






















# **Appendix C**

## **Synchro Outputs**

HCM 6th Signalized Intersection Summary  
1: Carillion Blvd & Twin Cities Rd

Existing Conditions  
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	375	130	35	514	0	325	0	71	0	0	0
Future Volume (veh/h)	0	375	130	35	514	0	325	0	71	0	0	0
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	507	176	47	695	0	439	0	96	0	0	0
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
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	630	534	121	939	0	511	0	401	0	474	0
Arrive On Green	0.00	0.34	0.34	0.07	0.50	0.00	0.25	0.00	0.25	0.00	0.00	0.00
Sat Flow, veh/h	1781	1870	1585	1781	1870	0	1418	0	1585	0	1870	0
Grp Volume(v), veh/h	0	507	176	47	695	0	439	0	96	0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	0	1418	0	1585	0	1870	0
Q Serve(g_s), s	0.0	11.7	3.9	1.2	14.0	0.0	12.0	0.0	2.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	11.7	3.9	1.2	14.0	0.0	12.0	0.0	2.3	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	4	630	534	121	939	0	511	0	401	0	474	0
V/C Ratio(X)	0.00	0.81	0.33	0.39	0.74	0.00	0.86	0.00	0.24	0.00	0.00	0.00
Avail Cap(c_a), veh/h	376	1777	1506	564	1777	0	511	0	401	0	474	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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	14.3	11.7	21.1	9.4	0.0	18.8	0.0	14.1	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.9	0.1	0.7	0.4	0.0	13.2	0.0	0.1	0.0	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	0.0	3.8	1.0	0.4	3.4	0.0	5.9	0.0	0.7	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	15.2	11.9	21.9	9.8	0.0	31.9	0.0	14.2	0.0	0.0	0.0
LnGrp LOS	A	B	B	C	A	A	C	A	B	A	A	A
Approach Vol, veh/h		683			742			535				0
Approach Delay, s/veh		14.4			10.6			28.8				0.0
Approach LOS		B			B			C				
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.8	21.7		17.8	0.0	29.6		17.8				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		* 5.8				
Max Green Setting (Gmax), s	15.0	45.0		12.0	10.0	45.0		* 12				
Max Q Clear Time (g_c+I1), s	3.2	13.7		0.0	0.0	16.0		14.0				
Green Ext Time (p_c), s	0.0	2.1		0.0	0.0	2.8		0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				16.9								
HCM 6th LOS				B								
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 6th TWSC  
2: Carillion Blvd & Lake Park Ave

Existing Conditions  
AM Peak Hour

Intersection												
Int Delay, s/veh	5.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	↕
Traffic Vol, veh/h	0	2	11	55	10	144	23	252	30	34	134	0
Future Vol, veh/h	0	2	11	55	10	144	23	252	30	34	134	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	115	-	-	145	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	3	14	70	13	182	29	319	38	43	170	0

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	480	672	85	570	653	180	170	0	0	358	0	0
Stage 1	256	256	-	397	397	-	-	-	-	-	-	-
Stage 2	224	416	-	173	256	-	-	-	-	-	-	-
Critical Hdwy	7.52	6.52	6.92	7.52	6.52	6.92	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.51	4.01	3.31	3.51	4.01	3.31	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	471	378	960	406	387	835	1412	-	-	1205	-	-
Stage 1	729	697	-	603	604	-	-	-	-	-	-	-
Stage 2	761	593	-	815	697	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	343	356	960	381	365	834	1412	-	-	1204	-	-
Mov Cap-2 Maneuver	343	356	-	381	365	-	-	-	-	-	-	-
Stage 1	714	672	-	590	591	-	-	-	-	-	-	-
Stage 2	570	580	-	772	672	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	9.8		15.4		0.6		1.6			
HCM LOS	A		C							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR	
Capacity (veh/h)	1412	-	-	761	607	1204	-	-
HCM Lane V/C Ratio	0.021	-	-	0.022	0.436	0.036	-	-
HCM Control Delay (s)	7.6	-	-	9.8	15.4	8.1	-	-
HCM Lane LOS	A	-	-	A	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.1	2.2	0.1	-	-

HCM 6th TWSC  
3: Carillion Blvd & Lake Canyon Ave

Existing Conditions  
AM Peak Hour

Intersection												
Int Delay, s/veh	6.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	49	33	58	16	17	65	50	191	18	11	136	53
Future Vol, veh/h	49	33	58	16	17	65	50	191	18	11	136	53
Conflicting Peds, #/hr	0	0	7	0	0	1	0	0	1	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	145	-	-	145	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	74	74	74	74	74	74	74	74	74	74	74	74
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	66	45	78	22	23	88	68	258	24	15	184	72

Major/Minor	Minor2		Minor1			Major1		Major2				
Conflicting Flow All	531	672	138	559	696	143	259	0	0	283	0	0
Stage 1	253	253	-	407	407	-	-	-	-	-	-	-
Stage 2	278	419	-	152	289	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	431	376	885	412	364	879	1303	-	-	1276	-	-
Stage 1	729	696	-	592	596	-	-	-	-	-	-	-
Stage 2	705	588	-	835	672	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	349	351	877	320	340	877	1299	-	-	1275	-	-
Mov Cap-2 Maneuver	349	351	-	320	340	-	-	-	-	-	-	-
Stage 1	689	686	-	561	564	-	-	-	-	-	-	-
Stage 2	576	557	-	698	662	-	-	-	-	-	-	-

Approach	EB		WB			NB		SB		
HCM Control Delay, s	17.9		13.4			1.5		0.4		
HCM LOS	C		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1299	-	-	466	563	1275	-
HCM Lane V/C Ratio	0.052	-	-	0.406	0.235	0.012	-
HCM Control Delay (s)	7.9	-	-	17.9	13.4	7.9	-
HCM Lane LOS	A	-	-	C	B	A	-
HCM 95th %tile Q(veh)	0.2	-	-	1.9	0.9	0	-

HCM 6th TWSC  
4: Carillion Blvd & Elk Hills Dr

Existing Conditions  
AM Peak Hour

Intersection												
Int Delay, s/veh	6.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	24	17	30	52	19	75	9	160	50	53	128	29
Future Vol, veh/h	24	17	30	52	19	75	9	160	50	53	128	29
Conflicting Peds, #/hr	0	0	5	0	0	0	0	0	4	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	145	-	-	145	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	65	65	65	65	65	65	65	65	65	65	65	65
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	37	26	46	80	29	115	14	246	77	82	197	45

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	553	742	129	598	726	166	245	0	0	327	0	0
Stage 1	387	387	-	317	317	-	-	-	-	-	-	-
Stage 2	166	355	-	281	409	-	-	-	-	-	-	-
Critical Hdwy	7.52	6.52	6.92	7.52	6.52	6.92	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.51	4.01	3.31	3.51	4.01	3.31	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	418	344	900	388	352	852	1326	-	-	1237	-	-
Stage 1	611	611	-	671	655	-	-	-	-	-	-	-
Stage 2	822	631	-	705	597	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	316	315	893	322	322	849	1322	-	-	1232	-	-
Mov Cap-2 Maneuver	316	315	-	322	322	-	-	-	-	-	-	-
Stage 1	603	568	-	662	645	-	-	-	-	-	-	-
Stage 2	671	622	-	592	555	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	16.1		19.3		0.3		2.1	
HCM LOS	C		C					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1322	-	-	434	473	1232	-
HCM Lane V/C Ratio	0.01	-	-	0.252	0.475	0.066	-
HCM Control Delay (s)	7.8	-	-	16.1	19.3	8.1	-
HCM Lane LOS	A	-	-	C	C	A	-
HCM 95th %tile Q(veh)	0	-	-	1	2.5	0.2	-

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5: Carillion Blvd & Walnut Ave Performance by approach

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Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	13.4	9.7	7.5	9.5	9.9

Intersection												
Intersection Delay, s/veh	16											
Intersection LOS	C											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕↗		↗	↕↗	
Traffic Vol, veh/h	143	3	124	4	2	67	150	195	4	30	182	120
Future Vol, veh/h	143	3	124	4	2	67	150	195	4	30	182	120
Peak Hour Factor	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72	0.72
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	199	4	172	6	3	93	208	271	6	42	253	167
Number of Lanes	0	1	1	0	1	1	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	2
HCM Control Delay	16.5	13	16.1	16.2
HCM LOS	C	B	C	C

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	98%	0%	67%	0%	100%	0%	0%
Vol Thru, %	0%	100%	94%	2%	0%	33%	0%	0%	100%	34%
Vol Right, %	0%	0%	6%	0%	100%	0%	100%	0%	0%	66%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	150	130	69	146	124	6	67	30	121	181
LT Vol	150	0	0	143	0	4	0	30	0	0
Through Vol	0	130	65	3	0	2	0	0	121	61
RT Vol	0	0	4	0	124	0	67	0	0	120
Lane Flow Rate	208	181	96	203	172	8	93	42	169	251
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.477	0.388	0.205	0.476	0.347	0.021	0.211	0.097	0.367	0.513
Departure Headway (Hd)	8.25	7.738	7.697	8.451	7.252	9.196	8.146	8.347	7.835	7.358
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	435	464	465	426	494	388	438	428	458	489
Service Time	6.025	5.512	5.47	6.225	5.025	6.989	5.938	6.12	5.607	5.13
HCM Lane V/C Ratio	0.478	0.39	0.206	0.477	0.348	0.021	0.212	0.098	0.369	0.513
HCM Control Delay	18.4	15.4	12.5	18.7	13.9	12.2	13.1	12	15.1	17.7
HCM Lane LOS	C	C	B	C	B	B	B	B	C	C
HCM 95th-tile Q	2.5	1.8	0.8	2.5	1.5	0.1	0.8	0.3	1.7	2.9

Intersection						
Int Delay, s/veh	0.8					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↕↔		↙	↕↕
Traffic Vol, veh/h	19	17	332	6	6	304
Future Vol, veh/h	19	17	332	6	6	304
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	68	68	68	68	68	68
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	28	25	488	9	9	447

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	735	249	0	0	497
Stage 1	493	-	-	-	-
Stage 2	242	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.12
Critical Hdwy Stg 1	5.82	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.21
Pot Cap-1 Maneuver	357	754	-	-	1070
Stage 1	582	-	-	-	-
Stage 2	779	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	354	754	-	-	1070
Mov Cap-2 Maneuver	354	-	-	-	-
Stage 1	577	-	-	-	-
Stage 2	779	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	354	754	1070
HCM Lane V/C Ratio	-	-	0.079	0.033	0.008
HCM Control Delay (s)	-	-	16	9.9	8.4
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	0



HCM 6th TWSC  
8: Carillion Blvd & Chelsham Ave

Existing Conditions  
AM Peak Hour

Intersection												
Int Delay, s/veh	2.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↑↑		↕	↑↑	
Traffic Vol, veh/h	13	7	11	12	0	61	2	264	7	35	280	8
Future Vol, veh/h	13	7	11	12	0	61	2	264	7	35	280	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	6	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	115	-	-	140	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	71	71	71	71	71	71	71	71	71	71	71
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	19	10	15	17	0	86	3	372	10	49	394	11

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	691	893	204	689	893	197	406	0	0	388	0	0
Stage 1	499	499	-	389	389	-	-	-	-	-	-	-
Stage 2	192	394	-	300	504	-	-	-	-	-	-	-
Critical Hdwy	7.52	6.52	6.92	7.52	6.52	6.92	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.51	4.01	3.31	3.51	4.01	3.31	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	333	281	806	334	281	814	1156	-	-	1174	-	-
Stage 1	525	544	-	609	609	-	-	-	-	-	-	-
Stage 2	794	606	-	687	542	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	287	266	805	306	266	809	1155	-	-	1167	-	-
Mov Cap-2 Maneuver	287	266	-	306	266	-	-	-	-	-	-	-
Stage 1	523	521	-	604	604	-	-	-	-	-	-	-
Stage 2	708	601	-	633	519	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	16.3		11.7		0.1			0.9		
HCM LOS	C		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1155	-	-	363	637	1167	-
HCM Lane V/C Ratio	0.002	-	-	0.121	0.161	0.042	-
HCM Control Delay (s)	8.1	-	-	16.3	11.7	8.2	-
HCM Lane LOS	A	-	-	C	B	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.6	0.1	-

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↑↑		↕	↑↑	
Traffic Vol, veh/h	22	5	19	4	1	21	8	230	2	17	277	9
Future Vol, veh/h	22	5	19	4	1	21	8	230	2	17	277	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	140	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	73	73	73	73	73	73	73	73	73	73	73	73
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	30	7	26	5	1	29	11	315	3	23	379	12

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	612	773	197	579	778	160	392	0	0	319	0	0
Stage 1	432	432	-	340	340	-	-	-	-	-	-	-
Stage 2	180	341	-	239	438	-	-	-	-	-	-	-
Critical Hdwy	7.52	6.52	6.92	7.52	6.52	6.92	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.51	4.01	3.31	3.51	4.01	3.31	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	379	330	814	400	328	860	1170	-	-	1245	-	-
Stage 1	575	583	-	651	640	-	-	-	-	-	-	-
Stage 2	807	640	-	746	580	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	357	320	813	372	318	859	1169	-	-	1244	-	-
Mov Cap-2 Maneuver	357	320	-	372	318	-	-	-	-	-	-	-
Stage 1	569	572	-	644	634	-	-	-	-	-	-	-
Stage 2	771	634	-	700	569	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	14.1		10.6		0.3		0.4	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1169	-	-	457	678	1244	-
HCM Lane V/C Ratio	0.009	-	-	0.138	0.053	0.019	-
HCM Control Delay (s)	8.1	-	-	14.1	10.6	7.9	-
HCM Lane LOS	A	-	-	B	B	A	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.2	0.1	-

Intersection	
Intersection Delay, s/veh	14.3
Intersection LOS	B

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations		↔		↔		↔	
Traffic Vol, veh/h	198	116	0	65	42	131	169
Future Vol, veh/h	198	116	0	65	42	131	169
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.78
Heavy Vehicles, %	2	2	2	2	2	2	2
Mvmt Flow	254	149	0	83	54	168	217
Number of Lanes	0	1	0	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	16	9.8	14.2
HCM LOS	C	A	B

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	63%	0%	44%
Vol Thru, %	37%	61%	0%
Vol Right, %	0%	39%	56%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	314	107	300
LT Vol	198	0	131
Through Vol	116	65	0
RT Vol	0	42	169
Lane Flow Rate	403	137	385
Geometry Grp	1	1	1
Degree of Util (X)	0.596	0.205	0.548
Departure Headway (Hd)	5.333	5.373	5.129
Convergence, Y/N	Yes	Yes	Yes
Cap	676	667	704
Service Time	3.362	3.411	3.162
HCM Lane V/C Ratio	0.596	0.205	0.547
HCM Control Delay	16	9.8	14.2
HCM Lane LOS	C	A	B
HCM 95th-tile Q	4	0.8	3.4

Intersection

Intersection Delay, s/veh 56.1

Intersection LOS F

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↑	↘	
Traffic Vol, veh/h	182	217	116	275	180	56
Future Vol, veh/h	182	217	116	275	180	56
Peak Hour Factor	0.61	0.61	0.61	0.61	0.61	0.61
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	298	356	190	451	295	92
Number of Lanes	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	19.1	111.2	27.5
HCM LOS	C	F	D

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	76%	0%	0%	30%
Vol Thru, %	0%	100%	0%	70%
Vol Right, %	24%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	236	182	217	391
LT Vol	180	0	0	116
Through Vol	0	182	0	275
RT Vol	56	0	217	0
Lane Flow Rate	387	298	356	641
Geometry Grp	2	7	7	5
Degree of Util (X)	0.735	0.574	0.615	1.152
Departure Headway (Hd)	7.171	7.23	6.51	6.47
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	507	501	559	564
Service Time	5.171	4.93	4.21	4.518
HCM Lane V/C Ratio	0.763	0.595	0.637	1.137
HCM Control Delay	27.5	19.2	19.1	111.2
HCM Lane LOS	D	C	C	F
HCM 95th-tile Q	6.1	3.6	4.1	21.6

Intersection						
Int Delay, s/veh	36.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑	↑	
Traffic Vol, veh/h	13	150	159	223	325	8
Future Vol, veh/h	13	150	159	223	325	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	47	47	47	47	47	47
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	28	319	338	474	691	17

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1850	700	708	0	-	0
Stage 1	700	-	-	-	-	-
Stage 2	1150	-	-	-	-	-
Critical Hdwy	6.41	6.21	4.11	-	-	-
Critical Hdwy Stg 1	5.41	-	-	-	-	-
Critical Hdwy Stg 2	5.41	-	-	-	-	-
Follow-up Hdwy	3.509	3.309	2.209	-	-	-
Pot Cap-1 Maneuver	82	441	895	-	-	-
Stage 1	494	-	-	-	-	-
Stage 2	303	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	51	441	895	-	-	-
Mov Cap-2 Maneuver	51	-	-	-	-	-
Stage 1	307	-	-	-	-	-
Stage 2	303	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	183.1	4.8	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	895	-	274	-	-
HCM Lane V/C Ratio	0.378	-	1.266	-	-
HCM Control Delay (s)	11.4	-	183.1	-	-
HCM Lane LOS	B	-	F	-	-
HCM 95th %tile Q(veh)	1.8	-	16.8	-	-

Intersection	
Intersection Delay, s/veh	12.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕			↕	
Traffic Vol, veh/h	25	141	2	214	141	34	8	54	128	30	64	7
Future Vol, veh/h	25	141	2	214	141	34	8	54	128	30	64	7
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	32	178	3	271	178	43	10	68	162	38	81	9
Number of Lanes	0	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	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	12.1	13.7	12.1	11.2
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	4%	15%	100%	0%	30%
Vol Thru, %	28%	84%	0%	81%	63%
Vol Right, %	67%	1%	0%	19%	7%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	190	168	214	175	101
LT Vol	8	25	214	0	30
Through Vol	54	141	0	141	64
RT Vol	128	2	0	34	7
Lane Flow Rate	241	213	271	222	128
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.376	0.349	0.486	0.358	0.223
Departure Headway (Hd)	5.628	5.904	6.457	5.812	6.271
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	637	606	558	618	569
Service Time	3.691	3.967	4.211	3.566	4.345
HCM Lane V/C Ratio	0.378	0.351	0.486	0.359	0.225
HCM Control Delay	12.1	12.1	15.2	11.8	11.2
HCM Lane LOS	B	B	C	B	B
HCM 95th-tile Q	1.7	1.6	2.6	1.6	0.8

Intersection												
Intersection Delay, s/veh	12.6											
Intersection LOS	B											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕		↙	↕			↕			↕	
Traffic Vol, veh/h	19	234	36	21	261	41	81	16	59	40	12	45
Future Vol, veh/h	19	234	36	21	261	41	81	16	59	40	12	45
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	25	312	48	28	348	55	108	21	79	53	16	60
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	12.1	12.4	14.2	12.1
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	52%	100%	0%	0%	100%	0%	0%	41%
Vol Thru, %	10%	0%	100%	68%	0%	100%	68%	12%
Vol Right, %	38%	0%	0%	32%	0%	0%	32%	46%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	156	19	156	114	21	174	128	97
LT Vol	81	19	0	0	21	0	0	40
Through Vol	16	0	156	78	0	174	87	12
RT Vol	59	0	0	36	0	0	41	45
Lane Flow Rate	208	25	208	152	28	232	171	129
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.398	0.049	0.371	0.262	0.053	0.41	0.291	0.25
Departure Headway (Hd)	6.88	6.931	6.42	6.194	6.87	6.359	6.13	6.964
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	520	514	557	576	519	564	582	512
Service Time	4.663	4.712	4.201	3.974	4.649	4.137	3.908	4.758
HCM Lane V/C Ratio	0.4	0.049	0.373	0.264	0.054	0.411	0.294	0.252
HCM Control Delay	14.2	10.1	13	11.2	10	13.5	11.4	12.1
HCM Lane LOS	B	B	B	B	A	B	B	B
HCM 95th-tile Q	1.9	0.2	1.7	1	0.2	2	1.2	1

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↕			↕	
Traffic Vol, veh/h	76	368	22	9	323	59	16	16	9	11	8	54
Future Vol, veh/h	76	368	22	9	323	59	16	16	9	11	8	54
Conflicting Peds, #/hr	0	0	10	0	0	7	0	0	15	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	60	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	70	70	70	70	70	70	70	70	70	70	70	92
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	109	526	31	13	461	84	23	23	13	16	11	59

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	552	0	0	567	0	0	1034	1348	304	1044	1321	282
Stage 1	-	-	-	-	-	-	770	770	-	536	536	-
Stage 2	-	-	-	-	-	-	264	578	-	508	785	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.52	6.52	6.92	7.52	6.52	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.51	4.01	3.31	3.51	4.01	3.31
Pot Cap-1 Maneuver	1021	-	-	1008	-	-	188	151	695	185	157	718
Stage 1	-	-	-	-	-	-	362	411	-	499	524	-
Stage 2	-	-	-	-	-	-	721	502	-	518	404	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1014	-	-	998	-	-	145	131	679	140	136	712
Mov Cap-2 Maneuver	-	-	-	-	-	-	145	131	-	140	136	-
Stage 1	-	-	-	-	-	-	320	363	-	443	514	-
Stage 2	-	-	-	-	-	-	637	492	-	419	357	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	1.5			0.2			37.8			21.1		
HCM LOS							E			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	167	1014	-	-	998	-	-	308
HCM Lane V/C Ratio	0.351	0.107	-	-	0.013	-	-	0.279
HCM Control Delay (s)	37.8	9	-	-	8.7	-	-	21.1
HCM Lane LOS	E	A	-	-	A	-	-	C
HCM 95th %tile Q(veh)	1.5	0.4	-	-	0	-	-	1.1



Intersection	
Intersection Delay, s/veh	18.4
Intersection LOS	C

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↗	↕↔	
Traffic Vol, veh/h	209	79	65	195	120	189
Future Vol, veh/h	209	79	65	195	120	189
Peak Hour Factor	0.63	0.63	0.63	0.63	0.63	0.63
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	332	125	103	310	190	300
Number of Lanes	1	1	1	1	2	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	21	17.2	17
HCM LOS	C	C	C

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	17%
Vol Right, %	0%	0%	0%	100%	0%	83%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	65	195	209	79	80	229
LT Vol	65	0	209	0	0	0
Through Vol	0	195	0	0	80	40
RT Vol	0	0	0	79	0	189
Lane Flow Rate	103	310	332	125	127	363
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.21	0.586	0.684	0.216	0.239	0.623
Departure Headway (Hd)	7.329	6.817	7.418	6.198	6.764	6.173
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	486	526	484	576	527	582
Service Time	5.126	4.613	5.196	3.975	4.557	3.966
HCM Lane V/C Ratio	0.212	0.589	0.686	0.217	0.241	0.624
HCM Control Delay	12.1	18.9	24.9	10.7	11.7	18.8
HCM Lane LOS	B	C	C	B	B	C
HCM 95th-tile Q	0.8	3.7	5.1	0.8	0.9	4.3

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	21	12	4	210	209	10
Future Vol, veh/h	21	12	4	210	209	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	72	72	72	72	72	72
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	17	6	292	290	14

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	601	152	304	0	-	0
Stage 1	297	-	-	-	-	-
Stage 2	304	-	-	-	-	-
Critical Hdwy	6.63	6.93	4.13	-	-	-
Critical Hdwy Stg 1	5.83	-	-	-	-	-
Critical Hdwy Stg 2	5.43	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	447	868	1255	-	-	-
Stage 1	729	-	-	-	-	-
Stage 2	748	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	444	868	1255	-	-	-
Mov Cap-2 Maneuver	444	-	-	-	-	-
Stage 1	725	-	-	-	-	-
Stage 2	748	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.3	0.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1255	-	540	-	-
HCM Lane V/C Ratio	0.004	-	0.085	-	-
HCM Control Delay (s)	7.9	0	12.3	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	21	10	8	191	220	8
Future Vol, veh/h	21	10	8	191	220	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	75	75	75	75	75	75
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	13	11	255	293	11

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	570	293	304	0	-	0
Stage 1	293	-	-	-	-	-
Stage 2	277	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	483	746	1257	-	-	-
Stage 1	757	-	-	-	-	-
Stage 2	770	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	478	746	1257	-	-	-
Mov Cap-2 Maneuver	478	-	-	-	-	-
Stage 1	749	-	-	-	-	-
Stage 2	770	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.2	0.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1257	-	541	-	-
HCM Lane V/C Ratio	0.008	-	0.076	-	-
HCM Control Delay (s)	7.9	0	12.2	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	38	175	117	116	141	69
Future Vol, veh/h	38	175	117	116	141	69
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	25	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	16965	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	45	208	139	138	168	82

Major/Minor	Minor2	Major2		
Conflicting Flow All	208	208	-	0
Stage 1	208	208	-	-
Stage 2	0	0	-	-
Critical Hdwy	6.44	6.54	-	-
Critical Hdwy Stg 1	5.44	5.54	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.536	4.036	-	-
Pot Cap-1 Maneuver	776	685	-	-
Stage 1	822	726	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	776	0	-	-
Mov Cap-2 Maneuver	776	0	-	-
Stage 1	822	0	-	-
Stage 2	-	0	-	-

Approach	EB	WB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	EBLn1	EBLn2	WBT	WBR
Capacity (veh/h)	776	-	-	-
HCM Lane V/C Ratio	0.058	-	-	-
HCM Control Delay (s)	9.9	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Intersection Delay, s/veh	11.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	67	52	128	35	63	6	21	124	2	17	191	24
Future Vol, veh/h	67	52	128	35	63	6	21	124	2	17	191	24
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	84	65	160	44	79	8	26	155	3	21	239	30
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	12.5	10.4	11	12.6
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	27%	34%	7%
Vol Thru, %	84%	21%	61%	82%
Vol Right, %	1%	52%	6%	10%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	147	247	104	232
LT Vol	21	67	35	17
Through Vol	124	52	63	191
RT Vol	2	128	6	24
Lane Flow Rate	184	309	130	290
Geometry Grp	1	1	1	1
Degree of Util (X)	0.289	0.448	0.21	0.436
Departure Headway (Hd)	5.654	5.226	5.812	5.413
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	634	689	615	664
Service Time	3.708	3.275	3.871	3.461
HCM Lane V/C Ratio	0.29	0.448	0.211	0.437
HCM Control Delay	11	12.5	10.4	12.6
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	1.2	2.3	0.8	2.2

HCM 6th Signalized Intersection Summary  
 22: Crystal Way & SR 99 SB Off Ramp

Existing Conditions  
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑↑	
Traffic Volume (veh/h)	0	248	104	2	166	0	0	0	0	1	242	97
Future Volume (veh/h)	0	248	104	2	166	0	0	0	0	1	242	97
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	0				1856	1856	1856
Adj Flow Rate, veh/h	0	331	139	3	221	0				1	323	105
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75				0.75	0.75	0.92
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	865	386	24	1426	0				482	716	229
Arrive On Green	0.00	0.25	0.25	0.01	0.40	0.00				0.27	0.27	0.27
Sat Flow, veh/h	0	3618	1572	3428	3618	0				1767	2628	840
Grp Volume(v), veh/h	0	331	139	3	221	0				1	215	213
Grp Sat Flow(s),veh/h/ln	0	1763	1572	1714	1763	0				1767	1763	1704
Q Serve(g_s), s	0.0	2.1	1.9	0.0	1.0	0.0				0.0	2.7	2.7
Cycle Q Clear(g_c), s	0.0	2.1	1.9	0.0	1.0	0.0				0.0	2.7	2.7
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.49
Lane Grp Cap(c), veh/h	0	865	386	24	1426	0				482	481	465
V/C Ratio(X)	0.00	0.38	0.36	0.12	0.16	0.00				0.00	0.45	0.46
Avail Cap(c_a), veh/h	0	3081	1374	1172	4823	0				2585	2579	2493
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	8.3	8.2	13.0	5.0	0.0				7.0	7.9	8.0
Incr Delay (d2), s/veh	0.0	0.1	0.2	2.3	0.0	0.0				0.0	0.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.5	0.4	0.0	0.2	0.0				0.0	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.4	8.4	15.3	5.0	0.0				7.0	8.2	8.2
LnGrp LOS	A	A	A	B	A	A				A	A	A
Approach Vol, veh/h		470			224						429	
Approach Delay, s/veh		8.4			5.1						8.2	
Approach LOS		A			A						A	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	4.2	10.5		11.7		14.6						
Change Period (Y+Rc), s	4.0	4.0		4.5		4.0						
Max Green Setting (Gmax), s	23.0			38.5		36.0						
Max Q Clear Time (g_c+1), s	4.1			4.7		3.0						
Green Ext Time (p_c), s	0.0	1.5		1.5		0.9						
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				7.7								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary  
 23: SR 99 NB On Ramp & Crystal Way

