2	0.3	0.3	0.3	0.3	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.5	5.7	5.5	0.8	7.4	7.3	2.1	1.8	1.9	4.5	3.9	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.7	14.4	14.4	15.4	21.4	21.5	19.7	22.8	22.9	15.9	20.1	22.5
LnGrp LOS	B	B	B	B	C	C	B	C	C	B	C	C
Approach Vol, veh/h		995			728			279			729	
Approach Delay, s/veh		14.2			21.0			21.6			19.5	
Approach LOS		B			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	13.0	13.2	6.1	26.8	8.2	18.0	13.4	19.5				
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5				
Max Green Setting (Gmax), s	1.0	35.5	21.0	25.5	21.0	35.5	21.0	25.5				
Max Q Clear Time (g_c+1/3), s	1.0	4.6	3.1	10.8	4.9	11.5	9.1	12.6				
Green Ext Time (p_c), s	0.3	0.6	0.0	2.5	0.1	2.0	0.4	2.4				
Intersection Summary												
HCM 6th Ctrl Delay				18.2								
HCM 6th LOS				B								

Intersection						
Int Delay, s/veh	5.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑↑	↑↑		↖	↖
Traffic Vol, veh/h	291	416	270	13	6	382
Future Vol, veh/h	291	416	270	13	6	382
Conflicting Peds, #/hr	7	0	0	7	5	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	1	1	0	17	2
Mvmt Flow	313	447	290	14	6	411

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	311	0	-	0	1159 159
Stage 1	-	-	-	-	304 -
Stage 2	-	-	-	-	855 -
Critical Hdwy	4.14	-	-	-	7.14 6.94
Critical Hdwy Stg 1	-	-	-	-	6.14 -
Critical Hdwy Stg 2	-	-	-	-	6.14 -
Follow-up Hdwy	2.22	-	-	-	3.67 3.32
Pot Cap-1 Maneuver	1246	-	-	-	168 858
Stage 1	-	-	-	-	679 -
Stage 2	-	-	-	-	342 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1239	-	-	-	124 853
Mov Cap-2 Maneuver	-	-	-	-	124 -
Stage 1	-	-	-	-	504 -
Stage 2	-	-	-	-	340 -

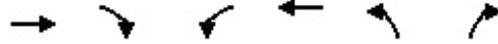
Approach	EB	WB	SB
HCM Control Delay, s	3.7	0	13.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1239	-	-	-	124	853
HCM Lane V/C Ratio	0.253	-	-	-	0.052	0.482
HCM Control Delay (s)	8.9	-	-	-	35.6	13.1
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	1	-	-	-	0.2	2.7

HCM 6th Signalized Intersection Summary

9: Signal Dr & Appleway Ave

09/16/2025



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (veh/h)	470	145	29	737	171	38
Future Volume (veh/h)	470	145	29	737	171	38
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1900	1856	1900	1856
Adj Flow Rate, veh/h	528	163	33	828	192	43
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	0	3	0	3
Cap, veh/h	958	294	441	1940	290	252
Arrive On Green	0.36	0.36	0.03	0.55	0.16	0.16
Sat Flow, veh/h	2770	823	1810	3618	1810	1572
Grp Volume(v), veh/h	350	341	33	828	192	43
Grp Sat Flow(s),veh/h/ln	1777	1722	1810	1763	1810	1572
Q Serve(g_s), s	4.9	4.9	0.3	4.3	3.1	0.7
Cycle Q Clear(g_c), s	4.9	4.9	0.3	4.3	3.1	0.7
Prop In Lane		0.48	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	636	616	441	1940	290	252
V/C Ratio(X)	0.55	0.55	0.07	0.43	0.66	0.17
Avail Cap(c_a), veh/h	1427	1383	1256	5097	1512	1314
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.0	8.0	5.5	4.1	12.3	11.3
Incr Delay (d2), s/veh	0.7	0.8	0.1	0.1	2.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.3	2.3	0.1	1.0	2.1	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	8.7	8.8	5.6	4.3	14.8	11.6
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	691			861	235	
Approach Delay, s/veh	8.8			4.3	14.3	
Approach LOS	A			A	B	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	6.0	16.1		9.0		22.1
Change Period (Y+Rc), s	5.0	5.0		4.0		5.0
Max Green Setting (Gmax), s	15.0	25.0		26.0		45.0
Max Q Clear Time (g_c+I1), s	2.3	6.9		5.1		6.3
Green Ext Time (p_c), s	0.0	4.2		0.6		7.0
Intersection Summary						
HCM 6th Ctrl Delay			7.3			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary

10: Madson St & Appleway Ave

09/16/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	454	10	12	567	20	38	9	26	25	10	100
Future Volume (veh/h)	59	454	10	12	567	20	38	9	26	25	10	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										
Adj Sat Flow, veh/h/ln	1870	1870	1752	1900	1841	1900	1856	1737	1900	1841	1900	1885
Adj Flow Rate, veh/h	71	547	12	14	683	24	46	11	31	30	12	120
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	10	0	4	0	3	11	0	4	0	1
Cap, veh/h	422	1408	31	463	1177	41	214	29	53	496	39	385
Arrive On Green	0.06	0.40	0.40	0.01	0.34	0.34	0.11	0.11	0.11	0.03	0.26	0.26
Sat Flow, veh/h	1781	3555	78	1810	3447	121	614	262	476	1753	148	1484
Grp Volume(v), veh/h	71	273	286	14	346	361	88	0	0	30	0	132
Grp Sat Flow(s),veh/h/ln	1781	1777	1856	1810	1749	1819	1352	0	0	1753	0	1633
Q Serve(g_s), s	0.9	4.2	4.2	0.2	6.2	6.2	1.8	0.0	0.0	0.5	0.0	2.5
Cycle Q Clear(g_c), s	0.9	4.2	4.2	0.2	6.2	6.2	2.3	0.0	0.0	0.5	0.0	2.5
Prop In Lane	1.00		0.04	1.00		0.07	0.52		0.35	1.00		0.91
Lane Grp Cap(c), veh/h	422	704	735	463	597	621	296	0	0	496	0	424
V/C Ratio(X)	0.17	0.39	0.39	0.03	0.58	0.58	0.30	0.00	0.00	0.06	0.00	0.31
Avail Cap(c_a), veh/h	1287	1666	1740	1441	1639	1705	1054	0	0	1395	0	2199
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.7	8.2	8.2	8.0	10.2	10.2	15.9	0.0	0.0	12.5	0.0	11.3
Incr Delay (d2), s/veh	0.2	0.4	0.3	0.0	0.9	0.9	0.6	0.0	0.0	0.1	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.5	2.1	2.2	0.1	3.4	3.5	1.2	0.0	0.0	0.3	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.9	8.5	8.5	8.0	11.1	11.1	16.5	0.0	0.0	12.6	0.0	11.7
LnGrp LOS	A	A	A	A	B	B	B	A	A	B	A	B
Approach Vol, veh/h		630			721			88			162	
Approach Delay, s/veh		8.4			11.1			16.5			11.9	
Approach LOS		A			B			B			B	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.5	19.5		13.8	6.6	17.4	5.6	8.2				
Change Period (Y+Rc), s	4.0	4.5		4.0	4.5	4.5	4.5	4.0				
Max Green Setting (Gmax), s	1.0	35.5		51.0	20.5	35.5	20.5	26.0				
Max Q Clear Time (g_c+1), s	12.2	6.2		4.5	2.9	8.2	2.5	4.3				
Green Ext Time (p_c), s	0.0	3.6		0.9	0.1	4.8	0.0	0.4				
Intersection Summary												
HCM 6th Ctrl Delay											10.4	
HCM 6th LOS											B	

HCM 6th Signalized Intersection Summary

11: Molter Rd & Appleway Ave

09/16/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	386	112	79	360	8	146	12	119	16	20	48
Future Volume (veh/h)	11	386	112	79	360	8	146	12	119	16	20	48
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										
Adj Sat Flow, veh/h/ln	1900	1870	1900	1885	1841	1900	1856	1900	1856	1900	1900	1841
Adj Flow Rate, veh/h	12	424	123	87	396	9	160	13	131	18	22	53
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, %	0	2	0	1	4	0	3	0	3	0	0	4
Cap, veh/h	412	699	201	384	1053	24	487	361	298	328	180	147
Arrive On Green	0.01	0.26	0.26	0.05	0.30	0.30	0.11	0.19	0.19	0.01	0.09	0.09
Sat Flow, veh/h	1810	2724	783	1795	3496	79	1767	1900	1572	1810	1900	1560
Grp Volume(v), veh/h	12	275	272	87	198	207	160	13	131	18	22	53
Grp Sat Flow(s),veh/h/ln	1810	1777	1729	1795	1749	1826	1767	1900	1572	1810	1900	1560
Q Serve(g_s), s	0.2	5.3	5.4	1.4	3.5	3.5	3.0	0.2	2.9	0.4	0.4	1.2
Cycle Q Clear(g_c), s	0.2	5.3	5.4	1.4	3.5	3.5	3.0	0.2	2.9	0.4	0.4	1.2
Prop In Lane	1.00		0.45	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	412	456	444	384	527	550	487	361	298	328	180	147
V/C Ratio(X)	0.03	0.60	0.61	0.23	0.38	0.38	0.33	0.04	0.44	0.05	0.12	0.36
Avail Cap(c_a), veh/h	881	863	840	769	850	888	769	923	764	790	923	758
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.6	12.8	12.8	10.2	10.8	10.8	12.6	12.9	14.0	15.7	16.2	16.6
Incr Delay (d2), s/veh	0.0	1.3	1.4	0.3	0.6	0.6	0.4	0.1	1.4	0.1	0.4	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(95%),veh/lr	0.1	3.3	3.3	0.8	2.1	2.1	1.8	0.1	1.7	0.2	0.3	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.7	14.1	14.2	10.5	11.4	11.4	13.0	13.0	15.4	15.8	16.6	18.7
LnGrp LOS	B	B	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h		559		492		304		93				
Approach Delay, s/veh		14.1		11.2		14.1		17.6				
Approach LOS		B		B		B		B				
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.0	12.4	4.9	16.8	8.8	8.7	6.6	15.0				
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	4.5	5.0	4.5	5.0				
Max Green Setting (Gmax), s	10.5	19.0	10.5	19.0	10.5	19.0	10.5	19.0				
Max Q Clear Time (g_c+1), s	12.4	4.9	2.2	5.5	5.0	3.2	3.4	7.4				
Green Ext Time (p_c), s	0.0	0.5	0.0	2.7	0.2	0.3	0.1	2.6				
Intersection Summary												
HCM 6th Ctrl Delay				13.3								
HCM 6th LOS				B								

MOVEMENT SUMMARY

Site: 101 [Mission_Molter PM (Site Folder: General)]

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Molter Rd														
3	L2	63	2.0	63	2.0	0.188	11.4	LOS B	1.0	24.5	0.48	0.62	0.48	35.7
8	T1	113	1.0	113	1.0	0.188	5.5	LOS A	1.0	24.5	0.48	0.62	0.48	35.6
18	R2	14	1.0	14	1.0	0.188	5.5	LOS A	1.0	24.5	0.48	0.62	0.48	34.6
Approach		190	1.3	190	1.3	0.188	7.4	LOS A	1.0	24.5	0.48	0.62	0.48	35.6
East: Mission Ave														
1	L2	19	2.0	19	2.0	0.299	11.0	LOS B	1.7	42.8	0.44	0.52	0.44	36.5
6	T1	265	2.0	265	2.0	0.299	5.0	LOS A	1.7	42.8	0.44	0.52	0.44	36.4
16	R2	42	2.0	42	2.0	0.299	5.1	LOS A	1.7	42.8	0.44	0.52	0.44	35.3
Approach		326	2.0	326	2.0	0.299	5.4	LOS A	1.7	42.8	0.44	0.52	0.44	36.3
North: Molter Rd														
7	L2	63	2.0	63	2.0	0.224	11.5	LOS B	1.2	30.3	0.50	0.63	0.50	35.8
4	T1	108	2.0	108	2.0	0.224	5.6	LOS A	1.2	30.3	0.50	0.63	0.50	35.7
14	R2	52	2.0	52	2.0	0.224	5.7	LOS A	1.2	30.3	0.50	0.63	0.50	34.6
Approach		223	2.0	223	2.0	0.224	7.3	LOS A	1.2	30.3	0.50	0.63	0.50	35.5
West: Mission Ave														
5	L2	48	3.0	48	3.0	0.308	10.9	LOS B	1.8	45.5	0.42	0.53	0.42	36.4
2	T1	226	3.0	226	3.0	0.308	4.9	LOS A	1.8	45.5	0.42	0.53	0.42	36.3
12	R2	65	3.0	65	3.0	0.308	5.0	LOS A	1.8	45.5	0.42	0.53	0.42	35.2
Approach		339	3.0	339	3.0	0.308	5.8	LOS A	1.8	45.5	0.42	0.53	0.42	36.1
All Vehicles		1078	2.2	1078	2.2	0.308	6.3	LOS A	1.8	45.5	0.45	0.56	0.45	35.9

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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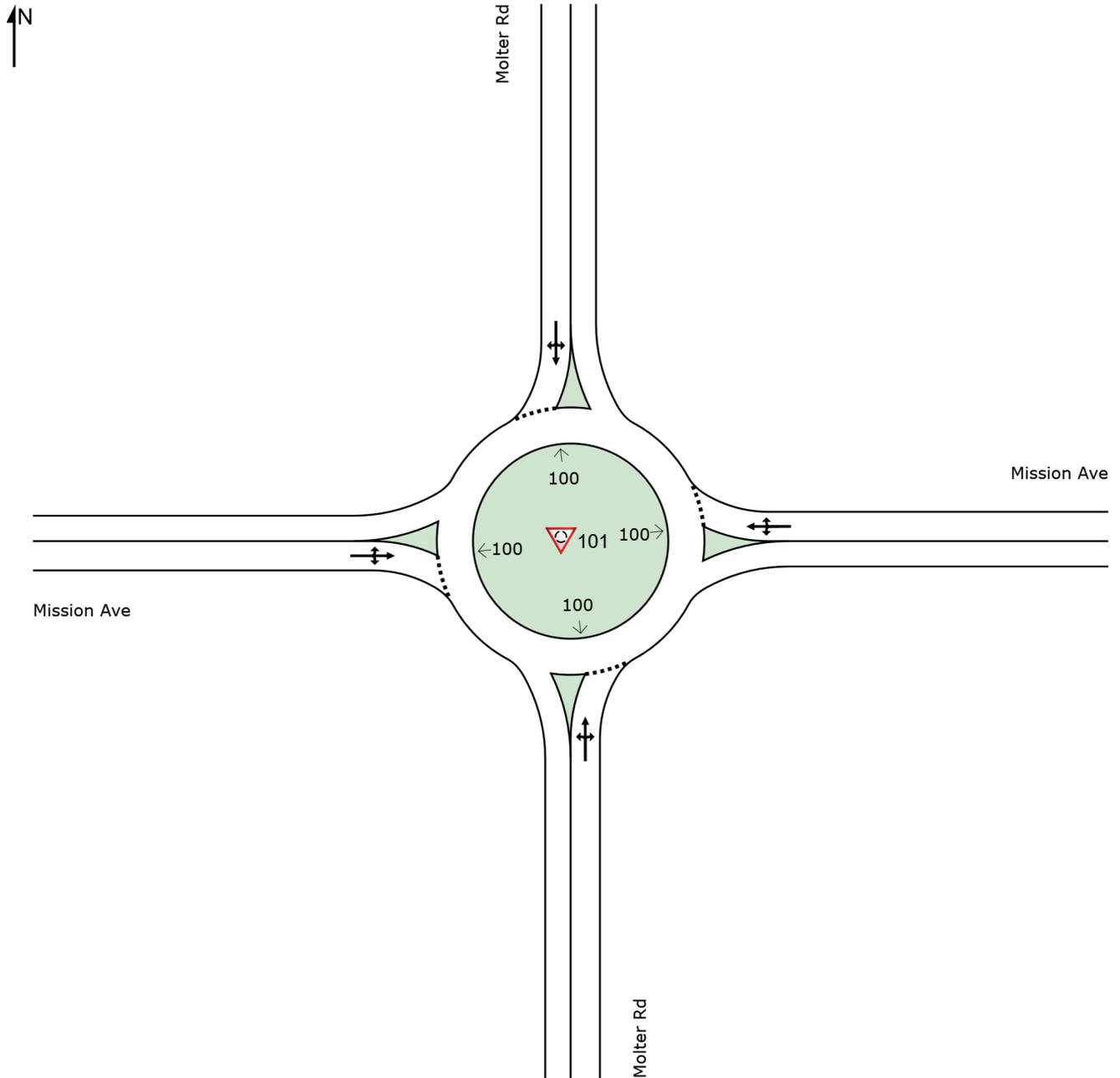
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SITE LAYOUT

Site: 101 [Mission_Molter PM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 Site: 101 [Mission_Harvest PM (Site Folder: General)]

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
South: Harvest Pkwy														
3	L2	36	3.0	36	3.0	0.102	11.3	LOS B	0.5	12.2	0.44	0.61	0.44	35.9
8	T1	12	2.0	12	2.0	0.102	5.3	LOS A	0.5	12.2	0.44	0.61	0.44	35.8
18	R2	55	2.0	55	2.0	0.102	5.4	LOS A	0.5	12.2	0.44	0.61	0.44	34.7
Approach		103	2.3	103	2.3	0.102	7.4	LOS A	0.5	12.2	0.44	0.61	0.44	35.3
East: Mission Ave														
1	L2	50	3.0	50	3.0	0.323	10.4	LOS B	1.8	46.4	0.30	0.47	0.30	36.8
6	T1	270	3.0	270	3.0	0.323	4.4	LOS A	1.8	46.4	0.30	0.47	0.30	36.7
16	R2	65	3.0	65	3.0	0.323	4.5	LOS A	1.8	46.4	0.30	0.47	0.30	35.6
Approach		385	3.0	385	3.0	0.323	5.2	LOS A	1.8	46.4	0.30	0.47	0.30	36.5
North: Harvest Pkwy														
7	L2	35	1.0	35	1.0	0.085	11.3	LOS B	0.4	10.1	0.45	0.62	0.45	35.7
4	T1	10	1.0	10	1.0	0.085	5.4	LOS A	0.4	10.1	0.45	0.62	0.45	35.6
14	R2	40	1.0	40	1.0	0.085	5.4	LOS A	0.4	10.1	0.45	0.62	0.45	34.6
Approach		85	1.0	85	1.0	0.085	7.9	LOS A	0.4	10.1	0.45	0.62	0.45	35.2
West: Mission Ave														
5	L2	53	3.0	53	3.0	0.272	10.3	LOS B	1.4	37.1	0.27	0.47	0.27	36.8
2	T1	240	4.0	240	4.0	0.272	4.4	LOS A	1.4	37.1	0.27	0.47	0.27	36.7
12	R2	30	3.0	30	3.0	0.272	4.4	LOS A	1.4	37.1	0.27	0.47	0.27	35.6
Approach		323	3.7	323	3.7	0.272	5.3	LOS A	1.4	37.1	0.27	0.47	0.27	36.6
All Vehicles		896	3.0	896	3.0	0.323	5.8	LOS A	1.8	46.4	0.32	0.50	0.32	36.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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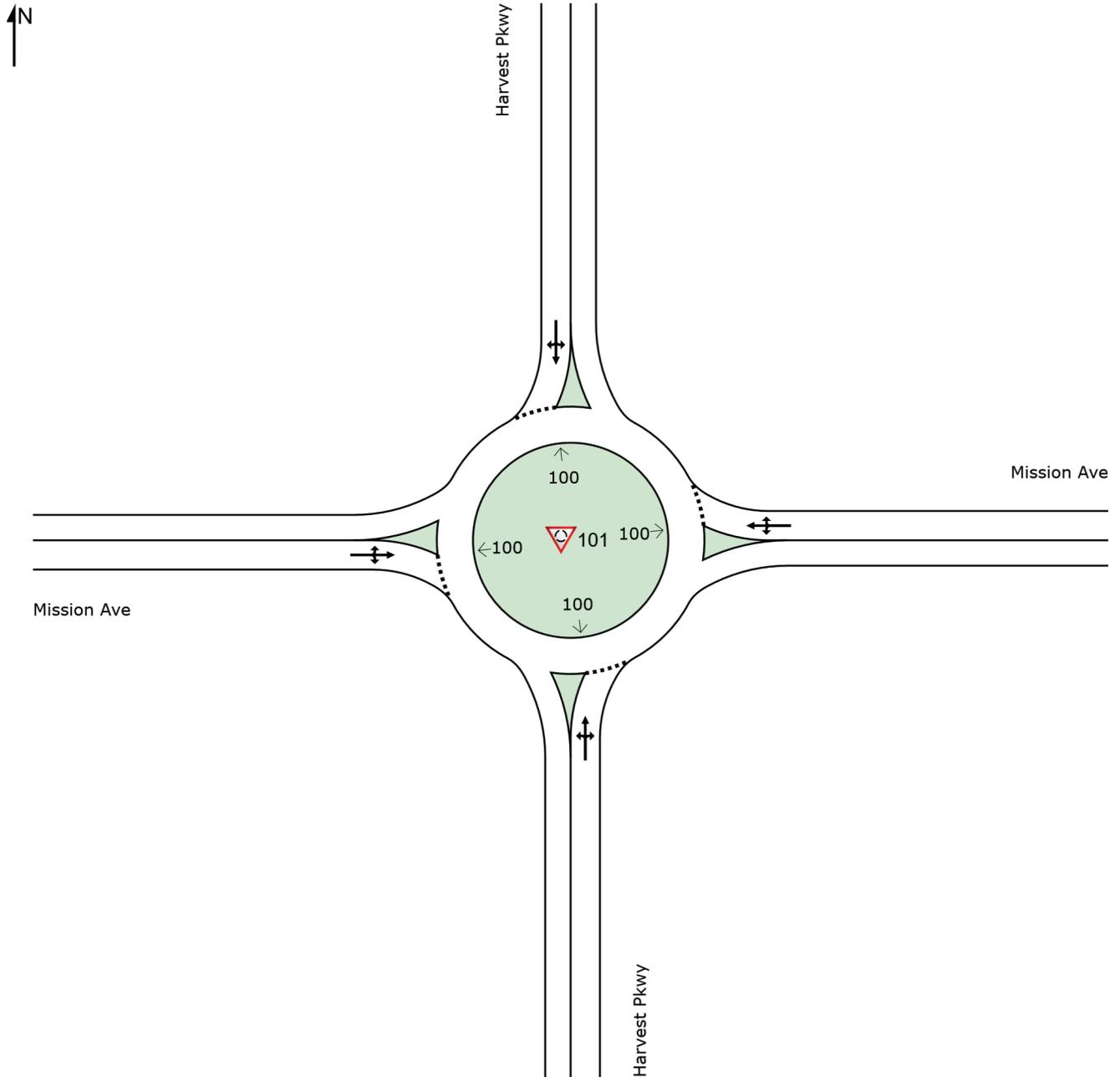
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SITE LAYOUT

