Appendix F

Short-Term Mitigated Analysis Results (2028)

Intersection 1:

I-90 WB Off Ramp / E Country Vista Dr

MOVEMENT SUMMARY

Site: 1 [I-90 Ramps_Appleway PM 2028 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: Appleway Ave														
6	T1	765	2.0	781	2.0	0.323	5.4	LOS A	2.0	50.9	0.37	0.49	0.37	39.6
16	R2	55	0.0	56	0.0	0.323	5.5	LOS A	2.0	50.9	0.36	0.49	0.36	37.1
Approach		820	1.9	837	1.9	0.323	5.4	LOS A	2.0	50.9	0.37	0.49	0.37	39.4
North: I-90 Ramps														
7	L2	65	0.0	66	0.0	0.367	12.6	LOS B	1.5	38.5	0.59	0.82	0.62	36.8
14	R2	205	2.0	209	2.0	0.367	6.9	LOS A	1.5	38.5	0.59	0.82	0.62	35.5
Approach		270	1.5	276	1.5	0.367	8.2	LOS A	1.5	38.5	0.59	0.82	0.62	35.8
West: Appleway Ave														
5	L2	140	3.0	143	3.0	0.445	11.2	LOS B	3.5	90.9	0.31	0.50	0.31	37.8
2	T1	1025	5.0	1046	5.0	0.445	5.0	LOS A	3.5	92.0	0.31	0.46	0.31	39.0
Approach		1165	4.8	1189	4.8	0.445	5.7	LOS A	3.5	92.0	0.31	0.47	0.31	38.9
All Vehicles		2255	3.3	2301	3.3	0.445	5.9	LOS A	3.5	92.0	0.36	0.52	0.37	38.7

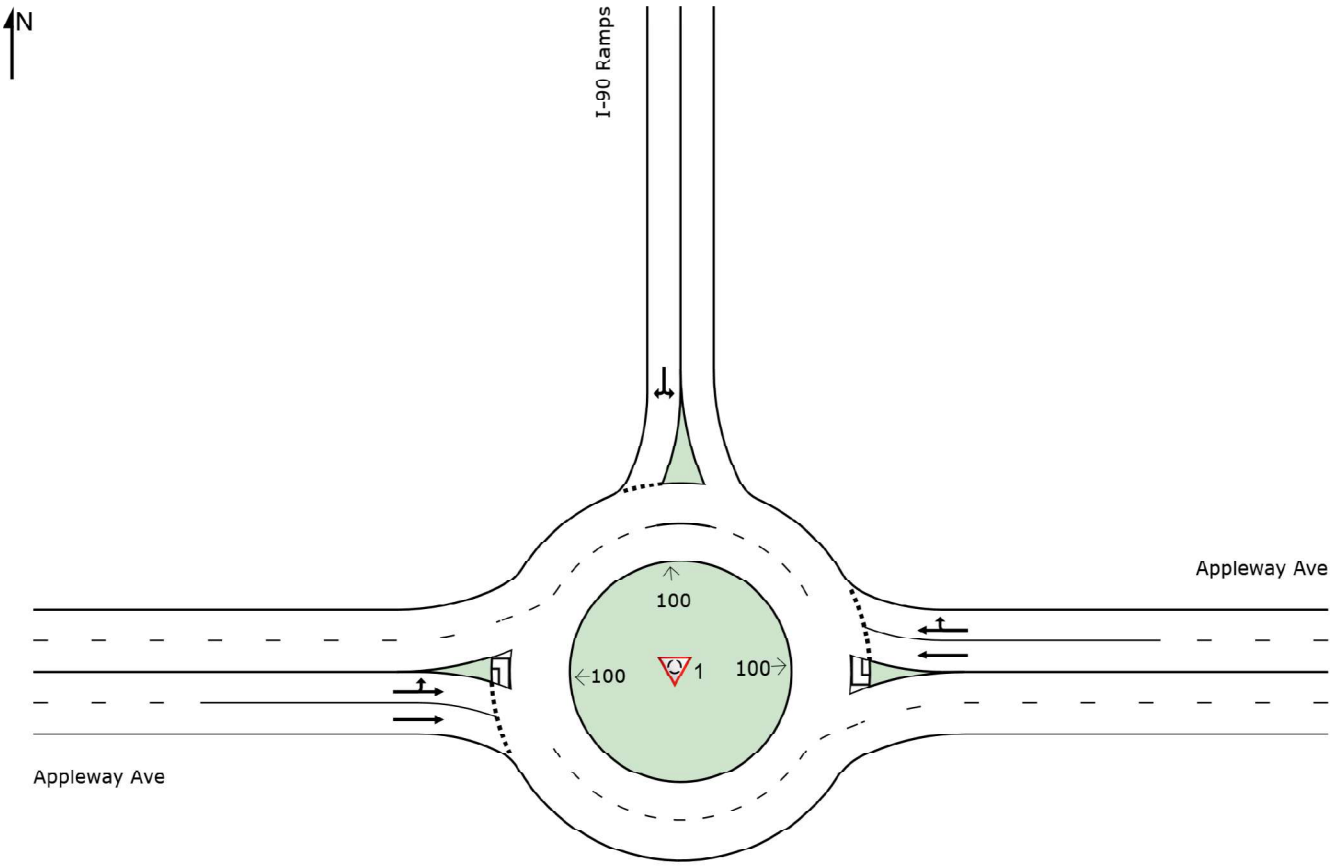
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per 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: 1 [I-90 Ramps_Appleway 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: 1 [I-90 Ramps_Appleway AM 2028 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: Appleway Ave														
6	T1	760	6.0	962	6.0	0.451	6.0	LOS A	3.1	81.8	0.48	0.55	0.48	38.5
16	R2	95	2.0	120	2.0	0.451	5.9	LOS A	3.1	81.8	0.47	0.54	0.47	36.6
Approach		855	5.6	1082	5.6	0.451	6.0	LOS A	3.1	81.8	0.48	0.55	0.48	38.3
North: I-90 Ramps														
7	L2	45	0.0	57	0.0	0.291	12.8	LOS B	1.1	29.2	0.63	0.83	0.63	36.4
14	R2	105	3.0	133	3.0	0.291	7.1	LOS A	1.1	29.2	0.63	0.83	0.63	35.0
Approach		150	2.1	190	2.1	0.291	8.8	LOS A	1.1	29.2	0.63	0.83	0.63	35.4
West: Appleway Ave														
5	L2	145	6.0	184	6.0	0.361	11.1	LOS B	2.6	67.7	0.27	0.53	0.27	37.4
2	T1	620	5.0	785	5.0	0.361	4.9	LOS A	2.6	68.3	0.26	0.46	0.26	39.1
Approach		765	5.2	968	5.2	0.361	6.1	LOS A	2.6	68.3	0.26	0.47	0.26	38.8
All Vehicles		1770	5.1	2241	5.1	0.451	6.3	LOS A	3.1	81.8	0.40	0.54	0.40	38.2

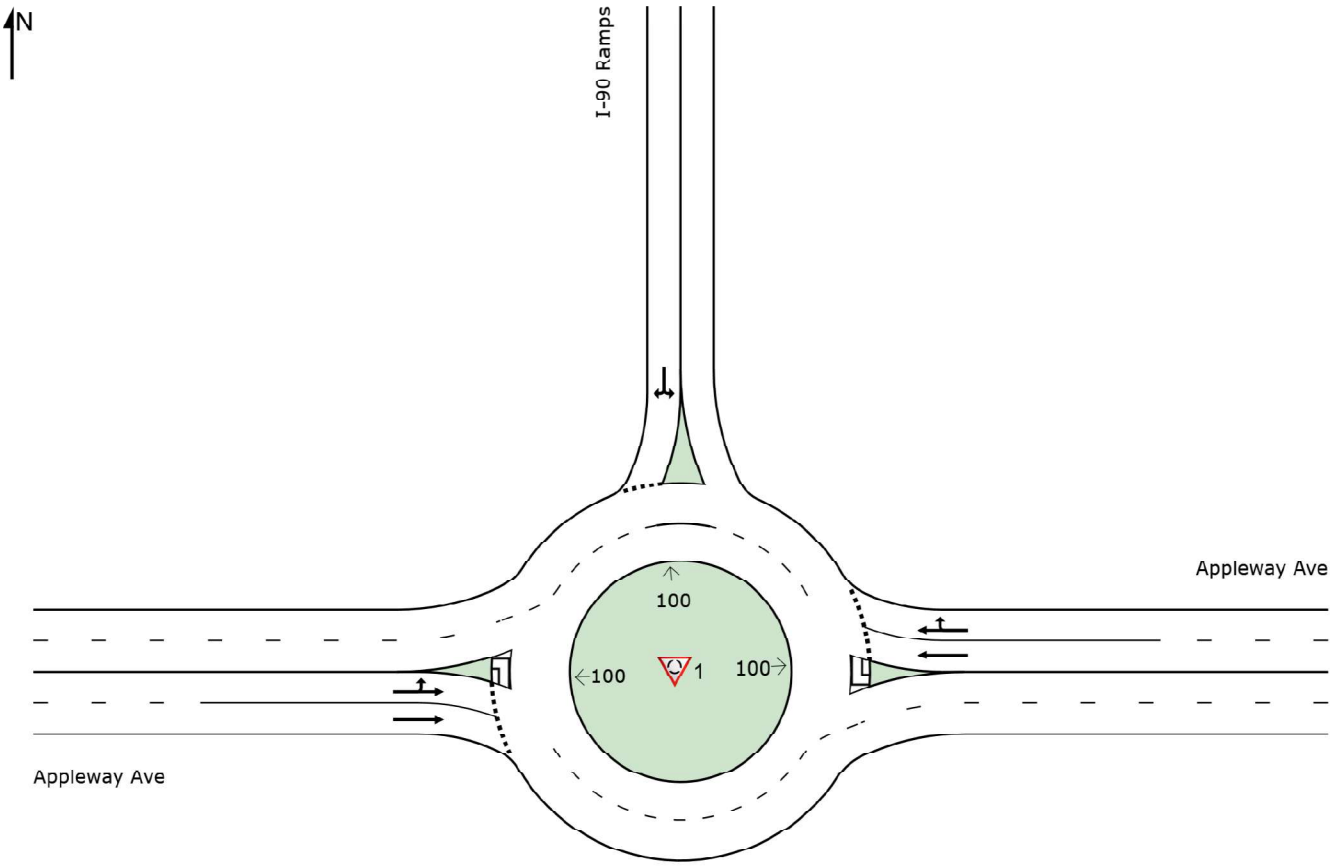
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per 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: 1 [I-90 Ramps_Appleway 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
1: Country Vista Dr & I-90 Ramps

09/17/2025

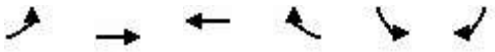
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	145	620	760	95	45	105
Future Volume (veh/h)	145	620	760	95	45	105
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1811	1826	1811	1870	1900	1856
Adj Flow Rate, veh/h	184	785	962	120	57	133
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	6	5	6	2	0	3
Cap, veh/h	336	1976	1308	163	571	496
Arrive On Green	0.09	0.57	0.42	0.42	0.32	0.32
Sat Flow, veh/h	1725	3561	3169	384	1810	1572
Grp Volume(v), veh/h	184	785	538	544	57	133
Grp Sat Flow(s),veh/h/ln	1725	1735	1721	1741	1810	1572
Q Serve(g_s), s	3.8	8.8	18.2	18.2	1.6	4.4
Cycle Q Clear(g_c), s	3.8	8.8	18.2	18.2	1.6	4.4
Prop In Lane	1.00			0.22	1.00	1.00
Lane Grp Cap(c), veh/h	336	1976	731	740	571	496
V/C Ratio(X)	0.55	0.40	0.74	0.74	0.10	0.27
Avail Cap(c_a), veh/h	730	4480	1580	1599	571	496
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	12.8	8.3	16.8	16.8	16.9	17.8
Incr Delay (d2), s/veh	1.4	0.1	1.5	1.4	0.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.4	5.0	11.0	11.1	1.1	8.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.2	8.5	18.2	18.2	17.2	19.2
LnGrp LOS	B	A	B	B	B	B
Approach Vol, veh/h		969	1082		190	
Approach Delay, s/veh		9.6	18.2		18.6	
Approach LOS		A	B		B	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	43.7	26.0	10.1	33.6
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	90.0	22.0	22.0	64.0
Max Q Clear Time (g_c+I1), s	10.8	6.4	5.8	20.2
Green Ext Time (p_c), s	6.8	0.4	0.4	9.4

Intersection Summary	
HCM 6th Ctrl Delay	14.5
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary
1: Country Vista Dr & I-90 Ramps

09/17/2025



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	140	1025	765	55	65	205
Future Volume (veh/h)	140	1025	765	55	65	205
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1826	1870	1900	1900	1870
Adj Flow Rate, veh/h	143	1046	781	56	66	209
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	5	2	0	0	2
Cap, veh/h	306	1558	1069	77	803	703
Arrive On Green	0.08	0.45	0.32	0.32	0.44	0.44
Sat Flow, veh/h	1767	3561	3456	241	1810	1585
Grp Volume(v), veh/h	143	1046	413	424	66	209
Grp Sat Flow(s),veh/h/ln	1767	1735	1777	1827	1810	1585
Q Serve(g_s), s	3.8	17.7	15.3	15.4	1.6	6.3
Cycle Q Clear(g_c), s	3.8	17.7	15.3	15.4	1.6	6.3
Prop In Lane	1.00			0.13	1.00	1.00
Lane Grp Cap(c), veh/h	306	1558	565	581	803	703
V/C Ratio(X)	0.47	0.67	0.73	0.73	0.08	0.30
Avail Cap(c_a), veh/h	597	3684	1361	1400	803	703
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.1	16.2	22.5	22.5	12.0	13.3
Incr Delay (d2), s/veh	1.1	0.5	1.8	1.8	0.2	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.7	10.6	10.4	10.7	1.0	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.2	16.7	24.4	24.3	12.2	14.3
LnGrp LOS	B	B	C	C	B	B
Approach Vol, veh/h		1189	837		275	
Approach Delay, s/veh		16.7	24.3		13.8	
Approach LOS		B	C		B	

Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			37.4		37.0	9.7	27.7
Change Period (Y+Rc), s			4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s			79.0		33.0	18.0	57.0
Max Q Clear Time (g_c+I1), s			19.7		8.3	5.8	17.4
Green Ext Time (p_c), s			10.3		0.8	0.3	6.3

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

Intersection 6:

Liberty Lake Road / Appleway Ave

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	209	979	437	157	382	1272	175	750	327	373	1108	
Arrive On Green	0.12	0.28	0.28	0.10	0.26	0.26	0.10	0.21	0.21	0.21	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	8.7	16.4	15.4	7.0	1.3	14.0	7.2	13.1	7.2	16.1	7.2	0.0
Cycle Q Clear(g_c), s	8.7	16.4	15.4	7.0	1.3	14.0	7.2	13.1	7.2	16.1	7.2	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	209	979	437	157	382	1272	175	750	327	373	1108	
V/C Ratio(X)	0.82	0.71	0.67	0.81	0.07	0.48	0.80	0.73	0.43	0.86	0.33	
Avail Cap(c_a), veh/h	384	1330	593	267	483	1458	340	1042	454	581	1479	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	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	0.00
Uniform Delay (d), s/veh	39.3	29.4	29.0	40.4	25.5	16.5	40.1	33.5	31.1	34.7	24.1	0.0
Incr Delay (d2), s/veh	7.8	1.5	2.6	9.7	0.1	0.3	11.0	2.1	1.3	10.0	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	5.8	0.8	7.5	6.4	9.6	4.9	12.4	5.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	47.1	30.9	31.6	50.1	25.6	16.8	51.1	35.6	32.4	44.8	24.3	0.0
LnGrp LOS	D	C	C	D	C	B	D	D	C	D	C	
Approach Vol, veh/h		1160			762			822			689	
Approach Delay, s/veh		33.5			22.7			37.7			33.9	
Approach LOS		C			C			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.3	24.4	12.8	30.8	14.3	33.5	14.9	28.7
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	30.0	27.0	15.0	35.0	18.0	38.0	20.0	30.0
Max Q Clear Time (g_c+I1), s	18.1	15.1	9.0	18.4	9.2	9.2	10.7	16.0
Green Ext Time (p_c), s	1.2	4.3	0.1	7.4	0.3	2.5	0.3	2.4

Intersection Summary	
HCM 6th Ctrl Delay	32.2
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
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	984	439	245	557	1365	207	837	371	352	1096	
Arrive On Green	0.12	0.28	0.28	0.14	0.29	0.29	0.12	0.23	0.23	0.20	0.31	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	11.2	27.5	14.0	2.4	26.4	11.0	22.5	11.0	20.3	14.8	0.0
Cycle Q Clear(g_c), s	11.9	11.2	27.5	14.0	2.4	26.4	11.0	22.5	11.0	20.3	14.8	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	216	984	439	245	557	1365	207	837	371	352	1096	
V/C Ratio(X)	0.86	0.42	0.89	0.89	0.10	0.63	0.84	0.86	0.47	0.91	0.51	
Avail Cap(c_a), veh/h	335	1070	477	274	557	1365	309	894	396	386	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(I)	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	50.0	34.4	40.3	49.1	29.9	21.9	50.4	42.7	38.3	45.8	33.1	0.0
Incr Delay (d2), s/veh	12.5	0.4	18.3	25.6	0.1	0.9	15.1	8.8	1.3	25.1	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.0	8.5	18.7	12.5	2.0	13.4	9.8	16.3	7.8	17.0	10.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.6	34.9	58.7	74.7	29.9	22.8	65.5	51.5	39.6	70.9	33.5	0.0
LnGrp LOS	E	C	E	E	C	C	E	D	D	E	C	
Approach Vol, veh/h		994			1130			1071			875	
Approach Delay, s/veh		49.4			33.1			51.8			47.2	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.8	32.2	20.1	37.2	18.4	40.6	18.2	39.1
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	25.0	29.0	18.0	35.0	20.0	33.0	22.0	31.0
Max Q Clear Time (g_c+I1), s	22.3	24.5	16.0	29.5	13.0	16.8	13.9	28.4
Green Ext Time (p_c), s	0.4	2.6	0.1	2.6	0.4	3.4	0.3	1.2

Intersection Summary	
HCM 6th Ctrl Delay	45.1
HCM 6th LOS	D

Notes

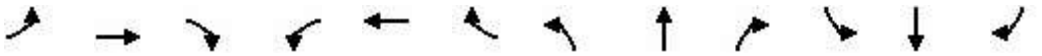
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection 7:

N Liberty Lake Rd / E Country Vista Dr

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

08/07/2025



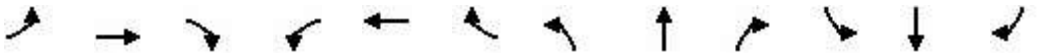
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	455	80	20	440	135	135	185	20	130	100	365
Future Volume (veh/h)	380	455	80	20	440	135	135	185	20	130	100	365
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		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			No			No			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	527	1097	192	34	610	186	290	993	105	533	526	469
Arrive On Green	0.16	0.37	0.37	0.02	0.23	0.23	0.08	0.31	0.31	0.08	0.30	0.30
Sat Flow, veh/h	3374	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	1687	1763	1761	1725	1763	1710	1753	1777	1809	1767	1735	1547
Q Serve(g_s), s	9.0	9.5	9.6	0.9	12.8	13.0	4.3	3.5	3.5	4.1	3.5	18.4
Cycle Q Clear(g_c), s	9.0	9.5	9.6	0.9	12.8	13.0	4.3	3.5	3.5	4.1	3.5	18.4
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	527	645	644	34	404	392	290	544	554	533	526	469
V/C Ratio(X)	0.80	0.46	0.46	0.65	0.80	0.81	0.52	0.21	0.21	0.27	0.21	0.87
Avail Cap(c_a), veh/h	953	645	644	487	605	587	640	849	864	892	829	739
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.2	18.0	18.0	36.2	27.0	27.1	18.1	19.1	19.1	15.5	19.3	24.5
Incr Delay (d2), s/veh	1.1	0.2	0.2	7.5	2.5	2.8	0.5	0.1	0.1	0.1	0.1	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	3.7	3.7	0.5	5.4	5.4	1.6	1.4	1.4	1.6	1.4	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.3	18.2	18.2	43.7	29.5	29.9	18.6	19.2	19.2	15.6	19.4	28.4
LnGrp LOS	C	B	B	D	C	C	B	B	B	B	B	C
Approach Vol, veh/h		1017			661			378			661	
Approach Delay, s/veh		23.6			30.1			19.0			24.1	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.9	27.3	5.5	31.7	10.1	27.0	15.6	21.5
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	21.0	35.5	21.0	25.5	21.0	35.5	21.0	25.5
Max Q Clear Time (g_c+I1), s	6.1	5.5	2.9	11.6	6.3	20.4	11.0	15.0
Green Ext Time (p_c), s	0.2	0.8	0.0	2.1	0.2	2.1	0.7	2.0

Intersection Summary	
HCM 6th Ctrl Delay	24.7
HCM 6th LOS	C

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

08/07/2025



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	588	1032	313	62	712	159	207	925	120	595	620	553
Arrive On Green	0.17	0.38	0.38	0.03	0.25	0.25	0.07	0.29	0.29	0.12	0.35	0.35
Sat Flow, veh/h	3483	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	1742	1791	1737	1810	1777	1754	1795	1763	1782	1767	1791	1598
Q Serve(g_s), s	14.4	18.5	18.6	2.7	23.1	23.2	5.4	3.8	3.9	10.4	8.5	34.5
Cycle Q Clear(g_c), s	14.4	18.5	18.6	2.7	23.1	23.2	5.4	3.8	3.9	10.4	8.5	34.5
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	588	683	662	62	439	433	207	519	525	595	620	553
V/C Ratio(X)	0.86	0.59	0.59	0.77	0.93	0.93	0.67	0.17	0.18	0.46	0.33	0.98
Avail Cap(c_a), veh/h	714	683	662	371	442	436	445	610	617	738	620	553
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.4	25.3	25.4	49.1	37.8	37.8	26.7	26.9	26.9	19.3	24.7	33.2
Incr Delay (d2), s/veh	8.9	1.0	1.0	7.3	26.3	26.9	1.4	0.1	0.1	0.2	0.1	33.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	7.9	7.7	1.3	13.1	13.0	2.3	1.6	1.7	4.2	3.6	18.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.3	26.3	26.4	56.4	64.1	64.7	28.1	26.9	27.0	19.5	24.8	66.5
LnGrp LOS	D	C	C	E	E	E	C	C	C	B	C	E
Approach Vol, veh/h		1303			862			319			1016	
Approach Delay, s/veh		35.6			64.0			27.4			45.7	
Approach LOS		D			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.7	34.7	7.5	43.6	11.4	40.0	21.3	29.8
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+I1), s	12.4	5.9	4.7	20.6	7.4	36.5	16.4	25.2
Green Ext Time (p_c), s	0.3	0.7	0.0	1.6	0.1	0.0	0.9	0.2

Intersection Summary	
HCM 6th Ctrl Delay	44.8
HCM 6th LOS	D

Intersection 8:

E Mission Ave / E Country Vista Dr

Intersection	
Int Delay, s/veh	5.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	370	275	280	10	0	290
Future Vol, veh/h	370	275	280	10	0	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	0	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	12.2
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1190	-	-	-	-	833
HCM Lane V/C Ratio	0.362	-	-	-	-	0.405
HCM Control Delay (s)	9.7	-	-	-	0	12.2
HCM Lane LOS	A	-	-	-	A	B
HCM 95th %tile Q(veh)	1.7	-	-	-	-	2

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	360	455	310	15	0	465
Future Vol, veh/h	360	455	310	15	0	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	0	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	15.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1192	-	-	-	-	824
HCM Lane V/C Ratio	0.325	-	-	-	-	0.607
HCM Control Delay (s)	9.5	-	-	-	0	15.9
HCM Lane LOS	A	-	-	-	A	C
HCM 95th %tile Q(veh)	1.4	-	-	-	-	4.2

Intersection 20:

N Harvard Rd/E Wellington Pkwy

MOVEMENT SUMMARY

Site: 20 [Harvard_Wellington PM 2028 Mit (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Harvard Rd														
3	L2	15	0.0	17	0.0	0.276	9.8	LOS A	1.7	41.9	0.11	0.38	0.11	37.8
8	T1	640	2.0	719	2.0	0.276	3.8	LOS A	1.7	41.9	0.11	0.38	0.11	37.8
18	R2	55	0.0	62	0.0	0.276	4.1	LOS A	1.7	41.9	0.10	0.38	0.10	36.6
Approach		710	1.8	798	1.8	0.276	3.9	LOS A	1.7	41.9	0.11	0.38	0.11	37.7
East: Wellington Pkwy														
1	L2	30	8.0	34	8.0	0.067	12.2	LOS B	0.2	5.3	0.45	0.74	0.45	34.5
6	T1	5	0.0	6	0.0	0.067	5.7	LOS A	0.2	5.3	0.45	0.74	0.45	34.7
16	R2	10	0.0	11	0.0	0.067	5.9	LOS A	0.2	5.3	0.45	0.74	0.45	33.7
Approach		45	5.3	51	5.3	0.067	10.1	LOS B	0.2	5.3	0.45	0.74	0.45	34.4
North: Harvard Rd														
7	L2	5	9.0	6	9.0	0.211	10.1	LOS B	1.2	29.9	0.21	0.39	0.21	37.2
4	T1	495	2.0	556	2.0	0.211	4.0	LOS A	1.2	29.9	0.20	0.38	0.20	37.4
14	R2	15	0.0	17	0.0	0.211	4.3	LOS A	1.2	29.9	0.20	0.38	0.20	36.2
Approach		515	2.0	579	2.0	0.211	4.0	LOS A	1.2	29.9	0.20	0.38	0.20	37.4
West: Wellington Pkwy														
5	L2	5	0.0	6	0.0	0.036	11.4	LOS B	0.1	2.9	0.42	0.63	0.42	36.3
2	T1	5	0.0	6	0.0	0.036	5.3	LOS A	0.1	2.9	0.42	0.63	0.42	36.2
12	R2	15	9.0	17	9.0	0.036	5.9	LOS A	0.1	2.9	0.42	0.63	0.42	34.9
Approach		25	5.4	28	5.4	0.036	6.9	LOS A	0.1	2.9	0.42	0.63	0.42	35.5
All Vehicles		1295	2.1	1455	2.1	0.276	4.3	LOS A	1.7	41.9	0.16	0.40	0.16	37.4

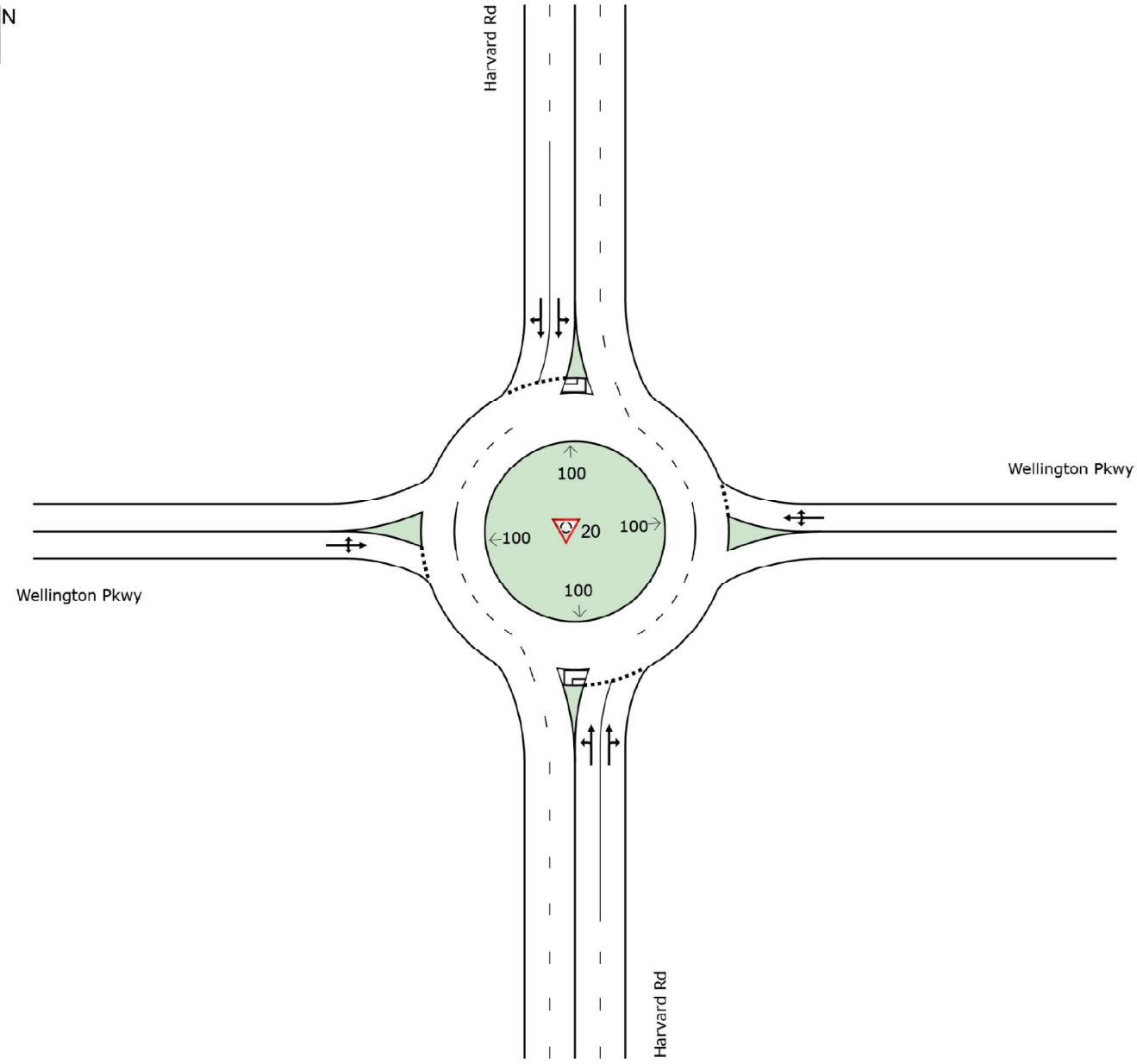
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per 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.

SITE LAYOUT

Site: 20 [Harvard_Wellington PM 2028 Mit (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: 20 [Harvard_Wellington AM 2028 Mit (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Harvard Rd														
3	L2	10	0.0	11	0.0	0.140	9.8	LOS A	0.7	18.5	0.09	0.38	0.09	37.8
8	T1	330	3.0	363	3.0	0.140	3.8	LOS A	0.7	18.5	0.09	0.38	0.09	37.8
18	R2	25	0.0	27	0.0	0.140	4.1	LOS A	0.7	18.5	0.09	0.37	0.09	36.6
Approach		365	2.7	401	2.7	0.140	4.0	LOS A	0.7	18.5	0.09	0.38	0.09	37.7
East: Wellington Pkwy														
1	L2	45	0.0	49	0.0	0.065	10.9	LOS B	0.2	5.0	0.34	0.68	0.34	34.8
6	T1	5	0.0	5	0.0	0.065	4.9	LOS A	0.2	5.0	0.34	0.68	0.34	34.6
16	R2	5	0.0	5	0.0	0.065	5.0	LOS A	0.2	5.0	0.34	0.68	0.34	33.7
Approach		55	0.0	60	0.0	0.065	9.8	LOS A	0.2	5.0	0.34	0.68	0.34	34.6
North: Harvard Rd														
7	L2	5	0.0	5	0.0	0.224	10.0	LOS B	1.2	32.1	0.22	0.39	0.22	37.5
4	T1	535	4.0	588	4.0	0.224	4.0	LOS A	1.2	32.2	0.22	0.39	0.22	37.3
14	R2	5	0.0	5	0.0	0.224	4.3	LOS A	1.2	32.2	0.22	0.38	0.22	36.2
Approach		545	3.9	599	3.9	0.224	4.1	LOS A	1.2	32.2	0.22	0.39	0.22	37.3
West: Wellington Pkwy														
5	L2	5	0.0	5	0.0	0.020	11.4	LOS B	0.1	1.5	0.43	0.63	0.43	35.9
2	T1	5	0.0	5	0.0	0.020	5.4	LOS A	0.1	1.5	0.43	0.63	0.43	35.8
12	R2	5	0.0	5	0.0	0.020	5.6	LOS A	0.1	1.5	0.43	0.63	0.43	34.8
Approach		15	0.0	16	0.0	0.020	7.5	LOS A	0.1	1.5	0.43	0.63	0.43	35.5
All Vehicles		980	3.2	1077	3.2	0.224	4.4	LOS A	1.2	32.2	0.18	0.40	0.18	37.3

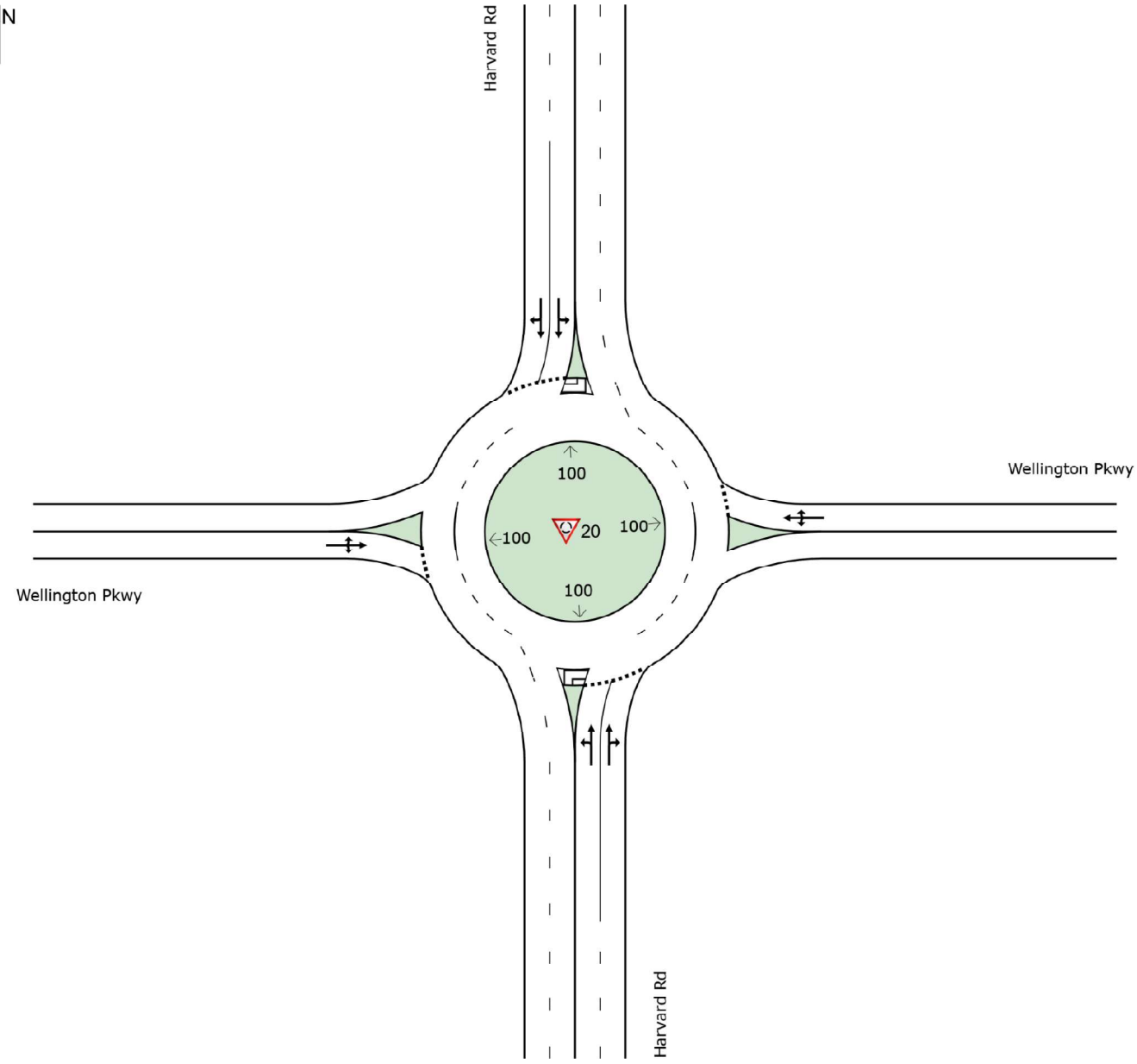
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per 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.