Existing Conditions  
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↑			↑↑	↖	↖	↖↗				
Traffic Volume (veh/h)	228	21	0	0	13	3	155	285	0	0	0	0
Future Volume (veh/h)	228	21	0	0	13	3	155	285	0	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	304	28	0	0	17	4	196	396	0			
Peak Hour Factor	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	690	1481	0	0	273	122	486	1020	0			
Arrive On Green	0.20	0.42	0.00	0.00	0.08	0.08	0.27	0.27	0.00			
Sat Flow, veh/h	3456	3647	0	0	3647	1585	1781	3741	0			
Grp Volume(v), veh/h	304	28	0	0	17	4	196	396	0			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	1781	1870	0			
Q Serve(g_s), s	2.5	0.2	0.0	0.0	0.1	0.1	3.0	2.8	0.0			
Cycle Q Clear(g_c), s	2.5	0.2	0.0	0.0	0.1	0.1	3.0	2.8	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.00			
Lane Grp Cap(c), veh/h	690	1481	0	0	273	122	486	1020	0			
V/C Ratio(X)	0.44	0.02	0.00	0.00	0.06	0.03	0.40	0.39	0.00			
Avail Cap(c_a), veh/h	947	3570	0	0	2272	1013	1952	4100	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00			
Uniform Delay (d), s/veh	11.5	5.6	0.0	0.0	14.1	14.0	9.8	9.7	0.0			
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.8	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.7	5.6	0.0	0.0	14.1	14.1	10.0	9.8	0.0			
LnGrp LOS	B	A	A	A	B	B	A	A	A			
Approach Vol, veh/h		332			21			592				
Approach Delay, s/veh		11.2			14.1			9.9				
Approach LOS		B			B			A				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		18.8			11.2	7.6		14.1				
Change Period (Y+Rc), s		5.1			4.6	5.1		5.1				
Max Green Setting (Gmax), s		33.0			9.0	21.0		36.0				
Max Q Clear Time (g_c+I1), s		2.2			4.5	2.1		5.0				
Green Ext Time (p_c), s		0.1			0.3	0.0		2.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay					10.4							
HCM 6th LOS					B							
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												

# HCM 6th Signalized Intersection Summary

## 24: Fairway Dr & C Street

Existing Conditions  
AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑			↑		↑	↑↑	
Traffic Volume (veh/h)	0	301	31	280	215	0	36	0	15	115	104	129
Future Volume (veh/h)	0	301	31	280	215	0	36	0	15	115	104	129
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	327	34	304	234	0	39	0	16	125	113	140
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, %	0	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	0	724	323	636	1692	0	114	0	47	293	292	261
Arrive On Green	0.00	0.20	0.20	0.18	0.48	0.00	0.09	0.00	0.09	0.16	0.16	0.16
Sat Flow, veh/h	0	3647	1585	3456	3647	0	1219	0	500	1781	1777	1585
Grp Volume(v), veh/h	0	327	34	304	234	0	55	0	0	125	113	140
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0	1719	0	0	1781	1777	1585
Q Serve(g_s), s	0.0	3.6	0.8	3.6	1.7	0.0	1.4	0.0	0.0	2.8	2.6	3.7
Cycle Q Clear(g_c), s	0.0	3.6	0.8	3.6	1.7	0.0	1.4	0.0	0.0	2.8	2.6	3.7
Prop In Lane	0.00		1.00	1.00		0.00	0.71		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	0	724	323	636	1692	0	161	0	0	293	292	261
V/C Ratio(X)	0.00	0.45	0.11	0.48	0.14	0.00	0.34	0.00	0.00	0.43	0.39	0.54
Avail Cap(c_a), veh/h	0	1809	807	688	2831	0	419	0	0	1301	1298	1158
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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	15.8	14.6	16.5	6.6	0.0	19.2	0.0	0.0	17.0	16.8	17.3
Incr Delay (d2), s/veh	0.0	0.9	0.3	0.2	0.0	0.0	0.5	0.0	0.0	0.4	0.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.4	0.3	1.2	0.5	0.0	0.5	0.0	0.0	1.1	0.9	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	16.7	14.9	16.7	6.7	0.0	19.6	0.0	0.0	17.3	17.2	17.9
LnGrp LOS	A	B	B	B	A	A	B	A	A	B	B	B
Approach Vol, veh/h		361		538		55		378				
Approach Delay, s/veh		16.6		12.3		19.6		17.5				
Approach LOS		B		B		B		B				
Timer - Assigned Phs	1	2	4	6	8							
Phs Duration (G+Y+Rc), s	12.3	13.2	11.4	25.5	8.2							
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0							
Max Green Setting (Gmax), s	23.0	33.0	36.0	11.0								
Max Q Clear Time (g_c+1), s	5.6	5.7	3.7	3.4								
Green Ext Time (p_c), s	0.2	3.6	1.2	1.6	0.1							

### Intersection Summary

HCM 6th Ctrl Delay	15.2
HCM 6th LOS	B

### Notes

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



HCM 6th Signalized Intersection Summary  
 25: SR 99 NB Off Ramp/SR 99 NB On Ramp & C Street

Existing Conditions  
 AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↑↑	↔	↔	↔↔				
Traffic Volume (veh/h)	301	130	0	0	317	50	178	89	32	0	0	0
Future Volume (veh/h)	301	130	0	0	317	50	178	89	32	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	372	160	0	0	391	62	244	77	40			
Peak Hour Factor	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81	0.81			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	903	1923	0	0	601	264	760	247	129			
Arrive On Green	0.26	0.54	0.00	0.00	0.17	0.17	0.21	0.21	0.21			
Sat Flow, veh/h	3456	3647	0	0	3647	1561	3563	1160	602			
Grp Volume(v), veh/h	372	160	0	0	391	62	244	0	117			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1561	1781	0	1762			
Q Serve(g_s), s	3.7	0.9	0.0	0.0	4.3	1.4	2.4	0.0	2.3			
Cycle Q Clear(g_c), s	3.7	0.9	0.0	0.0	4.3	1.4	2.4	0.0	2.3			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.34			
Lane Grp Cap(c), veh/h	903	1923	0	0	601	264	760	0	376			
V/C Ratio(X)	0.41	0.08	0.00	0.00	0.65	0.24	0.32	0.00	0.31			
Avail Cap(c_a), veh/h	1498	1923	0	0	856	376	858	0	424			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	12.7	4.6	0.0	0.0	16.1	14.9	13.8	0.0	13.8			
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.4	0.2	0.1	0.0	0.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.2	0.2	0.0	0.0	1.5	0.4	0.8	0.0	0.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.8	4.6	0.0	0.0	16.6	15.1	13.9	0.0	13.9			
LnGrp LOS	B	A	A	A	B	B	B	A	B			
Approach Vol, veh/h		532			453			361				
Approach Delay, s/veh		10.3			16.4			13.9				
Approach LOS		B			B			B				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		27.6			15.4	12.1		14.0				
Change Period (Y+Rc), s		5.1			4.6	5.1		5.1				
Max Green Setting (Gmax), s		10.0			18.0	10.0		10.0				
Max Q Clear Time (g_c+I1), s		2.9			5.7	6.3		4.4				
Green Ext Time (p_c), s		0.3			0.6	0.7		0.5				

Intersection Summary

HCM 6th Ctrl Delay	13.3
HCM 6th LOS	B

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary  
 26: SR 99 SB On Ramp & Fairway Dr






















Existing Conditions  
 AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↶		↷	↶
Traffic Volume (veh/h)	0	0	51	4	315	100
Future Volume (veh/h)	0	0	51	4	315	100
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1885	1885	1885	1885
Adj Flow Rate, veh/h			54	4	335	106
Peak Hour Factor			0.94	0.94	0.94	0.94
Percent Heavy Veh, %			1	1	1	1
Cap, veh/h			352	26	455	1338
Arrive On Green			0.20	0.20	0.25	0.71
Sat Flow, veh/h			1734	128	1795	1885
Grp Volume(v), veh/h			0	58	335	106
Grp Sat Flow(s),veh/h/ln			0	1862	1795	1885
Q Serve(g_s), s			0.0	0.4	2.4	0.2
Cycle Q Clear(g_c), s			0.0	0.4	2.4	0.2
Prop In Lane				0.07	1.00	
Lane Grp Cap(c), veh/h			0	378	455	1338
V/C Ratio(X)			0.00	0.15	0.74	0.08
Avail Cap(c_a), veh/h			0	6076	4166	6152
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			0.0	4.5	4.7	0.6
Incr Delay (d2), s/veh			0.0	0.1	0.9	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	4.6	5.6	0.6
LnGrp LOS			A	A	A	A
Approach Vol, veh/h			58			441
Approach Delay, s/veh			4.6			4.4
Approach LOS			A			A
Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	7.0	6.8				13.8
Change Period (Y+Rc), s	3.5	4.0				* 4
Max Green Setting (Gmax), s	22.0	45.0				* 45
Max Q Clear Time (g_c+1), s	11.5	2.4				2.2
Green Ext Time (p_c), s	0.5	0.2				0.4
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			4.4			
HCM 6th LOS			A			
<b>Notes</b>						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

HCM 6th Signalized Intersection Summary  
 1: Carillion Blvd & Twin Cities Rd

Existing Conditions  
 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	478	376	20	290	0	172	0	15	0	0	0
Future Volume (veh/h)	0	478	376	20	290	0	172	0	15	0	0	0
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		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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	493	388	21	299	0	177	0	15	0	0	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	5	664	556	66	973	0	422	0	247	0	292	0
Arrive On Green	0.00	0.36	0.36	0.04	0.52	0.00	0.16	0.00	0.16	0.00	0.00	0.00
Sat Flow, veh/h	1781	1870	1565	1781	1870	0	1418	0	1585	0	1870	0
Grp Volume(v), veh/h	0	493	388	21	299	0	177	0	15	0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1870	1565	1781	1870	0	1418	0	1585	0	1870	0
Q Serve(g_s), s	0.0	8.3	7.6	0.4	3.3	0.0	4.3	0.0	0.3	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	8.3	7.6	0.4	3.3	0.0	4.3	0.0	0.3	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	5	664	556	66	973	0	422	0	247	0	292	0
V/C Ratio(X)	0.00	0.74	0.70	0.32	0.31	0.00	0.42	0.00	0.06	0.00	0.00	0.00
Avail Cap(c_a), veh/h	497	2348	1965	746	2348	0	675	0	531	0	626	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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	10.1	9.9	16.8	4.9	0.0	14.6	0.0	12.9	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.6	0.6	1.0	0.1	0.0	0.2	0.0	0.0	0.0	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	0.0	2.0	1.6	0.1	0.4	0.0	1.0	0.0	0.1	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	10.7	10.5	17.9	5.0	0.0	14.8	0.0	12.9	0.0	0.0	0.0
LnGrp LOS	A	B	B	B	A	A	B	A	B	A	A	A
Approach Vol, veh/h		881			320			192				0
Approach Delay, s/veh		10.6			5.8			14.7				0.0
Approach LOS		B			A			B				
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.9	18.5		11.4	0.0	24.4		11.4				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		* 5.8				
Max Green Setting (Gmax), s	15.0	45.0		12.0	10.0	45.0		* 12				
Max Q Clear Time (g_c+I1), s	2.4	10.3		0.0	0.0	5.3		6.3				
Green Ext Time (p_c), s	0.0	2.5		0.0	0.0	1.0		0.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				10.1								
HCM 6th LOS				B								
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection												
Int Delay, s/veh	4.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	↕
Traffic Vol, veh/h	10	7	49	54	14	17	40	160	18	92	307	0
Future Vol, veh/h	10	7	49	54	14	17	40	160	18	92	307	0
Conflicting Peds, #/hr	0	0	1	0	0	4	0	0	3	0	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	115	-	-	145	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	11	8	53	58	15	18	43	172	19	99	330	0

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	716	812	170	639	803	103	334	0	0	194	0	0
Stage 1	532	532	-	271	271	-	-	-	-	-	-	-
Stage 2	184	280	-	368	532	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	321	315	851	365	319	938	1237	-	-	1391	-	-
Stage 1	504	529	-	717	689	-	-	-	-	-	-	-
Stage 2	806	683	-	630	529	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	276	280	847	308	284	932	1232	-	-	1387	-	-
Mov Cap-2 Maneuver	276	280	-	308	284	-	-	-	-	-	-	-
Stage 1	484	489	-	690	663	-	-	-	-	-	-	-
Stage 2	742	657	-	540	489	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	12.5		18.9			1.5			1.8		
HCM LOS	B		C								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1232	-	-	554	350	1387	-
HCM Lane V/C Ratio	0.035	-	-	0.128	0.261	0.071	-
HCM Control Delay (s)	8	-	-	12.5	18.9	7.8	-
HCM Lane LOS	A	-	-	B	C	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	1	0.2	-

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	32	9	31	4	8	16	29	170	17	31	341	38
Future Vol, veh/h	32	9	31	4	8	16	29	170	17	31	341	38
Conflicting Peds, #/hr	0	0	1	0	0	3	0	0	1	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	145	-	-	145	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	90	90	90	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	36	10	34	4	9	18	32	189	19	34	379	42

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	637	744	215	528	756	108	424	0	0	209	0	0
Stage 1	471	471	-	264	264	-	-	-	-	-	-	-
Stage 2	166	273	-	264	492	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	362	341	790	433	336	925	1132	-	-	1359	-	-
Stage 1	542	558	-	718	689	-	-	-	-	-	-	-
Stage 2	820	683	-	718	546	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	332	322	787	387	317	921	1129	-	-	1358	-	-
Mov Cap-2 Maneuver	332	322	-	387	317	-	-	-	-	-	-	-
Stage 1	525	542	-	697	669	-	-	-	-	-	-	-
Stage 2	769	663	-	656	531	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	15		12.2		1.1		0.6	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1129	-	-	440	529	1358	-
HCM Lane V/C Ratio	0.029	-	-	0.182	0.059	0.025	-
HCM Control Delay (s)	8.3	-	-	15	12.2	7.7	-
HCM Lane LOS	A	-	-	C	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0.2	0.1	-

Intersection												
Int Delay, s/veh	2.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	20	11	8	11	4	35	10	161	26	57	268	51
Future Vol, veh/h	20	11	8	11	4	35	10	161	26	57	268	51
Conflicting Peds, #/hr	0	0	2	0	0	0	0	0	3	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	145	-	-	145	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	23	13	9	13	5	41	12	187	30	66	312	59

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	594	718	188	526	732	112	371	0	0	220	0	0
Stage 1	474	474	-	229	229	-	-	-	-	-	-	-
Stage 2	120	244	-	297	503	-	-	-	-	-	-	-
Critical Hdwy	7.52	6.52	6.92	7.52	6.52	6.92	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.51	4.01	3.31	3.51	4.01	3.31	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	391	355	825	437	349	923	1191	-	-	1354	-	-
Stage 1	543	559	-	756	716	-	-	-	-	-	-	-
Stage 2	875	705	-	690	542	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	353	333	823	399	328	920	1191	-	-	1350	-	-
Mov Cap-2 Maneuver	353	333	-	399	328	-	-	-	-	-	-	-
Stage 1	538	532	-	746	707	-	-	-	-	-	-	-
Stage 2	822	696	-	632	515	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	15.4		11.2		0.4		1.2	
HCM LOS	C		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1191	-	-	392	643	1350	-
HCM Lane V/C Ratio	0.01	-	-	0.116	0.09	0.049	-
HCM Control Delay (s)	8.1	-	-	15.4	11.2	7.8	-
HCM Lane LOS	A	-	-	C	B	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.3	0.2	-

5: Carillion Blvd & Walnut Ave Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	10.4	6.6	5.9	7.5	7.7

Intersection												
Intersection Delay, s/veh	9.4											
Intersection LOS	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔		↔	↔	
Traffic Vol, veh/h	49	1	67	5	5	24	67	133	10	40	178	69
Future Vol, veh/h	49	1	67	5	5	24	67	133	10	40	178	69
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	53	1	72	5	5	26	72	143	11	43	191	74
Number of Lanes	0	1	1	0	1	1	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	2
HCM Control Delay	9.3	8.8	9.4	9.4
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	98%	0%	50%	0%	100%	0%	0%
Vol Thru, %	0%	100%	82%	2%	0%	50%	0%	0%	100%	46%
Vol Right, %	0%	0%	18%	0%	100%	0%	100%	0%	0%	54%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	67	89	54	50	67	10	24	40	119	128
LT Vol	67	0	0	49	0	5	0	40	0	0
Through Vol	0	89	44	1	0	5	0	0	119	59
RT Vol	0	0	10	0	67	0	24	0	0	69
Lane Flow Rate	72	95	58	54	72	11	26	43	128	138
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.122	0.149	0.089	0.098	0.107	0.019	0.04	0.072	0.194	0.196
Departure Headway (Hd)	6.116	5.613	5.483	6.546	5.357	6.523	5.572	5.988	5.485	5.107
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	581	632	646	551	673	552	646	593	648	694
Service Time	3.915	3.412	3.282	4.246	3.057	4.229	3.278	3.778	3.275	2.897
HCM Lane V/C Ratio	0.124	0.15	0.09	0.098	0.107	0.02	0.04	0.073	0.198	0.199
HCM Control Delay	9.8	9.4	8.8	10	8.7	9.4	8.5	9.2	9.6	9.2
HCM Lane LOS	A	A	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.4	0.5	0.3	0.3	0.4	0.1	0.1	0.2	0.7	0.7



Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↕		↙	↕
Traffic Vol, veh/h	18	11	199	31	20	230
Future Vol, veh/h	18	11	199	31	20	230
Conflicting Peds, #/hr	0	0	0	5	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	20	12	224	35	22	258

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	420	135	0	0	264
Stage 1	247	-	-	-	-
Stage 2	173	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.12
Critical Hdwy Stg 1	5.82	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.21
Pot Cap-1 Maneuver	564	892	-	-	1304
Stage 1	774	-	-	-	-
Stage 2	843	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	552	888	-	-	1298
Mov Cap-2 Maneuver	552	-	-	-	-
Stage 1	757	-	-	-	-
Stage 2	843	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	552	888	1298
HCM Lane V/C Ratio	-	-	0.037	0.014	0.017
HCM Control Delay (s)	-	-	11.8	9.1	7.8
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	0.1

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↑↑		↕	↑↑	
Traffic Vol, veh/h	7	2	7	14	1	34	8	189	17	28	208	12
Future Vol, veh/h	7	2	7	14	1	34	8	189	17	28	208	12
Conflicting Peds, #/hr	0	0	2	0	0	2	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	115	-	-	140	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	91	91	91	91	91	91	91	91	91	91	91	91
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	8	2	8	15	1	37	9	208	19	31	229	13

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	423	543	123	416	540	116	242	0	0	227	0	0
Stage 1	298	298	-	236	236	-	-	-	-	-	-	-
Stage 2	125	245	-	180	304	-	-	-	-	-	-	-
Critical Hdwy	7.52	6.52	6.92	7.52	6.52	6.92	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.51	4.01	3.31	3.51	4.01	3.31	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	517	448	908	523	449	917	1329	-	-	1346	-	-
Stage 1	689	668	-	749	711	-	-	-	-	-	-	-
Stage 2	869	705	-	807	664	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	483	435	906	504	436	915	1329	-	-	1346	-	-
Mov Cap-2 Maneuver	483	435	-	504	436	-	-	-	-	-	-	-
Stage 1	684	653	-	744	706	-	-	-	-	-	-	-
Stage 2	825	700	-	778	649	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11.2		10.3		0.3		0.9	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1329	-	-	597	729	1346	-
HCM Lane V/C Ratio	0.007	-	-	0.029	0.074	0.023	-
HCM Control Delay (s)	7.7	-	-	11.2	10.3	7.7	-
HCM Lane LOS	A	-	-	B	B	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0.1	-

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↑↑		↕	↑↑	
Traffic Vol, veh/h	12	3	18	10	2	10	17	192	13	8	208	13
Future Vol, veh/h	12	3	18	10	2	10	17	192	13	8	208	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	140	-	-	130	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	13	3	19	11	2	11	18	202	14	8	219	14

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	380	494	117	372	494	108	233	0	0	216	0	0
Stage 1	242	242	-	245	245	-	-	-	-	-	-	-
Stage 2	138	252	-	127	249	-	-	-	-	-	-	-
Critical Hdwy	7.52	6.52	6.92	7.52	6.52	6.92	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.51	4.01	3.31	3.51	4.01	3.31	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	555	477	916	562	477	928	1339	-	-	1358	-	-
Stage 1	743	707	-	740	705	-	-	-	-	-	-	-
Stage 2	854	700	-	866	702	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	539	468	916	540	468	928	1339	-	-	1358	-	-
Mov Cap-2 Maneuver	539	468	-	540	468	-	-	-	-	-	-	-
Stage 1	733	703	-	730	696	-	-	-	-	-	-	-
Stage 2	830	691	-	839	698	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	10.6		10.7		0.6		0.3	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1339	-	-	683	655	1358	-
HCM Lane V/C Ratio	0.013	-	-	0.051	0.035	0.006	-
HCM Control Delay (s)	7.7	-	-	10.6	10.7	7.7	-
HCM Lane LOS	A	-	-	B	B	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBL	EBT	WBU	WBT	WBR	SBL	SBR
Lane Configurations							
Traffic Vol, veh/h	177	76	0	122	45	65	171
Future Vol, veh/h	177	76	0	122	45	65	171
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	1	1	1	1	1	1	1
Mvmt Flow	197	84	0	136	50	72	190
Number of Lanes	0	1	0	1	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	11	9.3	10.1
HCM LOS	B	A	B

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	70%	0%	28%
Vol Thru, %	30%	73%	0%
Vol Right, %	0%	27%	72%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	253	167	236
LT Vol	177	0	65
Through Vol	76	122	0
RT Vol	0	45	171
Lane Flow Rate	281	186	262
Geometry Grp	1	1	1
Degree of Util (X)	0.383	0.244	0.338
Departure Headway (Hd)	4.899	4.726	4.637
Convergence, Y/N	Yes	Yes	Yes
Cap	731	753	771
Service Time	2.963	2.794	2.694
HCM Lane V/C Ratio	0.384	0.247	0.34
HCM Control Delay	11	9.3	10.1
HCM Lane LOS	B	A	B
HCM 95th-tile Q	1.8	1	1.5

**Intersection**

Intersection Delay, s/veh	11.8
Intersection LOS	B

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗		↑	↘	
Traffic Vol, veh/h	348	56	42	232	61	29
Future Vol, veh/h	348	56	42	232	61	29
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	382	62	46	255	67	32
Number of Lanes	1	1	0	1	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	2	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	2
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	12.7	11.1	9.6
HCM LOS	B	B	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1
Vol Left, %	68%	0%	0%	15%
Vol Thru, %	0%	100%	0%	85%
Vol Right, %	32%	0%	100%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	90	348	56	274
LT Vol	61	0	0	42
Through Vol	0	348	0	232
RT Vol	29	0	56	0
Lane Flow Rate	99	382	62	301
Geometry Grp	2	7	7	5
Degree of Util (X)	0.152	0.537	0.074	0.404
Departure Headway (Hd)	5.543	5.054	4.35	4.828
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	643	711	820	744
Service Time	3.611	2.798	2.093	2.874
HCM Lane V/C Ratio	0.154	0.537	0.076	0.405
HCM Control Delay	9.6	13.6	7.4	11.1
HCM Lane LOS	A	B	A	B
HCM 95th-tile Q	0.5	3.2	0.2	2

Intersection						
Int Delay, s/veh	3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑	↑	
Traffic Vol, veh/h	11	39	46	79	79	19
Future Vol, veh/h	11	39	46	79	79	19
Conflicting Peds, #/hr	0	8	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	13	45	53	92	92	22

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	301	111	114	0	-	0
Stage 1	103	-	-	-	-	-
Stage 2	198	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	691	942	1475	-	-	-
Stage 1	921	-	-	-	-	-
Stage 2	835	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	666	935	1475	-	-	-
Mov Cap-2 Maneuver	666	-	-	-	-	-
Stage 1	888	-	-	-	-	-
Stage 2	835	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	2.8	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1475	-	859	-	-
HCM Lane V/C Ratio	0.036	-	0.068	-	-
HCM Control Delay (s)	7.5	-	9.5	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0.1	-	0.2	-	-

Intersection	
Intersection Delay, s/veh	11.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕			↕	
Traffic Vol, veh/h	55	158	2	94	71	22	7	72	70	108	125	1
Future Vol, veh/h	55	158	2	94	71	22	7	72	70	108	125	1
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	63	182	2	108	82	25	8	83	80	124	144	1
Number of Lanes	0	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	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	2	1
HCM Control Delay	12.4	10.6	10.4	12.7
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	5%	26%	100%	0%	46%
Vol Thru, %	48%	73%	0%	76%	53%
Vol Right, %	47%	1%	0%	24%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	149	215	94	93	234
LT Vol	7	55	94	0	108
Through Vol	72	158	0	71	125
RT Vol	70	2	0	22	1
Lane Flow Rate	171	247	108	107	269
Geometry Grp	2	5	7	7	2
Degree of Util (X)	0.26	0.391	0.2	0.177	0.42
Departure Headway (Hd)	5.46	5.7	6.651	5.974	5.626
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	656	630	539	599	637
Service Time	3.515	3.751	4.403	3.727	3.676
HCM Lane V/C Ratio	0.261	0.392	0.2	0.179	0.422
HCM Control Delay	10.4	12.4	11.1	10	12.7
HCM Lane LOS	B	B	B	A	B
HCM 95th-tile Q	1	1.9	0.7	0.6	2.1

<b>Intersection</b>												
Intersection Delay, s/veh	8.9											
Intersection LOS	A											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↶↷		↶	↶↷			↷			↷	
Traffic Vol, veh/h	50	216	70	16	124	8	41	12	14	6	11	22
Future Vol, veh/h	50	216	70	16	124	8	41	12	14	6	11	22
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	57	245	80	18	141	9	47	14	16	7	13	25
Number of Lanes	1	2	0	1	2	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	3	3	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	3	3
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	3	3
HCM Control Delay	9	8.6	9.5	8.6
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	EBLn2	EBLn3	WBLn1	WBLn2	WBLn3	SBLn1
Vol Left, %	61%	100%	0%	0%	100%	0%	0%	15%
Vol Thru, %	18%	0%	100%	51%	0%	100%	84%	28%
Vol Right, %	21%	0%	0%	49%	0%	0%	16%	56%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	67	50	144	142	16	83	49	39
LT Vol	41	50	0	0	16	0	0	6
Through Vol	12	0	144	72	0	83	41	11
RT Vol	14	0	0	70	0	0	8	22
Lane Flow Rate	76	57	164	161	18	94	56	44
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.125	0.087	0.228	0.21	0.029	0.136	0.079	0.068
Departure Headway (Hd)	5.908	5.528	5.025	4.678	5.722	5.219	5.105	5.487
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	605	648	713	765	624	685	700	650
Service Time	3.663	3.267	2.764	2.417	3.469	2.966	2.852	3.245
HCM Lane V/C Ratio	0.126	0.088	0.23	0.21	0.029	0.137	0.08	0.068
HCM Control Delay	9.5	8.8	9.3	8.7	8.6	8.8	8.3	8.6
HCM Lane LOS	A	A	A	A	A	A	A	A
HCM 95th-tile Q	0.4	0.3	0.9	0.8	0.1	0.5	0.3	0.2



Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕		↖	↕			↕			↕	
Traffic Vol, veh/h	26	143	59	2	86	12	27	11	3	1	17	18
Future Vol, veh/h	26	143	59	2	86	12	27	11	3	1	17	18
Conflicting Peds, #/hr	0	0	5	0	0	10	0	0	8	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	60	-	-	60	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	87	87	87	87	87	87	87	87	87
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	30	164	68	2	99	14	31	13	3	1	20	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	123	0	0	237	0	0	327	390	129	277	417	67
Stage 1	-	-	-	-	-	-	263	263	-	120	120	-
Stage 2	-	-	-	-	-	-	64	127	-	157	297	-
Critical Hdwy	4.12	-	-	4.12	-	-	7.52	6.52	6.92	7.52	6.52	6.92
Critical Hdwy Stg 1	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.52	5.52	-	6.52	5.52	-
Follow-up Hdwy	2.21	-	-	2.21	-	-	3.51	4.01	3.31	3.51	4.01	3.31
Pot Cap-1 Maneuver	1469	-	-	1335	-	-	605	546	900	656	527	986
Stage 1	-	-	-	-	-	-	722	692	-	875	798	-
Stage 2	-	-	-	-	-	-	942	792	-	832	669	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1455	-	-	1329	-	-	563	525	889	620	507	977
Mov Cap-2 Maneuver	-	-	-	-	-	-	563	525	-	620	507	-
Stage 1	-	-	-	-	-	-	704	674	-	849	788	-
Stage 2	-	-	-	-	-	-	898	782	-	790	652	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.9			0.2			11.9			10.7		
HCM LOS							B			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	567	1455	-	-	1329	-	-	672
HCM Lane V/C Ratio	0.083	0.021	-	-	0.002	-	-	0.062
HCM Control Delay (s)	11.9	7.5	-	-	7.7	-	-	10.7
HCM Lane LOS	B	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.3	0.1	-	-	0	-	-	0.2