Site: 101 [Mission_Harvest PM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



HCM 6th TWSC
 14: N. Country Vista Blvd & Appleway Ave

09/16/2025

Intersection						
Int Delay, s/veh	2.9					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶		↷	↶	↷	↷
Traffic Vol, veh/h	395	126	52	254	100	64
Future Vol, veh/h	395	126	52	254	100	64
Conflicting Peds, #/hr	0	4	4	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	0	5	1	2
Mvmt Flow	429	137	57	276	109	70

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	570	0	892 503
Stage 1	-	-	-	-	502 -
Stage 2	-	-	-	-	390 -
Critical Hdwy	-	-	4.1	-	6.41 6.22
Critical Hdwy Stg 1	-	-	-	-	5.41 -
Critical Hdwy Stg 2	-	-	-	-	5.41 -
Follow-up Hdwy	-	-	2.2	-	3.509 3.318
Pot Cap-1 Maneuver	-	-	1013	-	314 569
Stage 1	-	-	-	-	610 -
Stage 2	-	-	-	-	686 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1010	-	295 567
Mov Cap-2 Maneuver	-	-	-	-	421 -
Stage 1	-	-	-	-	608 -
Stage 2	-	-	-	-	648 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.5	14.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	421	567	-	-	1010	-
HCM Lane V/C Ratio	0.258	0.123	-	-	0.056	-
HCM Control Delay (s)	16.5	12.2	-	-	8.8	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	1	0.4	-	-	0.2	-

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	107	122	21	7	68	14	17	29	6	9	33	88
Future Vol, veh/h	107	122	21	7	68	14	17	29	6	9	33	88
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	1	0	0	0	0	0	0	3	0	0	0	5
Mvmt Flow	129	147	25	8	82	17	20	35	7	11	40	106
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	9.6	8.9	8.6	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	33%	100%	0%	100%	0%	7%
Vol Thru, %	56%	0%	85%	0%	83%	25%
Vol Right, %	12%	0%	15%	0%	17%	68%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	52	107	143	7	82	130
LT Vol	17	107	0	7	0	9
Through Vol	29	0	122	0	68	33
RT Vol	6	0	21	0	14	88
Lane Flow Rate	63	129	172	8	99	157
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.088	0.202	0.24	0.014	0.143	0.199
Departure Headway (Hd)	5.081	5.643	5.019	5.838	5.214	4.575
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	702	634	713	610	684	782
Service Time	3.135	3.395	2.771	3.599	2.974	2.617
HCM Lane V/C Ratio	0.09	0.203	0.241	0.013	0.145	0.201
HCM Control Delay	8.6	9.8	9.4	8.7	8.9	8.8
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.3	0.8	0.9	0	0.5	0.7

Intersection

Intersection Delay, s/veh 10.3

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	77	92	90	7	59	16	68	80	13	22	94	62
Future Vol, veh/h	77	92	90	7	59	16	68	80	13	22	94	62
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	1	1	0	0	0	2	1	0	0	0	0
Mvmt Flow	87	103	101	8	66	18	76	90	15	25	106	70
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	11.2	9.2	9.8	10.1
HCM LOS	B	A	A	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	30%	9%	100%	0%
Vol Thru, %	0%	86%	36%	72%	0%	60%
Vol Right, %	0%	14%	35%	20%	0%	40%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	68	93	259	82	22	156
LT Vol	68	0	77	7	22	0
Through Vol	0	80	92	59	0	94
RT Vol	0	13	90	16	0	62
Lane Flow Rate	76	104	291	92	25	175
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.134	0.166	0.401	0.135	0.043	0.268
Departure Headway (Hd)	6.329	5.706	4.961	5.291	6.283	5.495
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	568	629	730	677	571	656
Service Time	4.057	3.433	2.961	3.324	4.009	3.221
HCM Lane V/C Ratio	0.134	0.165	0.399	0.136	0.044	0.267
HCM Control Delay	10	9.6	11.2	9.2	9.3	10.2
HCM Lane LOS	A	A	B	A	A	B
HCM 95th-tile Q	0.5	0.6	1.9	0.5	0.1	1.1

Intersection

Intersection Delay, s/veh 7.8
 Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	9	67	5	2	49	29	7	25	4	32	42	8
Future Vol, veh/h	9	67	5	2	49	29	7	25	4	32	42	8
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	0	0	0	0	4	0	0	0	0	0	0	0
Mvmt Flow	11	80	6	2	58	35	8	30	5	38	50	10
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	7.9	7.6	7.7	8
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	19%	11%	3%	39%
Vol Thru, %	69%	83%	61%	51%
Vol Right, %	11%	6%	36%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	81	80	82
LT Vol	7	9	2	32
Through Vol	25	67	49	42
RT Vol	4	5	29	8
Lane Flow Rate	43	96	95	98
Geometry Grp	1	1	1	1
Degree of Util (X)	0.052	0.115	0.109	0.119
Departure Headway (Hd)	4.402	4.305	4.113	4.388
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	816	835	874	820
Service Time	2.415	2.316	2.123	2.399
HCM Lane V/C Ratio	0.053	0.115	0.109	0.12
HCM Control Delay	7.7	7.9	7.6	8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.4	0.4	0.4

MOVEMENT SUMMARY

 Site: 101 [Mission_Kramer PM (Site Folder: General)]

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
South: Kramer Pkwy														
3	L2	198	1.0	198	1.0	0.290	11.0	LOS B	1.6	40.0	0.44	0.65	0.44	35.1
18	R2	118	2.0	118	2.0	0.290	5.2	LOS A	1.6	40.0	0.44	0.65	0.44	34.0
Approach		316	1.4	316	1.4	0.290	8.9	LOS A	1.6	40.0	0.44	0.65	0.44	34.7
East: Mission Ave														
1	L2	82	2.0	82	2.0	0.289	10.8	LOS B	1.6	41.7	0.42	0.55	0.42	36.1
6	T1	236	3.0	236	3.0	0.289	4.9	LOS A	1.6	41.7	0.42	0.55	0.42	36.0
Approach		318	2.7	318	2.7	0.289	6.4	LOS A	1.6	41.7	0.42	0.55	0.42	36.0
West: Mission Ave														
2	T1	237	3.0	237	3.0	0.316	4.3	LOS A	1.9	47.7	0.28	0.43	0.28	37.2
12	R2	145	2.0	145	2.0	0.316	4.3	LOS A	1.9	47.7	0.28	0.43	0.28	36.1
Approach		382	2.6	382	2.6	0.316	4.3	LOS A	1.9	47.7	0.28	0.43	0.28	36.8
All Vehicles		1016	2.3	1016	2.3	0.316	6.4	LOS A	1.9	47.7	0.37	0.54	0.37	35.8

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

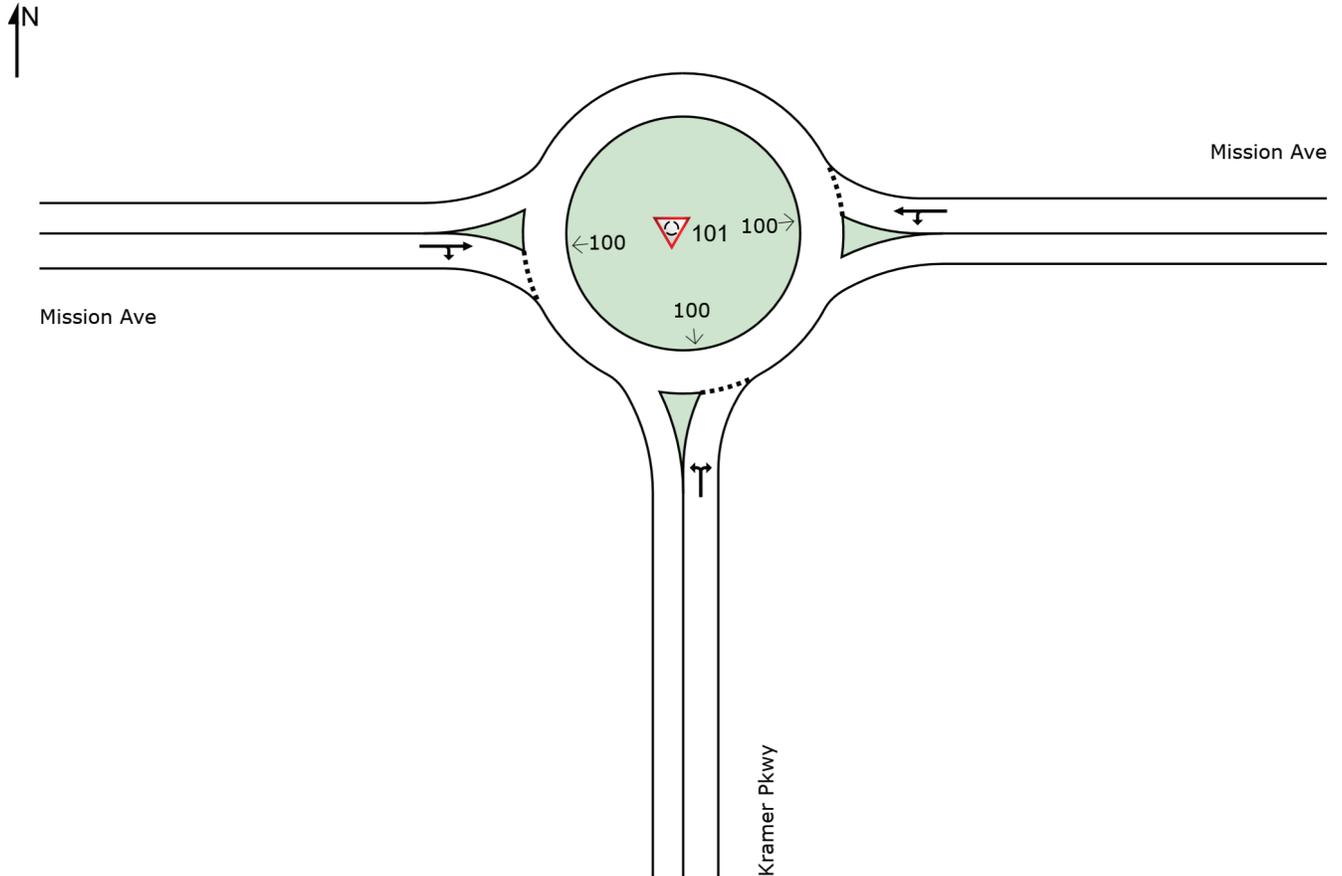
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 101 [Mission_Kramer PM (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



HCM 6th Signalized Intersection Summary

19: Harvard Rd & N Indiana Avenue

09/16/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕	↗	↖	↕	↗
Traffic Volume (veh/h)	22	4	50	18	4	2	35	636	25	1	483	16
Future Volume (veh/h)	22	4	50	18	4	2	35	636	25	1	483	16
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	1530	1826	1811	1900	1159	1900	1870	1900	1900	1870	1900
Adj Flow Rate, veh/h	24	4	55	20	4	2	38	699	27	1	531	18
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, %	0	25	5	6	0	50	0	2	0	0	2	0
Cap, veh/h	43	6	83	35	77	38	514	1473	57	417	1361	46
Arrive On Green	0.02	0.07	0.07	0.02	0.06	0.06	0.04	0.42	0.42	0.00	0.39	0.39
Sat Flow, veh/h	1810	89	1221	1725	1195	597	1810	3488	135	1810	3507	119
Grp Volume(v), veh/h	24	0	59	20	0	6	38	356	370	1	269	280
Grp Sat Flow(s),veh/h/ln	1810	0	1310	1725	0	1792	1810	1777	1846	1810	1777	1849
Q Serve(g_s), s	0.5	0.0	1.5	0.4	0.0	0.1	0.4	5.0	5.0	0.0	3.8	3.8
Cycle Q Clear(g_c), s	0.5	0.0	1.5	0.4	0.0	0.1	0.4	5.0	5.0	0.0	3.8	3.8
Prop In Lane	1.00		0.93	1.00		0.33	1.00		0.07	1.00		0.06
Lane Grp Cap(c), veh/h	43	0	89	35	0	115	514	750	780	417	690	718
V/C Ratio(X)	0.56	0.00	0.66	0.57	0.00	0.05	0.07	0.47	0.47	0.00	0.39	0.39
Avail Cap(c_a), veh/h	312	0	658	396	0	1004	1230	2271	2360	724	1812	1886
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.8	0.0	15.8	16.9	0.0	15.3	6.1	7.3	7.3	6.7	7.7	7.7
Incr Delay (d2), s/veh	10.8	0.0	11.4	14.0	0.0	0.3	0.1	0.7	0.6	0.0	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.5	0.0	1.2	0.5	0.0	0.1	0.2	2.4	2.5	0.0	1.9	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.6	0.0	27.2	30.9	0.0	15.6	6.2	7.9	7.9	6.7	8.2	8.2
LnGrp LOS	C	A	C	C	A	B	A	A	A	A	A	A
Approach Vol, veh/h		83			26			764			550	
Approach Delay, s/veh		27.3			27.4			7.8			8.2	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.2	18.0	4.8	6.7	4.0	19.2	4.7	6.9				
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5				
Max Green Setting (Gmax), s	15.0	35.5	6.0	19.5	6.0	44.5	8.0	17.5				
Max Q Clear Time (g_c+1), s	12.4	5.8	2.5	2.1	2.0	7.0	2.4	3.5				
Green Ext Time (p_c), s	0.0	5.2	0.0	0.0	0.0	7.7	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay				9.5								
HCM 6th LOS				A								

HCM 6th TWSC
20: Harvard Rd & E Wellington Parkway

09/16/2025

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	5	2	15	12	1	7	15	620	25	4	473	11
Future Vol, veh/h	5	2	15	12	1	7	15	620	25	4	473	11
Conflicting Peds, #/hr	2	0	1	1	0	2	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	50	-	-	55	150	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	9	8	0	0	0	2	0	0	2	9
Mvmt Flow	6	2	17	13	1	8	17	697	28	4	531	12

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	931	1306	274	1022	1298	366	544	0	0	726	0	0
Stage 1	546	546	-	746	746	-	-	-	-	-	-	-
Stage 2	385	760	-	276	552	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7.08	7.66	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.66	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.66	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.39	3.58	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	225	161	703	182	163	637	1035	-	-	886	-	-
Stage 1	495	521	-	358	424	-	-	-	-	-	-	-
Stage 2	615	417	-	690	518	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	217	157	702	173	159	635	1034	-	-	885	-	-
Mov Cap-2 Maneuver	217	157	-	173	159	-	-	-	-	-	-	-
Stage 1	487	518	-	352	417	-	-	-	-	-	-	-
Stage 2	595	410	-	667	515	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	14.7		21.9		0.2			0.1		
HCM LOS	B		C							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1034	-	-	196	702	172	635	885	-	-
HCM Lane V/C Ratio	0.016	-	-	0.04	0.024	0.085	0.012	0.005	-	-
HCM Control Delay (s)	8.5	-	-	24.1	10.3	27.9	10.7	9.1	-	-
HCM Lane LOS	A	-	-	C	B	D	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.1	0.3	0	0	-	-

Intersection												
Int Delay, s/veh	11											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔		↔	↔			↔			↔	↔
Traffic Vol, veh/h	39	254	19	4	347	159	6	15	8	147	31	34
Future Vol, veh/h	39	254	19	4	347	159	6	15	8	147	31	34
Conflicting Peds, #/hr	4	0	7	7	0	4	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	5	3	5	0	1	0	0	7	0	1	0	6
Mvmt Flow	41	270	20	4	369	169	6	16	9	156	33	36

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	542	0	0	297	0	0	866	919	287	841	845	459
Stage 1	-	-	-	-	-	-	369	369	-	466	466	-
Stage 2	-	-	-	-	-	-	497	550	-	375	379	-
Critical Hdwy	4.15	-	-	4.1	-	-	7.1	6.57	6.2	7.11	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.57	-	6.11	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.57	-	6.11	5.5	-
Follow-up Hdwy	2.245	-	-	2.2	-	-	3.5	4.063	3.3	3.509	4	3.354
Pot Cap-1 Maneuver	1012	-	-	1276	-	-	276	266	757	286	302	594
Stage 1	-	-	-	-	-	-	655	612	-	579	566	-
Stage 2	-	-	-	-	-	-	559	508	-	648	618	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1009	-	-	1269	-	-	227	252	753	259	286	592
Mov Cap-2 Maneuver	-	-	-	-	-	-	227	252	-	259	286	-
Stage 1	-	-	-	-	-	-	625	583	-	554	563	-
Stage 2	-	-	-	-	-	-	492	505	-	598	589	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.1			0.1			18.4			50.6		
HCM LOS							C			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	300	1009	-	-	1269	-	-	289
HCM Lane V/C Ratio	0.103	0.041	-	-	0.003	-	-	0.78
HCM Control Delay (s)	18.4	8.7	-	-	7.8	-	-	50.6
HCM Lane LOS	C	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	6

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	368	436	3	13	42
Future Vol, veh/h	4	368	436	3	13	42
Conflicting Peds, #/hr	2	0	0	2	9	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	2	1	0	0	0
Mvmt Flow	4	396	469	3	14	45

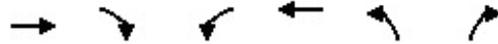
Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	474	0	-	0	886 473
Stage 1	-	-	-	-	473 -
Stage 2	-	-	-	-	413 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1099	-	-	-	318 595
Stage 1	-	-	-	-	631 -
Stage 2	-	-	-	-	672 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1097	-	-	-	315 594
Mov Cap-2 Maneuver	-	-	-	-	439 -
Stage 1	-	-	-	-	627 -
Stage 2	-	-	-	-	671 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	12.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1097	-	-	-	548
HCM Lane V/C Ratio	0.004	-	-	-	0.108
HCM Control Delay (s)	8.3	-	-	-	12.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Lanes, Volumes, Timings
23: Ridgeline HS & Country Vista Dr

09/17/2025



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø14
Lane Configurations	↑↑		↵	↑↑	↵	↵	
Traffic Volume (vph)	755	35	11	570	35	35	
Future Volume (vph)	755	35	11	570	35	35	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)		75	100		100	0	
Storage Lanes		0	1		1	1	
Taper Length (ft)			25		25		
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00	
Frt	0.993					0.850	
Flt Protected			0.950		0.950		
Satd. Flow (prot)	3421	0	1805	3505	1805	1615	
Flt Permitted			0.950		0.950		
Satd. Flow (perm)	3421	0	1805	3505	1805	1615	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)	4					36	
Link Speed (mph)	30			30	30		
Link Distance (ft)	425			3165	712		
Travel Time (s)	9.7			71.9	16.2		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	5%	0%	0%	3%	0%	0%	
Adj. Flow (vph)	770	36	11	582	36	36	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	806	0	11	582	36	36	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			12	12		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane	Yes			Yes	Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)		9	15		15	9	
Number of Detectors	2		1	2	1	1	
Detector Template	Thru		Left	Thru	Left	Right	
Leading Detector (ft)	100		20	100	20	20	
Trailing Detector (ft)	0		0	0	0	0	
Detector 1 Position(ft)	0		0	0	0	0	
Detector 1 Size(ft)	6		20	6	20	20	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	
Detector 2 Position(ft)	94			94			
Detector 2 Size(ft)	6			6			
Detector 2 Type	Cl+Ex			Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)	0.0			0.0			
Turn Type	NA		Prot	NA	Prot	Perm	
Protected Phases	2		1	6	8		14

Lanes, Volumes, Timings
 23: Ridgeline HS & Country Vista Dr

09/17/2025



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø14
Permitted Phases							8
Detector Phase	2		1	6	8	8	
Switch Phase							
Minimum Initial (s)	7.0		4.0	4.0	7.0	7.0	4.0
Minimum Split (s)	26.5		9.5	36.5	21.5	21.5	25.0
Total Split (s)	40.0		30.0	70.0	30.0	30.0	25.0
Total Split (%)	32.0%		24.0%	56.0%	24.0%	24.0%	20%
Maximum Green (s)	34.5		24.5	64.5	26.0	26.0	21.0
Yellow Time (s)	4.5		4.5	4.5	3.0	3.0	3.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5		5.5	5.5	4.0	4.0	
Lead/Lag	Lag		Lead				
Lead-Lag Optimize?	Yes		Yes				
Vehicle Extension (s)	2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode	Min		None	Min	None	None	Ped
Walk Time (s)							6.0
Flash Dont Walk (s)							15.0
Pedestrian Calls (#/hr)							4
Act Effct Green (s)	20.8		5.2	22.5	7.5	7.5	
Actuated g/C Ratio	0.33		0.08	0.36	0.12	0.12	
v/c Ratio	0.71		0.07	0.46	0.17	0.16	
Control Delay	22.9		33.6	16.5	32.2	14.1	
Queue Delay	0.0		0.0	0.0	0.0	0.0	
Total Delay	22.9		33.6	16.5	32.2	14.1	
LOS	C		C	B	C	B	
Approach Delay	22.9			16.9	23.2		
Approach LOS	C			B	C		
Queue Length 50th (ft)	136		4	90	13	0	
Queue Length 95th (ft)	247		21	129	47	28	
Internal Link Dist (ft)	345			3085	632		
Turn Bay Length (ft)			100		100		
Base Capacity (vph)	1963		734	3332	780	718	
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	0.41		0.01	0.17	0.05	0.05	