SITE LAYOUT

Site: 20 [Harvard_Wellington AM 2028 Mit (Site Folder: General)]

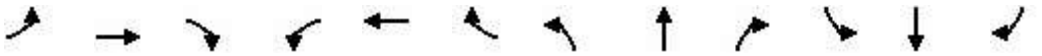
New Site
Site Category: (None)
Roundabout

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



HCM 6th Signalized Intersection Summary
20: Harvard Rd & E Wellington Parkway

10/22/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	5	45	5	5	10	330	25	5	535	5
Future Volume (veh/h)	5	5	5	45	5	5	10	330	25	5	535	5
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1856	1900	1900	1841	1900
Adj Flow Rate, veh/h	5	5	5	49	5	5	11	363	27	5	588	5
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	0	0	0	0	0	0	3	0	0	4	0
Cap, veh/h	235	0	118	299	0	118	562	1323	98	650	1391	12
Arrive On Green	0.07	0.07	0.07	0.07	0.07	0.07	0.01	0.40	0.40	0.01	0.39	0.39
Sat Flow, veh/h	0	0	1605	0	0	1605	1810	3327	246	1810	3554	30
Grp Volume(v), veh/h	10	0	5	54	0	5	11	192	198	5	289	304
Grp Sat Flow(s),veh/h/ln	0	0	1605	0	0	1605	1810	1763	1810	1810	1749	1835
Q Serve(g_s), s	0.0	0.0	0.1	0.0	0.0	0.1	0.1	1.7	1.7	0.0	2.8	2.8
Cycle Q Clear(g_c), s	1.7	0.0	0.1	1.7	0.0	0.1	0.1	1.7	1.7	0.0	2.8	2.8
Prop In Lane	0.50		1.00	0.91		1.00	1.00		0.14	1.00		0.02
Lane Grp Cap(c), veh/h	235	0	118	299	0	118	562	701	720	650	684	718
V/C Ratio(X)	0.04	0.00	0.04	0.18	0.00	0.04	0.02	0.27	0.28	0.01	0.42	0.42
Avail Cap(c_a), veh/h	2242	0	2098	2095	0	2098	1329	5225	5366	1429	5183	5439
HCM Platoon Ratio	1.00	1.00	1.00	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	11.5	0.0	9.9	11.5	0.0	9.9	4.3	4.7	4.7	4.2	5.1	5.1
Incr Delay (d2), s/veh	0.1	0.0	0.1	0.3	0.0	0.1	0.0	0.2	0.2	0.0	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.4	0.5	0.0	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.5	0.0	10.0	11.8	0.0	10.0	4.3	4.9	4.9	4.2	5.5	5.5
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		15			59			401			598	
Approach Delay, s/veh		11.0			11.6			4.9			5.5	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.3	13.0		5.7	4.1	13.1		5.7				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	10.0	68.0		30.0	10.0	68.0		30.0				
Max Q Clear Time (g_c+I1), s	2.1	4.8		3.7	2.0	3.7		3.7				
Green Ext Time (p_c), s	0.0	4.1		0.0	0.0	2.6		0.2				

Intersection Summary		
HCM 6th Ctrl Delay		5.7
HCM 6th LOS		A

HCM 6th Signalized Intersection Summary
20: Harvard Rd & E Wellington Parkway

10/22/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	5	15	30	5	10	15	640	55	5	495	15
Future Volume (veh/h)	5	5	15	30	5	10	15	640	55	5	495	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	1767	1781	1900	1900	1900	1870	1900	1900	1870	1767
Adj Flow Rate, veh/h	6	6	17	34	6	11	17	719	62	6	556	17
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	9	8	0	0	0	2	0	0	2	9
Cap, veh/h	207	0	118	255	0	127	597	1507	130	501	1563	48
Arrive On Green	0.08	0.08	0.08	0.08	0.08	0.08	0.02	0.46	0.46	0.01	0.44	0.44
Sat Flow, veh/h	0	0	1491	0	0	1604	1810	3310	285	1810	3520	108
Grp Volume(v), veh/h	12	0	17	40	0	11	17	386	395	6	280	293
Grp Sat Flow(s),veh/h/ln	0	0	1491	0	0	1604	1810	1777	1819	1810	1777	1851
Q Serve(g_s), s	0.0	0.0	0.3	0.0	0.0	0.2	0.1	3.9	4.0	0.0	2.7	2.7
Cycle Q Clear(g_c), s	2.1	0.0	0.3	2.1	0.0	0.2	0.1	3.9	4.0	0.0	2.7	2.7
Prop In Lane	0.50		1.00	0.85		1.00	1.00		0.16	1.00		0.06
Lane Grp Cap(c), veh/h	207	0	118	255	0	127	597	809	828	501	789	822
V/C Ratio(X)	0.06	0.00	0.14	0.16	0.00	0.09	0.03	0.48	0.48	0.01	0.36	0.36
Avail Cap(c_a), veh/h	1566	0	1369	1481	0	1472	1188	5165	5286	1043	5097	5309
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.1	0.0	11.2	13.1	0.0	11.2	4.0	5.0	5.0	4.2	4.8	4.8
Incr Delay (d2), s/veh	0.1	0.0	0.6	0.3	0.0	0.3	0.0	0.4	0.4	0.0	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.1	0.0	0.2	0.4	0.0	0.1	0.0	1.1	1.1	0.0	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.2	0.0	11.8	13.4	0.0	11.4	4.0	5.4	5.4	4.2	5.1	5.1
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		29			51			798			579	
Approach Delay, s/veh		12.4			12.9			5.4			5.1	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.5	15.6		6.1	4.2	15.9		6.1				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	9.0	75.0		24.0	8.0	76.0		24.0				
Max Q Clear Time (g_c+I1), s	2.1	4.7		4.1	2.0	6.0		4.1				
Green Ext Time (p_c), s	0.0	4.0		0.1	0.0	5.9		0.2				

Intersection Summary	
HCM 6th Ctrl Delay	5.6
HCM 6th LOS	A

Intersection 21:

E Mission Ave/N Signal Dr

Intersection	
Int Delay, s/veh	2.5

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	0	0	10
Future Vol, veh/h	25	315	10	5	320	195	20	50	10	0	0	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	-	-	None	-	-	None	-	-	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	0	0	11

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	560	0	0	360	0	0	881	979	355	898	878	456
Stage 1	-	-	-	-	-	-	409	409	-	464	464	-
Stage 2	-	-	-	-	-	-	472	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	-	-	269	252	693	255	289	586
Stage 1	-	-	-	-	-	-	623	600	-	569	567	-
Stage 2	-	-	-	-	-	-	576	509	-	591	597	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	982	-	-	1203	-	-	256	243	689	203	278	585
Mov Cap-2 Maneuver	-	-	-	-	-	-	256	243	-	203	278	-
Stage 1	-	-	-	-	-	-	602	580	-	554	565	-
Stage 2	-	-	-	-	-	-	562	507	-	513	577	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0.1	24.8	11.3
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	268	982	-	-	1203	-	-	585
HCM Lane V/C Ratio	0.324	0.028	-	-	0.005	-	-	0.019
HCM Control Delay (s)	24.8	8.8	-	-	8	-	-	11.3
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	1.4	0.1	-	-	0	-	-	0.1

Intersection	
Int Delay, s/veh	1.5

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	0	0	35
Future Vol, veh/h	40	330	20	5	430	175	10	15	10	0	0	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	-	-	None	-	-	None	-	-	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	0	0	37

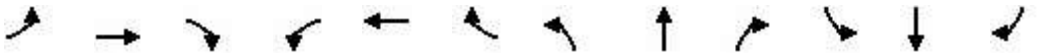
Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	647	0	0	379	0	0	1035	1112	369	1025	1029	555
Stage 1	-	-	-	-	-	-	455	455	-	564	564	-
Stage 2	-	-	-	-	-	-	580	657	-	461	465	-
Critical Hdwy	4.15	-	-	4.1	-	-	7.1	6.57	6.2	7.11	6.5	6.26
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.57	-	6.11	5.5	-
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	-	-	212	204	681	214	236	524
Stage 1	-	-	-	-	-	-	589	560	-	512	512	-
Stage 2	-	-	-	-	-	-	504	454	-	582	566	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	921	-	-	1184	-	-	188	192	677	189	222	522
Mov Cap-2 Maneuver	-	-	-	-	-	-	188	192	-	189	222	-
Stage 1	-	-	-	-	-	-	558	530	-	486	508	-
Stage 2	-	-	-	-	-	-	466	451	-	530	536	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.9	0.1	22.7	12.4
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	240	921	-	-	1184	-	-	522
HCM Lane V/C Ratio	0.155	0.046	-	-	0.004	-	-	0.071
HCM Control Delay (s)	22.7	9.1	-	-	8.1	-	-	12.4
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.5	0.1	-	-	0	-	-	0.2

HCM 6th Signalized Intersection Summary
21: Signal Dr & Mission Ave

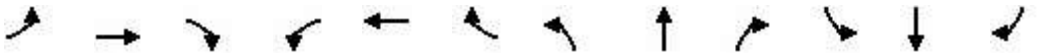
08/06/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	25	315	10	5	320	195	20	50	10	115	10	10
Future Volume (veh/h)	25	315	10	5	320	195	20	50	10	115	10	10
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1870	1900	1900	1856	1885	1900	1900	1900	1796	1900	1737
Adj Flow Rate, veh/h	27	342	11	5	348	212	22	54	11	125	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, %	8	2	0	0	3	1	0	0	0	7	0	11
Cap, veh/h	485	897	29	672	536	327	227	248	44	486	38	22
Arrive On Green	0.50	0.50	0.50	0.50	0.50	0.50	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	807	1802	58	1040	1076	656	275	1272	224	1182	193	111
Grp Volume(v), veh/h	27	0	353	5	0	560	87	0	0	147	0	0
Grp Sat Flow(s),veh/h/ln	807	0	1859	1040	0	1732	1771	0	0	1486	0	0
Q Serve(g_s), s	0.7	0.0	3.1	0.1	0.0	6.2	0.0	0.0	0.0	1.1	0.0	0.0
Cycle Q Clear(g_c), s	6.9	0.0	3.1	3.1	0.0	6.2	1.0	0.0	0.0	2.1	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.38	0.25		0.13	0.85		0.07
Lane Grp Cap(c), veh/h	485	0	926	672	0	862	518	0	0	545	0	0
V/C Ratio(X)	0.06	0.00	0.38	0.01	0.00	0.65	0.17	0.00	0.00	0.27	0.00	0.00
Avail Cap(c_a), veh/h	1758	0	3858	2313	0	3593	2023	0	0	1778	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	7.4	0.0	4.0	5.0	0.0	4.8	8.9	0.0	0.0	9.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.3	0.0	0.0	0.8	0.2	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.4	0.0	0.0	0.8	0.3	0.0	0.0	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	7.5	0.0	4.3	5.0	0.0	5.7	9.0	0.0	0.0	9.5	0.0	0.0
LnGrp LOS	A	A	A	A	A	A	A	A	A	A	A	A
Approach Vol, veh/h		380			565			87			147	
Approach Delay, s/veh		4.5			5.7			9.0			9.5	
Approach LOS		A			A			A			A	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		9.1		17.0		9.1		17.0				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		28.0		54.0		28.0		54.0				
Max Q Clear Time (g_c+I1), s		4.1		8.9		3.0		8.2				
Green Ext Time (p_c), s		0.8		2.6		0.4		4.6				
Intersection Summary												
HCM 6th Ctrl Delay			6.0									
HCM 6th LOS			A									

HCM 6th Signalized Intersection Summary
21: Signal Dr & Mission Ave

08/06/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	330	20	5	430	175	10	15	10	155	35	35
Future Volume (veh/h)	40	330	20	5	430	175	10	15	10	155	35	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1856	1826	1900	1885	1900	1900	1796	1900	1885	1900	1811
Adj Flow Rate, veh/h	43	351	21	5	457	186	11	16	11	165	37	37
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, %	5	3	5	0	1	0	0	7	0	1	0	6
Cap, veh/h	398	877	52	612	643	262	204	225	117	421	83	58
Arrive On Green	0.51	0.51	0.51	0.51	0.51	0.51	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	767	1732	104	1023	1271	517	247	916	474	947	339	236
Grp Volume(v), veh/h	43	0	372	5	0	643	38	0	0	239	0	0
Grp Sat Flow(s),veh/h/ln	767	0	1836	1023	0	1788	1636	0	0	1521	0	0
Q Serve(g_s), s	1.5	0.0	4.1	0.1	0.0	9.0	0.0	0.0	0.0	3.8	0.0	0.0
Cycle Q Clear(g_c), s	10.4	0.0	4.1	4.2	0.0	9.0	0.6	0.0	0.0	4.5	0.0	0.0
Prop In Lane	1.00		0.06	1.00		0.29	0.29		0.29	0.69		0.15
Lane Grp Cap(c), veh/h	398	0	930	612	0	905	546	0	0	563	0	0
V/C Ratio(X)	0.11	0.00	0.40	0.01	0.00	0.71	0.07	0.00	0.00	0.42	0.00	0.00
Avail Cap(c_a), veh/h	1220	0	2898	1709	0	2822	1640	0	0	1628	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.2	0.0	4.9	6.2	0.0	6.1	9.4	0.0	0.0	10.8	0.0	0.0
Incr Delay (d2), s/veh	0.1	0.0	0.3	0.0	0.0	1.0	0.1	0.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.8	0.0	0.0	1.8	0.2	0.0	0.0	1.2	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.3	0.0	5.2	6.2	0.0	7.2	9.4	0.0	0.0	11.3	0.0	0.0
LnGrp LOS	B	A	A	A	A	A	A	A	A	B	A	A
Approach Vol, veh/h		415			648			38			239	
Approach Delay, s/veh		5.7			7.2			9.4			11.3	
Approach LOS		A			A			A			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		11.9		20.4		11.9		20.4				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		31.0		51.0		31.0		51.0				
Max Q Clear Time (g_c+I1), s		6.5		12.4		2.6		11.0				
Green Ext Time (p_c), s		1.4		2.9		0.1		5.4				

Intersection Summary												
HCM 6th Ctrl Delay			7.5									
HCM 6th LOS			A									

Intersection	
Intersection Delay, s/veh	24.8
Intersection LOS	C

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
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
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
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	17	35.3	11.4	12.8
HCM LOS	C	E	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	25%	100%	0%	100%	0%	85%
Vol Thru, %	62%	0%	97%	0%	62%	7%
Vol Right, %	12%	0%	3%	0%	38%	7%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	80	25	325	5	515	135
LT Vol	20	25	0	5	0	115
Through Vol	50	0	315	0	320	10
RT Vol	10	0	10	0	195	10
Lane Flow Rate	87	27	353	5	560	147
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.168	0.051	0.595	0.01	0.876	0.286
Departure Headway (Hd)	6.971	6.697	6.063	6.358	5.633	7.016
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	517	531	590	559	638	515
Service Time	4.979	4.489	3.855	4.138	3.413	5.016
HCM Lane V/C Ratio	0.168	0.051	0.598	0.009	0.878	0.285
HCM Control Delay	11.4	9.9	17.5	9.2	35.6	12.8
HCM Lane LOS	B	A	C	A	E	B
HCM 95th-tile Q	0.6	0.2	3.9	0	10.3	1.2

Intersection	
Intersection Delay, s/veh	47
Intersection LOS	E

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
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
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
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	19.7	78.1	11.4	15.7
HCM LOS	C	F	B	C

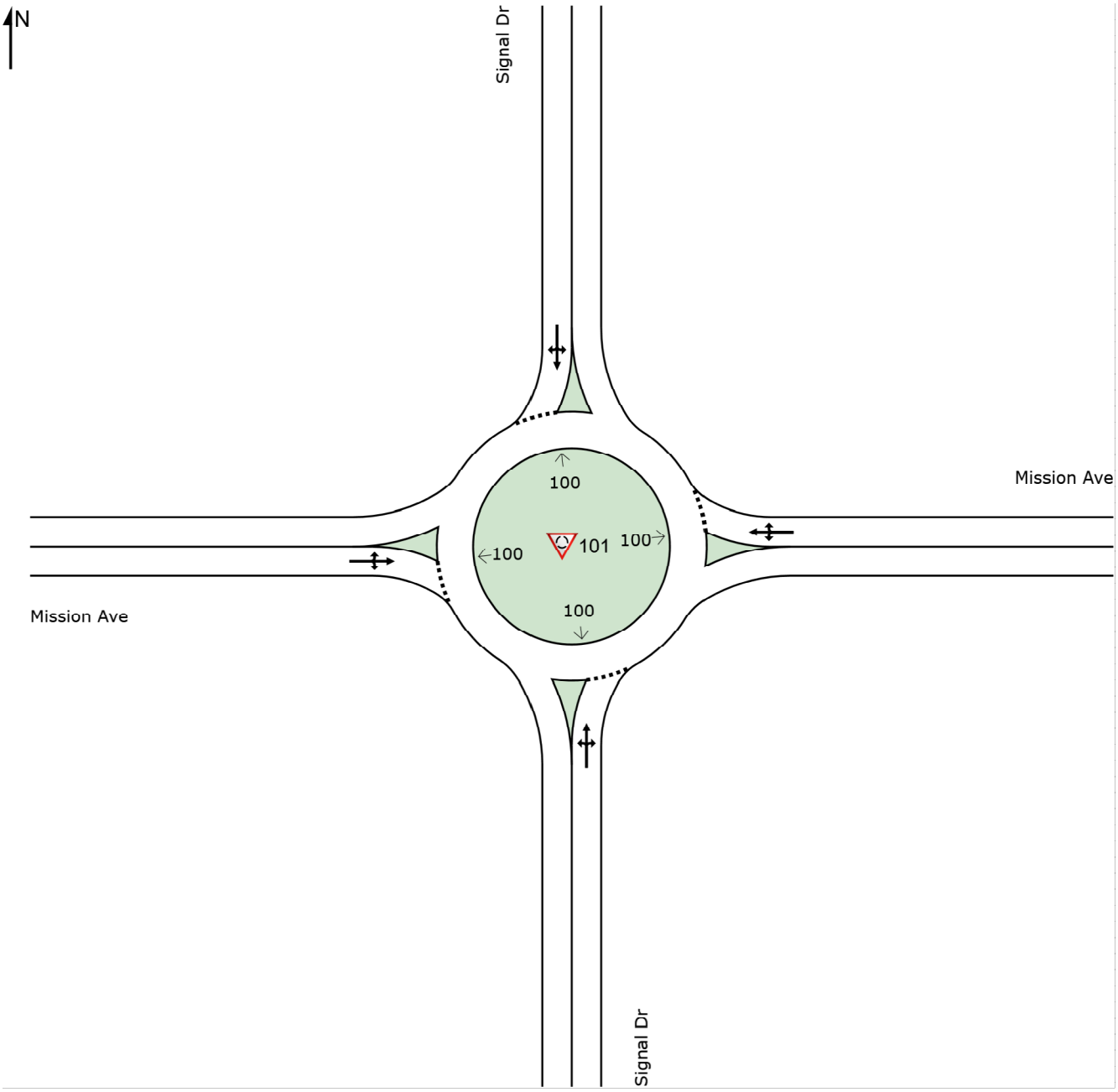
Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	29%	100%	0%	100%	0%	69%
Vol Thru, %	43%	0%	94%	0%	71%	16%
Vol Right, %	29%	0%	6%	0%	29%	16%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	35	40	350	5	605	225
LT Vol	10	40	0	5	0	155
Through Vol	15	0	330	0	430	35
RT Vol	10	0	20	0	175	35
Lane Flow Rate	37	43	372	5	644	239
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.077	0.082	0.655	0.01	1.064	0.452
Departure Headway (Hd)	7.727	7.12	6.533	6.65	5.953	7.037
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	467	506	555	537	611	515
Service Time	5.727	4.82	4.233	4.408	3.71	5.037
HCM Lane V/C Ratio	0.079	0.085	0.67	0.009	1.054	0.464
HCM Control Delay	11.4	10.5	20.8	9.5	78.7	15.7
HCM Lane LOS	B	B	C	A	F	C
HCM 95th-tile Q	0.2	0.3	4.7	0	18	2.3

SITE LAYOUT

Site: 101 [Mission_Signal PM 2028 Mit (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_Signal AM 2028 Mit (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Signal Dr														
3	L2	20	0.0	22	0.0	0.095	7.7	LOS A	0.5	11.9	0.54	0.48	0.54	25.3
8	T1	50	0.0	54	0.0	0.095	2.5	LOS A	0.5	11.9	0.54	0.48	0.54	24.8
18	R2	10	0.0	11	0.0	0.095	3.4	LOS A	0.5	11.9	0.54	0.48	0.54	24.1
Approach		80	0.0	87	0.0	0.095	3.9	LOS A	0.5	11.9	0.54	0.48	0.54	24.8
East: Mission Ave														
1	L2	5	0.0	5	0.0	0.474	7.8	LOS A	3.4	85.7	0.38	0.34	0.38	30.0
6	T1	320	3.0	348	3.0	0.474	2.3	LOS A	3.4	85.7	0.38	0.34	0.38	29.6
16	R2	195	1.0	212	1.0	0.474	2.8	LOS A	3.4	85.7	0.38	0.34	0.38	28.8
Approach		520	2.2	565	2.2	0.474	2.5	LOS A	3.4	85.7	0.38	0.34	0.38	29.3
North: Signal Dr														
7	L2	115	7.0	125	7.0	0.160	11.8	LOS B	0.8	21.2	0.51	0.71	0.51	34.1
4	T1	10	0.0	11	0.0	0.160	5.6	LOS A	0.8	21.2	0.51	0.71	0.51	34.2
14	R2	10	11.0	11	11.0	0.160	6.1	LOS A	0.8	21.2	0.51	0.71	0.51	33.0
Approach		135	6.8	147	6.8	0.160	10.9	LOS B	0.8	21.2	0.51	0.71	0.51	34.0
West: Mission Ave														
5	L2	25	8.0	27	8.0	0.333	8.1	LOS A	2.0	50.9	0.38	0.34	0.38	29.9
2	T1	315	2.0	342	2.0	0.333	2.4	LOS A	2.0	50.9	0.38	0.34	0.38	29.5
12	R2	10	0.0	11	0.0	0.333	2.9	LOS A	2.0	50.9	0.38	0.34	0.38	28.7
Approach		350	2.4	380	2.4	0.333	2.8	LOS A	2.0	50.9	0.38	0.34	0.38	29.5
All Vehicles		1085	2.7	1179	2.7	0.474	3.8	LOS A	3.4	85.7	0.41	0.39	0.41	29.5

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.

MOVEMENT SUMMARY

Site: 101 [Mission_Signal PM 2028 Mit (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Signal Dr														
3	L2	10	0.0	11	0.0	0.043	7.9	LOS A	0.2	5.4	0.57	0.52	0.57	25.2
8	T1	15	0.0	16	0.0	0.043	2.7	LOS A	0.2	5.4	0.57	0.52	0.57	24.7
18	R2	10	0.0	11	0.0	0.043	3.6	LOS A	0.2	5.4	0.57	0.52	0.57	24.1
Approach		35	0.0	37	0.0	0.043	4.4	LOS A	0.2	5.4	0.57	0.52	0.57	24.6
East: Mission Ave														
1	L2	5	0.0	5	0.0	0.527	7.7	LOS A	4.1	103.1	0.33	0.30	0.33	30.1
6	T1	430	3.0	457	3.0	0.527	2.1	LOS A	4.1	103.1	0.33	0.30	0.33	29.7
16	R2	175	0.0	186	0.0	0.527	2.7	LOS A	4.1	103.1	0.33	0.30	0.33	28.9
Approach		610	2.1	649	2.1	0.527	2.3	LOS A	4.1	103.1	0.33	0.30	0.33	29.5
North: Signal Dr														
7	L2	155	0.0	165	0.0	0.259	12.3	LOS B	1.4	36.0	0.59	0.74	0.59	34.5
4	T1	35	0.0	37	0.0	0.259	6.4	LOS A	1.4	36.0	0.59	0.74	0.59	34.4
14	R2	35	0.0	37	0.0	0.259	6.4	LOS A	1.4	36.0	0.59	0.74	0.59	33.4
Approach		225	0.0	239	0.0	0.259	10.5	LOS B	1.4	36.0	0.59	0.74	0.59	34.3
West: Mission Ave														
5	L2	40	5.0	43	5.0	0.385	8.5	LOS A	2.5	63.1	0.48	0.40	0.48	29.6
2	T1	330	3.0	351	3.0	0.385	2.8	LOS A	2.5	63.1	0.48	0.40	0.48	29.2
12	R2	20	5.0	21	5.0	0.385	3.4	LOS A	2.5	63.1	0.48	0.40	0.48	28.4
Approach		390	3.3	415	3.3	0.385	3.4	LOS A	2.5	63.1	0.48	0.40	0.48	29.2
All Vehicles		1260	2.0	1340	2.0	0.527	4.2	LOS A	4.1	103.1	0.43	0.42	0.43	30.0

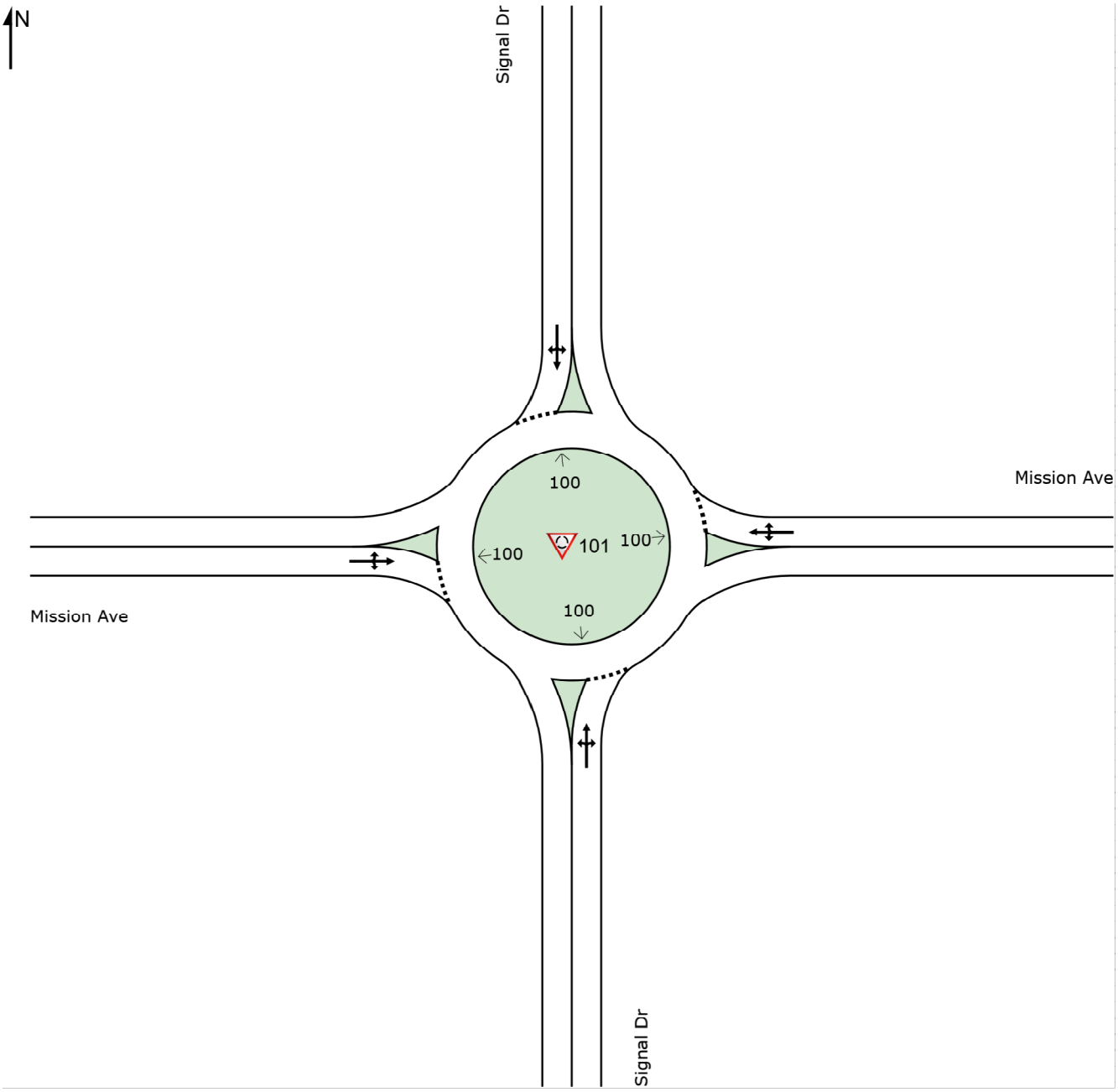
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per 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_Signal AM 2028 Mit (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

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



Appendix G

Long-Term Analysis Results (2046)

AM Peak Hour

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	315	730	805	100	50	195
Future Volume (veh/h)	315	730	805	100	50	195
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	1811	1826	1811	1870	1900	1856
Adj Flow Rate, veh/h	399	924	1019	127	63	247
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79
Percent Heavy Veh, %	6	5	6	2	0	3
Cap, veh/h	477	2355	1406	175	350	304
Arrive On Green	0.16	0.68	0.46	0.46	0.19	0.19
Sat Flow, veh/h	1725	3561	3169	383	1810	1572
Grp Volume(v), veh/h	399	924	569	577	63	247
Grp Sat Flow(s),veh/h/ln	1725	1735	1721	1742	1810	1572
Q Serve(g_s), s	6.7	7.3	16.8	16.9	1.8	9.4
Cycle Q Clear(g_c), s	6.7	7.3	16.8	16.9	1.8	9.4
Prop In Lane	1.00			0.22	1.00	1.00
Lane Grp Cap(c), veh/h	477	2355	786	795	350	304
V/C Ratio(X)	0.84	0.39	0.72	0.73	0.18	0.81
Avail Cap(c_a), veh/h	1250	5259	1455	1473	635	552
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.2	4.4	13.8	13.8	21.1	24.2
Incr Delay (d2), s/veh	3.9	0.1	1.3	1.3	0.2	5.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.0	3.1	9.9	10.0	1.2	12.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.2	4.5	15.1	15.1	21.4	29.4
LnGrp LOS	B	A	B	B	C	C
Approach Vol, veh/h		1323	1146		310	
Approach Delay, s/veh		7.7	15.1		27.8	
Approach LOS		A	B		C	

Timer - Assigned Phs			4		6	7	8
Phs Duration (G+Y+Rc), s			46.6		16.1	13.9	32.6
Change Period (Y+Rc), s			4.0		4.0	4.0	4.0
Max Green Setting (Gmax), s			95.0		22.0	38.0	53.0
Max Q Clear Time (g_c+I1), s			9.3		11.4	8.7	18.9
Green Ext Time (p_c), s			8.6		0.7	1.3	9.8

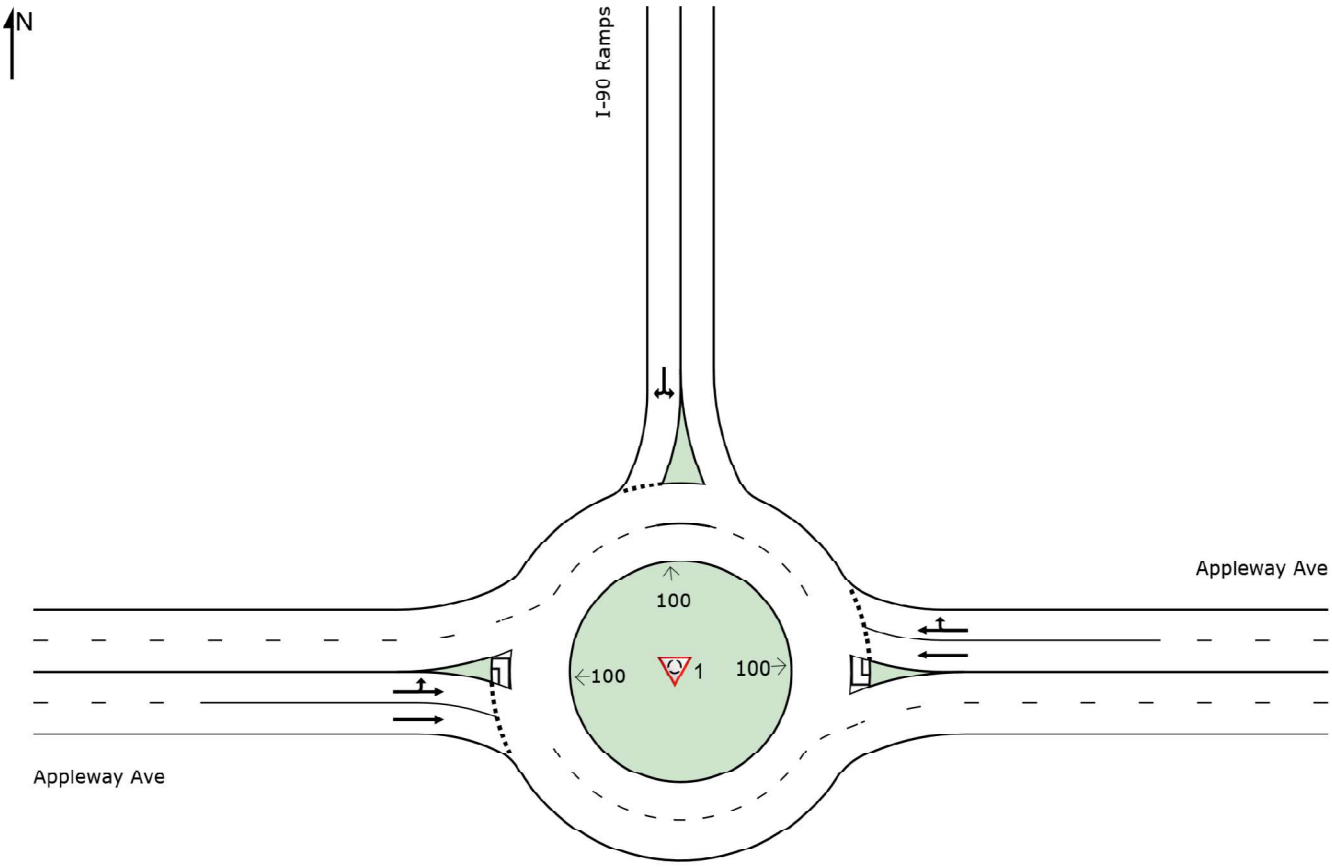
Intersection Summary		
HCM 6th Ctrl Delay		13.0
HCM 6th LOS		B

SITE LAYOUT

Site: 1 [I-90 Ramps_Appleway AM 2046 (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

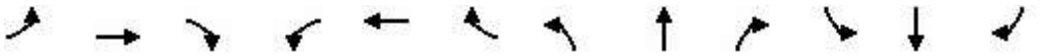
Site: 1 [I-90 Ramps_Appleway AM 2046 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: Appleway Ave														
6	T1	805	6.0	1019	6.0	0.575	8.7	LOS A	5.0	129.8	0.74	0.78	0.82	37.5
16	R2	100	2.0	127	2.0	0.575	8.2	LOS A	5.0	129.8	0.73	0.76	0.80	35.7
Approach		905	5.6	1146	5.6	0.575	8.6	LOS A	5.0	129.8	0.74	0.78	0.82	37.3
North: I-90 Ramps														
7	L2	50	0.0	63	0.0	0.537	14.6	LOS B	2.9	72.7	0.76	0.94	0.92	35.7
14	R2	195	3.0	247	3.0	0.537	9.0	LOS A	2.9	72.7	0.76	0.94	0.92	34.3
Approach		245	2.4	310	2.4	0.537	10.1	LOS B	2.9	72.7	0.76	0.94	0.92	34.6
West: Appleway Ave														
5	L2	315	6.0	399	6.0	0.499	11.3	LOS B	4.4	116.2	0.35	0.57	0.35	36.4
2	T1	730	5.0	924	5.0	0.499	5.0	LOS A	4.5	117.2	0.34	0.47	0.34	38.7
Approach		1045	5.3	1323	5.3	0.499	6.9	LOS A	4.5	117.2	0.34	0.50	0.34	38.0
All Vehicles		2195	5.1	2778	5.1	0.575	8.0	LOS A	5.0	129.8	0.55	0.66	0.60	37.3

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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	730	40	125	795	205	140	110	205	160	75	200
Future Volume (veh/h)	90	730	40	125	795	205	140	110	205	160	75	200
Initial Q (Qb), 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	117	948	52	162	1032	266	182	143	266	208	97	260
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	204	1020	56	257	908	233	356	161	299	317	129	345
Arrive On Green	0.07	0.31	0.31	0.09	0.33	0.33	0.10	0.28	0.28	0.11	0.29	0.29
Sat Flow, veh/h	1767	3290	180	1781	2755	707	1810	581	1080	1767	446	1195
Grp Volume(v), veh/h	117	492	508	162	653	645	182	0	409	208	0	357
Grp Sat Flow(s),veh/h/ln	1767	1706	1764	1781	1749	1714	1810	0	1661	1767	0	1640
Q Serve(g_s), s	3.6	22.8	22.8	4.9	26.9	26.9	5.7	0.0	19.3	6.7	0.0	16.2
Cycle Q Clear(g_c), s	3.6	22.8	22.8	4.9	26.9	26.9	5.7	0.0	19.3	6.7	0.0	16.2
Prop In Lane	1.00		0.10	1.00		0.41	1.00		0.65	1.00		0.73
Lane Grp Cap(c), veh/h	204	529	547	257	576	565	356	0	459	317	0	474
V/C Ratio(X)	0.57	0.93	0.93	0.63	1.13	1.14	0.51	0.00	0.89	0.66	0.00	0.75
Avail Cap(c_a), veh/h	315	533	551	335	576	565	415	0	519	355	0	512
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.0	27.3	27.3	20.2	27.4	27.4	19.6	0.0	28.3	20.4	0.0	26.4
Incr Delay (d2), s/veh	3.6	23.1	22.6	3.6	80.0	83.6	1.6	0.0	16.8	4.5	0.0	6.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	2.9	18.0	18.4	3.9	33.9	34.2	4.4	0.0	14.5	5.4	0.0	11.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.5	50.4	49.9	23.8	107.3	111.0	21.2	0.0	45.1	24.8	0.0	32.8
LnGrp LOS	C	D	D	C	F	F	C	A	D	C	A	C
Approach Vol, veh/h		1117			1460			591			565	
Approach Delay, s/veh		47.5			99.7			37.7			29.9	
Approach LOS		D			F			D			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.5	29.8	12.3	28.1	9.9	31.4	13.3	27.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	10.5	25.5	10.5	25.5	10.5	25.5	10.5	25.5
Max Q Clear Time (g_c+I1), s	6.9	24.8	7.7	18.2	5.6	28.9	8.7	21.3
Green Ext Time (p_c), s	0.2	0.5	0.2	1.7	0.2	0.0	0.2	1.3

Intersection Summary	
HCM 6th Ctrl Delay	63.7
HCM 6th LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	770	115	95	1020	50	120	10	175	40	10	35
Future Volume (veh/h)	45	770	115	95	1020	50	120	10	175	40	10	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	1870	1841	1781	1856	1841	1870	1885	1870	1900	1870	1870	1870
Adj Flow Rate, veh/h	51	875	131	108	1159	57	136	11	199	45	11	38
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	322	1519	227	397	1754	86	370	17	304	223	74	256
Arrive On Green	0.04	0.50	0.50	0.06	0.52	0.52	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1781	3051	457	1767	3393	167	1367	84	1514	1172	368	1273
Grp Volume(v), veh/h	51	502	504	108	597	619	136	0	210	45	0	49
Grp Sat Flow(s),veh/h/ln	1781	1749	1759	1767	1749	1811	1367	0	1598	1172	0	1641
Q Serve(g_s), s	0.8	11.2	11.2	1.6	13.9	13.9	5.1	0.0	6.7	2.0	0.0	1.4
Cycle Q Clear(g_c), s	0.8	11.2	11.2	1.6	13.9	13.9	6.4	0.0	6.7	8.8	0.0	1.4
Prop In Lane	1.00		0.26	1.00		0.09	1.00		0.95	1.00		0.78
Lane Grp Cap(c), veh/h	322	870	875	397	904	936	370	0	321	223	0	330
V/C Ratio(X)	0.16	0.58	0.58	0.27	0.66	0.66	0.37	0.00	0.65	0.20	0.00	0.15
Avail Cap(c_a), veh/h	588	1275	1282	628	1275	1320	723	0	733	526	0	753
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	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	7.8	9.8	9.8	7.2	9.8	9.8	20.9	0.0	20.4	24.5	0.0	18.3
Incr Delay (d2), s/veh	0.3	0.9	0.9	0.5	1.2	1.1	0.9	0.0	3.2	0.6	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.4	6.5	6.6	0.9	7.9	8.1	2.8	0.0	4.6	1.0	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	8.1	10.7	10.7	7.8	11.0	11.0	21.8	0.0	23.6	25.1	0.0	18.6
LnGrp LOS	A	B	B	A	B	B	C	A	C	C	A	B
Approach Vol, veh/h		1057			1324			346			94	
Approach Delay, s/veh		10.6			10.7			22.9			21.7	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.7	32.2		15.7	6.7	33.2		15.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	10.5	40.5		25.5	10.5	40.5		25.5				
Max Q Clear Time (g_c+I1), s	3.6	13.2		10.8	2.8	15.9		8.7				
Green Ext Time (p_c), s	0.2	10.7		0.4	0.1	12.8		2.2				

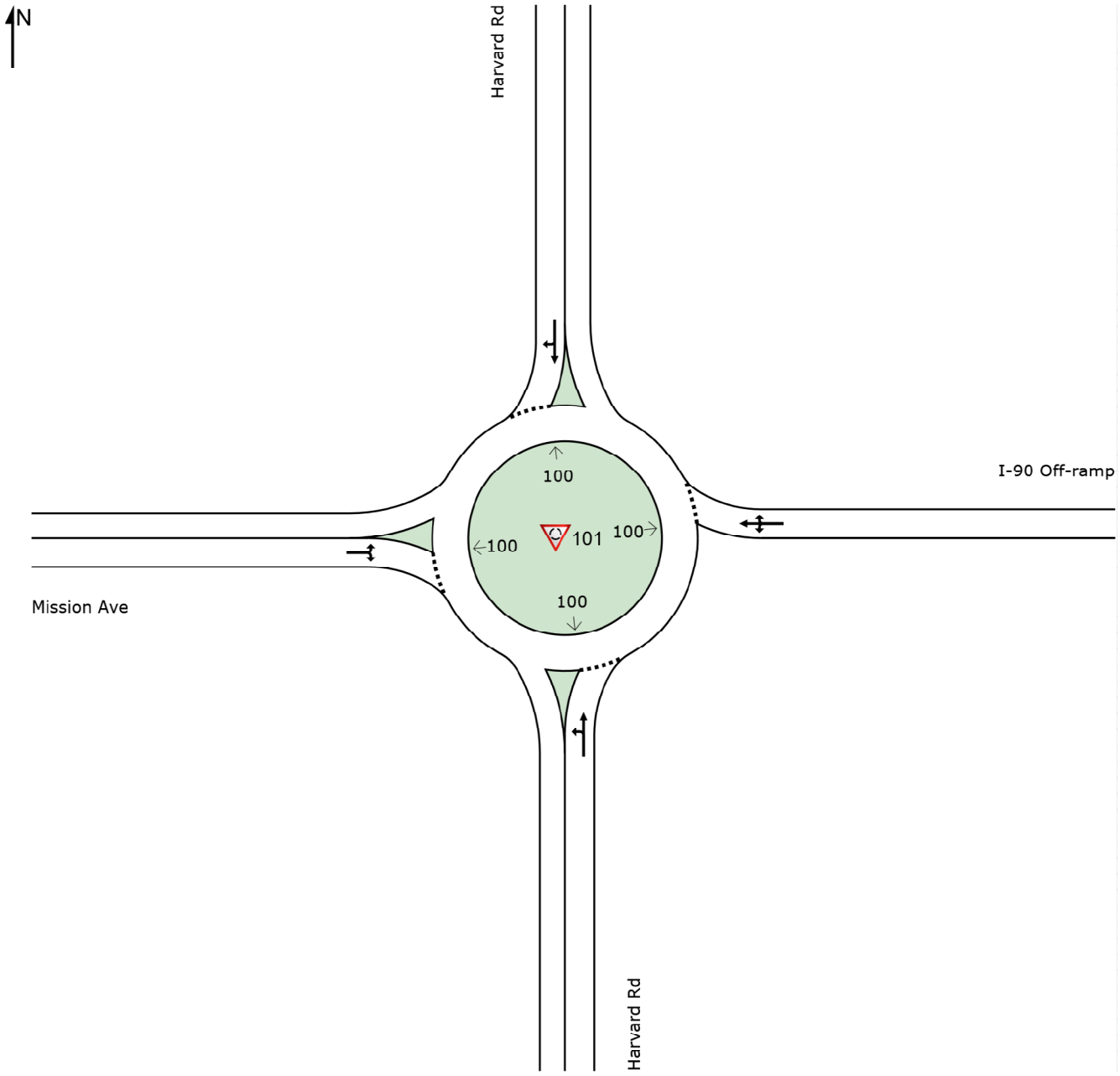
Intersection Summary		
HCM 6th Ctrl Delay	12.5	
HCM 6th LOS	B	

SITE LAYOUT

Site: 101 [Mission_Harvard AM 2046 (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 2046 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Harvard Rd														
3	L2	270	5.0	270	5.0	0.429	10.4	LOS B	3.4	87.0	0.40	0.55	0.40	35.4
8	T1	275	3.0	275	3.0	0.429	4.4	LOS A	3.4	87.0	0.40	0.55	0.40	35.4
Approach		545	4.0	545	4.0	0.429	7.4	LOS A	3.4	87.0	0.40	0.55	0.40	35.4
East: I-90 Off-ramp														
1	L2	200	2.0	200	2.0	0.528	15.3	LOS B	4.4	112.0	0.81	0.92	0.95	33.7
6	T1	175	4.0	175	4.0	0.528	9.4	LOS A	4.4	112.0	0.81	0.92	0.95	33.6
16	R2	85	4.0	85	4.0	0.528	9.5	LOS A	4.4	112.0	0.81	0.92	0.95	32.7
Approach		460	3.1	460	3.1	0.528	12.0	LOS B	4.4	112.0	0.81	0.92	0.95	33.5
North: Harvard Rd														
4	T1	645	3.0	645	3.0	0.997	39.6	LOS E	30.6	786.1	1.00	1.80	2.97	23.8
14	R2	200	5.0	200	5.0	0.997	39.9	LOS E	30.6	786.1	1.00	1.80	2.97	23.3
Approach		845	3.5	845	3.5	0.997	39.7	LOS D	30.6	786.1	1.00	1.80	2.97	23.7
West: Mission Ave														
5	L2	105	4.0	105	4.0	0.737	24.6	LOS C	9.2	237.5	1.00	1.21	1.53	29.9
12	R2	350	4.0	350	4.0	0.737	18.8	LOS B	9.2	237.5	1.00	1.21	1.53	29.1
Approach		455	4.0	455	4.0	0.737	20.1	LOS C	9.2	237.5	1.00	1.21	1.53	29.3
All Vehicles		2305	3.6	2305	3.6	0.997	22.7	LOS C	30.6	786.1	0.82	1.21	1.67	28.7