Intersection	
Intersection Delay, s/veh	8.2
Intersection LOS	A

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	51	51	46	74	80	38
Future Vol, veh/h	51	51	46	74	80	38
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	56	56	51	81	88	42
Number of Lanes	1	1	1	1	2	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	2	0	2
HCM Control Delay	8.2	8.4	7.9
HCM LOS	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	100%	0%	0%	100%	41%
Vol Right, %	0%	0%	0%	100%	0%	59%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	46	74	51	51	53	65
LT Vol	46	0	51	0	0	0
Through Vol	0	74	0	0	53	27
RT Vol	0	0	0	51	0	38
Lane Flow Rate	51	81	56	56	59	71
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.076	0.111	0.088	0.069	0.08	0.089
Departure Headway (Hd)	5.416	4.914	5.644	4.441	4.926	4.513
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	664	731	637	808	729	796
Service Time	3.132	2.63	3.361	2.158	2.642	2.229
HCM Lane V/C Ratio	0.077	0.111	0.088	0.069	0.081	0.089
HCM Control Delay	8.6	8.2	8.9	7.5	8.1	7.7
HCM Lane LOS	A	A	A	A	A	A
HCM 95th-tile Q	0.2	0.4	0.3	0.2	0.3	0.3

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	2	11	9	124	127	10
Future Vol, veh/h	2	11	9	124	127	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	2	13	10	144	148	12

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	318	80	160	0	0
Stage 1	154	-	-	-	-
Stage 2	164	-	-	-	-
Critical Hdwy	6.6	6.9	4.1	-	-
Critical Hdwy Stg 1	5.8	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-
Pot Cap-1 Maneuver	667	971	1432	-	-
Stage 1	864	-	-	-	-
Stage 2	870	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	662	971	1432	-	-
Mov Cap-2 Maneuver	662	-	-	-	-
Stage 1	857	-	-	-	-
Stage 2	870	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9	0.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1432	-	906	-	-
HCM Lane V/C Ratio	0.007	-	0.017	-	-
HCM Control Delay (s)	7.5	0	9	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	0.6					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔			↔	↔	↔
Traffic Vol, veh/h	1	16	3	136	138	6
Future Vol, veh/h	1	16	3	136	138	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0
Mvmt Flow	1	18	3	153	155	7

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	314	155	162	0	-	0
Stage 1	155	-	-	-	-	-
Stage 2	159	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	683	896	1429	-	-	-
Stage 1	878	-	-	-	-	-
Stage 2	875	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	682	896	1429	-	-	-
Mov Cap-2 Maneuver	682	-	-	-	-	-
Stage 1	876	-	-	-	-	-
Stage 2	875	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.2	0.2	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1429	-	880	-	-
HCM Lane V/C Ratio	0.002	-	0.022	-	-
HCM Control Delay (s)	7.5	0	9.2	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	115	150	143	136	41
Future Vol, veh/h	20	115	150	143	136	41
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	25	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	16965	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	21	120	156	149	142	43

Major/Minor	Minor2	Major2		
Conflicting Flow All	231	231	-	0
Stage 1	231	231	-	-
Stage 2	0	0	-	-
Critical Hdwy	6.41	6.51	-	-
Critical Hdwy Stg 1	5.41	5.51	-	-
Critical Hdwy Stg 2	-	-	-	-
Follow-up Hdwy	3.509	4.009	-	-
Pot Cap-1 Maneuver	759	671	-	-
Stage 1	810	715	-	-
Stage 2	-	-	-	-
Platoon blocked, %			-	-
Mov Cap-1 Maneuver	759	0	-	-
Mov Cap-2 Maneuver	759	0	-	-
Stage 1	810	0	-	-
Stage 2	-	0	-	-

Approach	EB	WB
HCM Control Delay, s		0
HCM LOS	-	

Minor Lane/Major Mvmt	EBLn1	EBLn2	WBT	WBR
Capacity (veh/h)	759	-	-	-
HCM Lane V/C Ratio	0.027	-	-	-
HCM Control Delay (s)	9.9	-	-	-
HCM Lane LOS	A	-	-	-
HCM 95th %tile Q(veh)	0.1	-	-	-

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	25	61	55	16	96	11	46	107	14	18	115	23
Future Vol, veh/h	25	61	55	16	96	11	46	107	14	18	115	23
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	27	66	60	17	104	12	50	116	15	20	125	25
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	9	9.1	9.4	9.2
HCM LOS	A	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	18%	13%	12%
Vol Thru, %	64%	43%	78%	74%
Vol Right, %	8%	39%	9%	15%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	167	141	123	156
LT Vol	46	25	16	18
Through Vol	107	61	96	115
RT Vol	14	55	11	23
Lane Flow Rate	182	153	134	170
Geometry Grp	1	1	1	1
Degree of Util (X)	0.243	0.202	0.183	0.225
Departure Headway (Hd)	4.824	4.734	4.925	4.771
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	741	753	723	748
Service Time	2.884	2.795	2.989	2.832
HCM Lane V/C Ratio	0.246	0.203	0.185	0.227
HCM Control Delay	9.4	9	9.1	9.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1	0.8	0.7	0.9

HCM 6th Signalized Intersection Summary  
 22: Crystal Way & SR 99 SB Off Ramp

Existing Conditions  
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑↑	
Traffic Volume (veh/h)	0	183	59	2	142	0	0	0	0	3	281	175
Future Volume (veh/h)	0	183	59	2	142	0	0	0	0	3	281	175
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0				1870	1870	1870
Adj Flow Rate, veh/h	0	195	63	2	151	0				3	299	186
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94				0.94	0.94	0.94
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	840	375	16	1402	0				498	594	360
Arrive On Green	0.00	0.24	0.24	0.00	0.39	0.00				0.28	0.28	0.28
Sat Flow, veh/h	0	3647	1585	3456	3647	0				1781	2127	1289
Grp Volume(v), veh/h	0	195	63	2	151	0				3	248	237
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0				1781	1777	1638
Q Serve(g_s), s	0.0	1.2	0.8	0.0	0.7	0.0				0.0	3.1	3.2
Cycle Q Clear(g_c), s	0.0	1.2	0.8	0.0	0.7	0.0				0.0	3.1	3.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.79
Lane Grp Cap(c), veh/h	0	840	375	16	1402	0				498	496	458
V/C Ratio(X)	0.00	0.23	0.17	0.12	0.11	0.00				0.01	0.50	0.52
Avail Cap(c_a), veh/h	0	3136	1399	1193	4908	0				2631	2624	2420
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	8.0	7.9	12.9	5.0	0.0				6.8	7.9	7.9
Incr Delay (d2), s/veh	0.0	0.1	0.1	3.4	0.0	0.0				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
%ile BackOfQ(50%),veh/ln	0.0	0.3	0.2	0.0	0.1	0.0				0.0	0.5	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	8.1	8.0	16.3	5.0	0.0				6.8	8.2	8.2
LnGrp LOS	A	A	A	B	A	A				A	A	A
Approach Vol, veh/h		258			153						488	
Approach Delay, s/veh		8.1			5.1						8.2	
Approach LOS		A			A						A	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	4.1	10.2		11.8		14.3						
Change Period (Y+Rc), s	4.0	4.0		4.5		4.0						
Max Green Setting (Gmax), s	23.0			38.5		36.0						
Max Q Clear Time (g_c+1), s	3.2			5.2		2.7						
Green Ext Time (p_c), s	0.0	0.8		1.7		0.6						
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				7.6								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary  
23: SR 99 NB On Ramp & Crystal Way

Existing Conditions  
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↑↑	↔	↔	↔↔				
Traffic Volume (veh/h)	169	17	0	0	8	4	136	310	1	0	0	0
Future Volume (veh/h)	169	17	0	0	8	4	136	310	1	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	174	18	0	0	8	4	140	320	1			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	610	1345	0	0	183	82	513	1074	3			
Arrive On Green	0.18	0.38	0.00	0.00	0.05	0.05	0.29	0.29	0.29			
Sat Flow, veh/h	3456	3647	0	0	3647	1585	1781	3727	12			
Grp Volume(v), veh/h	174	18	0	0	8	4	140	161	160			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	1781	1870	1868			
Q Serve(g_s), s	1.3	0.1	0.0	0.0	0.1	0.1	1.9	2.0	2.0			
Cycle Q Clear(g_c), s	1.3	0.1	0.0	0.0	0.1	0.1	1.9	2.0	2.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.01			
Lane Grp Cap(c), veh/h	610	1345	0	0	183	82	513	539	539			
V/C Ratio(X)	0.29	0.01	0.00	0.00	0.04	0.05	0.27	0.30	0.30			
Avail Cap(c_a), veh/h	1016	3832	0	0	2439	1088	2096	2200	2198			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	10.9	5.9	0.0	0.0	13.8	13.8	8.4	8.5	8.5			
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	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			
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.0	0.0	0.0	0.5	0.6	0.6			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	11.0	5.9	0.0	0.0	13.8	13.9	8.5	8.6	8.6			
LnGrp LOS	B	A	A	A	B	B	A	A	A			
Approach Vol, veh/h		192			12			461				
Approach Delay, s/veh		10.5			13.9			8.6				
Approach LOS		B			B			A				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		16.7			10.0	6.7		13.9				
Change Period (Y+Rc), s		5.1			4.6	5.1		5.1				
Max Green Setting (Gmax), s		33.0			9.0	21.0		36.0				
Max Q Clear Time (g_c+I1), s		2.1			3.3	2.1		4.0				
Green Ext Time (p_c), s		0.0			0.1	0.0		1.4				

Intersection Summary

HCM 6th Ctrl Delay	9.2
HCM 6th LOS	A

Notes

User approved volume balancing among the lanes for turning movement.



# HCM 6th Signalized Intersection Summary

## 24: Fairway Dr & C Street

Existing Conditions  
PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑			↑		↑	↑↑	
Traffic Volume (veh/h)	0	315	54	220	235	0	73	0	20	118	59	165
Future Volume (veh/h)	0	315	54	220	235	0	73	0	20	118	59	165
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	342	59	239	255	0	79	0	22	128	64	179
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, %	0	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	0	858	383	723	1984	0	294	21	40	542	403	359
Arrive On Green	0.00	0.24	0.24	0.21	0.56	0.00	0.23	0.00	0.23	0.23	0.23	0.23
Sat Flow, veh/h	0	3647	1585	3456	3647	0	536	93	175	1390	1777	1585
Grp Volume(v), veh/h	0	342	59	239	255	0	101	0	0	128	64	179
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0	804	0	0	1390	1777	1585
Q Serve(g_s), s	0.0	3.0	1.1	2.2	1.3	0.0	2.0	0.0	0.0	0.0	1.1	3.7
Cycle Q Clear(g_c), s	0.0	3.0	1.1	2.2	1.3	0.0	5.7	0.0	0.0	2.5	1.1	3.7
Prop In Lane	0.00		1.00	1.00		0.00	0.78		0.22	1.00		1.00
Lane Grp Cap(c), veh/h	0	858	383	723	1984	0	355	0	0	542	403	359
V/C Ratio(X)	0.00	0.40	0.15	0.33	0.13	0.00	0.28	0.00	0.00	0.24	0.16	0.50
Avail Cap(c_a), veh/h	0	2197	980	836	3439	0	438	0	0	1460	1576	1406
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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	11.8	11.1	12.5	3.9	0.0	13.8	0.0	0.0	12.1	11.5	12.5
Incr Delay (d2), s/veh	0.0	0.6	0.4	0.1	0.0	0.0	0.2	0.0	0.0	0.1	0.1	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.0	0.3	0.7	0.2	0.0	0.6	0.0	0.0	0.7	0.3	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.5	11.5	12.6	3.9	0.0	14.0	0.0	0.0	12.2	11.6	12.9
LnGrp LOS	A	B	B	B	A	A	B	A	A	B	B	B
Approach Vol, veh/h		401		494			101			371		
Approach Delay, s/veh		12.3		8.1			14.0			12.4		
Approach LOS		B		A			B			B		
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	1.8	13.0		12.4		24.8		12.4				
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s	23.0			33.0		36.0		11.0				
Max Q Clear Time (g_c+1), s	5.0			5.7		3.3		7.7				
Green Ext Time (p_c), s	0.2	4.0		1.1		1.7		0.1				

### Intersection Summary

HCM 6th Ctrl Delay	11.0
HCM 6th LOS	B

### Notes

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

HCM 6th Signalized Intersection Summary  
 25: SR 99 NB Off Ramp/SR 99 NB On Ramp & C Street

Existing Conditions  
 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↑↑	↔	↔	↔↔				
Traffic Volume (veh/h)	315	138	0	0	247	22	208	110	51	0	0	0
Future Volume (veh/h)	315	138	0	0	247	22	208	110	51	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1885	1885	0	0	1885	1885	1885	1885	1885			
Adj Flow Rate, veh/h	321	141	0	0	252	22	249	61	52			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	1	1	0	0	1	1	1	1	1			
Cap, veh/h	903	1932	0	0	606	270	769	200	170			
Arrive On Green	0.26	0.54	0.00	0.00	0.17	0.17	0.21	0.21	0.21			
Sat Flow, veh/h	3483	3676	0	0	3676	1598	3591	934	796			
Grp Volume(v), veh/h	321	141	0	0	252	22	249	0	113			
Grp Sat Flow(s),veh/h/ln	1742	1791	0	0	1791	1598	1795	0	1730			
Q Serve(g_s), s	3.1	0.8	0.0	0.0	2.6	0.5	2.4	0.0	2.3			
Cycle Q Clear(g_c), s	3.1	0.8	0.0	0.0	2.6	0.5	2.4	0.0	2.3			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.46			
Lane Grp Cap(c), veh/h	903	1932	0	0	606	270	769	0	370			
V/C Ratio(X)	0.36	0.07	0.00	0.00	0.42	0.08	0.32	0.00	0.31			
Avail Cap(c_a), veh/h	1515	1932	0	0	865	386	868	0	418			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	12.5	4.6	0.0	0.0	15.4	14.5	13.7	0.0	13.7			
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0	0.2	0.0	0.0	0.9	0.2	0.8	0.0	0.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	12.6	4.6	0.0	0.0	15.5	14.5	13.8	0.0	13.8			
LnGrp LOS	B	A	A	A	B	B	B	A	B			
Approach Vol, veh/h		462			274			362				
Approach Delay, s/veh		10.1			15.5			13.8				
Approach LOS		B			B			B				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		27.4			15.3	12.1		14.0				
Change Period (Y+Rc), s		5.1			4.6	5.1		5.1				
Max Green Setting (Gmax), s		10.0			18.0	10.0		10.0				
Max Q Clear Time (g_c+I1), s		2.8			5.1	4.6		4.4				
Green Ext Time (p_c), s		0.3			0.5	0.5		0.5				

Intersection Summary

HCM 6th Ctrl Delay	12.7
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.  
 User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary  
26: SR 99 SB On Ramp & Fairway Dr

Existing Conditions  
PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↶		↷	↶
Traffic Volume (veh/h)	0	0	93	11	239	94
Future Volume (veh/h)	0	0	93	11	239	94
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1856	1856	1856	1856
Adj Flow Rate, veh/h			98	12	252	99
Peak Hour Factor			0.95	0.95	0.95	0.95
Percent Heavy Veh, %			3	3	3	3
Cap, veh/h			365	45	333	1275
Arrive On Green			0.23	0.23	0.19	0.69
Sat Flow, veh/h			1621	199	1767	1856
Grp Volume(v), veh/h			0	110	252	99
Grp Sat Flow(s),veh/h/ln			0	1820	1767	1856
Q Serve(g_s), s			0.0	0.6	1.7	0.2
Cycle Q Clear(g_c), s			0.0	0.6	1.7	0.2
Prop In Lane				0.11	1.00	
Lane Grp Cap(c), veh/h			0	410	333	1275
V/C Ratio(X)			0.00	0.27	0.76	0.08
Avail Cap(c_a), veh/h			0	6403	4422	6529
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			0.0	4.1	4.9	0.7
Incr Delay (d2), s/veh			0.0	0.1	1.3	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.0	0.1	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	4.2	6.3	0.7
LnGrp LOS			A	A	A	A
Approach Vol, veh/h			110			351
Approach Delay, s/veh			4.2			4.7
Approach LOS			A			A
Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	5.9	6.9				12.8
Change Period (Y+Rc), s	3.5	4.0				* 4
Max Green Setting (Gmax), s	22.0	45.0				* 45
Max Q Clear Time (g_c+1), s	11.5	2.6				2.2
Green Ext Time (p_c), s	0.3	0.4				0.3
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			4.6			
HCM 6th LOS			A			
<b>Notes</b>						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 1: Carillion Blvd & Twin Cities Rd 2040 Baseline Conditions - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	840	225	105	860	0	350	0	140	0	0	0
Future Volume (veh/h)	0	840	225	105	860	0	350	0	140	0	0	0
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	913	245	114	935	0	380	0	152	0	0	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	1305	582	210	2085	0	877	0	248	0	293	0
Arrive On Green	0.00	0.37	0.37	0.12	0.59	0.00	0.16	0.00	0.16	0.00	0.00	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	3563	0	1585	0	1870	0
Grp Volume(v), veh/h	0	913	245	114	935	0	380	0	152	0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1781	0	1585	0	1870	0
Q Serve(g_s), s	0.0	9.9	5.2	2.7	6.7	0.0	4.6	0.0	4.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	9.9	5.2	2.7	6.7	0.0	4.6	0.0	4.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	4	1305	582	210	2085	0	877	0	248	0	293	0
V/C Ratio(X)	0.00	0.70	0.42	0.54	0.45	0.00	0.43	0.00	0.61	0.00	0.00	0.00
Avail Cap(c_a), veh/h	394	3537	1578	591	3537	0	1264	0	421	0	496	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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	12.2	10.7	18.8	5.2	0.0	18.0	0.0	17.8	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.2	0.8	0.1	0.0	0.1	0.0	0.9	0.0	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	0.0	2.7	1.3	1.0	1.0	0.0	1.5	0.0	1.2	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.4	10.9	19.6	5.3	0.0	18.1	0.0	18.7	0.0	0.0	0.0
LnGrp LOS	A	B	B	B	A	A	B	A	B	A	A	A
Approach Vol, veh/h		1158			1049			532				0
Approach Delay, s/veh		12.1			6.8			18.3				0.0
Approach LOS		B			A			B				
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.9	22.4		12.9	0.0	32.3		12.9				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		* 5.8				
Max Green Setting (Gmax), s	15.0	45.0		12.0	10.0	45.0		* 12				
Max Q Clear Time (g_c+I1), s	4.7	11.9		0.0	0.0	8.7		6.6				
Green Ext Time (p_c), s	0.1	4.5		0.0	0.0	4.3		0.5				

**Intersection Summary**

HCM 6th Ctrl Delay	11.3
HCM 6th LOS	B

**Notes**

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

Intersection												
Int Delay, s/veh	40											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	↕
Traffic Vol, veh/h	70	15	60	95	10	145	50	485	70	45	405	25
Future Vol, veh/h	70	15	60	95	10	145	50	485	70	45	405	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	115	-	-	145	-	-
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	76	16	65	103	11	158	54	527	76	49	440	27

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	915	1250	440	1266	1239	303	467	0	0	604	0	0
Stage 1	538	538	-	674	674	-	-	-	-	-	-	-
Stage 2	377	712	-	592	565	-	-	-	-	-	-	-
Critical Hdwy	7.315	6.515	6.215	7.315	6.515	6.915	4.115	-	-	4.115	-	-
Critical Hdwy Stg 1	6.115	5.515	-	6.515	5.515	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.515	5.515	-	6.115	5.515	-	-	-	-	-	-	-
Follow-up Hdwy	3.5095	4.0095	3.3095	3.5095	4.0095	3.3095	2.2095	-	-	2.2095	-	-
Pot Cap-1 Maneuver	242	173	619	136	176	696	1099	-	-	978	-	-
Stage 1	529	523	-	413	455	-	-	-	-	-	-	-
Stage 2	620	437	-	494	509	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	164	156	619	104	159	695	1099	-	-	977	-	-
Mov Cap-2 Maneuver	164	156	-	104	159	-	-	-	-	-	-	-
Stage 1	503	497	-	392	432	-	-	-	-	-	-	-
Stage 2	444	415	-	406	484	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	47.2		205.5		0.7		0.8	
HCM LOS	E		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1099	-	-	234	211	977	-	-
HCM Lane V/C Ratio	0.049	-	-	0.674	1.288	0.05	-	-
HCM Control Delay (s)	8.4	-	-	47.2	205.5	8.9	-	-
HCM Lane LOS	A	-	-	E	F	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	4.3	14.6	0.2	-	-

Intersection												
Int Delay, s/veh	36.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕		↙	↕	
Traffic Vol, veh/h	95	35	65	70	20	65	105	445	55	15	450	95
Future Vol, veh/h	95	35	65	70	20	65	105	445	55	15	450	95
Conflicting Peds, #/hr	0	0	7	0	0	1	0	0	1	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	145	-	-	145	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	103	38	71	76	22	71	114	484	60	16	489	103

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1058	1349	306	1046	1370	274	595	0	0	545	0	0
Stage 1	576	576	-	743	743	-	-	-	-	-	-	-
Stage 2	482	773	-	303	627	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	179	149	690	183	145	724	977	-	-	1020	-	-
Stage 1	470	500	-	373	420	-	-	-	-	-	-	-
Stage 2	534	407	-	681	474	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	126	129	683	114	125	723	974	-	-	1019	-	-
Mov Cap-2 Maneuver	126	129	-	114	125	-	-	-	-	-	-	-
Stage 1	414	491	-	329	370	-	-	-	-	-	-	-
Stage 2	400	359	-	551	465	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	192	105.1	1.6	0.2
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	974	-	-	174	179	1019	-
HCM Lane V/C Ratio	0.117	-	-	1.218	0.941	0.016	-
HCM Control Delay (s)	9.2	-	-	192	105.1	8.6	-
HCM Lane LOS	A	-	-	F	F	A	-
HCM 95th %tile Q(veh)	0.4	-	-	11.6	7.3	0	-

Intersection												
Int Delay, s/veh	9.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	40	20	50	60	20	75	30	490	65	55	455	90
Future Vol, veh/h	40	20	50	60	20	75	30	490	65	55	455	90
Conflicting Peds, #/hr	0	0	5	0	0	0	0	0	4	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	145	-	-	145	-	-
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	43	22	54	65	22	82	33	533	71	60	495	98

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1011	1341	305	1023	1355	306	596	0	0	608	0	0
Stage 1	667	667	-	639	639	-	-	-	-	-	-	-
Stage 2	344	674	-	384	716	-	-	-	-	-	-	-
Critical Hdwy	7.52	6.52	6.92	7.52	6.52	6.92	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.51	4.01	3.31	3.51	4.01	3.31	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	195	152	694	191	150	693	983	-	-	973	-	-
Stage 1	417	457	-	433	471	-	-	-	-	-	-	-
Stage 2	647	454	-	613	435	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	140	137	689	142	135	690	980	-	-	969	-	-
Mov Cap-2 Maneuver	140	137	-	142	135	-	-	-	-	-	-	-
Stage 1	402	427	-	417	453	-	-	-	-	-	-	-
Stage 2	525	437	-	500	407	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	39.9		55.3		0.5		0.8	
HCM LOS	E		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	980	-	-	218	228	969	-
HCM Lane V/C Ratio	0.033	-	-	0.548	0.739	0.062	-
HCM Control Delay (s)	8.8	-	-	39.9	55.3	9	-
HCM Lane LOS	A	-	-	E	F	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.9	5.1	0.2	-

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5: Carillion Blvd & Walnut Ave Performance by approach

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Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.2	0.0	8.1	1.0
Total Del/Veh (s)	55.1	84.7	28.7	579.5	126.8



Intersection												
Intersection Delay, s/veh	181.9											
Intersection LOS	F											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↕↔		↔	↕↔	
Traffic Vol, veh/h	370	25	125	15	40	110	190	570	25	80	665	295
Future Vol, veh/h	370	25	125	15	40	110	190	570	25	80	665	295
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	402	27	136	16	43	120	207	620	27	87	723	321
Number of Lanes	0	1	1	0	1	1	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	2
HCM Control Delay	202.6	22.9	96.5	261.3
HCM LOS	F	C	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	94%	0%	27%	0%	100%	0%	0%
Vol Thru, %	0%	100%	88%	6%	0%	73%	0%	0%	100%	43%
Vol Right, %	0%	0%	12%	0%	100%	0%	100%	0%	0%	57%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	190	380	215	395	125	55	110	80	443	517
LT Vol	190	0	0	370	0	15	0	80	0	0
Through Vol	0	380	190	25	0	40	0	0	443	222
RT Vol	0	0	25	0	125	0	110	0	0	295
Lane Flow Rate	207	413	234	429	136	60	120	87	482	562
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.637	1.217	0.683	1.456	0.417	0.212	0.397	0.27	1.431	1.605
Departure Headway (Hd)	12.986	12.46	12.374	13.838	12.645	13.983	13.114	12.598	12.069	11.646
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	281	293	294	266	287	258	276	287	304	320
Service Time	10.686	10.16	10.074	11.538	10.345	11.683	10.814	10.298	9.769	9.346
HCM Lane V/C Ratio	0.737	1.41	0.796	1.613	0.474	0.233	0.435	0.303	1.586	1.756
HCM Control Delay	36	159.9	38	259.1	24.1	20.4	24.2	19.9	242.8	314.6
HCM Lane LOS	E	F	E	F	C	C	C	C	F	F
HCM 95th-tile Q	4	16.1	4.6	21.5	2	0.8	1.8	1.1	23	29.7

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙	↗	↕↔		↙	↕↕
Traffic Vol, veh/h	20	20	765	10	10	795
Future Vol, veh/h	20	20	765	10	10	795
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	22	22	832	11	11	864

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1292	422	0	0	843
Stage 1	838	-	-	-	-
Stage 2	454	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.12
Critical Hdwy Stg 1	5.82	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.21
Pot Cap-1 Maneuver	156	583	-	-	795
Stage 1	387	-	-	-	-
Stage 2	609	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	154	583	-	-	795
Mov Cap-2 Maneuver	154	-	-	-	-
Stage 1	387	-	-	-	-
Stage 2	600	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.8	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	154	583	795
HCM Lane V/C Ratio	-	-	0.141	0.037	0.014
HCM Control Delay (s)	-	-	32.2	11.4	9.6
HCM Lane LOS	-	-	D	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1	0

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↕		↗	↕	↗
Traffic Vol, veh/h	0	0	50	0	0	90	5	695	10	50	750	20
Future Vol, veh/h	0	0	50	0	0	90	5	695	10	50	750	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	6	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	115	-	-	140	-	-
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	54	0	0	98	5	755	11	54	815	22

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	420	-	-	389	838	0	0	772	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.92	-	-	6.92	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.31	-	-	3.31	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	0	0	585	0	0	612	799	-	-	845	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	584	-	-	609	798	-	-	840	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	11.8		12		0.1		0.6			
HCM LOS	B		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	798	-	-	584	609	840	-	-
HCM Lane V/C Ratio	0.007	-	-	0.093	0.161	0.065	-	-
HCM Control Delay (s)	9.5	-	-	11.8	12	9.6	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.6	0.2	-	-

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗↗		↗	↗↗	
Traffic Vol, veh/h	0	0	60	0	0	45	10	655	5	65	705	10
Future Vol, veh/h	0	0	60	0	0	45	10	655	5	65	705	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	140	-	-	130	-	-
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	65	0	0	49	11	712	5	71	766	11























Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	390	-	-	360	778	0	0	718	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.92	-	-	6.92	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.31	-	-	3.31	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	0	0	612	0	0	639	841	-	-	886	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	611	-	-	638	840	-	-	885	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11.6		11.1		0.1		0.8	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	840	-	-	611	638	885	-	-
HCM Lane V/C Ratio	0.013	-	-	0.107	0.077	0.08	-	-
HCM Control Delay (s)	9.3	-	-	11.6	11.1	9.4	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.2	0.3	-	-

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 10: Carillion Blvd & Simmerhorn Rd