Intersection Summary	
Area Type:	Other
Cycle Length:	125
Actuated Cycle Length:	63
Natural Cycle:	85
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.71
Intersection Signal Delay:	20.5
Intersection Capacity Utilization	35.7%
Analysis Period (min)	15
Intersection LOS:	C
ICU Level of Service	A

Lanes, Volumes, Timings
23: Ridgeline HS & Country Vista Dr

09/17/2025

Splits and Phases: 23: Ridgeline HS & Country Vista Dr



Appendix E

Short-Term Analysis Results (2028)

AM Peak Hour

HCM 6th TWSC
1: Country Vista Dr & I-90 Ramps

09/17/2025

Intersection						
Int Delay, s/veh	3.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗	↖		↖	↖
Traffic Vol, veh/h	145	620	760	95	45	105
Future Vol, veh/h	145	620	760	95	45	105
Conflicting Peds, #/hr	1	0	0	1	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	125	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	79	79	79	79	79	79
Heavy Vehicles, %	6	5	6	2	0	3
Mvmt Flow	184	785	962	120	57	133

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	1083	0	-	0	1784 542
Stage 1	-	-	-	-	1023 -
Stage 2	-	-	-	-	761 -
Critical Hdwy	4.22	-	-	-	6.8 6.96
Critical Hdwy Stg 1	-	-	-	-	5.8 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	2.26	-	-	-	3.5 3.33
Pot Cap-1 Maneuver	617	-	-	-	75 482
Stage 1	-	-	-	-	312 -
Stage 2	-	-	-	-	427 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	616	-	-	-	~ 53 482
Mov Cap-2 Maneuver	-	-	-	-	153 -
Stage 1	-	-	-	-	218 -
Stage 2	-	-	-	-	427 -

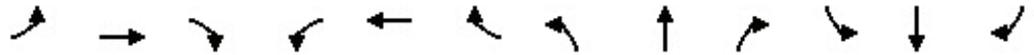
Approach	EB	WB	SB
HCM Control Delay, s	2.5	0	23.3
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	616	-	-	-	153	482
HCM Lane V/C Ratio	0.298	-	-	-	0.372	0.276
HCM Control Delay (s)	13.3	-	-	-	41.9	15.3
HCM Lane LOS	B	-	-	-	E	C
HCM 95th %tile Q(veh)	1.2	-	-	-	1.6	1.1

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

HCM 6th Signalized Intersection Summary
 2: N Kramer Pkwy & Country Vista Dr

09/17/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	85	490	35	80	655	110	130	95	195	150	45	175
Future Volume (veh/h)	85	490	35	80	655	110	130	95	195	150	45	175
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	1796	1900	1870	1841	1900	1900	1856	1885	1856	1856	1870
Adj Flow Rate, veh/h	110	636	45	104	851	143	169	123	253	195	58	227
Peak Hour Factor	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Percent Heavy Veh, %	3	7	0	2	4	0	0	3	1	3	3	2
Cap, veh/h	239	1062	75	326	975	164	404	144	297	333	92	361
Arrive On Green	0.06	0.33	0.33	0.06	0.33	0.33	0.09	0.27	0.27	0.11	0.28	0.28
Sat Flow, veh/h	1767	3233	229	1781	2995	503	1810	541	1114	1767	330	1293
Grp Volume(v), veh/h	110	335	346	104	497	497	169	0	376	195	0	285
Grp Sat Flow(s),veh/h/ln	1767	1706	1755	1781	1749	1750	1810	0	1655	1767	0	1623
Q Serve(g_s), s	3.0	12.3	12.3	2.9	20.1	20.1	4.9	0.0	16.2	5.8	0.0	11.5
Cycle Q Clear(g_c), s	3.0	12.3	12.3	2.9	20.1	20.1	4.9	0.0	16.2	5.8	0.0	11.5
Prop In Lane	1.00		0.13	1.00		0.29	1.00		0.67	1.00		0.80
Lane Grp Cap(c), veh/h	239	561	577	326	569	569	404	0	441	333	0	453
V/C Ratio(X)	0.46	0.60	0.60	0.32	0.87	0.87	0.42	0.00	0.85	0.58	0.00	0.63
Avail Cap(c_a), veh/h	376	580	597	470	595	595	489	0	563	394	0	552
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	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	18.3	21.0	21.0	16.2	23.8	23.8	17.8	0.0	26.1	18.8	0.0	23.6
Incr Delay (d2), s/veh	2.0	2.0	1.9	0.8	13.6	13.6	1.0	0.0	10.9	2.3	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.3	8.6	8.8	2.1	15.0	15.1	3.7	0.0	11.8	4.4	0.0	7.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.3	23.0	23.0	17.0	37.4	37.4	18.8	0.0	37.0	21.1	0.0	25.8
LnGrp LOS	C	C	C	B	D	D	B	A	D	C	A	C
Approach Vol, veh/h		791			1098			545				480
Approach Delay, s/veh		22.6			35.5			31.4				23.9
Approach LOS		C			D			C				C
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	29.1	11.5	25.4	9.2	28.9	12.4	24.5				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	25.5	10.5	25.5	10.5	25.5	10.5	25.5				
Max Q Clear Time (g_c+I1), s	4.9	14.3	6.9	13.5	5.0	22.1	7.8	18.2				
Green Ext Time (p_c), s	0.2	4.2	0.2	1.8	0.2	2.3	0.2	1.8				
Intersection Summary												
HCM 6th Ctrl Delay				29.3								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary

3: Legacy Ridge Dr. & Country Vista Dr

09/17/2025



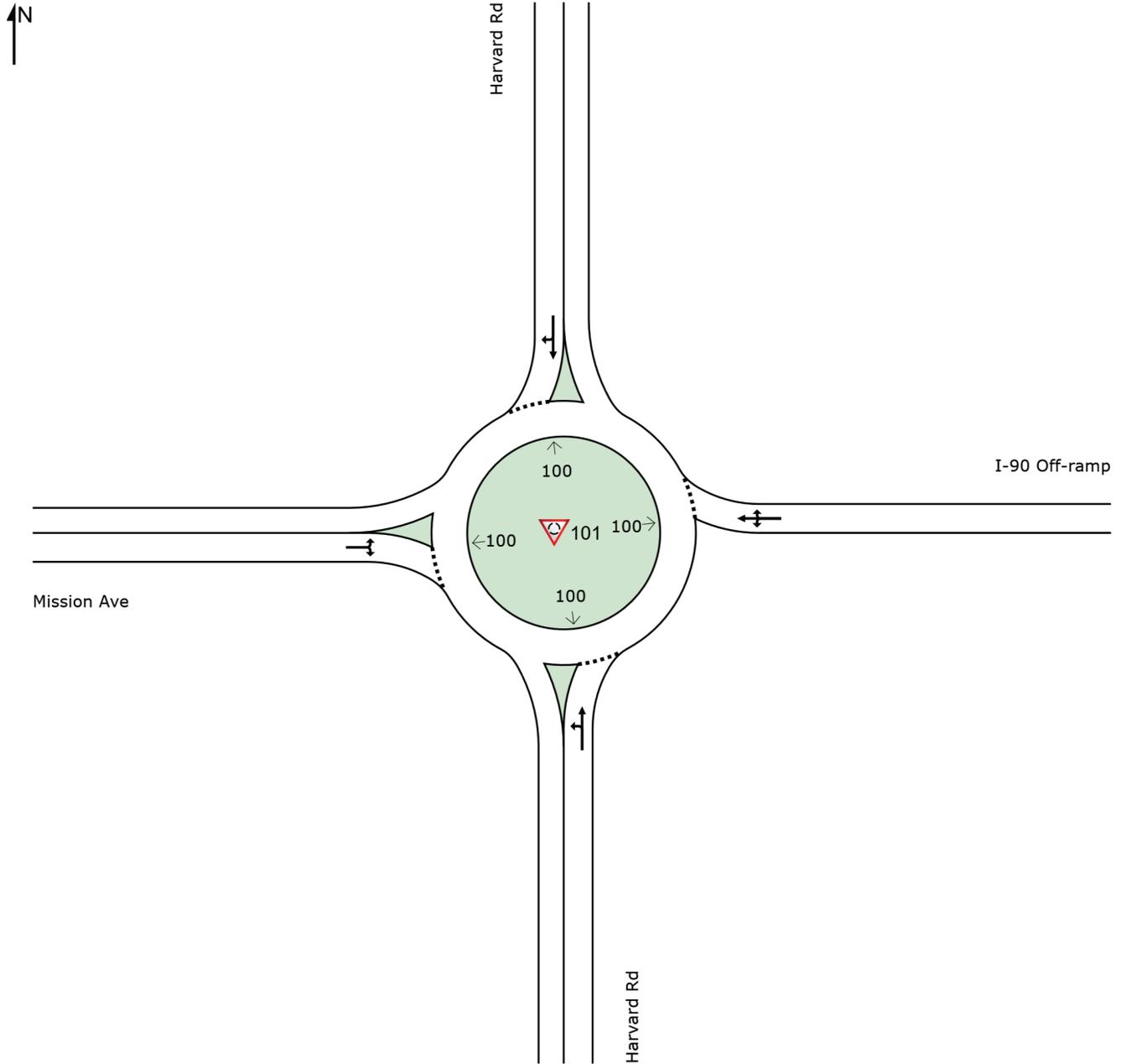
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	760	45	75	710	45	110	5	165	35	5	30
Future Volume (veh/h)	40	760	45	75	710	45	110	5	165	35	5	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No										
Adj Sat Flow, veh/h/ln	1870	1841	1781	1856	1841	1870	1885	1870	1900	1870	1870	1870
Adj Flow Rate, veh/h	45	864	51	85	807	51	125	6	188	40	6	33
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.92
Percent Heavy Veh, %	2	4	8	3	4	2	1	2	0	2	2	2
Cap, veh/h	418	1506	89	416	1565	99	403	10	305	260	49	272
Arrive On Green	0.04	0.45	0.45	0.06	0.47	0.47	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1781	3356	198	1767	3340	211	1379	49	1543	1189	250	1373
Grp Volume(v), veh/h	45	450	465	85	422	436	125	0	194	40	0	39
Grp Sat Flow(s),veh/h/ln	1781	1749	1805	1767	1749	1803	1379	0	1593	1189	0	1623
Q Serve(g_s), s	0.6	8.7	8.7	1.1	7.7	7.7	3.7	0.0	5.1	1.5	0.0	0.9
Cycle Q Clear(g_c), s	0.6	8.7	8.7	1.1	7.7	7.7	4.6	0.0	5.1	6.5	0.0	0.9
Prop In Lane	1.00		0.11	1.00		0.12	1.00		0.97	1.00		0.85
Lane Grp Cap(c), veh/h	418	785	810	416	819	845	403	0	315	260	0	321
V/C Ratio(X)	0.11	0.57	0.57	0.20	0.52	0.52	0.31	0.00	0.62	0.15	0.00	0.12
Avail Cap(c_a), veh/h	760	1551	1601	720	1551	1599	901	0	889	689	0	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(l)	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	6.7	9.3	9.3	6.8	8.5	8.5	17.0	0.0	16.7	19.7	0.0	15.1
Incr Delay (d2), s/veh	0.2	0.9	0.9	0.3	0.7	0.7	0.6	0.0	2.8	0.4	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.3	4.9	5.0	0.6	4.2	4.3	2.0	0.0	3.3	0.7	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.9	10.3	10.3	7.2	9.2	9.2	17.6	0.0	19.5	20.1	0.0	15.3
LnGrp LOS	A	B	B	A	A	A	B	A	B	C	A	B
Approach Vol, veh/h		960			943			319				79
Approach Delay, s/veh		10.1			9.0			18.8				17.7
Approach LOS		B			A			B				B
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	25.0		13.5	6.2	25.9		13.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	40.5	40.5		25.5	10.5	40.5		25.5				
Max Q Clear Time (g_c+1), s	10.7	10.7		8.5	2.6	9.7		7.1				
Green Ext Time (p_c), s	0.1	9.8		0.3	0.1	9.1		2.1				
Intersection Summary												
HCM 6th Ctrl Delay												11.1
HCM 6th LOS												B

SITE LAYOUT

Site: 101 [Mission_Harvard AM 2028 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [Mission_Harvard AM 2028 (Site Folder: General)]

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
South: Harvard Rd														
3	L2	240	5.0	240	5.0	0.387	10.2	LOS B	2.9	74.4	0.33	0.53	0.33	35.6
8	T1	265	3.0	265	3.0	0.387	4.3	LOS A	2.9	74.4	0.33	0.53	0.33	35.6
Approach		505	4.0	505	4.0	0.387	7.1	LOS A	2.9	74.4	0.33	0.53	0.33	35.6
East: I-90 Off-ramp														
1	L2	160	2.0	160	2.0	0.322	12.9	LOS B	2.0	50.3	0.67	0.77	0.67	34.5
6	T1	85	4.0	85	4.0	0.322	7.1	LOS A	2.0	50.3	0.67	0.77	0.67	34.4
16	R2	55	4.0	55	4.0	0.322	7.2	LOS A	2.0	50.3	0.67	0.77	0.67	33.4
Approach		300	2.9	300	2.9	0.322	10.2	LOS B	2.0	50.3	0.67	0.77	0.67	34.2
North: Harvard Rd														
4	T1	580	3.0	580	3.0	0.674	9.5	LOS A	7.1	182.1	0.82	0.90	1.03	34.8
14	R2	90	5.0	90	5.0	0.674	9.7	LOS A	7.1	182.1	0.82	0.90	1.03	33.8
Approach		670	3.3	670	3.3	0.674	9.6	LOS A	7.1	182.1	0.82	0.90	1.03	34.7
West: Mission Ave														
5	L2	80	4.0	80	4.0	0.559	17.0	LOS B	5.1	132.8	0.91	1.00	1.11	33.4
12	R2	330	4.0	330	4.0	0.559	11.1	LOS B	5.1	132.8	0.91	1.00	1.11	32.4
Approach		410	4.0	410	4.0	0.559	12.3	LOS B	5.1	132.8	0.91	1.00	1.11	32.6
All Vehicles		1885	3.6	1885	3.6	0.674	9.6	LOS A	7.1	182.1	0.69	0.80	0.80	34.4

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

HCM 6th Signalized Intersection Summary

6: Appleway Ave & Liberty Lake Rd

09/17/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	625	265	115	25	545	125	490	125	290	330	105
Future Volume (veh/h)	155	625	265	115	25	545	125	490	125	290	330	105
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	1841	1826	1826	1707	1470	1811	1811	1856	1811	1856	1870	1781
Adj Flow Rate, veh/h	172	694	294	128	28	606	139	544	139	322	367	0
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, %	4	5	5	13	29	6	6	3	6	3	2	8
Cap, veh/h	210	983	438	159	384	706	177	770	335	360	1096	
Arrive On Green	0.12	0.28	0.28	0.10	0.26	0.26	0.10	0.22	0.22	0.20	0.31	0.00
Sat Flow, veh/h	1753	3469	1547	1626	1470	2701	1725	3526	1535	1767	3554	1510
Grp Volume(v), veh/h	172	694	294	128	28	606	139	544	139	322	367	0
Grp Sat Flow(s),veh/h/ln	1753	1735	1547	1626	1470	1351	1725	1763	1535	1767	1777	1510
Q Serve(g_s), s	8.8	16.4	15.4	7.1	1.3	19.5	7.2	13.0	7.1	16.2	7.3	0.0
Cycle Q Clear(g_c), s	8.8	16.4	15.4	7.1	1.3	19.5	7.2	13.0	7.1	16.2	7.3	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	210	983	438	159	384	706	177	770	335	360	1096	
V/C Ratio(X)	0.82	0.71	0.67	0.81	0.07	0.86	0.78	0.71	0.41	0.89	0.33	
Avail Cap(c_a), veh/h	402	1327	592	373	562	1033	471	1156	503	406	1096	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	39.3	29.4	29.0	40.4	25.4	32.2	40.1	33.0	30.7	35.5	24.4	0.0
Incr Delay (d2), s/veh	7.7	1.5	2.5	9.2	0.1	5.0	10.3	1.7	1.2	20.9	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(95%),veh/ln	7.5	11.1	9.8	5.7	0.8	10.9	6.3	9.5	4.9	13.8	5.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	30.8	31.5	49.7	25.5	37.2	50.3	34.8	31.9	56.3	24.6	0.0
LnGrp LOS	D	C	C	D	C	D	D	C	C	E	C	
Approach Vol, veh/h		1160			762			822			689	
Approach Delay, s/veh		33.4			38.9			36.9			39.4	
Approach LOS		C			D			D			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	21.0	25.0	12.9	30.9	14.4	33.2	14.9	28.9				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0				
Max Green Setting (Gmax), s	21.0	30.0	21.0	35.0	25.0	25.0	21.0	35.0				
Max Q Clear Time (g_c+11g), s	11.0	15.0	9.1	18.4	9.2	9.3	10.8	21.5				
Green Ext Time (p_c), s	0.4	4.9	0.2	7.4	0.5	2.1	0.3	2.4				

Intersection Summary

HCM 6th Ctrl Delay	36.7
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary
 7: Liberty Lake Rd & Country Vista Dr.

09/17/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	455	80	20	440	135	135	185	20	130	100	365
Future Volume (veh/h)	380	455	80	20	440	135	135	185	20	130	100	365
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										
Adj Sat Flow, veh/h/ln	1826	1856	1796	1811	1856	1841	1841	1870	1900	1856	1826	1826
Adj Flow Rate, veh/h	422	506	89	22	489	150	150	206	22	144	111	406
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, %	5	3	7	6	3	4	4	2	0	3	5	5
Cap, veh/h	472	1217	213	293	588	179	266	970	102	509	513	458
Arrive On Green	0.20	0.41	0.41	0.02	0.22	0.22	0.08	0.30	0.30	0.08	0.30	0.30
Sat Flow, veh/h	1739	2999	525	1725	2661	811	1753	3243	343	1767	1735	1547
Grp Volume(v), veh/h	422	296	299	22	323	316	150	112	116	144	111	406
Grp Sat Flow(s),veh/h/ln	1739	1763	1761	1725	1763	1710	1753	1777	1809	1767	1735	1547
Q Serve(g_s), s	15.2	10.3	10.4	0.8	15.0	15.2	5.0	4.0	4.1	4.8	4.1	21.5
Cycle Q Clear(g_c), s	15.2	10.3	10.4	0.8	15.0	15.2	5.0	4.0	4.1	4.8	4.1	21.5
Prop In Lane	1.00		0.30	1.00		0.47	1.00		0.19	1.00		1.00
Lane Grp Cap(c), veh/h	472	715	715	293	390	378	266	531	541	509	513	458
V/C Ratio(X)	0.89	0.41	0.42	0.08	0.83	0.84	0.56	0.21	0.21	0.28	0.22	0.89
Avail Cap(c_a), veh/h	544	715	715	682	524	508	553	735	748	803	718	640
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.7	18.2	18.2	25.1	31.9	31.9	21.4	22.5	22.5	18.4	22.7	28.8
Incr Delay (d2), s/veh	14.4	0.1	0.1	0.0	6.1	6.8	0.7	0.1	0.1	0.1	0.1	8.6
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(95%),veh/ft	2.1	7.3	7.3	0.6	11.2	11.1	3.6	3.0	3.1	3.4	3.0	13.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.1	18.4	18.4	25.1	38.0	38.7	22.1	22.6	22.6	18.5	22.8	37.4
LnGrp LOS	C	B	B	C	D	D	C	C	C	B	C	D
Approach Vol, veh/h		1017			661			378			661	
Approach Delay, s/veh		24.9			37.9			22.4			30.9	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.7	30.2	5.6	39.3	11.0	29.9	21.5	23.5				
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5				
Max Green Setting (Gmax), s	35.5	35.5	21.0	25.5	21.0	35.5	21.0	25.5				
Max Q Clear Time (g_c+1/8), s	6.1	6.1	2.8	12.4	7.0	23.5	17.2	17.2				
Green Ext Time (p_c), s	0.2	0.8	0.0	2.0	0.2	1.9	0.3	1.8				
Intersection Summary												
HCM 6th Ctrl Delay				29.2								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↖↖	↖↗		↖	↖
Traffic Vol, veh/h	370	275	280	10	5	290
Future Vol, veh/h	370	275	280	10	5	290
Conflicting Peds, #/hr	3	0	0	3	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	5	2	2	0	0	4
Mvmt Flow	430	320	326	12	6	337

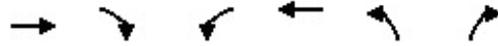
Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	341	0	-	0	1356 172
Stage 1	-	-	-	-	335 -
Stage 2	-	-	-	-	1021 -
Critical Hdwy	4.2	-	-	-	6.8 6.98
Critical Hdwy Stg 1	-	-	-	-	5.8 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	2.25	-	-	-	3.5 3.34
Pot Cap-1 Maneuver	1193	-	-	-	143 835
Stage 1	-	-	-	-	702 -
Stage 2	-	-	-	-	313 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1190	-	-	-	91 833
Mov Cap-2 Maneuver	-	-	-	-	91 -
Stage 1	-	-	-	-	448 -
Stage 2	-	-	-	-	312 -

Approach	EB	WB	SB
HCM Control Delay, s	5.6	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1190	-	-	-	91	833
HCM Lane V/C Ratio	0.362	-	-	-	0.064	0.405
HCM Control Delay (s)	9.7	-	-	-	47.2	12.2
HCM Lane LOS	A	-	-	-	E	B
HCM 95th %tile Q(veh)	1.7	-	-	-	0.2	2