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	650	275	190	30	575	135	500	200	300	345	115
Future Volume (veh/h)	165	650	275	190	30	575	135	500	200	300	345	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1826	1826	1707	1470	1811	1811	1856	1811	1856	1870	1781
Adj Flow Rate, veh/h	183	722	306	211	33	639	150	556	222	333	383	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	216	942	420	241	436	1336	185	749	326	350	1044	
Arrive On Green	0.12	0.27	0.27	0.15	0.30	0.30	0.11	0.21	0.21	0.20	0.29	0.00
Sat Flow, veh/h	1753	3469	1547	1626	1470	2701	1725	3526	1535	1767	3554	1510
Grp Volume(v), veh/h	183	722	306	211	33	639	150	556	222	333	383	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	10.8	20.3	19.0	13.5	1.7	16.6	9.0	15.6	14.1	19.7	9.0	0.0
Cycle Q Clear(g_c), s	10.8	20.3	19.0	13.5	1.7	16.6	9.0	15.6	14.1	19.7	9.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	216	942	420	241	436	1336	185	749	326	350	1044	
V/C Ratio(X)	0.85	0.77	0.73	0.88	0.08	0.48	0.81	0.74	0.68	0.95	0.37	
Avail Cap(c_a), veh/h	347	1145	511	322	485	1427	407	998	434	350	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	0.00
Uniform Delay (d), s/veh	45.5	35.5	35.1	44.2	26.8	17.7	46.3	39.0	38.4	42.0	29.6	0.0
Incr Delay (d2), s/veh	10.3	3.0	4.9	18.2	0.1	0.3	11.3	2.6	3.7	35.7	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	9.1	13.7	12.2	10.8	1.1	8.8	7.9	11.3	9.5	17.7	7.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	55.8	38.5	40.0	62.4	26.9	18.0	57.5	41.7	42.2	77.7	29.9	0.0
LnGrp LOS	E	D	D	E	C	B	E	D	D	E	C	
Approach Vol, veh/h		1211			883			928			716	
Approach Delay, s/veh		41.5			28.9			44.4			52.1	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	27.5	19.7	33.8	16.4	36.1	17.1	36.4
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+I1), s	11.7	17.6	15.5	22.3	11.0	11.0	12.8	18.6
Green Ext Time (p_c), s	0.0	4.9	0.3	6.5	0.5	2.1	0.3	2.7

Intersection Summary	
HCM 6th Ctrl Delay	41.3
HCM 6th LOS	D

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	390	515	105	25	545	145	195	195	25	140	110	455
Future Volume (veh/h)	390	515	105	25	545	145	195	195	25	140	110	455
Initial Q (Qb), 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	1826	1856	1796	1811	1856	1841	1841	1870	1900	1856	1826	1826
Adj Flow Rate, veh/h	433	572	117	28	606	161	217	217	28	156	122	506
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	506	1076	219	264	663	176	264	1160	148	565	594	530
Arrive On Green	0.15	0.37	0.37	0.02	0.24	0.24	0.10	0.37	0.37	0.08	0.34	0.34
Sat Flow, veh/h	3374	2916	595	1725	2756	731	1753	3170	404	1767	1735	1547
Grp Volume(v), veh/h	433	345	344	28	387	380	217	120	125	156	122	506
Grp Sat Flow(s),veh/h/ln	1687	1763	1748	1725	1763	1724	1753	1777	1798	1767	1735	1547
Q Serve(g_s), s	12.7	15.6	15.7	1.2	21.8	21.8	8.0	4.7	4.8	5.7	5.1	32.5
Cycle Q Clear(g_c), s	12.7	15.6	15.7	1.2	21.8	21.8	8.0	4.7	4.8	5.7	5.1	32.5
Prop In Lane	1.00		0.34	1.00		0.42	1.00		0.22	1.00		1.00
Lane Grp Cap(c), veh/h	506	651	645	264	424	415	264	650	658	565	594	530
V/C Ratio(X)	0.86	0.53	0.53	0.11	0.91	0.92	0.82	0.19	0.19	0.28	0.21	0.95
Avail Cap(c_a), veh/h	696	651	645	583	442	432	451	650	658	794	605	540
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	25.2	25.2	28.2	37.6	37.7	23.8	22.0	22.0	18.9	23.7	32.7
Incr Delay (d2), s/veh	5.9	0.4	0.4	0.1	22.1	22.9	2.4	0.1	0.1	0.1	0.1	27.2
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	9.6	10.7	10.7	0.9	17.5	17.3	6.0	3.5	3.6	4.2	3.7	22.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	48.1	25.6	25.7	28.3	59.7	60.6	26.3	22.0	22.0	19.0	23.7	59.9
LnGrp LOS	D	C	C	C	E	E	C	C	C	B	C	E
Approach Vol, veh/h		1122			795			462			784	
Approach Delay, s/veh		34.3			59.0			24.0			46.1	
Approach LOS		C			E			C			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.8	41.7	6.2	42.1	14.2	39.4	19.3	29.0
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+I1), s	17.7	6.8	3.2	17.7	10.0	34.5	14.7	23.8
Green Ext Time (p_c), s	0.2	0.9	0.0	1.9	0.2	0.3	0.5	0.6

Intersection Summary	
HCM 6th Ctrl Delay	41.9
HCM 6th LOS	D

Intersection	
Int Delay, s/veh	6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	380	305	290	15	0	315
Future Vol, veh/h	380	305	290	15	0	315
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	442	355	337	17	0	366

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	357	0	-	0	1412	180
Stage 1	-	-	-	-	349	-
Stage 2	-	-	-	-	1063	-
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	1177	-	-	-	131	826
Stage 1	-	-	-	-	691	-
Stage 2	-	-	-	-	298	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1174	-	-	-	81	824
Mov Cap-2 Maneuver	-	-	-	-	81	-
Stage 1	-	-	-	-	430	-
Stage 2	-	-	-	-	297	-

Approach	EB	WB	SB
HCM Control Delay, s	5.5	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1174	-	-	-	-	824
HCM Lane V/C Ratio	0.376	-	-	-	-	0.445
HCM Control Delay (s)	9.9	-	-	-	0	12.8
HCM Lane LOS	A	-	-	-	A	B
HCM 95th %tile Q(veh)	1.8	-	-	-	-	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1000	120	20	540	255	30
Future Volume (veh/h)	1000	120	20	540	255	30
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	1163	140	23	628	297	35
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	1466	176	252	1978	385	346
Arrive On Green	0.47	0.47	0.02	0.59	0.21	0.21
Sat Flow, veh/h	3236	378	1711	3416	1795	1610
Grp Volume(v), veh/h	646	657	23	628	297	35
Grp Sat Flow(s),veh/h/ln	1749	1773	1711	1664	1795	1610
Q Serve(g_s), s	14.7	14.8	0.3	4.4	7.3	0.8
Cycle Q Clear(g_c), s	14.7	14.8	0.3	4.4	7.3	0.8
Prop In Lane		0.21	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	815	827	252	1978	385	346
V/C Ratio(X)	0.79	0.80	0.09	0.32	0.77	0.10
Avail Cap(c_a), veh/h	928	940	759	3178	991	888
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.6	10.7	8.4	4.8	17.4	14.9
Incr Delay (d2), s/veh	4.2	4.3	0.2	0.1	3.3	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	8.9	9.0	0.2	1.7	5.4	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	14.8	14.9	8.6	4.9	20.7	15.0
LnGrp LOS	B	B	A	A	C	B
Approach Vol, veh/h	1303			651	332	
Approach Delay, s/veh	14.9			5.0	20.1	
Approach LOS	B			A	C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	6.0	27.0		14.1		33.0
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	16.8		9.3		6.4
Green Ext Time (p_c), s	0.0	5.1		0.9		5.0

Intersection Summary	
HCM 6th Ctrl Delay	12.8
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	780	55	20	530	15	15	15	15	20	10	30
Future Volume (veh/h)	100	780	55	20	530	15	15	15	15	20	10	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1841	1841	1900	1767	1900	1648	1900	1900	1648	418	1826
Adj Flow Rate, veh/h	119	929	65	24	631	18	18	18	18	24	12	36
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	499	1493	104	362	1289	37	159	37	37	396	19	57
Arrive On Green	0.07	0.45	0.45	0.02	0.39	0.39	0.07	0.07	0.07	0.02	0.21	0.21
Sat Flow, veh/h	1739	3316	232	1810	3333	95	534	534	534	1570	92	276
Grp Volume(v), veh/h	119	490	504	24	318	331	54	0	0	24	0	48
Grp Sat Flow(s),veh/h/ln	1739	1749	1799	1810	1678	1750	1602	0	0	1570	0	368
Q Serve(g_s), s	1.5	8.4	8.4	0.3	5.6	5.6	1.3	0.0	0.0	0.5	0.0	4.7
Cycle Q Clear(g_c), s	1.5	8.4	8.4	0.3	5.6	5.6	1.3	0.0	0.0	0.5	0.0	4.7
Prop In Lane	1.00		0.13	1.00		0.05	0.33		0.33	1.00		0.75
Lane Grp Cap(c), veh/h	499	787	810	362	649	677	232	0	0	396	0	76
V/C Ratio(X)	0.24	0.62	0.62	0.07	0.49	0.49	0.23	0.00	0.00	0.06	0.00	0.63
Avail Cap(c_a), veh/h	1281	1586	1632	1291	1522	1587	1187	0	0	1181	0	480
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	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	6.6	8.2	8.2	7.4	9.1	9.1	17.6	0.0	0.0	14.6	0.0	14.2
Incr Delay (d2), s/veh	0.2	0.8	0.8	0.1	0.6	0.6	0.5	0.0	0.0	0.1	0.0	8.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.7	4.1	4.2	0.2	2.9	3.0	0.8	0.0	0.0	0.3	0.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	6.8	9.0	9.0	7.4	9.7	9.6	18.1	0.0	0.0	14.7	0.0	22.4
LnGrp LOS	A	A	A	A	A	A	B	A	A	B	A	C
Approach Vol, veh/h		1113			673			54			72	
Approach Delay, s/veh		8.8			9.6			18.1			19.8	
Approach LOS		A			A			B			B	

Timer - Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.9	22.1		12.1	7.4	19.6	5.4	6.7
Change Period (Y+Rc), s	4.0	4.5		4.0	4.5	4.5	4.5	4.0
Max Green Setting (Gmax), s	21.0	35.5		51.0	20.5	35.5	20.5	26.0
Max Q Clear Time (g_c+I1), s	2.3	10.4		6.7	3.5	7.6	2.5	3.3
Green Ext Time (p_c), s	0.0	7.2		0.3	0.3	4.3	0.0	0.2

Intersection Summary	
HCM 6th Ctrl Delay	9.7
HCM 6th LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	445	185	140	455	45	115	35	135	20	15	15
Future Volume (veh/h)	120	445	185	140	455	45	115	35	135	20	15	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	1885	1826	1841	1870	1781	1826	1722	1900	1870	1574	1900	1574
Adj Flow Rate, veh/h	130	484	201	152	495	49	125	38	147	22	16	16
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	458	705	291	414	955	94	414	306	255	278	165	116
Arrive On Green	0.08	0.29	0.29	0.09	0.31	0.31	0.09	0.16	0.16	0.02	0.09	0.09
Sat Flow, veh/h	1795	2394	988	1781	3112	307	1640	1900	1585	1499	1900	1334
Grp Volume(v), veh/h	130	350	335	152	268	276	125	38	147	22	16	16
Grp Sat Flow(s),veh/h/ln	1795	1735	1648	1781	1692	1726	1640	1900	1585	1499	1900	1334
Q Serve(g_s), s	2.1	7.7	7.8	2.5	5.7	5.7	2.9	0.7	3.7	0.6	0.3	0.5
Cycle Q Clear(g_c), s	2.1	7.7	7.8	2.5	5.7	5.7	2.9	0.7	3.7	0.6	0.3	0.5
Prop In Lane	1.00		0.60	1.00		0.18	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	458	511	485	414	519	530	414	306	255	278	165	116
V/C Ratio(X)	0.28	0.68	0.69	0.37	0.52	0.52	0.30	0.12	0.58	0.08	0.10	0.14
Avail Cap(c_a), veh/h	753	760	722	684	741	756	663	832	694	617	832	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	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.6	13.5	13.6	9.9	12.4	12.4	15.3	15.6	16.8	17.7	18.2	18.3
Incr Delay (d2), s/veh	0.3	1.6	1.8	0.5	1.1	1.1	0.4	0.3	2.9	0.1	0.4	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.2	4.9	4.7	1.5	3.4	3.5	1.7	0.5	2.5	0.3	0.3	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.9	15.2	15.3	10.4	13.5	13.5	15.7	15.8	19.7	17.8	18.6	19.1
LnGrp LOS	A	B	B	B	B	B	B	B	B	B	B	B
Approach Vol, veh/h		815			696			310			54	
Approach Delay, s/veh		14.4			12.8			17.6			18.4	
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	12.0	7.9	18.3	8.4	8.8	8.4	17.8
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+I1), s	2.5	5.7	4.1	7.7	4.9	2.5	4.5	9.8
Green Ext Time (p_c), s	0.0	0.8	0.2	3.4	0.1	0.1	0.2	3.0

Intersection Summary	
HCM 6th Ctrl Delay	14.5
HCM 6th LOS	B

MOVEMENT SUMMARY

Site: 101 [Mission_Molter AM 2046 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Molter Rd														
3	L2	135	2.0	135	2.0	0.328	11.5	LOS B	1.9	48.0	0.52	0.64	0.52	35.4
8	T1	165	1.0	165	1.0	0.328	5.5	LOS A	1.9	48.0	0.52	0.64	0.52	35.3
18	R2	35	1.0	35	1.0	0.328	5.6	LOS A	1.9	48.0	0.52	0.64	0.52	34.3
Approach		335	1.4	335	1.4	0.328	8.0	LOS A	1.9	48.0	0.52	0.64	0.52	35.3
East: Mission Ave														
1	L2	55	2.0	55	2.0	0.436	12.3	LOS B	2.8	70.7	0.63	0.67	0.63	35.7
6	T1	275	2.0	275	2.0	0.436	6.3	LOS A	2.8	70.7	0.63	0.67	0.63	35.6
16	R2	85	4.0	85	4.0	0.436	6.5	LOS A	2.8	70.7	0.63	0.67	0.63	34.5
Approach		415	2.4	415	2.4	0.436	7.1	LOS A	2.8	70.7	0.63	0.67	0.63	35.4
North: Molter Rd														
7	L2	50	4.0	50	4.0	0.267	12.4	LOS B	1.5	39.2	0.61	0.70	0.61	35.5
4	T1	115	4.0	115	4.0	0.267	6.5	LOS A	1.5	39.2	0.61	0.70	0.61	35.5
14	R2	65	8.0	65	8.0	0.267	6.7	LOS A	1.5	39.2	0.61	0.70	0.61	34.3
Approach		230	5.1	230	5.1	0.267	7.8	LOS A	1.5	39.2	0.61	0.70	0.61	35.1
West: Mission Ave														
5	L2	90	4.0	90	4.0	0.369	11.2	LOS B	2.2	57.9	0.48	0.59	0.48	36.0
2	T1	165	4.0	165	4.0	0.369	5.2	LOS A	2.2	57.9	0.48	0.59	0.48	35.9
12	R2	135	4.0	135	4.0	0.369	5.3	LOS A	2.2	57.9	0.48	0.59	0.48	34.8
Approach		390	4.0	390	4.0	0.369	6.6	LOS A	2.2	57.9	0.48	0.59	0.48	35.6
All Vehicles		1370	3.1	1370	3.1	0.436	7.3	LOS A	2.8	70.7	0.56	0.64	0.56	35.4

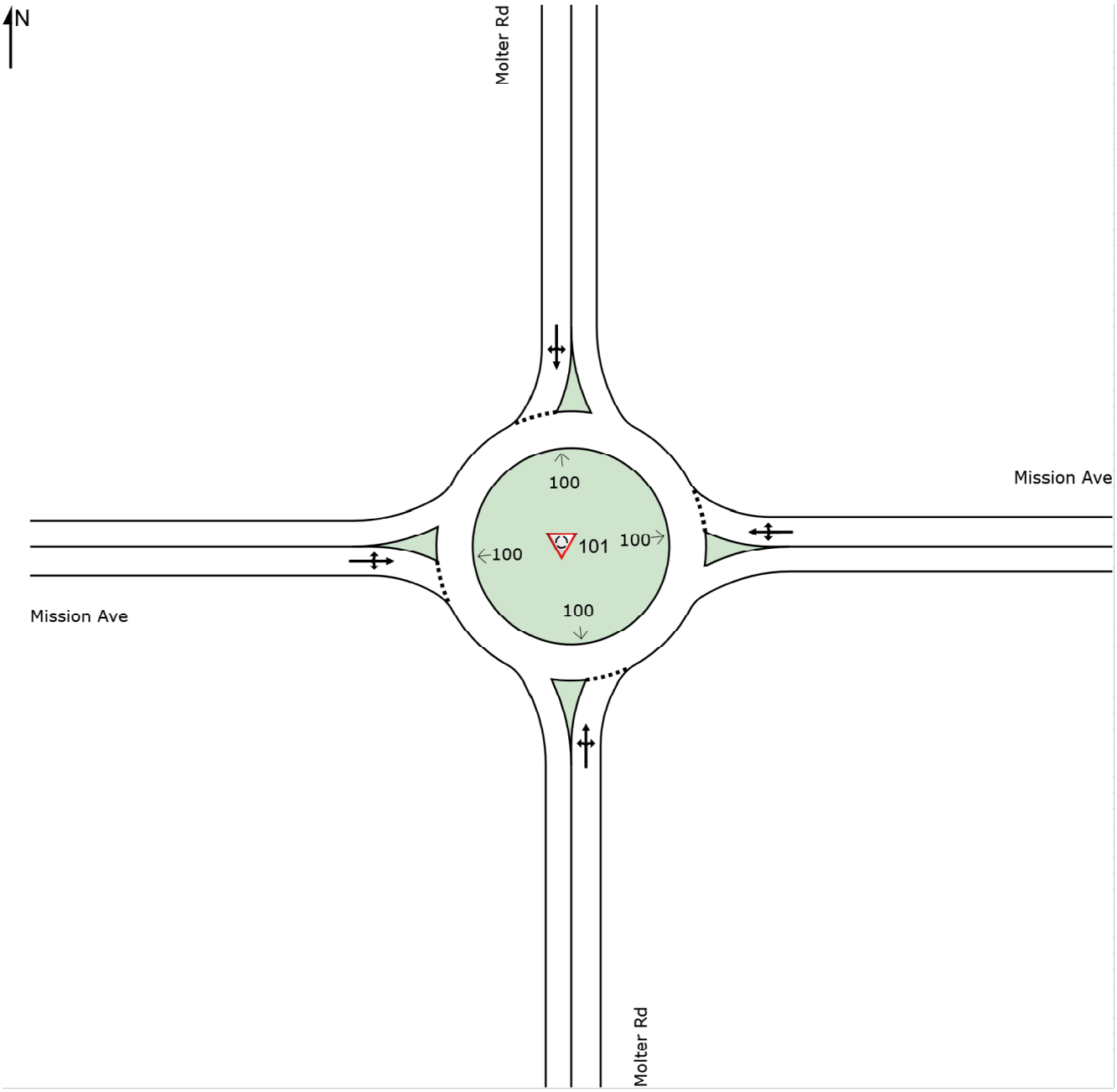
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per 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.

SITE LAYOUT

Site: 101 [Mission_Molter AM 2046 (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 2046 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Harvest Pkwy														
3	L2	125	4.0	125	4.0	0.384	11.9	LOS B	2.4	61.0	0.59	0.69	0.59	35.4
8	T1	85	1.0	85	1.0	0.384	5.8	LOS A	2.4	61.0	0.59	0.69	0.59	35.4
18	R2	160	4.0	160	4.0	0.384	6.0	LOS A	2.4	61.0	0.59	0.69	0.59	34.3
Approach		370	3.3	370	3.3	0.384	8.0	LOS A	2.4	61.0	0.59	0.69	0.59	34.9
East: Mission Ave														
1	L2	240	3.0	240	3.0	0.486	11.5	LOS B	3.4	86.4	0.56	0.65	0.56	35.2
6	T1	175	3.0	175	3.0	0.486	5.5	LOS A	3.4	86.4	0.56	0.65	0.56	35.1
16	R2	95	3.0	95	3.0	0.486	5.6	LOS A	3.4	86.4	0.56	0.65	0.56	34.1
Approach		510	3.0	510	3.0	0.486	8.3	LOS A	3.4	86.4	0.56	0.65	0.56	34.9
North: Harvest Pkwy														
7	L2	55	1.0	55	1.0	0.195	12.6	LOS B	1.1	27.3	0.62	0.72	0.62	35.3
4	T1	55	1.0	55	1.0	0.195	6.7	LOS A	1.1	27.3	0.62	0.72	0.62	35.2
14	R2	55	1.0	55	1.0	0.195	6.8	LOS A	1.1	27.3	0.62	0.72	0.62	34.1
Approach		165	1.0	165	1.0	0.195	8.7	LOS A	1.1	27.3	0.62	0.72	0.62	34.8
West: Mission Ave														
5	L2	30	3.0	30	3.0	0.468	12.2	LOS B	3.0	78.1	0.62	0.65	0.62	36.0
2	T1	255	3.0	255	3.0	0.468	6.2	LOS A	3.0	78.1	0.62	0.65	0.62	35.9
12	R2	170	3.0	170	3.0	0.468	6.3	LOS A	3.0	78.1	0.62	0.65	0.62	34.8
Approach		455	3.0	455	3.0	0.468	6.6	LOS A	3.0	78.1	0.62	0.65	0.62	35.5
All Vehicles		1500	2.9	1500	2.9	0.486	7.8	LOS A	3.4	86.4	0.59	0.67	0.59	35.1

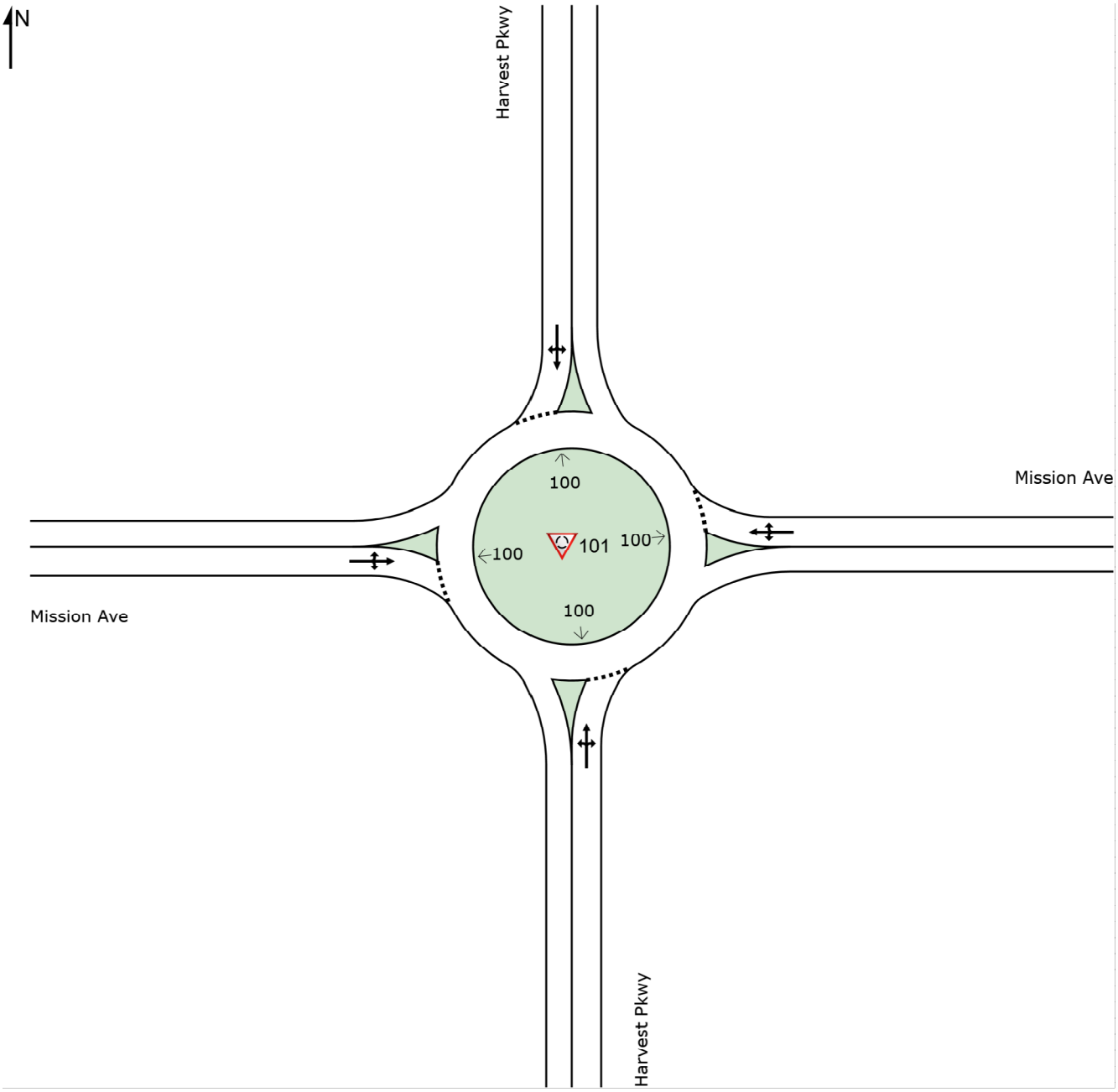
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per 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.

SITE LAYOUT

Site: 101 [Mission_Harvest AM 2046 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

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



Intersection	
Int Delay, s/veh	5.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	555	80	50	590	170	100
Future Vol, veh/h	555	80	50	590	170	100
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	597	86	54	634	183	108

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	684	0	1383	642
Stage 1	-	-	-	-	641	-
Stage 2	-	-	-	-	742	-
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	-	-	891	-	~ 158	471
Stage 1	-	-	-	-	523	-
Stage 2	-	-	-	-	469	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	890	-	~ 148	470
Mov Cap-2 Maneuver	-	-	-	-	285	-
Stage 1	-	-	-	-	522	-
Stage 2	-	-	-	-	440	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.7	29.3
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	285	470	-	-	890	-
HCM Lane V/C Ratio	0.641	0.229	-	-	0.06	-
HCM Control Delay (s)	37.7	14.9	-	-	9.3	-
HCM Lane LOS	E	B	-	-	A	-
HCM 95th %tile Q(veh)	4.1	0.9	-	-	0.2	-

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

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	75	50	20	15	135	15	20	35	15	15	30	190
Future Vol, veh/h	75	50	20	15	135	15	20	35	15	15	30	190
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	87	58	23	17	157	17	23	41	17	17	35	221
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	10.3	9.3	10.6
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	29%	100%	0%	100%	0%	6%
Vol Thru, %	50%	0%	71%	0%	90%	13%
Vol Right, %	21%	0%	29%	0%	10%	81%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	70	75	70	15	150	235
LT Vol	20	75	0	15	0	15
Through Vol	35	0	50	0	135	30
RT Vol	15	0	20	0	15	190
Lane Flow Rate	81	87	81	17	174	273
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.124	0.151	0.126	0.03	0.272	0.363
Departure Headway (Hd)	5.47	6.253	5.578	6.182	5.605	4.778
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	658	576	645	582	644	743
Service Time	3.481	3.964	3.289	3.888	3.311	2.867
HCM Lane V/C Ratio	0.123	0.151	0.126	0.029	0.27	0.367
HCM Control Delay	9.3	10.1	9.1	9.1	10.4	10.6
HCM Lane LOS	A	B	A	A	B	B
HCM 95th-tile Q	0.4	0.5	0.4	0.1	1.1	1.7

Intersection	
Intersection Delay, s/veh	16.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	100	140	60	15	110	30	60	120	30	40	75	95
Future Vol, veh/h	100	140	60	15	110	30	60	120	30	40	75	95
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	135	189	81	20	149	41	81	162	41	54	101	128
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	22.2	13.6	13.5	13.9
HCM LOS	C	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	33%	10%	100%	0%
Vol Thru, %	0%	80%	47%	71%	0%	44%
Vol Right, %	0%	20%	20%	19%	0%	56%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	60	150	300	155	40	170
LT Vol	60	0	100	15	40	0
Through Vol	0	120	140	110	0	75
RT Vol	0	30	60	30	0	95
Lane Flow Rate	81	203	405	209	54	230
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.171	0.393	0.696	0.381	0.115	0.43
Departure Headway (Hd)	7.608	6.985	6.178	6.55	7.67	6.736
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	471	515	584	549	466	533
Service Time	5.367	4.744	4.225	4.609	5.428	4.494
HCM Lane V/C Ratio	0.172	0.394	0.693	0.381	0.116	0.432
HCM Control Delay	11.9	14.2	22.2	13.6	11.4	14.5
HCM Lane LOS	B	B	C	B	B	B
HCM 95th-tile Q	0.6	1.9	5.5	1.8	0.4	2.1

Intersection	
Intersection Delay, s/veh	8
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	20	50	10	0	65	35	15	50	10	25	30	10
Future Vol, veh/h	20	50	10	0	65	35	15	50	10	25	30	10
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	25	62	12	0	80	43	19	62	12	31	37	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	8	8	8.1
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	20%	25%	0%	38%
Vol Thru, %	67%	62%	65%	46%
Vol Right, %	13%	12%	35%	15%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	75	80	100	65
LT Vol	15	20	0	25
Through Vol	50	50	65	30
RT Vol	10	10	35	10
Lane Flow Rate	93	99	123	80
Geometry Grp	1	1	1	1
Degree of Util (X)	0.114	0.121	0.146	0.102
Departure Headway (Hd)	4.451	4.412	4.271	4.59
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	806	815	842	782
Service Time	2.469	2.427	2.286	2.608
HCM Lane V/C Ratio	0.115	0.121	0.146	0.102
HCM Control Delay	8	8	8	8.1
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.4	0.4	0.5	0.3

MOVEMENT SUMMARY

Site: 101 [Mission_Kramer AM 2046 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Kramer Pkwy														
3	L2	265	2.0	265	2.0	0.384	11.3	LOS B	2.3	59.6	0.51	0.68	0.51	34.8
8	T1	20	3.0	20	3.0	0.384	5.4	LOS A	2.3	59.6	0.51	0.68	0.51	34.7
18	R2	120	2.0	120	2.0	0.384	5.4	LOS A	2.3	59.6	0.51	0.68	0.51	33.7
Approach		405	2.0	405	2.0	0.384	9.3	LOS A	2.3	59.6	0.51	0.68	0.51	34.5
East: Mission Ave														
1	L2	105	6.0	105	6.0	0.378	11.7	LOS B	2.3	60.3	0.55	0.63	0.55	35.5
6	T1	215	6.0	215	6.0	0.378	5.7	LOS A	2.3	60.3	0.55	0.63	0.55	35.5
16	R2	50	3.0	50	3.0	0.378	5.7	LOS A	2.3	60.3	0.55	0.63	0.55	34.5
Approach		370	5.6	370	5.6	0.378	7.4	LOS A	2.3	60.3	0.55	0.63	0.55	35.3
North: Kramer Pkwy														
7	L2	30	3.0	30	3.0	0.081	13.2	LOS B	0.5	11.7	0.64	0.70	0.64	34.6
4	T1	25	3.0	25	3.0	0.081	7.3	LOS A	0.5	11.7	0.64	0.70	0.64	34.5
14	R2	10	3.0	10	3.0	0.081	7.3	LOS A	0.5	11.7	0.64	0.70	0.64	33.5
Approach		65	3.0	65	3.0	0.081	10.0	LOS B	0.5	11.7	0.64	0.70	0.64	34.4
West: Mission Ave														
5	L2	10	3.0	10	3.0	0.473	10.9	LOS B	3.2	83.1	0.46	0.53	0.46	36.7
2	T1	210	6.0	210	6.0	0.473	5.1	LOS A	3.2	83.1	0.46	0.53	0.46	36.6
12	R2	305	3.0	305	3.0	0.473	5.1	LOS A	3.2	83.1	0.46	0.53	0.46	35.5
Approach		525	4.2	525	4.2	0.473	5.2	LOS A	3.2	83.1	0.46	0.53	0.46	35.9
All Vehicles		1365	3.9	1365	3.9	0.473	7.2	LOS A	3.2	83.1	0.51	0.61	0.51	35.2

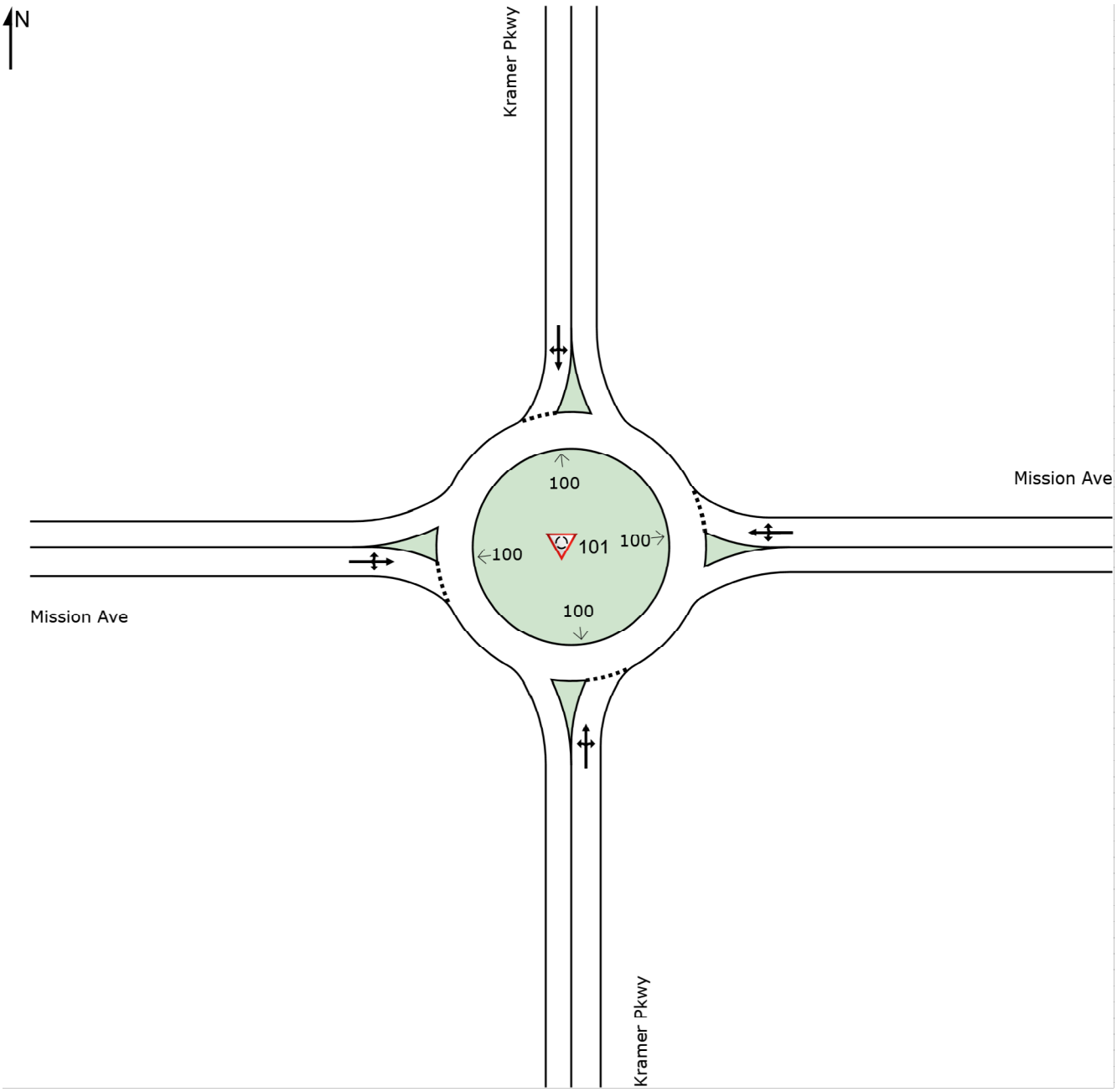
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per 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.

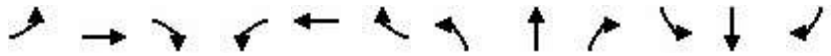
SITE LAYOUT

Site: 101 [Mission_Kramer AM 2046 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

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





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	10	55	60	10	20	30	395	40	50	730	60
Future Volume (veh/h)	35	10	55	60	10	20	30	395	40	50	730	60
Initial Q (Qb), 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	41	12	64	70	12	23	35	459	47	58	849	70
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	65	17	91	90	36	68	387	1416	144	565	1483	122
Arrive On Green	0.04	0.07	0.07	0.05	0.08	0.08	0.03	0.44	0.44	0.05	0.45	0.45
Sat Flow, veh/h	1810	261	1389	1697	433	829	1810	3230	329	1810	3271	270
Grp Volume(v), veh/h	41	0	76	70	0	35	35	250	256	58	454	465
Grp Sat Flow(s),veh/h/ln	1810	0	1650	1697	0	1262	1810	1763	1796	1810	1749	1792
Q Serve(g_s), s	1.0	0.0	1.9	1.7	0.0	1.1	0.4	4.0	4.0	0.7	8.2	8.2
Cycle Q Clear(g_c), s	1.0	0.0	1.9	1.7	0.0	1.1	0.4	4.0	4.0	0.7	8.2	8.2
Prop In Lane	1.00		0.84	1.00		0.66	1.00		0.18	1.00		0.15
Lane Grp Cap(c), veh/h	65	0	108	90	0	104	387	773	788	565	793	812
V/C Ratio(X)	0.63	0.00	0.70	0.78	0.00	0.34	0.09	0.32	0.33	0.10	0.57	0.57
Avail Cap(c_a), veh/h	253	0	673	316	0	574	962	1829	1864	734	1447	1483
HCM Platoon Ratio	1.00	1.00	1.00	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	20.4	0.0	19.6	20.1	0.0	18.6	6.8	7.9	7.9	6.1	8.7	8.7
Incr Delay (d2), s/veh	9.6	0.0	11.0	13.7	0.0	2.7	0.1	0.3	0.3	0.1	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	1.0	0.0	1.8	1.7	0.0	0.7	0.2	2.1	2.2	0.4	4.4	4.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.9	0.0	30.7	33.7	0.0	21.2	6.9	8.2	8.2	6.2	9.6	9.6
LnGrp LOS	C	A	C	C	A	C	A	A	A	A	A	A
Approach Vol, veh/h		117			105			541			977	
Approach Delay, s/veh		30.4			29.6			8.1			9.4	
Approach LOS		C			C			A			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.4	23.9	5.5	8.0	6.0	23.3	6.3	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+I1), s	2.4	10.2	3.0	3.1	2.7	6.0	3.7	3.9
Green Ext Time (p_c), s	0.0	9.2	0.0	0.1	0.0	5.0	0.0	0.3

Intersection Summary	
HCM 6th Ctrl Delay	11.6
HCM 6th LOS	B

MOVEMENT SUMMARY

Site: 20 [Harvard_Wellington AM 2046 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Harvard Rd														
3	L2	15	0.0	16	0.0	0.178	8.7	LOS A	1.0	24.7	0.18	0.34	0.18	34.1
8	T1	405	3.0	445	3.0	0.178	2.9	LOS A	1.0	24.9	0.18	0.33	0.18	33.9
18	R2	30	0.0	33	0.0	0.178	3.4	LOS A	1.0	24.9	0.18	0.32	0.18	33.0
Approach		450	2.7	495	2.7	0.178	3.1	LOS A	1.0	24.9	0.18	0.33	0.18	33.9
East: Wellington Pkwy														
1	L2	50	0.0	55	0.0	0.099	10.0	LOS A	0.3	7.9	0.39	0.66	0.39	32.3
6	T1	20	0.0	22	0.0	0.099	4.1	LOS A	0.3	7.9	0.39	0.66	0.39	32.0
16	R2	10	0.0	11	0.0	0.099	4.5	LOS A	0.3	7.9	0.39	0.66	0.39	31.2
Approach		80	0.0	88	0.0	0.099	7.8	LOS A	0.3	7.9	0.39	0.66	0.39	32.1
North: Harvard Rd														
7	L2	15	0.0	16	0.0	0.341	10.2	LOS B	2.2	55.6	0.31	0.43	0.31	37.1
4	T1	780	4.0	857	4.0	0.341	4.3	LOS A	2.2	56.0	0.30	0.42	0.30	37.0
14	R2	15	0.0	16	0.0	0.341	4.5	LOS A	2.2	56.0	0.30	0.41	0.30	35.9
Approach		810	3.9	890	3.9	0.341	4.4	LOS A	2.2	56.0	0.30	0.42	0.30	37.0
West: Wellington Pkwy														
5	L2	10	0.0	11	0.0	0.061	11.0	LOS B	0.2	5.0	0.51	0.67	0.51	32.8
2	T1	20	0.0	22	0.0	0.061	5.1	LOS A	0.2	5.0	0.51	0.67	0.51	32.5
12	R2	10	0.0	11	0.0	0.061	5.5	LOS A	0.2	5.0	0.51	0.67	0.51	31.6
Approach		40	0.0	44	0.0	0.061	6.7	LOS A	0.2	5.0	0.51	0.67	0.51	32.3
All Vehicles		1380	3.1	1516	3.1	0.341	4.2	LOS A	2.2	56.0	0.27	0.41	0.27	35.5

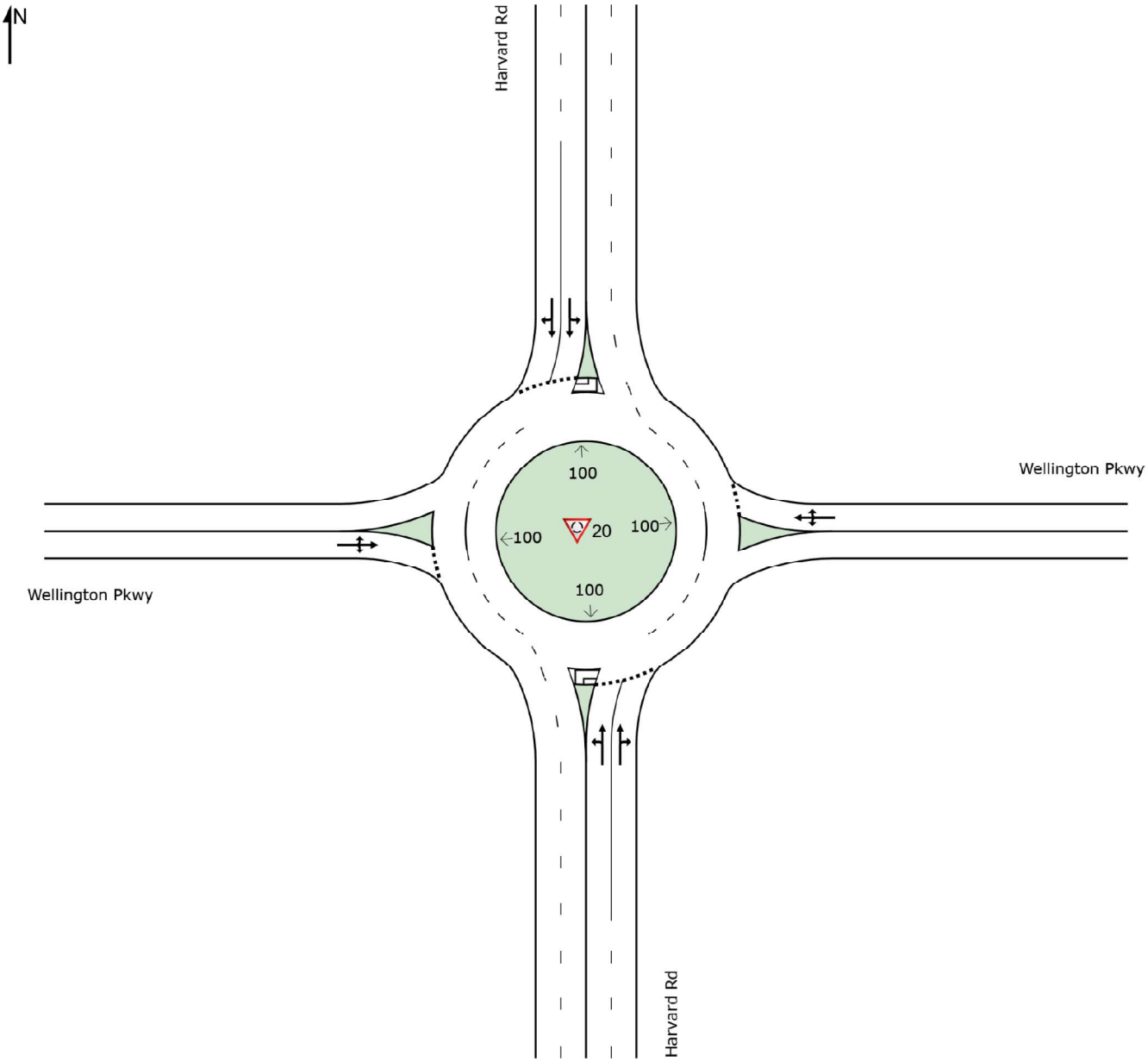
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per 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.