2040 Baseline Conditions - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	120	15	115	280	55	10	455	135	280	390	100
Future Volume (veh/h)	130	120	15	115	280	55	10	455	135	280	390	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	141	130	16	125	304	60	11	495	147	304	424	109
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	191	385	47	175	344	68	24	594	175	352	1131	288
Arrive On Green	0.11	0.24	0.24	0.10	0.23	0.23	0.01	0.22	0.22	0.20	0.40	0.40
Sat Flow, veh/h	1781	1633	201	1781	1517	299	1781	2705	799	1781	2804	714
Grp Volume(v), veh/h	141	0	146	125	0	364	11	324	318	304	267	266
Grp Sat Flow(s),veh/h/ln	1781	0	1834	1781	0	1816	1781	1777	1727	1781	1777	1742
Q Serve(g_s), s	5.5	0.0	4.8	4.9	0.0	14.0	0.4	12.6	12.7	11.9	7.6	7.8
Cycle Q Clear(g_c), s	5.5	0.0	4.8	4.9	0.0	14.0	0.4	12.6	12.7	11.9	7.6	7.8
Prop In Lane	1.00		0.11	1.00		0.16	1.00		0.46	1.00		0.41
Lane Grp Cap(c), veh/h	191	0	432	175	0	412	24	390	379	352	717	703
V/C Ratio(X)	0.74	0.00	0.34	0.71	0.00	0.88	0.45	0.83	0.84	0.86	0.37	0.38
Avail Cap(c_a), veh/h	443	0	456	443	0	452	123	442	430	443	762	746
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.3	0.0	23.0	31.6	0.0	27.1	35.4	26.9	27.0	28.1	15.2	15.2
Incr Delay (d2), s/veh	5.4	0.0	0.5	5.3	0.0	17.4	12.4	11.5	12.4	13.5	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	1.9	2.2	0.0	7.2	0.3	6.0	6.0	5.9	2.7	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.7	0.0	23.4	36.9	0.0	44.4	47.8	38.4	39.4	41.6	15.5	15.5
LnGrp LOS	D	A	C	D	A	D	D	D	D	D	B	B
Approach Vol, veh/h		287			489			653			837	
Approach Delay, s/veh		30.0			42.5			39.1			25.0	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.8	20.4	11.6	21.5	5.5	33.7	12.3	20.9				
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	18.0	18.0	18.0	18.0	5.0	31.0	18.0	18.0				
Max Q Clear Time (g_c+I1), s	13.9	14.7	6.9	6.8	2.4	9.8	7.5	16.0				
Green Ext Time (p_c), s	0.3	1.1	0.2	0.4	0.0	2.8	0.2	0.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				33.5								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 12: Marengo Rd & Twin Cities Rd 2040 Baseline Conditions - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	605	260	295	495	15	315	60	180	20	55	40
Future Volume (veh/h)	45	605	260	295	495	15	315	60	180	20	55	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	658	283	321	538	16	342	65	196	22	60	43
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	87	943	421	254	1267	38	513	92	276	47	102	73
Arrive On Green	0.05	0.27	0.27	0.14	0.36	0.36	0.15	0.22	0.22	0.03	0.10	0.10
Sat Flow, veh/h	1781	3554	1585	1781	3524	105	3456	410	1237	1781	1013	726
Grp Volume(v), veh/h	49	658	283	321	271	283	342	0	261	22	0	103
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1852	1728	0	1648	1781	0	1740
Q Serve(g_s), s	1.4	8.8	8.4	7.5	6.1	6.1	4.9	0.0	7.7	0.6	0.0	3.0
Cycle Q Clear(g_c), s	1.4	8.8	8.4	7.5	6.1	6.1	4.9	0.0	7.7	0.6	0.0	3.0
Prop In Lane	1.00		1.00	1.00		0.06	1.00		0.75	1.00		0.42
Lane Grp Cap(c), veh/h	87	943	421	254	639	666	513	0	367	47	0	175
V/C Ratio(X)	0.57	0.70	0.67	1.26	0.42	0.43	0.67	0.00	0.71	0.47	0.00	0.59
Avail Cap(c_a), veh/h	170	1218	543	254	693	723	1184	0	988	170	0	613
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.4	17.4	17.3	22.5	12.7	12.7	21.1	0.0	18.8	25.2	0.0	22.6
Incr Delay (d2), s/veh	5.7	1.2	2.2	145.6	0.4	0.4	1.5	0.0	2.5	7.3	0.0	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.3	2.7	12.9	1.9	2.0	1.8	0.0	2.7	0.3	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.1	18.6	19.4	168.1	13.2	13.1	22.7	0.0	21.4	32.5	0.0	25.7
LnGrp LOS	C	B	B	F	B	B	C	A	C	C	A	C
Approach Vol, veh/h		990			875			603			125	
Approach Delay, s/veh		19.4			70.0			22.1			26.9	
Approach LOS		B			E			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	16.2	12.0	18.4	12.3	9.8	7.1	23.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	31.5	7.5	18.0	18.0	18.5	5.0	20.5				
Max Q Clear Time (g_c+1), s	12.6	9.7	9.5	10.8	6.9	5.0	3.4	8.1				
Green Ext Time (p_c), s	0.0	1.4	0.0	3.2	0.9	0.3	0.0	2.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											37.5	
HCM 6th LOS											D	

Intersection						
Int Delay, s/veh	4.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	215	245	540	605	10
Future Vol, veh/h	15	215	245	540	605	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	16	234	266	587	658	11

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1490	335	669	0	-	0
Stage 1	664	-	-	-	-	-
Stage 2	826	-	-	-	-	-
Critical Hdwy	6.82	6.92	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	116	664	924	-	-	-
Stage 1	476	-	-	-	-	-
Stage 2	393	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	83	664	924	-	-	-
Mov Cap-2 Maneuver	83	-	-	-	-	-
Stage 1	339	-	-	-	-	-
Stage 2	393	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.1	3.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	924	-	456	-	-
HCM Lane V/C Ratio	0.288	-	0.548	-	-
HCM Control Delay (s)	10.5	-	22.1	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	1.2	-	3.2	-	-

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 14: E. Stockton Blvd & SR 99 NB Ramps/Walnut Ave 2040 Baseline Conditions - AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	880	0	0	795	405	115	0	120	0	0	0
Future Volume (veh/h)	110	880	0	0	795	405	115	0	120	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	120	957	0	0	864	440	125	0	130			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	185	2166	0	0	1462	638	308	0	270			
Arrive On Green	0.10	0.61	0.00	0.00	0.41	0.41	0.17	0.00	0.17			
Sat Flow, veh/h	1781	3647	0	0	3647	1552	1781	0	1560			
Grp Volume(v), veh/h	120	957	0	0	864	440	125	0	130			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1552	1781	0	1560			
Q Serve(g_s), s	2.9	6.4	0.0	0.0	8.4	10.4	2.8	0.0	3.4			
Cycle Q Clear(g_c), s	2.9	6.4	0.0	0.0	8.4	10.4	2.8	0.0	3.4			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	185	2166	0	0	1462	638	308	0	270			
V/C Ratio(X)	0.65	0.44	0.00	0.00	0.59	0.69	0.41	0.00	0.48			
Avail Cap(c_a), veh/h	591	4213	0	0	2700	1179	695	0	608			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	19.2	4.7	0.0	0.0	10.2	10.8	16.4	0.0	16.6			
Incr Delay (d2), s/veh	1.4	0.1	0.0	0.0	0.3	1.0	0.6	0.0	1.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.0	0.9	0.0	0.0	2.2	2.5	1.0	0.0	1.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.6	4.8	0.0	0.0	10.5	11.8	17.0	0.0	17.6			
LnGrp LOS	C	A	A	A	B	B	B	A	B			
Approach Vol, veh/h		1077			1304			255				
Approach Delay, s/veh		6.6			10.9			17.3				
Approach LOS		A			B			B				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		12.3		32.3			8.8	23.5				
Change Period (Y+Rc), s		4.6		5.1			* 4.2	5.1				
Max Green Setting (Gmax), s		17.4		52.9			* 15	33.9				
Max Q Clear Time (g_c+I1), s		5.4		8.4			4.9	12.4				
Green Ext Time (p_c), s		0.6		7.5			0.1	6.0				

Intersection Summary

HCM 6th Ctrl Delay	9.8
HCM 6th LOS	A

Notes

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



HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 15: Walnut Ave & Vintage Oak Ave 2040 Baseline Conditions - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	790	50	25	910	45	100	20	60	45	15	185
Future Volume (veh/h)	55	790	50	25	910	45	100	20	60	45	15	185
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	60	859	54	27	989	49	109	22	65	49	16	201
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	75	1248	78	42	1203	60	139	28	83	57	19	234
Arrive On Green	0.04	0.37	0.37	0.02	0.35	0.35	0.15	0.15	0.15	0.19	0.19	0.19
Sat Flow, veh/h	1767	3363	211	1767	3418	169	949	192	566	297	97	1220
Grp Volume(v), veh/h	60	450	463	27	510	528	196	0	0	266	0	0
Grp Sat Flow(s),veh/h/ln	1767	1763	1812	1767	1763	1825	1706	0	0	1614	0	0
Q Serve(g_s), s	2.2	14.3	14.3	1.0	17.5	17.5	7.3	0.0	0.0	10.6	0.0	0.0
Cycle Q Clear(g_c), s	2.2	14.3	14.3	1.0	17.5	17.5	7.3	0.0	0.0	10.6	0.0	0.0
Prop In Lane	1.00		0.12	1.00		0.09	0.56		0.33	0.18		0.76
Lane Grp Cap(c), veh/h	75	654	672	42	621	642	249	0	0	310	0	0
V/C Ratio(X)	0.80	0.69	0.69	0.65	0.82	0.82	0.79	0.00	0.00	0.86	0.00	0.00
Avail Cap(c_a), veh/h	144	774	795	112	742	768	391	0	0	336	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	31.4	17.6	17.6	32.1	19.6	19.6	27.3	0.0	0.0	25.9	0.0	0.0
Incr Delay (d2), s/veh	6.9	2.1	2.0	6.1	6.3	6.1	2.1	0.0	0.0	17.0	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	0.0	5.2	5.4	0.5	7.1	7.3	3.0	0.0	0.0	5.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.3	19.7	19.6	38.2	25.9	25.7	29.4	0.0	0.0	42.9	0.0	0.0
LnGrp LOS	D	B	B	D	C	C	C	A	A	D	A	A
Approach Vol, veh/h		973			1065			196			266	
Approach Delay, s/veh		20.8			26.1			29.4			42.9	
Approach LOS		C			C			C			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.9	5.8	29.7		16.9	7.0	28.4				
Change Period (Y+Rc), s		* 4.2	* 4.2	5.1		4.2	* 4.2	5.1				
Max Green Setting (Gmax), s		* 15	* 4.2	29.1		13.8	* 5.4	27.9				
Max Q Clear Time (g_c+I1), s		9.3	3.0	16.3		12.6	4.2	19.5				
Green Ext Time (p_c), s		0.3	0.0	4.3		0.1	0.0	3.8				

**Intersection Summary**

HCM 6th Ctrl Delay	26.1
HCM 6th LOS	C

**Notes**

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

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 16: Walnut Ave & Elk Hills Dr 2040 Baseline Conditions - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	655	25	10	870	65	35	20	10	20	15	70
Future Volume (veh/h)	135	655	25	10	870	65	35	20	10	20	15	70
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		0.97	1.00		0.96	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		No		No
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	147	712	27	11	946	71	38	22	11	22	16	76
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	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	188	1582	60	25	1209	91	107	62	31	36	26	123
Arrive On Green	0.10	0.45	0.45	0.01	0.36	0.36	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1795	3517	133	1795	3368	253	950	550	275	321	233	1108
Grp Volume(v), veh/h	147	362	377	11	503	514	71	0	0	114	0	0
Grp Sat Flow(s),veh/h/ln	1795	1791	1859	1795	1791	1830	1775	0	0	1663	0	0
Q Serve(g_s), s	4.6	8.0	8.0	0.4	14.4	14.4	2.1	0.0	0.0	3.8	0.0	0.0
Cycle Q Clear(g_c), s	4.6	8.0	8.0	0.4	14.4	14.4	2.1	0.0	0.0	3.8	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.14	0.54		0.15	0.19		0.67
Lane Grp Cap(c), veh/h	188	805	836	25	643	657	200	0	0	185	0	0
V/C Ratio(X)	0.78	0.45	0.45	0.44	0.78	0.78	0.35	0.00	0.00	0.62	0.00	0.00
Avail Cap(c_a), veh/h	277	945	981	156	824	842	573	0	0	520	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	25.1	10.9	10.9	28.2	16.5	16.5	23.6	0.0	0.0	24.4	0.0	0.0
Incr Delay (d2), s/veh	8.3	0.4	0.4	11.5	3.8	3.7	1.1	0.0	0.0	3.3	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	2.2	2.5	2.6	0.2	5.4	5.5	0.9	0.0	0.0	1.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.4	11.3	11.3	39.7	20.2	20.2	24.7	0.0	0.0	27.8	0.0	0.0
LnGrp LOS	C	B	B	D	C	C	C	A	A	C	A	A
Approach Vol, veh/h		886			1028			71			114	
Approach Delay, s/veh		15.0			20.4			24.7			27.8	
Approach LOS		B			C			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		11.0	5.3	30.4		10.9	10.5	25.2				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.6	5.0	30.4		18.0	8.9	26.5				
Max Q Clear Time (g_c+I1), s		4.1	2.4	10.0		5.8	6.6	16.4				
Green Ext Time (p_c), s		0.2	0.0	4.0		0.4	0.1	4.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											18.7	
HCM 6th LOS											B	

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 17: Marengo Rd & Walnut Ave 2040 Baseline Conditions - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↓		↔	↑↓		↔	↑↑	↔	↔	↑↑	↔
Traffic Volume (veh/h)	315	240	80	155	315	75	65	710	125	75	555	455
Future Volume (veh/h)	315	240	80	155	315	75	65	710	125	75	555	455
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		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1870	1870	1870	1870	1870	1900	1900	1870	1870	1900	1900
Adj Flow Rate, veh/h	342	261	87	168	342	82	71	772	136	82	603	495
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, %	0	2	2	2	2	2	0	0	2	2	0	0
Cap, veh/h	495	515	167	216	504	119	105	1137	499	112	1153	730
Arrive On Green	0.14	0.20	0.20	0.12	0.18	0.18	0.06	0.32	0.32	0.06	0.32	0.32
Sat Flow, veh/h	3510	2626	853	1781	2851	675	1810	3610	1585	1781	3610	1574
Grp Volume(v), veh/h	342	174	174	168	211	213	71	772	136	82	603	495
Grp Sat Flow(s),veh/h/ln	1755	1777	1702	1781	1777	1749	1810	1805	1585	1781	1805	1574
Q Serve(g_s), s	5.5	5.2	5.4	5.4	6.6	6.7	2.3	11.0	3.8	2.7	8.1	14.6
Cycle Q Clear(g_c), s	5.5	5.2	5.4	5.4	6.6	6.7	2.3	11.0	3.8	2.7	8.1	14.6
Prop In Lane	1.00		0.50	1.00		0.39	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	495	348	334	216	314	309	105	1137	499	112	1153	730
V/C Ratio(X)	0.69	0.50	0.52	0.78	0.67	0.69	0.67	0.68	0.27	0.74	0.52	0.68
Avail Cap(c_a), veh/h	1040	614	588	456	542	533	169	1284	564	166	1284	787
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	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	24.1	21.2	21.2	25.2	22.7	22.8	27.3	17.6	15.2	27.2	16.4	12.5
Incr Delay (d2), s/veh	1.7	1.1	1.3	5.9	2.5	2.7	7.3	1.2	0.3	9.0	0.4	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	2.1	2.1	2.5	2.8	2.8	1.1	4.0	1.3	1.3	2.8	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.9	22.3	22.5	31.1	25.2	25.5	34.5	18.9	15.4	36.2	16.8	14.7
LnGrp LOS	C	C	C	C	C	C	C	B	B	D	B	B
Approach Vol, veh/h		690			592			979			1180	
Approach Delay, s/veh		24.1			27.0			19.5			17.3	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	23.1	11.7	16.1	7.9	23.4	12.8	14.9				
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	5.5	21.0	15.1	20.4	5.5	21.0	17.5	18.0				
Max Q Clear Time (g_c+14), s	14.5	13.0	7.4	7.4	4.3	16.6	7.5	8.7				
Green Ext Time (p_c), s	0.0	3.2	0.3	1.6	0.0	2.2	0.9	1.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				21.0								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	15	5	980	890	20
Future Vol, veh/h	30	15	5	980	890	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	90	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	16	5	1065	967	22

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1521	495	989	0	-	0
Stage 1	978	-	-	-	-	-
Stage 2	543	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	109	520	695	-	-	-
Stage 1	325	-	-	-	-	-
Stage 2	546	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	108	520	695	-	-	-
Mov Cap-2 Maneuver	230	-	-	-	-	-
Stage 1	323	-	-	-	-	-
Stage 2	546	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.4	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	695	-	283	-	-
HCM Lane V/C Ratio	0.008	-	0.173	-	-
HCM Control Delay (s)	10.2	-	20.4	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-

Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	55	20	960	900	10
Future Vol, veh/h	25	55	20	960	900	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	90	-	-	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	2	2	2	2
Mvmt Flow	27	60	22	1043	978	11

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1544	978	989	0	-	0
Stage 1	978	-	-	-	-	-
Stage 2	566	-	-	-	-	-
Critical Hdwy	6.63	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	115	303	697	-	-	-
Stage 1	363	-	-	-	-	-
Stage 2	533	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	111	303	697	-	-	-
Mov Cap-2 Maneuver	241	-	-	-	-	-
Stage 1	351	-	-	-	-	-
Stage 2	533	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.5	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	697	-	280	-	-
HCM Lane V/C Ratio	0.031	-	0.311	-	-
HCM Control Delay (s)	10.3	-	23.5	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	1.3	-	-

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 21: Marengo Rd & Simmerhorn Rd 2040 Baseline Conditions - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	235	145	130	105	220	20	25	720	50	70	715	170
Future Volume (veh/h)	235	145	130	105	220	20	25	720	50	70	715	170
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	255	158	141	114	239	22	27	783	54	76	777	185
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	308	247	220	147	304	28	53	1000	69	105	1156	516
Arrive On Green	0.17	0.27	0.27	0.08	0.18	0.18	0.03	0.30	0.30	0.06	0.33	0.33
Sat Flow, veh/h	1781	911	813	1781	1687	155	1781	3372	233	1781	3554	1585
Grp Volume(v), veh/h	255	0	299	114	0	261	27	412	425	76	777	185
Grp Sat Flow(s),veh/h/ln	1781	0	1724	1781	0	1842	1781	1777	1828	1781	1777	1585
Q Serve(g_s), s	8.5	0.0	9.4	3.9	0.0	8.4	0.9	13.1	13.1	2.6	11.7	5.5
Cycle Q Clear(g_c), s	8.5	0.0	9.4	3.9	0.0	8.4	0.9	13.1	13.1	2.6	11.7	5.5
Prop In Lane	1.00		0.47	1.00		0.08	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	308	0	467	147	0	332	53	527	542	105	1156	516
V/C Ratio(X)	0.83	0.00	0.64	0.78	0.00	0.79	0.50	0.78	0.78	0.72	0.67	0.36
Avail Cap(c_a), veh/h	418	0	670	245	0	537	144	691	711	159	1410	629
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.6	0.0	19.9	27.8	0.0	24.2	29.5	19.9	19.9	28.6	18.0	15.9
Incr Delay (d2), s/veh	9.7	0.0	1.5	8.5	0.0	4.1	7.2	4.3	4.2	9.0	0.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	3.7	1.8	0.0	3.4	0.5	5.2	5.3	1.3	4.1	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.3	0.0	21.3	36.3	0.0	28.3	36.7	24.3	24.1	37.6	18.9	16.3
LnGrp LOS	C	A	C	D	A	C	D	C	C	D	B	B
Approach Vol, veh/h		554			375			864			1038	
Approach Delay, s/veh		27.3			30.7			24.6			19.8	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	22.8	9.6	21.2	6.4	24.6	15.2	15.6				
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	5.5	24.0	8.5	24.0	5.0	24.5	14.5	18.0				
Max Q Clear Time (g_c+14), s	14.6	15.1	5.9	11.4	2.9	13.7	10.5	10.4				
Green Ext Time (p_c), s	0.0	3.2	0.1	1.4	0.0	4.1	0.3	0.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				24.2								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 22: A Street & SR 99 SB Off Ramp  
 2040 Baseline Conditions - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑↑	
Traffic Volume (veh/h)	0	525	105	375	475	0	0	0	0	120	200	70
Future Volume (veh/h)	0	525	105	375	475	0	0	0	0	120	200	70
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	0				1856	1856	1856
Adj Flow Rate, veh/h	0	571	114	408	516	0				130	217	76
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	905	404	755	2052	0				344	503	171
Arrive On Green	0.00	0.26	0.26	0.22	0.58	0.00				0.19	0.19	0.19
Sat Flow, veh/h	0	3618	1572	3428	3618	0				1767	2582	878
Grp Volume(v), veh/h	0	571	114	408	516	0				130	146	147
Grp Sat Flow(s),veh/h/ln	0	1763	1572	1714	1763	0				1767	1763	1697
Q Serve(g_s), s	0.0	5.5	2.2	4.0	2.7	0.0				2.4	2.8	2.9
Cycle Q Clear(g_c), s	0.0	5.5	2.2	4.0	2.7	0.0				2.4	2.8	2.9
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.52
Lane Grp Cap(c), veh/h	0	905	404	755	2052	0				344	343	331
V/C Ratio(X)	0.00	0.63	0.28	0.54	0.25	0.00				0.38	0.43	0.44
Avail Cap(c_a), veh/h	0	2129	950	810	3333	0				1787	1782	1716
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	12.5	11.3	13.1	3.9	0.0				13.3	13.5	13.5
Incr Delay (d2), s/veh	0.0	0.3	0.1	0.6	0.0	0.0				0.3	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
%ile BackOfQ(50%),veh/ln	0.0	1.6	0.6	1.2	0.3	0.0				0.7	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.8	11.5	13.8	3.9	0.0				13.6	13.8	13.9
LnGrp LOS	A	B	B	B	A	A				B	B	B
Approach Vol, veh/h		685			924						423	
Approach Delay, s/veh		12.6			8.3						13.7	
Approach LOS		B			A						B	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	2.4	13.8		11.9		26.2						
Change Period (Y+Rc), s	4.0	4.0		4.5		4.0						
Max Green Setting (Gmax), s	23.0	23.0		38.5		36.0						
Max Q Clear Time (g_c+1/3), s	7.5	7.5		4.9		4.7						
Green Ext Time (p_c), s	0.5	2.3		1.1		2.2						

Intersection Summary

HCM 6th Ctrl Delay		10.9										
HCM 6th LOS		B										

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 23: SR 99 NB On Ramp & A Street 2040 Baseline Conditions - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↑↑	↔	↔	↔↔				
Traffic Volume (veh/h)	195	450	0	0	695	50	155	250	415	0	0	0
Future Volume (veh/h)	195	450	0	0	695	50	155	250	415	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	212	489	0	0	755	54	168	272	451			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	409	1667	0	0	960	428	627	659	558			
Arrive On Green	0.12	0.47	0.00	0.00	0.27	0.27	0.35	0.35	0.35			
Sat Flow, veh/h	3456	3647	0	0	3647	1585	1781	1870	1585			
Grp Volume(v), veh/h	212	489	0	0	755	54	168	272	451			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	1781	1870	1585			
Q Serve(g_s), s	3.3	4.8	0.0	0.0	11.2	1.5	3.9	6.3	14.7			
Cycle Q Clear(g_c), s	3.3	4.8	0.0	0.0	11.2	1.5	3.9	6.3	14.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	409	1667	0	0	960	428	627	659	558			
V/C Ratio(X)	0.52	0.29	0.00	0.00	0.79	0.13	0.27	0.41	0.81			
Avail Cap(c_a), veh/h	545	2054	0	0	1307	583	1123	1179	999			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	23.6	9.3	0.0	0.0	19.3	15.7	13.2	14.0	16.7			
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	1.5	0.0	0.1	0.2	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			
%ile BackOfQ(50%),veh/ln	1.2	1.5	0.0	0.0	4.2	0.5	1.4	2.4	4.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.0	9.4	0.0	0.0	20.8	15.8	13.3	14.2	17.8			
LnGrp LOS	C	A	A	A	C	B	B	B	B			
Approach Vol, veh/h		701			809			891				
Approach Delay, s/veh		13.8			20.5			15.9				
Approach LOS		B			C			B				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		31.9			11.4	20.5		25.2				
Change Period (Y+Rc), s		5.1			4.6	5.1		5.1				
Max Green Setting (Gmax), s		33.0			9.0	21.0		36.0				
Max Q Clear Time (g_c+I1), s		6.8			5.3	13.2		16.7				
Green Ext Time (p_c), s		2.0			0.1	2.2		3.4				

**Intersection Summary**

HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B

**Notes**

User approved volume balancing among the lanes for turning movement.



# HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study

## 24: Fairway Dr & C Street

2040 Baseline Conditions - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↘↗	↑↑			↕		↗	↑↑	
Traffic Volume (veh/h)	0	625	35	575	665	0	40	0	145	250	195	235
Future Volume (veh/h)	0	625	35	575	665	0	40	0	145	250	195	235
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	679	38	625	723	0	43	0	158	272	212	255
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, %	0	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	0	887	396	716	1815	0	47	0	172	342	341	304
Arrive On Green	0.00	0.25	0.25	0.21	0.51	0.00	0.14	0.00	0.14	0.19	0.19	0.19
Sat Flow, veh/h	0	3647	1585	3456	3647	0	347	0	1276	1781	1777	1585
Grp Volume(v), veh/h	0	679	38	625	723	0	201	0	0	272	212	255
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0	1623	0	0	1781	1777	1585
Q Serve(g_s), s	0.0	13.1	1.4	13.0	9.2	0.0	9.0	0.0	0.0	10.8	8.1	11.5
Cycle Q Clear(g_c), s	0.0	13.1	1.4	13.0	9.2	0.0	9.0	0.0	0.0	10.8	8.1	11.5
Prop In Lane	0.00		1.00	1.00		0.00	0.21		0.79	1.00		1.00
Lane Grp Cap(c), veh/h	0	887	396	716	1815	0	219	0	0	342	341	304
V/C Ratio(X)	0.00	0.77	0.10	0.87	0.40	0.00	0.92	0.00	0.00	0.80	0.62	0.84
Avail Cap(c_a), veh/h	0	1009	450	794	2017	0	219	0	0	385	384	343
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	25.7	21.3	28.4	11.1	0.0	31.6	0.0	0.0	28.5	27.4	28.8
Incr Delay (d2), s/veh	0.0	4.1	0.2	9.1	0.1	0.0	37.9	0.0	0.0	8.6	1.5	13.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.8	0.5	6.0	3.3	0.0	5.7	0.0	0.0	5.2	3.5	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	29.9	21.6	37.5	11.3	0.0	69.5	0.0	0.0	37.2	29.0	42.5
LnGrp LOS	A	C	C	D	B	A	E	A	A	D	C	D
Approach Vol, veh/h		717		1348			201			739		
Approach Delay, s/veh		29.4		23.4			69.5			36.6		
Approach LOS		C		C			E			D		
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.3	22.5		18.2		41.8		14.0				
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s	7.0	21.0		16.0		42.0		10.0				
Max Q Clear Time (g_c+1/3), s	15.1	15.1		13.5		11.2		11.0				
Green Ext Time (p_c), s	0.4	3.4		0.7		5.7		0.0				

### Intersection Summary

HCM 6th Ctrl Delay	31.2
HCM 6th LOS	C

### Notes

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

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 25: SR 99 NB Off Ramp/SR 99 NB On Ramp & C Street 2040 Baseline Conditions - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↑↑	↔	↔	↔↔				
Traffic Volume (veh/h)	405	615	0	0	855	140	385	275	55	0	0	0
Future Volume (veh/h)	405	615	0	0	855	140	385	275	55	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	440	668	0	0	929	152	259	522	60			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	842	2020	0	0	790	347	365	675	77			
Arrive On Green	0.24	0.57	0.00	0.00	0.22	0.22	0.20	0.20	0.20			
Sat Flow, veh/h	3456	3647	0	0	3647	1562	1781	3295	378			
Grp Volume(v), veh/h	440	668	0	0	929	152	259	296	286			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1562	1781	1870	1802			
Q Serve(g_s), s	5.0	4.5	0.0	0.0	10.0	3.8	6.1	6.7	6.8			
Cycle Q Clear(g_c), s	5.0	4.5	0.0	0.0	10.0	3.8	6.1	6.7	6.8			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.21			
Lane Grp Cap(c), veh/h	842	2020	0	0	790	347	365	383	369			
V/C Ratio(X)	0.52	0.33	0.00	0.00	1.18	0.44	0.71	0.77	0.78			
Avail Cap(c_a), veh/h	1383	2020	0	0	790	347	396	416	401			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	14.7	5.2	0.0	0.0	17.5	15.1	16.6	16.9	16.9			
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.0	92.0	0.3	4.3	7.0	7.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.7	1.0	0.0	0.0	13.6	1.2	2.6	3.2	3.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.9	5.2	0.0	0.0	109.5	15.4	20.9	23.8	24.4			
LnGrp LOS	B	A	A	A	F	B	C	C	C			
Approach Vol, veh/h		1108			1081			841				
Approach Delay, s/veh		9.1			96.3			23.1				
Approach LOS		A			F			C				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		30.7			15.6	15.1		14.3				
Change Period (Y+Rc), s		5.1			4.6	5.1		5.1				
Max Green Setting (Gmax), s		10.0			18.0	10.0		10.0				
Max Q Clear Time (g_c+I1), s		6.5			7.0	12.0		8.8				
Green Ext Time (p_c), s		1.1			0.7	0.0		0.4				