HCM 6th Signalized Intersection Summary
 9: Signal Dr & Appleway Ave

09/17/2025



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (veh/h)	810	110	15	455	245	25
Future Volume (veh/h)	810	110	15	455	245	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	1841	1796	1796	1752	1885	1900
Adj Flow Rate, veh/h	942	128	17	529	285	29
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	4	7	7	10	1	0
Cap, veh/h	1344	183	297	1903	380	341
Arrive On Green	0.43	0.43	0.02	0.57	0.21	0.21
Sat Flow, veh/h	3186	420	1711	3416	1795	1610
Grp Volume(v), veh/h	532	538	17	529	285	29
Grp Sat Flow(s),veh/h/ln	1749	1765	1711	1664	1795	1610
Q Serve(g_s), s	10.3	10.3	0.2	3.4	6.2	0.6
Cycle Q Clear(g_c), s	10.3	10.3	0.2	3.4	6.2	0.6
Prop In Lane		0.24	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	760	767	297	1903	380	341
V/C Ratio(X)	0.70	0.70	0.06	0.28	0.75	0.09
Avail Cap(c_a), veh/h	1051	1061	885	3601	1122	1006
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.6	9.6	7.1	4.5	15.4	13.2
Incr Delay (d2), s/veh	1.2	1.2	0.1	0.1	3.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.5	5.6	0.1	1.2	4.4	0.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	10.8	10.8	7.2	4.6	18.3	13.3
LnGrp LOS	B	B	A	A	B	B
Approach Vol, veh/h	1070			546	314	
Approach Delay, s/veh	10.8			4.7	17.9	
Approach LOS	B			A	B	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	5.7	23.1		12.8		28.8
Change Period (Y+Rc), s	5.0	5.0		4.0		5.0
Max Green Setting (Gmax), s	15.0	25.0		26.0		45.0
Max Q Clear Time (g_c+I1), s	2.2	12.3		8.2		5.4
Green Ext Time (p_c), s	0.0	5.8		0.9		4.1
Intersection Summary						
HCM 6th Ctrl Delay			10.2			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary

10: Madson St & Appleway Ave

09/17/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	590	50	15	445	10	10	10	10	15	5	25
Future Volume (veh/h)	80	590	50	15	445	10	10	10	10	15	5	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										
Adj Sat Flow, veh/h/ln	1826	1841	1841	1900	1767	1900	1648	1900	1900	1648	418	1826
Adj Flow Rate, veh/h	95	702	60	18	530	12	12	12	12	18	6	30
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Percent Heavy Veh, %	5	4	4	0	9	0	17	0	0	17	100	5
Cap, veh/h	505	1269	108	410	1080	24	177	31	31	422	13	65
Arrive On Green	0.07	0.39	0.39	0.02	0.32	0.32	0.06	0.06	0.06	0.02	0.21	0.21
Sat Flow, veh/h	1739	3261	279	1810	3355	76	536	536	536	1570	61	303
Grp Volume(v), veh/h	95	376	386	18	265	277	36	0	0	18	0	36
Grp Sat Flow(s),veh/h/ln	1739	1749	1791	1810	1678	1753	1609	0	0	1570	0	363
Q Serve(g_s), s	1.2	5.5	5.5	0.2	4.2	4.2	0.7	0.0	0.0	0.3	0.0	2.9
Cycle Q Clear(g_c), s	1.2	5.5	5.5	0.2	4.2	4.2	0.7	0.0	0.0	0.3	0.0	2.9
Prop In Lane	1.00		0.16	1.00		0.04	0.33		0.33	1.00		0.83
Lane Grp Cap(c), veh/h	505	680	697	410	540	564	240	0	0	422	0	78
V/C Ratio(X)	0.19	0.55	0.55	0.04	0.49	0.49	0.15	0.00	0.00	0.04	0.00	0.46
Avail Cap(c_a), veh/h	1463	1882	1928	1529	1807	1887	1414	0	0	1368	0	562
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.7	7.8	7.8	7.4	9.0	9.0	14.9	0.0	0.0	12.4	0.0	11.3
Incr Delay (d2), s/veh	0.2	0.7	0.7	0.0	0.7	0.7	0.3	0.0	0.0	0.0	0.0	4.3
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(95%),veh/lr	0.5	2.6	2.6	0.1	2.1	2.2	0.4	0.0	0.0	0.2	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.9	8.5	8.5	7.5	9.7	9.7	15.2	0.0	0.0	12.4	0.0	15.6
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	B
Approach Vol, veh/h		857			560			36				54
Approach Delay, s/veh		8.4			9.6			15.2				14.5
Approach LOS		A			A			B				B
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.6	17.3		11.0	6.8	15.1	5.1	5.9				
Change Period (Y+Rc), s	4.0	4.5		4.0	4.5	4.5	4.5	4.0				
Max Green Setting (Gmax), s	1.0	35.5		51.0	20.5	35.5	20.5	26.0				
Max Q Clear Time (g_c+1), s	12.2	7.5		4.9	3.2	6.2	2.3	2.7				
Green Ext Time (p_c), s	0.0	5.3		0.2	0.2	3.5	0.0	0.1				
Intersection Summary												
HCM 6th Ctrl Delay					9.2							
HCM 6th LOS					A							

HCM 6th Signalized Intersection Summary

11: Molter Rd & Appleway Ave

09/17/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	270	175	110	350	20	105	30	95	10	10	10
Future Volume (veh/h)	85	270	175	110	350	20	105	30	95	10	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		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										
Adj Sat Flow, veh/h/ln	1885	1826	1841	1870	1781	1826	1722	1900	1870	1574	1900	1574
Adj Flow Rate, veh/h	92	293	190	120	380	22	114	33	103	11	11	11
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	5	4	2	8	5	12	0	2	22	0	22
Cap, veh/h	461	504	318	433	862	50	433	307	256	298	168	118
Arrive On Green	0.06	0.25	0.25	0.08	0.26	0.26	0.08	0.16	0.16	0.01	0.09	0.09
Sat Flow, veh/h	1795	2041	1287	1781	3252	188	1640	1900	1585	1499	1900	1334
Grp Volume(v), veh/h	92	248	235	120	197	205	114	33	103	11	11	11
Grp Sat Flow(s),veh/h/ln	1795	1735	1594	1781	1692	1748	1640	1900	1585	1499	1900	1334
Q Serve(g_s), s	1.4	4.7	4.9	1.8	3.6	3.7	2.3	0.6	2.2	0.3	0.2	0.3
Cycle Q Clear(g_c), s	1.4	4.7	4.9	1.8	3.6	3.7	2.3	0.6	2.2	0.3	0.2	0.3
Prop In Lane	1.00		0.81	1.00		0.11	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	461	428	394	433	448	463	433	307	256	298	168	118
V/C Ratio(X)	0.20	0.58	0.60	0.28	0.44	0.44	0.26	0.11	0.40	0.04	0.07	0.09
Avail Cap(c_a), veh/h	861	879	808	797	858	886	758	963	804	705	963	676
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.7	12.4	12.5	9.6	11.5	11.5	13.6	13.4	14.1	15.4	15.7	15.7
Incr Delay (d2), s/veh	0.2	1.2	1.5	0.3	1.0	0.9	0.3	0.2	1.4	0.0	0.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.8	2.8	2.7	1.0	2.1	2.2	1.3	0.4	1.3	0.1	0.2	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.9	13.6	13.9	9.9	12.4	12.4	14.0	13.6	15.5	15.4	15.9	16.2
LnGrp LOS	A	B	B	A	B	B	B	B	B	B	B	B
Approach Vol, veh/h		575			522			250			33	
Approach Delay, s/veh		13.2			11.8			14.6			15.8	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.8	11.1	6.7	14.9	7.6	8.3	7.3	14.3				
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	4.5	5.0	4.5	5.0				
Max Green Setting (Gmax), s	10.5	19.0	10.5	19.0	10.5	19.0	10.5	19.0				
Max Q Clear Time (g_c+1), s	12.3	4.2	3.4	5.7	4.3	2.3	3.8	6.9				
Green Ext Time (p_c), s	0.0	0.6	0.1	2.6	0.1	0.0	0.1	2.4				
Intersection Summary												
HCM 6th Ctrl Delay					13.0							
HCM 6th LOS					B							

MOVEMENT SUMMARY

Site: 101 [Mission_Molter AM 2028 (Site Folder: General)]

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Molter Rd														
3	L2	105	2.0	105	2.0	0.254	11.2	LOS B	1.4	34.4	0.45	0.61	0.45	35.7
8	T1	135	1.0	135	1.0	0.254	5.2	LOS A	1.4	34.4	0.45	0.61	0.45	35.6
18	R2	30	1.0	30	1.0	0.254	5.2	LOS A	1.4	34.4	0.45	0.61	0.45	34.6
Approach		270	1.4	270	1.4	0.254	7.5	LOS A	1.4	34.4	0.45	0.61	0.45	35.5
East: Mission Ave														
1	L2	50	2.0	50	2.0	0.386	11.6	LOS B	2.3	59.5	0.54	0.60	0.54	36.0
6	T1	265	2.0	265	2.0	0.386	5.6	LOS A	2.3	59.5	0.54	0.60	0.54	36.0
16	R2	80	4.0	80	4.0	0.386	5.8	LOS A	2.3	59.5	0.54	0.60	0.54	34.8
Approach		395	2.4	395	2.4	0.386	6.4	LOS A	2.3	59.5	0.54	0.60	0.54	35.7
North: Molter Rd														
7	L2	45	4.0	45	4.0	0.211	12.0	LOS B	1.1	29.3	0.55	0.66	0.55	35.6
4	T1	95	4.0	95	4.0	0.211	6.1	LOS A	1.1	29.3	0.55	0.66	0.55	35.6
14	R2	50	8.0	50	8.0	0.211	6.3	LOS A	1.1	29.3	0.55	0.66	0.55	34.4
Approach		190	5.1	190	5.1	0.211	7.5	LOS A	1.1	29.3	0.55	0.66	0.55	35.3
West: Mission Ave														
5	L2	60	4.0	60	4.0	0.285	10.9	LOS B	1.6	41.0	0.41	0.55	0.41	36.3
2	T1	155	4.0	155	4.0	0.285	4.9	LOS A	1.6	41.0	0.41	0.55	0.41	36.2
12	R2	95	4.0	95	4.0	0.285	5.0	LOS A	1.6	41.0	0.41	0.55	0.41	35.1
Approach		310	4.0	310	4.0	0.285	6.1	LOS A	1.6	41.0	0.41	0.55	0.41	35.9
All Vehicles		1165	3.0	1165	3.0	0.386	6.8	LOS A	2.3	59.5	0.49	0.60	0.49	35.6

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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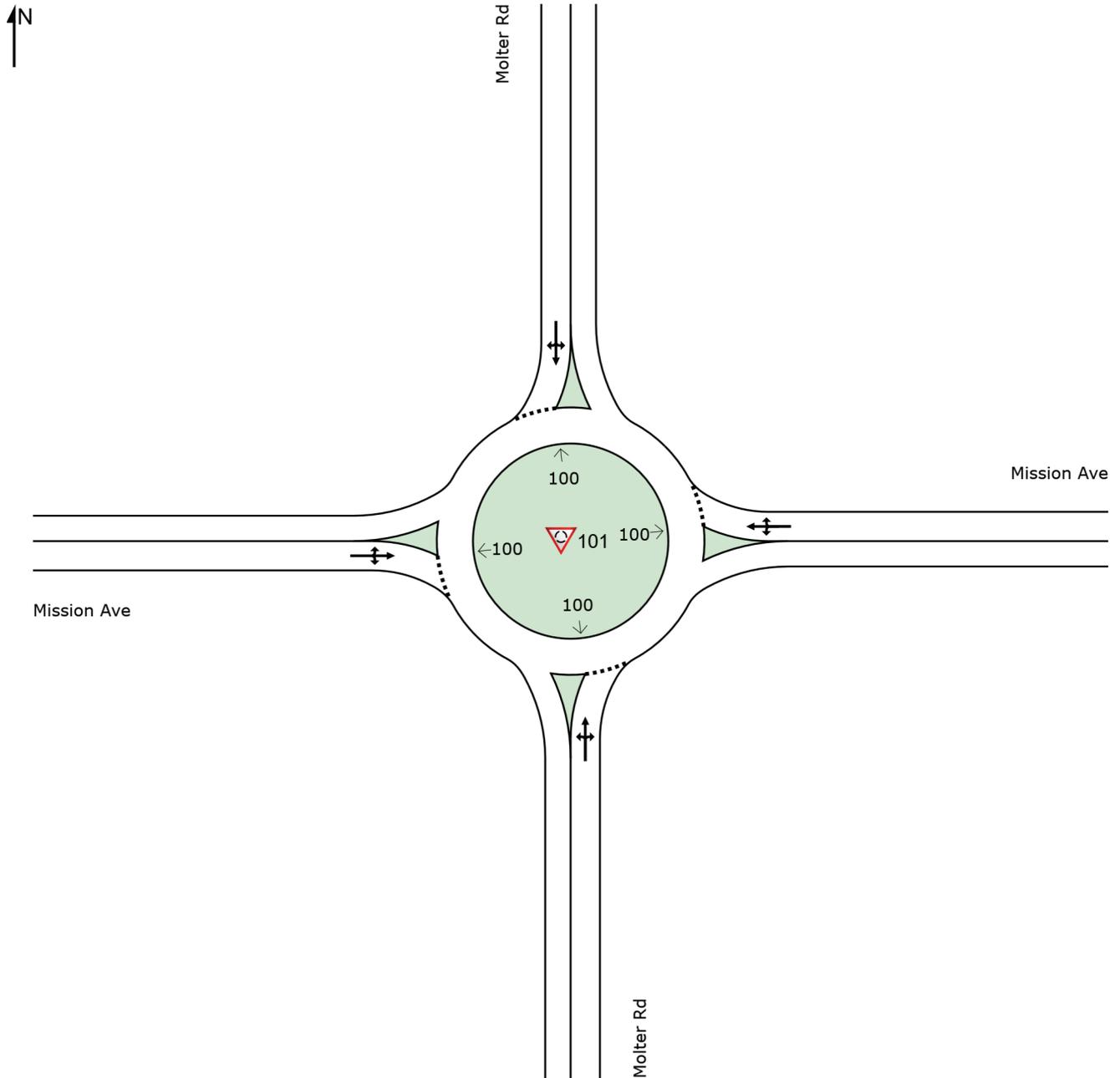
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SITE LAYOUT

 Site: 101 [Mission_Molter AM 2028 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 Site: 101 [Mission_Harvest AM 2028 (Site Folder: General)]

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Harvest Pkwy														
3	L2	120	4.0	120	4.0	0.290	11.1	LOS B	1.6	41.3	0.45	0.62	0.45	35.7
8	T1	35	1.0	35	1.0	0.290	5.1	LOS A	1.6	41.3	0.45	0.62	0.45	35.7
18	R2	150	4.0	150	4.0	0.290	5.3	LOS A	1.6	41.3	0.45	0.62	0.45	34.5
Approach		305	3.7	305	3.7	0.290	7.6	LOS A	1.6	41.3	0.45	0.62	0.45	35.1
East: Mission Ave														
1	L2	175	3.0	175	3.0	0.330	10.8	LOS B	1.9	49.7	0.40	0.59	0.40	35.5
6	T1	165	3.0	165	3.0	0.330	4.8	LOS A	1.9	49.7	0.40	0.59	0.40	35.5
16	R2	30	3.0	30	3.0	0.330	4.9	LOS A	1.9	49.7	0.40	0.59	0.40	34.4
Approach		370	3.0	370	3.0	0.330	7.6	LOS A	1.9	49.7	0.40	0.59	0.40	35.4
North: Harvest Pkwy														
7	L2	45	1.0	45	1.0	0.130	12.0	LOS B	0.7	16.5	0.54	0.67	0.54	35.5
4	T1	35	1.0	35	1.0	0.130	6.0	LOS A	0.7	16.5	0.54	0.67	0.54	35.4
14	R2	40	1.0	40	1.0	0.130	6.1	LOS A	0.7	16.5	0.54	0.67	0.54	34.3
Approach		120	1.0	120	1.0	0.130	8.3	LOS A	0.7	16.5	0.54	0.67	0.54	35.1
West: Mission Ave														
5	L2	10	3.0	10	3.0	0.289	11.2	LOS B	1.6	40.2	0.45	0.55	0.45	36.6
2	T1	185	3.0	185	3.0	0.289	5.2	LOS A	1.6	40.2	0.45	0.55	0.45	36.5
12	R2	110	3.0	110	3.0	0.289	5.3	LOS A	1.6	40.2	0.45	0.55	0.45	35.4
Approach		305	3.0	305	3.0	0.289	5.5	LOS A	1.6	40.2	0.45	0.55	0.45	36.1
All Vehicles		1100	3.0	1100	3.0	0.330	7.1	LOS A	1.9	49.7	0.45	0.60	0.45	35.5

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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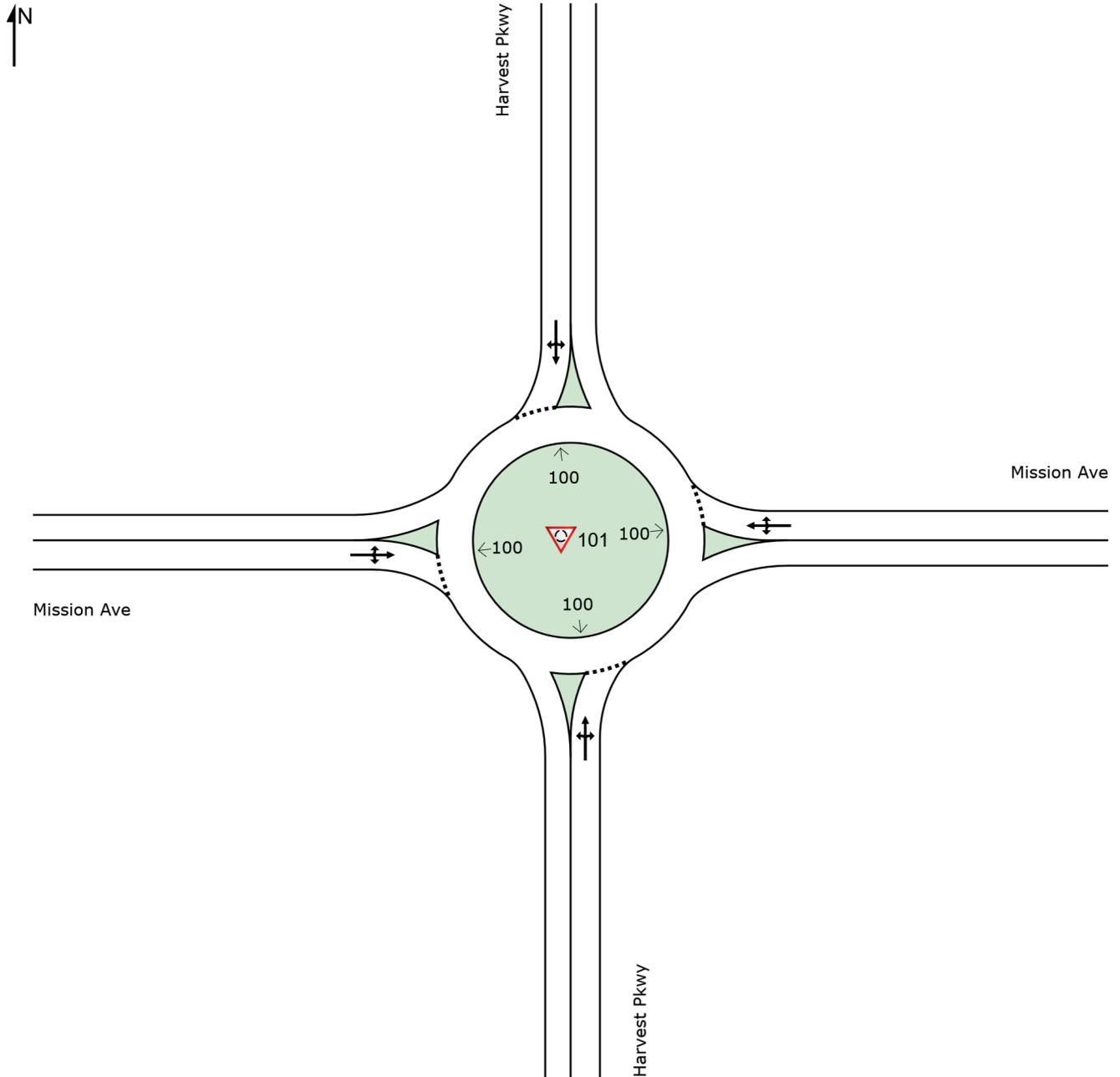
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SITE LAYOUT

 Site: 101 [Mission_Harvest AM 2028 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



HCM 6th TWSC
 14: N. Country Vista Blvd & Appleway Ave

09/17/2025

Intersection

Int Delay, s/veh 4.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	185	75	45	335	160	95
Future Vol, veh/h	185	75	45	335	160	95
Conflicting Peds, #/hr	0	1	1	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	6	8	6	8	3	4
Mvmt Flow	199	81	48	360	172	102

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	281
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.16
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.254
Pot Cap-1 Maneuver	-	-	1259
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	1258
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.9	14.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	487	791	-	-	1258	-
HCM Lane V/C Ratio	0.353	0.129	-	-	0.038	-
HCM Control Delay (s)	16.4	10.2	-	-	8	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	1.6	0.4	-	-	0.1	-

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	70	45	15	10	130	10	15	30	10	10	25	180
Future Vol, veh/h	70	45	15	10	130	10	15	30	10	10	25	180
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	3	5	0	0	0	0	13	7	10	17	0	3
Mvmt Flow	81	52	17	12	151	12	17	35	12	12	29	209
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	9.3	9.8	8.9	9.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	27%	100%	0%	100%	0%	5%
Vol Thru, %	55%	0%	75%	0%	93%	12%
Vol Right, %	18%	0%	25%	0%	7%	84%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	55	70	60	10	140	215
LT Vol	15	70	0	10	0	10
Through Vol	30	0	45	0	130	25
RT Vol	10	0	15	0	10	180
Lane Flow Rate	64	81	70	12	163	250
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.093	0.136	0.104	0.019	0.243	0.322
Departure Headway (Hd)	5.237	6.002	5.354	5.933	5.378	4.633
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	679	593	663	599	663	773
Service Time	3.314	3.78	3.133	3.71	3.154	2.686
HCM Lane V/C Ratio	0.094	0.137	0.106	0.02	0.246	0.323
HCM Control Delay	8.9	9.7	8.8	8.8	9.9	9.9
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.3	0.5	0.3	0.1	0.9	1.4