SITE LAYOUT

Site: 20 [Harvard_Wellington AM 2046 (Site Folder: General)]

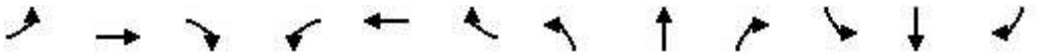
New Site
Site Category: (None)
Roundabout

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



HCM 6th Signalized Intersection Summary
20: Harvard Rd & E Wellington Parkway

10/22/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	20	10	50	20	10	15	405	30	15	780	15
Future Volume (veh/h)	10	20	10	50	20	10	15	405	30	15	780	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1900	1900	1900	1900	1900	1856	1900	1900	1841	1900
Adj Flow Rate, veh/h	11	22	11	55	22	11	16	445	33	16	857	16
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	0	0	0	0	0	0	3	0	0	4	0
Cap, veh/h	359	116	58	359	116	58	473	1579	117	643	1667	31
Arrive On Green	0.10	0.10	0.10	0.10	0.10	0.10	0.02	0.47	0.47	0.02	0.47	0.47
Sat Flow, veh/h	1390	1193	597	1390	1193	597	1810	3327	246	1810	3512	66
Grp Volume(v), veh/h	11	0	33	55	0	33	16	235	243	16	427	446
Grp Sat Flow(s),veh/h/ln	1390	0	1790	1390	0	1790	1810	1763	1811	1810	1749	1829
Q Serve(g_s), s	0.2	0.0	0.5	1.1	0.0	0.5	0.1	2.4	2.4	0.1	4.9	5.0
Cycle Q Clear(g_c), s	0.7	0.0	0.5	1.6	0.0	0.5	0.1	2.4	2.4	0.1	4.9	5.0
Prop In Lane	1.00		0.33	1.00		0.33	1.00		0.14	1.00		0.04
Lane Grp Cap(c), veh/h	359	0	175	359	0	175	473	837	859	643	830	868
V/C Ratio(X)	0.03	0.00	0.19	0.15	0.00	0.19	0.03	0.28	0.28	0.02	0.51	0.51
Avail Cap(c_a), veh/h	1462	0	1594	1462	0	1594	939	4470	4591	1108	4434	4637
HCM Platoon Ratio	1.00	1.00	1.00	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	12.4	0.0	12.1	12.8	0.0	12.1	4.2	4.6	4.7	3.9	5.3	5.3
Incr Delay (d2), s/veh	0.0	0.0	0.5	0.2	0.0	0.5	0.0	0.2	0.2	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/ln	0.1	0.0	0.3	0.5	0.0	0.3	0.0	0.7	0.8	0.0	1.6	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.5	0.0	12.6	13.0	0.0	12.6	4.3	4.8	4.8	3.9	5.8	5.8
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		44			88			494			889	
Approach Delay, s/veh		12.6			12.9			4.8			5.8	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	4.5	17.9		6.8	4.5	17.9		6.8				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	8.0	74.0		26.0	8.0	74.0		26.0				
Max Q Clear Time (g_c+I1), s	2.1	7.0		2.7	2.1	4.4		3.6				
Green Ext Time (p_c), s	0.0	6.9		0.1	0.0	3.2		0.3				

Intersection Summary		
HCM 6th Ctrl Delay	6.1	
HCM 6th LOS	A	

Intersection	
Int Delay, s/veh	20.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	35	370	15	10	350	215	25	55	15	125	15	15
Future Vol, veh/h	35	370	15	10	350	215	25	55	15	125	15	15
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	-	-	None	-	-	None	-	-	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	38	402	16	11	380	234	27	60	16	136	16	16

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	614	0	0	425	0	0	1030	1129	417	1043	1020	499
Stage 1	-	-	-	-	-	-	493	493	-	519	519	-
Stage 2	-	-	-	-	-	-	537	636	-	524	501	-
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	937	-	-	1145	-	-	214	206	640	203	239	554
Stage 1	-	-	-	-	-	-	562	550	-	531	536	-
Stage 2	-	-	-	-	-	-	532	475	-	527	546	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	937	-	-	1138	-	-	187	194	636	145	226	553
Mov Cap-2 Maneuver	-	-	-	-	-	-	187	194	-	145	226	-
Stage 1	-	-	-	-	-	-	536	524	-	509	531	-
Stage 2	-	-	-	-	-	-	495	470	-	436	520	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.8	0.1	36.1	138.6
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	216	937	-	-	1138	-	-	162
HCM Lane V/C Ratio	0.478	0.041	-	-	0.01	-	-	1.04
HCM Control Delay (s)	36.1	9	-	-	8.2	-	-	138.6
HCM Lane LOS	E	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	2.4	0.1	-	-	0	-	-	8.4

Intersection	
Int Delay, s/veh	0.8

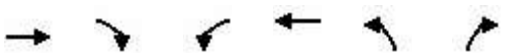
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	385	485	10	15	15
Future Vol, veh/h	40	385	485	10	15	15
Conflicting Peds, #/hr	3	0	0	3	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	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	45	438	551	11	17	17

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	565	0	-	0	1089	560
Stage 1	-	-	-	-	560	-
Stage 2	-	-	-	-	529	-
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	1017	-	-	-	223	532
Stage 1	-	-	-	-	543	-
Stage 2	-	-	-	-	562	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1014	-	-	-	212	531
Mov Cap-2 Maneuver	-	-	-	-	342	-
Stage 1	-	-	-	-	518	-
Stage 2	-	-	-	-	561	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	14.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1014	-	-	-	416
HCM Lane V/C Ratio	0.045	-	-	-	0.082
HCM Control Delay (s)	8.7	-	-	-	14.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø14
Lane Configurations							
Traffic Volume (vph)	510	270	95	700	205	100	
Future Volume (vph)	510	270	95	700	205	100	
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	0.948					0.850	
Flt Protected			0.950		0.950		
Satd. Flow (prot)	3252	0	1805	3343	1787	1615	
Flt Permitted			0.950		0.950		
Satd. Flow (perm)	3252	0	1805	3343	1787	1615	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)	76					135	
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)	689	365	128	946	277	135	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	1054	0	128	946	277	135	
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



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)	34.7		12.1	52.3	20.5	20.5	
Actuated g/C Ratio	0.32		0.11	0.49	0.19	0.19	
v/c Ratio	0.96		0.63	0.58	0.81	0.32	
Control Delay	53.1		60.8	22.0	61.3	8.6	
Queue Delay	0.0		0.0	0.0	0.0	0.0	
Total Delay	53.1		60.8	22.0	61.3	8.6	
LOS	D		E	C	E	A	
Approach Delay	53.1			26.6	44.0		
Approach LOS	D			C	D		
Queue Length 50th (ft)	354		86	240	183	0	
Queue Length 95th (ft)	375		124	247	231	26	
Internal Link Dist (ft)	345			3085	632		
Turn Bay Length (ft)			100		100		
Base Capacity (vph)	1101		413	2018	434	495	
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	0.96		0.31	0.47	0.64	0.27	

Intersection Summary			
Area Type:	Other		
Cycle Length: 125			
Actuated Cycle Length: 107.5			
Natural Cycle: 85			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 40.4		Intersection LOS: D	
Intersection Capacity Utilization 51.9%		ICU Level of Service A	
Analysis Period (min) 15			

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

PM Peak Hour

HCM 6th Signalized Intersection Summary
1: Country Vista Dr & I-90 Ramps

09/17/2025

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	205	1160	815	60	70	340
Future Volume (veh/h)	205	1160	815	60	70	340
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1856	1826	1870	1900	1900	1870
Adj Flow Rate, veh/h	209	1184	832	61	71	347
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	3	5	2	0	0	2
Cap, veh/h	444	1974	1281	94	490	430
Arrive On Green	0.11	0.57	0.38	0.38	0.27	0.27
Sat Flow, veh/h	1767	3561	3450	246	1810	1585
Grp Volume(v), veh/h	209	1184	440	453	71	347
Grp Sat Flow(s),veh/h/ln	1767	1735	1777	1826	1810	1585
Q Serve(g_s), s	3.2	11.2	10.2	10.2	1.5	10.2
Cycle Q Clear(g_c), s	3.2	11.2	10.2	10.2	1.5	10.2
Prop In Lane	1.00			0.13	1.00	1.00
Lane Grp Cap(c), veh/h	444	1974	678	697	490	430
V/C Ratio(X)	0.47	0.60	0.65	0.65	0.14	0.81
Avail Cap(c_a), veh/h	1031	5411	1847	1899	1411	1236
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	8.5	7.1	12.7	12.7	13.8	17.0
Incr Delay (d2), s/veh	0.8	0.3	1.1	1.0	0.1	3.6
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	5.2	6.4	6.5	0.9	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.3	7.3	13.8	13.7	14.0	20.7
LnGrp LOS	A	A	B	B	B	C
Approach Vol, veh/h		1393	893		418	
Approach Delay, s/veh		7.6	13.8		19.5	
Approach LOS		A	B		B	

Timer - Assigned Phs	4	6	7	8
Phs Duration (G+Y+Rc), s	32.5	17.6	9.4	23.1
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	78.0	39.0	22.0	52.0
Max Q Clear Time (g_c+I1), s	13.2	12.2	5.2	12.2
Green Ext Time (p_c), s	12.6	1.3	0.5	6.9

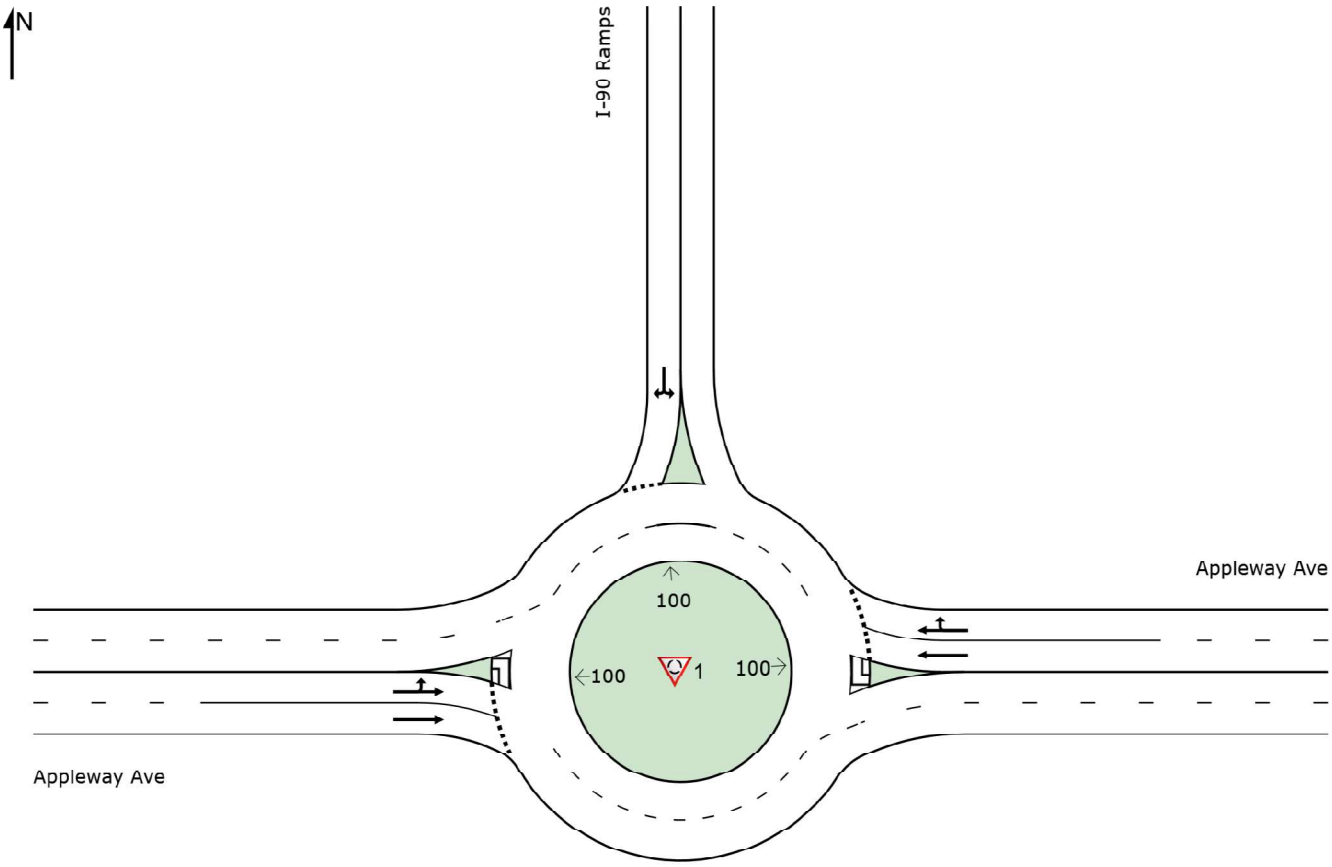
Intersection Summary	
HCM 6th Ctrl Delay	11.5
HCM 6th LOS	B

SITE LAYOUT

Site: 1 [I-90 Ramps_Appleway PM 2046 (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: 1 [I-90 Ramps_Appleway PM 2046 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
East: Appleway Ave														
6	T1	815	2.0	832	2.0	0.365	5.8	LOS A	2.4	60.4	0.46	0.54	0.46	39.2
16	R2	60	0.0	61	0.0	0.365	5.8	LOS A	2.4	60.4	0.46	0.54	0.46	36.7
Approach		875	1.9	893	1.9	0.365	5.8	LOS A	2.4	60.4	0.46	0.54	0.46	39.0
North: I-90 Ramps														
7	L2	70	0.0	71	0.0	0.585	14.3	LOS B	3.3	82.9	0.70	0.92	0.89	36.0
14	R2	340	2.0	347	2.0	0.585	8.6	LOS A	3.3	82.9	0.70	0.92	0.89	34.8
Approach		410	1.7	418	1.7	0.585	9.5	LOS A	3.3	82.9	0.70	0.92	0.89	35.0
West: Appleway Ave														
5	L2	205	3.0	209	3.0	0.525	11.3	LOS B	4.8	123.6	0.38	0.52	0.38	37.4
2	T1	1160	5.0	1184	5.0	0.525	5.1	LOS A	4.8	125.5	0.37	0.47	0.37	38.7
Approach		1365	4.7	1393	4.7	0.525	6.0	LOS A	4.8	125.5	0.37	0.48	0.37	38.5
All Vehicles		2650	3.3	2704	3.3	0.585	6.5	LOS A	4.8	125.5	0.45	0.57	0.48	38.1

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.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	995	70	305	760	260	60	100	220	315	175	110
Future Volume (veh/h)	155	995	70	305	760	260	60	100	220	315	175	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1900	1885	1870	1885	1900	1856	1870	1870	1900	1900
Adj Flow Rate, veh/h	160	1026	72	314	784	268	62	103	227	325	180	113
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	270	1028	72	310	894	306	360	120	266	352	349	219
Arrive On Green	0.08	0.30	0.30	0.12	0.34	0.34	0.04	0.23	0.23	0.12	0.32	0.32
Sat Flow, veh/h	1810	3395	238	1795	2599	888	1810	515	1136	1781	1091	685
Grp Volume(v), veh/h	160	541	557	314	536	516	62	0	330	325	0	293
Grp Sat Flow(s),veh/h/ln	1810	1791	1842	1795	1777	1710	1810	0	1651	1781	0	1777
Q Serve(g_s), s	5.0	25.4	25.4	10.5	23.8	23.9	2.2	0.0	16.1	10.5	0.0	11.3
Cycle Q Clear(g_c), s	5.0	25.4	25.4	10.5	23.8	23.9	2.2	0.0	16.1	10.5	0.0	11.3
Prop In Lane	1.00		0.13	1.00		0.52	1.00		0.69	1.00		0.39
Lane Grp Cap(c), veh/h	270	543	558	310	611	589	360	0	386	352	0	568
V/C Ratio(X)	0.59	1.00	1.00	1.01	0.88	0.88	0.17	0.00	0.85	0.92	0.00	0.52
Avail Cap(c_a), veh/h	344	543	558	310	611	589	516	0	500	352	0	568
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	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	20.7	29.3	29.3	22.3	25.9	25.9	23.2	0.0	30.9	23.4	0.0	23.3
Incr Delay (d2), s/veh	2.9	38.0	37.5	54.5	13.9	14.4	0.3	0.0	12.2	29.5	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.0	22.7	23.2	13.8	17.6	17.1	1.7	0.0	12.0	11.9	0.0	8.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.7	67.3	66.8	76.8	39.8	40.3	23.5	0.0	43.1	52.9	0.0	24.4
LnGrp LOS	C	E	E	F	D	D	C	A	D	D	A	C
Approach Vol, veh/h		1258			1366			392			618	
Approach Delay, s/veh		61.5			48.5			40.0			39.4	
Approach LOS		E			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	30.0	7.8	31.4	11.5	33.5	15.0	24.2
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	12.5	27.4	4.2	13.3	7.0	25.9	12.5	18.1
Green Ext Time (p_c), s	0.0	0.0	0.1	1.8	0.2	0.0	0.0	1.6

Intersection Summary	
HCM 6th Ctrl Delay	50.5
HCM 6th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	1135	120	230	1235	75	80	10	135	80	10	70
Future Volume (veh/h)	70	1135	120	230	1235	75	80	10	135	80	10	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	1870	1885	1870	1900	1885	1870	1900	1870	1900	1870	1870	1870
Adj Flow Rate, veh/h	74	1207	128	245	1314	80	85	11	144	85	11	74
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	302	1651	175	371	1932	117	310	22	290	243	41	275
Arrive On Green	0.04	0.51	0.51	0.10	0.56	0.56	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1781	3268	346	1810	3430	208	1333	114	1489	1232	209	1408
Grp Volume(v), veh/h	74	660	675	245	685	709	85	0	155	85	0	85
Grp Sat Flow(s),veh/h/ln	1781	1791	1823	1810	1791	1848	1333	0	1602	1232	0	1617
Q Serve(g_s), s	1.3	19.1	19.2	3.9	17.9	18.0	3.8	0.0	5.7	4.4	0.0	3.0
Cycle Q Clear(g_c), s	1.3	19.1	19.2	3.9	17.9	18.0	6.8	0.0	5.7	10.1	0.0	3.0
Prop In Lane	1.00		0.19	1.00		0.11	1.00		0.93	1.00		0.87
Lane Grp Cap(c), veh/h	302	905	921	371	1009	1041	310	0	313	243	0	315
V/C Ratio(X)	0.25	0.73	0.73	0.66	0.68	0.68	0.27	0.00	0.50	0.35	0.00	0.27
Avail Cap(c_a), veh/h	518	1098	1117	486	1098	1132	564	0	618	487	0	636
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	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	8.8	12.8	12.8	12.0	10.2	10.2	25.5	0.0	23.7	28.2	0.0	22.6
Incr Delay (d2), s/veh	0.6	2.4	2.4	2.9	1.8	1.8	0.7	0.0	1.7	1.2	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	0.8	11.4	11.7	3.5	10.3	10.6	2.2	0.0	3.9	2.4	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.4	15.2	15.2	15.0	12.0	12.0	26.1	0.0	25.4	29.4	0.0	23.2
LnGrp LOS	A	B	B	B	B	B	C	A	C	C	A	C
Approach Vol, veh/h		1409			1639			240			170	
Approach Delay, s/veh		14.9			12.4			25.7			26.3	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	37.9		17.4	7.0	41.7		17.4				
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+I1), s	15.9	21.2		12.1	3.3	20.0		8.8				
Green Ext Time (p_c), s	0.4	12.2		0.8	0.1	13.3		1.5				

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

Notes

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

MOVEMENT SUMMARY

Site: 101 [Mission_Harvard PM 2046 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Harvard Rd														
3	L2	315	2.0	315	2.0	0.742	12.5	LOS B	9.4	238.1	0.80	0.70	0.85	34.7
8	T1	560	2.0	560	2.0	0.742	6.5	LOS A	9.4	238.1	0.80	0.70	0.85	34.6
Approach		875	2.0	875	2.0	0.742	8.7	LOS A	9.4	238.1	0.80	0.70	0.85	34.6
East: I-90 Off-ramp														
1	L2	235	1.0	235	1.0	1.176	129.5	LOS F	47.0	1183.8	1.00	2.45	4.90	12.5
6	T1	205	1.0	205	1.0	1.176	123.5	LOS F	47.0	1183.8	1.00	2.45	4.90	12.4
16	R2	130	1.0	130	1.0	1.176	123.6	LOS F	47.0	1183.8	1.00	2.45	4.90	12.3
Approach		570	1.0	570	1.0	1.176	126.0	LOS F	47.0	1183.8	1.00	2.45	4.90	12.4
North: Harvard Rd														
4	T1	715	1.0	715	1.0	1.076	63.4	LOS F	44.5	1122.0	1.00	2.26	4.12	19.0
14	R2	170	1.0	170	1.0	1.076	63.4	LOS F	44.5	1122.0	1.00	2.26	4.12	18.7
Approach		885	1.0	885	1.0	1.076	63.4	LOS E	44.5	1122.0	1.00	2.26	4.12	18.9
West: Mission Ave														
5	L2	220	1.0	220	1.0	1.014	59.7	LOS F	28.9	731.3	1.00	1.85	3.18	20.3
12	R2	420	2.0	420	2.0	1.014	53.9	LOS F	28.9	731.3	1.00	1.85	3.18	20.0
Approach		640	1.7	640	1.7	1.014	55.9	LOS E	28.9	731.3	1.00	1.85	3.18	20.1
All Vehicles		2970	1.4	2970	1.4	1.176	57.7	LOS E	47.0	1183.8	0.94	1.75	3.10	19.8

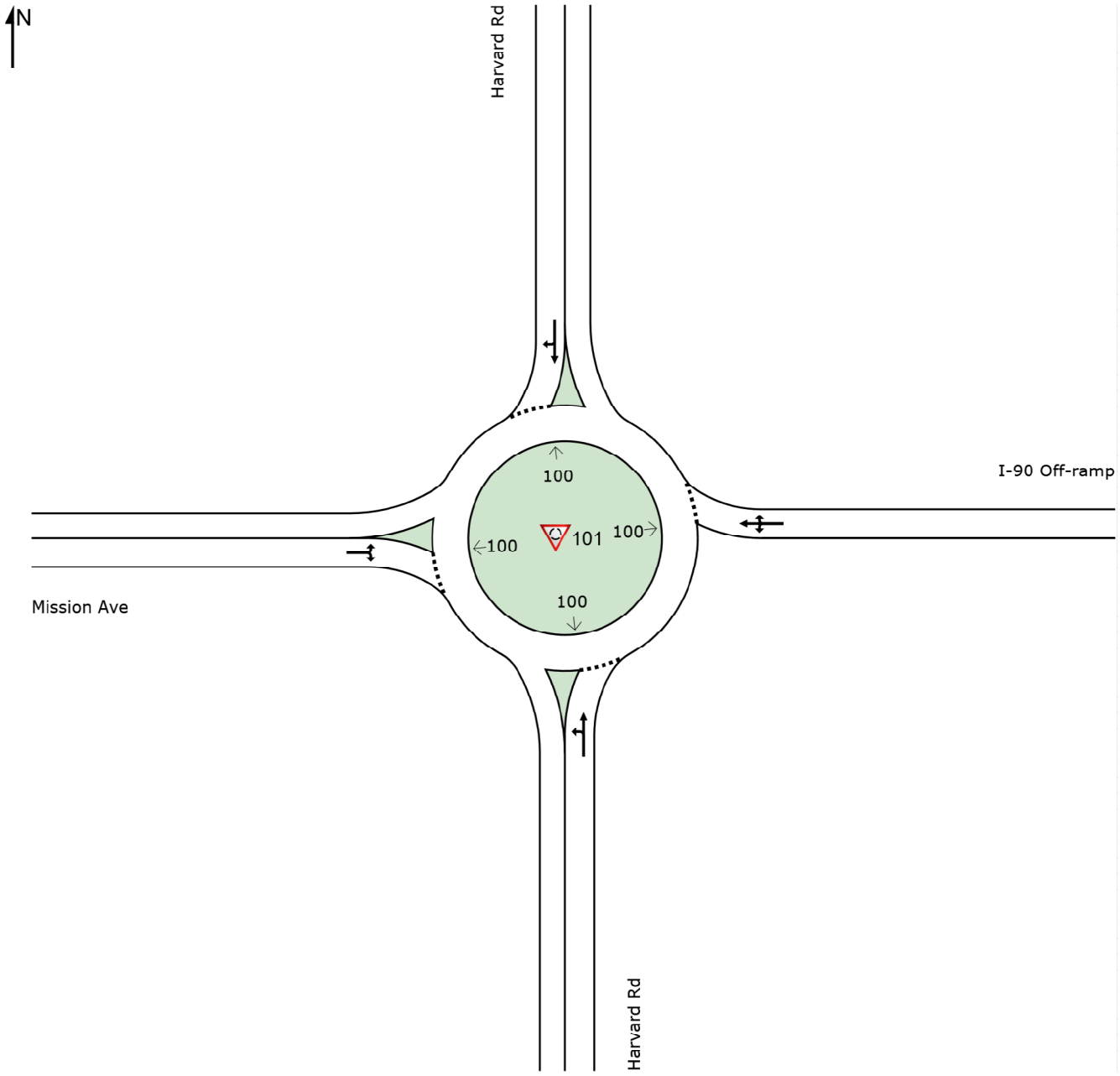
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per 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_Harvard PM 2046 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	430	370	340	55	815	200	780	300	345	525	130
Future Volume (veh/h)	180	430	370	340	55	815	200	780	300	345	525	130
Initial Q (Qb), 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	196	467	402	370	60	886	217	848	326	375	571	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	224	974	434	299	601	1356	250	867	384	304	946	
Arrive On Green	0.13	0.27	0.27	0.17	0.32	0.32	0.14	0.24	0.24	0.17	0.26	0.00
Sat Flow, veh/h	1767	3554	1585	1767	1900	2790	1795	3582	1585	1795	3582	1598
Grp Volume(v), veh/h	196	467	402	370	60	886	217	848	326	375	571	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	13.5	13.6	30.6	21.0	2.8	29.7	14.7	29.2	24.3	21.0	17.3	0.0
Cycle Q Clear(g_c), s	13.5	13.6	30.6	21.0	2.8	29.7	14.7	29.2	24.3	21.0	17.3	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	224	974	434	299	601	1356	250	867	384	304	946	
V/C Ratio(X)	0.87	0.48	0.93	1.24	0.10	0.65	0.87	0.98	0.85	1.23	0.60	
Avail Cap(c_a), veh/h	299	1003	447	299	601	1356	362	867	384	304	946	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	53.1	37.6	43.8	51.5	29.9	24.0	52.2	46.7	44.8	51.5	39.9	0.0
Incr Delay (d2), s/veh	19.1	0.5	25.2	131.6	0.1	1.1	16.5	25.3	16.9	130.1	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	11.6	10.0	21.3	30.4	2.3	15.0	12.3	22.5	16.8	30.7	12.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	72.3	38.1	69.0	183.1	30.0	25.1	68.8	72.0	61.7	181.6	41.0	0.0
LnGrp LOS	E	D	E	F	C	C	E	E	E	F	D	
Approach Vol, veh/h		1065			1316			1391			946	
Approach Delay, s/veh		56.1			69.8			69.1			96.8	
Approach LOS		E			E			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.0	35.0	25.0	39.0	22.3	37.7	19.7	44.2
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+I1), s	23.0	31.2	23.0	32.6	16.7	19.3	15.5	31.7
Green Ext Time (p_c), s	0.0	0.0	0.0	1.4	0.6	1.8	0.2	1.5

Intersection Summary	
HCM 6th Ctrl Delay	71.9
HCM 6th LOS	E

Notes

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	685	730	225	50	685	160	145	180	25	265	200	535
Future Volume (veh/h)	685	730	225	50	685	160	145	180	25	265	200	535
Initial Q (Qb), 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	729	777	239	53	729	170	154	191	27	282	213	569
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	680	1078	332	214	678	158	209	870	121	564	591	527
Arrive On Green	0.20	0.40	0.40	0.03	0.24	0.24	0.08	0.28	0.28	0.13	0.33	0.33
Sat Flow, veh/h	3483	2697	830	1810	2860	667	1795	3107	433	1767	1791	1598
Grp Volume(v), veh/h	729	516	500	53	453	446	154	107	111	282	213	569
Grp Sat Flow(s),veh/h/ln	1742	1791	1736	1810	1777	1750	1795	1763	1778	1767	1791	1598
Q Serve(g_s), s	21.0	26.1	26.1	2.4	25.5	25.5	6.5	5.0	5.2	11.7	9.7	35.5
Cycle Q Clear(g_c), s	21.0	26.1	26.1	2.4	25.5	25.5	6.5	5.0	5.2	11.7	9.7	35.5
Prop In Lane	1.00		0.48	1.00		0.38	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	680	716	694	214	421	415	209	493	497	564	591	527
V/C Ratio(X)	1.07	0.72	0.72	0.25	1.07	1.08	0.74	0.22	0.22	0.50	0.36	1.08
Avail Cap(c_a), veh/h	680	716	694	509	421	415	418	582	587	680	591	527
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.3	27.2	27.2	29.9	41.0	41.0	28.4	29.7	29.7	21.2	27.4	36.0
Incr Delay (d2), s/veh	55.3	3.1	3.2	0.2	65.2	65.7	1.9	0.1	0.1	0.3	0.1	62.1
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/ln	21.1	17.1	16.7	1.9	26.8	26.5	5.1	3.8	4.0	8.4	7.5	31.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	98.6	30.3	30.4	30.1	106.3	106.7	30.2	29.8	29.8	21.5	27.5	98.2
LnGrp LOS	F	C	C	C	F	F	C	C	C	C	C	F
Approach Vol, veh/h		1745			952			372			1064	
Approach Delay, s/veh		58.9			102.2			30.0			63.7	
Approach LOS		E			F			C			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.9	34.6	7.5	47.5	12.5	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+I1), s	13.7	7.2	4.4	28.1	8.5	37.5	23.0	27.5
Green Ext Time (p_c), s	0.3	0.8	0.0	0.0	0.2	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	67.5
HCM 6th LOS	E

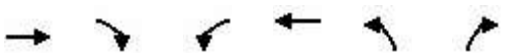
Intersection	
Int Delay, s/veh	7.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	425	520	320	20	0	515
Future Vol, veh/h	425	520	320	20	0	515
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	457	559	344	22	0	554

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	373	0	-	0	1561	190
Stage 1	-	-	-	-	362	-
Stage 2	-	-	-	-	1199	-
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	1182	-	-	-	89	820
Stage 1	-	-	-	-	633	-
Stage 2	-	-	-	-	220	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1175	-	-	-	54	815
Mov Cap-2 Maneuver	-	-	-	-	54	-
Stage 1	-	-	-	-	384	-
Stage 2	-	-	-	-	219	-

Approach	EB	WB	SB
HCM Control Delay, s	4.5	0	18.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	1175	-	-	-	-	815
HCM Lane V/C Ratio	0.389	-	-	-	-	0.679
HCM Control Delay (s)	10	-	-	-	0	18.2
HCM Lane LOS	B	-	-	-	A	C
HCM 95th %tile Q(veh)	1.9	-	-	-	-	5.5



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	880	160	35	895	200	50
Future Volume (veh/h)	880	160	35	895	200	50
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	989	180	39	1006	225	56
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	1374	250	326	2153	319	277
Arrive On Green	0.46	0.46	0.03	0.61	0.18	0.18
Sat Flow, veh/h	3097	546	1810	3618	1810	1572
Grp Volume(v), veh/h	585	584	39	1006	225	56
Grp Sat Flow(s),veh/h/ln	1777	1772	1810	1763	1810	1572
Q Serve(g_s), s	11.2	11.3	0.4	6.6	4.9	1.3
Cycle Q Clear(g_c), s	11.2	11.3	0.4	6.6	4.9	1.3
Prop In Lane		0.31	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	813	811	326	2153	319	277
V/C Ratio(X)	0.72	0.72	0.12	0.47	0.71	0.20
Avail Cap(c_a), veh/h	1053	1050	907	3760	1115	969
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	9.3	9.3	6.8	4.5	16.4	14.9
Incr Delay (d2), s/veh	1.7	1.7	0.2	0.2	2.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	6.1	6.1	0.2	2.2	3.6	0.8
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	11.0	11.0	7.0	4.6	19.2	15.2
LnGrp LOS	B	B	A	A	B	B
Approach Vol, veh/h	1169			1045	281	
Approach Delay, s/veh	11.0			4.7	18.4	
Approach LOS	B			A	B	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	6.5	24.3		11.4		30.8
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	2.4	13.3		6.9		8.6
Green Ext Time (p_c), s	0.0	6.0		0.8		9.0

Intersection Summary			
HCM 6th Ctrl Delay		9.2	
HCM 6th LOS		A	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	850	20	20	745	30	50	15	35	55	15	105
Future Volume (veh/h)	65	850	20	20	745	30	50	15	35	55	15	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	1870	1870	1752	1900	1841	1900	1856	1737	1900	1841	1900	1885
Adj Flow Rate, veh/h	78	1024	24	24	898	36	60	18	42	66	18	127
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	356	1549	36	307	1352	54	188	44	63	474	56	397
Arrive On Green	0.05	0.44	0.44	0.02	0.39	0.39	0.13	0.13	0.13	0.05	0.28	0.28
Sat Flow, veh/h	1781	3549	83	1810	3427	137	556	334	479	1753	204	1438
Grp Volume(v), veh/h	78	513	535	24	458	476	120	0	0	66	0	145
Grp Sat Flow(s),veh/h/ln	1781	1777	1855	1810	1749	1816	1370	0	0	1753	0	1641
Q Serve(g_s), s	1.2	10.8	10.8	0.4	10.2	10.2	2.9	0.0	0.0	1.4	0.0	3.3
Cycle Q Clear(g_c), s	1.2	10.8	10.8	0.4	10.2	10.2	3.8	0.0	0.0	1.4	0.0	3.3
Prop In Lane	1.00		0.04	1.00		0.08	0.50		0.35	1.00		0.88
Lane Grp Cap(c), veh/h	356	776	810	307	690	716	295	0	0	474	0	454
V/C Ratio(X)	0.22	0.66	0.66	0.08	0.66	0.66	0.41	0.00	0.00	0.14	0.00	0.32
Avail Cap(c_a), veh/h	1032	1333	1392	1069	1312	1363	846	0	0	1148	0	1769
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	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	8.8	10.6	10.6	9.0	11.7	11.7	19.4	0.0	0.0	14.8	0.0	13.6
Incr Delay (d2), s/veh	0.3	1.0	0.9	0.1	1.1	1.1	0.9	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/ln	0.7	6.2	6.5	0.2	6.0	6.3	2.1	0.0	0.0	0.9	0.0	2.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.1	11.5	11.5	9.1	12.9	12.8	20.3	0.0	0.0	14.9	0.0	14.0
LnGrp LOS	A	B	B	A	B	B	C	A	A	B	A	B
Approach Vol, veh/h		1126			958			120			211	
Approach Delay, s/veh		11.3			12.7			20.3			14.3	
Approach LOS		B			B			C			B	

Timer - Assigned Phs	1	2		4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.1	25.1		17.1	7.1	23.2	6.8	10.3
Change Period (Y+Rc), s	4.0	4.5		4.0	4.5	4.5	4.5	4.0
Max Green Setting (Gmax), s	21.6	35.5		51.0	20.5	35.5	20.5	26.0
Max Q Clear Time (g_c+I1), s	12.4	12.8		5.3	3.2	12.2	3.4	5.8
Green Ext Time (p_c), s	0.0	7.4		1.0	0.1	6.5	0.1	0.6

Intersection Summary	
HCM 6th Ctrl Delay	12.6
HCM 6th LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	965	145	95	575	20	175	25	190	50	35	65
Future Volume (veh/h)	20	965	145	95	575	20	175	25	190	50	35	65
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1870	1900	1885	1841	1900	1856	1900	1856	1900	1900	1841
Adj Flow Rate, veh/h	22	1060	159	104	632	22	192	27	209	55	38	71
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	381	1122	168	257	1398	49	451	343	284	311	176	145
Arrive On Green	0.02	0.36	0.36	0.06	0.41	0.41	0.12	0.18	0.18	0.04	0.09	0.09
Sat Flow, veh/h	1810	3099	464	1795	3448	120	1767	1900	1572	1810	1900	1560
Grp Volume(v), veh/h	22	607	612	104	320	334	192	27	209	55	38	71
Grp Sat Flow(s),veh/h/ln	1810	1777	1787	1795	1749	1819	1767	1900	1572	1810	1900	1560
Q Serve(g_s), s	0.4	17.4	17.5	1.9	7.0	7.0	4.8	0.6	6.6	1.4	1.0	2.3
Cycle Q Clear(g_c), s	0.4	17.4	17.5	1.9	7.0	7.0	4.8	0.6	6.6	1.4	1.0	2.3
Prop In Lane	1.00		0.26	1.00		0.07	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	381	643	647	257	709	738	451	343	284	311	176	145
V/C Ratio(X)	0.06	0.94	0.95	0.40	0.45	0.45	0.43	0.08	0.74	0.18	0.22	0.49
Avail Cap(c_a), veh/h	714	643	647	510	709	738	585	688	569	607	688	565
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	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	10.5	16.2	16.3	12.7	11.4	11.4	16.4	17.9	20.3	20.5	22.0	22.6
Incr Delay (d2), s/veh	0.1	22.6	23.0	1.0	0.6	0.6	0.6	0.1	5.2	0.3	0.9	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	0.3	15.1	15.3	1.2	4.3	4.5	3.2	0.5	4.7	1.0	0.8	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	10.6	38.8	39.3	13.7	12.0	12.0	17.1	18.0	25.6	20.8	22.9	26.3
LnGrp LOS	B	D	D	B	B	B	B	B	C	C	C	C
Approach Vol, veh/h		1241			758			428			164	
Approach Delay, s/veh		38.5			12.2			21.3			23.7	
Approach LOS		D			B			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.4	14.5	5.3	26.3	11.0	9.9	7.6	24.0
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+I1), s	3.4	8.6	2.4	9.0	6.8	4.3	3.9	19.5
Green Ext Time (p_c), s	0.0	0.9	0.0	3.8	0.2	0.4	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	27.1
HCM 6th LOS	C

MOVEMENT SUMMARY

Site: 101 [Mission_Molter PM 2046 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Molter Rd														
3	L2	80	2.0	80	2.0	0.300	12.6	LOS B	1.8	44.8	0.64	0.72	0.64	35.3
8	T1	135	1.0	135	1.0	0.300	6.6	LOS A	1.8	44.8	0.64	0.72	0.64	35.2
18	R2	50	1.0	50	1.0	0.300	6.7	LOS A	1.8	44.8	0.64	0.72	0.64	34.2
Approach		265	1.3	265	1.3	0.300	8.4	LOS A	1.8	44.8	0.64	0.72	0.64	35.0
East: Mission Ave														
1	L2	45	2.0	45	2.0	0.432	11.6	LOS B	2.8	71.1	0.56	0.59	0.56	36.0
6	T1	335	2.0	335	2.0	0.432	5.6	LOS A	2.8	71.1	0.56	0.59	0.56	35.9
16	R2	65	2.0	65	2.0	0.432	5.7	LOS A	2.8	71.1	0.56	0.59	0.56	34.8
Approach		445	2.0	445	2.0	0.432	6.2	LOS A	2.8	71.1	0.56	0.59	0.56	35.8
North: Molter Rd														
7	L2	95	2.0	95	2.0	0.323	12.4	LOS B	1.9	48.8	0.63	0.71	0.63	35.3
4	T1	125	2.0	125	2.0	0.323	6.5	LOS A	1.9	48.8	0.63	0.71	0.63	35.2
14	R2	70	2.0	70	2.0	0.323	6.5	LOS A	1.9	48.8	0.63	0.71	0.63	34.1
Approach		290	2.0	290	2.0	0.323	8.4	LOS A	1.9	48.8	0.63	0.71	0.63	34.9
West: Mission Ave														
5	L2	70	3.0	70	3.0	0.451	11.5	LOS B	3.0	77.0	0.56	0.60	0.56	35.9
2	T1	325	3.0	325	3.0	0.451	5.6	LOS A	3.0	77.0	0.56	0.60	0.56	35.8
12	R2	70	3.0	70	3.0	0.451	5.7	LOS A	3.0	77.0	0.56	0.60	0.56	34.7
Approach		465	3.0	465	3.0	0.451	6.5	LOS A	3.0	77.0	0.56	0.60	0.56	35.6
All Vehicles		1465	2.2	1465	2.2	0.451	7.2	LOS A	3.0	77.0	0.59	0.64	0.59	35.4

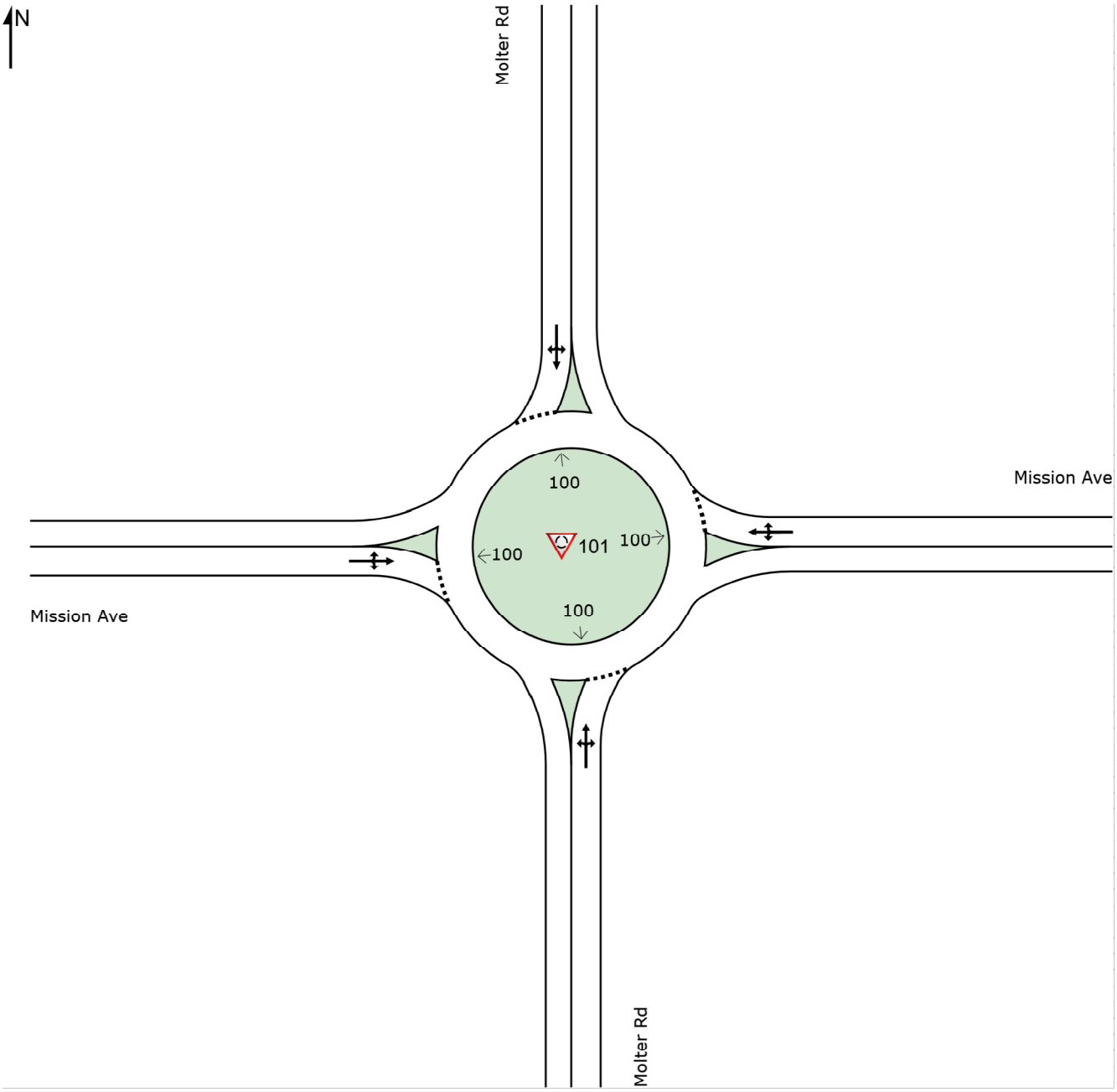
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per 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.