Intersection Summary

HCM 6th Ctrl Delay	44.1
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 26: SR 99 SB On Ramp & Fairway Dr 2040 Baseline Conditions - AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↔		↔	↑
Traffic Volume (veh/h)	0	0	185	5	705	100
Future Volume (veh/h)	0	0	185	5	705	100
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1885	1885	1885	1885
Adj Flow Rate, veh/h			201	5	766	109
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			1	1	1	1
Cap, veh/h			383	10	895	1591
Arrive On Green			0.21	0.21	0.50	0.84
Sat Flow, veh/h			1831	46	1795	1885
Grp Volume(v), veh/h			0	206	766	109
Grp Sat Flow(s),veh/h/ln			0	1877	1795	1885
Q Serve(g_s), s			0.0	2.5	9.6	0.2
Cycle Q Clear(g_c), s			0.0	2.5	9.6	0.2
Prop In Lane				0.02	1.00	
Lane Grp Cap(c), veh/h			0	393	895	1591
V/C Ratio(X)			0.00	0.52	0.86	0.07
Avail Cap(c_a), veh/h			0	3294	2240	3308
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			0.0	9.0	5.6	0.3
Incr Delay (d2), s/veh			0.0	0.4	0.9	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.7	0.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	9.4	6.6	0.3
LnGrp LOS			A	A	A	A
Approach Vol, veh/h			206			875
Approach Delay, s/veh			9.4			5.8
Approach LOS			A			A
Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	6.3	9.4				25.6
Change Period (Y+Rc), s	3.5	4.0				* 4
Max Green Setting (Gmax), s	32.0	45.0				* 45
Max Q Clear Time (g_c+I1), s	11.6	4.5				2.2
Green Ext Time (p_c), s	1.3	0.8				0.4
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			6.5			
HCM 6th LOS			A			
<b>Notes</b>						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 49: Carillion Blvd & A Street 2040 Baseline Conditions - AM Peak Hour



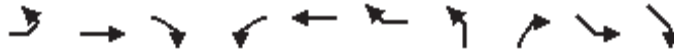
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	315	430	15	55	630	10	15	270	245	5	165	340
Future Volume (veh/h)	315	430	15	55	630	10	15	270	245	5	165	340
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	342	467	16	60	685	11	16	293	266	5	179	370
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	346	1231	42	77	716	11	20	364	326	10	719	625
Arrive On Green	0.19	0.35	0.35	0.04	0.20	0.20	0.21	0.21	0.21	0.20	0.20	0.20
Sat Flow, veh/h	1781	3506	120	1781	3579	57	97	1769	1585	51	3594	1585
Grp Volume(v), veh/h	342	236	247	60	340	356	309	0	266	184	0	370
Grp Sat Flow(s),veh/h/ln	1781	1777	1849	1781	1777	1860	1866	0	1585	1868	1777	1585
Q Serve(g_s), s	17.2	9.0	9.0	3.0	17.0	17.0	14.2	0.0	14.4	7.9	0.0	16.6
Cycle Q Clear(g_c), s	17.2	9.0	9.0	3.0	17.0	17.0	14.2	0.0	14.4	7.9	0.0	16.6
Prop In Lane	1.00		0.06	1.00		0.03	0.05		1.00	0.03		1.00
Lane Grp Cap(c), veh/h	346	624	649	77	355	372	383	0	326	374	355	625
V/C Ratio(X)	0.99	0.38	0.38	0.78	0.96	0.96	0.81	0.00	0.82	0.49	0.00	0.59
Avail Cap(c_a), veh/h	346	624	649	170	355	372	383	0	326	374	355	625
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	36.1	21.9	21.9	42.6	35.6	35.6	34.0	0.0	34.1	31.9	0.0	21.5
Incr Delay (d2), s/veh	44.8	0.4	0.4	15.2	36.4	35.5	16.4	0.0	19.8	4.6	0.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	3.6	3.7	1.6	10.6	11.0	7.8	0.0	7.0	3.8	0.0	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.0	22.2	22.2	57.8	72.0	71.1	50.4	0.0	53.9	36.5	0.0	25.6
LnGrp LOS	F	C	C	E	E	E	D	A	D	D	A	C
Approach Vol, veh/h		825			756			575			554	
Approach Delay, s/veh		46.6			70.4			52.1			29.2	
Approach LOS		D			E			D			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.0	8.4	36.1		22.5	22.0	22.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.5	8.6	26.9		18.0	17.5	18.0				
Max Q Clear Time (g_c+I1), s		16.4	5.0	11.0		18.6	19.2	19.0				
Green Ext Time (p_c), s		0.7	0.0	2.4		0.0	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				50.9								
HCM 6th LOS				D								

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 53: Marengo Rd & A Street 2040 Baseline Conditions - AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	610	25	15	20	25	630
Future Volume (veh/h)	610	25	15	20	25	630
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	1870	1870	1870	1870
Adj Flow Rate, veh/h	663	27	16	22	27	685
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	714	636	35	1617	1293	1213
Arrive On Green	0.40	0.40	0.02	0.46	0.36	0.36
Sat Flow, veh/h	1781	1585	1781	3647	3647	1585
Grp Volume(v), veh/h	663	27	16	22	27	685
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1777	1585
Q Serve(g_s), s	22.2	0.6	0.6	0.2	0.3	11.2
Cycle Q Clear(g_c), s	22.2	0.6	0.6	0.2	0.3	11.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	714	636	35	1617	1293	1213
V/C Ratio(X)	0.93	0.04	0.46	0.01	0.02	0.56
Avail Cap(c_a), veh/h	782	696	142	1617	1293	1213
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	17.9	11.4	30.4	9.4	12.8	3.0
Incr Delay (d2), s/veh	16.4	0.0	9.3	0.0	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.3	0.1	0.1	9.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.3	11.5	39.7	9.4	12.8	5.0
LnGrp LOS	C	B	D	A	B	A
Approach Vol, veh/h	690			38	712	
Approach Delay, s/veh	33.4			22.1	5.3	
Approach LOS	C			C	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		33.0		29.6	5.7	27.3
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		28.5		27.5	5.0	19.0
Max Q Clear Time (g_c+I1), s		2.2		24.2	2.6	13.2
Green Ext Time (p_c), s		0.1		0.9	0.0	1.6
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			19.2			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 62: A Street 2040 Baseline Conditions - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations										
Traffic Volume (veh/h)	0	865	0	0	745	0	0	0	0	0
Future Volume (veh/h)	0	865	0	0	745	0	0	0	0	0
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					
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	0				
Adj Flow Rate, veh/h	0	940	0	0	810	0				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				
Percent Heavy Veh, %	2	2	2	0	2	0				
Cap, veh/h	713	748	634	0	1421	0				
Arrive On Green	0.00	0.40	0.00	0.00	0.40	0.00				
Sat Flow, veh/h	1781	1870	1585	0	3741	0				
Grp Volume(v), veh/h	0	940	0	0	810	0				
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	0	1777	0				
Q Serve(g_s), s	0.0	18.0	0.0	0.0	8.0	0.0				
Cycle Q Clear(g_c), s	0.0	18.0	0.0	0.0	8.0	0.0				
Prop In Lane	1.00		1.00	0.00		0.00				
Lane Grp Cap(c), veh/h	713	748	634	0	1421	0				
V/C Ratio(X)	0.00	1.26	0.00	0.00	0.57	0.00				
Avail Cap(c_a), veh/h	713	748	634	0	1421	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				
Upstream Filter(l)	0.00	1.00	0.00	0.00	1.00	0.00				
Uniform Delay (d), s/veh	0.0	13.5	0.0	0.0	10.5	0.0				
Incr Delay (d2), s/veh	0.0	126.2	0.0	0.0	1.7	0.0				
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				
%ile BackOfQ(50%),veh/ln	0.0	31.4	0.0	0.0	2.5	0.0				
Unsig. Movement Delay, s/veh										
LnGrp Delay(d),s/veh	0.0	139.7	0.0	0.0	12.2	0.0				
LnGrp LOS	A	F	A	A	B	A				
Approach Vol, veh/h		940			810					
Approach Delay, s/veh		139.7			12.2					
Approach LOS		F			B					
Timer - Assigned Phs				4			8			
Phs Duration (G+Y+Rc), s				22.5			22.5			
Change Period (Y+Rc), s				4.5			4.5			
Max Green Setting (Gmax), s				18.0			18.0			
Max Q Clear Time (g_c+11), s				20.0			10.0			
Green Ext Time (p_c), s				0.0			3.2			
<b>Intersection Summary</b>										
HCM 6th Ctrl Delay			80.7							
HCM 6th LOS			F							

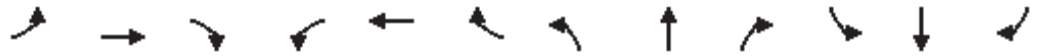
HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 68: 2040 Baseline Conditions - AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↶	↷				
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (veh/h)	0	0	0	0	0	0
Initial Q (Qb), veh	0	0				
Ped-Bike Adj(A_pbT)	1.00	1.00				
Parking Bus, Adj	1.00	1.00				
Work Zone On Approach	No					
Adj Sat Flow, veh/h/ln	1870	1870				
Adj Flow Rate, veh/h	0	0				
Peak Hour Factor	0.92	0.92				
Percent Heavy Veh, %	2	2				
Cap, veh/h	0	0				
Arrive On Green	0.00	0.00				
Sat Flow, veh/h	0					
Grp Volume(v), veh/h	0.0					
Grp Sat Flow(s),veh/h/ln						
Q Serve(g_s), s						
Cycle Q Clear(g_c), s						
Prop In Lane						
Lane Grp Cap(c), veh/h						
V/C Ratio(X)						
Avail Cap(c_a), veh/h						
HCM Platoon Ratio						
Upstream Filter(l)						
Uniform Delay (d), s/veh						
Incr Delay (d2), s/veh						
Initial Q Delay(d3),s/veh						
%ile BackOfQ(50%),veh/ln						
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh						
LnGrp LOS						
Approach Vol, veh/h						
Approach Delay, s/veh						
Approach LOS						
Timer - Assigned Phs						
Phs Duration (G+Y+Rc), s						
Change Period (Y+Rc), s						
Max Green Setting (Gmax), s						
Max Q Clear Time (g_c+I1), s						
Green Ext Time (p_c), s						
Intersection Summary						
HCM 6th Ctrl Delay			0.0			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 1: Carillion Blvd & Twin Cities Rd

2040 Baseline Conditions - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	940	475	90	640	0	200	0	80	0	0	0
Future Volume (veh/h)	0	940	475	90	640	0	200	0	80	0	0	0
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	1022	516	98	696	0	217	0	87	0	0	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	1554	693	189	2268	0	732	0	193	0	228	0
Arrive On Green	0.00	0.44	0.44	0.11	0.64	0.00	0.12	0.00	0.12	0.00	0.00	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	3563	0	1585	0	1870	0
Grp Volume(v), veh/h	0	1022	516	98	696	0	217	0	87	0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1781	0	1585	0	1870	0
Q Serve(g_s), s	0.0	11.0	13.1	2.5	4.3	0.0	2.8	0.0	2.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	11.0	13.1	2.5	4.3	0.0	2.8	0.0	2.5	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	4	1554	693	189	2268	0	732	0	193	0	228	0
V/C Ratio(X)	0.00	0.66	0.74	0.52	0.31	0.00	0.30	0.00	0.45	0.00	0.00	0.00
Avail Cap(c_a), veh/h	368	3305	1474	552	3305	0	1181	0	393	0	464	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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	10.8	11.4	20.5	3.9	0.0	19.9	0.0	19.7	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.6	0.8	0.0	0.0	0.1	0.0	0.6	0.0	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	0.0	2.9	3.2	0.9	0.6	0.0	1.0	0.0	0.8	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	10.9	12.0	21.3	4.0	0.0	19.9	0.0	20.3	0.0	0.0	0.0
LnGrp LOS	A	B	B	C	A	A	B	A	C	A	A	A
Approach Vol, veh/h		1538			794			304				0
Approach Delay, s/veh		11.3			6.1			20.1				0.0
Approach LOS		B			A			C				
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.7	27.0		11.7	0.0	36.7		11.7				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		* 5.8				
Max Green Setting (Gmax), s	15.0	45.0		12.0	10.0	45.0		* 12				
Max Q Clear Time (g_c+I1), s	4.5	15.1		0.0	0.0	6.3		4.8				
Green Ext Time (p_c), s	0.1	5.9		0.0	0.0	3.0		0.3				

Intersection Summary

HCM 6th Ctrl Delay	10.7
HCM 6th LOS	B

Notes

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



Intersection												
Int Delay, s/veh	78.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↕		↗	↕	↗
Traffic Vol, veh/h	60	20	80	95	15	20	95	360	60	105	555	80
Future Vol, veh/h	60	20	80	95	15	20	95	360	60	105	555	80
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	115	-	-	145	-	0
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	65	22	87	103	16	22	103	391	65	114	603	87

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1241	1494	603	1560	1549	229	690	0	0	457	0	0
Stage 1	831	831	-	631	631	-	-	-	-	-	-	-
Stage 2	410	663	-	929	918	-	-	-	-	-	-	-
Critical Hdwy	7.315	6.515	6.215	7.315	6.515	6.915	4.115	-	-	4.115	-	-
Critical Hdwy Stg 1	6.115	5.515	-	6.515	5.515	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.515	5.515	-	6.115	5.515	-	-	-	-	-	-	-
Follow-up Hdwy	3.5095	4.0095	3.3095	3.5095	4.0095	3.3095	2.2095	-	-	2.2095	-	-
Pot Cap-1 Maneuver	142	123	500	~ 84	114	777	908	-	-	1108	-	-
Stage 1	365	385	-	438	475	-	-	-	-	-	-	-
Stage 2	593	460	-	322	351	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	101	98	500	~ 49	91	776	908	-	-	1107	-	-
Mov Cap-2 Maneuver	101	98	-	~ 49	91	-	-	-	-	-	-	-
Stage 1	324	345	-	388	421	-	-	-	-	-	-	-
Stage 2	491	408	-	224	315	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	136.8	\$ 746.6	1.7	1.2
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	908	-	-	167	61	1107	-	-
HCM Lane V/C Ratio	0.114	-	-	1.041	2.316	0.103	-	-
HCM Control Delay (s)	9.5	-	-	136.8	\$ 746.6	8.6	-	-
HCM Lane LOS	A	-	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	8.5	13.9	0.3	-	-

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

HCM 6th TWSC  
3: Carillion Blvd & Lake Canyon Ave

Carillion Boulevard Complete Street Corridor Study  
2040 Baseline Conditions - PM Peak Hour

Intersection												
Int Delay, s/veh	14											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	75	10	40	60	10	20	85	420	55	35	615	80
Future Vol, veh/h	75	10	40	60	10	20	85	420	55	35	615	80
Conflicting Peds, #/hr	0	0	7	0	0	1	0	0	1	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	145	-	-	145	-	-
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	82	11	43	65	11	22	92	457	60	38	668	87

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1210	1493	388	1095	1506	261	758	0	0	518	0	0
Stage 1	791	791	-	672	672	-	-	-	-	-	-	-
Stage 2	419	702	-	423	834	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	138	122	611	168	120	738	849	-	-	1044	-	-
Stage 1	349	399	-	412	453	-	-	-	-	-	-	-
Stage 2	582	439	-	579	381	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	110	104	605	127	103	737	847	-	-	1043	-	-
Mov Cap-2 Maneuver	110	104	-	127	103	-	-	-	-	-	-	-
Stage 1	310	383	-	367	403	-	-	-	-	-	-	-
Stage 2	489	391	-	500	366	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	112.8		64.6		1.5		0.4	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	847	-	-	148	151	1043	-	-
HCM Lane V/C Ratio	0.109	-	-	0.918	0.648	0.036	-	-
HCM Control Delay (s)	9.8	-	-	112.8	64.6	8.6	-	-
HCM Lane LOS	A	-	-	F	F	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	6.4	3.6	0.1	-	-

Intersection												
Int Delay, s/veh	4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↕	↕		↕	↕	
Traffic Vol, veh/h	35	15	25	20	5	35	30	490	40	60	595	110
Future Vol, veh/h	35	15	25	20	5	35	30	490	40	60	595	110
Conflicting Peds, #/hr	0	0	5	0	0	0	0	0	4	0	0	3
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	145	-	-	145	-	-
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	38	16	27	22	5	38	33	533	43	65	647	120

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1175	1486	392	1092	1525	292	770	0	0	580	0	0
Stage 1	840	840	-	625	625	-	-	-	-	-	-	-
Stage 2	335	646	-	467	900	-	-	-	-	-	-	-
Critical Hdwy	7.52	6.52	6.92	7.52	6.52	6.92	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.51	4.01	3.31	3.51	4.01	3.31	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	148	125	610	170	118	707	847	-	-	997	-	-
Stage 1	328	381	-	442	478	-	-	-	-	-	-	-
Stage 2	655	468	-	548	358	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	124	112	605	132	105	704	845	-	-	993	-	-
Mov Cap-2 Maneuver	124	112	-	132	105	-	-	-	-	-	-	-
Stage 1	314	355	-	423	457	-	-	-	-	-	-	-
Stage 2	588	448	-	464	334	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	46.9		25.4		0.5		0.7	
HCM LOS	E		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	845	-	-	164	241	993	-
HCM Lane V/C Ratio	0.039	-	-	0.497	0.271	0.066	-
HCM Control Delay (s)	9.4	-	-	46.9	25.4	8.9	-
HCM Lane LOS	A	-	-	E	D	A	-
HCM 95th %tile Q(veh)	0.1	-	-	2.4	1.1	0.2	-

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5: Carillion Blvd & Walnut Ave Performance by approach

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Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	14.4	20.6	14.8	3530.8	214.9

Intersection												
Intersection Delay, s/veh	13.8											
Intersection LOS	F											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↕		↔	↕	
Traffic Vol, veh/h	275	20	70	15	40	65	105	510	30	90	660	245
Future Vol, veh/h	275	20	70	15	40	65	105	510	30	90	660	245
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	299	22	76	16	43	71	114	554	33	98	717	266
Number of Lanes	0	1	1	0	1	1	1	2	0	1	2	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	3	3
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	3	3	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	3	3	2	2
HCM Control Delay	79.8	18.5	59.9	172.7
HCM LOS	F	C	F	F

Lane	NBLn1	NBLn2	NBLn3	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2	SBLn3
Vol Left, %	100%	0%	0%	93%	0%	27%	0%	100%	0%	0%
Vol Thru, %	0%	100%	85%	7%	0%	73%	0%	0%	100%	47%
Vol Right, %	0%	0%	15%	0%	100%	0%	100%	0%	0%	53%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	105	340	200	295	70	55	65	90	440	465
LT Vol	105	0	0	275	0	15	0	90	0	0
Through Vol	0	340	170	20	0	40	0	0	440	220
RT Vol	0	0	30	0	70	0	65	0	0	245
Lane Flow Rate	114	370	217	321	76	60	71	98	478	505
Geometry Grp	8	8	8	8	8	8	8	8	8	8
Degree of Util (X)	0.334	1.029	0.599	1.021	0.218	0.204	0.225	0.279	1.298	1.333
Departure Headway (Hd)	11.317	10.795	10.685	12.208	11.019	12.881	12.015	10.592	10.069	9.683
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	320	340	339	298	328	280	301	341	363	379
Service Time	9.017	8.495	8.385	9.908	8.719	10.581	9.715	8.292	7.769	7.383
HCM Lane V/C Ratio	0.356	1.088	0.64	1.077	0.232	0.214	0.236	0.287	1.317	1.332
HCM Control Delay	19.6	91	28.1	94.7	16.8	18.9	18.2	17.3	181.7	194.2
HCM Lane LOS	C	F	D	F	C	C	C	C	F	F
HCM 95th-tile Q	1.4	12	3.7	11	0.8	0.7	0.8	1.1	21.4	23.4

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘	↗	↑↓		↘	↑↑
Traffic Vol, veh/h	20	15	630	35	20	720
Future Vol, veh/h	20	15	630	35	20	720
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	22	16	685	38	22	783

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1140	362	0	0	723
Stage 1	704	-	-	-	-
Stage 2	436	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.12
Critical Hdwy Stg 1	5.82	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.21
Pot Cap-1 Maneuver	196	638	-	-	882
Stage 1	454	-	-	-	-
Stage 2	622	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	191	638	-	-	882
Mov Cap-2 Maneuver	191	-	-	-	-
Stage 1	454	-	-	-	-
Stage 2	606	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.7	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	191	638	882
HCM Lane V/C Ratio	-	-	0.114	0.026	0.025
HCM Control Delay (s)	-	-	26.3	10.8	9.2
HCM Lane LOS	-	-	D	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1	0.1

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↕		↗	↕	
Traffic Vol, veh/h	0	0	30	0	0	65	10	620	20	40	680	25
Future Vol, veh/h	0	0	30	0	0	65	10	620	20	40	680	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	6	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	115	-	-	140	-	-
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	33	0	0	71	11	674	22	43	739	27

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	384	-	-	354	767	0	0	702	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.92	-	-	6.92	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.31	-	-	3.31	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	0	0	617	0	0	645	849	-	-	898	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	616	-	-	641	848	-	-	893	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	11.2		11.3		0.1		0.5			
HCM LOS	B		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	848	-	-	616	641	893	-	-
HCM Lane V/C Ratio	0.013	-	-	0.053	0.11	0.049	-	-
HCM Control Delay (s)	9.3	-	-	11.2	11.3	9.2	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.4	0.2	-	-

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗↗		↗	↗↗	
Traffic Vol, veh/h	0	0	40	0	0	35	20	615	15	60	635	15
Future Vol, veh/h	0	0	40	0	0	35	20	615	15	60	635	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	140	-	-	130	-	-
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	43	0	0	38	22	668	16	65	690	16























Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	-	-	354	-	-	343	707	0	0	685	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.92	-	-	6.92	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.31	-	-	3.31	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	0	0	645	0	0	656	894	-	-	911	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	644	-	-	655	893	-	-	910	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11		10.8		0.3		0.8	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	893	-	-	644	655	910	-	-
HCM Lane V/C Ratio	0.024	-	-	0.068	0.058	0.072	-	-
HCM Control Delay (s)	9.1	-	-	11	10.8	9.3	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.2	0.2	-	-



HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 10: Simmerhorn Rd & Carillion Blvd 2040 Baseline Conditions - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	80	15	115	335	60	10	455	135	210	395	100
Future Volume (veh/h)	115	80	15	115	335	60	10	455	135	210	395	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	125	87	16	125	364	65	11	495	147	228	429	109
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	265	330	61	135	555	99	409	621	183	367	579	146
Arrive On Green	0.21	0.21	0.21	0.08	0.36	0.36	0.23	0.23	0.23	0.21	0.21	0.21
Sat Flow, veh/h	959	1537	283	1781	1545	276	1781	2705	799	1781	2812	708
Grp Volume(v), veh/h	125	0	103	125	0	429	11	324	318	228	270	268
Grp Sat Flow(s),veh/h/ln	959	0	1819	1781	0	1821	1781	1777	1727	1781	1777	1743
Q Serve(g_s), s	8.3	0.0	3.1	4.6	0.0	13.0	0.3	11.3	11.4	7.7	9.3	9.5
Cycle Q Clear(g_c), s	11.8	0.0	3.1	4.6	0.0	13.0	0.3	11.3	11.4	7.7	9.3	9.5
Prop In Lane	1.00		0.16	1.00		0.15	1.00		0.46	1.00		0.41
Lane Grp Cap(c), veh/h	265	0	391	135	0	654	409	408	396	367	366	359
V/C Ratio(X)	0.47	0.00	0.26	0.92	0.00	0.66	0.03	0.79	0.80	0.62	0.74	0.75
Avail Cap(c_a), veh/h	321	0	498	135	0	654	488	486	473	488	486	477
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.6	0.0	21.5	30.2	0.0	17.7	19.6	23.9	23.9	23.8	24.4	24.5
Incr Delay (d2), s/veh	1.3	0.0	0.4	54.5	0.0	2.4	0.0	7.5	8.2	1.7	4.0	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	1.2	3.8	0.0	4.7	0.1	5.3	5.3	3.0	3.9	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.9	0.0	21.8	84.7	0.0	20.0	19.7	31.4	32.1	25.5	28.5	29.0
LnGrp LOS	C	A	C	F	A	C	B	C	C	C	C	C
Approach Vol, veh/h		228			554			653			766	
Approach Delay, s/veh		25.2			34.6			31.6			27.8	
Approach LOS		C			C			C			C	
Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		19.6	9.5	18.6		18.0		28.1				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0	5.0	18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		13.4	6.6	13.8		11.5		15.0				
Green Ext Time (p_c), s		1.7	0.0	0.4		2.0		0.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				30.3								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 12: Marengo Rd & Twin Cities Rd 2040 Baseline Conditions - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	770	100	220	455	15	200	60	150	20	55	40
Future Volume (veh/h)	45	770	100	220	455	15	200	60	150	20	55	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No			No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	837	109	239	495	16	217	65	163	22	60	43
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	87	1066	476	253	1383	45	373	90	225	47	110	79
Arrive On Green	0.05	0.30	0.30	0.14	0.39	0.39	0.11	0.19	0.19	0.03	0.11	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3513	113	3456	472	1185	1781	1013	726
Grp Volume(v), veh/h	49	837	109	239	250	261	217	0	228	22	0	103
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1850	1728	0	1657	1781	0	1740
Q Serve(g_s), s	1.4	11.4	2.7	7.0	5.2	5.2	3.2	0.0	6.8	0.6	0.0	3.0
Cycle Q Clear(g_c), s	1.4	11.4	2.7	7.0	5.2	5.2	3.2	0.0	6.8	0.6	0.0	3.0
Prop In Lane	1.00		1.00	1.00		0.06	1.00		0.71	1.00		0.42
Lane Grp Cap(c), veh/h	87	1066	476	253	700	728	373	0	315	47	0	189
V/C Ratio(X)	0.57	0.79	0.23	0.94	0.36	0.36	0.58	0.00	0.72	0.47	0.00	0.55
Avail Cap(c_a), veh/h	169	1213	541	253	700	728	1180	0	990	169	0	610
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.5	16.9	13.9	22.4	11.3	11.3	22.4	0.0	20.0	25.3	0.0	22.3
Incr Delay (d2), s/veh	5.7	3.1	0.2	41.1	0.3	0.3	1.4	0.0	3.2	7.3	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	4.5	0.8	5.4	1.6	1.7	1.2	0.0	2.5	0.3	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.2	20.0	14.1	63.5	11.6	11.6	23.8	0.0	23.2	32.6	0.0	24.7
LnGrp LOS	C	B	B	E	B	B	C	A	C	C	A	C
Approach Vol, veh/h	995			750			445			125		
Approach Delay, s/veh	19.8			28.1			23.5			26.1		
Approach LOS	B			C			C			C		
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	14.5	12.0	20.3	10.2	10.2	7.1	25.3				
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	5.0	31.5	7.5	18.0	18.0	18.5	5.0	20.5				
Max Q Clear Time (g_c+1), s	12.6	8.8	9.0	13.4	5.2	5.0	3.4	7.2				
Green Ext Time (p_c), s	0.0	1.2	0.0	2.4	0.5	0.4	0.0	2.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay	23.6											
HCM 6th LOS	C											





















Intersection						
Int Delay, s/veh	2.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	100	130	395	355	20
Future Vol, veh/h	15	100	130	395	355	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	16	109	141	429	386	22

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	894	204	408	0	-	0
Stage 1	397	-	-	-	-	-
Stage 2	497	-	-	-	-	-
Critical Hdwy	6.82	6.92	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	283	806	1154	-	-	-
Stage 1	651	-	-	-	-	-
Stage 2	579	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	248	806	1154	-	-	-
Mov Cap-2 Maneuver	248	-	-	-	-	-
Stage 1	572	-	-	-	-	-
Stage 2	579	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.2	2.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1154	-	623	-	-
HCM Lane V/C Ratio	0.122	-	0.201	-	-
HCM Control Delay (s)	8.6	-	12.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.4	-	0.7	-	-