Intersection

Intersection Delay, s/veh 12.6

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Traffic Vol, veh/h	70	130	50	10	100	25	45	110	25	35	70	60
Future Vol, veh/h	70	130	50	10	100	25	45	110	25	35	70	60
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Heavy Vehicles, %	3	0	2	0	1	0	0	2	0	3	2	7
Mvmt Flow	95	176	68	14	135	34	61	149	34	47	95	81
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	14.7	11.3	11.7	11.3
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	28%	7%	100%	0%
Vol Thru, %	0%	81%	52%	74%	0%	54%
Vol Right, %	0%	19%	20%	19%	0%	46%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	45	135	250	135	35	130
LT Vol	45	0	70	10	35	0
Through Vol	0	110	130	100	0	70
RT Vol	0	25	50	25	0	60
Lane Flow Rate	61	182	338	182	47	176
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.116	0.318	0.524	0.293	0.092	0.299
Departure Headway (Hd)	6.892	6.284	5.579	5.788	6.987	6.13
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	518	569	642	617	511	583
Service Time	4.663	4.055	3.64	3.86	4.759	3.901
HCM Lane V/C Ratio	0.118	0.32	0.526	0.295	0.092	0.302
HCM Control Delay	10.6	12	14.7	11.3	10.5	11.5
HCM Lane LOS	B	B	B	B	B	B
HCM 95th-tile Q	0.4	1.4	3.1	1.2	0.3	1.2

Intersection

Intersection Delay, s/veh 7.8
 Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	15	40	5	0	55	30	10	45	5	20	25	5
Future Vol, veh/h	15	40	5	0	55	30	10	45	5	20	25	5
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81
Heavy Vehicles, %	0	5	0	0	4	3	0	0	100	6	0	0
Mvmt Flow	19	49	6	0	68	37	12	56	6	25	31	6
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	7.8	7.7	7.8	7.9
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	25%	0%	40%
Vol Thru, %	75%	67%	65%	50%
Vol Right, %	8%	8%	35%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	60	60	85	50
LT Vol	10	15	0	20
Through Vol	45	40	55	25
RT Vol	5	5	30	5
Lane Flow Rate	74	74	105	62
Geometry Grp	1	1	1	1
Degree of Util (X)	0.089	0.089	0.121	0.077
Departure Headway (Hd)	4.348	4.32	4.157	4.498
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	827	833	868	799
Service Time	2.359	2.331	2.157	2.51
HCM Lane V/C Ratio	0.089	0.089	0.121	0.078
HCM Control Delay	7.8	7.8	7.7	7.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.3	0.4	0.2

MOVEMENT SUMMARY

 Site: 101 [Mission_Kramer AM 2028 (Site Folder: General)]

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Kramer Pkwy														
3	L2	185	2.0	185	2.0	0.264	11.0	LOS B	1.4	36.1	0.43	0.65	0.43	35.0
8	T1	10	3.0	10	3.0	0.264	5.1	LOS A	1.4	36.1	0.43	0.65	0.43	34.9
18	R2	90	2.0	90	2.0	0.264	5.1	LOS A	1.4	36.1	0.43	0.65	0.43	33.9
Approach		285	2.0	285	2.0	0.264	9.0	LOS A	1.4	36.1	0.43	0.65	0.43	34.7
East: Mission Ave														
1	L2	70	6.0	70	6.0	0.269	10.9	LOS B	1.5	38.6	0.42	0.55	0.42	36.0
6	T1	205	6.0	205	6.0	0.269	5.0	LOS A	1.5	38.6	0.42	0.55	0.42	36.0
16	R2	10	3.0	10	3.0	0.269	5.0	LOS A	1.5	38.6	0.42	0.55	0.42	34.9
Approach		285	5.9	285	5.9	0.269	6.4	LOS A	1.5	38.6	0.42	0.55	0.42	35.9
North: Kramer Pkwy														
7	L2	25	3.0	25	3.0	0.056	12.3	LOS B	0.3	7.5	0.56	0.65	0.56	34.9
4	T1	20	3.0	20	3.0	0.056	6.3	LOS A	0.3	7.5	0.56	0.65	0.56	34.8
14	R2	5	3.0	5	3.0	0.056	6.4	LOS A	0.3	7.5	0.56	0.65	0.56	33.8
Approach		50	3.0	50	3.0	0.056	9.3	LOS A	0.3	7.5	0.56	0.65	0.56	34.8
West: Mission Ave														
5	L2	5	3.0	5	3.0	0.414	10.6	LOS B	2.6	67.3	0.36	0.48	0.36	37.0
2	T1	200	6.0	200	6.0	0.414	4.7	LOS A	2.6	67.3	0.36	0.48	0.36	36.9
12	R2	275	3.0	275	3.0	0.414	4.7	LOS A	2.6	67.3	0.36	0.48	0.36	35.8
Approach		480	4.3	480	4.3	0.414	4.7	LOS A	2.6	67.3	0.36	0.48	0.36	36.3
All Vehicles		1100	4.0	1100	4.0	0.414	6.5	LOS A	2.6	67.3	0.40	0.55	0.40	35.7

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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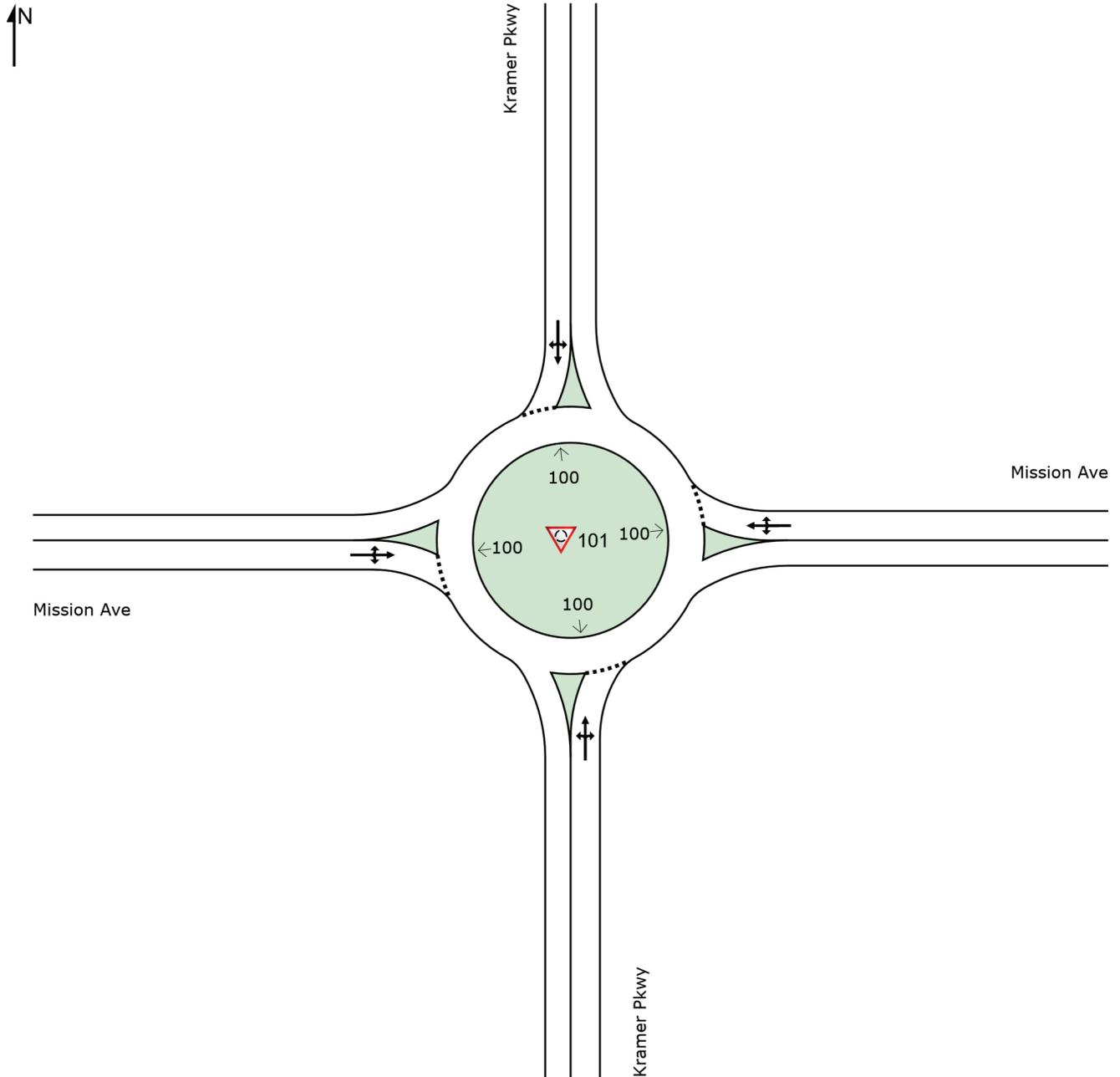
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SITE LAYOUT

Site: 101 [Mission_Kramer AM 2028 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



HCM 6th Signalized Intersection Summary

19: Harvard Rd & N Indiana Avenue

09/17/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	5	50	55	5	10	25	340	35	5	570	15
Future Volume (veh/h)	20	5	50	55	5	10	25	340	35	5	570	15
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	1781	1411	1900	1900	1856	1826	1900	1841	1767
Adj Flow Rate, veh/h	23	6	58	64	6	12	29	395	41	6	663	17
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Percent Heavy Veh, %	0	0	0	8	33	0	0	3	5	0	4	9
Cap, veh/h	41	9	83	89	36	72	439	1314	136	528	1344	34
Arrive On Green	0.02	0.06	0.06	0.05	0.09	0.09	0.03	0.41	0.41	0.01	0.39	0.39
Sat Flow, veh/h	1810	153	1480	1697	420	840	1810	3225	333	1810	3484	89
Grp Volume(v), veh/h	23	0	64	64	0	18	29	215	221	6	333	347
Grp Sat Flow(s),veh/h/ln	1810	0	1634	1697	0	1260	1810	1763	1796	1810	1749	1825
Q Serve(g_s), s	0.4	0.0	1.4	1.3	0.0	0.5	0.3	2.9	3.0	0.1	5.1	5.1
Cycle Q Clear(g_c), s	0.4	0.0	1.4	1.3	0.0	0.5	0.3	2.9	3.0	0.1	5.1	5.1
Prop In Lane	1.00		0.91	1.00		0.67	1.00		0.19	1.00		0.05
Lane Grp Cap(c), veh/h	41	0	91	89	0	108	439	718	732	528	675	704
V/C Ratio(X)	0.56	0.00	0.70	0.72	0.00	0.17	0.07	0.30	0.30	0.01	0.49	0.49
Avail Cap(c_a), veh/h	305	0	803	381	0	690	1151	2203	2244	821	1743	1819
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.2	0.0	16.5	16.6	0.0	15.1	6.6	7.1	7.1	6.7	8.3	8.3
Incr Delay (d2), s/veh	11.2	0.0	12.9	10.2	0.0	1.0	0.1	0.3	0.3	0.0	0.8	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.5	0.0	1.4	1.2	0.0	0.3	0.2	1.4	1.5	0.0	2.6	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.4	0.0	29.4	26.8	0.0	16.1	6.7	7.4	7.5	6.7	9.1	9.1
LnGrp LOS	C	A	C	C	A	B	A	A	A	A	A	A
Approach Vol, veh/h		87			82			465			686	
Approach Delay, s/veh		29.1			24.4			7.4			9.1	
Approach LOS		C			C			A			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.0	18.2	4.8	7.6	4.2	19.0	5.9	6.5				
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5				
Max Green Setting (Gmax), s	15.0	35.5	6.0	19.5	6.0	44.5	8.0	17.5				
Max Q Clear Time (g_c+1/3), s	12.3	7.1	2.4	2.5	2.1	5.0	3.3	3.4				
Green Ext Time (p_c), s	0.0	6.6	0.0	0.0	0.0	4.2	0.0	0.3				
Intersection Summary												
HCM 6th Ctrl Delay											10.7	
HCM 6th LOS											B	

HCM 6th TWSC
20: Harvard Rd & E Wellington Parkway

09/17/2025

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕↗		↗	↕↗	
Traffic Vol, veh/h	5	5	5	45	5	5	10	330	25	5	535	5
Future Vol, veh/h	5	5	5	45	5	5	10	330	25	5	535	5
Conflicting Peds, #/hr	2	0	0	0	0	2	2	0	0	0	0	2
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	50	-	-	55	150	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	0	0	0	0	0	0	0	3	0	0	4	0
Mvmt Flow	5	5	5	49	5	5	11	363	27	5	588	5

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	811	1015	299	706	1004	197	595	0	0	390	0	0
Stage 1	603	603	-	399	399	-	-	-	-	-	-	-
Stage 2	208	412	-	307	605	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	274	240	703	327	244	817	991	-	-	1180	-	-
Stage 1	458	492	-	604	606	-	-	-	-	-	-	-
Stage 2	780	598	-	683	491	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	263	236	702	315	240	816	989	-	-	1180	-	-
Mov Cap-2 Maneuver	263	236	-	315	240	-	-	-	-	-	-	-
Stage 1	452	489	-	597	599	-	-	-	-	-	-	-
Stage 2	758	591	-	667	488	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	16.8		18.5			0.2			0.1		
HCM LOS	C		C								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	989	-	-	249	702	305	816	1180	-	-
HCM Lane V/C Ratio	0.011	-	-	0.044	0.008	0.18	0.007	0.005	-	-
HCM Control Delay (s)	8.7	-	-	20.1	10.2	19.4	9.4	8.1	-	-
HCM Lane LOS	A	-	-	C	B	C	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0.6	0	0	-	-

HCM 6th TWSC
21: Signal Dr & Mission Ave

09/17/2025

Intersection												
Int Delay, s/veh	8.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↕	↕		↕	↕	
Traffic Vol, veh/h	25	315	10	5	320	195	20	50	10	115	10	10
Future Vol, veh/h	25	315	10	5	320	195	20	50	10	115	10	10
Conflicting Peds, #/hr	0	0	7	7	0	0	2	0	0	0	0	2
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	8	2	0	0	3	1	0	0	0	7	0	11
Mvmt Flow	27	342	11	5	348	212	22	54	11	125	11	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	560	0	0	360	0	0	886	979	355	898	878	456
Stage 1	-	-	-	-	-	-	409	409	-	464	464	-
Stage 2	-	-	-	-	-	-	477	570	-	434	414	-
Critical Hdwy	4.18	-	-	4.1	-	-	7.1	6.5	6.2	7.17	6.5	6.31
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.17	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.17	5.5	-
Follow-up Hdwy	2.272	-	-	2.2	-	-	3.5	4	3.3	3.563	4	3.399
Pot Cap-1 Maneuver	982	-	-	1210	-	-	267	252	693	255	289	586
Stage 1	-	-	-	-	-	-	623	600	-	569	567	-
Stage 2	-	-	-	-	-	-	573	509	-	591	597	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	982	-	-	1203	-	-	246	243	689	203	278	585
Mov Cap-2 Maneuver	-	-	-	-	-	-	246	243	-	203	278	-
Stage 1	-	-	-	-	-	-	602	580	-	554	565	-
Stage 2	-	-	-	-	-	-	548	507	-	513	577	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.6			0.1			25.1			50		
HCM LOS							D			F		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	265	982	-	-	1203	-	-	218
HCM Lane V/C Ratio	0.328	0.028	-	-	0.005	-	-	0.673
HCM Control Delay (s)	25.1	8.8	-	-	8	-	-	50
HCM Lane LOS	D	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	1.4	0.1	-	-	0	-	-	4.2

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	35	365	455	5	10	10
Future Vol, veh/h	35	365	455	5	10	10
Conflicting Peds, #/hr	3	0	0	3	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	4	2	0	17	0
Mvmt Flow	40	415	517	6	11	11

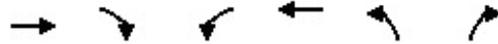
Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	526	0	-	0	1019 523
Stage 1	-	-	-	-	523 -
Stage 2	-	-	-	-	496 -
Critical Hdwy	4.1	-	-	-	6.57 6.2
Critical Hdwy Stg 1	-	-	-	-	5.57 -
Critical Hdwy Stg 2	-	-	-	-	5.57 -
Follow-up Hdwy	2.2	-	-	-	3.653 3.3
Pot Cap-1 Maneuver	1051	-	-	-	246 558
Stage 1	-	-	-	-	565 -
Stage 2	-	-	-	-	582 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1048	-	-	-	236 557
Mov Cap-2 Maneuver	-	-	-	-	363 -
Stage 1	-	-	-	-	542 -
Stage 2	-	-	-	-	581 -

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	13.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1048	-	-	-	440
HCM Lane V/C Ratio	0.038	-	-	-	0.052
HCM Control Delay (s)	8.6	-	-	-	13.6
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.2

Lanes, Volumes, Timings
23: Ridgeline HS & Country Vista Dr

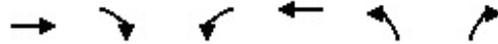
06/26/2025



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø14
Lane Configurations	↑↑		↵	↑↑	↵	↵	
Traffic Volume (vph)	420	245	90	680	175	95	
Future Volume (vph)	420	245	90	680	175	95	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)		75	100		100	0	
Storage Lanes		0	1		1	1	
Taper Length (ft)			25		25		
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00	
Frt	0.945					0.850	
Flt Protected			0.950		0.950		
Satd. Flow (prot)	3247	0	1805	3343	1787	1615	
Flt Permitted			0.950		0.950		
Satd. Flow (perm)	3247	0	1805	3343	1787	1615	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)	93					128	
Link Speed (mph)	30			30	30		
Link Distance (ft)	425			3165	712		
Travel Time (s)	9.7			71.9	16.2		
Peak Hour Factor	0.74	0.74	0.74	0.74	0.74	0.74	
Heavy Vehicles (%)	8%	0%	0%	8%	1%	0%	
Adj. Flow (vph)	568	331	122	919	236	128	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	899	0	122	919	236	128	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			12	12		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane	Yes			Yes	Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)		9	15		15	9	
Number of Detectors	2		1	2	1	1	
Detector Template	Thru		Left	Thru	Left	Right	
Leading Detector (ft)	100		20	100	20	20	
Trailing Detector (ft)	0		0	0	0	0	
Detector 1 Position(ft)	0		0	0	0	0	
Detector 1 Size(ft)	6		20	6	20	20	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	
Detector 2 Position(ft)	94			94			
Detector 2 Size(ft)	6			6			
Detector 2 Type	Cl+Ex			Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)	0.0			0.0			
Turn Type	NA		Prot	NA	Prot	Perm	
Protected Phases	2		1	6	8		14

Lanes, Volumes, Timings
 23: Ridgeline HS & Country Vista Dr

06/26/2025



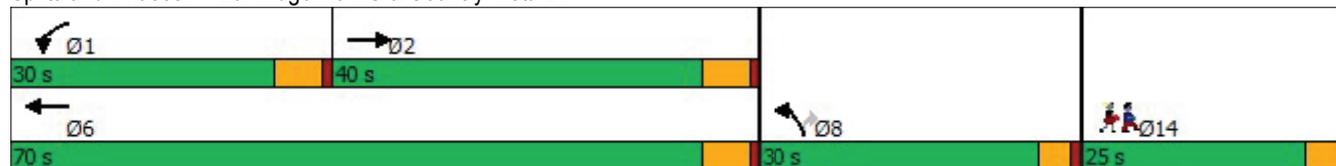
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø14
Permitted Phases							8
Detector Phase	2		1	6	8	8	
Switch Phase							
Minimum Initial (s)	7.0		4.0	4.0	7.0	7.0	4.0
Minimum Split (s)	26.5		9.5	36.5	21.5	21.5	25.0
Total Split (s)	40.0		30.0	70.0	30.0	30.0	25.0
Total Split (%)	32.0%		24.0%	56.0%	24.0%	24.0%	20%
Maximum Green (s)	34.5		24.5	64.5	26.0	26.0	21.0
Yellow Time (s)	4.5		4.5	4.5	3.0	3.0	3.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5		5.5	5.5	4.0	4.0	
Lead/Lag	Lag		Lead				
Lead-Lag Optimize?	Yes		Yes				
Vehicle Extension (s)	2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode	Min		None	Min	None	None	Ped
Walk Time (s)							6.0
Flash Dont Walk (s)							15.0
Pedestrian Calls (#/hr)							2
Act Effct Green (s)	31.1		11.4	48.1	17.8	17.8	
Actuated g/C Ratio	0.31		0.11	0.48	0.18	0.18	
v/c Ratio	0.85		0.60	0.58	0.75	0.33	
Control Delay	38.7		57.4	21.1	55.9	9.1	
Queue Delay	0.0		0.0	0.0	0.0	0.0	
Total Delay	38.7		57.4	21.1	55.9	9.1	
LOS	D		E	C	E	A	
Approach Delay	38.7			25.3	39.5		
Approach LOS	D			C	D		
Queue Length 50th (ft)	255		79	215	151	0	
Queue Length 95th (ft)	294		119	239	196	26	
Internal Link Dist (ft)	345			3085	632		
Turn Bay Length (ft)			100		100		
Base Capacity (vph)	1189		445	2171	468	517	
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	0.76		0.27	0.42	0.50	0.25	

Intersection Summary	
Area Type:	Other
Cycle Length:	125
Actuated Cycle Length:	101.1
Natural Cycle:	85
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.85
Intersection Signal Delay:	32.8
Intersection LOS:	C
Intersection Capacity Utilization:	46.6%
ICU Level of Service:	A
Analysis Period (min):	15

Lanes, Volumes, Timings
23: Ridgeline HS & Country Vista Dr

06/26/2025

Splits and Phases: 23: Ridgeline HS & Country Vista Dr



PM Peak Hour

HCM 6th TWSC
1: Country Vista Dr & I-90 Ramps

09/17/2025

Intersection						
Int Delay, s/veh	2.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↘	↑↑	↑↑		↘	↘
Traffic Vol, veh/h	140	1025	765	55	65	205
Future Vol, veh/h	140	1025	765	55	65	205
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	200	-	-	-	125	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	98	98	98	98	98	98
Heavy Vehicles, %	3	5	2	0	0	2
Mvmt Flow	143	1046	781	56	66	209