SITE LAYOUT

Site: 101 [Mission_Molter PM 2046 (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 2046 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Harvest Pkwy														
3	L2	85	3.0	85	3.0	0.440	13.4	LOS B	2.9	73.6	0.71	0.80	0.73	35.2
8	T1	40	2.0	40	2.0	0.440	7.4	LOS A	2.9	73.6	0.71	0.80	0.73	35.2
18	R2	250	2.0	250	2.0	0.440	7.5	LOS A	2.9	73.6	0.71	0.80	0.73	34.1
Approach		375	2.2	375	2.2	0.440	8.8	LOS A	2.9	73.6	0.71	0.80	0.73	34.5
East: Mission Ave														
1	L2	110	3.0	110	3.0	0.519	11.2	LOS B	3.8	97.3	0.53	0.57	0.53	35.9
6	T1	345	3.0	345	3.0	0.519	5.2	LOS A	3.8	97.3	0.53	0.57	0.53	35.9
16	R2	115	3.0	115	3.0	0.519	5.3	LOS A	3.8	97.3	0.53	0.57	0.53	34.8
Approach		570	3.0	570	3.0	0.519	6.4	LOS A	3.8	97.3	0.53	0.57	0.53	35.7
North: Harvest Pkwy														
7	L2	150	1.0	150	1.0	0.331	13.0	LOS B	2.0	50.4	0.68	0.79	0.68	34.6
4	T1	40	1.0	40	1.0	0.331	7.0	LOS A	2.0	50.4	0.68	0.79	0.68	34.5
14	R2	90	1.0	90	1.0	0.331	7.1	LOS A	2.0	50.4	0.68	0.79	0.68	33.5
Approach		280	1.0	280	1.0	0.331	10.2	LOS B	2.0	50.4	0.68	0.79	0.68	34.2
West: Mission Ave														
5	L2	60	3.0	60	3.0	0.415	11.7	LOS B	2.6	66.9	0.56	0.61	0.56	35.9
2	T1	310	4.0	310	4.0	0.415	5.8	LOS A	2.6	66.9	0.56	0.61	0.56	35.8
12	R2	45	3.0	45	3.0	0.415	5.8	LOS A	2.6	66.9	0.56	0.61	0.56	34.7
Approach		415	3.7	415	3.7	0.415	6.6	LOS A	2.6	66.9	0.56	0.61	0.56	35.7
All Vehicles		1640	2.7	1640	2.7	0.519	7.7	LOS A	3.8	97.3	0.60	0.67	0.61	35.1

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.
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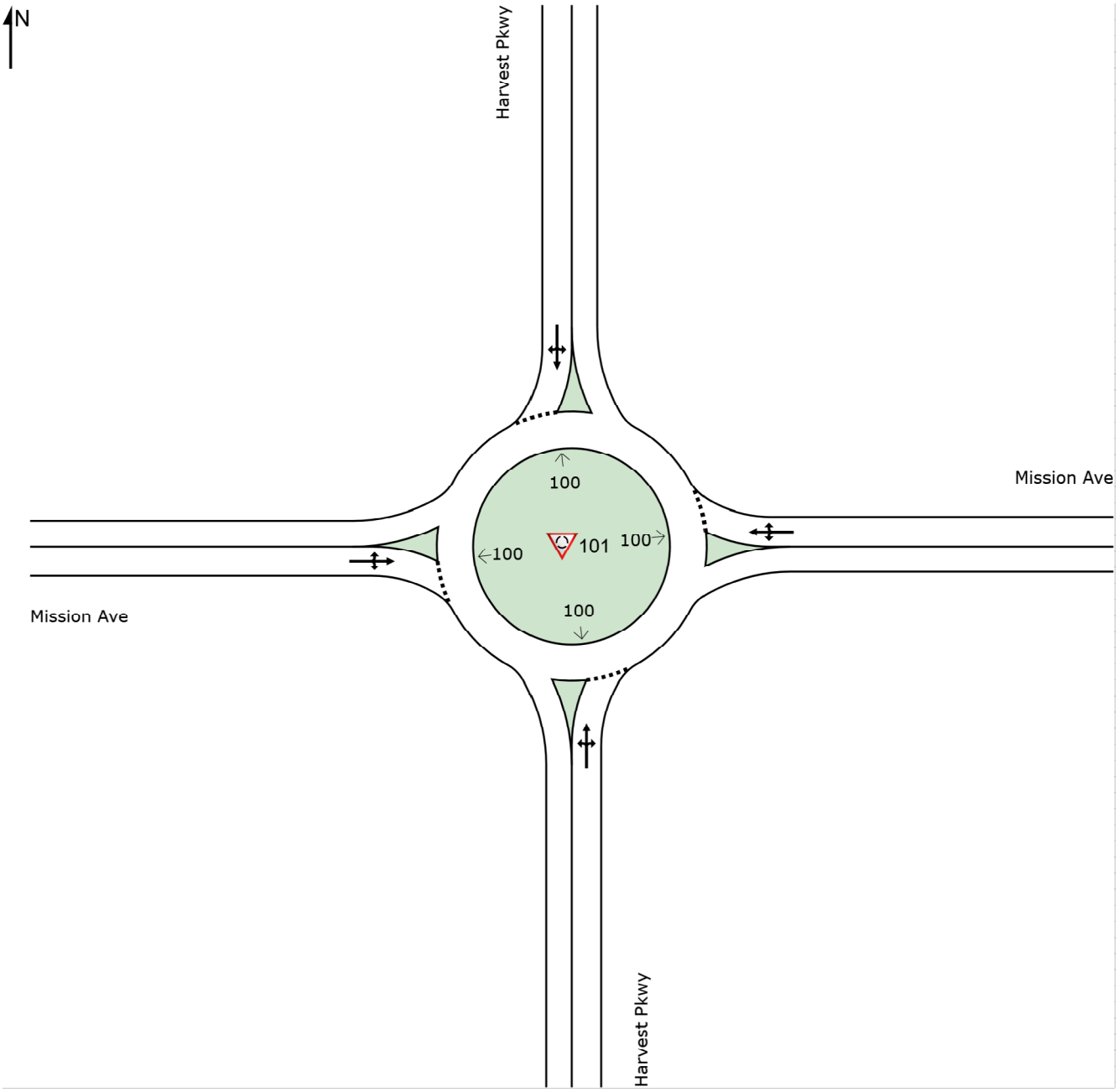
Intersection and Approach LOS values are based on average delay for all movements (v/c not used).
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 101 [Mission_Harvest PM 2046 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

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



Intersection	
Int Delay, s/veh	8.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1095	170	95	550	125	95
Future Vol, veh/h	1095	170	95	550	125	95
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	1190	185	103	598	136	103

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1379	0	2091	1288
Stage 1	-	-	-	-	1287	-
Stage 2	-	-	-	-	804	-
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	-	-	504	-	~ 58	200
Stage 1	-	-	-	-	260	-
Stage 2	-	-	-	-	442	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	502	-	~ 46	199
Mov Cap-2 Maneuver	-	-	-	-	156	-
Stage 1	-	-	-	-	259	-
Stage 2	-	-	-	-	351	-

Approach	EB	WB	NB
HCM Control Delay, s	0	2.1	73.7
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	156	199	-	-	502	-
HCM Lane V/C Ratio	0.871	0.519	-	-	0.206	-
HCM Control Delay (s)	98.5	41.1	-	-	14	-
HCM Lane LOS	F	E	-	-	B	-
HCM 95th %tile Q(veh)	6	2.6	-	-	0.8	-

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

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	190	140	30	15	80	20	25	35	15	15	40	155
Future Vol, veh/h	190	140	30	15	80	20	25	35	15	15	40	155
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	229	169	36	18	96	24	30	42	18	18	48	187
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	11.9	10	9.8	11
HCM LOS	B	A	A	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1
Vol Left, %	33%	100%	0%	100%	0%	7%
Vol Thru, %	47%	0%	82%	0%	80%	19%
Vol Right, %	20%	0%	18%	0%	20%	74%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	75	190	170	15	100	210
LT Vol	25	190	0	15	0	15
Through Vol	35	0	140	0	80	40
RT Vol	15	0	30	0	20	155
Lane Flow Rate	90	229	205	18	120	253
Geometry Grp	2	7	7	7	7	2
Degree of Util (X)	0.144	0.392	0.314	0.033	0.198	0.36
Departure Headway (Hd)	5.744	6.167	5.519	6.556	5.906	5.121
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	623	584	651	546	607	706
Service Time	3.788	3.898	3.249	4.296	3.645	3.121
HCM Lane V/C Ratio	0.144	0.392	0.315	0.033	0.198	0.358
HCM Control Delay	9.8	12.8	10.8	9.5	10.1	11
HCM Lane LOS	A	B	B	A	B	B
HCM 95th-tile Q	0.5	1.9	1.3	0.1	0.7	1.6

Intersection	
Intersection Delay, s/veh	15.9
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	180	110	100	15	80	25	75	115	20	30	115	115
Future Vol, veh/h	180	110	100	15	80	25	75	115	20	30	115	115
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	202	124	112	17	90	28	84	129	22	34	129	129
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	20.7	11.4	12	14
HCM LOS	C	B	B	B

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	46%	12%	100%	0%
Vol Thru, %	0%	85%	28%	67%	0%	50%
Vol Right, %	0%	15%	26%	21%	0%	50%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	75	135	390	120	30	230
LT Vol	75	0	180	15	30	0
Through Vol	0	115	110	80	0	115
RT Vol	0	20	100	25	0	115
Lane Flow Rate	84	152	438	135	34	258
Geometry Grp	7	7	2	2	7	7
Degree of Util (X)	0.173	0.285	0.691	0.239	0.068	0.46
Departure Headway (Hd)	7.394	6.757	5.789	6.372	7.275	6.405
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	487	534	627	565	496	566
Service Time	5.114	4.477	3.789	4.402	4.975	4.105
HCM Lane V/C Ratio	0.172	0.285	0.699	0.239	0.069	0.456
HCM Control Delay	11.7	12.2	20.7	11.4	10.5	14.4
HCM Lane LOS	B	B	C	B	B	B
HCM 95th-tile Q	0.6	1.2	5.5	0.9	0.2	2.4

Intersection	
Intersection Delay, s/veh	8.3
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	85	10	10	65	35	15	30	10	40	50	15
Future Vol, veh/h	15	85	10	10	65	35	15	30	10	40	50	15
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	18	101	12	12	77	42	18	36	12	48	60	18
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	8.4	8.2	8	8.4
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	27%	14%	9%	38%
Vol Thru, %	55%	77%	59%	48%
Vol Right, %	18%	9%	32%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	55	110	110	105
LT Vol	15	15	10	40
Through Vol	30	85	65	50
RT Vol	10	10	35	15
Lane Flow Rate	65	131	131	125
Geometry Grp	1	1	1	1
Degree of Util (X)	0.083	0.162	0.157	0.158
Departure Headway (Hd)	4.583	4.462	4.321	4.557
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	782	804	830	788
Service Time	2.61	2.485	2.344	2.581
HCM Lane V/C Ratio	0.083	0.163	0.158	0.159
HCM Control Delay	8	8.4	8.2	8.4
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.3	0.6	0.6	0.6

MOVEMENT SUMMARY

Site: 101 [Mission_Kramer PM 2046 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Kramer Pkwy														
3	L2	320	1.0	320	1.0	0.538	12.6	LOS B	4.2	106.2	0.70	0.78	0.74	34.5
8	T1	30	3.0	30	3.0	0.538	6.8	LOS A	4.2	106.2	0.70	0.78	0.74	34.4
18	R2	165	2.0	165	2.0	0.538	6.8	LOS A	4.2	106.2	0.70	0.78	0.74	33.4
Approach		515	1.4	515	1.4	0.538	10.4	LOS B	4.2	106.2	0.70	0.78	0.74	34.1
East: Mission Ave														
1	L2	200	2.0	200	2.0	0.598	13.6	LOS B	5.3	134.8	0.76	0.82	0.85	34.6
6	T1	320	3.0	320	3.0	0.598	7.7	LOS A	5.3	134.8	0.76	0.82	0.85	34.5
16	R2	35	3.0	35	3.0	0.598	7.8	LOS A	5.3	134.8	0.76	0.82	0.85	33.5
Approach		555	2.6	555	2.6	0.598	9.9	LOS A	5.3	134.8	0.76	0.82	0.85	34.4
North: Kramer Pkwy														
7	L2	25	3.0	25	3.0	0.134	15.8	LOS B	0.9	21.9	0.81	0.80	0.81	33.8
4	T1	45	3.0	45	3.0	0.134	9.9	LOS A	0.9	21.9	0.81	0.80	0.81	33.8
14	R2	10	3.0	10	3.0	0.134	9.9	LOS A	0.9	21.9	0.81	0.80	0.81	32.8
Approach		80	3.0	80	3.0	0.134	11.7	LOS B	0.9	21.9	0.81	0.80	0.81	33.7
West: Mission Ave														
5	L2	35	3.0	35	3.0	0.667	13.1	LOS B	6.6	169.5	0.73	0.73	0.80	35.7
2	T1	295	3.0	295	3.0	0.667	7.2	LOS A	6.6	169.5	0.73	0.73	0.80	35.7
12	R2	355	2.0	355	2.0	0.667	7.2	LOS A	6.6	169.5	0.73	0.73	0.80	34.6
Approach		685	2.5	685	2.5	0.667	7.5	LOS A	6.6	169.5	0.73	0.73	0.80	35.1
All Vehicles		1835	2.3	1835	2.3	0.667	9.2	LOS A	6.6	169.5	0.73	0.78	0.80	34.6

Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
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HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 101 [Mission_Kramer PM 2046 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

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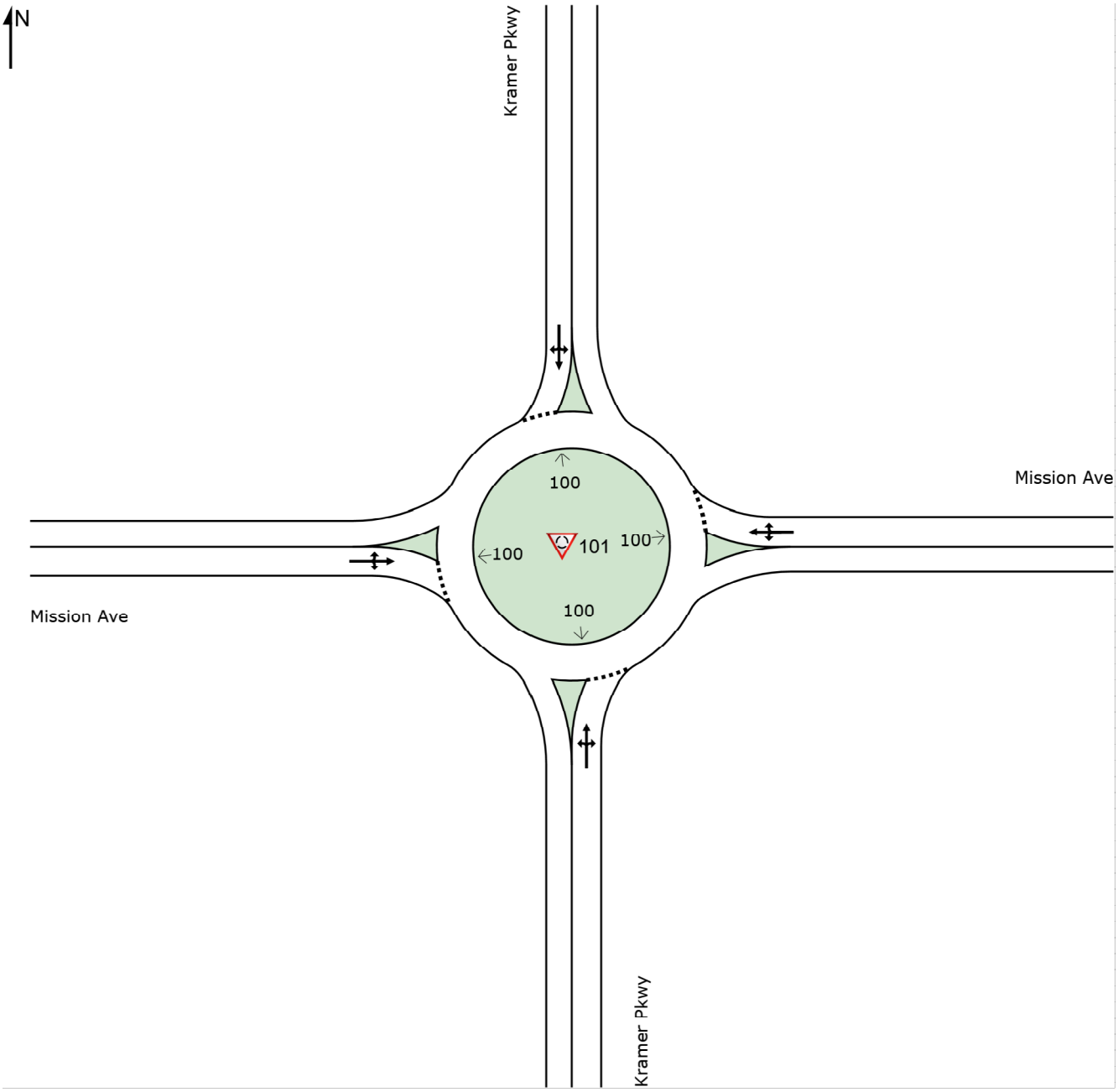


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	10	75	50	10	10	65	780	65	55	760	35
Future Volume (veh/h)	30	10	75	50	10	10	65	780	65	55	760	35
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		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	1530	1826	1811	1900	1159	1900	1870	1900	1900	1870	1900
Adj Flow Rate, veh/h	33	11	82	55	11	11	71	857	71	60	835	38
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	54	13	99	76	86	86	428	1517	126	404	1563	71
Arrive On Green	0.03	0.09	0.09	0.04	0.10	0.10	0.05	0.46	0.46	0.05	0.45	0.45
Sat Flow, veh/h	1810	156	1164	1725	872	872	1810	3322	275	1810	3461	158
Grp Volume(v), veh/h	33	0	93	55	0	22	71	458	470	60	429	444
Grp Sat Flow(s),veh/h/ln	1810	0	1320	1725	0	1743	1810	1777	1821	1810	1777	1842
Q Serve(g_s), s	0.8	0.0	3.2	1.5	0.0	0.5	0.9	8.7	8.7	0.8	8.1	8.1
Cycle Q Clear(g_c), s	0.8	0.0	3.2	1.5	0.0	0.5	0.9	8.7	8.7	0.8	8.1	8.1
Prop In Lane	1.00		0.88	1.00		0.50	1.00		0.15	1.00		0.09
Lane Grp Cap(c), veh/h	54	0	112	76	0	173	428	812	832	404	802	832
V/C Ratio(X)	0.61	0.00	0.83	0.73	0.00	0.13	0.17	0.56	0.56	0.15	0.53	0.53
Avail Cap(c_a), veh/h	235	0	500	299	0	735	922	1711	1753	555	1365	1415
HCM Platoon Ratio	1.00	1.00	1.00	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	22.2	0.0	20.8	21.8	0.0	19.0	6.7	9.2	9.2	6.9	9.2	9.2
Incr Delay (d2), s/veh	10.6	0.0	19.0	12.5	0.0	0.5	0.2	0.9	0.9	0.2	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/ln	0.9	0.0	2.7	1.4	0.0	0.4	0.5	4.9	5.0	0.4	4.5	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.8	0.0	39.8	34.3	0.0	19.5	6.9	10.1	10.1	7.1	10.0	9.9
LnGrp LOS	C	A	D	C	A	B	A	B	B	A	A	A
Approach Vol, veh/h		126			77			999			933	
Approach Delay, s/veh		38.0			30.1			9.8			9.8	
Approach LOS		D			C			A			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.4	25.4	5.4	9.1	6.1	25.6	6.0	8.4
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	15.0	35.5	6.0	19.5	6.0	44.5	8.0	17.5
Max Q Clear Time (g_c+I1), s	2.9	10.1	2.8	2.5	2.8	10.7	3.5	5.2
Green Ext Time (p_c), s	0.1	8.6	0.0	0.1	0.0	10.4	0.0	0.4

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

MOVEMENT SUMMARY

Site: 20 [Harvard_Wellington PM 2046 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Harvard Rd														
3	L2	35	0.0	39	0.0	0.324	8.7	LOS A	2.1	52.7	0.18	0.34	0.18	34.1
8	T1	715	2.0	803	2.0	0.324	2.8	LOS A	2.1	52.9	0.17	0.33	0.17	34.0
18	R2	70	0.0	79	0.0	0.324	3.4	LOS A	2.1	52.9	0.17	0.32	0.17	33.0
Approach		820	1.7	921	1.7	0.324	3.1	LOS A	2.1	52.9	0.17	0.33	0.17	33.9
East: Wellington Pkwy														
1	L2	35	8.0	39	8.0	0.093	11.3	LOS B	0.3	7.7	0.49	0.75	0.49	31.9
6	T1	10	0.0	11	0.0	0.093	5.0	LOS A	0.3	7.7	0.49	0.75	0.49	31.7
16	R2	15	0.0	17	0.0	0.093	5.4	LOS A	0.3	7.7	0.49	0.75	0.49	30.9
Approach		60	4.7	67	4.7	0.093	8.8	LOS A	0.3	7.7	0.49	0.75	0.49	31.6
North: Harvard Rd														
7	L2	10	9.0	11	9.0	0.348	9.2	LOS A	2.2	56.0	0.30	0.37	0.30	33.7
4	T1	795	2.0	893	2.0	0.348	3.2	LOS A	2.2	56.2	0.30	0.36	0.30	33.7
14	R2	20	0.0	22	0.0	0.348	3.7	LOS A	2.2	56.2	0.29	0.36	0.29	32.6
Approach		825	2.0	927	2.0	0.348	3.2	LOS A	2.2	56.2	0.30	0.36	0.30	33.6
West: Wellington Pkwy														
5	L2	10	0.0	11	0.0	0.066	12.2	LOS B	0.2	5.6	0.52	0.74	0.52	35.7
2	T1	10	0.0	11	0.0	0.066	6.2	LOS A	0.2	5.6	0.52	0.74	0.52	35.6
12	R2	20	9.0	22	9.0	0.066	6.8	LOS A	0.2	5.6	0.52	0.74	0.52	34.4
Approach		40	4.5	45	4.5	0.066	8.0	LOS A	0.2	5.6	0.52	0.74	0.52	35.0
All Vehicles		1745	2.0	1961	2.0	0.348	3.5	LOS A	2.2	56.2	0.25	0.37	0.25	33.7

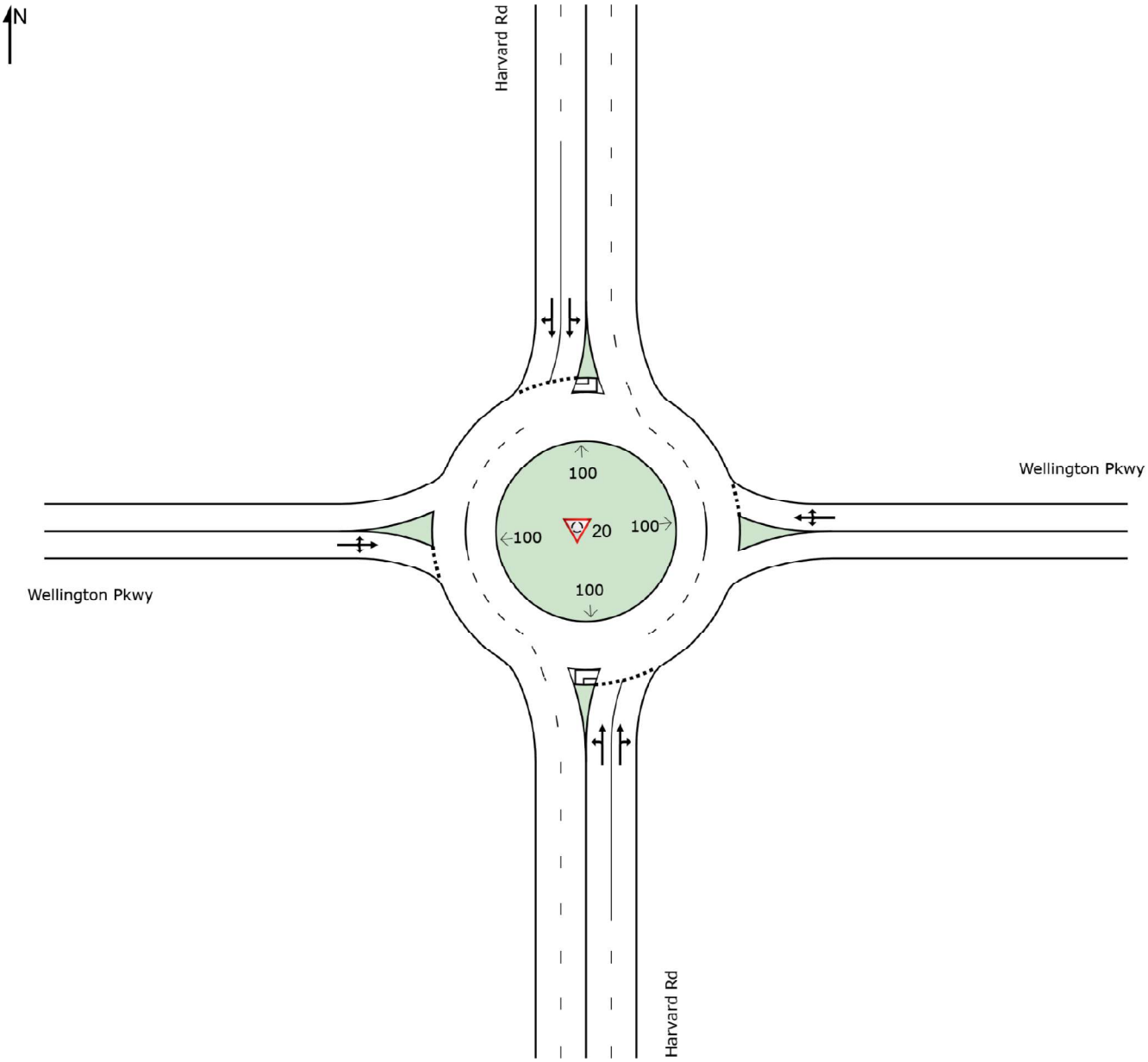
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per 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: 20 [Harvard_Wellington PM 2046 (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
20: Harvard Rd & E Wellington Parkway

10/22/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	10	20	35	10	15	35	715	70	10	795	20
Future Volume (veh/h)	10	10	20	35	10	15	35	715	70	10	795	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	0.99		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1900	1767	1781	1900	1900	1900	1870	1900	1900	1870	1767
Adj Flow Rate, veh/h	11	11	22	39	11	17	39	803	79	11	893	22
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	0	0	9	8	0	0	0	2	0	0	2	9
Cap, veh/h	337	49	99	327	59	91	493	1656	163	479	1707	42
Arrive On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.04	0.51	0.51	0.01	0.48	0.48
Sat Flow, veh/h	1396	564	1127	1303	671	1037	1810	3268	321	1810	3544	87
Grp Volume(v), veh/h	11	0	33	39	0	28	39	437	445	11	448	467
Grp Sat Flow(s),veh/h/ln	1396	0	1691	1303	0	1708	1810	1777	1812	1810	1777	1855
Q Serve(g_s), s	0.2	0.0	0.6	0.9	0.0	0.5	0.3	4.9	4.9	0.1	5.3	5.3
Cycle Q Clear(g_c), s	0.7	0.0	0.6	1.4	0.0	0.5	0.3	4.9	4.9	0.1	5.3	5.3
Prop In Lane	1.00		0.67	1.00		0.61	1.00		0.18	1.00		0.05
Lane Grp Cap(c), veh/h	337	0	148	327	0	150	493	900	918	479	856	893
V/C Ratio(X)	0.03	0.00	0.22	0.12	0.00	0.19	0.08	0.48	0.49	0.02	0.52	0.52
Avail Cap(c_a), veh/h	1269	0	1277	1197	0	1290	961	4492	4581	933	4434	4627
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.2	0.0	12.9	13.6	0.0	12.9	4.1	4.9	4.9	4.2	5.5	5.5
Incr Delay (d2), s/veh	0.0	0.0	0.8	0.2	0.0	0.6	0.1	0.4	0.4	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/ln	0.1	0.0	0.4	0.4	0.0	0.3	0.1	1.5	1.6	0.0	1.8	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.2	0.0	13.7	13.8	0.0	13.5	4.2	5.3	5.3	4.2	6.0	6.0
LnGrp LOS	B	A	B	B	A	B	A	A	A	A	A	A
Approach Vol, veh/h		44			67			921			926	
Approach Delay, s/veh		13.6			13.6			5.3			5.9	
Approach LOS		B			B			A			A	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	18.7		6.7	4.4	19.4		6.7				
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0				
Max Green Setting (Gmax), s	9.0	76.0		23.0	8.0	77.0		23.0				
Max Q Clear Time (g_c+I1), s	2.3	7.3		2.7	2.1	6.9		3.4				
Green Ext Time (p_c), s	0.0	7.3		0.1	0.0	7.0		0.2				

Intersection Summary		
HCM 6th Ctrl Delay	6.1	
HCM 6th LOS	A	

Intersection	
Int Delay, s/veh	75

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	50	390	25	10	490	185	15	20	15	175	40	45
Future Vol, veh/h	50	390	25	10	490	185	15	20	15	175	40	45
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	-	-	None	-	-	None	-	-	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	53	415	27	11	521	197	16	21	16	186	43	48

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	722	0	0	449	0	0	1230	1286	436	1199	1201	625
Stage 1	-	-	-	-	-	-	542	542	-	646	646	-
Stage 2	-	-	-	-	-	-	688	744	-	553	555	-
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	866	-	-	1122	-	-	156	161	625	~ 163	186	478
Stage 1	-	-	-	-	-	-	528	512	-	462	470	-
Stage 2	-	-	-	-	-	-	440	414	-	519	516	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	863	-	-	1115	-	-	107	148	621	~ 133	171	476
Mov Cap-2 Maneuver	-	-	-	-	-	-	107	148	-	~ 133	171	-
Stage 1	-	-	-	-	-	-	493	478	-	432	464	-
Stage 2	-	-	-	-	-	-	356	409	-	453	481	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	1	0.1	36.3	$ 412.2
HCM LOS			E	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	167	863	-	-	1115	-	-	158
HCM Lane V/C Ratio	0.319	0.062	-	-	0.01	-	-	1.751
HCM Control Delay (s)	36.3	9.4	-	-	8.3	-	-	$ 412.2
HCM Lane LOS	E	A	-	-	A	-	-	F
HCM 95th %tile Q(veh)	1.3	0.2	-	-	0	-	-	20

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

Intersection	
Int Delay, s/veh	1.1

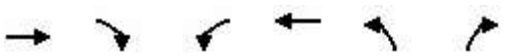
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	495	560	10	20	60
Future Vol, veh/h	10	495	560	10	20	60
Conflicting Peds, #/hr	2	0	0	2	9	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	100	-	-	-	0	-
Veh in Median Storage, #	-	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	11	532	602	11	22	65

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	615	0	-	0	1173	610
Stage 1	-	-	-	-	610	-
Stage 2	-	-	-	-	563	-
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	974	-	-	-	214	498
Stage 1	-	-	-	-	546	-
Stage 2	-	-	-	-	574	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	972	-	-	-	211	497
Mov Cap-2 Maneuver	-	-	-	-	350	-
Stage 1	-	-	-	-	539	-
Stage 2	-	-	-	-	573	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	14.9
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	972	-	-	-	450
HCM Lane V/C Ratio	0.011	-	-	-	0.191
HCM Control Delay (s)	8.7	-	-	-	14.9
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.7

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	Ø14
Lane Configurations							
Traffic Volume (vph)	1170	60	20	825	50	55	
Future Volume (vph)	1170	60	20	825	50	55	
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)	3422	0	1805	3505	1805	1615	
Flt Permitted			0.950		0.950		
Satd. Flow (perm)	3422	0	1805	3505	1805	1615	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)	4					56	
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)	1194	61	20	842	51	56	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	1255	0	20	842	51	56	
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



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)	35.0		5.5	39.3	7.7	7.7	
Actuated g/C Ratio	0.44		0.07	0.50	0.10	0.10	
v/c Ratio	0.83		0.16	0.49	0.29	0.27	
Control Delay	27.8		41.0	14.8	40.9	14.6	
Queue Delay	0.0		0.0	0.0	0.0	0.0	
Total Delay	27.8		41.0	14.8	40.9	14.6	
LOS	C		D	B	D	B	
Approach Delay	27.8			15.4	27.1		
Approach LOS	C			B	C		
Queue Length 50th (ft)	256		9	143	23	0	
Queue Length 95th (ft)	#515		33	201	63	35	
Internal Link Dist (ft)	345			3085	632		
Turn Bay Length (ft)			100		100		
Base Capacity (vph)	1513		566	2894	600	574	
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	0.83		0.04	0.29	0.09	0.10	

Intersection Summary			
Area Type:	Other		
Cycle Length: 125			
Actuated Cycle Length: 79.3			
Natural Cycle: 95			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 23.0		Intersection LOS: C	
Intersection Capacity Utilization 48.0%		ICU Level of Service A	
Analysis Period (min) 15			

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

Queue shown is maximum after two cycles.