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	837	0	-	0	1618 419
Stage 1	-	-	-	-	809 -
Stage 2	-	-	-	-	809 -
Critical Hdwy	4.16	-	-	-	6.8 6.94
Critical Hdwy Stg 1	-	-	-	-	5.8 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	2.23	-	-	-	3.5 3.32
Pot Cap-1 Maneuver	786	-	-	-	96 583
Stage 1	-	-	-	-	403 -
Stage 2	-	-	-	-	403 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	786	-	-	-	79 583
Mov Cap-2 Maneuver	-	-	-	-	201 -
Stage 1	-	-	-	-	330 -
Stage 2	-	-	-	-	403 -

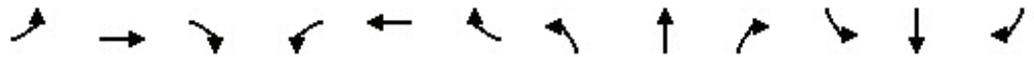
Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	18.7
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	786	-	-	-	201	583
HCM Lane V/C Ratio	0.182	-	-	-	0.33	0.359
HCM Control Delay (s)	10.6	-	-	-	31.5	14.6
HCM Lane LOS	B	-	-	-	D	B
HCM 95th %tile Q(veh)	0.7	-	-	-	1.4	1.6

HCM 6th Signalized Intersection Summary

2: N Kramer Pkwy & Country Vista Dr

09/17/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	835	65	295	720	245	55	85	210	180	95	70
Future Volume (veh/h)	140	835	65	295	720	245	55	85	210	180	95	70
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	1885	1900	1885	1870	1885	1900	1856	1870	1870	1900	1900
Adj Flow Rate, veh/h	144	861	67	304	742	253	57	88	216	186	98	72
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, %	0	1	0	1	2	1	0	3	2	2	0	0
Cap, veh/h	296	1027	80	376	941	321	424	107	262	327	295	217
Arrive On Green	0.08	0.31	0.31	0.14	0.36	0.36	0.04	0.22	0.22	0.10	0.29	0.29
Sat Flow, veh/h	1810	3367	262	1795	2601	887	1810	476	1169	1781	1018	748
Grp Volume(v), veh/h	144	458	470	304	507	488	57	0	304	186	0	170
Grp Sat Flow(s),veh/h/ln	1810	1791	1838	1795	1777	1711	1810	0	1645	1781	0	1765
Q Serve(g_s), s	4.1	18.4	18.4	8.4	19.6	19.6	1.9	0.0	13.6	5.8	0.0	5.8
Cycle Q Clear(g_c), s	4.1	18.4	18.4	8.4	19.6	19.6	1.9	0.0	13.6	5.8	0.0	5.8
Prop In Lane	1.00		0.14	1.00		0.52	1.00		0.71	1.00		0.42
Lane Grp Cap(c), veh/h	296	546	561	376	643	619	424	0	369	327	0	512
V/C Ratio(X)	0.49	0.84	0.84	0.81	0.79	0.79	0.13	0.00	0.82	0.57	0.00	0.33
Avail Cap(c_a), veh/h	401	592	608	378	643	619	604	0	544	388	0	584
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	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	17.9	25.0	25.0	17.2	22.0	22.0	21.7	0.0	28.4	20.0	0.0	21.5
Incr Delay (d2), s/veh	1.8	10.3	10.0	12.8	6.9	7.1	0.2	0.0	8.0	2.2	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(95%),veh/ln	3.1	13.8	14.1	7.9	13.8	13.4	1.4	0.0	9.9	4.4	0.0	4.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.7	35.3	35.1	30.0	28.8	29.1	21.9	0.0	36.5	22.2	0.0	22.1
LnGrp LOS	B	D	D	C	C	C	C	A	D	C	A	C
Approach Vol, veh/h		1072			1299			361			356	
Approach Delay, s/veh		33.1			29.2			34.2			22.1	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.9	28.0	7.3	26.9	10.5	32.4	12.4	21.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	10.5	25.5	10.5	25.5	10.5	25.5	10.5	25.5				
Max Q Clear Time (g_c+I1), s	10.4	20.4	3.9	7.8	6.1	21.6	7.8	15.6				
Green Ext Time (p_c), s	0.0	3.1	0.1	1.2	0.2	2.6	0.2	1.8				
Intersection Summary												
HCM 6th Ctrl Delay			30.3									
HCM 6th LOS			C									

HCM 6th Signalized Intersection Summary

3: Legacy Ridge Dr. & Country Vista Dr

09/17/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	65	880	85	220	1040	70	75	5	125	75	5	65
Future Volume (veh/h)	65	880	85	220	1040	70	75	5	125	75	5	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1870	1885	1870	1900	1885	1870	1900	1870	1900	1870	1870	1870
Adj Flow Rate, veh/h	69	936	90	234	1106	74	80	5	133	80	5	69
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	1	2	0	1	2	0	2	0	2	2	2
Cap, veh/h	357	1502	144	457	1776	119	336	11	290	274	20	282
Arrive On Green	0.05	0.45	0.45	0.10	0.52	0.52	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1781	3302	317	1810	3407	228	1347	58	1536	1251	108	1493
Grp Volume(v), veh/h	69	508	518	234	581	599	80	0	138	80	0	74
Grp Sat Flow(s),veh/h/ln	1781	1791	1828	1810	1791	1844	1347	0	1594	1251	0	1602
Q Serve(g_s), s	1.1	11.6	11.6	3.4	12.4	12.4	2.9	0.0	4.1	3.3	0.0	2.1
Cycle Q Clear(g_c), s	1.1	11.6	11.6	3.4	12.4	12.4	5.0	0.0	4.1	7.4	0.0	2.1
Prop In Lane	1.00		0.17	1.00		0.12	1.00		0.96	1.00		0.93
Lane Grp Cap(c), veh/h	357	815	832	457	934	961	336	0	301	274	0	303
V/C Ratio(X)	0.19	0.62	0.62	0.51	0.62	0.62	0.24	0.00	0.46	0.29	0.00	0.24
Avail Cap(c_a), veh/h	637	1349	1377	621	1349	1390	720	0	756	643	0	775
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.8	11.1	11.1	8.0	9.1	9.1	20.7	0.0	19.4	22.6	0.0	18.5
Incr Delay (d2), s/veh	0.4	1.1	1.1	1.3	1.0	0.9	0.5	0.0	1.5	0.8	0.0	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(95%),veh/ln	0.6	7.2	7.3	1.9	7.0	7.3	1.6	0.0	2.7	1.7	0.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.1	12.3	12.2	9.3	10.1	10.1	21.2	0.0	20.9	23.5	0.0	19.1
LnGrp LOS	A	B	B	A	B	B	C	A	C	C	A	B
Approach Vol, veh/h		1095			1414			218				154
Approach Delay, s/veh		12.0			9.9			21.0				21.4
Approach LOS		B			A			C				C
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.1	28.9		14.7	6.6	32.5		14.7				
Change Period (Y+Rc), s	4.5	4.5		* 4.5	4.0	4.5		4.5				
Max Green Setting (Gmax), s	10.5	40.5		* 26	11.0	40.5		25.5				
Max Q Clear Time (g_c+1), s	15.4	13.6		9.4	3.1	14.4		7.0				
Green Ext Time (p_c), s	0.5	10.9		0.8	0.1	12.7		1.4				

Intersection Summary

HCM 6th Ctrl Delay	12.2
HCM 6th LOS	B

Notes

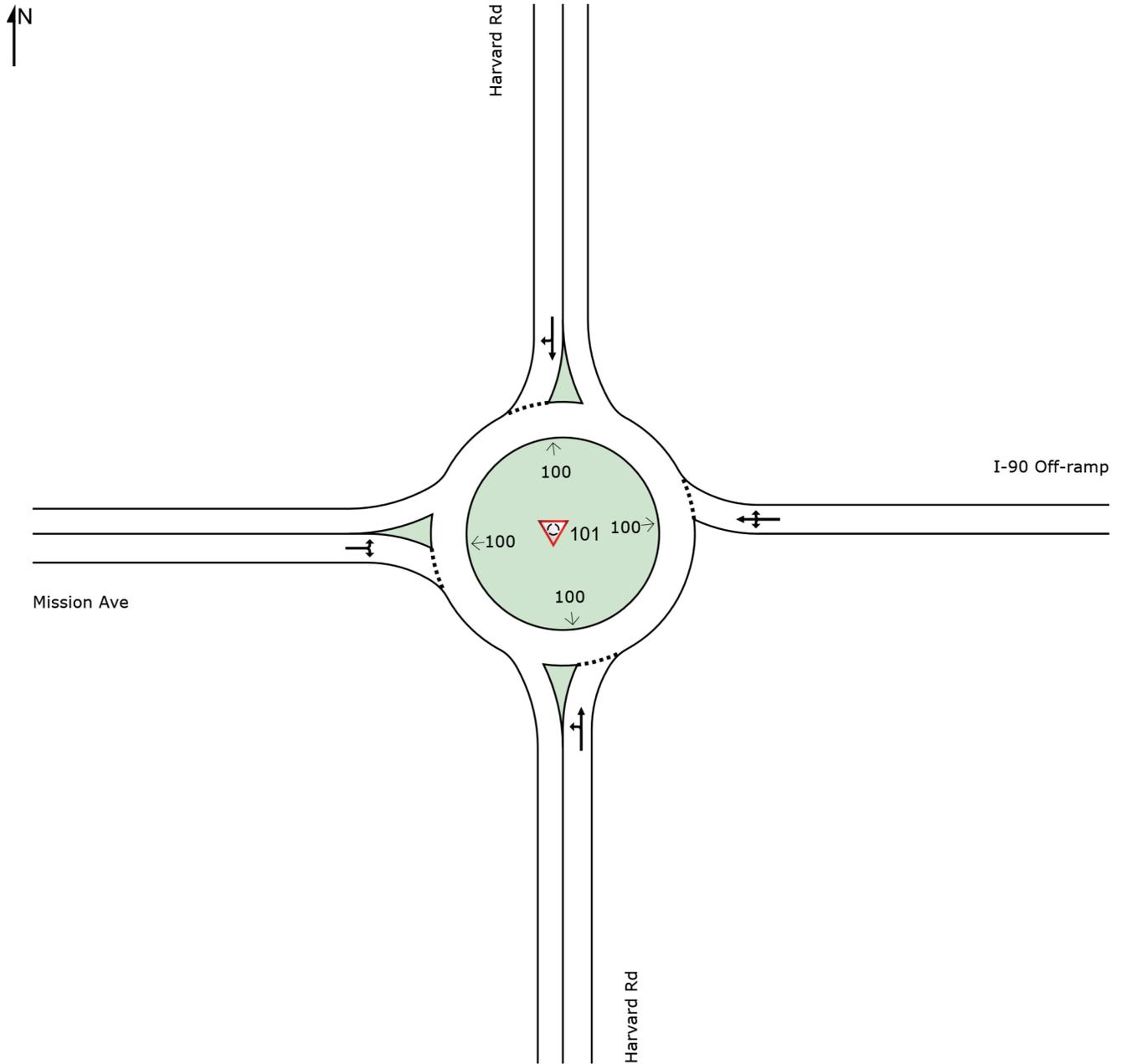
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

SITE LAYOUT

Site: 101 [Mission_Harvard PM 2028 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

Site: 101 [Mission_Harvard PM 2028 (Site Folder: General)]

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
South: Harvard Rd														
3	L2	305	2.0	305	2.0	0.690	11.1	LOS B	7.6	192.7	0.68	0.57	0.68	35.1
8	T1	550	2.0	550	2.0	0.690	5.1	LOS A	7.6	192.7	0.68	0.57	0.68	35.0
Approach		855	2.0	855	2.0	0.690	7.3	LOS A	7.6	192.7	0.68	0.57	0.68	35.1
East: I-90 Off-ramp														
1	L2	225	1.0	225	1.0	0.791	34.4	LOS C	11.5	291.0	1.00	1.33	1.88	26.2
6	T1	130	1.0	130	1.0	0.791	28.5	LOS C	11.5	291.0	1.00	1.33	1.88	26.2
16	R2	90	1.0	90	1.0	0.791	28.6	LOS C	11.5	291.0	1.00	1.33	1.88	25.6
Approach		445	1.0	445	1.0	0.791	31.5	LOS C	11.5	291.0	1.00	1.33	1.88	26.1
North: Harvard Rd														
4	T1	545	1.0	545	1.0	0.739	13.5	LOS B	9.4	236.9	0.96	1.11	1.38	32.9
14	R2	90	1.0	90	1.0	0.739	13.5	LOS B	9.4	236.9	0.96	1.11	1.38	32.0
Approach		635	1.0	635	1.0	0.739	13.5	LOS B	9.4	236.9	0.96	1.11	1.38	32.7
West: Mission Ave														
5	L2	160	1.0	160	1.0	0.781	23.7	LOS C	10.9	275.9	1.00	1.23	1.60	30.3
12	R2	410	2.0	410	2.0	0.781	17.9	LOS B	10.9	275.9	1.00	1.23	1.60	29.4
Approach		570	1.7	570	1.7	0.781	19.5	LOS B	10.9	275.9	1.00	1.23	1.60	29.6
All Vehicles		2505	1.5	2505	1.5	0.791	15.9	LOS B	11.5	291.0	0.88	0.99	1.28	31.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

HCM 6th Signalized Intersection Summary

6: Appleway Ave & Liberty Lake Rd

09/17/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	385	360	200	50	790	160	665	160	295	510	120
Future Volume (veh/h)	170	385	360	200	50	790	160	665	160	295	510	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		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	1870	1870	1856	1900	1870	1885	1885	1870	1885	1885	1885
Adj Flow Rate, veh/h	185	418	391	217	54	859	174	723	174	321	554	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	2	2	3	0	2	1	1	2	1	1	1
Cap, veh/h	216	1012	451	247	575	844	209	853	377	326	1055	
Arrive On Green	0.12	0.28	0.28	0.14	0.30	0.30	0.12	0.24	0.24	0.18	0.29	0.00
Sat Flow, veh/h	1767	3554	1585	1767	1900	2790	1795	3582	1585	1795	3582	1598
Grp Volume(v), veh/h	185	418	391	217	54	859	174	723	174	321	554	0
Grp Sat Flow(s),veh/h/ln	1767	1777	1585	1767	1900	1395	1795	1791	1585	1795	1791	1598
Q Serve(g_s), s	11.9	11.0	27.1	13.9	2.4	35.0	11.0	22.3	10.9	20.6	14.9	0.0
Cycle Q Clear(g_c), s	11.9	11.0	27.1	13.9	2.4	35.0	11.0	22.3	10.9	20.6	14.9	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	216	1012	451	247	575	844	209	853	377	326	1055	
V/C Ratio(X)	0.86	0.41	0.87	0.88	0.09	1.02	0.83	0.85	0.46	0.98	0.53	
Avail Cap(c_a), veh/h	321	1075	480	321	575	844	388	929	411	326	1055	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	49.8	33.5	39.3	48.8	28.9	40.3	50.0	42.1	37.7	47.2	34.0	0.0
Incr Delay (d2), s/veh	13.9	0.4	15.3	19.1	0.1	35.4	11.4	7.3	1.2	45.6	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ft	0.1	8.4	18.1	11.9	2.0	22.8	9.4	16.0	7.8	19.3	10.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.7	33.9	54.6	67.9	29.0	75.7	61.4	49.4	39.0	92.8	34.5	0.0
LnGrp LOS	E	C	D	E	C	F	E	D	D	F	C	
Approach Vol, veh/h		994			1130			1071			875	
Approach Delay, s/veh		47.6			72.0			49.6			55.9	
Approach LOS		D			E			D			E	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	35.0	32.5	20.2	37.9	18.5	39.1	18.1	40.0				
Change Period (Y+Rc), s	4.0	5.0	4.0	5.0	5.0	5.0	4.0	5.0				
Max Green Setting (Gmax), s	21.0	30.0	21.0	35.0	25.0	25.0	21.0	35.0				
Max Q Clear Time (g_c+Q), s	22.6	24.3	15.9	29.1	13.0	16.9	13.9	37.0				
Green Ext Time (p_c), s	0.0	3.3	0.3	2.8	0.6	2.3	0.3	0.0				

Intersection Summary

HCM 6th Ctrl Delay	56.7
HCM 6th LOS	E

Notes

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

HCM 6th Signalized Intersection Summary
 7: Liberty Lake Rd & Country Vista Dr.

09/17/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↗		↖	↖↗		↖	↖↗		↖	↖↗	
Traffic Volume (veh/h)	475	575	175	45	625	140	130	150	20	255	190	510
Future Volume (veh/h)	475	575	175	45	625	140	130	150	20	255	190	510
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	1885	1870	1900	1870	1870	1885	1856	1900	1856	1885	1870
Adj Flow Rate, veh/h	505	612	186	48	665	149	138	160	21	271	202	543
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	1	2	0	2	2	1	3	0	3	1	2
Cap, veh/h	428	1099	333	282	689	154	198	878	114	576	596	531
Arrive On Green	0.20	0.41	0.41	0.03	0.24	0.24	0.07	0.28	0.28	0.13	0.33	0.33
Sat Flow, veh/h	1795	2707	821	1810	2885	646	1795	3139	406	1767	1791	1598
Grp Volume(v), veh/h	505	405	393	48	409	405	138	89	92	271	202	543
Grp Sat Flow(s),veh/h/ln	1795	1791	1737	1810	1777	1754	1795	1763	1782	1767	1791	1598
Q Serve(g_s), s	21.0	18.5	18.6	2.1	24.3	24.4	5.8	4.1	4.2	11.1	9.1	35.5
Cycle Q Clear(g_c), s	21.0	18.5	18.6	2.1	24.3	24.4	5.8	4.1	4.2	11.1	9.1	35.5
Prop In Lane	1.00		0.47	1.00		0.37	1.00		0.23	1.00		1.00
Lane Grp Cap(c), veh/h	428	727	705	282	424	419	198	493	499	576	596	531
V/C Ratio(X)	1.18	0.56	0.56	0.17	0.96	0.97	0.70	0.18	0.18	0.47	0.34	1.02
Avail Cap(c_a), veh/h	428	727	705	584	424	419	421	586	593	702	596	531
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.9	24.3	24.4	29.3	40.2	40.2	28.4	29.2	29.2	21.2	26.8	35.6
Incr Delay (d2), s/veh	103.0	0.6	0.6	0.1	34.2	34.9	1.7	0.1	0.1	0.2	0.1	44.8
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(95%),veh/ln	11.1	12.4	12.1	1.7	20.8	20.6	4.5	3.1	3.2	8.1	7.0	27.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	133.9	24.9	25.0	29.5	74.4	75.1	30.1	29.2	29.3	21.4	26.9	80.4
LnGrp LOS	F	C	C	C	E	E	C	C	C	C	C	F
Approach Vol, veh/h		1303			862			319			1016	
Approach Delay, s/veh		67.2			72.2			29.6			54.0	
Approach LOS		E			E			C			D	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.4	34.4	7.2	47.8	11.8	40.0	25.0	30.0				
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5				
Max Green Setting (Gmax), s	21.0	35.5	21.0	25.5	21.0	35.5	21.0	25.5				
Max Q Clear Time (g_c+1/3), s	11.3	6.2	4.1	20.6	7.8	37.5	23.0	26.4				
Green Ext Time (p_c), s	0.3	0.6	0.0	1.6	0.1	0.0	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay											61.2	
HCM 6th LOS											E	

Intersection						
Int Delay, s/veh	7.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↔	↑↑	↑↑		↔	↔
Traffic Vol, veh/h	360	455	310	15	10	465
Future Vol, veh/h	360	455	310	15	10	465
Conflicting Peds, #/hr	7	0	0	7	5	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	150	-	-	-	150	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	2	1	1	0	17	2
Mvmt Flow	387	489	333	16	11	500

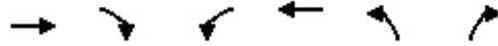
Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	356	0	-	0	1372 182
Stage 1	-	-	-	-	348 -
Stage 2	-	-	-	-	1024 -
Critical Hdwy	4.14	-	-	-	7.14 6.94
Critical Hdwy Stg 1	-	-	-	-	6.14 -
Critical Hdwy Stg 2	-	-	-	-	6.14 -
Follow-up Hdwy	2.22	-	-	-	3.67 3.32
Pot Cap-1 Maneuver	1199	-	-	-	120 829
Stage 1	-	-	-	-	644 -
Stage 2	-	-	-	-	276 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1192	-	-	-	80 824
Mov Cap-2 Maneuver	-	-	-	-	80 -
Stage 1	-	-	-	-	432 -
Stage 2	-	-	-	-	274 -

Approach	EB	WB	SB
HCM Control Delay, s	4.2	0	16.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1192	-	-	-	80	824
HCM Lane V/C Ratio	0.325	-	-	-	0.134	0.607
HCM Control Delay (s)	9.5	-	-	-	56.9	15.9
HCM Lane LOS	A	-	-	-	F	C
HCM 95th %tile Q(veh)	1.4	-	-	-	0.4	4.2