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

Appendix H

Long-Term Mitigated Analysis Results (2046)

Intersection 2:

N Kramer Pkwy / E Country Vista Dr

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

09/17/2025

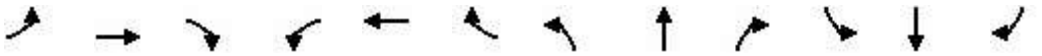
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	730	40	125	795	205	140	110	205	160	75	200
Future Volume (veh/h)	90	730	40	125	795	205	140	110	205	160	75	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		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	117	948	52	162	1032	266	182	143	266	208	97	260
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	193	1330	73	284	1156	296	301	156	290	260	122	326
Arrive On Green	0.06	0.40	0.40	0.07	0.42	0.42	0.09	0.27	0.27	0.09	0.27	0.27
Sat Flow, veh/h	1767	3290	180	1781	2755	707	1810	581	1080	1767	446	1195
Grp Volume(v), veh/h	117	492	508	162	653	645	182	0	409	208	0	357
Grp Sat Flow(s),veh/h/ln	1767	1706	1764	1781	1749	1714	1810	0	1661	1767	0	1640
Q Serve(g_s), s	4.3	26.8	26.8	5.8	38.5	38.9	8.0	0.0	26.6	9.5	0.0	22.5
Cycle Q Clear(g_c), s	4.3	26.8	26.8	5.8	38.5	38.9	8.0	0.0	26.6	9.5	0.0	22.5
Prop In Lane	1.00		0.10	1.00		0.41	1.00		0.65	1.00		0.73
Lane Grp Cap(c), veh/h	193	690	713	284	734	719	301	0	445	260	0	447
V/C Ratio(X)	0.61	0.71	0.71	0.57	0.89	0.90	0.61	0.00	0.92	0.80	0.00	0.80
Avail Cap(c_a), veh/h	261	745	770	325	763	748	309	0	486	260	0	480
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.5	27.7	27.7	21.4	29.9	30.0	28.1	0.0	39.5	29.4	0.0	37.6
Incr Delay (d2), s/veh	4.3	3.3	3.2	2.6	12.7	13.7	3.9	0.0	22.2	17.0	0.0	9.3
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/ln	3.5	16.9	17.3	4.6	25.3	25.3	6.7	0.0	19.4	8.9	0.0	15.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.8	31.1	31.0	23.9	42.6	43.7	32.0	0.0	61.7	46.3	0.0	46.9
LnGrp LOS	C	C	C	C	D	D	C	A	E	D	A	D
Approach Vol, veh/h		1117			1460			591			565	
Approach Delay, s/veh		30.9			41.0			52.5			46.7	
Approach LOS		C			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.4	49.4	14.5	34.8	10.7	51.1	15.0	34.3
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	48.5	10.5	32.5	10.5	48.5	10.5	32.5
Max Q Clear Time (g_c+I1), s	7.8	28.8	10.0	24.5	6.3	40.9	11.5	28.6
Green Ext Time (p_c), s	0.2	9.0	0.0	1.8	0.1	5.7	0.0	1.2

Intersection Summary	
HCM 6th Ctrl Delay	40.7
HCM 6th LOS	D

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)	155	995	70	305	760	260	60	100	220	315	175	110
Future Volume (veh/h)	155	995	70	305	760	260	60	100	220	315	175	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1900	1885	1900	1885	1870	1885	1900	1856	1870	1870	1900	1900
Adj Flow Rate, veh/h	160	1026	72	314	784	268	62	103	227	325	180	113
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	285	1193	84	341	1065	364	335	113	250	332	346	218
Arrive On Green	0.08	0.35	0.35	0.13	0.41	0.41	0.04	0.22	0.22	0.14	0.32	0.32
Sat Flow, veh/h	1810	3395	238	1795	2599	888	1810	515	1136	1781	1091	685
Grp Volume(v), veh/h	160	541	557	314	536	516	62	0	330	325	0	293
Grp Sat Flow(s),veh/h/ln	1810	1791	1842	1795	1777	1710	1810	0	1651	1781	0	1777
Q Serve(g_s), s	6.3	31.9	31.9	13.2	29.0	29.0	3.0	0.0	22.2	15.5	0.0	15.3
Cycle Q Clear(g_c), s	6.3	31.9	31.9	13.2	29.0	29.0	3.0	0.0	22.2	15.5	0.0	15.3
Prop In Lane	1.00		0.13	1.00		0.52	1.00		0.69	1.00		0.39
Lane Grp Cap(c), veh/h	285	629	647	341	728	701	335	0	363	332	0	564
V/C Ratio(X)	0.56	0.86	0.86	0.92	0.74	0.74	0.19	0.00	0.91	0.98	0.00	0.52
Avail Cap(c_a), veh/h	394	685	705	345	728	701	512	0	399	332	0	564
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	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	23.6	34.3	34.3	27.8	28.3	28.4	32.5	0.0	43.3	30.8	0.0	31.7
Incr Delay (d2), s/veh	2.5	10.6	10.4	29.6	4.2	4.4	0.4	0.0	23.9	43.4	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	5.1	22.0	22.5	13.0	18.8	18.3	2.4	0.0	16.9	16.1	0.0	11.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.0	44.9	44.7	57.4	32.6	32.7	32.8	0.0	67.2	74.2	0.0	32.9
LnGrp LOS	C	D	D	E	C	C	C	A	E	E	A	C
Approach Vol, veh/h		1258			1366			392			618	
Approach Delay, s/veh		42.4			38.3			61.7			54.6	
Approach LOS		D			D			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.8	44.5	8.9	40.6	13.1	51.1	20.0	29.5
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	15.5	43.5	15.5	27.5	15.5	43.5	15.5	27.5
Max Q Clear Time (g_c+I1), s	15.2	33.9	5.0	17.3	8.3	31.0	17.5	24.2
Green Ext Time (p_c), s	0.0	6.0	0.1	1.6	0.4	7.2	0.0	0.8

Intersection Summary	
HCM 6th Ctrl Delay	45.0
HCM 6th LOS	D

Intersection 4:

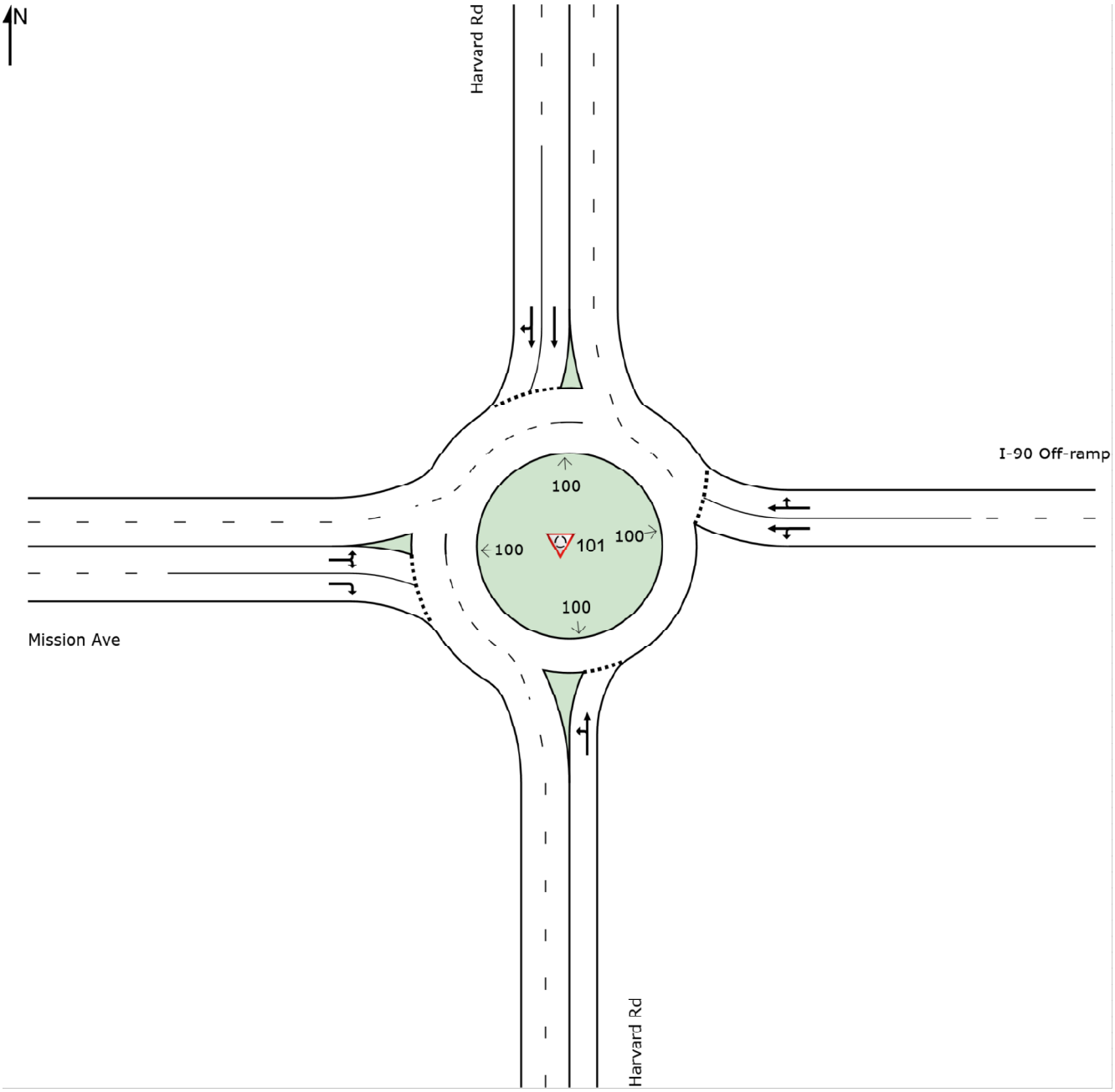
E Mission Ave / N Harvard Rd

SITE LAYOUT

Site: 101 [Mit Mission_Harvard AM 2046 (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 [Mit Mission_Harvard AM 2046 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Harvard Rd														
3	L2	270	5.0	270	5.0	0.428	10.4	LOS B	3.1	79.8	0.37	0.56	0.37	35.4
8	T1	275	3.0	275	3.0	0.428	4.5	LOS A	3.1	79.8	0.37	0.56	0.37	35.4
Approach		545	4.0	545	4.0	0.428	7.4	LOS A	3.1	79.8	0.37	0.56	0.37	35.4
East: I-90 Off-ramp														
1	L2	200	2.0	200	2.0	0.244	12.6	LOS B	1.6	40.9	0.68	0.75	0.68	34.1
6	T1	175	4.0	175	4.0	0.244	7.1	LOS A	1.6	40.9	0.68	0.74	0.68	35.0
16	R2	85	4.0	85	4.0	0.227	7.8	LOS A	1.3	34.3	0.68	0.73	0.68	34.5
Approach		460	3.1	460	3.1	0.244	9.6	LOS A	1.6	40.9	0.68	0.74	0.68	34.5
North: Harvard Rd														
4	T1	645	3.0	645	3.0	0.456	6.2	LOS A	2.6	66.3	0.63	0.68	0.67	36.2
14	R2	200	5.0	200	5.0	0.456	6.6	LOS A	2.6	66.3	0.63	0.71	0.67	34.9
Approach		845	3.5	845	3.5	0.456	6.3	LOS A	2.6	66.3	0.63	0.69	0.67	35.9
West: Mission Ave														
5	L2	105	4.0	105	4.0	0.421	12.4	LOS B	2.2	58.0	0.66	0.85	0.71	35.4
12	R2	350	4.0	350	4.0	0.421	6.8	LOS A	2.2	58.0	0.65	0.83	0.69	34.3
Approach		455	4.0	455	4.0	0.421	8.1	LOS A	2.2	58.0	0.65	0.84	0.69	34.6
All Vehicles		2305	3.6	2305	3.6	0.456	7.6	LOS A	3.1	79.8	0.58	0.70	0.61	35.2

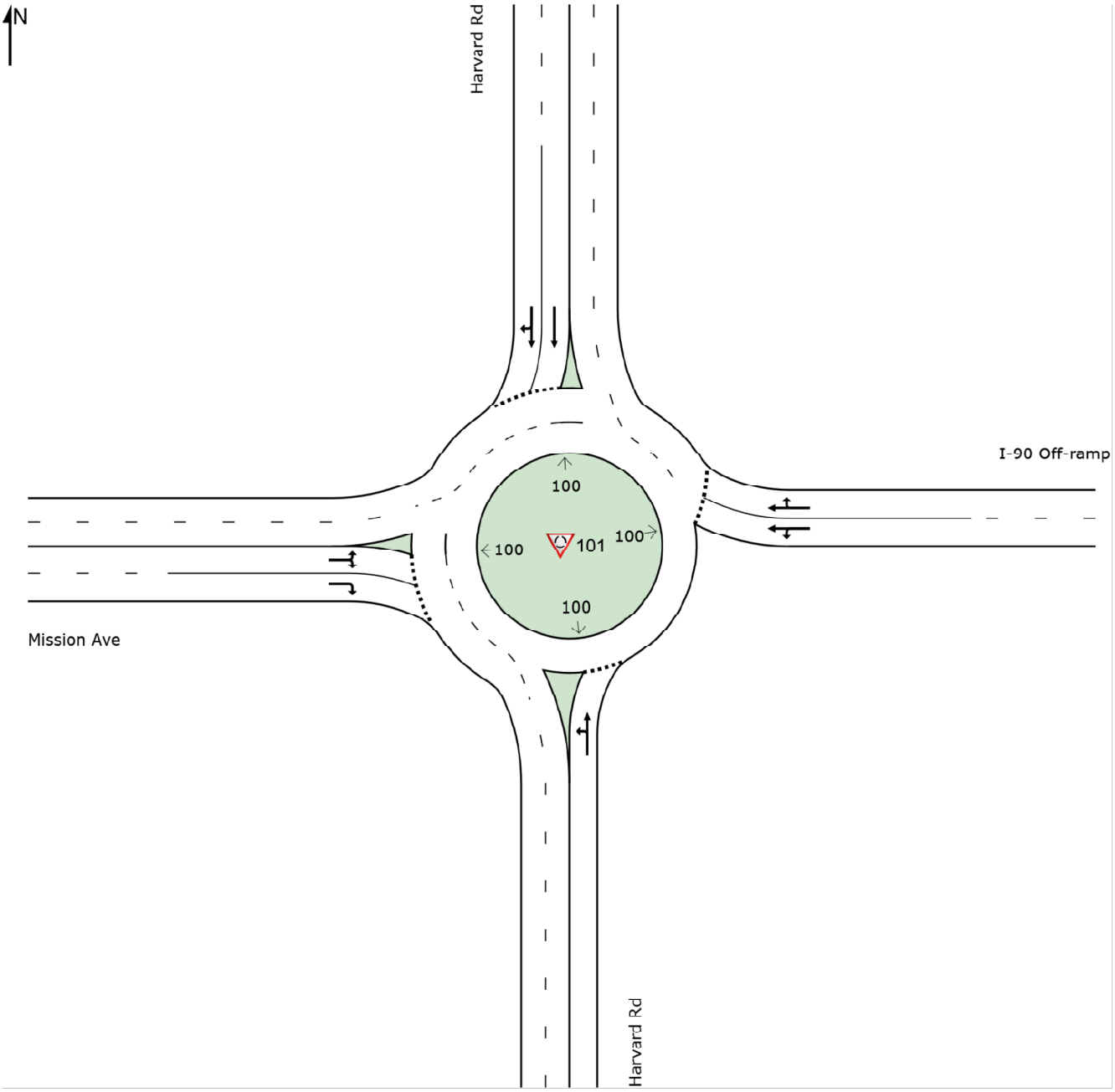
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per 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 [Mit Mission_Harvard PM 2046 (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

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



Intersection 6:

Liberty Lake Road / Appleway Ave

HCM 6th Signalized Intersection Summary
6: Appleway Ave & Liberty Lake Rd

09/03/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	650	275	190	30	575	135	500	200	300	345	115
Future Volume (veh/h)	165	650	275	190	30	575	135	500	200	300	345	115
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1841	1826	1826	1707	1470	1811	1811	1856	1811	1856	1870	1781
Adj Flow Rate, veh/h	183	722	306	211	33	639	150	556	222	333	383	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	225	1093	487	293	411	1114	191	850	370	456	894	
Arrive On Green	0.13	0.31	0.31	0.09	0.28	0.28	0.11	0.24	0.24	0.13	0.25	0.00
Sat Flow, veh/h	1753	3469	1547	3155	1470	2701	1725	3526	1535	3428	3554	1510
Grp Volume(v), veh/h	183	722	306	211	33	639	150	556	222	333	383	0
Grp Sat Flow(s),veh/h/ln	1753	1735	1547	1577	1470	1351	1725	1763	1535	1714	1777	1510
Q Serve(g_s), s	8.4	14.9	14.0	5.4	1.4	15.0	7.0	11.7	10.6	7.7	7.5	0.0
Cycle Q Clear(g_c), s	8.4	14.9	14.0	5.4	1.4	15.0	7.0	11.7	10.6	7.7	7.5	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	225	1093	487	293	411	1114	191	850	370	456	894	
V/C Ratio(X)	0.81	0.66	0.63	0.72	0.08	0.57	0.79	0.65	0.60	0.73	0.43	
Avail Cap(c_a), veh/h	488	1679	749	534	552	1373	417	1408	613	830	1376	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	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	0.00
Uniform Delay (d), s/veh	35.0	24.5	24.2	36.4	21.9	18.7	35.8	28.2	27.8	34.4	25.9	0.0
Incr Delay (d2), s/veh	6.9	1.0	1.9	3.3	0.1	0.5	9.7	1.2	2.2	3.2	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	7.1	10.0	8.9	3.9	0.8	8.0	6.1	8.6	7.2	6.0	5.6	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.9	25.5	26.1	39.7	22.0	19.2	45.5	29.5	30.0	37.6	26.3	0.0
LnGrp LOS	D	C	C	D	C	B	D	C	C	D	C	
Approach Vol, veh/h		1211			883			928			716	
Approach Delay, s/veh		28.1			24.2			32.2			31.5	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	24.9	11.7	31.0	14.1	25.8	14.6	28.1
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	20.0	33.0	14.0	40.0	20.0	32.0	23.0	31.0
Max Q Clear Time (g_c+I1), s	9.7	13.7	7.4	16.9	9.0	9.5	10.4	17.0
Green Ext Time (p_c), s	1.3	6.2	0.4	9.1	0.4	2.5	0.4	2.6

Intersection Summary	
HCM 6th Ctrl Delay	28.9
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
6: Appleway Ave & Liberty Lake Rd

09/03/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	430	370	340	55	815	200	780	300	345	525	130
Future Volume (veh/h)	180	430	370	340	55	815	200	780	300	345	525	130
Initial Q (Qb), 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	196	467	402	370	60	886	217	848	326	375	571	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	229	1023	456	440	545	1164	255	1044	462	454	970	
Arrive On Green	0.13	0.29	0.29	0.13	0.29	0.29	0.14	0.29	0.29	0.13	0.27	0.00
Sat Flow, veh/h	1767	3554	1585	3428	1900	2790	1795	3582	1585	3483	3582	1598
Grp Volume(v), veh/h	196	467	402	370	60	886	217	848	326	375	571	0
Grp Sat Flow(s),veh/h/ln	1767	1777	1585	1714	1900	1395	1795	1791	1585	1742	1791	1598
Q Serve(g_s), s	12.1	12.0	26.9	11.7	2.6	30.1	13.1	24.4	20.4	11.7	15.4	0.0
Cycle Q Clear(g_c), s	12.1	12.0	26.9	11.7	2.6	30.1	13.1	24.4	20.4	11.7	15.4	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	229	1023	456	440	545	1164	255	1044	462	454	970	
V/C Ratio(X)	0.86	0.46	0.88	0.84	0.11	0.76	0.85	0.81	0.71	0.83	0.59	
Avail Cap(c_a), veh/h	366	1119	499	555	545	1164	404	1160	513	564	970	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	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	0.00
Uniform Delay (d), s/veh	47.4	32.4	37.8	47.3	29.2	27.7	46.6	36.5	35.1	47.1	35.1	0.0
Incr Delay (d2), s/veh	11.0	0.5	16.4	9.1	0.1	3.0	12.4	4.4	4.5	9.1	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	10.0	8.9	18.1	9.4	2.2	15.6	10.9	16.7	13.1	9.5	11.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.3	32.9	54.1	56.4	29.3	30.7	58.9	41.0	39.6	56.2	36.1	0.0
LnGrp LOS	E	C	D	E	C	C	E	D	D	E	D	
Approach Vol, veh/h		1065			1316			1391			946	
Approach Delay, s/veh		45.6			37.8			43.5			44.0	
Approach LOS		D			D			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	18.5	37.4	18.3	37.0	20.8	35.1	18.4	36.9
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	18.0	36.0	18.0	35.0	25.0	28.0	23.0	30.0
Max Q Clear Time (g_c+I1), s	13.7	26.4	13.7	28.9	15.1	17.4	14.1	32.1
Green Ext Time (p_c), s	0.8	6.0	0.6	3.1	0.7	2.8	0.3	0.0

Intersection Summary	
HCM 6th Ctrl Delay	42.5
HCM 6th LOS	D

Notes

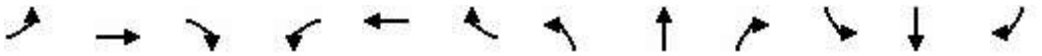
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Intersection 7:

N Liberty Lake Rd / E Country Vista Dr

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

09/03/2025



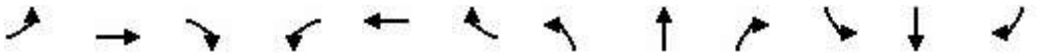
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	390	515	105	25	545	145	195	195	25	140	110	455
Future Volume (veh/h)	390	515	105	25	545	145	195	195	25	140	110	455
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	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	1826	1856	1796	1811	1856	1841	1841	1870	1900	1856	1826	1826
Adj Flow Rate, veh/h	433	572	117	28	606	161	217	217	28	156	122	506
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	516	1137	232	291	714	189	459	1024	131	529	544	698
Arrive On Green	0.15	0.39	0.39	0.02	0.26	0.26	0.11	0.32	0.32	0.08	0.30	0.30
Sat Flow, veh/h	3374	2916	595	1725	2756	731	1753	3170	404	1767	1826	1547
Grp Volume(v), veh/h	433	345	344	28	387	380	217	120	125	156	122	506
Grp Sat Flow(s),veh/h/ln	1687	1763	1748	1725	1763	1724	1753	1777	1798	1767	1826	1547
Q Serve(g_s), s	11.6	13.8	13.8	1.1	19.3	19.4	7.7	4.6	4.7	5.6	4.7	24.7
Cycle Q Clear(g_c), s	11.6	13.8	13.8	1.1	19.3	19.4	7.7	4.6	4.7	5.6	4.7	24.7
Prop In Lane	1.00		0.34	1.00		0.42	1.00		0.22	1.00		1.00
Lane Grp Cap(c), veh/h	516	687	682	291	456	446	459	574	581	529	544	698
V/C Ratio(X)	0.84	0.50	0.50	0.10	0.85	0.85	0.47	0.21	0.21	0.30	0.22	0.73
Avail Cap(c_a), veh/h	801	923	915	365	618	605	575	623	630	690	640	780
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	38.1	21.4	21.5	24.4	32.6	32.6	18.7	22.8	22.8	19.6	24.5	20.8
Incr Delay (d2), s/veh	2.7	0.2	0.2	0.1	6.3	6.6	0.3	0.1	0.1	0.1	0.1	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	8.5	9.4	9.4	0.8	13.7	13.5	5.5	3.4	3.5	4.0	3.6	13.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.8	21.7	21.7	24.4	38.9	39.2	19.0	22.8	22.9	19.7	24.5	23.1
LnGrp LOS	D	C	C	C	D	D	B	C	C	B	C	C
Approach Vol, veh/h		1122			795			462			784	
Approach Delay, s/veh		29.1			38.6			21.0			22.7	
Approach LOS		C			D			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.6	34.4	6.1	40.6	13.9	32.1	18.2	28.5
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	16.0	32.5	6.0	48.5	16.0	32.5	22.0	32.5
Max Q Clear Time (g_c+I1), s	7.6	6.7	3.1	15.8	9.7	26.7	13.6	21.4
Green Ext Time (p_c), s	0.1	0.9	0.0	3.0	0.2	0.9	0.6	2.6

Intersection Summary	
HCM 6th Ctrl Delay	28.7
HCM 6th LOS	C

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

09/03/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	685	730	225	50	685	160	145	180	25	265	200	535
Future Volume (veh/h)	685	730	225	50	685	160	145	180	25	265	200	535
Initial Q (Qb), 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	729	777	239	53	729	170	154	191	27	282	213	569
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	779	1231	378	254	756	176	343	703	98	505	526	797
Arrive On Green	0.22	0.46	0.46	0.03	0.26	0.26	0.08	0.23	0.23	0.14	0.28	0.28
Sat Flow, veh/h	3483	2697	830	1810	2860	667	1795	3107	433	1767	1885	1585
Grp Volume(v), veh/h	729	516	500	53	453	446	154	107	111	282	213	569
Grp Sat Flow(s),veh/h/ln	1742	1791	1736	1810	1777	1750	1795	1763	1778	1767	1885	1585
Q Serve(g_s), s	23.3	24.9	24.9	2.4	28.5	28.5	7.3	5.7	5.8	13.3	10.4	31.5
Cycle Q Clear(g_c), s	23.3	24.9	24.9	2.4	28.5	28.5	7.3	5.7	5.8	13.3	10.4	31.5
Prop In Lane	1.00		0.48	1.00		0.38	1.00		0.24	1.00		1.00
Lane Grp Cap(c), veh/h	779	817	792	254	469	462	343	399	402	505	526	797
V/C Ratio(X)	0.94	0.63	0.63	0.21	0.96	0.97	0.45	0.27	0.28	0.56	0.40	0.71
Avail Cap(c_a), veh/h	785	817	792	293	469	462	448	492	496	515	526	797
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	43.1	23.5	23.5	29.0	41.1	41.1	29.7	36.1	36.1	26.3	33.2	21.8
Incr Delay (d2), s/veh	18.0	1.2	1.2	0.1	32.3	32.7	0.3	0.1	0.1	0.8	0.2	2.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	17.5	15.9	15.5	1.9	23.2	22.9	5.8	4.4	4.6	9.6	8.4	17.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.1	24.7	24.8	29.1	73.4	73.8	30.0	36.2	36.3	27.0	33.3	24.4
LnGrp LOS	E	C	C	C	E	E	C	D	D	C	C	C
Approach Vol, veh/h		1745			952			372			1064	
Approach Delay, s/veh		39.9			71.1			33.7			26.9	
Approach LOS		D			E			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.4	30.1	7.6	56.1	13.4	36.1	29.3	34.4
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	16.0	31.6	6.0	49.4	16.0	31.6	25.5	29.9
Max Q Clear Time (g_c+I1), s	15.3	7.8	4.4	26.9	9.3	33.5	25.3	30.5
Green Ext Time (p_c), s	0.0	0.8	0.0	4.7	0.1	0.0	0.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	43.2
HCM 6th LOS	D

Intersection 14:

N Country Vista Blvd / E Appleway Ave

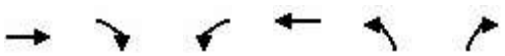
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	555	80	50	590	170	100
Future Volume (veh/h)	555	80	50	590	170	100
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1811	1781	1811	1781	1856	1841
Adj Flow Rate, veh/h	597	86	54	634	183	108
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Percent Heavy Veh, %	6	8	6	8	3	4
Cap, veh/h	829	690	413	1089	306	270
Arrive On Green	0.46	0.46	0.05	0.61	0.17	0.17
Sat Flow, veh/h	1811	1508	1725	1781	1767	1560
Grp Volume(v), veh/h	597	86	54	634	183	108
Grp Sat Flow(s),veh/h/ln	1811	1508	1725	1781	1767	1560
Q Serve(g_s), s	9.9	1.2	0.5	8.0	3.5	2.3
Cycle Q Clear(g_c), s	9.9	1.2	0.5	8.0	3.5	2.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	829	690	413	1089	306	270
V/C Ratio(X)	0.72	0.12	0.13	0.58	0.60	0.40
Avail Cap(c_a), veh/h	3515	2927	613	3938	1429	1262
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	8.1	5.8	5.8	4.3	14.2	13.6
Incr Delay (d2), s/veh	1.2	0.1	0.1	0.5	1.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	4.9	0.5	0.2	2.3	2.4	1.3
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	9.3	5.9	5.9	4.8	16.0	14.6
LnGrp LOS	A	A	A	A	B	B
Approach Vol, veh/h	683			688	291	
Approach Delay, s/veh	8.9			4.9	15.5	
Approach LOS	A			A	B	

Timer - Assigned Phs	2	3	4			8
Phs Duration (G+Y+Rc), s	10.4	5.7	21.0			26.7
Change Period (Y+Rc), s	4.0	4.0	4.0			4.0
Max Green Setting (Gmax), s	30.0	6.0	72.0			82.0
Max Q Clear Time (g_c+I1), s	5.5	2.5	11.9			10.0
Green Ext Time (p_c), s	0.9	0.0	5.1			5.2

Intersection Summary	
HCM 6th Ctrl Delay	8.4
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
14: N. Country Vista Blvd & Appleway Ave

09/04/2025



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1095	170	95	550	125	95
Future Volume (veh/h)	1095	170	95	550	125	95
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	1826	1885	1870
Adj Flow Rate, veh/h	1190	185	103	598	136	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	0	5	1	2
Cap, veh/h	1340	1132	249	1470	183	162
Arrive On Green	0.72	0.72	0.04	0.81	0.10	0.10
Sat Flow, veh/h	1870	1581	1810	1826	1795	1585
Grp Volume(v), veh/h	1190	185	103	598	136	103
Grp Sat Flow(s),veh/h/ln	1870	1581	1810	1826	1795	1585
Q Serve(g_s), s	42.8	3.2	1.1	8.2	6.3	5.4
Cycle Q Clear(g_c), s	42.8	3.2	1.1	8.2	6.3	5.4
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1340	1132	249	1470	183	162
V/C Ratio(X)	0.89	0.16	0.41	0.41	0.74	0.64
Avail Cap(c_a), veh/h	1844	1558	298	2012	354	312
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	9.5	3.9	17.8	2.4	37.6	37.2
Incr Delay (d2), s/veh	4.4	0.1	1.1	0.2	5.8	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(95%),veh/ln	20.6	1.5	2.5	3.0	5.5	4.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	13.9	4.0	18.9	2.6	43.4	41.3
LnGrp LOS	B	A	B	A	D	D
Approach Vol, veh/h	1375			701	239	
Approach Delay, s/veh	12.6			5.0	42.5	
Approach LOS	B			A	D	

Timer - Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s		12.8	7.7	65.8		73.4
Change Period (Y+Rc), s		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s		17.0	6.0	85.0		95.0
Max Q Clear Time (g_c+I1), s		8.3	3.1	44.8		10.2
Green Ext Time (p_c), s		0.5	0.1	17.0		4.8

Intersection Summary	
HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

Notes

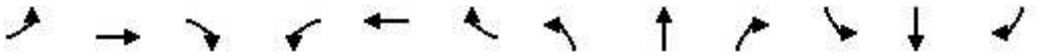
User approved pedestrian interval to be less than phase max green.

Intersection 21:

E Mission Ave/N Signal Dr

HCM 6th Signalized Intersection Summary
21: Signal Dr & Mission Ave

09/03/2025



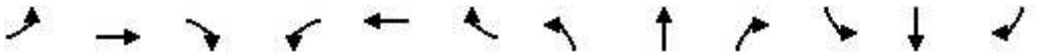
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	370	15	10	350	215	25	55	15	125	15	15
Future Volume (veh/h)	35	370	15	10	350	215	25	55	15	125	15	15
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1781	1870	1900	1900	1856	1885	1900	1900	1900	1796	1900	1737
Adj Flow Rate, veh/h	38	402	16	11	380	234	27	60	16	136	16	16
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, %	8	2	0	0	3	1	0	0	0	7	0	11
Cap, veh/h	427	913	36	602	548	337	529	320	85	478	193	193
Arrive On Green	0.51	0.51	0.51	0.51	0.51	0.51	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	768	1786	71	981	1072	660	1393	1444	385	1266	869	869
Grp Volume(v), veh/h	38	0	418	11	0	614	27	0	76	136	0	32
Grp Sat Flow(s),veh/h/ln	768	0	1857	981	0	1731	1393	0	1829	1266	0	1739
Q Serve(g_s), s	1.2	0.0	4.3	0.2	0.0	8.1	0.5	0.0	1.0	2.9	0.0	0.4
Cycle Q Clear(g_c), s	9.2	0.0	4.3	4.5	0.0	8.1	0.9	0.0	1.0	3.9	0.0	0.4
Prop In Lane	1.00		0.04	1.00		0.38	1.00		0.21	1.00		0.50
Lane Grp Cap(c), veh/h	427	0	950	602	0	885	529	0	406	478	0	386
V/C Ratio(X)	0.09	0.00	0.44	0.02	0.00	0.69	0.05	0.00	0.19	0.28	0.00	0.08
Avail Cap(c_a), veh/h	1468	0	3468	1932	0	3234	1428	0	1586	1295	0	1508
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.0	0.0	4.6	6.0	0.0	5.5	9.6	0.0	9.5	11.1	0.0	9.2
Incr Delay (d2), s/veh	0.1	0.0	0.3	0.0	0.0	1.0	0.0	0.0	0.2	0.3	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.1	0.0	0.7	0.0	0.0	1.4	0.1	0.0	0.3	0.6	0.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	9.1	0.0	4.9	6.0	0.0	6.5	9.6	0.0	9.7	11.4	0.0	9.3
LnGrp LOS	A	A	A	A	A	A	A	A	A	B	A	A
Approach Vol, veh/h		456			625			103			168	
Approach Delay, s/veh		5.3			6.5			9.7			11.0	
Approach LOS		A			A			A			B	

Timer - Assigned Phs	2	4	6	8
Phs Duration (G+Y+Rc), s	10.7	19.3	10.7	19.3
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	26.0	56.0	26.0	56.0
Max Q Clear Time (g_c+I1), s	5.9	11.2	3.0	10.1
Green Ext Time (p_c), s	0.5	3.3	0.4	5.2

Intersection Summary	
HCM 6th Ctrl Delay	6.9
HCM 6th LOS	A

HCM 6th Signalized Intersection Summary
21: Signal Dr & Mission Ave

09/03/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	390	25	10	490	185	15	20	15	175	40	45
Future Volume (veh/h)	50	390	25	10	490	185	15	20	15	175	40	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.99	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1826	1856	1826	1900	1885	1900	1900	1796	1900	1885	1900	1811
Adj Flow Rate, veh/h	53	415	27	11	521	197	16	21	16	186	43	48
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, %	5	3	5	0	1	0	0	7	0	1	0	6
Cap, veh/h	377	938	61	589	709	268	449	215	164	494	186	208
Arrive On Green	0.54	0.54	0.54	0.54	0.54	0.54	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	715	1722	112	960	1301	492	1324	945	720	1379	819	914
Grp Volume(v), veh/h	53	0	442	11	0	718	16	0	37	186	0	91
Grp Sat Flow(s),veh/h/ln	715	0	1835	960	0	1793	1324	0	1665	1379	0	1733
Q Serve(g_s), s	2.1	0.0	5.1	0.2	0.0	10.7	0.4	0.0	0.6	4.3	0.0	1.5
Cycle Q Clear(g_c), s	12.8	0.0	5.1	5.3	0.0	10.7	1.9	0.0	0.6	4.9	0.0	1.5
Prop In Lane	1.00		0.06	1.00		0.27	1.00		0.43	1.00		0.53
Lane Grp Cap(c), veh/h	377	0	1000	589	0	977	449	0	379	494	0	395
V/C Ratio(X)	0.14	0.00	0.44	0.02	0.00	0.74	0.04	0.00	0.10	0.38	0.00	0.23
Avail Cap(c_a), veh/h	1126	0	2921	1594	0	2855	1127	0	1231	1200	0	1281
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.9	0.0	4.8	6.4	0.0	6.1	11.8	0.0	10.7	12.7	0.0	11.1
Incr Delay (d2), s/veh	0.2	0.0	0.3	0.0	0.0	1.1	0.0	0.0	0.1	0.5	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	1.0	0.0	0.0	2.2	0.1	0.0	0.2	1.1	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.1	0.0	5.1	6.4	0.0	7.2	11.9	0.0	10.8	13.2	0.0	11.4
LnGrp LOS	B	A	A	A	A	A	B	A	B	B	A	B
Approach Vol, veh/h		495			729			53			277	
Approach Delay, s/veh		5.8			7.2			11.1			12.6	
Approach LOS		A			A			B			B	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		12.0		23.2		12.0		23.2				
Change Period (Y+Rc), s		4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s		26.0		56.0		26.0		56.0				
Max Q Clear Time (g_c+I1), s		6.9		14.8		3.9		12.7				
Green Ext Time (p_c), s		1.0		3.7		0.2		6.5				

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

MOVEMENT SUMMARY

Site: 101 [Mission_Signal AM 2046 Mit (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Signal Dr														
3	L2	25	0.0	27	0.0	0.122	8.3	LOS A	0.6	16.2	0.61	0.56	0.61	25.1
8	T1	55	0.0	60	0.0	0.122	3.1	LOS A	0.6	16.2	0.61	0.56	0.61	24.6
18	R2	15	0.0	16	0.0	0.122	4.0	LOS A	0.6	16.2	0.61	0.56	0.61	24.0
Approach		95	0.0	103	0.0	0.122	4.6	LOS A	0.6	16.2	0.61	0.56	0.61	24.7
East: Mission Ave														
1	L2	10	0.0	11	0.0	0.534	8.1	LOS A	4.1	104.2	0.45	0.38	0.45	29.9
6	T1	350	3.0	380	3.0	0.534	2.5	LOS A	4.1	104.2	0.45	0.38	0.45	29.4
16	R2	215	1.0	234	1.0	0.534	3.1	LOS A	4.1	104.2	0.45	0.38	0.45	28.6
Approach		575	2.2	625	2.2	0.534	2.8	LOS A	4.1	104.2	0.45	0.38	0.45	29.1
North: Signal Dr														
7	L2	125	7.0	136	7.0	0.192	12.1	LOS B	1.0	26.5	0.55	0.73	0.55	34.1
4	T1	15	0.0	16	0.0	0.192	5.9	LOS A	1.0	26.5	0.55	0.73	0.55	34.2
14	R2	15	11.0	16	11.0	0.192	6.4	LOS A	1.0	26.5	0.55	0.73	0.55	33.0
Approach		155	6.7	168	6.7	0.192	11.0	LOS B	1.0	26.5	0.55	0.73	0.55	34.0
West: Mission Ave														
5	L2	35	8.0	38	8.0	0.407	8.4	LOS A	2.7	67.7	0.45	0.37	0.45	29.7
2	T1	370	2.0	402	2.0	0.407	2.6	LOS A	2.7	67.7	0.45	0.37	0.45	29.3
12	R2	15	0.0	16	0.0	0.407	3.1	LOS A	2.7	67.7	0.45	0.37	0.45	28.5
Approach		420	2.4	457	2.4	0.407	3.1	LOS A	2.7	67.7	0.45	0.37	0.45	29.3
All Vehicles		1245	2.7	1353	2.7	0.534	4.1	LOS A	4.1	104.2	0.47	0.43	0.47	29.3

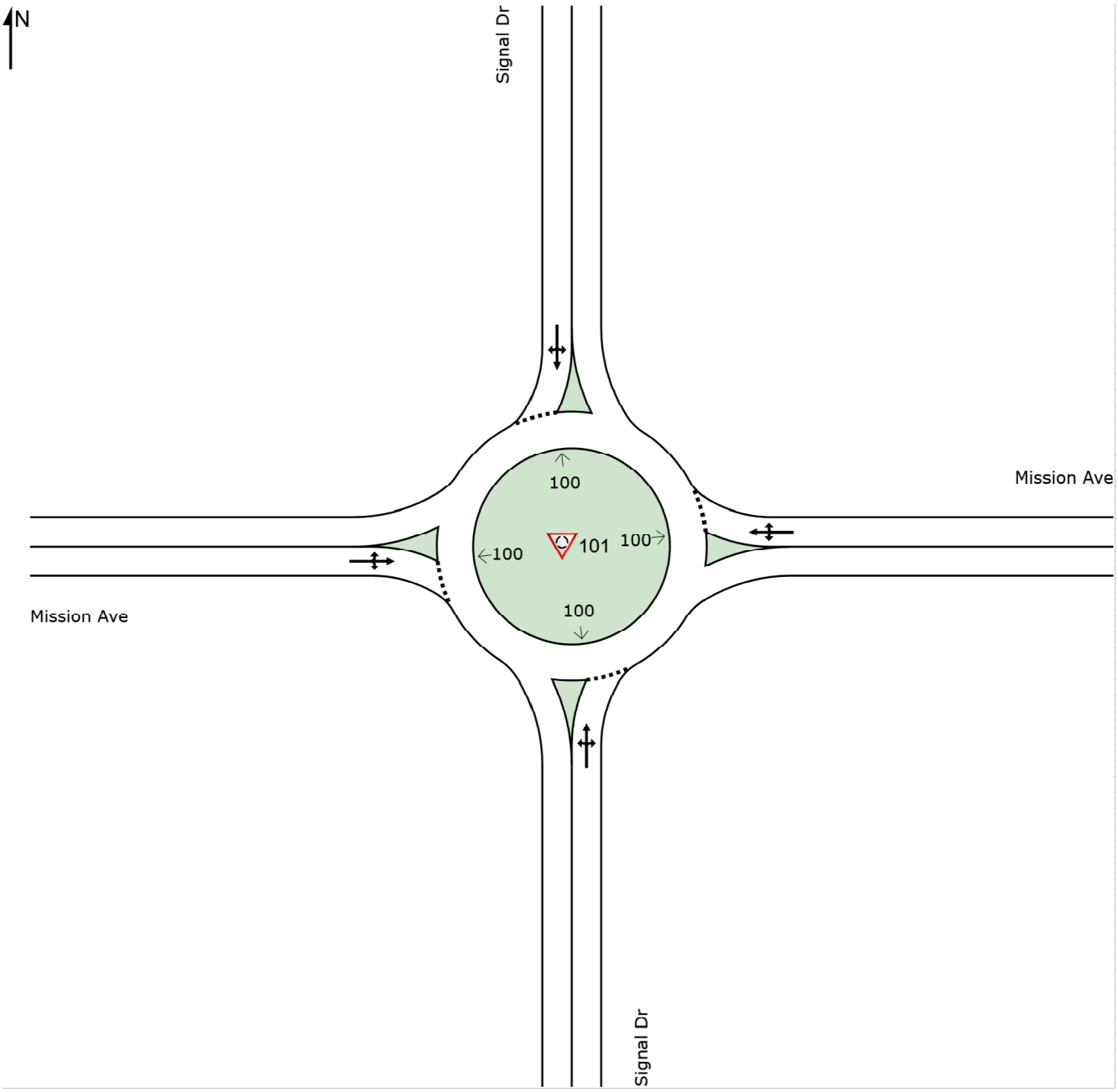
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per 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.