HCM 6th Signalized Intersection Summary
 9: Signal Dr & Appleway Ave

09/17/2025



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (veh/h)	580	155	30	850	190	40
Future Volume (veh/h)	580	155	30	850	190	40
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1900	1856	1900	1856
Adj Flow Rate, veh/h	652	174	34	955	213	45
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	0	3	0	3
Cap, veh/h	1081	288	403	1997	313	272
Arrive On Green	0.39	0.39	0.03	0.57	0.17	0.17
Sat Flow, veh/h	2868	740	1810	3618	1810	1572
Grp Volume(v), veh/h	417	409	34	955	213	45
Grp Sat Flow(s),veh/h/ln	1777	1737	1810	1763	1810	1572
Q Serve(g_s), s	6.5	6.5	0.3	5.6	3.8	0.8
Cycle Q Clear(g_c), s	6.5	6.5	0.3	5.6	3.8	0.8
Prop In Lane		0.43	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	692	677	403	1997	313	272
V/C Ratio(X)	0.60	0.60	0.08	0.48	0.68	0.17
Avail Cap(c_a), veh/h	1286	1257	1130	4592	1362	1183
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.4	8.4	5.9	4.5	13.4	12.2
Incr Delay (d2), s/veh	0.8	0.9	0.1	0.2	2.6	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	3.2	3.1	0.1	1.6	2.6	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.3	9.3	6.0	4.6	16.0	12.4
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	826			989	258	
Approach Delay, s/veh	9.3			4.7	15.4	
Approach LOS	A			A	B	
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	6.1	18.5		10.0		24.6
Change Period (Y+Rc), s	5.0	5.0		4.0		5.0
Max Green Setting (Gmax), s	15.0	25.0		26.0		45.0
Max Q Clear Time (g_c+I1), s	2.3	8.5		5.8		7.6
Green Ext Time (p_c), s	0.0	5.0		0.7		8.4
Intersection Summary						
HCM 6th Ctrl Delay			7.8			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary

10: Madson St & Appleway Ave

09/17/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	545	15	15	650	20	45	10	30	25	10	100
Future Volume (veh/h)	60	545	15	15	650	20	45	10	30	25	10	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	1870	1870	1752	1900	1841	1900	1856	1737	1900	1841	1900	1885
Adj Flow Rate, veh/h	72	657	18	18	783	24	54	12	36	30	12	120
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	10	0	4	0	3	11	0	4	0	1
Cap, veh/h	397	1475	40	429	1277	39	208	33	58	475	39	385
Arrive On Green	0.05	0.42	0.42	0.02	0.37	0.37	0.12	0.12	0.12	0.03	0.26	0.26
Sat Flow, veh/h	1781	3533	97	1810	3464	106	605	272	479	1753	148	1484
Grp Volume(v), veh/h	72	330	345	18	395	412	102	0	0	30	0	132
Grp Sat Flow(s),veh/h/ln	1781	1777	1853	1810	1749	1822	1356	0	0	1753	0	1633
Q Serve(g_s), s	1.0	5.5	5.5	0.3	7.6	7.6	2.2	0.0	0.0	0.6	0.0	2.7
Cycle Q Clear(g_c), s	1.0	5.5	5.5	0.3	7.6	7.6	2.9	0.0	0.0	0.6	0.0	2.7
Prop In Lane	1.00		0.05	1.00		0.06	0.53		0.35	1.00		0.91
Lane Grp Cap(c), veh/h	397	742	773	429	645	672	299	0	0	475	0	424
V/C Ratio(X)	0.18	0.45	0.45	0.04	0.61	0.61	0.34	0.00	0.00	0.06	0.00	0.31
Avail Cap(c_a), veh/h	1191	1538	1604	1323	1514	1577	973	0	0	1302	0	2031
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.9	8.5	8.5	7.9	10.6	10.6	17.0	0.0	0.0	13.4	0.0	12.2
Incr Delay (d2), s/veh	0.2	0.4	0.4	0.0	1.0	0.9	0.7	0.0	0.0	0.1	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.5	2.9	3.0	0.1	4.3	4.4	1.5	0.0	0.0	0.4	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.1	9.0	9.0	8.0	11.5	11.5	17.7	0.0	0.0	13.4	0.0	12.6
LnGrp LOS	A	A	A	A	B	B	B	A	A	B	A	B
Approach Vol, veh/h		747			825			102			162	
Approach Delay, s/veh		8.9			11.4			17.7			12.8	
Approach LOS		A			B			B			B	
Timer - Assigned Phs	1	2		4	5	6	7	8				
Phs Duration (G+Y+Rc), s	4.7	21.6		14.6	6.7	19.6	5.7	9.0				
Change Period (Y+Rc), s	4.0	4.5		4.0	4.5	4.5	4.5	4.0				
Max Green Setting (Gmax), s	1.0	35.5		51.0	20.5	35.5	20.5	26.0				
Max Q Clear Time (g_c+1/3), s	1.0	7.5		4.7	3.0	9.6	2.6	4.9				
Green Ext Time (p_c), s	0.0	4.5		0.9	0.1	5.6	0.0	0.5				
Intersection Summary												
HCM 6th Ctrl Delay											10.9	
HCM 6th LOS											B	

HCM 6th Signalized Intersection Summary

11: Molter Rd & Appleway Ave

09/17/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	15	455	135	80	405	10	165	20	120	20	30	50
Future Volume (veh/h)	15	455	135	80	405	10	165	20	120	20	30	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No										
Adj Sat Flow, veh/h/ln	1900	1870	1900	1885	1841	1900	1856	1900	1856	1900	1900	1841
Adj Flow Rate, veh/h	16	500	148	88	445	11	181	22	132	22	33	55
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, %	0	2	0	1	4	0	3	0	3	0	0	4
Cap, veh/h	407	762	224	361	1127	28	482	371	307	315	173	142
Arrive On Green	0.01	0.28	0.28	0.05	0.32	0.32	0.12	0.20	0.20	0.02	0.09	0.09
Sat Flow, veh/h	1810	2707	797	1795	3488	86	1767	1900	1572	1810	1900	1560
Grp Volume(v), veh/h	16	327	321	88	223	233	181	22	132	22	33	55
Grp Sat Flow(s),veh/h/ln	1810	1777	1727	1795	1749	1825	1767	1900	1572	1810	1900	1560
Q Serve(g_s), s	0.3	6.8	6.9	1.4	4.1	4.2	3.6	0.4	3.1	0.5	0.7	1.4
Cycle Q Clear(g_c), s	0.3	6.8	6.9	1.4	4.1	4.2	3.6	0.4	3.1	0.5	0.7	1.4
Prop In Lane	1.00		0.46	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	407	500	486	361	565	590	482	371	307	315	173	142
V/C Ratio(X)	0.04	0.65	0.66	0.24	0.39	0.40	0.38	0.06	0.43	0.07	0.19	0.39
Avail Cap(c_a), veh/h	838	805	782	714	792	827	711	861	712	739	861	707
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.6	13.3	13.3	10.4	11.0	11.0	13.0	13.7	14.8	16.9	17.6	18.0
Incr Delay (d2), s/veh	0.0	1.5	1.5	0.3	0.6	0.6	0.5	0.1	1.3	0.1	0.8	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(95%),veh/lr	0.2	4.3	4.3	0.9	2.5	2.6	2.2	0.3	1.9	0.3	0.5	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.7	14.7	14.8	10.7	11.6	11.6	13.5	13.8	16.2	17.0	18.4	20.4
LnGrp LOS	B	B	B	B	B	B	B	B	B	B	B	C
Approach Vol, veh/h		664			544			335			110	
Approach Delay, s/veh		14.7			11.5			14.6			19.1	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.2	13.2	5.0	18.6	9.6	8.8	6.8	16.8				
Change Period (Y+Rc), s	4.5	5.0	4.5	5.0	4.5	5.0	4.5	5.0				
Max Green Setting (Gmax), s	10.5	19.0	10.5	19.0	10.5	19.0	10.5	19.0				
Max Q Clear Time (g_c+1), s	12.5	5.1	2.3	6.2	5.6	3.4	3.4	8.9				
Green Ext Time (p_c), s	0.0	0.6	0.0	3.0	0.2	0.3	0.1	2.9				
Intersection Summary												
HCM 6th Ctrl Delay												13.9
HCM 6th LOS												B

MOVEMENT SUMMARY

 Site: 101 [Mission_Molter PM 2028 (Site Folder: General)]

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] ft				
South: Molter Rd														
3	L2	65	2.0	65	2.0	0.248	12.1	LOS B	1.4	34.8	0.58	0.67	0.58	35.5
8	T1	120	1.0	120	1.0	0.248	6.1	LOS A	1.4	34.8	0.58	0.67	0.58	35.5
18	R2	45	1.0	45	1.0	0.248	6.2	LOS A	1.4	34.8	0.58	0.67	0.58	34.4
Approach		230	1.3	230	1.3	0.248	7.8	LOS A	1.4	34.8	0.58	0.67	0.58	35.3
East: Mission Ave														
1	L2	40	2.0	40	2.0	0.396	11.2	LOS B	2.5	63.0	0.50	0.55	0.50	36.2
6	T1	325	2.0	325	2.0	0.396	5.3	LOS A	2.5	63.0	0.50	0.55	0.50	36.2
16	R2	60	2.0	60	2.0	0.396	5.3	LOS A	2.5	63.0	0.50	0.55	0.50	35.1
Approach		425	2.0	425	2.0	0.396	5.8	LOS A	2.5	63.0	0.50	0.55	0.50	36.0
North: Molter Rd														
7	L2	90	2.0	90	2.0	0.281	12.1	LOS B	1.6	40.6	0.59	0.69	0.59	35.3
4	T1	115	2.0	115	2.0	0.281	6.2	LOS A	1.6	40.6	0.59	0.69	0.59	35.3
14	R2	55	2.0	55	2.0	0.281	6.3	LOS A	1.6	40.6	0.59	0.69	0.59	34.2
Approach		260	2.0	260	2.0	0.281	8.3	LOS A	1.6	40.6	0.59	0.69	0.59	35.1
West: Mission Ave														
5	L2	50	3.0	50	3.0	0.391	11.3	LOS B	2.4	62.6	0.51	0.57	0.51	36.1
2	T1	295	3.0	295	3.0	0.391	5.3	LOS A	2.4	62.6	0.51	0.57	0.51	36.0
12	R2	65	3.0	65	3.0	0.391	5.4	LOS A	2.4	62.6	0.51	0.57	0.51	34.9
Approach		410	3.0	410	3.0	0.391	6.1	LOS A	2.4	62.6	0.51	0.57	0.51	35.9
All Vehicles		1325	2.2	1325	2.2	0.396	6.7	LOS A	2.5	63.0	0.53	0.61	0.53	35.6

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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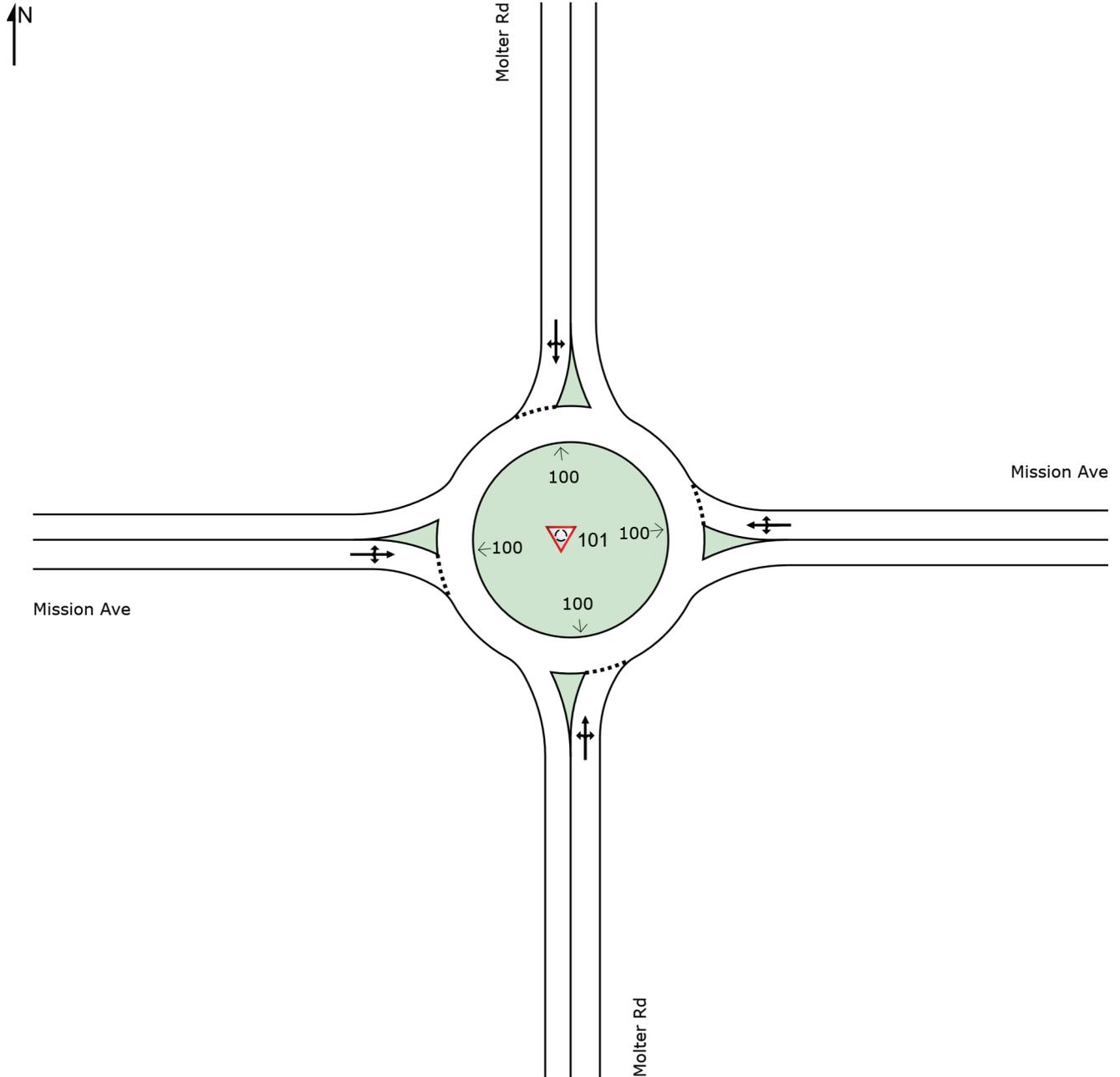
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SITE LAYOUT

 Site: 101 [Mission_Molter PM 2028 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



MOVEMENT SUMMARY

 Site: 101 [Mission_Harvest PM 2028 (Site Folder: General)]

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
South: Harvest Pkwy														
3	L2	40	3.0	40	3.0	0.148	11.8	LOS B	0.7	19.0	0.51	0.65	0.51	35.8
8	T1	15	2.0	15	2.0	0.148	5.8	LOS A	0.7	19.0	0.51	0.65	0.51	35.8
18	R2	85	2.0	85	2.0	0.148	5.8	LOS A	0.7	19.0	0.51	0.65	0.51	34.7
Approach		140	2.3	140	2.3	0.148	7.5	LOS A	0.7	19.0	0.51	0.65	0.51	35.1
East: Mission Ave														
1	L2	95	3.0	95	3.0	0.407	10.5	LOS B	2.5	65.0	0.35	0.50	0.35	36.5
6	T1	310	3.0	310	3.0	0.407	4.6	LOS A	2.5	65.0	0.35	0.50	0.35	36.4
16	R2	75	3.0	75	3.0	0.407	4.6	LOS A	2.5	65.0	0.35	0.50	0.35	35.3
Approach		480	3.0	480	3.0	0.407	5.7	LOS A	2.5	65.0	0.35	0.50	0.35	36.2
North: Harvest Pkwy														
7	L2	45	1.0	45	1.0	0.107	11.9	LOS B	0.5	13.4	0.52	0.67	0.52	35.4
4	T1	10	1.0	10	1.0	0.107	5.9	LOS A	0.5	13.4	0.52	0.67	0.52	35.3
14	R2	45	1.0	45	1.0	0.107	6.0	LOS A	0.5	13.4	0.52	0.67	0.52	34.3
Approach		100	1.0	100	1.0	0.107	8.6	LOS A	0.5	13.4	0.52	0.67	0.52	34.9
West: Mission Ave														
5	L2	55	3.0	55	3.0	0.348	10.7	LOS B	2.0	51.1	0.37	0.51	0.37	36.5
2	T1	300	4.0	300	4.0	0.348	4.8	LOS A	2.0	51.1	0.37	0.51	0.37	36.4
12	R2	40	3.0	40	3.0	0.348	4.8	LOS A	2.0	51.1	0.37	0.51	0.37	35.3
Approach		395	3.8	395	3.8	0.348	5.6	LOS A	2.0	51.1	0.37	0.51	0.37	36.3
All Vehicles		1115	3.0	1115	3.0	0.407	6.2	LOS A	2.5	65.0	0.39	0.54	0.39	36.0

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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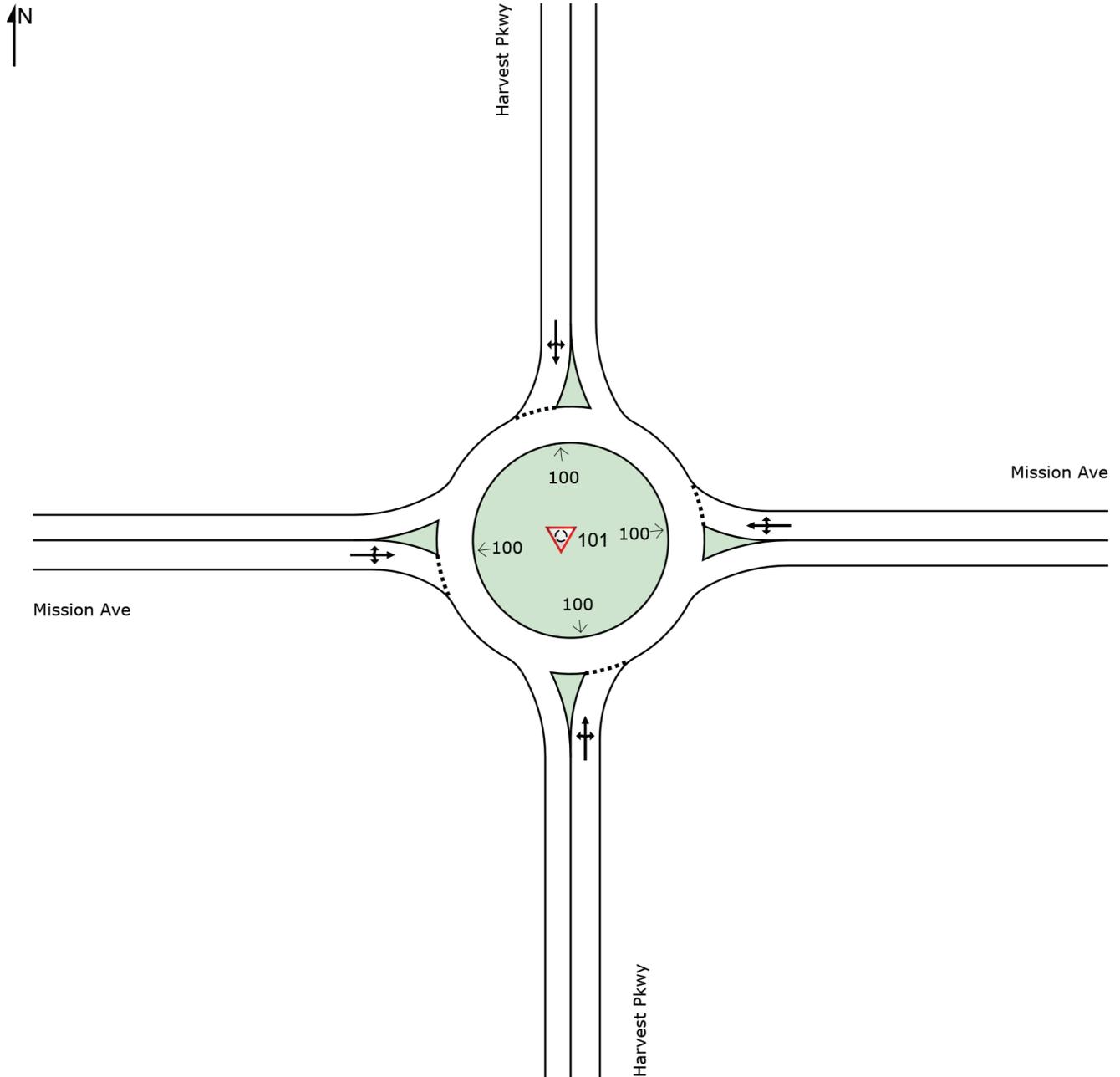
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SITE LAYOUT

Site: 101 [Mission_Harvest PM 2028 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



HCM 6th TWSC
 14: N. Country Vista Blvd & Appleway Ave

09/17/2025

Intersection						
Int Delay, s/veh	3.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↶		↷	↶	↷	↷
Traffic Vol, veh/h	425	160	90	270	115	90
Future Vol, veh/h	425	160	90	270	115	90
Conflicting Peds, #/hr	0	4	4	0	0	1
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	200	-	100	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	0	5	1	2
Mvmt Flow	462	174	98	293	125	98

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	640	0	1042 554
Stage 1	-	-	-	-	553 -
Stage 2	-	-	-	-	489 -
Critical Hdwy	-	-	4.1	-	6.41 6.22
Critical Hdwy Stg 1	-	-	-	-	5.41 -
Critical Hdwy Stg 2	-	-	-	-	5.41 -
Follow-up Hdwy	-	-	2.2	-	3.509 3.318
Pot Cap-1 Maneuver	-	-	954	-	256 532
Stage 1	-	-	-	-	578 -
Stage 2	-	-	-	-	619 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	951	-	229 530
Mov Cap-2 Maneuver	-	-	-	-	362 -
Stage 1	-	-	-	-	576 -
Stage 2	-	-	-	-	555 -

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	17.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	362	530	-	-	951	-
HCM Lane V/C Ratio	0.345	0.185	-	-	0.103	-
HCM Control Delay (s)	20.1	13.3	-	-	9.2	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	1.5	0.7	-	-	0.3	-