SITE LAYOUT

Site: 101 [Mission_Signal AM 2046 Mit (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_Signal PM 2046 Mit (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Signal Dr														
3	L2	15	0.0	16	0.0	0.068	8.6	LOS A	0.4	9.2	0.64	0.59	0.64	25.0
8	T1	20	0.0	21	0.0	0.068	3.4	LOS A	0.4	9.2	0.64	0.59	0.64	24.5
18	R2	15	0.0	16	0.0	0.068	4.4	LOS A	0.4	9.2	0.64	0.59	0.64	23.9
Approach		50	0.0	53	0.0	0.068	5.3	LOS A	0.4	9.2	0.64	0.59	0.64	24.5
East: Mission Ave														
1	L2	10	0.0	11	0.0	0.604	7.9	LOS A	5.2	133.3	0.43	0.34	0.43	29.9
6	T1	490	3.0	521	3.0	0.604	2.4	LOS A	5.2	133.3	0.43	0.34	0.43	29.5
16	R2	185	0.0	197	0.0	0.604	2.9	LOS A	5.2	133.3	0.43	0.34	0.43	28.7
Approach		685	2.1	729	2.1	0.604	2.6	LOS A	5.2	133.3	0.43	0.34	0.43	29.3
North: Signal Dr														
7	L2	175	0.0	186	0.0	0.323	13.0	LOS B	1.9	48.6	0.67	0.79	0.67	34.2
4	T1	40	0.0	43	0.0	0.323	7.0	LOS A	1.9	48.6	0.67	0.79	0.67	34.1
14	R2	45	0.0	48	0.0	0.323	7.1	LOS A	1.9	48.6	0.67	0.79	0.67	33.2
Approach		260	0.0	277	0.0	0.323	11.0	LOS B	1.9	48.6	0.67	0.79	0.67	34.0
West: Mission Ave														
5	L2	50	5.0	53	5.0	0.474	8.8	LOS A	3.3	85.6	0.56	0.45	0.56	29.4
2	T1	390	3.0	415	3.0	0.474	3.1	LOS A	3.3	85.6	0.56	0.45	0.56	29.0
12	R2	25	5.0	27	5.0	0.474	3.8	LOS A	3.3	85.6	0.56	0.45	0.56	28.2
Approach		465	3.3	495	3.3	0.474	3.8	LOS A	3.3	85.6	0.56	0.45	0.56	29.0
All Vehicles		1460	2.1	1553	2.1	0.604	4.6	LOS A	5.2	133.3	0.52	0.46	0.52	29.7

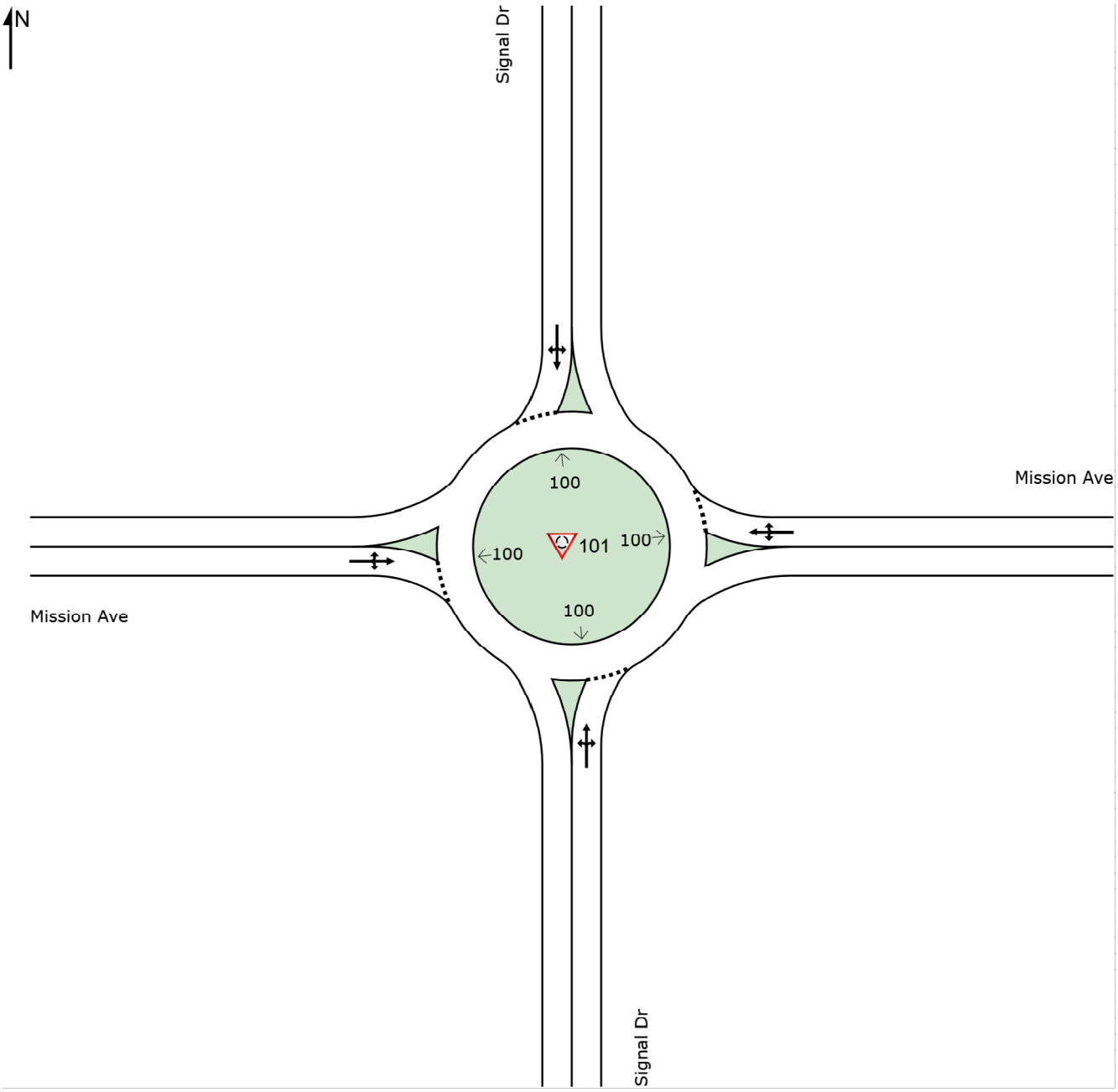
Site Level of Service (LOS) Method: Delay & Degree of Saturation (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Signalised Intersections.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per 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_Signal PM 2046 Mit (Site Folder: General)]

New Site
Site Category: (None)
Roundabout

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



Appendix I

Cost Estimates

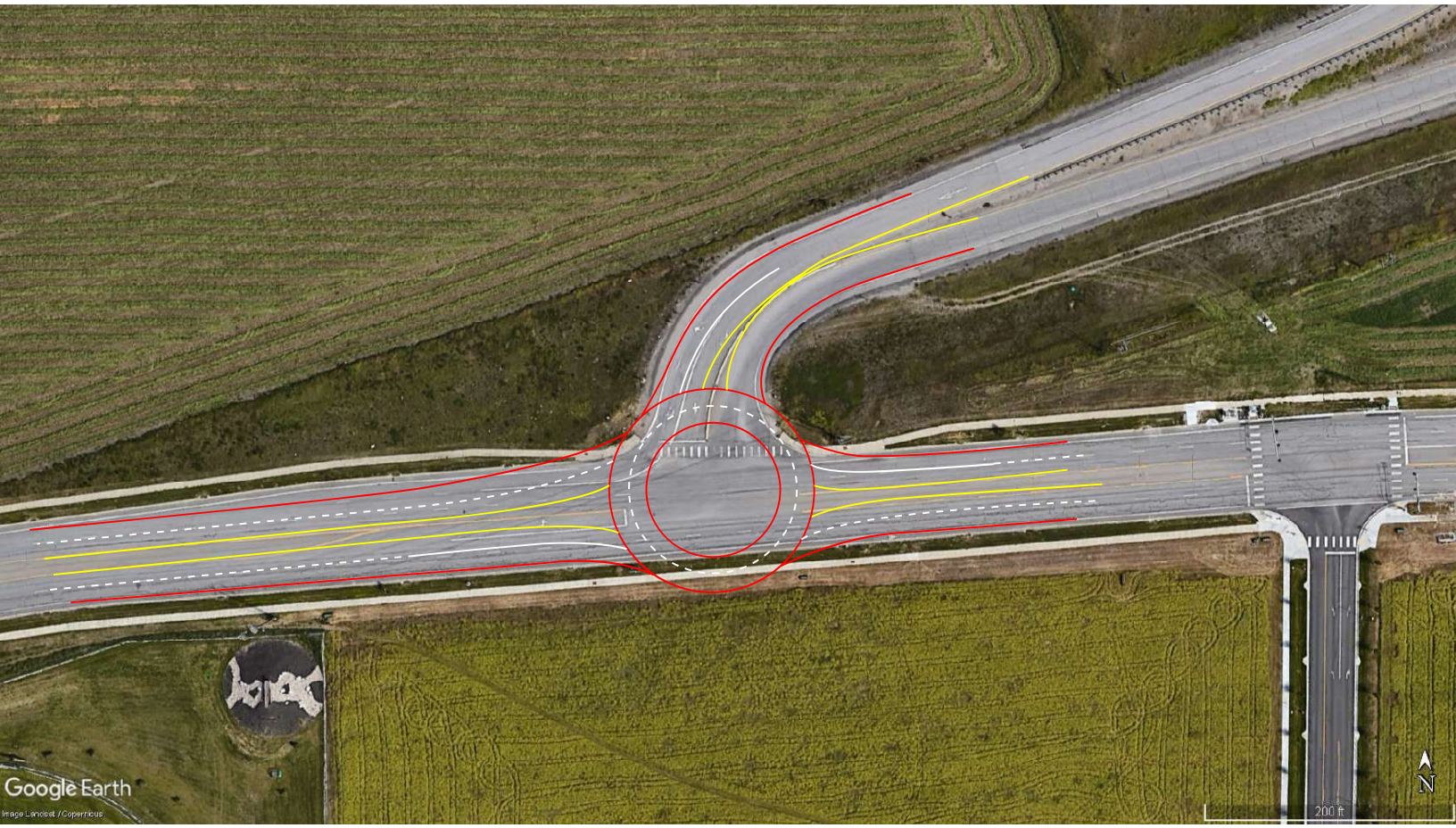
Time Frame	#	Intersection	Alternative	*Cost Estimate	*Rounded Cost Estimate
Short-Term (2028)	1	I-90 WB Off Ramp / E Country Vista Dr	Roundabout	$ 2,862,373	$ 2,863,000
			Signal	$ 1,179,549	$ 1,180,000
	6	N Liberty Lake Rd / Appleway Ave	WBR Overlap Phase	$ 12,000	$ 12,000
	7	N Liberty Lake Rd / E Country Vista Dr	Dual EBL Turn Lanes	$ 931,221	$ 932,000
	8	E Mission Ave / E Country Vista Dr	Restrict SBL Turns	$ 6,000	$ 6,000
	20	E Mission Ave / N Signal Dr	Roundabout	$ 2,445,186	$ 2,446,000
			Signal	$ 1,401,905	$ 1,402,000
	21	20 N Harvard Rd / E Wellington Pkwy	Roundabout	$ 2,101,073	$ 2,102,000
			Signal	$ 1,560,236	$ 1,561,000
Long-Term (2046)	2	N Kramer Pkwy / E Country Vista Dr	Signal Timing Updates	$ 12,000	$ 12,000
	4	E Mission Ave / N Harvard Rd	Expand Roundabout	$ 2,057,590	$ 2,058,000
	6	N Liberty Lake Rd / Appleway Ave	Dual SBL and Dual WBL Turn Lanes	$ 1,157,230	$ 1,158,000
	7	N Liberty Lake Rd / E Country Vista Dr	Separate SBR Turn Lane and SBR Overlap Phase	$ 303,512	$ 304,000
	14	N Country Vista Blvd / E Appleway Ave	Signal	$ 1,192,247	$ 1,193,000
	21	20 N Harvard Rd / E Wellington Pkwy	Roundabout	$ 2,101,073	$ 2,102,000
			Signal	$ 1,560,236	$ 1,561,000

*Cost Estimates in 2025 Dollars

Intersection 1:

I-90 WB Off Ramp / E Country Vista Dr

Short-Term (2028)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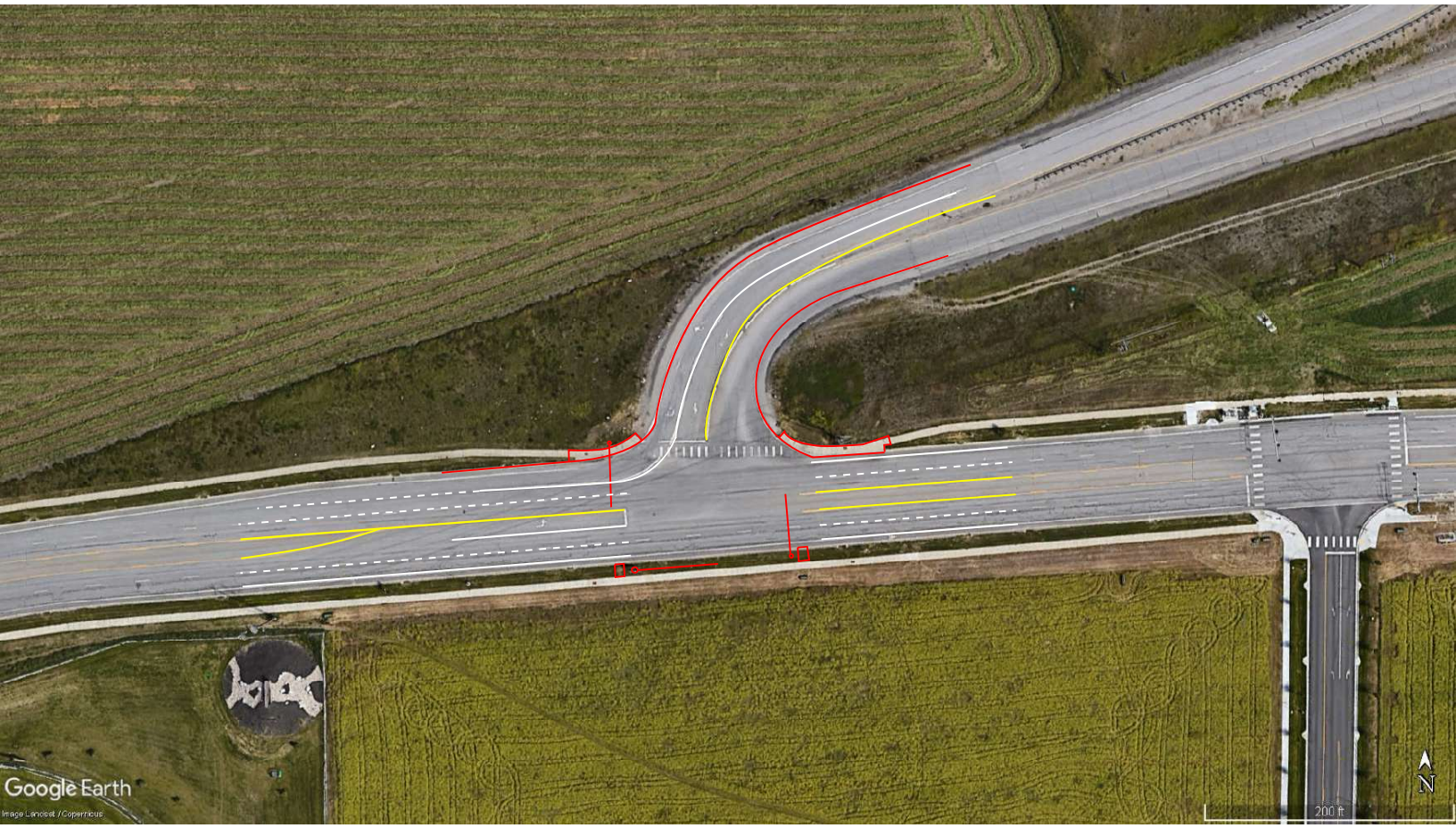
CITY OF LIBERTY LAKE
I-90 RAMP AND APPLEWAY AVE - ROUNDABOUT
ENGINEER'S CONCEPTUAL ESTIMATE

BY PARAMETRIX

Monday, November 10, 2025

Item #	DESCRIPTION	UNITS	ESTIMATED QUANTITY	ESTIMATED PRICE/UNIT	TOTAL COST
101	MOBILIZATION	LS	1	$140,000.00	$140,000.00
102	CONSTRUCTION SURVEYING	LS	1	$35,000.00	$35,000.00
103	PROJECT QUALITY CONTROL TESTING	LS	1	$50,000.00	$50,000.00
104	SPCC PLAN	LS	1	$1,000.00	$1,000.00
105	PROJECT TEMPORARY TRAFFIC CONTROL	LS	1	$100,000.00	$100,000.00
106	CLEARING AND GRUBBING	LS	1	$10,000.00	$10,000.00
107	PUBLIC LIASON REPRESENTATIVE	LS	1	$5,000.00	$5,000.00
108	FIELD VERIFY EXISTING UTILITIES	EA	5	$800.00	$4,000.00
109	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	EA	1	$10,000.00	$10,000.00
110	SAWCUT CEMENT CONCRETE CURB	EA	2	$35.00	$70.00
111	REMOVE CEMENT CONC. CURB	LF	2,000	$10.00	$20,000.00
112	REMOVE CEMENT CONC. SIDEWALK AND DRIVEWAY	SY	1,000	$30.00	$30,000.00
113	SAWCUT ASPHALT PAVEMENT	LF	225	$5.00	$1,125.00
114	ROADWAY EXCAVATION INCLUDING HAUL	CY	3,500	$40.00	$140,000.00
115	REMOVE UNSUITABLE FOUNDATION MATERIAL	CY	30	$60.00	$1,800.00
116	REPLACE UNSUITABLE FOUNDATION MATERIAL	CY	30	$75.00	$2,250.00
117	CRUSHED SURFACING TOP COURSE	CY	4,000	$50.00	$200,000.00
118	ROUNDABOUT SPLITTER ISLAND NOSING CURB	EA	3	$5,000.00	$15,000.00
119	ROUNDABOUT CONCRETE TRUCK ARPON	SY	2,000	$100.00	$200,000.00
120	HMA CL. 3/8" PG 64H-28	TN	2,750	$115.00	$316,250.00
121	COMPACTION PRICE ADJUSTMENT	CALC	1	$1.00	$1.00
122	HMA SURFACE SMOOTHNESS COMPLIANCE	CALC	1	$1.00	$1.00
123	UTILITY CASTING DEPTH COMPLIANCE	CALC	1	$1.00	$1.00
124	DRYWELL TYPE A	EA	4	$5,000.00	$20,000.00
125	ADJUST EXISTING MH, CB, DW, OR INLET IN ASPHALT	EA	3	$1,000.00	$3,000.00
126	CEMENT CONC. CURB AND GUTTER	LF	2,400	$55.00	$132,000.00
127	CEMENT CONC. SIDEWALK	SY	1,400	$75.00	$105,000.00
128	DETECTABLE WARNING SURFACE	SF	120	$50.00	$6,000.00
129	ESC LEAD	LS	1	$3,000.00	$3,000.00
130	WATTLE	LF	2,150	$10.00	$21,500.00
131	INLET PROTECTION	EA	6	$150.00	$900.00
132	STREET CLEANING	HR	48	$200.00	$9,600.00
133	TOPSOIL FOR BIO-INFILTRATION SWALE	SY	1,750	$30.00	$52,500.00
134	CONSTRUCT BIO-INFILTRATION SWALE	SY	1,750	$10.00	$17,500.00
135	CURB DROP INLET	EA	12	$220.00	$2,640.00
136	CLASSIFICATION AND PROTECTION OF SURVEY MONUMENT	LS	1	$2,000.00	$2,000.00
137	SIGNING, PERMANENT	LS	1	$5,000.00	$5,000.00
138	PLASTIC TRAFFIC ARROW	EA	14	$500.00	$7,000.00
139	PAINT LINE	LF	6,500	$2.00	$13,000.00
140	LANDSCAPE AND IRRIGATION REPAIR	LS	1	$30,000.00	$30,000.00
141	ELECTRICAL AND ILLUMINATION SYSTEMS	LS	1	$50,000.00	$50,000.00

Construction Subtotal	$1,762,138.00
Contingency (20%)	$352,427.60
Construction Total	**$2,114,565.60**
Design (12%)	$253,747.87
City Project Management (8%)	$169,165.25
Construction Management (13%)	$274,893.53
Design & Management Total	**$697,806.65**
R/W Acquisition	**$50,000.00**
TOTAL	**$2,862,373.00**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CITY OF LIBERTY LAKE
I-90 RAMP AND APPLEWAY - SIGNALIZE
ENGINEER'S CONCEPTUAL ESTIMATE

BY PARAMETRIX

Monday, November 10, 2025

Item #	DESCRIPTION	UNITS	ESTIMATED QUANTITY	ESTIMATED PRICE/UNIT	TOTAL COST
101	MOBILIZATION	LS	1	$55,000.00	$55,000.00
102	CONSTRUCTION SURVEYING	LS	1	$13,000.00	$13,000.00
103	PROJECT QUALITY CONTROL TESTING	LS	1	$30,000.00	$30,000.00
104	SPCC PLAN	LS	1	$1,000.00	$1,000.00
105	PROJECT TEMPORARY TRAFFIC CONTROL	LS	1	$55,000.00	$55,000.00
106	CLEARING AND GRUBBING	LS	1	$10,000.00	$10,000.00
107	PUBLIC LIASON REPRESENTATIVE	LS	1	$5,000.00	$5,000.00
108	FIELD VERIFY EXISTING UTILITIES	EA	5	$800.00	$4,000.00
109	SAWCUT CEMENT CONCRETE CURB	EA	6	$35.00	$210.00
110	REMOVE CEMENT CONC. CURB	LF	250	$10.00	$2,500.00
111	REMOVE CEMENT CONC. SIDEWALK AND DRIVEWAY	SY	150	$30.00	$4,500.00
112	SAWCUT ASPHALT PAVEMENT	LF	225	$5.00	$1,125.00
113	ROADWAY EXCAVATION INCLUDING HAUL	CY	50	$40.00	$2,000.00
114	REMOVE UNSUITABLE FOUNDATION MATERIAL	CY	30	$60.00	$1,800.00
115	REPLACE UNSUITABLE FOUNDATION MATERIAL	CY	30	$75.00	$2,250.00
116	CRUSHED SURFACING TOP COURSE	CY	50	$80.00	$4,000.00
117	HMA CL. 3/8" PG 64H-28	TN	25	$140.00	$3,500.00
118	COMPACTION PRICE ADJUSTMENT	CALC	1	$1.00	$1.00
119	HMA SURFACE SMOOTHNESS COMPLIANCE	CALC	1	$1.00	$1.00
120	CEMENT CONC. CURB AND GUTTER	LF	200	$75.00	$15,000.00
121	CEMENT CONC. SIDEWALK	SY	150	$95.00	$14,250.00
122	DETECTABLE WARNING SURFACE	SF	48	$50.00	$2,400.00
123	ESC LEAD	LS	1	$3,000.00	$3,000.00
124	WATTLE	LF	200	$10.00	$2,000.00
125	INLET PROTECTION	EA	4	$150.00	$600.00
126	STREET CLEANING	HR	48	$200.00	$9,600.00
127	CLASSIFICATION AND PROTECTION OF SURVEY MONUMENT	LS	1	$2,000.00	$2,000.00
128	SIGNING, PERMANENT	LS	1	$5,000.00	$5,000.00
129	PLASTIC TRAFFIC ARROW	EA	8	$500.00	$4,000.00
130	PAINT LINE	LF	5,000	$2.00	$10,000.00
131	TRAFFIC SIGNAL SYSTEM	LS	1	$365,000.00	$365,000.00
132	LANDSCAPE AND IRRIGATION REPAIR	LS	1	$30,000.00	$30,000.00
133	ELECTRICAL AND ILLUMINATION SYSTEMS	LS	1	$50,000.00	$50,000.00

Construction Subtotal	$707,737.00
Contingency (20%)	$141,547.40
Construction Total	**$849,284.40**
Design (12%)	$101,914.13
City Project Management (8%)	$67,942.75
Construction Management (13%)	$110,406.97
Design & Management Total	**$280,263.85**
R/W Acquisition	**$50,000.00**
TOTAL	**$1,179,549.00**

Intersection 6:

Liberty Lake Road / Appleway Ave

Short-Term (2028)

CITY OF LIBERTY LAKE
N LIBERTY LAKE RD / APPLEWAY AVE WBR - OVERLAP PHASE
ENGINEER'S CONCEPTUAL ESTIMATE

BY PARAMETRIX

Monday, November 10, 2025

Item #	DESCRIPTION	UNITS	ESTIMATED QUANTITY	ESTIMATED PRICE/UNIT	TOTAL COST
101	TRAFFIC SIGNAL MODIFICATIONS	LS	1	$10,000.00	$10,000.00

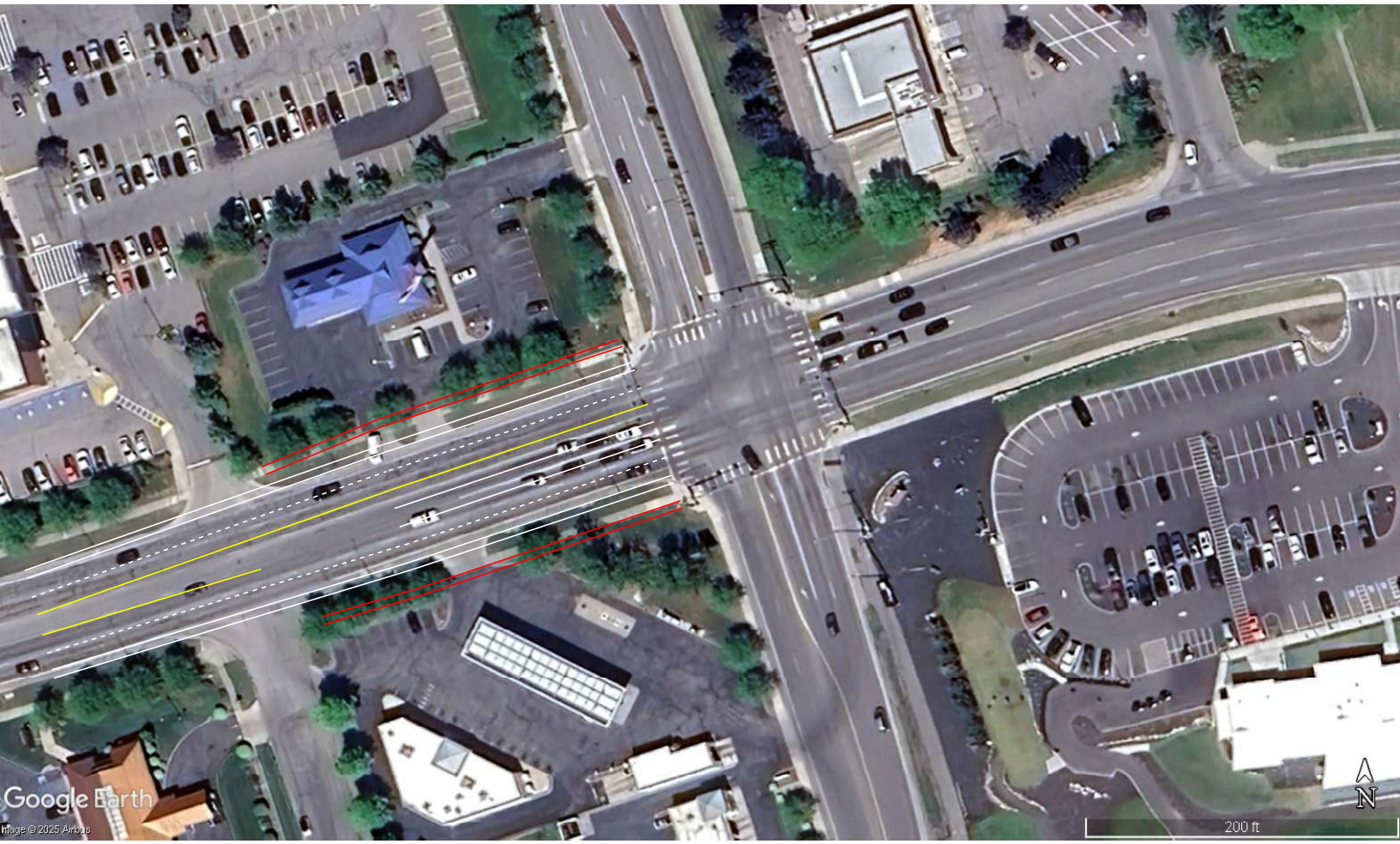
Construction Subtotal	$10,000.00
Contingency (20%)	$2,000.00
Construction Total	**$12,000.00**

TOTAL **$12,000.00**

Intersection 7:

N Liberty Lake Rd / E Country Vista Dr

Short-Term (2028)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CITY OF LIBERTY LAKE
N LIBERTY LAKE RD / E COUNTRY VISTA DR - DUAL EASTBOUND LEFT TURN LANES
ENGINEER'S CONCEPTUAL ESTIMATE

BY PARAMETRIX

Monday, November 10, 2025

Item #	DESCRIPTION	UNITS	ESTIMATED QUANTITY	ESTIMATED PRICE/UNIT	TOTAL COST
101	MOBILIZATION	LS	1	$45,000.00	$45,000.00
102	CONSTRUCTION SURVEYING	LS	1	$10,000.00	$10,000.00
103	PROJECT QUALITY CONTROL TESTING	LS	1	$25,000.00	$25,000.00
104	SPCC PLAN	LS	1	$1,000.00	$1,000.00
105	PROJECT TEMPORARY TRAFFIC CONTROL	LS	1	$45,000.00	$45,000.00
106	CLEARING AND GRUBBING	LS	1	$10,000.00	$10,000.00
107	PUBLIC LIASON REPRESENTATIVE	LS	1	$5,000.00	$5,000.00
108	FIELD VERIFY EXISTING UTILITIES	EA	5	$800.00	$4,000.00
109	SAWCUT CEMENT CONCRETE CURB	EA	6	$35.00	$210.00
110	REMOVE CEMENT CONC. CURB	LF	1,000	$10.00	$10,000.00
111	REMOVE CEMENT CONC. SIDEWALK AND DRIVEWAY	SY	550	$30.00	$16,500.00
112	SAWCUT ASPHALT PAVEMENT	LF	500	$5.00	$2,500.00
113	ROADWAY EXCAVATION INCLUDING HAUL	CY	200	$40.00	$8,000.00
114	REMOVE UNSUITABLE FOUNDATION MATERIAL	CY	30	$60.00	$1,800.00
115	REPLACE UNSUITABLE FOUNDATION MATERIAL	CY	30	$75.00	$2,250.00
116	CRUSHED SURFACING TOP COURSE	CY	200	$75.00	$15,000.00
117	HMA CL. 3/8" PG 64H-28	TN	150	$140.00	$21,000.00
118	COMPACTION PRICE ADJUSTMENT	CALC	1	$1.00	$1.00
119	HMA SURFACE SMOOTHNESS COMPLIANCE	CALC	1	$1.00	$1.00
120	UTILITY CASTING DEPTH COMPLIANCE	CALC	1	$1.00	$1.00
121	DRYWELL TYPE A	EA	2	$5,000.00	$10,000.00
122	CEMENT CONC. CURB WALL	LF	250	$100.00	$25,000.00
123	ADJUST EXISTING MH, CB, DW, OR INLET IN ASPHALT	EA	4	$1,000.00	$4,000.00
124	CEMENT CONC. CURB AND GUTTER	LF	1,100	$55.00	$60,500.00
125	CEMENT CONC. DRIVEWAY	SY	250	$105.00	$26,250.00
126	CEMENT CONC. SIDEWALK	SY	300	$85.00	$25,500.00
127	DETECTABLE WARNING SURFACE	SF	40	$75.00	$3,000.00
128	ESC LEAD	LS	1	$3,000.00	$3,000.00
129	WATTLE	LF	100	$10.00	$1,000.00
130	INLET PROTECTION	EA	6	$150.00	$900.00
131	STREET CLEANING	HR	48	$200.00	$9,600.00
132	TOPSOIL FOR BIO-INFILTRATION SWALE	SY	700	$25.00	$17,500.00
133	CONSTRUCT BIO-INFILTRATION SWALE	SY	700	$10.00	$7,000.00
134	CURB DROP INLET	EA	8	$220.00	$1,760.00
135	CLASSIFICATION AND PROTECTION OF SURVEY MONUMENT	LS	1	$2,000.00	$2,000.00
136	SIGNING, PERMANENT	LS	1	$5,000.00	$5,000.00
137	PLASTIC TRAFFIC ARROW	EA	4	$500.00	$2,000.00
138	GROOVED PLASTIC LINE	LF	350	$7.00	$2,450.00
139	PAINT LINE	LF	1,500	$2.00	$3,000.00
140	FLEXIBLE GUIDE POST	EA	6	$70.00	$420.00
141	LANDSCAPE AND IRRIGATION REPAIR	LS	1	$30,000.00	$30,000.00
142	TRAFFIC SIGNAL MODIFICATIONS	LS	1	$40,000.00	$40,000.00
143	ELECTRICAL AND ILLUMINATION SYSTEMS	LS	1	$50,000.00	$50,000.00

Construction Subtotal	$552,143.00
Contingency (20%)	$110,428.60
Construction Total	**$662,571.60**
Design (12%)	$79,508.59
City Project Management (8%)	$53,005.73
Construction Management (13%)	$86,134.31
Design & Management Total	**$218,648.63**
R/W Acquisition	**$50,000.00**
TOTAL	**$931,221.00**

Intersection 8:

E Mission Ave / E Country Vista Dr

Short-Term (2028)

CITY OF LIBERTY LAKE
E MISSION AVE / E COUNTRY VISTA DR - SIGNING
ENGINEER'S CONCEPTUAL ESTIMATE

BY PARAMETRIX

Monday, November 10, 2025

Item #	DESCRIPTION	UNITS	ESTIMATED QUANTITY	ESTIMATED PRICE/UNIT	TOTAL COST
101	SIGNING, PERMANENT	LS	1	$5,000.00	$5,000.00

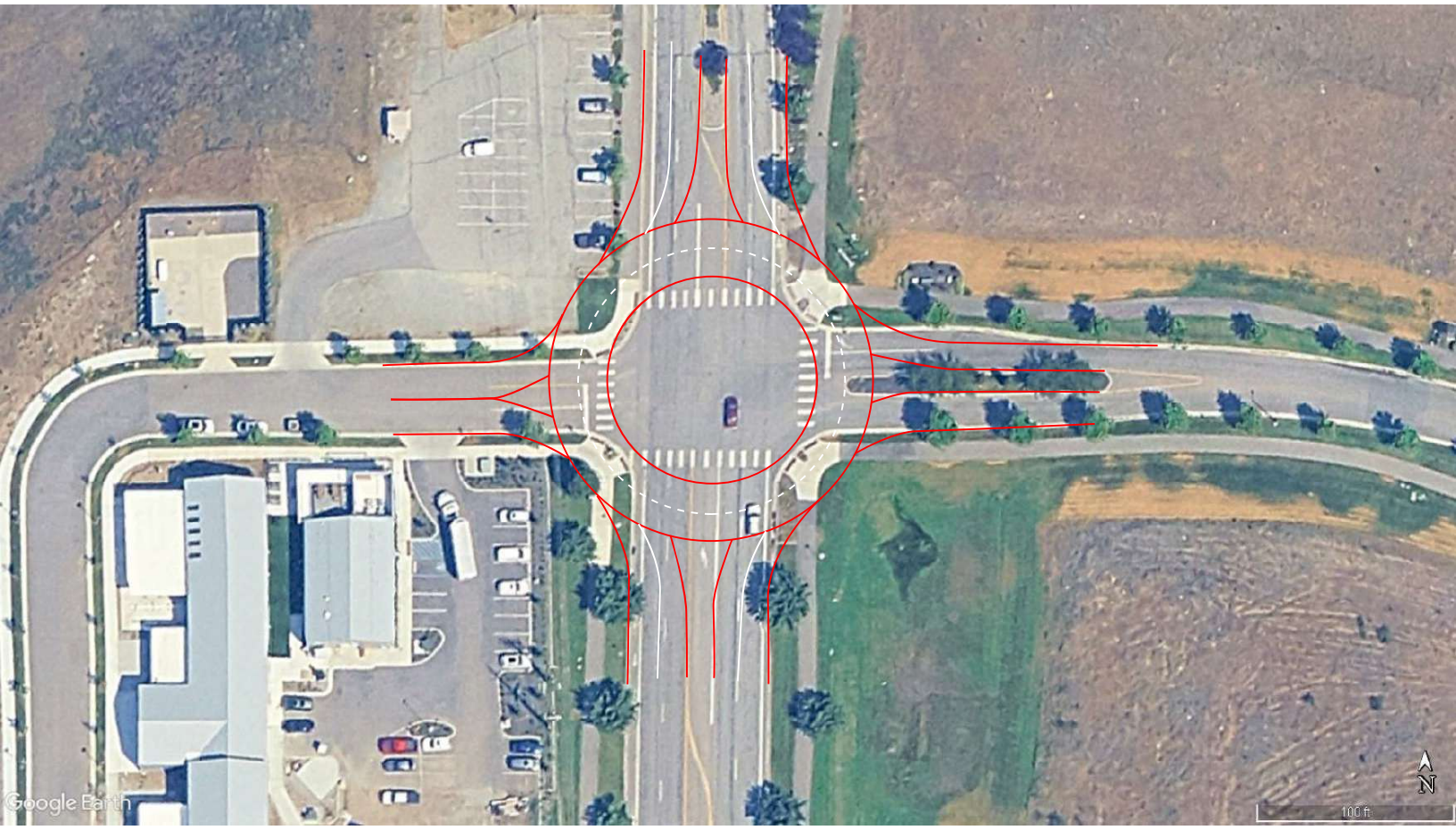
Construction Subtotal	$5,000.00
Contingency (20%)	$1,000.00
Construction Total	**$6,000.00**

TOTAL **$6,000.00**

Intersection 20:

N Harvard Rd/E Wellington Pkwy

Short-Term (2028)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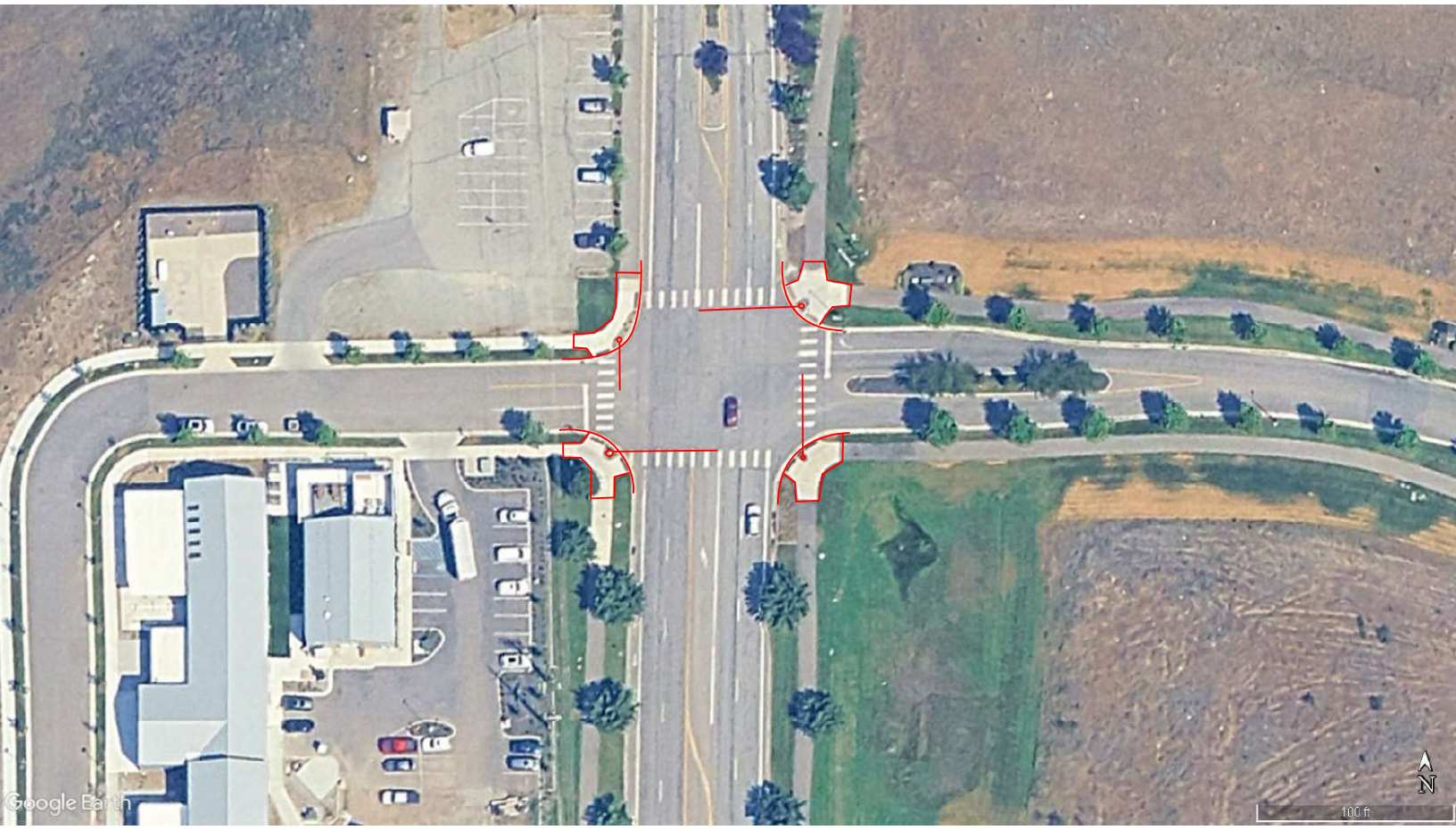
CITY OF LIBERTY LAKE
HARVARD ROAD AND WELLINGTON PARKWAY - ROUNDABOUT
ENGINEER'S CONCEPTUAL ESTIMATE

BY PARAMETRIX

Monday, November 10, 2025

Item #	DESCRIPTION	UNITS	ESTIMATED QUANTITY	ESTIMATED PRICE/UNIT	TOTAL COST
101	MOBILIZATION	LS	1	$110,000.00	$110,000.00
102	CONSTRUCTION SURVEYING	LS	1	$25,000.00	$25,000.00
103	PROJECT QUALITY CONTROL TESTING	LS	1	$40,000.00	$40,000.00
104	SPCC PLAN	LS	1	$1,000.00	$1,000.00
105	PROJECT TEMPORARY TRAFFIC CONTROL	LS	1	$85,000.00	$85,000.00
106	CLEARING AND GRUBBING	LS	1	$10,000.00	$10,000.00
107	PUBLIC LIASON REPRESENTATIVE	LS	1	$5,000.00	$5,000.00
108	FIELD VERIFY EXISTING UTILITIES	EA	5	$800.00	$4,000.00
109	REMOVAL OF STRUCTURES AND OBSTUCTIONS	LS	1	$15,000.00	$15,000.00
110	SAWCUT CEMENT CONCRETE CURB	EA	8	$35.00	$280.00
111	REMOVE CEMENT CONC. CURB	LF	1,650	$10.00	$16,500.00
112	REMOVE CEMENT CONC. SIDEWALK AND DRIVEWAY	SY	1,300	$30.00	$39,000.00
113	SAWCUT ASPHALT PAVEMENT	LF	220	$5.00	$1,100.00
114	ROADWAY EXCAVATION INCLUDING HAUL	CY	2,000	$40.00	$80,000.00
115	REMOVE UNSUITABLE FOUNDATION MATERIAL	CY	100	$70.00	$7,000.00
116	REPLACE UNSUITABLE FOUNDATION MATERIAL	CY	100	$70.00	$7,000.00
117	CRUSHED SURFACING TOP COURSE	CY	2,250	$75.00	$168,750.00
118	ROUNDABOUT SPLITTER ISLAND NOSING CURB	EA	4	$5,000.00	$20,000.00
119	ROUNDABOUT CONCRETE TRUCK ARPON	SY	2,000	$100.00	$200,000.00
120	HMA CL. 3/8" PG 64H-28	TN	1,300	$125.00	$162,500.00
121	COMPACTION PRICE ADJUSTMENT	CALC	1	$1.00	$1.00
122	HMA SURFACE SMOOTHNESS COMPLIANCE	CALC	1	$1.00	$1.00
123	UTILITY CASTING DEPTH COMPLIANCE	CALC	1	$1.00	$1.00
124	CATCH BASIN TYPE 1	EA	8	$3,500.00	$28,000.00
125	DRYWELL TYPE A	EA	4	$5,000.00	$20,000.00
126	ADJUST EXISTING MH, CB, DW, OR INLET IN ASPHALT	EA	6	$1,000.00	$6,000.00
127	CEMENT CONC. CURB AND GUTTER	LF	2,350	$55.00	$129,250.00
128	CEMENT CONC. SIDEWALK	SY	1,300	$75.00	$97,500.00
129	CEMENT CONC. DRIVEWAY	SY	100	$125.00	$12,500.00
130	DETECTABLE WARNING SURFACE	SF	320	$40.00	$12,800.00
131	ESC LEAD	LS	1	$3,000.00	$3,000.00
132	WATTLE	LF	2,500	$10.00	$25,000.00
133	INLET PROTECTION	EA	8	$150.00	$1,200.00
134	STREET CLEANING	HR	48	$200.00	$9,600.00
135	TOPSOIL FOR BIO-INFILTRATION SWALE	SY	1,300	$30.00	$39,000.00
136	CONSTRUCT BIO-INFILTRATION SWALE	SY	1,300	$10.00	$13,000.00
137	CURB DROP INLET	EA	8	$220.00	$1,760.00
138	CLASSIFICATION AND PROTECTION OF SURVEY MONUMENT	LS	1	$2,000.00	$2,000.00
139	SIGNING, PERMANENT	LS	1	$5,000.00	$5,000.00
140	PLASTIC TRAFFIC ARROW	EA	14	$500.00	$7,000.00
141	PAINT LINE	LF	5,500	$2.00	$11,000.00
142	LANDSCAPE AND IRRIGATION REPAIR	LS	1	$30,000.00	$30,000.00
143	ELECTRICAL AND ILLUMINATION SYSTEMS	LS	1	$50,000.00	$50,000.00

Construction Subtotal	$1,500,743.00
Contingency (20%)	$300,148.60
Construction Total	**$1,800,891.60**
Design (12%)	$216,106.99
City Project Management (8%)	$144,071.33
Construction Management (13%)	$234,115.91
Design & Management Total	**$594,294.23**
R/W Acquisition	**$50,000.00**
TOTAL	**$2,445,186.00**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CITY OF LIBERTY LAKE
HARVARD ROAD AND WELLINGTON PARKWAY - SIGNAL
ENGINEER'S CONCEPTUAL ESTIMATE

BY PARAMETRIX

Monday, November 10, 2025

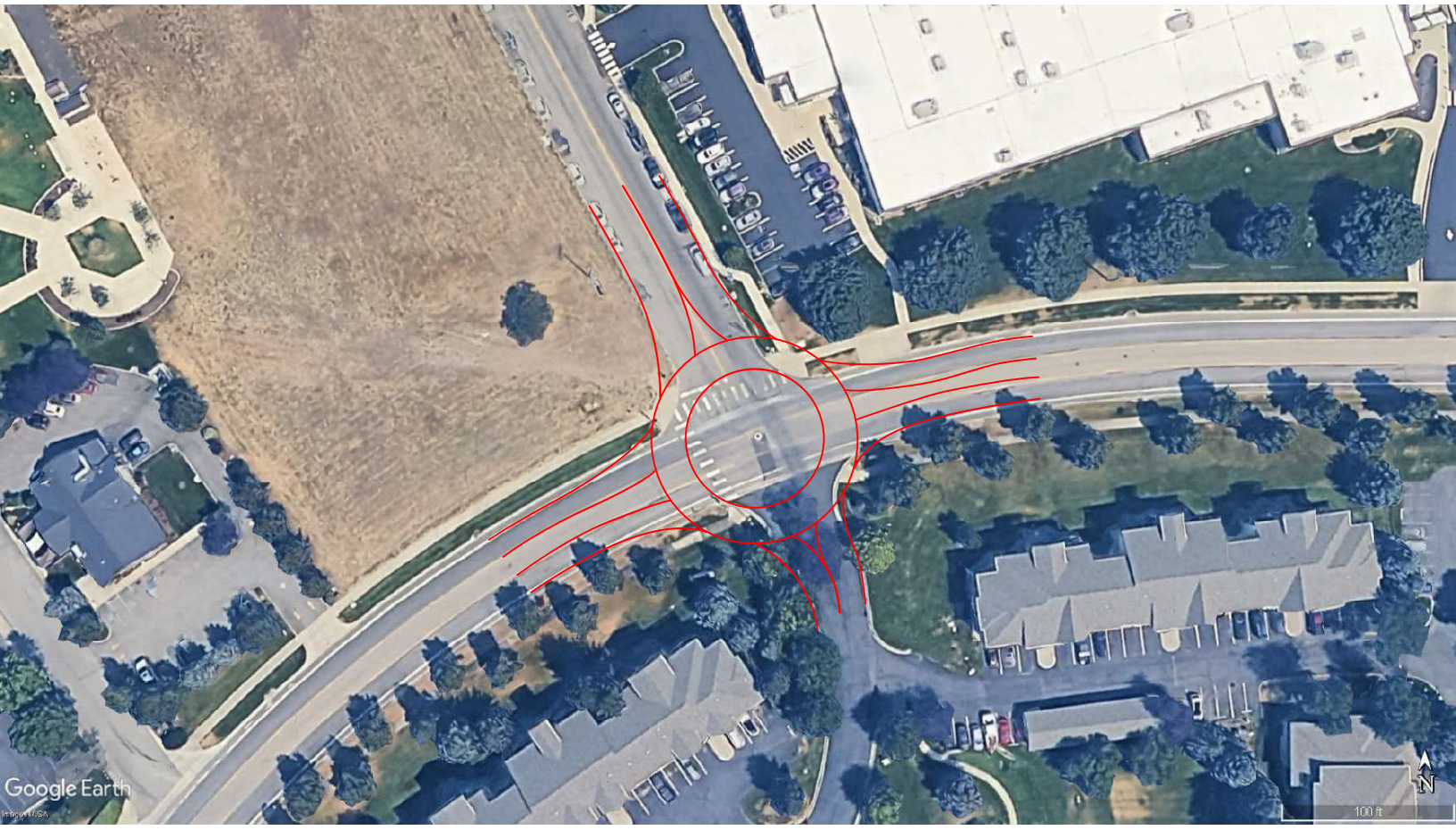
Item #	DESCRIPTION	UNITS	ESTIMATED QUANTITY	ESTIMATED PRICE/UNIT	TOTAL COST
101	MOBILIZATION	LS	1	$65,000.00	$65,000.00
102	CONSTRUCTION SURVEYING	LS	1	$15,000.00	$15,000.00
103	PROJECT QUALITY CONTROL TESTING	LS	1	$35,000.00	$35,000.00
104	SPCC PLAN	LS	1	$1,000.00	$1,000.00
105	PROJECT TEMPORARY TRAFFIC CONTROL	LS	1	$65,000.00	$65,000.00
106	CLEARING AND GRUBBING	LS	1	$10,000.00	$10,000.00
107	PUBLIC LIASON REPRESENTATIVE	LS	1	$5,000.00	$5,000.00
108	FIELD VERIFY EXISTING UTILITIES	EA	5	$800.00	$4,000.00
109	SAWCUT CEMENT CONCRETE CURB	EA	8	$35.00	$280.00
110	REMOVE CEMENT CONC. CURB	LF	400	$10.00	$4,000.00
111	REMOVE CEMENT CONC. SIDEWALK AND DRIVEWAY	SY	350	$30.00	$10,500.00
112	SAWCUT ASPHALT PAVEMENT	LF	425	$5.00	$2,125.00
113	ROADWAY EXCAVATION INCLUDING HAUL	CY	50	$40.00	$2,000.00
114	REMOVE UNSUITABLE FOUNDATION MATERIAL	CY	10	$60.00	$600.00
115	REPLACE UNSUITABLE FOUNDATION MATERIAL	CY	10	$75.00	$750.00
116	CRUSHED SURFACING TOP COURSE	CY	100	$80.00	$8,000.00
117	HMA CL. 3/8" PG 64H-28	TN	50	$140.00	$7,000.00
118	COMPACTION PRICE ADJUSTMENT	CALC	1	$1.00	$1.00
119	HMA SURFACE SMOOTHNESS COMPLIANCE	CALC	1	$1.00	$1.00
120	UTILITY CASTING DEPTH COMPLIANCE	CALC	1	$1.00	$1.00
121	ADJUST EXISTING MH, CB, DW, OR INLET IN ASPHALT	EA	4	$500.00	$2,000.00
122	CEMENT CONC. CURB AND GUTTER	LF	400	$70.00	$28,000.00
123	CEMENT CONC. SIDEWALK	SY	350	$90.00	$31,500.00
124	DETECTABLE WARNING SURFACE	SF	160	$50.00	$8,000.00
125	ESC LEAD	LS	1	$3,000.00	$3,000.00
126	WATTLE	LF	450	$10.00	$4,500.00
127	INLET PROTECTION	EA	8	$150.00	$1,200.00
128	STREET CLEANING	HR	48	$200.00	$9,600.00
129	CLASSIFICATION AND PROTECTION OF SURVEY MONUMENT	LS	1	$2,000.00	$2,000.00
130	SIGNING, PERMANENT	LS	1	$5,000.00	$5,000.00
131	LANDSCAPE AND IRRIGATION REPAIR	LS	1	$30,000.00	$30,000.00
132	TRAFFIC SIGNAL SYSTEM	LS	1	$487,000.00	$487,000.00

Construction Subtotal	$847,058.00
Contingency (20%)	$169,411.60
Construction Total	**$1,016,469.60**
Design (12%)	$121,976.35
City Project Management (8%)	$81,317.57
Construction Management (13%)	$132,141.05
Design & Management Total	**$335,434.97**
R/W Acquisition	**$50,000.00**
TOTAL	**$1,401,905.00**

Intersection 21:

E Mission Ave/N Signal Dr

Short-Term (2028)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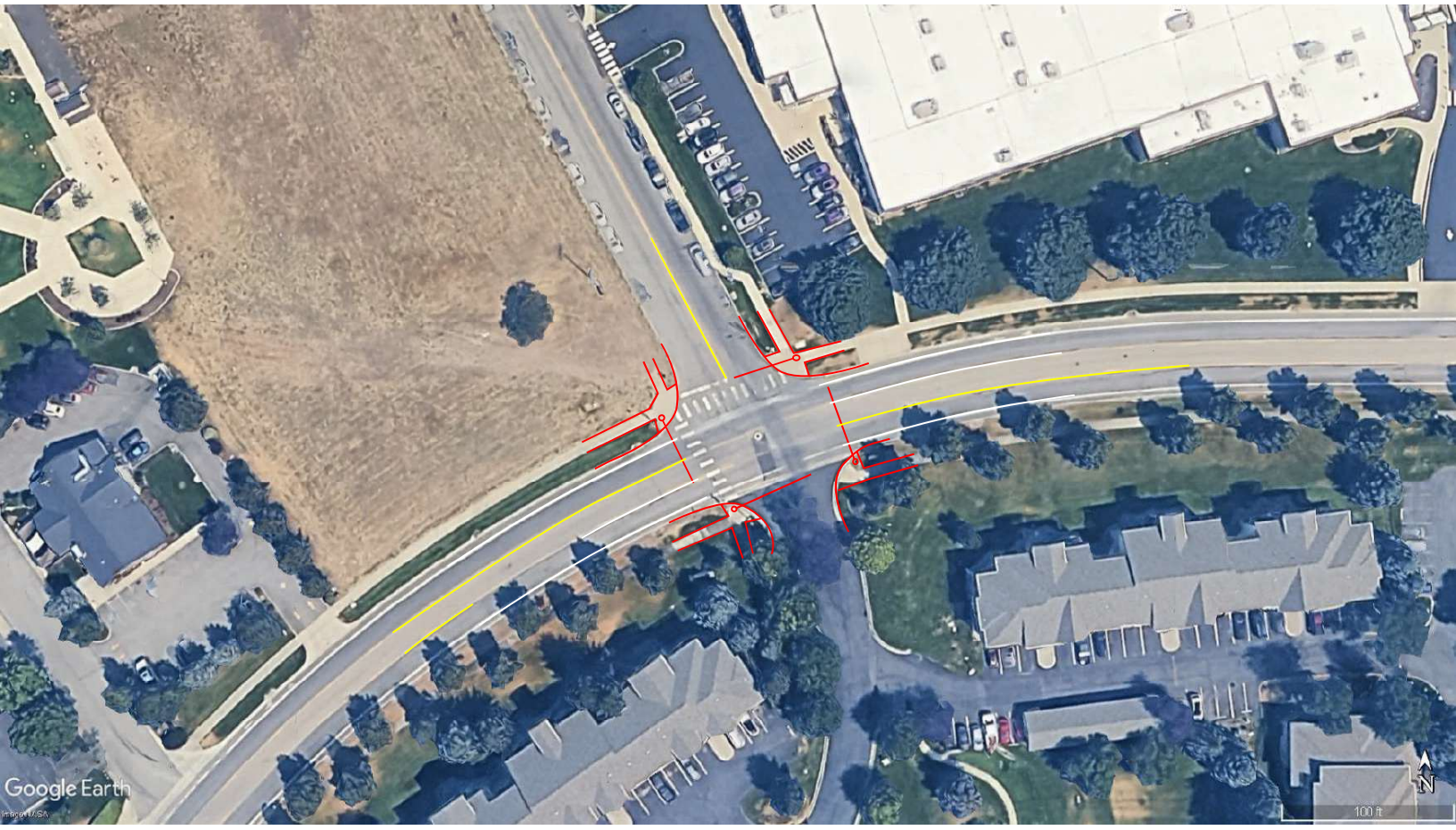
CITY OF LIBERTY LAKE
E MISSION AVE / N SIGNAL DR - ROUNDABOUT
ENGINEER'S CONCEPTUAL ESTIMATE

BY PARAMETRIX

Monday, November 10, 2025

Item #	DESCRIPTION	UNITS	ESTIMATED QUANTITY	ESTIMATED PRICE/UNIT	TOTAL COST
101	MOBILIZATION	LS	1	$95,000.00	$95,000.00
102	CONSTRUCTION SURVEYING	LS	1	$25,000.00	$25,000.00
103	PROJECT QUALITY CONTROL TESTING	LS	1	$35,000.00	$35,000.00
104	SPCC PLAN	LS	1	$1,000.00	$1,000.00
105	PROJECT TEMPORARY TRAFFIC CONTROL	LS	1	$75,000.00	$75,000.00
106	CLEARING AND GRUBBING	LS	1	$10,000.00	$10,000.00
107	PUBLIC LIASON REPRESENTATIVE	LS	1	$5,000.00	$5,000.00
108	FIELD VERIFY EXISTING UTILITIES	EA	5	$800.00	$4,000.00
109	REMOVAL OF STURCTURES AND OBSTRUCTIONS	LS	1	$10,000.00	$10,000.00
110	SAWCUT CEMENT CONCRETE CURB	EA	8	$35.00	$280.00
111	REMOVE CEMENT CONC. CURB	LF	1,250	$10.00	$12,500.00
112	REMOVE CEMENT CONC. SIDEWALK AND DRIVEWAY	SY	500	$30.00	$15,000.00
113	SAWCUT ASPHALT PAVEMENT	LF	200	$5.00	$1,000.00
114	ROADWAY EXCAVATION INCLUDING HAUL	CY	1,500	$40.00	$60,000.00
115	REMOVE UNSUITABLE FOUNDATION MATERIAL	CY	30	$60.00	$1,800.00
116	REPLACE UNSUITABLE FOUNDATION MATERIAL	CY	30	$75.00	$2,250.00
117	CRUSHED SURFACING TOP COURSE	CY	1,500	$80.00	$120,000.00
118	ROUNDABOUT SPLITTER ISLAND NOSING CURB	EA	4	$5,000.00	$20,000.00
119	ROUNDABOUT CONCRETE TRUCK ARPON	SY	2,750	$100.00	$275,000.00
120	HMA CL. 3/8" PG 64H-28	TN	1,000	$120.00	$120,000.00
121	COMPACTION PRICE ADJUSTMENT	CALC	1	$1.00	$1.00
122	HMA SURFACE SMOOTHNESS COMPLIANCE	CALC	1	$1.00	$1.00
123	UTILITY CASTING DEPTH COMPLIANCE	CALC	1	$1.00	$1.00
124	DRYWELL TYPE A	EA	4	$5,000.00	$20,000.00
125	ADJUST EXISTING MH, CB, DW, OR INLET IN ASPHALT	EA	4	$1,000.00	$4,000.00
126	CEMENT CONC. CURB AND GUTTER	LF	1,800	$60.00	$108,000.00
127	CEMENT CONC. SIDEWALK	SY	700	$90.00	$63,000.00
128	DETECTABLE WARNING SURFACE	SF	192	$50.00	$9,600.00
129	ESC LEAD	LS	1	$3,000.00	$3,000.00
130	WATTLE	LF	2,000	$10.00	$20,000.00
131	INLET PROTECTION	EA	6	$150.00	$900.00
132	STREET CLEANING	HR	48	$200.00	$9,600.00
133	TOPSOIL FOR BIO-INFILTRATION SWALE	SY	1,200	$35.00	$42,000.00
134	CONSTRUCT BIO-INFILTRATION SWALE	SY	1,200	$15.00	$18,000.00
135	CURB DROP INLET	EA	10	$220.00	$2,200.00
136	CLASSIFICATION AND PROTECTION OF SURVEY MONUMENT	LS	1	$2,000.00	$2,000.00
137	SIGNING, PERMANENT	LS	1	$5,000.00	$5,000.00
138	PLASTIC TRAFFIC ARROW	EA	10	$500.00	$5,000.00
139	PAINT LINE	LF	2,500	$2.00	$5,000.00
140	LANDSCAPE AND IRRIGATION REPAIR	LS	1	$30,000.00	$30,000.00
141	ELECTRICAL AND ILLUMINATION SYSTEMS	LS	1	$50,000.00	$50,000.00

Construction Subtotal	$1,285,133.00
Contingency (20%)	$257,026.60
Construction Total	**$1,542,159.60**
Design (12%)	$185,059.15
City Project Management (8%)	$123,372.77
Construction Management (13%)	$200,480.75
Design & Management Total	**$508,912.67**
R/W Acquisition	**$50,000.00**
TOTAL	**$2,101,073.00**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CITY OF LIBERTY LAKE
E MISSION AVE / N SIGNAL DR - SIGNAL
ENGINEER'S CONCEPTUAL ESTIMATE

BY PARAMETRIX

Monday, November 10, 2025

Item #	DESCRIPTION	UNITS	ESTIMATED QUANTITY	ESTIMATED PRICE/UNIT	TOTAL COST
101	MOBILIZATION	LS	1	$75,000.00	$75,000.00
102	CONSTRUCTION SURVEYING	LS	1	$20,000.00	$20,000.00
103	PROJECT QUALITY CONTROL TESTING	LS	1	$40,000.00	$40,000.00
104	SPCC PLAN	LS	1	$1,000.00	$1,000.00
105	PROJECT TEMPORARY TRAFFIC CONTROL	LS	1	$75,000.00	$75,000.00
106	CLEARING AND GRUBBING	LS	1	$10,000.00	$10,000.00
107	PUBLIC LIASON REPRESENTATIVE	LS	1	$5,000.00	$5,000.00
108	FIELD VERIFY EXISTING UTILITIES	EA	5	$800.00	$4,000.00
109	SAWCUT CEMENT CONCRETE CURB	EA	8	$35.00	$280.00
110	REMOVE CEMENT CONC. CURB	LF	400	$10.00	$4,000.00
111	REMOVE CEMENT CONC. SIDEWALK AND DRIVEWAY	SY	250	$30.00	$7,500.00
112	SAWCUT ASPHALT PAVEMENT	LF	450	$5.00	$2,250.00
113	ROADWAY EXCAVATION INCLUDING HAUL	CY	50	$40.00	$2,000.00
114	REMOVE UNSUITABLE FOUNDATION MATERIAL	CY	30	$60.00	$1,800.00
115	REPLACE UNSUITABLE FOUNDATION MATERIAL	CY	30	$75.00	$2,250.00
116	CRUSHED SURFACING TOP COURSE	CY	75	$80.00	$6,000.00
117	HMA CL. 3/8" PG 64H-28	TN	50	$150.00	$7,500.00
118	COMPACTION PRICE ADJUSTMENT	CALC	1	$1.00	$1.00
119	HMA SURFACE SMOOTHNESS COMPLIANCE	CALC	1	$1.00	$1.00
120	UTILITY CASTING DEPTH COMPLIANCE	CALC	1	$1.00	$1.00
121	CEMENT CONC. CURB AND GUTTER	LF	400	$70.00	$28,000.00
122	CEMENT CONC. SIDEWALK	SY	300	$85.00	$25,500.00
123	DETECTABLE WARNING SURFACE	SF	192	$50.00	$9,600.00
124	ESC LEAD	LS	1	$3,000.00	$3,000.00
125	WATTLE	LF	400	$10.00	$4,000.00
126	INLET PROTECTION	EA	8	$150.00	$1,200.00
127	STREET CLEANING	HR	48	$200.00	$9,600.00
128	TOPSOIL FOR BIO-INFILTRATION SWALE	SY	350	$35.00	$12,250.00
129	CONSTRUCT BIO-INFILTRATION SWALE	SY	350	$15.00	$5,250.00
130	CURB DROP INLET	EA	4	$220.00	$880.00
131	CLASSIFICATION AND PROTECTION OF SURVEY MONUMENT	LS	1	$2,000.00	$2,000.00
132	SIGNING, PERMANENT	LS	1	$5,000.00	$5,000.00
133	PLASTIC TRAFFIC ARROW	EA	10	$500.00	$5,000.00
134	GROOVED PLASTIC LINE	LF	200	$7.00	$1,400.00
135	PAINT LINE	LF	1,500	$2.00	$3,000.00
136	LANDSCAPE AND IRRIGATION REPAIR	LS	1	$30,000.00	$30,000.00
137	TRAFFIC SIGNAL SYSTEM	LS	1	$487,000.00	$487,000.00
138	ELECTRICAL AND ILLUMINATION SYSTEMS	LS	1	$50,000.00	$50,000.00

Construction Subtotal	$946,263.00
Contingency (20%)	$189,252.60
Construction Total	**$1,135,515.60**
Design (12%)	$136,261.87
City Project Management (8%)	$90,841.25
Construction Management (13%)	$147,617.03
Design & Management Total	**$374,720.15**
R/W Acquisition	**$50,000.00**
TOTAL	**$1,560,236.00**

Intersection 2:

N Kramer Pkwy / E Country Vista Dr

Long-Term (2046)

CITY OF LIBERTY LAKE
N KRAMER PKWY / E COUNTRY VISTA DR - SIGNAL TIMING UPDATES
ENGINEER'S CONCEPTUAL ESTIMATE

BY PARAMETRIX

Monday, November 10, 2025

Item #	DESCRIPTION	UNITS	ESTIMATED QUANTITY	ESTIMATED PRICE/UNIT	TOTAL COST
101	TRAFFIC SIGNAL MODIFICATIONS	LS	1	$10,000.00	$10,000.00

Construction Subtotal	$10,000.00
Contingency (20%)	$2,000.00
Construction Total	**$12,000.00**

TOTAL **$12,000.00**

Intersection 4:

E Mission Ave / N Harvard Rd

Long-Term (2046)

Google Earth
Image © 2024 Airbus / Copernicus
N
100 ft

CITY OF LIBERTY LAKE
E MISSION AVE / N HARVARD RD EXPAND ROUNDABOUT
ENGINEER'S CONCEPTUAL ESTIMATE

BY PARAMETRIX

Monday, November 10, 2025

Item #	DESCRIPTION	UNITS	ESTIMATED QUANTITY	ESTIMATED PRICE/UNIT	TOTAL COST
101	MOBILIZATION	LS	1	$100,000.00	$100,000.00
102	CONSTRUCTION SURVEYING	LS	1	$22,500.00	$22,500.00
103	PROJECT QUALITY CONTROL TESTING	LS	1	$30,000.00	$30,000.00
104	SPCC PLAN	LS	1	$1,000.00	$1,000.00
105	PROJECT TEMPORARY TRAFFIC CONTROL	LS	1	$75,000.00	$75,000.00
106	CLEARING AND GRUBBING	LS	1	$10,000.00	$10,000.00
107	PUBLIC LIASON REPRESENTATIVE	LS	1	$5,000.00	$5,000.00
108	REMOVAL OF STRUCTURES AND OBSTURCTIONS	LS	1	$15,000.00	$15,000.00
109	FIELD VERIFY EXISTING UTILITIES	EA	5	$800.00	$4,000.00
110	SAWCUT CEMENT CONCRETE CURB	EA	2	$35.00	$70.00
111	REMOVE CEMENT CONC. CURB	LF	2,000	$10.00	$20,000.00
112	REMOVE CEMENT CONC. SIDEWALK AND DRIVEWAY	SY	1,000	$30.00	$30,000.00
113	SAWCUT ASPHALT PAVEMENT	LF	225	$5.00	$1,125.00
114	ROADWAY EXCAVATION INCLUDING HAUL	CY	2,000	$40.00	$80,000.00
115	REMOVE UNSUITABLE FOUNDATION MATERIAL	CY	30	$60.00	$1,800.00
116	REPLACE UNSUITABLE FOUNDATION MATERIAL	CY	30	$75.00	$2,250.00
117	CRUSHED SURFACING TOP COURSE	CY	1,800	$80.00	$144,000.00
118	ROUNDABOUT SPLITTER ISLAND NOSING CURB	EA	3	$5,000.00	$15,000.00
119	HMA CL. 3/8" PG 64H-28	TN	1,500	$130.00	$195,000.00
120	COMPACTION PRICE ADJUSTMENT	CALC	1	$1.00	$1.00
121	HMA SURFACE SMOOTHNESS COMPLIANCE	CALC	1	$1.00	$1.00
122	UTILITY CASTING DEPTH COMPLIANCE	CALC	1	$1.00	$1.00
123	DRYWELL TYPE A	EA	4	$5,000.00	$20,000.00
124	ADJUST EXISTING MH, CB, DW, OR INLET IN ASPHALT	EA	3	$1,000.00	$3,000.00
125	CEMENT CONC. CURB AND GUTTER	LF	2,400	$60.00	$144,000.00
126	CEMENT CONC. SIDEWALK	SY	1,400	$90.00	$126,000.00
127	DETECTABLE WARNING SURFACE	SF	120	$50.00	$6,000.00
128	ESC LEAD	LS	1	$3,000.00	$3,000.00
129	WATTLE	LF	2,150	$10.00	$21,500.00
130	INLET PROTECTION	EA	6	$150.00	$900.00
131	STREET CLEANING	HR	48	$200.00	$9,600.00
132	TOPSOIL FOR BIO-INFILTRATION SWALE	SY	1,250	$35.00	$43,750.00
133	CONSTRUCT BIO-INFILTRATION SWALE	SY	1,250	$15.00	$18,750.00
134	CURB DROP INLET	EA	12	$220.00	$2,640.00
135	CLASSIFICATION AND PROTECTION OF SURVEY MONUMENT	LS	1	$2,000.00	$2,000.00
136	SIGNING, PERMANENT	LS	1	$5,000.00	$5,000.00
137	PLASTIC TRAFFIC ARROW	EA	14	$500.00	$7,000.00
138	PAINT LINE	LF	6,500	$2.00	$13,000.00
139	LANDSCAPE AND IRRIGATION REPAIR	LS	1	$30,000.00	$30,000.00
140	ELECTRICAL AND ILLUMINATION SYSTEMS	LS	1	$50,000.00	$50,000.00

Construction Subtotal	$1,257,888.00
Contingency (20%)	$251,577.60
Construction Total	**$1,509,465.60**
Design (12%)	$181,135.87
City Project Management (8%)	$120,757.25
Construction Management (13%)	$196,230.53
Design & Management Total	**$498,123.65**
R/W Acquisition	**$50,000.00**
TOTAL	**$2,057,590.00**

Intersection 6:

Liberty Lake Road / Appleway Ave

Long-Term (2046)


Google Earth
Image © 2025 Airbus
N
200 ft

CITY OF LIBERTY LAKE
N LIBERTY LAKE/APPLEWAY AVE DUAL SBL AND DUAL WBL TURN LANES
ENGINEER'S CONCEPTUAL ESTIMATE

BY PARAMETRIX

Monday, November 10, 2025

Item #	DESCRIPTION	UNITS	ESTIMATED QUANTITY	ESTIMATED PRICE/UNIT	TOTAL COST
101	MOBILIZATION	LS	1	$55,000.00	$55,000.00
102	CONSTRUCTION SURVEYING	LS	1	$15,000.00	$15,000.00
103	PROJECT QUALITY CONTROL TESTING	LS	1	$30,000.00	$30,000.00
104	SPCC PLAN	LS	1	$1,000.00	$1,000.00
105	PROJECT TEMPORARY TRAFFIC CONTROL	LS	1	$55,000.00	$55,000.00
106	CLEARING AND GRUBBING	LS	1	$10,000.00	$10,000.00
107	PUBLIC LIASON REPRESENTATIVE	LS	1	$5,000.00	$5,000.00
108	FIELD VERIFY EXISTING UTILITIES	EA	5	$800.00	$4,000.00
109	SAWCUT CEMENT CONCRETE CURB	EA	2	$35.00	$70.00
110	REMOVE CEMENT CONC. CURB	LF	1,730	$10.00	$17,300.00
111	REMOVE CEMENT CONC. SIDEWALK AND DRIVEWAY	SY	350	$30.00	$10,500.00
112	SAWCUT ASPHALT PAVEMENT	LF	650	$5.00	$3,250.00
113	ROADWAY EXCAVATION INCLUDING HAUL	CY	700	$40.00	$28,000.00
114	REMOVE UNSUITABLE FOUNDATION MATERIAL	CY	30	$60.00	$1,800.00
115	REPLACE UNSUITABLE FOUNDATION MATERIAL	CY	30	$75.00	$2,250.00
116	CRUSHED SURFACING TOP COURSE	CY	700	$80.00	$56,000.00
117	HMA CL. 3/8" PG 64H-28	TN	560	$140.00	$78,400.00
118	COMPACTION PRICE ADJUSTMENT	CALC	1	$1.00	$1.00
119	HMA SURFACE SMOOTHNESS COMPLIANCE	CALC	1	$1.00	$1.00
120	UTILITY CASTING DEPTH COMPLIANCE	CALC	1	$1.00	$1.00
121	DRYWELL TYPE A	EA	2	$5,000.00	$10,000.00
122	ADJUST EXISTING MH, CB, DW, OR INLET IN ASPHALT	EA	2	$1,000.00	$2,000.00
123	CEMENT CONC. CURB AND GUTTER	LF	750	$80.00	$60,000.00
124	CEMENT CONC. DRIVEWAY	SY	50	$125.00	$6,250.00
125	CEMENT CONC. SIDEWALK	SY	450	$115.00	$51,750.00
126	DETECTABLE WARNING SURFACE	SF	20	$75.00	$1,500.00
127	ESC LEAD	LS	1	$3,000.00	$3,000.00
128	WATTLE	LF	100	$10.00	$1,000.00
129	INLET PROTECTION	EA	6	$150.00	$900.00
130	STREET CLEANING	HR	48	$200.00	$9,600.00
131	TOPSOIL FOR BIO-INFILTRATION SWALE	SY	350	$50.00	$17,500.00
132	CONSTRUCT BIO-INFILTRATION SWALE	SY	350	$20.00	$7,000.00
133	CURB DROP INLET	EA	8	$220.00	$1,760.00
134	CLASSIFICATION AND PROTECTION OF SURVEY MONUMENT	LS	1	$2,000.00	$2,000.00
135	SIGNING, PERMANENT	LS	1	$5,000.00	$5,000.00
136	PLASTIC TRAFFIC ARROW	EA	14	$500.00	$7,000.00
137	GROOVED PLASTIC LINE	LF	1,500	$7.00	$10,500.00
138	PAINT LINE	LF	2,000	$2.00	$4,000.00
139	FLEXIBLE GUIDE POST	EA	6	$70.00	$420.00
140	LANDSCAPE AND IRRIGATION REPAIR	LS	1	$30,000.00	$30,000.00
141	TRAFFIC SIGNAL MODIFICATIONS	LS	1	$40,000.00	$40,000.00
142	ELECTRICAL AND ILLUMINATION SYSTEMS	LS	1	$50,000.00	$50,000.00

Construction Subtotal	$693,753.00
Contingency (20%)	$138,750.60
Construction Total	**$832,503.60**
Design (12%)	$99,900.43
City Project Management (8%)	$66,600.29
Construction Management (13%)	$108,225.47
Design & Management Total	**$274,726.19**
R/W Acquisition	**$50,000.00**
TOTAL	**$1,157,230.00**

Intersection 7:

N Liberty Lake Rd / E Country Vista Dr

Long-Term (2046)


Google Earth
Image Landsat / Copernicus
N
200 ft

CITY OF LIBERTY LAKE
N LIBERTY LAKE/COUNTRY VISTA DR - SEPARATE SBR TURN LANE
ENGINEER'S CONCEPTUAL ESTIMATE

BY PARAMETRIX

Monday, November 10, 2025

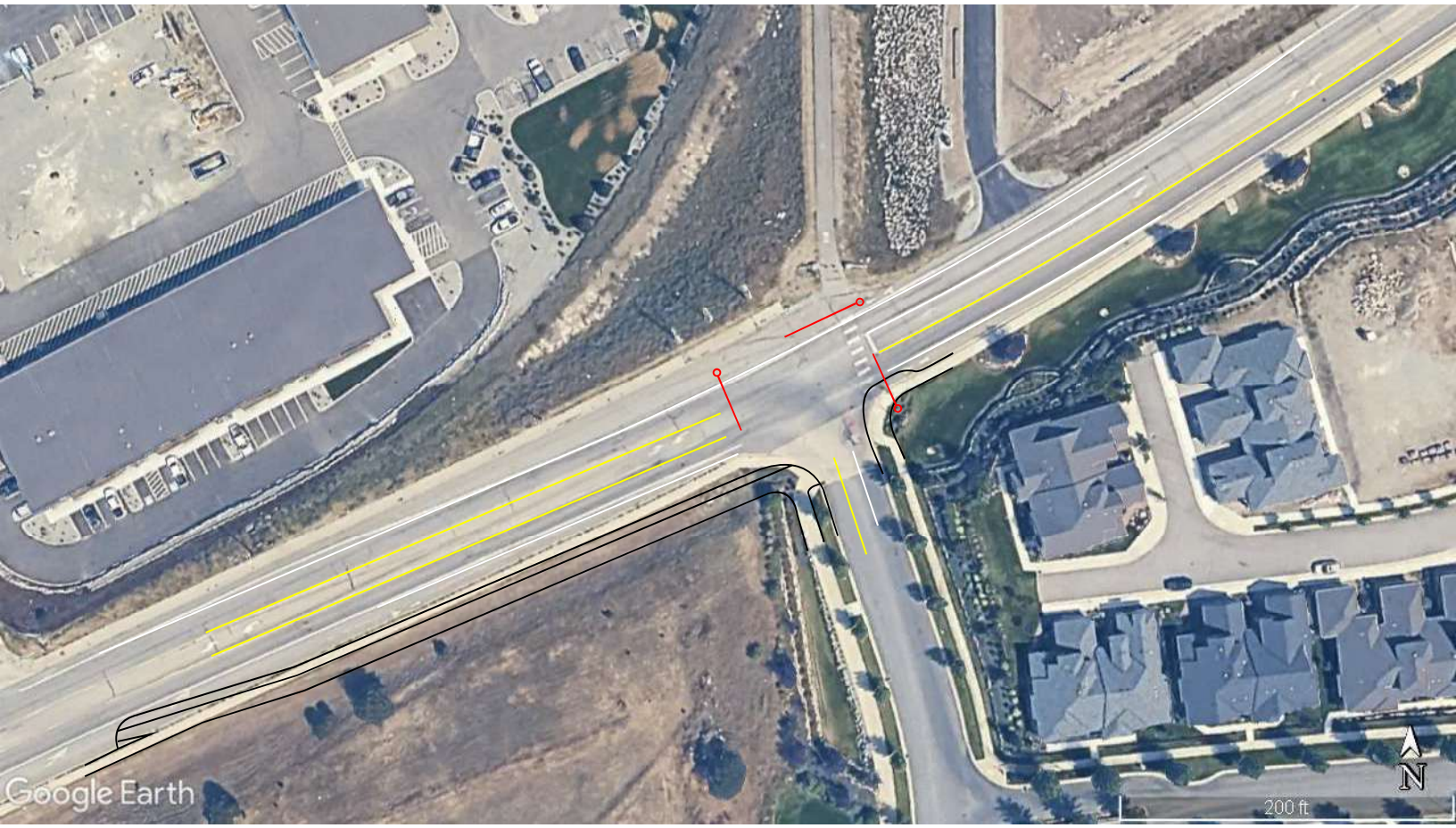
Item #	DESCRIPTION	UNITS	ESTIMATED QUANTITY	ESTIMATED PRICE/UNIT	TOTAL COST
101	MOBILIZATION	LS	1	$90,000.00	$90,000.00
102	CONSTRUCTION SURVEYING	LS	1	$2,500.00	$2,500.00
103	PROJECT QUALITY CONTROL TESTING	LS	1	$10,000.00	$10,000.00
104	SPCC PLAN	LS	1	$1,000.00	$1,000.00
105	PROJECT TEMPORARY TRAFFIC CONTROL	LS	1	$10,000.00	$10,000.00
106	PUBLIC LIASON REPRESENTATIVE	LS	1	$5,000.00	$5,000.00
107	FIELD VERIFY EXISTING UTILITIES	EA	5	$800.00	$4,000.00
108	ESC LEAD	LS	1	$3,000.00	$3,000.00
109	INLET PROTECTION	EA	6	$150.00	$900.00
110	STREET CLEANING	HR	48	$200.00	$9,600.00
111	CLASSIFICATION AND PROTECTION OF SURVEY MONUMENT	LS	1	$2,000.00	$2,000.00
112	SIGNING, PERMANENT	LS	1	$5,000.00	$5,000.00
113	PLASTIC TRAFFIC ARROW	EA	4	$500.00	$2,000.00
114	GROOVED PLASTIC LINE	LF	610	$7.00	$4,270.00
115	PAINT LINE	LF	450	$2.00	$900.00
116	TRAFFIC SIGNAL MODIFICATIONS	LS	1	$40,000.00	$40,000.00

Construction Subtotal	$190,170.00
Contingency (20%)	$38,034.00
Construction Total	**$228,204.00**
Design (12%)	$27,384.48
City Project Management (8%)	$18,256.32
Construction Management (13%)	$29,666.52
Design & Management Total	**$75,307.32**
TOTAL	**$303,512.00**

Intersection 14:

N Country Vista Blvd / E Appleway Ave

Long-Term (2046)


Google Earth
N
200 ft

CITY OF LIBERTY LAKE
N COUNTRY VISTA BLVD/E APPLEWAY AVE - SIGNAL
ENGINEER'S CONCEPTUAL ESTIMATE

BY PARAMETRIX

Monday, November 10, 2025

Item #	DESCRIPTION	UNITS	ESTIMATED QUANTITY	ESTIMATED PRICE/UNIT	TOTAL COST
101	MOBILIZATION	LS	1	$60,000.00	$60,000.00
102	CONSTRUCTION SURVEYING	LS	1	$15,000.00	$15,000.00
103	PROJECT QUALITY CONTROL TESTING	LS	1	$30,000.00	$30,000.00
104	SPCC PLAN	LS	1	$1,000.00	$1,000.00
105	PROJECT TEMPORARY TRAFFIC CONTROL	LS	1	$55,000.00	$55,000.00
106	CLEARING AND GRUBBING	LS	1	$10,000.00	$10,000.00
107	PUBLIC LIASON REPRESENTATIVE	LS	1	$5,000.00	$5,000.00
108	FIELD VERIFY EXISTING UTILITIES	EA	5	$800.00	$4,000.00
109	SAWCUT CEMENT CONCRETE CURB	EA	2	$35.00	$70.00
110	REMOVE CEMENT CONC. CURB	LF	100	$10.00	$1,000.00
111	REMOVE CEMENT CONC. SIDEWALK AND DRIVEWAY	SY	150	$30.00	$4,500.00
112	SAWCUT ASPHALT PAVEMENT	LF	100	$5.00	$500.00
113	ROADWAY EXCAVATION INCLUDING HAUL	CY	20	$40.00	$800.00
114	REMOVE UNSUITABLE FOUNDATION MATERIAL	CY	30	$60.00	$1,800.00
115	REPLACE UNSUITABLE FOUNDATION MATERIAL	CY	30	$75.00	$2,250.00
116	CRUSHED SURFACING TOP COURSE	CY	70	$120.00	$8,400.00
117	HMA CL. 3/8" PG 64H-28	TN	10	$250.00	$2,500.00
118	COMPACTION PRICE ADJUSTMENT	CALC	1	$1.00	$1.00
119	HMA SURFACE SMOOTHNESS COMPLIANCE	CALC	1	$1.00	$1.00
120	UTILITY CASTING DEPTH COMPLIANCE	CALC	1	$1.00	$1.00
121	ADJUST EXISTING MH, CB, DW, OR INLET IN ASPHALT	EA	2	$1,000.00	$2,000.00
122	CEMENT CONC. CURB AND GUTTER	LF	100	$100.00	$10,000.00
123	CEMENT CONC. SIDEWALK	SY	150	$125.00	$18,750.00
124	DETECTABLE WARNING SURFACE	SF	60	$75.00	$4,500.00
125	ESC LEAD	LS	1	$3,000.00	$3,000.00
126	WATTLE	LF	100	$10.00	$1,000.00
127	INLET PROTECTION	EA	6	$150.00	$900.00
128	STREET CLEANING	HR	48	$200.00	$9,600.00
129	CLASSIFICATION AND PROTECTION OF SURVEY MONUMENT	LS	1	$2,000.00	$2,000.00
130	SIGNING, PERMANENT	LS	1	$5,000.00	$5,000.00
131	PLASTIC TRAFFIC ARROW	EA	6	$500.00	$3,000.00
132	GROOVED PLASTIC LINE	LF	600	$7.00	$4,200.00
133	PAINT LINE	LF	2,250	$2.00	$4,500.00
134	FLEXIBLE GUIDE POST	EA	6	$70.00	$420.00
135	LANDSCAPE AND IRRIGATION REPAIR	LS	1	$30,000.00	$30,000.00
136	TRAFFIC SIGNAL SYSTEM	LS	1	$365,000.00	$365,000.00
137	ELECTRICAL AND ILLUMINATION SYSTEMS	LS	1	$50,000.00	$50,000.00

Construction Subtotal	$715,693.00
Contingency (20%)	$143,138.60
Construction Total	**$858,831.60**
Design (12%)	$103,059.79
City Project Management (8%)	$68,706.53
Construction Management (13%)	$111,648.11
Design & Management Total	**$283,414.43**
R/W Acquisition	**$50,000.00**
TOTAL	**$1,192,247.00**

Intersection 21:

E Mission Ave/N Signal Dr

Long-Term (2046)

Same as Intersection 21
Short-Term (2028)