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↕			↕	
Traffic Vol, veh/h	165	125	25	10	75	15	20	30	10	10	35	145
Future Vol, veh/h	165	125	25	10	75	15	20	30	10	10	35	145
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	1	0	0	0	0	0	0	3	0	0	0	5
Mvmt Flow	199	151	30	12	90	18	24	36	12	12	42	175
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	2
HCM Control Delay	10.8	9.5	9.2	10
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	33%	100%	0%	100%	0%	5%
Vol Thru, %	50%	0%	83%	0%	83%	18%
Vol Right, %	17%	0%	17%	0%	17%	76%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	60	165	150	10	90	190
LT Vol	20	165	0	10	0	10
Through Vol	30	0	125	0	75	35
RT Vol	10	0	25	0	15	145
Lane Flow Rate	72	199	181	12	108	229
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.11	0.33	0.268	0.021	0.171	0.303
Departure Headway (Hd)	5.498	5.98	5.34	6.291	5.666	4.765
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	653	604	678	571	635	744
Service Time	3.52	3.68	3.04	4.004	3.379	2.861
HCM Lane V/C Ratio	0.11	0.329	0.267	0.021	0.17	0.308
HCM Control Delay	9.2	11.6	10	9.1	9.5	10
HCM Lane LOS	A	B	A	A	A	A
HCM 95th-tile Q	0.4	1.4	1.1	0.1	0.6	1.3

Intersection

Intersection Delay, s/veh 11.1

Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	80	100	90	10	75	20	70	105	15	25	110	65
Future Vol, veh/h	80	100	90	10	75	20	70	105	15	25	110	65
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	0	1	1	0	0	0	2	1	0	0	0	0
Mvmt Flow	90	112	101	11	84	22	79	118	17	28	124	73
Number of Lanes	0	1	0	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	2	2
Conflicting Approach Left SB		NB	EB	WB
Conflicting Lanes Left	2	2	1	1
Conflicting Approach Right NB		SB	WB	EB
Conflicting Lanes Right	2	2	1	1
HCM Control Delay	12.2	9.8	10.3	10.9
HCM LOS	B	A	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	30%	10%	100%	0%
Vol Thru, %	0%	88%	37%	71%	0%	63%
Vol Right, %	0%	12%	33%	19%	0%	37%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	70	120	270	105	25	175
LT Vol	70	0	80	10	25	0
Through Vol	0	105	100	75	0	110
RT Vol	0	15	90	20	0	65
Lane Flow Rate	79	135	303	118	28	197
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.143	0.222	0.436	0.181	0.051	0.313
Departure Headway (Hd)	6.533	5.919	5.178	5.536	6.495	5.723
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	549	607	695	647	551	627
Service Time	4.272	3.658	3.217	3.583	4.233	3.46
HCM Lane V/C Ratio	0.144	0.222	0.436	0.182	0.051	0.314
HCM Control Delay	10.4	10.3	12.2	9.8	9.6	11.1
HCM Lane LOS	B	B	B	A	A	B
HCM 95th-tile Q	0.5	0.8	2.2	0.7	0.2	1.3

Intersection

Intersection Delay, s/veh 7.9

Intersection LOS A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	70	5	5	50	30	10	25	5	35	45	10
Future Vol, veh/h	10	70	5	5	50	30	10	25	5	35	45	10
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles, %	0	0	0	0	4	0	0	0	0	0	0	0
Mvmt Flow	12	83	6	6	60	36	12	30	6	42	54	12
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	8	7.7	7.7	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	12%	6%	39%
Vol Thru, %	62%	82%	59%	50%
Vol Right, %	12%	6%	35%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	40	85	85	90
LT Vol	10	10	5	35
Through Vol	25	70	50	45
RT Vol	5	5	30	10
Lane Flow Rate	48	101	101	107
Geometry Grp	1	1	1	1
Degree of Util (X)	0.059	0.122	0.117	0.131
Departure Headway (Hd)	4.443	4.351	4.166	4.412
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	808	827	863	815
Service Time	2.458	2.363	2.179	2.426
HCM Lane V/C Ratio	0.059	0.122	0.117	0.131
HCM Control Delay	7.7	8	7.7	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.2	0.4	0.4	0.4

MOVEMENT SUMMARY

Site: 101 [Mission_Kramer PM 2028 (Site Folder: General)]

New Site
 Site Category: (None)
 Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV %	[Total veh/h	HV %				[Veh. veh	Dist] ft				
South: Kramer Pkwy														
3	L2	310	1.0	310	1.0	0.461	11.8	LOS B	3.0	76.2	0.59	0.72	0.59	34.7
8	T1	25	3.0	25	3.0	0.461	5.9	LOS A	3.0	76.2	0.59	0.72	0.59	34.5
18	R2	135	2.0	135	2.0	0.461	6.0	LOS A	3.0	76.2	0.59	0.72	0.59	33.6
Approach		470	1.4	470	1.4	0.461	9.8	LOS A	3.0	76.2	0.59	0.72	0.59	34.3
East: Mission Ave														
1	L2	100	2.0	100	2.0	0.444	11.9	LOS B	2.9	75.1	0.62	0.65	0.62	35.5
6	T1	310	3.0	310	3.0	0.444	6.0	LOS A	2.9	75.1	0.62	0.65	0.62	35.4
16	R2	20	3.0	20	3.0	0.444	6.1	LOS A	2.9	75.1	0.62	0.65	0.62	34.3
Approach		430	2.8	430	2.8	0.444	7.4	LOS A	2.9	75.1	0.62	0.65	0.62	35.3
North: Kramer Pkwy														
7	L2	20	3.0	20	3.0	0.064	14.2	LOS B	0.4	9.5	0.71	0.72	0.71	34.2
4	T1	20	3.0	20	3.0	0.064	8.3	LOS A	0.4	9.5	0.71	0.72	0.71	34.2
14	R2	5	3.0	5	3.0	0.064	8.3	LOS A	0.4	9.5	0.71	0.72	0.71	33.2
Approach		45	3.0	45	3.0	0.064	10.9	LOS B	0.4	9.5	0.71	0.72	0.71	34.1
West: Mission Ave														
5	L2	5	3.0	5	3.0	0.453	10.8	LOS B	3.1	79.0	0.43	0.50	0.43	36.8
2	T1	285	3.0	285	3.0	0.453	4.8	LOS A	3.1	79.0	0.43	0.50	0.43	36.7
12	R2	230	2.0	230	2.0	0.453	4.8	LOS A	3.1	79.0	0.43	0.50	0.43	35.6
Approach		520	2.6	520	2.6	0.453	4.9	LOS A	3.1	79.0	0.43	0.50	0.43	36.2
All Vehicles		1465	2.3	1465	2.3	0.461	7.4	LOS A	3.1	79.0	0.54	0.62	0.54	35.3

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Signalised Intersections.

Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.

Intersection and Approach LOS values are based on average delay for all movements (v/c not used).

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: HCM Queue Formula.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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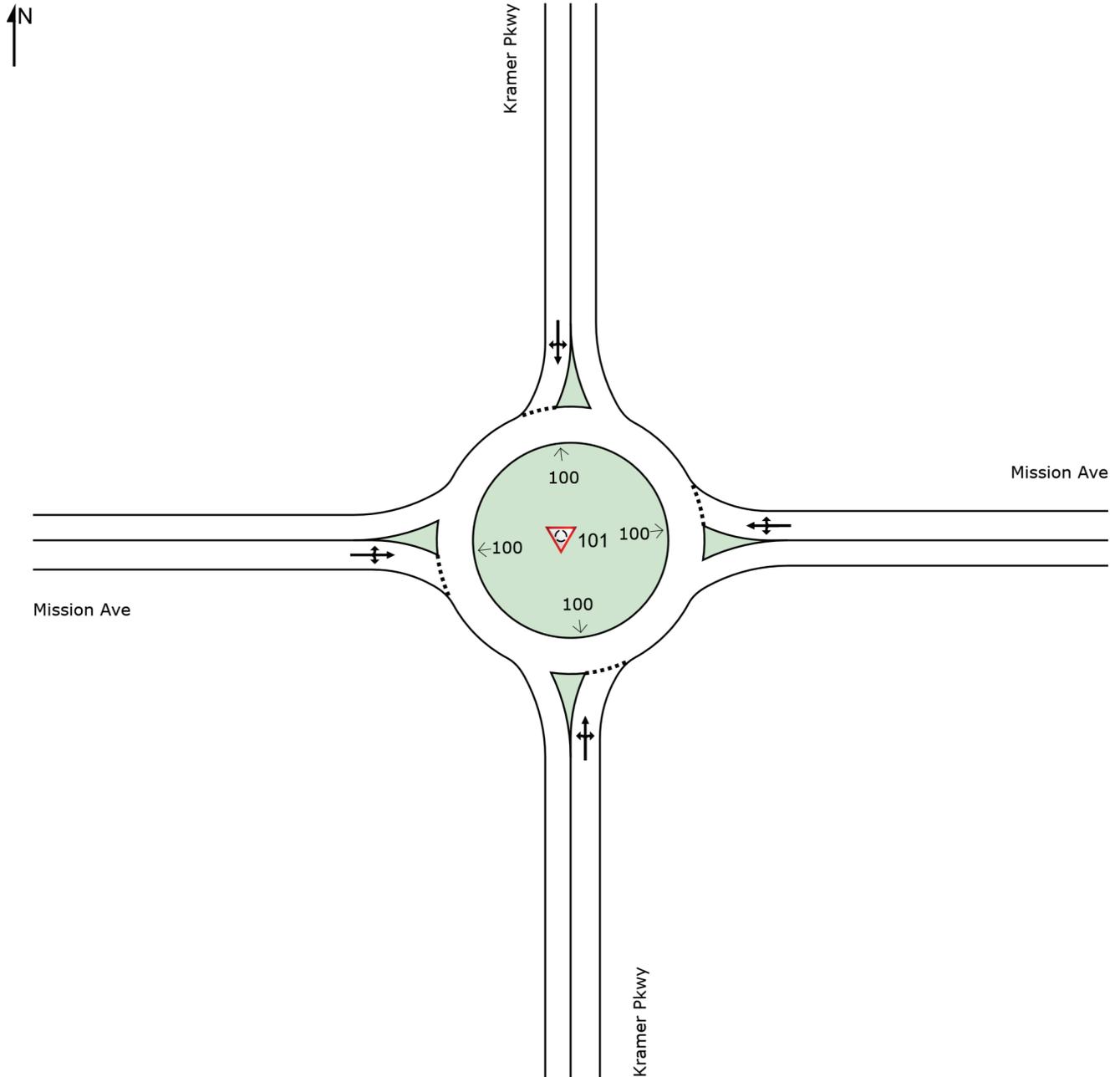
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SITE LAYOUT

Site: 101 [Mission_Kramer PM 2028 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



HCM 6th Signalized Intersection Summary

19: Harvard Rd & N Indiana Avenue

09/17/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗		↖	↗	
Traffic Volume (veh/h)	25	5	70	45	5	5	60	680	60	5	520	20
Future Volume (veh/h)	25	5	70	45	5	5	60	680	60	5	520	20
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	1530	1826	1811	1900	1159	1900	1870	1900	1900	1870	1900
Adj Flow Rate, veh/h	27	5	77	49	5	5	66	747	66	5	571	22
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, %	0	25	5	6	0	50	0	2	0	0	2	0
Cap, veh/h	47	6	89	73	77	77	512	1462	129	386	1380	53
Arrive On Green	0.03	0.07	0.07	0.04	0.09	0.09	0.05	0.44	0.44	0.01	0.40	0.40
Sat Flow, veh/h	1810	80	1229	1725	872	872	1810	3303	292	1810	3489	134
Grp Volume(v), veh/h	27	0	82	49	0	10	66	402	411	5	291	302
Grp Sat Flow(s),veh/h/ln	1810	0	1308	1725	0	1743	1810	1777	1818	1810	1777	1846
Q Serve(g_s), s	0.6	0.0	2.4	1.1	0.0	0.2	0.8	6.3	6.3	0.1	4.6	4.6
Cycle Q Clear(g_c), s	0.6	0.0	2.4	1.1	0.0	0.2	0.8	6.3	6.3	0.1	4.6	4.6
Prop In Lane	1.00		0.94	1.00		0.50	1.00		0.16	1.00		0.07
Lane Grp Cap(c), veh/h	47	0	95	73	0	155	512	786	804	386	703	730
V/C Ratio(X)	0.57	0.00	0.86	0.67	0.00	0.06	0.13	0.51	0.51	0.01	0.41	0.41
Avail Cap(c_a), veh/h	279	0	589	355	0	874	1115	2034	2081	655	1623	1686
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.7	0.0	17.8	18.4	0.0	16.2	6.4	7.8	7.8	7.3	8.5	8.5
Incr Delay (d2), s/veh	10.5	0.0	26.0	10.2	0.0	0.2	0.1	0.7	0.7	0.0	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/lr	0.6	0.0	2.4	1.0	0.0	0.1	0.4	3.2	3.3	0.0	2.5	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	0.0	43.9	28.6	0.0	16.5	6.6	8.5	8.5	7.3	9.0	9.0
LnGrp LOS	C	A	D	C	A	B	A	A	A	A	A	A
Approach Vol, veh/h		109			59			879			598	
Approach Delay, s/veh		40.2			26.5			8.4			9.0	
Approach LOS		D			C			A			A	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.0	19.9	5.0	8.0	4.2	21.7	5.6	7.3				
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5				
Max Green Setting (Gmax), s	15.0	35.5	6.0	19.5	6.0	44.5	8.0	17.5				
Max Q Clear Time (g_c+1), s	12.8	6.6	2.6	2.2	2.1	8.3	3.1	4.4				
Green Ext Time (p_c), s	0.1	5.6	0.0	0.0	0.0	8.9	0.0	0.4				

Intersection Summary

HCM 6th Ctrl Delay	11.4
HCM 6th LOS	B

HCM 6th TWSC
 20: Harvard Rd & E Wellington Parkway

09/17/2025

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔		↔	↔	
Traffic Vol, veh/h	5	5	15	30	5	10	15	640	55	5	495	15
Future Vol, veh/h	5	5	15	30	5	10	15	640	55	5	495	15
Conflicting Peds, #/hr	2	0	1	1	0	2	1	0	1	1	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	50	-	-	55	150	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	9	8	0	0	0	2	0	0	2	9
Mvmt Flow	6	6	17	34	6	11	17	719	62	6	556	17

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	977	1394	289	1079	1371	394	574	0	0	782	0	0
Stage 1	578	578	-	785	785	-	-	-	-	-	-	-
Stage 2	399	816	-	294	586	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7.08	7.66	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.66	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.66	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.39	3.58	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	208	143	687	165	147	611	1009	-	-	845	-	-
Stage 1	474	504	-	339	407	-	-	-	-	-	-	-
Stage 2	604	393	-	673	500	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	194	139	686	153	143	609	1008	-	-	844	-	-
Mov Cap-2 Maneuver	194	139	-	153	143	-	-	-	-	-	-	-
Stage 1	465	500	-	333	400	-	-	-	-	-	-	-
Stage 2	574	386	-	644	496	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	17.8		31.2		0.2		0.1	
HCM LOS	C		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1008	-	-	162	686	151	609	844	-	-
HCM Lane V/C Ratio	0.017	-	-	0.069	0.025	0.26	0.018	0.007	-	-
HCM Control Delay (s)	8.6	-	-	28.9	10.4	37	11	9.3	-	-
HCM Lane LOS	A	-	-	D	B	E	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.1	1	0.1	0	-	-

HCM 6th TWSC
21: Signal Dr & Mission Ave

09/17/2025

Intersection												
Int Delay, s/veh	26.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	40	330	20	5	430	175	10	15	10	155	35	35
Future Vol, veh/h	40	330	20	5	430	175	10	15	10	155	35	35
Conflicting Peds, #/hr	4	0	7	7	0	4	1	0	0	0	0	1
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None									
Storage Length	100	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	5	3	5	0	1	0	0	7	0	1	0	6
Mvmt Flow	43	351	21	5	457	186	11	16	11	165	37	37

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	647	0	0	379	0	0	1053	1112	369	1025	1029	555
Stage 1	-	-	-	-	-	-	455	455	-	564	564	-
Stage 2	-	-	-	-	-	-	598	657	-	461	465	-
Critical Hdwy	4.15	-	-	4.1	-	-	7.1	6.57	6.2	7.11	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.57	-	6.11	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.57	-	6.11	5.5	-
Follow-up Hdwy	2.245	-	-	2.2	-	-	3.5	4.063	3.3	3.509	4	3.354
Pot Cap-1 Maneuver	924	-	-	1191	-	-	206	204	681	214	236	524
Stage 1	-	-	-	-	-	-	589	560	-	512	512	-
Stage 2	-	-	-	-	-	-	492	454	-	582	566	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	921	-	-	1184	-	-	159	192	677	189	222	522
Mov Cap-2 Maneuver	-	-	-	-	-	-	159	192	-	189	222	-
Stage 1	-	-	-	-	-	-	558	530	-	486	508	-
Stage 2	-	-	-	-	-	-	421	451	-	530	536	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0.9		0.1		24.1		142.3	
HCM LOS					C		F	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	225	921	-	-	1184	-	-	215
HCM Lane V/C Ratio	0.165	0.046	-	-	0.004	-	-	1.113
HCM Control Delay (s)	24.1	9.1	-	-	8.1	-	-	142.3
HCM Lane LOS	C	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0	-	-	11.1

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	455	530	5	15	45
Future Vol, veh/h	5	455	530	5	15	45
Conflicting Peds, #/hr	2	0	0	2	9	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	2	1	0	0	0
Mvmt Flow	5	489	570	5	16	48

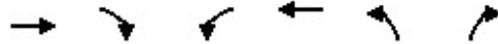
Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	577	0	-	0	1083 575
Stage 1	-	-	-	-	575 -
Stage 2	-	-	-	-	508 -
Critical Hdwy	4.1	-	-	-	6.4 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.4 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	1006	-	-	-	243 521
Stage 1	-	-	-	-	567 -
Stage 2	-	-	-	-	608 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1004	-	-	-	241 520
Mov Cap-2 Maneuver	-	-	-	-	376 -
Stage 1	-	-	-	-	563 -
Stage 2	-	-	-	-	607 -

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	13.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1004	-	-	-	475
HCM Lane V/C Ratio	0.005	-	-	-	0.136
HCM Control Delay (s)	8.6	-	-	-	13.8
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.5

Lanes, Volumes, Timings
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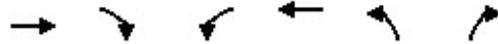
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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø14
Lane Configurations	↑↑		↵	↑↑	↵	↵	
Traffic Volume (vph)	1050	35	15	780	35	35	
Future Volume (vph)	1050	35	15	780	35	35	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)		75	100		100	0	
Storage Lanes		0	1		1	1	
Taper Length (ft)			25		25		
Lane Util. Factor	0.95	0.95	1.00	0.95	1.00	1.00	
Frt	0.995					0.850	
Flt Protected			0.950		0.950		
Satd. Flow (prot)	3426	0	1805	3505	1805	1615	
Flt Permitted			0.950		0.950		
Satd. Flow (perm)	3426	0	1805	3505	1805	1615	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)	3					36	
Link Speed (mph)	30			30	30		
Link Distance (ft)	425			3165	712		
Travel Time (s)	9.7			71.9	16.2		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Heavy Vehicles (%)	5%	0%	0%	3%	0%	0%	
Adj. Flow (vph)	1071	36	15	796	36	36	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	1107	0	15	796	36	36	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	12			12	12		
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane	Yes			Yes	Yes		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)		9	15		15	9	
Number of Detectors	2		1	2	1	1	
Detector Template	Thru		Left	Thru	Left	Right	
Leading Detector (ft)	100		20	100	20	20	
Trailing Detector (ft)	0		0	0	0	0	
Detector 1 Position(ft)	0		0	0	0	0	
Detector 1 Size(ft)	6		20	6	20	20	
Detector 1 Type	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel							
Detector 1 Extend (s)	0.0		0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0		0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0		0.0	0.0	0.0	0.0	
Detector 2 Position(ft)	94			94			
Detector 2 Size(ft)	6			6			
Detector 2 Type	Cl+Ex			Cl+Ex			
Detector 2 Channel							
Detector 2 Extend (s)	0.0			0.0			
Turn Type	NA		Prot	NA	Prot	Perm	
Protected Phases	2		1	6	8		14

Lanes, Volumes, Timings
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Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø14
Permitted Phases							8
Detector Phase	2		1	6	8	8	
Switch Phase							
Minimum Initial (s)	7.0		4.0	4.0	7.0	7.0	4.0
Minimum Split (s)	26.5		9.5	36.5	21.5	21.5	25.0
Total Split (s)	40.0		30.0	70.0	30.0	30.0	25.0
Total Split (%)	32.0%		24.0%	56.0%	24.0%	24.0%	20%
Maximum Green (s)	34.5		24.5	64.5	26.0	26.0	21.0
Yellow Time (s)	4.5		4.5	4.5	3.0	3.0	3.0
All-Red Time (s)	1.0		1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.5		5.5	5.5	4.0	4.0	
Lead/Lag	Lag		Lead				
Lead-Lag Optimize?	Yes		Yes				
Vehicle Extension (s)	2.0		2.0	2.0	2.0	2.0	2.0
Recall Mode	Min		None	Min	None	None	Ped
Walk Time (s)							6.0
Flash Dont Walk (s)							15.0
Pedestrian Calls (#/hr)							4
Act Effct Green (s)	34.8		5.3	36.9	7.3	7.3	
Actuated g/C Ratio	0.46		0.07	0.48	0.10	0.10	
v/c Ratio	0.71		0.12	0.47	0.21	0.19	
Control Delay	21.4		38.3	14.7	37.7	15.5	
Queue Delay	0.0		0.0	0.0	0.0	0.0	
Total Delay	21.4		38.3	14.7	37.7	15.5	
LOS	C		D	B	D	B	
Approach Delay	21.4			15.2	26.6		
Approach LOS	C			B	C		
Queue Length 50th (ft)	211		7	133	16	0	
Queue Length 95th (ft)	376		27	183	49	29	
Internal Link Dist (ft)	345			3085	632		
Turn Bay Length (ft)			100		100		
Base Capacity (vph)	1563		584	2987	620	578	
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	0.71		0.03	0.27	0.06	0.06	

Intersection Summary	
Area Type:	Other
Cycle Length:	125
Actuated Cycle Length:	76.4
Natural Cycle:	85
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.71
Intersection Signal Delay:	19.0
Intersection Capacity Utilization	43.9%
Analysis Period (min)	15
Intersection LOS:	B
ICU Level of Service	A

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Splits and Phases: 23: Ridgeline HS & Country Vista Dr