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 14: E. Stockton Blvd & SR 99 NB Ramps/Walnut Ave 2040 Baseline Conditions - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	140	880	0	0	795	335	115	0	135	0	0	0
Future Volume (veh/h)	140	880	0	0	795	335	115	0	135	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	152	957	0	0	864	364	125	0	147			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	201	2223	0	0	1440	629	285	0	249			
Arrive On Green	0.11	0.63	0.00	0.00	0.41	0.41	0.16	0.00	0.16			
Sat Flow, veh/h	1781	3647	0	0	3647	1552	1781	0	1559			
Grp Volume(v), veh/h	152	957	0	0	864	364	125	0	147			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1552	1781	0	1559			
Q Serve(g_s), s	3.5	5.8	0.0	0.0	8.0	7.6	2.7	0.0	3.7			
Cycle Q Clear(g_c), s	3.5	5.8	0.0	0.0	8.0	7.6	2.7	0.0	3.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	201	2223	0	0	1440	629	285	0	249			
V/C Ratio(X)	0.76	0.43	0.00	0.00	0.60	0.58	0.44	0.00	0.59			
Avail Cap(c_a), veh/h	616	4196	0	0	2586	1129	914	0	799			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	18.0	4.0	0.0	0.0	9.8	9.7	15.9	0.0	16.3			
Incr Delay (d2), s/veh	5.7	0.1	0.0	0.0	0.4	0.8	1.1	0.0	2.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.4	0.6	0.0	0.0	2.0	1.7	0.9	0.0	1.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.7	4.2	0.0	0.0	10.2	10.5	17.0	0.0	18.6			
LnGrp LOS	C	A	A	A	B	B	B	A	B			
Approach Vol, veh/h		1109			1228			272				
Approach Delay, s/veh		6.8			10.3			17.8				
Approach LOS		A			B			B				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		11.2		30.7			9.2	21.5				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		21.5		49.5			14.5	30.5				
Max Q Clear Time (g_c+I1), s		5.7		7.8			5.5	10.0				
Green Ext Time (p_c), s		1.0		7.4			0.2	7.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				9.6								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 15: Walnut Ave & Vintage Oak Ave 2040 Baseline Conditions - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	770	85	20	810	15	60	15	15	10	15	165
Future Volume (veh/h)	90	770	85	20	810	15	60	15	15	10	15	165
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	98	837	92	22	880	16	65	16	16	11	16	179
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	127	1152	127	46	1115	20	114	28	28	15	22	247
Arrive On Green	0.07	0.36	0.36	0.03	0.31	0.31	0.10	0.10	0.10	0.18	0.18	0.18
Sat Flow, veh/h	1767	3195	351	1767	3542	64	1169	288	288	85	124	1385
Grp Volume(v), veh/h	98	462	467	22	438	458	97	0	0	206	0	0
Grp Sat Flow(s),veh/h/ln	1767	1763	1783	1767	1763	1844	1745	0	0	1594	0	0
Q Serve(g_s), s	2.9	12.1	12.1	0.7	12.1	12.1	2.8	0.0	0.0	6.5	0.0	0.0
Cycle Q Clear(g_c), s	2.9	12.1	12.1	0.7	12.1	12.1	2.8	0.0	0.0	6.5	0.0	0.0
Prop In Lane	1.00		0.20	1.00		0.03	0.67		0.16	0.05		0.87
Lane Grp Cap(c), veh/h	127	636	643	46	555	580	169	0	0	284	0	0
V/C Ratio(X)	0.77	0.73	0.73	0.48	0.79	0.79	0.57	0.00	0.00	0.73	0.00	0.00
Avail Cap(c_a), veh/h	169	679	687	166	676	707	607	0	0	539	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	24.3	14.7	14.7	25.6	16.6	16.6	23.0	0.0	0.0	20.6	0.0	0.0
Incr Delay (d2), s/veh	14.3	3.6	3.6	7.5	5.2	5.0	3.0	0.0	0.0	3.5	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	1.6	4.3	4.4	0.3	4.6	4.8	1.2	0.0	0.0	2.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	18.4	18.4	33.0	21.8	21.6	26.0	0.0	0.0	24.2	0.0	0.0
LnGrp LOS	D	B	B	C	C	C	C	A	A	C	A	A
Approach Vol, veh/h		1027			918			97			206	
Approach Delay, s/veh		20.3			22.0			26.0			24.2	
Approach LOS		C			C			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.7	5.9	23.7		14.0	8.3	21.3				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.5	5.0	20.5		18.0	5.1	20.4				
Max Q Clear Time (g_c+I1), s		4.8	2.7	14.1		8.5	4.9	14.1				
Green Ext Time (p_c), s		0.3	0.0	2.8		0.8	0.0	2.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											21.6	
HCM 6th LOS											C	

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 16: Walnut Ave & Elk Hills Dr 2040 Baseline Conditions - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	430	60	5	635	15	45	15	5	5	20	30
Future Volume (veh/h)	85	430	60	5	635	15	45	15	5	5	20	30
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		0.97	1.00		0.97	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		No		No
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	92	467	65	5	690	16	49	16	5	5	22	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	135	1111	154	12	1015	24	170	56	17	16	70	106
Arrive On Green	0.08	0.35	0.35	0.01	0.28	0.28	0.14	0.14	0.14	0.11	0.11	0.11
Sat Flow, veh/h	1795	3154	437	1795	3575	83	1256	410	128	142	625	937
Grp Volume(v), veh/h	92	264	268	5	346	360	70	0	0	60	0	0
Grp Sat Flow(s),veh/h/ln	1795	1791	1799	1795	1791	1867	1794	0	0	1704	0	0
Q Serve(g_s), s	2.3	5.1	5.2	0.1	7.8	7.9	1.6	0.0	0.0	1.5	0.0	0.0
Cycle Q Clear(g_c), s	2.3	5.1	5.2	0.1	7.8	7.9	1.6	0.0	0.0	1.5	0.0	0.0
Prop In Lane	1.00		0.24	1.00		0.04	0.70		0.07	0.08		0.55
Lane Grp Cap(c), veh/h	135	631	634	12	508	530	243	0	0	192	0	0
V/C Ratio(X)	0.68	0.42	0.42	0.41	0.68	0.68	0.29	0.00	0.00	0.31	0.00	0.00
Avail Cap(c_a), veh/h	255	782	785	196	723	754	744	0	0	669	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.7	11.3	11.3	22.7	14.6	14.6	17.8	0.0	0.0	18.7	0.0	0.0
Incr Delay (d2), s/veh	5.9	0.4	0.4	21.1	1.6	1.5	0.6	0.0	0.0	0.9	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	1.0	1.5	1.5	0.1	2.6	2.7	0.7	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.5	11.7	11.7	43.7	16.2	16.1	18.5	0.0	0.0	19.6	0.0	0.0
LnGrp LOS	C	B	B	D	B	B	B	A	A	B	A	A
Approach Vol, veh/h		624			711			70			60	
Approach Delay, s/veh		13.9			16.3			18.5			19.6	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.7	4.8	20.6		9.7	8.0	17.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.0	5.0	20.0		18.0	6.5	18.5				
Max Q Clear Time (g_c+I1), s		3.6	2.1	7.2		3.5	4.3	9.9				
Green Ext Time (p_c), s		0.2	0.0	2.3		0.2	0.0	2.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											15.5	
HCM 6th LOS											B	

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 17: Walnut Ave & Marengo Rd 2040 Baseline Conditions - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↕↔		↔	↕↔		↔	↕↕	↔	↔	↕↕	↔
Traffic Volume (veh/h)	155	240	55	155	315	75	50	590	125	75	515	305
Future Volume (veh/h)	155	240	55	155	315	75	50	590	125	75	515	305
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		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1870	1870	1870	1870	1870	1900	1900	1870	1870	1900	1900
Adj Flow Rate, veh/h	168	261	60	168	342	82	54	641	136	82	560	332
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, %	0	2	2	2	2	2	0	0	2	2	0	0
Cap, veh/h	322	517	117	182	543	128	96	1018	447	122	1074	615
Arrive On Green	0.09	0.18	0.18	0.10	0.19	0.19	0.05	0.28	0.28	0.07	0.30	0.30
Sat Flow, veh/h	3510	2872	648	1781	2851	675	1810	3610	1585	1781	3610	1571
Grp Volume(v), veh/h	168	160	161	168	211	213	54	641	136	82	560	332
Grp Sat Flow(s),veh/h/ln	1755	1777	1743	1781	1777	1749	1810	1805	1585	1781	1805	1571
Q Serve(g_s), s	2.2	4.0	4.1	4.6	5.4	5.5	1.4	7.6	3.3	2.2	6.3	8.0
Cycle Q Clear(g_c), s	2.2	4.0	4.1	4.6	5.4	5.5	1.4	7.6	3.3	2.2	6.3	8.0
Prop In Lane	1.00		0.37	1.00		0.39	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	322	320	314	182	338	333	96	1018	447	122	1074	615
V/C Ratio(X)	0.52	0.50	0.51	0.92	0.63	0.64	0.56	0.63	0.30	0.67	0.52	0.54
Avail Cap(c_a), veh/h	1254	1106	1085	182	653	643	277	1584	696	182	1400	757
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	21.2	18.1	18.2	21.8	18.2	18.3	22.6	15.4	13.8	22.3	14.3	11.6
Incr Delay (d2), s/veh	1.3	1.2	1.3	45.5	1.9	2.0	5.1	0.6	0.4	6.2	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.6	1.6	4.0	2.1	2.2	0.7	2.5	1.1	1.0	2.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.5	19.3	19.5	67.3	20.1	20.3	27.7	16.0	14.2	28.5	14.7	12.3
LnGrp LOS	C	B	B	E	C	C	C	B	B	C	B	B
Approach Vol, veh/h		489			592			831			974	
Approach Delay, s/veh		20.5			33.6			16.5			15.1	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.9	18.3	9.5	13.3	7.1	19.1	9.0	13.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	14.0	21.5	5.0	30.5	7.5	19.0	17.5	18.0				
Max Q Clear Time (g_c+14), s	14.0	9.6	6.6	6.1	3.4	10.0	4.2	7.5				
Green Ext Time (p_c), s	0.0	3.5	0.0	1.9	0.0	3.1	0.4	1.8				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				20.2								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	15	10	895	805	20
Future Vol, veh/h	10	15	10	895	805	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	90	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	16	11	973	875	22

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1395	449	897	0	-	0
Stage 1	886	-	-	-	-	-
Stage 2	509	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	132	557	753	-	-	-
Stage 1	363	-	-	-	-	-
Stage 2	569	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	130	557	753	-	-	-
Mov Cap-2 Maneuver	256	-	-	-	-	-
Stage 1	358	-	-	-	-	-
Stage 2	569	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.2	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	753	-	379	-	-
HCM Lane V/C Ratio	0.014	-	0.072	-	-
HCM Control Delay (s)	9.9	-	15.2	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-



Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑↑	↑	↔
Traffic Vol, veh/h	5	60	15	905	820	10
Future Vol, veh/h	5	60	15	905	820	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	90	-	-	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	2	2	2	2
Mvmt Flow	5	65	16	984	891	11

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1415	891	902	0	-	0
Stage 1	891	-	-	-	-	-
Stage 2	524	-	-	-	-	-
Critical Hdwy	6.63	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	139	340	751	-	-	-
Stage 1	400	-	-	-	-	-
Stage 2	560	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	136	340	751	-	-	-
Mov Cap-2 Maneuver	270	-	-	-	-	-
Stage 1	392	-	-	-	-	-
Stage 2	560	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.7	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	751	-	333	-	-
HCM Lane V/C Ratio	0.022	-	0.212	-	-
HCM Control Delay (s)	9.9	-	18.7	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.8	-	-

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 21: Marengo Rd & Simmerhorn Rd 2040 Baseline Conditions - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕	↗	↖	↕	↗
Traffic Volume (veh/h)	190	150	55	85	255	25	50	705	60	70	635	170
Future Volume (veh/h)	190	150	55	85	255	25	50	705	60	70	635	170
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	207	163	60	92	277	27	54	766	65	76	690	185
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	163	308	113	122	358	35	91	1008	86	111	1121	500
Arrive On Green	0.09	0.24	0.24	0.07	0.21	0.21	0.05	0.30	0.30	0.06	0.32	0.32
Sat Flow, veh/h	1781	1304	480	1781	1677	163	1781	3315	281	1781	3554	1585
Grp Volume(v), veh/h	207	0	223	92	0	304	54	410	421	76	690	185
Grp Sat Flow(s),veh/h/ln	1781	0	1784	1781	0	1841	1781	1777	1819	1781	1777	1585
Q Serve(g_s), s	5.0	0.0	6.0	2.8	0.0	8.5	1.6	11.5	11.5	2.3	9.0	5.0
Cycle Q Clear(g_c), s	5.0	0.0	6.0	2.8	0.0	8.5	1.6	11.5	11.5	2.3	9.0	5.0
Prop In Lane	1.00		0.27	1.00		0.09	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	163	0	421	122	0	393	91	540	553	111	1121	500
V/C Ratio(X)	1.27	0.00	0.53	0.75	0.00	0.77	0.59	0.76	0.76	0.68	0.62	0.37
Avail Cap(c_a), veh/h	163	0	733	163	0	756	211	730	747	211	1459	651
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.9	0.0	18.3	25.0	0.0	20.3	25.4	17.3	17.3	25.1	15.9	14.5
Incr Delay (d2), s/veh	162.1	0.0	1.0	12.7	0.0	3.3	6.0	3.2	3.2	7.1	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	2.4	1.4	0.0	3.2	0.8	4.2	4.3	1.1	3.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	187.0	0.0	19.3	37.8	0.0	23.6	31.5	20.5	20.4	32.3	16.5	15.0
LnGrp LOS	F	A	B	D	A	C	C	C	C	C	B	B
Approach Vol, veh/h		430			396			885			951	
Approach Delay, s/veh		100.0			26.9			21.1			17.5	
Approach LOS		F			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.9	21.2	8.3	17.4	7.3	21.8	9.5	16.2				
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	6.5	22.5	5.0	22.5	6.5	22.5	5.0	22.5				
Max Q Clear Time (g_c+14), s	14.3	13.5	4.8	8.0	3.6	11.0	7.0	10.5				
Green Ext Time (p_c), s	0.0	3.2	0.0	1.0	0.0	3.8	0.0	1.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				33.4								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 22: Crystal Way & SR 99 SB Off Ramp  
 2040 Baseline Conditions - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑↑	
Traffic Volume (veh/h)	0	470	60	375	455	0	0	0	0	120	200	120
Future Volume (veh/h)	0	470	60	375	455	0	0	0	0	120	200	120
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	0				1856	1856	1856
Adj Flow Rate, veh/h	0	511	65	408	495	0				130	217	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	843	376	771	2015	0				353	431	248
Arrive On Green	0.00	0.24	0.24	0.22	0.57	0.00				0.20	0.20	0.20
Sat Flow, veh/h	0	3618	1572	3428	3618	0				1767	2156	1239
Grp Volume(v), veh/h	0	511	65	408	495	0				130	176	171
Grp Sat Flow(s),veh/h/ln	0	1763	1572	1714	1763	0				1767	1763	1632
Q Serve(g_s), s	0.0	4.8	1.2	3.9	2.6	0.0				2.4	3.3	3.5
Cycle Q Clear(g_c), s	0.0	4.8	1.2	3.9	2.6	0.0				2.4	3.3	3.5
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.76
Lane Grp Cap(c), veh/h	0	843	376	771	2015	0				353	353	327
V/C Ratio(X)	0.00	0.61	0.17	0.53	0.25	0.00				0.37	0.50	0.52
Avail Cap(c_a), veh/h	0	2178	972	829	3410	0				1828	1823	1688
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	12.6	11.2	12.7	4.0	0.0				12.9	13.2	13.3
Incr Delay (d2), s/veh	0.0	0.3	0.1	0.6	0.0	0.0				0.2	0.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.5	0.3	1.2	0.4	0.0				0.7	1.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.9	11.3	13.3	4.0	0.0				13.1	13.6	13.8
LnGrp LOS	A	B	B	B	A	A				B	B	B
Approach Vol, veh/h		576			903						477	
Approach Delay, s/veh		12.7			8.2						13.5	
Approach LOS		B			A						B	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	12.4	12.9		11.9		25.3						
Change Period (Y+Rc), s	4.0	4.0		4.5		4.0						
Max Green Setting (Gmax), s	23.0	23.0		38.5		36.0						
Max Q Clear Time (g_c+1), s	6.8	6.8		5.5		4.6						
Green Ext Time (p_c), s	0.5	2.1		1.3		2.2						

Intersection Summary

HCM 6th Ctrl Delay		10.8										
HCM 6th LOS			B									

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 23: SR 99 NB On Ramp & Crystal Way 2040 Baseline Conditions - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↑↑	↔	↔	↔↔				
Traffic Volume (veh/h)	145	445	0	0	690	50	140	275	415	0	0	0
Future Volume (veh/h)	145	445	0	0	690	50	140	275	415	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	158	484	0	0	750	54	152	299	451			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	392	1654	0	0	963	429	631	662	561			
Arrive On Green	0.11	0.47	0.00	0.00	0.27	0.27	0.35	0.35	0.35			
Sat Flow, veh/h	3456	3647	0	0	3647	1585	1781	1870	1585			
Grp Volume(v), veh/h	158	484	0	0	750	54	152	299	451			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	1781	1870	1585			
Q Serve(g_s), s	2.4	4.8	0.0	0.0	11.0	1.5	3.4	7.0	14.5			
Cycle Q Clear(g_c), s	2.4	4.8	0.0	0.0	11.0	1.5	3.4	7.0	14.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	392	1654	0	0	963	429	631	662	561			
V/C Ratio(X)	0.40	0.29	0.00	0.00	0.78	0.13	0.24	0.45	0.80			
Avail Cap(c_a), veh/h	550	2072	0	0	1319	588	1133	1190	1008			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	23.3	9.4	0.0	0.0	19.1	15.6	12.9	14.0	16.5			
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.0	1.3	0.0	0.1	0.2	1.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.9	1.6	0.0	0.0	4.1	0.5	1.2	2.6	4.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	9.4	0.0	0.0	20.4	15.6	13.0	14.2	17.5			
LnGrp LOS	C	A	A	A	C	B	B	B	B			
Approach Vol, veh/h		642			804			902				
Approach Delay, s/veh		12.9			20.1			15.7				
Approach LOS		B			C			B				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		31.4			11.0	20.4		25.1				
Change Period (Y+Rc), s		5.1			4.6	5.1		5.1				
Max Green Setting (Gmax), s		33.0			9.0	21.0		36.0				
Max Q Clear Time (g_c+I1), s		6.8			4.4	13.0		16.5				
Green Ext Time (p_c), s		2.2			0.1	2.3		3.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay					16.4							
HCM 6th LOS					B							
<b>Notes</b>												
User approved volume balancing among the lanes for turning movement.												

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 24: Fairway Dr & C Street 2040 Baseline Conditions - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑			↑↓		↑	↑↓	
Traffic Volume (veh/h)	0	635	55	515	685	0	75	0	150	255	150	230
Future Volume (veh/h)	0	635	55	515	685	0	75	0	150	255	150	230
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	0	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	690	60	560	745	0	82	0	163	277	163	250
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, %	0	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	0	973	434	449	1639	0	87	0	174	368	368	328
Arrive On Green	0.00	0.27	0.27	0.13	0.46	0.00	0.16	0.00	0.16	0.21	0.21	0.21
Sat Flow, veh/h	0	3647	1585	3456	3647	0	551	0	1095	1781	1777	1585
Grp Volume(v), veh/h	0	690	60	560	745	0	245	0	0	277	163	250
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0	1646	0	0	1781	1777	1585
Q Serve(g_s), s	0.0	12.1	2.0	9.0	9.9	0.0	10.2	0.0	0.0	10.1	5.6	10.3
Cycle Q Clear(g_c), s	0.0	12.1	2.0	9.0	9.9	0.0	10.2	0.0	0.0	10.1	5.6	10.3
Prop In Lane	0.00		1.00	1.00		0.00	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	0	973	434	449	1639	0	261	0	0	368	368	328
V/C Ratio(X)	0.00	0.71	0.14	1.25	0.45	0.00	0.94	0.00	0.00	0.75	0.44	0.76
Avail Cap(c_a), veh/h	0	1179	526	449	1846	0	261	0	0	848	846	755
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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	22.7	19.0	30.2	12.7	0.0	28.8	0.0	0.0	25.8	24.0	25.9
Incr Delay (d2), s/veh	0.0	2.5	0.3	129.0	0.2	0.0	38.7	0.0	0.0	1.2	0.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.1	0.7	11.6	3.6	0.0	6.6	0.0	0.0	4.2	2.3	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	25.1	19.3	159.2	12.9	0.0	67.5	0.0	0.0	27.0	24.3	27.3
LnGrp LOS		A	C	B	F	B	A	E	A	A	C	C
Approach Vol, veh/h		750			1305			245			690	
Approach Delay, s/veh		24.7			75.7			67.5			26.5	
Approach LOS		C			E			E			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	3.0	23.0		18.3		36.0		15.0				
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s	3.0	23.0		33.0		36.0		11.0				
Max Q Clear Time (g_c+I1), s	3.0	14.1		12.3		11.9		12.2				
Green Ext Time (p_c), s	0.0	4.8		2.0		5.5		0.0				

Intersection Summary

HCM 6th Ctrl Delay	50.9
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 25: SR 99 NB Off Ramp/SR 99 NB On Ramp & C Street 2040 Baseline Conditions - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↑↑	↔	↔	↔↔				
Traffic Volume (veh/h)	420	620	0	0	785	110	415	300	75	0	0	0
Future Volume (veh/h)	420	620	0	0	785	110	415	300	75	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	457	674	0	0	853	120	286	557	82			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	832	1995	0	0	780	343	382	684	100			
Arrive On Green	0.24	0.56	0.00	0.00	0.22	0.22	0.21	0.21	0.21			
Sat Flow, veh/h	3456	3647	0	0	3647	1562	1781	3189	468			
Grp Volume(v), veh/h	457	674	0	0	853	120	286	326	313			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1562	1781	1870	1786			
Q Serve(g_s), s	5.3	4.7	0.0	0.0	10.0	3.0	6.8	7.6	7.6			
Cycle Q Clear(g_c), s	5.3	4.7	0.0	0.0	10.0	3.0	6.8	7.6	7.6			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.26			
Lane Grp Cap(c), veh/h	832	1995	0	0	780	343	382	401	383			
V/C Ratio(X)	0.55	0.34	0.00	0.00	1.09	0.35	0.75	0.81	0.82			
Avail Cap(c_a), veh/h	1366	1995	0	0	780	343	391	411	392			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	15.1	5.4	0.0	0.0	17.8	15.0	16.7	17.0	17.0			
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.0	60.6	0.2	6.7	10.7	11.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.8	1.1	0.0	0.0	10.1	0.9	3.1	4.0	3.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.3	5.4	0.0	0.0	78.3	15.2	23.4	27.7	28.6			
LnGrp LOS	B	A	A	A	F	B	C	C	C			
Approach Vol, veh/h		1131			973			925				
Approach Delay, s/veh		9.4			70.6			26.7				
Approach LOS		A			E			C				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		30.7			15.6	15.1		14.9				
Change Period (Y+Rc), s		5.1			4.6	5.1		5.1				
Max Green Setting (Gmax), s		10.0			18.0	10.0		10.0				
Max Q Clear Time (g_c+I1), s		6.7			7.3	12.0		9.6				
Green Ext Time (p_c), s		1.1			0.7	0.0		0.2				

Intersection Summary

HCM 6th Ctrl Delay	34.3
HCM 6th LOS	C

Notes























- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 26: SR 99 SB On Ramp & Fairway Dr 2040 Baseline Conditions - PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↶		↷	↶
Traffic Volume (veh/h)	0	0	225	15	625	95
Future Volume (veh/h)	0	0	225	15	625	95
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1885	1885	1885	1885
Adj Flow Rate, veh/h			245	16	679	103
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			1	1	1	1
Cap, veh/h			403	26	817	1569
Arrive On Green			0.23	0.23	0.46	0.83
Sat Flow, veh/h			1750	114	1795	1885
Grp Volume(v), veh/h			0	261	679	103
Grp Sat Flow(s),veh/h/ln			0	1865	1795	1885
Q Serve(g_s), s			0.0	3.0	7.9	0.2
Cycle Q Clear(g_c), s			0.0	3.0	7.9	0.2
Prop In Lane				0.06	1.00	
Lane Grp Cap(c), veh/h			0	429	817	1569
V/C Ratio(X)			0.00	0.61	0.83	0.07
Avail Cap(c_a), veh/h			0	3521	2411	3559
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			0.0	8.2	5.7	0.4
Incr Delay (d2), s/veh			0.0	0.5	0.9	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.7	0.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	8.7	6.5	0.4
LnGrp LOS			A	A	A	A
Approach Vol, veh/h			261			782
Approach Delay, s/veh			8.7			5.7
Approach LOS			A			A
Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	4.4	9.5				23.8
Change Period (Y+Rc), s	3.5	4.0				* 4
Max Green Setting (Gmax), s	32.0	45.0				* 45
Max Q Clear Time (g_c+19.5), s	19.5	5.0				2.2
Green Ext Time (p_c), s	1.1	1.0				0.3
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			6.5			
HCM 6th LOS			A			
<b>Notes</b>						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 1: Carillion Blvd & Twin Cities Rd 2040 Conditions (Signal Alt) - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	840	225	105	860	0	350	0	140	0	0	0
Future Volume (veh/h)	0	840	225	105	860	0	350	0	140	0	0	0
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	913	245	114	935	0	380	0	152	0	0	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	1305	582	210	2085	0	877	0	248	0	293	0
Arrive On Green	0.00	0.37	0.37	0.12	0.59	0.00	0.16	0.00	0.16	0.00	0.00	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	3563	0	1585	0	1870	0
Grp Volume(v), veh/h	0	913	245	114	935	0	380	0	152	0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1781	0	1585	0	1870	0
Q Serve(g_s), s	0.0	9.9	5.2	2.7	6.7	0.0	4.6	0.0	4.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	9.9	5.2	2.7	6.7	0.0	4.6	0.0	4.0	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	4	1305	582	210	2085	0	877	0	248	0	293	0
V/C Ratio(X)	0.00	0.70	0.42	0.54	0.45	0.00	0.43	0.00	0.61	0.00	0.00	0.00
Avail Cap(c_a), veh/h	394	3537	1578	591	3537	0	1264	0	421	0	496	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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	12.2	10.7	18.8	5.2	0.0	18.0	0.0	17.8	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.3	0.2	0.8	0.1	0.0	0.1	0.0	0.9	0.0	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	0.0	2.7	1.3	1.0	1.0	0.0	1.5	0.0	1.2	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.4	10.9	19.6	5.3	0.0	18.1	0.0	18.7	0.0	0.0	0.0
LnGrp LOS	A	B	B	B	A	A	B	A	B	A	A	A
Approach Vol, veh/h		1158			1049			532				0
Approach Delay, s/veh		12.1			6.8			18.3				0.0
Approach LOS		B			A			B				
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.9	22.4		12.9	0.0	32.3		12.9				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		* 5.8				
Max Green Setting (Gmax), s	15.0	45.0		12.0	10.0	45.0		* 12				
Max Q Clear Time (g_c+I1), s	4.7	11.9		0.0	0.0	8.7		6.6				
Green Ext Time (p_c), s	0.1	4.5		0.0	0.0	4.3		0.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				11.3								
HCM 6th LOS				B								
<b>Notes</b>												
User approved pedestrian interval to be less than phase max green.												
User approved volume balancing among the lanes for turning movement.												
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.												



HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 2: Carillion Blvd & Lake Park Ave 2040 Conditions (Signal Alt) - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↕		↗	↕	↗
Traffic Volume (veh/h)	70	15	60	95	10	145	50	485	70	45	405	25
Future Volume (veh/h)	70	15	60	95	10	145	50	485	70	45	405	25
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	76	16	65	103	11	158	54	527	76	49	440	27
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	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	103	22	88	131	14	201	92	901	129	87	534	453
Arrive On Green	0.12	0.12	0.12	0.21	0.21	0.21	0.05	0.29	0.29	0.05	0.28	0.28
Sat Flow, veh/h	831	175	710	635	68	975	1795	3142	452	1795	1885	1598
Grp Volume(v), veh/h	157	0	0	272	0	0	54	300	303	49	440	27
Grp Sat Flow(s),veh/h/ln	1716	0	0	1678	0	0	1795	1791	1803	1795	1885	1598
Q Serve(g_s), s	4.7	0.0	0.0	8.2	0.0	0.0	1.6	7.7	7.8	1.4	11.7	0.7
Cycle Q Clear(g_c), s	4.7	0.0	0.0	8.2	0.0	0.0	1.6	7.7	7.8	1.4	11.7	0.7
Prop In Lane	0.48		0.41	0.38		0.58	1.00		0.25	1.00		1.00
Lane Grp Cap(c), veh/h	213	0	0	346	0	0	92	513	517	87	534	453
V/C Ratio(X)	0.74	0.00	0.00	0.79	0.00	0.00	0.58	0.58	0.59	0.57	0.82	0.06
Avail Cap(c_a), veh/h	575	0	0	563	0	0	167	697	702	171	737	625
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.7	0.0	0.0	20.2	0.0	0.0	24.9	16.4	16.4	25.0	18.0	14.0
Incr Delay (d2), s/veh	5.0	0.0	0.0	4.0	0.0	0.0	5.7	1.1	1.1	5.7	5.4	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	2.1	0.0	0.0	3.4	0.0	0.0	0.7	2.7	2.7	0.7	4.9	0.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.6	0.0	0.0	24.2	0.0	0.0	30.6	17.5	17.5	30.7	23.4	14.1
LnGrp LOS	C	A	A	C	A	A	C	B	B	C	C	B
Approach Vol, veh/h		157			272			657			516	
Approach Delay, s/veh		27.6			24.2			18.6			23.6	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	19.9		11.1	7.3	19.7		15.6				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	20.9		18.0	5.0	21.0		18.0				
Max Q Clear Time (g_c+1/3), s	13.4	9.8		6.7	3.6	13.7		10.2				
Green Ext Time (p_c), s	0.0	2.5		0.6	0.0	1.5		1.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				22.0								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 3: Carillion Blvd & Lake Canyon Ave 2040 Conditions (Signal Alt) - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕		↙	↕	
Traffic Volume (veh/h)	95	35	65	70	20	65	105	445	55	15	450	95
Future Volume (veh/h)	95	35	65	70	20	65	105	445	55	15	450	95
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		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	38	71	76	22	71	114	484	60	16	489	103
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	145	53	100	104	30	97	147	969	120	36	707	148
Arrive On Green	0.17	0.17	0.17	0.14	0.14	0.14	0.08	0.30	0.30	0.02	0.24	0.24
Sat Flow, veh/h	834	308	575	765	222	715	1781	3183	393	1781	2921	612
Grp Volume(v), veh/h	212	0	0	169	0	0	114	269	275	16	296	296
Grp Sat Flow(s),veh/h/ln	1717	0	0	1702	0	0	1781	1777	1799	1781	1777	1756
Q Serve(g_s), s	5.7	0.0	0.0	4.7	0.0	0.0	3.1	6.1	6.2	0.4	7.5	7.6
Cycle Q Clear(g_c), s	5.7	0.0	0.0	4.7	0.0	0.0	3.1	6.1	6.2	0.4	7.5	7.6
Prop In Lane	0.49		0.33	0.45		0.42	1.00		0.22	1.00		0.35
Lane Grp Cap(c), veh/h	298	0	0	231	0	0	147	541	548	36	430	425
V/C Ratio(X)	0.71	0.00	0.00	0.73	0.00	0.00	0.78	0.50	0.50	0.45	0.69	0.70
Avail Cap(c_a), veh/h	628	0	0	622	0	0	271	758	767	181	668	660
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.2	0.0	0.0	20.4	0.0	0.0	22.1	14.0	14.0	23.9	17.0	17.0
Incr Delay (d2), s/veh	3.1	0.0	0.0	4.4	0.0	0.0	8.5	0.7	0.7	8.6	2.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.0	0.0	2.0	0.0	0.0	1.4	2.0	2.0	0.2	2.7	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.3	0.0	0.0	24.8	0.0	0.0	30.6	14.7	14.8	32.5	18.9	19.1
LnGrp LOS	C	A	A	C	A	A	C	B	B	C	B	B
Approach Vol, veh/h		212		169			658			608		
Approach Delay, s/veh		22.3		24.8			17.5			19.4		
Approach LOS		C		C			B			B		
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.5	19.5		13.1	8.6	16.4		11.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.0	21.0		18.0	7.5	18.5		18.0				
Max Q Clear Time (g_c+1/2), s	12.4	8.2		7.7	5.1	9.6		6.7				
Green Ext Time (p_c), s	0.0	2.4		0.8	0.1	2.2		0.7				

Intersection Summary

HCM 6th Ctrl Delay	19.5
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 4: Carillion Blvd & Elk Hills Dr 2040 Conditions (Signal Alt) - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕		↙	↕	
Traffic Volume (veh/h)	40	20	50	60	20	75	30	490	65	55	455	90
Future Volume (veh/h)	40	20	50	60	20	75	30	490	65	55	455	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	43	22	54	65	22	82	33	533	71	60	495	98
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	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	64	33	80	90	30	113	68	845	112	108	857	169
Arrive On Green	0.10	0.10	0.10	0.14	0.14	0.14	0.04	0.27	0.27	0.06	0.29	0.29
Sat Flow, veh/h	611	313	767	651	220	821	1795	3166	420	1795	2967	584
Grp Volume(v), veh/h	119	0	0	169	0	0	33	301	303	60	298	295
Grp Sat Flow(s),veh/h/ln	1691	0	0	1692	0	0	1795	1791	1795	1795	1791	1760
Q Serve(g_s), s	2.8	0.0	0.0	4.0	0.0	0.0	0.8	6.2	6.2	1.4	5.9	6.0
Cycle Q Clear(g_c), s	2.8	0.0	0.0	4.0	0.0	0.0	0.8	6.2	6.2	1.4	5.9	6.0
Prop In Lane	0.36		0.45	0.38		0.49	1.00		0.23	1.00		0.33
Lane Grp Cap(c), veh/h	177	0	0	234	0	0	68	478	479	108	518	509
V/C Ratio(X)	0.67	0.00	0.00	0.72	0.00	0.00	0.48	0.63	0.63	0.56	0.57	0.58
Avail Cap(c_a), veh/h	727	0	0	727	0	0	236	877	879	236	877	862
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.0	0.0	0.0	17.3	0.0	0.0	19.7	13.5	13.5	19.1	12.7	12.7
Incr Delay (d2), s/veh	4.3	0.0	0.0	4.2	0.0	0.0	5.2	1.4	1.4	4.4	1.0	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(50%),veh/ln	1.2	0.0	0.0	1.7	0.0	0.0	0.4	2.0	2.0	0.6	1.8	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.4	0.0	0.0	21.5	0.0	0.0	24.9	14.9	14.9	23.6	13.7	13.8
LnGrp LOS	C	A	A	C	A	A	C	B	B	C	B	B
Approach Vol, veh/h		119			169			637			653	
Approach Delay, s/veh		22.4			21.5			15.4			14.6	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	15.7		8.9	6.1	16.6		10.3				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	5.5	20.5		18.0	5.5	20.5		18.0				
Max Q Clear Time (g_c+1), s	13.4	8.2		4.8	2.8	8.0		6.0				
Green Ext Time (p_c), s	0.0	2.6		0.5	0.0	2.6		0.7				

Intersection Summary												
HCM 6th Ctrl Delay											16.3	
HCM 6th LOS											B	

# HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study

## 5: Carillion Blvd & Walnut Ave

2040 Conditions (Signal Alt) - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	360	385	220	705	75	195	460	395	80	440	45
Future Volume (veh/h)	50	360	385	220	705	75	195	460	395	80	440	45
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	54	391	418	239	766	82	212	500	429	87	478	49
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	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	83	897	619	284	1298	571	255	991	687	112	707	308
Arrive On Green	0.05	0.25	0.25	0.16	0.36	0.36	0.14	0.28	0.28	0.06	0.20	0.20
Sat Flow, veh/h	1795	3582	1568	1795	3582	1576	1795	3582	1571	1795	3582	1562
Grp Volume(v), veh/h	54	391	418	239	766	82	212	500	429	87	478	49
Grp Sat Flow(s),veh/h/ln	1795	1791	1568	1795	1791	1576	1795	1791	1571	1795	1791	1562
Q Serve(g_s), s	2.1	6.6	15.8	9.2	12.4	2.5	8.2	8.4	15.2	3.4	8.8	1.9
Cycle Q Clear(g_c), s	2.1	6.6	15.8	9.2	12.4	2.5	8.2	8.4	15.2	3.4	8.8	1.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	83	897	619	284	1298	571	255	991	687	112	707	308
V/C Ratio(X)	0.65	0.44	0.67	0.84	0.59	0.14	0.83	0.50	0.62	0.78	0.68	0.16
Avail Cap(c_a), veh/h	166	903	622	340	1298	571	289	1195	776	169	954	416
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.5	22.5	18.0	29.2	18.4	15.3	29.8	21.7	15.7	33.0	26.5	23.7
Incr Delay (d2), s/veh	8.4	0.3	2.9	15.0	0.7	0.1	16.7	0.4	1.3	12.0	1.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	2.5	5.3	4.8	4.5	0.8	4.4	3.2	4.7	1.7	3.5	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.9	22.8	20.8	44.2	19.2	15.4	46.5	22.1	17.0	44.9	27.7	24.0
LnGrp LOS	D	C	C	D	B	B	D	C	B	D	C	C
Approach Vol, veh/h		863			1087			1141			614	
Approach Delay, s/veh		23.1			24.4			24.7			29.8	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.0	24.2	15.8	22.4	14.6	18.6	7.8	30.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	3.7	23.8	13.5	18.0	11.5	19.0	6.6	24.9				
Max Q Clear Time (g_c+1/4), s	15.4	17.2	11.2	17.8	10.2	10.8	4.1	14.4				
Green Ext Time (p_c), s	0.0	2.6	0.2	0.1	0.1	1.9	0.0	3.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											25.1	
HCM 6th LOS											C	

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 6: Carillion Blvd & Vintage Oak Ave/Ambrogio Way 2040 Conditions (Signal Alt) - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↖	↕	↗	↖	↕	↗
Traffic Volume (veh/h)	370	25	125	15	40	110	190	570	25	80	665	295
Future Volume (veh/h)	370	25	125	15	40	110	190	570	25	80	665	295
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		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	402	27	136	16	43	120	207	620	27	87	723	321
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	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	433	29	404	50	134	158	232	1339	58	112	764	339
Arrive On Green	0.26	0.26	0.26	0.10	0.10	0.10	0.13	0.38	0.38	0.06	0.32	0.32
Sat Flow, veh/h	1687	113	1577	504	1356	1598	1795	3492	152	1795	2413	1071
Grp Volume(v), veh/h	429	0	136	59	0	120	207	318	329	87	537	507
Grp Sat Flow(s),veh/h/ln	1801	0	1577	1860	0	1598	1795	1791	1854	1795	1791	1692
Q Serve(g_s), s	21.1	0.0	6.4	2.7	0.0	6.6	10.3	12.0	12.1	4.3	26.5	26.5
Cycle Q Clear(g_c), s	21.1	0.0	6.4	2.7	0.0	6.6	10.3	12.0	12.1	4.3	26.5	26.5
Prop In Lane	0.94		1.00	0.27		1.00	1.00		0.08	1.00		0.63
Lane Grp Cap(c), veh/h	462	0	404	184	0	158	232	687	711	112	567	536
V/C Ratio(X)	0.93	0.00	0.34	0.32	0.00	0.76	0.89	0.46	0.46	0.77	0.95	0.95
Avail Cap(c_a), veh/h	467	0	409	370	0	317	232	687	711	206	569	538
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.9	0.0	27.4	38.0	0.0	39.8	38.8	20.9	20.9	41.8	30.2	30.2
Incr Delay (d2), s/veh	25.0	0.0	0.5	1.0	0.0	7.3	32.2	0.5	0.5	10.8	24.9	26.0
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	2.2	0.0	2.4	1.3	0.0	2.9	6.4	4.7	4.9	2.2	14.4	13.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.8	0.0	27.9	39.0	0.0	47.0	71.0	21.4	21.4	52.6	55.1	56.2
LnGrp LOS	E	A	C	D	A	D	E	C	C	D	E	E
Approach Vol, veh/h		565			179			854			1131	
Approach Delay, s/veh		50.6			44.4			33.4			55.4	
Approach LOS		D			D			C			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	39.2			27.7	16.2	33.2		13.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	30.1			23.5	11.7	28.8		18.0				
Max Q Clear Time (g_c+1/3), s	14.1			23.1	12.3	28.5		8.6				
Green Ext Time (p_c), s	0.1	3.2		0.2	0.0	0.2		0.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			46.8									
HCM 6th LOS			D									

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↵	↶	↕↶		↵	↕↕
Traffic Vol, veh/h	20	20	765	10	10	795
Future Vol, veh/h	20	20	765	10	10	795
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	22	22	832	11	11	864

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1292	422	0	0	843
Stage 1	838	-	-	-	-
Stage 2	454	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.12
Critical Hdwy Stg 1	5.82	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.21
Pot Cap-1 Maneuver	156	583	-	-	795
Stage 1	387	-	-	-	-
Stage 2	609	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	154	583	-	-	795
Mov Cap-2 Maneuver	154	-	-	-	-
Stage 1	387	-	-	-	-
Stage 2	600	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.8	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	154	583	795
HCM Lane V/C Ratio	-	-	0.141	0.037	0.014
HCM Control Delay (s)	-	-	32.2	11.4	9.6
HCM Lane LOS	-	-	D	B	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1	0

Intersection												
Int Delay, s/veh	1.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↕		↗	↕	
Traffic Vol, veh/h	0	0	50	0	0	90	5	695	10	50	750	20
Future Vol, veh/h	0	0	50	0	0	90	5	695	10	50	750	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	6	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	115	-	-	140	-	-
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	54	0	0	98	5	755	11	54	815	22

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	420	-	-	389	838	0	0	772	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.92	-	-	6.92	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.31	-	-	3.31	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	0	0	585	0	0	612	799	-	-	845	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	584	-	-	609	798	-	-	840	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11.8		12		0.1		0.6	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	798	-	-	584	609	840	-	-
HCM Lane V/C Ratio	0.007	-	-	0.093	0.161	0.065	-	-
HCM Control Delay (s)	9.5	-	-	11.8	12	9.6	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.6	0.2	-	-

Intersection												
Int Delay, s/veh	1.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗↗		↗	↗↗	
Traffic Vol, veh/h	0	0	60	0	0	45	10	655	5	65	705	10
Future Vol, veh/h	0	0	60	0	0	45	10	655	5	65	705	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	140	-	-	130	-	-
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	65	0	0	49	11	712	5	71	766	11























Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	390	-	-	360	778	0	0	718	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.92	-	-	6.92	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.31	-	-	3.31	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	0	0	612	0	0	639	841	-	-	886	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	611	-	-	638	840	-	-	885	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	11.6		11.1		0.1		0.8	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	840	-	-	611	638	885	-	-
HCM Lane V/C Ratio	0.013	-	-	0.107	0.077	0.08	-	-
HCM Control Delay (s)	9.3	-	-	11.6	11.1	9.4	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.2	0.3	-	-



HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 10: Carillion Blvd & Simmerhorn Rd 2040 Conditions (Signal Alt) - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	120	15	115	280	55	10	455	135	280	390	100
Future Volume (veh/h)	130	120	15	115	280	55	10	455	135	280	390	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	141	130	16	125	304	60	11	495	147	304	424	109
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	191	385	47	175	344	68	24	594	175	352	1131	288
Arrive On Green	0.11	0.24	0.24	0.10	0.23	0.23	0.01	0.22	0.22	0.20	0.40	0.40
Sat Flow, veh/h	1781	1633	201	1781	1517	299	1781	2705	799	1781	2804	714
Grp Volume(v), veh/h	141	0	146	125	0	364	11	324	318	304	267	266
Grp Sat Flow(s),veh/h/ln	1781	0	1834	1781	0	1816	1781	1777	1727	1781	1777	1742
Q Serve(g_s), s	5.5	0.0	4.8	4.9	0.0	14.0	0.4	12.6	12.7	11.9	7.6	7.8
Cycle Q Clear(g_c), s	5.5	0.0	4.8	4.9	0.0	14.0	0.4	12.6	12.7	11.9	7.6	7.8
Prop In Lane	1.00		0.11	1.00		0.16	1.00		0.46	1.00		0.41
Lane Grp Cap(c), veh/h	191	0	432	175	0	412	24	390	379	352	717	703
V/C Ratio(X)	0.74	0.00	0.34	0.71	0.00	0.88	0.45	0.83	0.84	0.86	0.37	0.38
Avail Cap(c_a), veh/h	443	0	456	443	0	452	123	442	430	443	762	746
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	31.3	0.0	23.0	31.6	0.0	27.1	35.4	26.9	27.0	28.1	15.2	15.2
Incr Delay (d2), s/veh	5.4	0.0	0.5	5.3	0.0	17.4	12.4	11.5	12.4	13.5	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	1.9	2.2	0.0	7.2	0.3	6.0	6.0	5.9	2.7	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.7	0.0	23.4	36.9	0.0	44.4	47.8	38.4	39.4	41.6	15.5	15.5
LnGrp LOS	D	A	C	D	A	D	D	D	D	D	B	B
Approach Vol, veh/h		287			489			653			837	
Approach Delay, s/veh		30.0			42.5			39.1			25.0	
Approach LOS		C			D			D			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	18.8	20.4	11.6	21.5	5.5	33.7	12.3	20.9				
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	18.0	18.0	18.0	18.0	5.0	31.0	18.0	18.0				
Max Q Clear Time (g_c+I1), s	13.9	14.7	6.9	6.8	2.4	9.8	7.5	16.0				
Green Ext Time (p_c), s	0.3	1.1	0.2	0.4	0.0	2.8	0.2	0.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				33.5								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 12: Marengo Rd & Twin Cities Rd 2040 Conditions (Signal Alt) - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	605	260	295	495	15	315	60	180	20	55	40
Future Volume (veh/h)	45	605	260	295	495	15	315	60	180	20	55	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	658	283	321	538	16	342	65	196	22	60	43
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	87	943	421	254	1267	38	513	92	276	47	102	73
Arrive On Green	0.05	0.27	0.27	0.14	0.36	0.36	0.15	0.22	0.22	0.03	0.10	0.10
Sat Flow, veh/h	1781	3554	1585	1781	3524	105	3456	410	1237	1781	1013	726
Grp Volume(v), veh/h	49	658	283	321	271	283	342	0	261	22	0	103
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1852	1728	0	1648	1781	0	1740
Q Serve(g_s), s	1.4	8.8	8.4	7.5	6.1	6.1	4.9	0.0	7.7	0.6	0.0	3.0
Cycle Q Clear(g_c), s	1.4	8.8	8.4	7.5	6.1	6.1	4.9	0.0	7.7	0.6	0.0	3.0
Prop In Lane	1.00		1.00	1.00		0.06	1.00		0.75	1.00		0.42
Lane Grp Cap(c), veh/h	87	943	421	254	639	666	513	0	367	47	0	175
V/C Ratio(X)	0.57	0.70	0.67	1.26	0.42	0.43	0.67	0.00	0.71	0.47	0.00	0.59
Avail Cap(c_a), veh/h	170	1218	543	254	693	723	1184	0	988	170	0	613
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.4	17.4	17.3	22.5	12.7	12.7	21.1	0.0	18.8	25.2	0.0	22.6
Incr Delay (d2), s/veh	5.7	1.2	2.2	145.6	0.4	0.4	1.5	0.0	2.5	7.3	0.0	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	3.3	2.7	12.9	1.9	2.0	1.8	0.0	2.7	0.3	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.1	18.6	19.4	168.1	13.2	13.1	22.7	0.0	21.4	32.5	0.0	25.7
LnGrp LOS	C	B	B	F	B	B	C	A	C	C	A	C
Approach Vol, veh/h		990			875			603			125	
Approach Delay, s/veh		19.4			70.0			22.1			26.9	
Approach LOS		B			E			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	16.2	12.0	18.4	12.3	9.8	7.1	23.4				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	31.5	7.5	18.0	18.0	18.5	5.0	20.5				
Max Q Clear Time (g_c+1/2g), s	12.6	9.7	9.5	10.8	6.9	5.0	3.4	8.1				
Green Ext Time (p_c), s	0.0	1.4	0.0	3.2	0.9	0.3	0.0	2.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											37.5	
HCM 6th LOS											D	





















Intersection						
Int Delay, s/veh	4.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	215	245	540	605	10
Future Vol, veh/h	15	215	245	540	605	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	16	234	266	587	658	11

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1490	335	669	0	-	0
Stage 1	664	-	-	-	-	-
Stage 2	826	-	-	-	-	-
Critical Hdwy	6.82	6.92	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	116	664	924	-	-	-
Stage 1	476	-	-	-	-	-
Stage 2	393	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	83	664	924	-	-	-
Mov Cap-2 Maneuver	83	-	-	-	-	-
Stage 1	339	-	-	-	-	-
Stage 2	393	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.1	3.3	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	924	-	456	-	-
HCM Lane V/C Ratio	0.288	-	0.548	-	-
HCM Control Delay (s)	10.5	-	22.1	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	1.2	-	3.2	-	-

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 14: E. Stockton Blvd & SR 99 NB Ramps/Walnut Ave 2040 Conditions (Signal Alt) - AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Traffic Volume (veh/h)	110	880	0	0	795	405	115	0	120	0	0	0
Future Volume (veh/h)	110	880	0	0	795	405	115	0	120	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	120	957	0	0	864	440	125	0	130			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	185	2166	0	0	1462	638	308	0	270			
Arrive On Green	0.10	0.61	0.00	0.00	0.41	0.41	0.17	0.00	0.17			
Sat Flow, veh/h	1781	3647	0	0	3647	1552	1781	0	1560			
Grp Volume(v), veh/h	120	957	0	0	864	440	125	0	130			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1552	1781	0	1560			
Q Serve(g_s), s	2.9	6.4	0.0	0.0	8.4	10.4	2.8	0.0	3.4			
Cycle Q Clear(g_c), s	2.9	6.4	0.0	0.0	8.4	10.4	2.8	0.0	3.4			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	185	2166	0	0	1462	638	308	0	270			
V/C Ratio(X)	0.65	0.44	0.00	0.00	0.59	0.69	0.41	0.00	0.48			
Avail Cap(c_a), veh/h	591	4213	0	0	2700	1179	695	0	608			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	19.2	4.7	0.0	0.0	10.2	10.8	16.4	0.0	16.6			
Incr Delay (d2), s/veh	1.4	0.1	0.0	0.0	0.3	1.0	0.6	0.0	1.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.0	0.9	0.0	0.0	2.2	2.5	1.0	0.0	1.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	20.6	4.8	0.0	0.0	10.5	11.8	17.0	0.0	17.6			
LnGrp LOS	C	A	A	A	B	B	B	A	B			
Approach Vol, veh/h		1077			1304			255				
Approach Delay, s/veh		6.6			10.9			17.3				
Approach LOS		A			B			B				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		12.3		32.3			8.8	23.5				
Change Period (Y+Rc), s		4.6		5.1			* 4.2	5.1				
Max Green Setting (Gmax), s		17.4		52.9			* 15	33.9				
Max Q Clear Time (g_c+I1), s		5.4		8.4			4.9	12.4				
Green Ext Time (p_c), s		0.6		7.5			0.1	6.0				

Intersection Summary

HCM 6th Ctrl Delay	9.8
HCM 6th LOS	A

Notes

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

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 15: Walnut Ave & Vintage Oak Ave 2040 Conditions (Signal Alt) - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	790	50	25	910	45	100	20	60	45	15	185
Future Volume (veh/h)	55	790	50	25	910	45	100	20	60	45	15	185
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	60	859	54	27	989	49	109	22	65	49	16	201
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	75	1248	78	42	1203	60	139	28	83	57	19	234
Arrive On Green	0.04	0.37	0.37	0.02	0.35	0.35	0.15	0.15	0.15	0.19	0.19	0.19
Sat Flow, veh/h	1767	3363	211	1767	3418	169	949	192	566	297	97	1220
Grp Volume(v), veh/h	60	450	463	27	510	528	196	0	0	266	0	0
Grp Sat Flow(s),veh/h/ln	1767	1763	1812	1767	1763	1825	1706	0	0	1614	0	0
Q Serve(g_s), s	2.2	14.3	14.3	1.0	17.5	17.5	7.3	0.0	0.0	10.6	0.0	0.0
Cycle Q Clear(g_c), s	2.2	14.3	14.3	1.0	17.5	17.5	7.3	0.0	0.0	10.6	0.0	0.0
Prop In Lane	1.00		0.12	1.00		0.09	0.56		0.33	0.18		0.76
Lane Grp Cap(c), veh/h	75	654	672	42	621	642	249	0	0	310	0	0
V/C Ratio(X)	0.80	0.69	0.69	0.65	0.82	0.82	0.79	0.00	0.00	0.86	0.00	0.00
Avail Cap(c_a), veh/h	144	774	795	112	742	768	391	0	0	336	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	31.4	17.6	17.6	32.1	19.6	19.6	27.3	0.0	0.0	25.9	0.0	0.0
Incr Delay (d2), s/veh	6.9	2.1	2.0	6.1	6.3	6.1	2.1	0.0	0.0	17.0	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	1.0	5.2	5.4	0.5	7.1	7.3	3.0	0.0	0.0	5.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.3	19.7	19.6	38.2	25.9	25.7	29.4	0.0	0.0	42.9	0.0	0.0
LnGrp LOS	D	B	B	D	C	C	C	A	A	D	A	A
Approach Vol, veh/h		973			1065			196			266	
Approach Delay, s/veh		20.8			26.1			29.4			42.9	
Approach LOS		C			C			C			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		13.9	5.8	29.7		16.9	7.0	28.4				
Change Period (Y+Rc), s		* 4.2	* 4.2	5.1		4.2	* 4.2	5.1				
Max Green Setting (Gmax), s		* 15	* 4.2	29.1		13.8	* 5.4	27.9				
Max Q Clear Time (g_c+I1), s		9.3	3.0	16.3		12.6	4.2	19.5				
Green Ext Time (p_c), s		0.3	0.0	4.3		0.1	0.0	3.8				

Intersection Summary

HCM 6th Ctrl Delay	26.1
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 16: Walnut Ave & Elk Hills Dr 2040 Conditions (Signal Alt) - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	135	655	25	10	870	65	35	20	10	20	15	70
Future Volume (veh/h)	135	655	25	10	870	65	35	20	10	20	15	70
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		0.97	1.00		0.96	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		No		No
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	147	712	27	11	946	71	38	22	11	22	16	76
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	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	188	1582	60	25	1209	91	107	62	31	36	26	123
Arrive On Green	0.10	0.45	0.45	0.01	0.36	0.36	0.11	0.11	0.11	0.11	0.11	0.11
Sat Flow, veh/h	1795	3517	133	1795	3368	253	950	550	275	321	233	1108
Grp Volume(v), veh/h	147	362	377	11	503	514	71	0	0	114	0	0
Grp Sat Flow(s),veh/h/ln	1795	1791	1859	1795	1791	1830	1775	0	0	1663	0	0
Q Serve(g_s), s	4.6	8.0	8.0	0.4	14.4	14.4	2.1	0.0	0.0	3.8	0.0	0.0
Cycle Q Clear(g_c), s	4.6	8.0	8.0	0.4	14.4	14.4	2.1	0.0	0.0	3.8	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.14	0.54		0.15	0.19		0.67
Lane Grp Cap(c), veh/h	188	805	836	25	643	657	200	0	0	185	0	0
V/C Ratio(X)	0.78	0.45	0.45	0.44	0.78	0.78	0.35	0.00	0.00	0.62	0.00	0.00
Avail Cap(c_a), veh/h	277	945	981	156	824	842	573	0	0	520	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	25.1	10.9	10.9	28.2	16.5	16.5	23.6	0.0	0.0	24.4	0.0	0.0
Incr Delay (d2), s/veh	8.3	0.4	0.4	11.5	3.8	3.7	1.1	0.0	0.0	3.3	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	2.2	2.5	2.6	0.2	5.4	5.5	0.9	0.0	0.0	1.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.4	11.3	11.3	39.7	20.2	20.2	24.7	0.0	0.0	27.8	0.0	0.0
LnGrp LOS	C	B	B	D	C	C	C	A	A	C	A	A
Approach Vol, veh/h		886			1028			71			114	
Approach Delay, s/veh		15.0			20.4			24.7			27.8	
Approach LOS		B			C			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		11.0	5.3	30.4		10.9	10.5	25.2				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.6	5.0	30.4		18.0	8.9	26.5				
Max Q Clear Time (g_c+I1), s		4.1	2.4	10.0		5.8	6.6	16.4				
Green Ext Time (p_c), s		0.2	0.0	4.0		0.4	0.1	4.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				18.7								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 17: Marengo Rd & Walnut Ave 2040 Conditions (Signal Alt) - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↓		↔	↑↓		↔	↑↑	↔	↔	↑↑	↔
Traffic Volume (veh/h)	315	240	80	155	315	75	65	710	125	75	555	455
Future Volume (veh/h)	315	240	80	155	315	75	65	710	125	75	555	455
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		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1870	1870	1870	1870	1870	1900	1900	1870	1870	1900	1900
Adj Flow Rate, veh/h	342	261	87	168	342	82	71	772	136	82	603	495
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, %	0	2	2	2	2	2	0	0	2	2	0	0
Cap, veh/h	495	515	167	216	504	119	105	1137	499	112	1153	730
Arrive On Green	0.14	0.20	0.20	0.12	0.18	0.18	0.06	0.32	0.32	0.06	0.32	0.32
Sat Flow, veh/h	3510	2626	853	1781	2851	675	1810	3610	1585	1781	3610	1574
Grp Volume(v), veh/h	342	174	174	168	211	213	71	772	136	82	603	495
Grp Sat Flow(s),veh/h/ln	1755	1777	1702	1781	1777	1749	1810	1805	1585	1781	1805	1574
Q Serve(g_s), s	5.5	5.2	5.4	5.4	6.6	6.7	2.3	11.0	3.8	2.7	8.1	14.6
Cycle Q Clear(g_c), s	5.5	5.2	5.4	5.4	6.6	6.7	2.3	11.0	3.8	2.7	8.1	14.6
Prop In Lane	1.00		0.50	1.00		0.39	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	495	348	334	216	314	309	105	1137	499	112	1153	730
V/C Ratio(X)	0.69	0.50	0.52	0.78	0.67	0.69	0.67	0.68	0.27	0.74	0.52	0.68
Avail Cap(c_a), veh/h	1040	614	588	456	542	533	169	1284	564	166	1284	787
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	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	24.1	21.2	21.2	25.2	22.7	22.8	27.3	17.6	15.2	27.2	16.4	12.5
Incr Delay (d2), s/veh	1.7	1.1	1.3	5.9	2.5	2.7	7.3	1.2	0.3	9.0	0.4	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	2.1	2.1	2.5	2.8	2.8	1.1	4.0	1.3	1.3	2.8	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.9	22.3	22.5	31.1	25.2	25.5	34.5	18.9	15.4	36.2	16.8	14.7
LnGrp LOS	C	C	C	C	C	C	C	B	B	D	B	B
Approach Vol, veh/h		690			592			979			1180	
Approach Delay, s/veh		24.1			27.0			19.5			17.3	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.2	23.1	11.7	16.1	7.9	23.4	12.8	14.9				
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	5.5	21.0	15.1	20.4	5.5	21.0	17.5	18.0				
Max Q Clear Time (g_c+14), s	14.5	13.0	7.4	7.4	4.3	16.6	7.5	8.7				
Green Ext Time (p_c), s	0.0	3.2	0.3	1.6	0.0	2.2	0.9	1.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				21.0								
HCM 6th LOS				C								



Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	15	5	980	890	20
Future Vol, veh/h	30	15	5	980	890	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	90	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	16	5	1065	967	22

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1521	495	989	0	-	0
Stage 1	978	-	-	-	-	-
Stage 2	543	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	109	520	695	-	-	-
Stage 1	325	-	-	-	-	-
Stage 2	546	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	108	520	695	-	-	-
Mov Cap-2 Maneuver	230	-	-	-	-	-
Stage 1	323	-	-	-	-	-
Stage 2	546	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.4	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	695	-	283	-	-
HCM Lane V/C Ratio	0.008	-	0.173	-	-
HCM Control Delay (s)	10.2	-	20.4	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.6	-	-



Intersection						
Int Delay, s/veh	1.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	25	55	20	960	900	10
Future Vol, veh/h	25	55	20	960	900	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	90	-	-	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	2	2	2	2
Mvmt Flow	27	60	22	1043	978	11

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1544	978	989	0	-	0
Stage 1	978	-	-	-	-	-
Stage 2	566	-	-	-	-	-
Critical Hdwy	6.63	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	115	303	697	-	-	-
Stage 1	363	-	-	-	-	-
Stage 2	533	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	111	303	697	-	-	-
Mov Cap-2 Maneuver	241	-	-	-	-	-
Stage 1	351	-	-	-	-	-
Stage 2	533	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.5	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	697	-	280	-	-
HCM Lane V/C Ratio	0.031	-	0.311	-	-
HCM Control Delay (s)	10.3	-	23.5	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	1.3	-	-

Intersection						
Int Delay, s/veh	22					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↙	↗	↙	↑	↗	
Traffic Vol, veh/h	160	60	330	75	195	70
Future Vol, veh/h	160	60	330	75	195	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	25	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	174	65	359	82	212	76

Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	1012	212	212	0	0
Stage 1	212	-	-	-	-
Stage 2	800	-	-	-	-
Critical Hdwy	6.44	6.24	4.14	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.236	-	-
Pot Cap-1 Maneuver	263	823	1347	-	0
Stage 1	819	-	-	-	0
Stage 2	439	-	-	-	0
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	193	823	1347	-	-
Mov Cap-2 Maneuver	193	-	-	-	-
Stage 1	600	-	-	-	-
Stage 2	439	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	69	7	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1347	-	193	823	-
HCM Lane V/C Ratio	0.266	-	0.901	0.079	-
HCM Control Delay (s)	8.6	-	91.2	9.8	-
HCM Lane LOS	A	-	F	A	-
HCM 95th %tile Q(veh)	1.1	-	7	0.3	-

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 21: Marengo Rd & Simmerhorn Rd 2040 Conditions (Signal Alt) - AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	235	145	130	105	220	20	25	720	50	70	715	170
Future Volume (veh/h)	235	145	130	105	220	20	25	720	50	70	715	170
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	255	158	141	114	239	22	27	783	54	76	777	185
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	308	247	220	147	304	28	53	1000	69	105	1156	516
Arrive On Green	0.17	0.27	0.27	0.08	0.18	0.18	0.03	0.30	0.30	0.06	0.33	0.33
Sat Flow, veh/h	1781	911	813	1781	1687	155	1781	3372	233	1781	3554	1585
Grp Volume(v), veh/h	255	0	299	114	0	261	27	412	425	76	777	185
Grp Sat Flow(s),veh/h/ln	1781	0	1724	1781	0	1842	1781	1777	1828	1781	1777	1585
Q Serve(g_s), s	8.5	0.0	9.4	3.9	0.0	8.4	0.9	13.1	13.1	2.6	11.7	5.5
Cycle Q Clear(g_c), s	8.5	0.0	9.4	3.9	0.0	8.4	0.9	13.1	13.1	2.6	11.7	5.5
Prop In Lane	1.00		0.47	1.00		0.08	1.00		0.13	1.00		1.00
Lane Grp Cap(c), veh/h	308	0	467	147	0	332	53	527	542	105	1156	516
V/C Ratio(X)	0.83	0.00	0.64	0.78	0.00	0.79	0.50	0.78	0.78	0.72	0.67	0.36
Avail Cap(c_a), veh/h	418	0	670	245	0	537	144	691	711	159	1410	629
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.6	0.0	19.9	27.8	0.0	24.2	29.5	19.9	19.9	28.6	18.0	15.9
Incr Delay (d2), s/veh	9.7	0.0	1.5	8.5	0.0	4.1	7.2	4.3	4.2	9.0	0.9	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	3.7	1.8	0.0	3.4	0.5	5.2	5.3	1.3	4.1	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	34.3	0.0	21.3	36.3	0.0	28.3	36.7	24.3	24.1	37.6	18.9	16.3
LnGrp LOS	C	A	C	D	A	C	D	C	C	D	B	B
Approach Vol, veh/h		554			375			864			1038	
Approach Delay, s/veh		27.3			30.7			24.6			19.8	
Approach LOS		C			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	22.8	9.6	21.2	6.4	24.6	15.2	15.6				
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	5.5	24.0	8.5	24.0	5.0	24.5	14.5	18.0				
Max Q Clear Time (g_c+I1), s	4.6	15.1	5.9	11.4	2.9	13.7	10.5	10.4				
Green Ext Time (p_c), s	0.0	3.2	0.1	1.4	0.0	4.1	0.3	0.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				24.2								
HCM 6th LOS				C								

# HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study

## 22: A Street & SR 99 SB Off Ramp

2040 Conditions (Signal Alt) - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑↑	
Traffic Volume (veh/h)	0	525	105	375	475	0	0	0	0	120	200	70
Future Volume (veh/h)	0	525	105	375	475	0	0	0	0	120	200	70
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	0				1856	1856	1856
Adj Flow Rate, veh/h	0	571	114	408	516	0				130	217	76
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	905	404	755	2052	0				344	503	171
Arrive On Green	0.00	0.26	0.26	0.22	0.58	0.00				0.19	0.19	0.19
Sat Flow, veh/h	0	3618	1572	3428	3618	0				1767	2582	878
Grp Volume(v), veh/h	0	571	114	408	516	0				130	146	147
Grp Sat Flow(s),veh/h/ln	0	1763	1572	1714	1763	0				1767	1763	1697
Q Serve(g_s), s	0.0	5.5	2.2	4.0	2.7	0.0				2.4	2.8	2.9
Cycle Q Clear(g_c), s	0.0	5.5	2.2	4.0	2.7	0.0				2.4	2.8	2.9
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.52
Lane Grp Cap(c), veh/h	0	905	404	755	2052	0				344	343	331
V/C Ratio(X)	0.00	0.63	0.28	0.54	0.25	0.00				0.38	0.43	0.44
Avail Cap(c_a), veh/h	0	2129	950	810	3333	0				1787	1782	1716
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	12.5	11.3	13.1	3.9	0.0				13.3	13.5	13.5
Incr Delay (d2), s/veh	0.0	0.3	0.1	0.6	0.0	0.0				0.3	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
%ile BackOfQ(50%),veh/ln	0.0	1.6	0.6	1.2	0.3	0.0				0.7	0.8	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.8	11.5	13.8	3.9	0.0				13.6	13.8	13.9
LnGrp LOS	A	B	B	B	A	A				B	B	B
Approach Vol, veh/h		685			924						423	
Approach Delay, s/veh		12.6			8.3						13.7	
Approach LOS		B			A						B	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	2.4	13.8		11.9		26.2						
Change Period (Y+Rc), s	4.0	4.0		4.5		4.0						
Max Green Setting (Gmax), s	23.0	23.0		38.5		36.0						
Max Q Clear Time (g_c+11), s	7.5	7.5		4.9		4.7						
Green Ext Time (p_c), s	0.5	2.3		1.1		2.2						

### Intersection Summary

HCM 6th Ctrl Delay	10.9
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 23: SR 99 NB On Ramp & A Street 2040 Conditions (Signal Alt) - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↑↑	↔	↔	↔↔				
Traffic Volume (veh/h)	195	450	0	0	695	50	155	250	415	0	0	0
Future Volume (veh/h)	195	450	0	0	695	50	155	250	415	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	212	489	0	0	755	54	168	272	451			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	409	1667	0	0	960	428	627	659	558			
Arrive On Green	0.12	0.47	0.00	0.00	0.27	0.27	0.35	0.35	0.35			
Sat Flow, veh/h	3456	3647	0	0	3647	1585	1781	1870	1585			
Grp Volume(v), veh/h	212	489	0	0	755	54	168	272	451			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	1781	1870	1585			
Q Serve(g_s), s	3.3	4.8	0.0	0.0	11.2	1.5	3.9	6.3	14.7			
Cycle Q Clear(g_c), s	3.3	4.8	0.0	0.0	11.2	1.5	3.9	6.3	14.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	409	1667	0	0	960	428	627	659	558			
V/C Ratio(X)	0.52	0.29	0.00	0.00	0.79	0.13	0.27	0.41	0.81			
Avail Cap(c_a), veh/h	545	2054	0	0	1307	583	1123	1179	999			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	23.6	9.3	0.0	0.0	19.3	15.7	13.2	14.0	16.7			
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	1.5	0.0	0.1	0.2	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			
%ile BackOfQ(50%),veh/ln	1.2	1.5	0.0	0.0	4.2	0.5	1.4	2.4	4.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.0	9.4	0.0	0.0	20.8	15.8	13.3	14.2	17.8			
LnGrp LOS	C	A	A	A	C	B	B	B	B			
Approach Vol, veh/h		701			809			891				
Approach Delay, s/veh		13.8			20.5			15.9				
Approach LOS		B			C			B				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		31.9			11.4	20.5		25.2				
Change Period (Y+Rc), s		5.1			4.6	5.1		5.1				
Max Green Setting (Gmax), s		33.0			9.0	21.0		36.0				
Max Q Clear Time (g_c+I1), s		6.8			5.3	13.2		16.7				
Green Ext Time (p_c), s		2.0			0.1	2.2		3.4				

Intersection Summary

HCM 6th Ctrl Delay	16.8
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 24: Fairway Dr & C Street 2040 Conditions (Signal Alt) - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗	↘↗	↑↑			↕		↗	↑↑	
Traffic Volume (veh/h)	0	625	35	575	665	0	40	0	145	250	195	235
Future Volume (veh/h)	0	625	35	575	665	0	40	0	145	250	195	235
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	679	38	625	723	0	43	0	158	272	212	255
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, %	0	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	0	887	396	716	1815	0	47	0	172	342	341	304
Arrive On Green	0.00	0.25	0.25	0.21	0.51	0.00	0.14	0.00	0.14	0.19	0.19	0.19
Sat Flow, veh/h	0	3647	1585	3456	3647	0	347	0	1276	1781	1777	1585
Grp Volume(v), veh/h	0	679	38	625	723	0	201	0	0	272	212	255
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0	1623	0	0	1781	1777	1585
Q Serve(g_s), s	0.0	13.1	1.4	13.0	9.2	0.0	9.0	0.0	0.0	10.8	8.1	11.5
Cycle Q Clear(g_c), s	0.0	13.1	1.4	13.0	9.2	0.0	9.0	0.0	0.0	10.8	8.1	11.5
Prop In Lane	0.00		1.00	1.00		0.00	0.21		0.79	1.00		1.00
Lane Grp Cap(c), veh/h	0	887	396	716	1815	0	219	0	0	342	341	304
V/C Ratio(X)	0.00	0.77	0.10	0.87	0.40	0.00	0.92	0.00	0.00	0.80	0.62	0.84
Avail Cap(c_a), veh/h	0	1009	450	794	2017	0	219	0	0	385	384	343
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	25.7	21.3	28.4	11.1	0.0	31.6	0.0	0.0	28.5	27.4	28.8
Incr Delay (d2), s/veh	0.0	4.1	0.2	9.1	0.1	0.0	37.9	0.0	0.0	8.6	1.5	13.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.8	0.5	6.0	3.3	0.0	5.7	0.0	0.0	5.2	3.5	5.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	29.9	21.6	37.5	11.3	0.0	69.5	0.0	0.0	37.2	29.0	42.5
LnGrp LOS		A	C	C	D	B	A	E	A	A	D	C
Approach Vol, veh/h		717			1348			201			739	
Approach Delay, s/veh		29.4			23.4			69.5			36.6	
Approach LOS		C			C			E			D	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	9.3	22.5		18.2		41.8		14.0				
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s	7.0	21.0		16.0		42.0		10.0				
Max Q Clear Time (g_c+1/3), s	15.1	15.1		13.5		11.2		11.0				
Green Ext Time (p_c), s	0.4	3.4		0.7		5.7		0.0				

Intersection Summary

HCM 6th Ctrl Delay	31.2
HCM 6th LOS	C

Notes

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

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 25: SR 99 NB Off Ramp/SR 99 NB On Ramp & C Street 2040 Conditions (Signal Alt) - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↑↑	↔	↔	↔↔				
Traffic Volume (veh/h)	405	615	0	0	855	140	385	275	55	0	0	0
Future Volume (veh/h)	405	615	0	0	855	140	385	275	55	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	440	668	0	0	929	152	259	522	60			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	842	2020	0	0	790	347	365	675	77			
Arrive On Green	0.24	0.57	0.00	0.00	0.22	0.22	0.20	0.20	0.20			
Sat Flow, veh/h	3456	3647	0	0	3647	1562	1781	3295	378			
Grp Volume(v), veh/h	440	668	0	0	929	152	259	296	286			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1562	1781	1870	1802			
Q Serve(g_s), s	5.0	4.5	0.0	0.0	10.0	3.8	6.1	6.7	6.8			
Cycle Q Clear(g_c), s	5.0	4.5	0.0	0.0	10.0	3.8	6.1	6.7	6.8			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.21			
Lane Grp Cap(c), veh/h	842	2020	0	0	790	347	365	383	369			
V/C Ratio(X)	0.52	0.33	0.00	0.00	1.18	0.44	0.71	0.77	0.78			
Avail Cap(c_a), veh/h	1383	2020	0	0	790	347	396	416	401			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	14.7	5.2	0.0	0.0	17.5	15.1	16.6	16.9	16.9			
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.0	92.0	0.3	4.3	7.0	7.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.7	1.0	0.0	0.0	13.6	1.2	2.6	3.2	3.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.9	5.2	0.0	0.0	109.5	15.4	20.9	23.8	24.4			
LnGrp LOS	B	A	A	A	F	B	C	C	C			
Approach Vol, veh/h		1108			1081			841				
Approach Delay, s/veh		9.1			96.3			23.1				
Approach LOS		A			F			C				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		30.7			15.6	15.1		14.3				
Change Period (Y+Rc), s		5.1			4.6	5.1		5.1				
Max Green Setting (Gmax), s		10.0			18.0	10.0		10.0				
Max Q Clear Time (g_c+I1), s		6.5			7.0	12.0		8.8				
Green Ext Time (p_c), s		1.1			0.7	0.0		0.4				

Intersection Summary

HCM 6th Ctrl Delay	44.1
HCM 6th LOS	D

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 26: SR 99 SB On Ramp & Fairway Dr 2040 Conditions (Signal Alt) - AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↔		↔	↑
Traffic Volume (veh/h)	0	0	185	5	705	100
Future Volume (veh/h)	0	0	185	5	705	100
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1885	1885	1885	1885
Adj Flow Rate, veh/h			201	5	766	109
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			1	1	1	1
Cap, veh/h			383	10	895	1591
Arrive On Green			0.21	0.21	0.50	0.84
Sat Flow, veh/h			1831	46	1795	1885
Grp Volume(v), veh/h			0	206	766	109
Grp Sat Flow(s),veh/h/ln			0	1877	1795	1885
Q Serve(g_s), s			0.0	2.5	9.6	0.2
Cycle Q Clear(g_c), s			0.0	2.5	9.6	0.2
Prop In Lane				0.02	1.00	
Lane Grp Cap(c), veh/h			0	393	895	1591
V/C Ratio(X)			0.00	0.52	0.86	0.07
Avail Cap(c_a), veh/h			0	3294	2240	3308
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			0.0	9.0	5.6	0.3
Incr Delay (d2), s/veh			0.0	0.4	0.9	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.7	0.9	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	9.4	6.6	0.3
LnGrp LOS			A	A	A	A
Approach Vol, veh/h			206			875
Approach Delay, s/veh			9.4			5.8
Approach LOS			A			A
Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	6.3	9.4				25.6
Change Period (Y+Rc), s	3.5	4.0				* 4
Max Green Setting (Gmax), s	32.0	45.0				* 45
Max Q Clear Time (g_c+I1), s	11.6	4.5				2.2
Green Ext Time (p_c), s	1.3	0.8				0.4
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			6.5			
HCM 6th LOS			A			
<b>Notes</b>						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						



HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 49: Carillion Blvd & A Street 2040 Conditions (Signal Alt) - AM Peak Hour



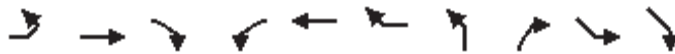
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	315	430	15	55	630	10	15	270	245	5	165	340
Future Volume (veh/h)	315	430	15	55	630	10	15	270	245	5	165	340
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	342	467	16	60	685	11	16	293	266	5	179	370
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	346	1231	42	77	716	11	20	364	326	10	719	625
Arrive On Green	0.19	0.35	0.35	0.04	0.20	0.20	0.21	0.21	0.21	0.20	0.20	0.20
Sat Flow, veh/h	1781	3506	120	1781	3579	57	97	1769	1585	51	3594	1585
Grp Volume(v), veh/h	342	236	247	60	340	356	309	0	266	184	0	370
Grp Sat Flow(s),veh/h/ln	1781	1777	1849	1781	1777	1860	1866	0	1585	1868	1777	1585
Q Serve(g_s), s	17.2	9.0	9.0	3.0	17.0	17.0	14.2	0.0	14.4	7.9	0.0	16.6
Cycle Q Clear(g_c), s	17.2	9.0	9.0	3.0	17.0	17.0	14.2	0.0	14.4	7.9	0.0	16.6
Prop In Lane	1.00		0.06	1.00		0.03	0.05		1.00	0.03		1.00
Lane Grp Cap(c), veh/h	346	624	649	77	355	372	383	0	326	374	355	625
V/C Ratio(X)	0.99	0.38	0.38	0.78	0.96	0.96	0.81	0.00	0.82	0.49	0.00	0.59
Avail Cap(c_a), veh/h	346	624	649	170	355	372	383	0	326	374	355	625
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	36.1	21.9	21.9	42.6	35.6	35.6	34.0	0.0	34.1	31.9	0.0	21.5
Incr Delay (d2), s/veh	44.8	0.4	0.4	15.2	36.4	35.5	16.4	0.0	19.8	4.6	0.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	3.6	3.7	1.6	10.6	11.0	7.8	0.0	7.0	3.8	0.0	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.0	22.2	22.2	57.8	72.0	71.1	50.4	0.0	53.9	36.5	0.0	25.6
LnGrp LOS	F	C	C	E	E	E	D	A	D	D	A	C
Approach Vol, veh/h		825			756			575			554	
Approach Delay, s/veh		46.6			70.4			52.1			29.2	
Approach LOS		D			E			D			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		23.0	8.4	36.1		22.5	22.0	22.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.5	8.6	26.9		18.0	17.5	18.0				
Max Q Clear Time (g_c+I1), s		16.4	5.0	11.0		18.6	19.2	19.0				
Green Ext Time (p_c), s		0.7	0.0	2.4		0.0	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				50.9								
HCM 6th LOS				D								

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 53: Marengo Rd & A Street 2040 Conditions (Signal Alt) - AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	610	25	15	20	25	630
Future Volume (veh/h)	610	25	15	20	25	630
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	1870	1870	1870	1870
Adj Flow Rate, veh/h	663	27	16	22	27	685
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	714	636	35	1617	1293	1213
Arrive On Green	0.40	0.40	0.02	0.46	0.36	0.36
Sat Flow, veh/h	1781	1585	1781	3647	3647	1585
Grp Volume(v), veh/h	663	27	16	22	27	685
Grp Sat Flow(s),veh/h/ln	1781	1585	1781	1777	1777	1585
Q Serve(g_s), s	22.2	0.6	0.6	0.2	0.3	11.2
Cycle Q Clear(g_c), s	22.2	0.6	0.6	0.2	0.3	11.2
Prop In Lane	1.00	1.00	1.00			1.00
Lane Grp Cap(c), veh/h	714	636	35	1617	1293	1213
V/C Ratio(X)	0.93	0.04	0.46	0.01	0.02	0.56
Avail Cap(c_a), veh/h	782	696	142	1617	1293	1213
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.9	11.4	30.4	9.4	12.8	3.0
Incr Delay (d2), s/veh	16.4	0.0	9.3	0.0	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.3	0.1	0.1	9.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	34.3	11.5	39.7	9.4	12.8	5.0
LnGrp LOS	C	B	D	A	B	A
Approach Vol, veh/h	690			38	712	
Approach Delay, s/veh	33.4			22.1	5.3	
Approach LOS	C			C	A	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		33.0		29.6	5.7	27.3
Change Period (Y+Rc), s		4.5		4.5	4.5	4.5
Max Green Setting (Gmax), s		28.5		27.5	5.0	19.0
Max Q Clear Time (g_c+I1), s		2.2		24.2	2.6	13.2
Green Ext Time (p_c), s		0.1		0.9	0.0	1.6
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			19.2			
HCM 6th LOS			B			

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 62: A Street 2040 Conditions (Signal Alt) - AM Peak Hour



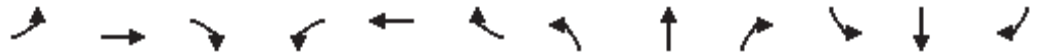
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBR	SEL	SER
Lane Configurations										
Traffic Volume (veh/h)	0	865	0	0	745	0	0	0	0	0
Future Volume (veh/h)	0	865	0	0	745	0	0	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0				
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				
Work Zone On Approach	No				No					
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	0				
Adj Flow Rate, veh/h	0	940	0	0	810	0				
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				
Percent Heavy Veh, %	2	2	2	0	2	0				
Cap, veh/h	713	748	634	0	1421	0				
Arrive On Green	0.00	0.40	0.00	0.00	0.40	0.00				
Sat Flow, veh/h	1781	1870	1585	0	3741	0				
Grp Volume(v), veh/h	0	940	0	0	810	0				
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	0	1777	0				
Q Serve(g_s), s	0.0	18.0	0.0	0.0	8.0	0.0				
Cycle Q Clear(g_c), s	0.0	18.0	0.0	0.0	8.0	0.0				
Prop In Lane	1.00		1.00	0.00		0.00				
Lane Grp Cap(c), veh/h	713	748	634	0	1421	0				
V/C Ratio(X)	0.00	1.26	0.00	0.00	0.57	0.00				
Avail Cap(c_a), veh/h	713	748	634	0	1421	0				
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				
Upstream Filter(l)	0.00	1.00	0.00	0.00	1.00	0.00				
Uniform Delay (d), s/veh	0.0	13.5	0.0	0.0	10.5	0.0				
Incr Delay (d2), s/veh	0.0	126.2	0.0	0.0	1.7	0.0				
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				
%ile BackOfQ(50%),veh/ln	0.0	31.4	0.0	0.0	2.5	0.0				
Unsig. Movement Delay, s/veh										
LnGrp Delay(d),s/veh	0.0	139.7	0.0	0.0	12.2	0.0				
LnGrp LOS	A	F	A	A	B	A				
Approach Vol, veh/h	940				810					
Approach Delay, s/veh	139.7				12.2					
Approach LOS	F				B					
Timer - Assigned Phs	4			8						
Phs Duration (G+Y+Rc), s	22.5			22.5						
Change Period (Y+Rc), s	4.5			4.5						
Max Green Setting (Gmax), s	18.0			18.0						
Max Q Clear Time (g_c+I1), s	20.0			10.0						
Green Ext Time (p_c), s	0.0			3.2						
<b>Intersection Summary</b>										
HCM 6th Ctrl Delay	80.7									
HCM 6th LOS	F									

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 68: 2040 Conditions (Signal Alt) - AM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	0	0	0
Future Volume (veh/h)	0	0	0	0	0	0
Initial Q (Qb), veh	0	0				
Ped-Bike Adj(A_pbT)	1.00	1.00				
Parking Bus, Adj	1.00	1.00				
Work Zone On Approach	No					
Adj Sat Flow, veh/h/ln	1870	1870				
Adj Flow Rate, veh/h	0	0				
Peak Hour Factor	0.92	0.92				
Percent Heavy Veh, %	2	2				
Cap, veh/h	0	0				
Arrive On Green	0.00	0.00				
Sat Flow, veh/h	0					
Grp Volume(v), veh/h	0.0					
Grp Sat Flow(s),veh/h/ln						
Q Serve(g_s), s						
Cycle Q Clear(g_c), s						
Prop In Lane						
Lane Grp Cap(c), veh/h						
V/C Ratio(X)						
Avail Cap(c_a), veh/h						
HCM Platoon Ratio						
Upstream Filter(l)						
Uniform Delay (d), s/veh						
Incr Delay (d2), s/veh						
Initial Q Delay(d3),s/veh						
%ile BackOfQ(50%),veh/ln						
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh						
LnGrp LOS						
Approach Vol, veh/h						
Approach Delay, s/veh						
Approach LOS						
Timer - Assigned Phs						
Phs Duration (G+Y+Rc), s						
Change Period (Y+Rc), s						
Max Green Setting (Gmax), s						
Max Q Clear Time (g_c+I1), s						
Green Ext Time (p_c), s						
Intersection Summary						
HCM 6th Ctrl Delay			0.0			
HCM 6th LOS			A			

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 1: Carillion Blvd & Twin Cities Rd 2040 Conditions (Signal Alt) - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑	↗	↖	↑↑		↖	↖	↗		↕	
Traffic Volume (veh/h)	0	940	475	90	640	0	200	0	80	0	0	0
Future Volume (veh/h)	0	940	475	90	640	0	200	0	80	0	0	0
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	1022	516	98	696	0	217	0	87	0	0	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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	4	1554	693	189	2268	0	732	0	193	0	228	0
Arrive On Green	0.00	0.44	0.44	0.11	0.64	0.00	0.12	0.00	0.12	0.00	0.00	0.00
Sat Flow, veh/h	1781	3554	1585	1781	3647	0	3563	0	1585	0	1870	0
Grp Volume(v), veh/h	0	1022	516	98	696	0	217	0	87	0	0	0
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	0	1781	0	1585	0	1870	0
Q Serve(g_s), s	0.0	11.0	13.1	2.5	4.3	0.0	2.8	0.0	2.5	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	11.0	13.1	2.5	4.3	0.0	2.8	0.0	2.5	0.0	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	4	1554	693	189	2268	0	732	0	193	0	228	0
V/C Ratio(X)	0.00	0.66	0.74	0.52	0.31	0.00	0.30	0.00	0.45	0.00	0.00	0.00
Avail Cap(c_a), veh/h	368	3305	1474	552	3305	0	1181	0	393	0	464	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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	10.8	11.4	20.5	3.9	0.0	19.9	0.0	19.7	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.2	0.6	0.8	0.0	0.0	0.1	0.0	0.6	0.0	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	0.0	2.9	3.2	0.9	0.6	0.0	1.0	0.0	0.8	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	10.9	12.0	21.3	4.0	0.0	19.9	0.0	20.3	0.0	0.0	0.0
LnGrp LOS	A	B	B	C	A	A	B	A	C	A	A	A
Approach Vol, veh/h		1538			794			304				0
Approach Delay, s/veh		11.3			6.1			20.1				0.0
Approach LOS		B			A			C				
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.7	27.0		11.7	0.0	36.7		11.7				
Change Period (Y+Rc), s	4.6	5.8		5.8	4.6	5.8		* 5.8				
Max Green Setting (Gmax), s	15.0	45.0		12.0	10.0	45.0		* 12				
Max Q Clear Time (g_c+I1), s	4.5	15.1		0.0	0.0	6.3		4.8				
Green Ext Time (p_c), s	0.1	5.9		0.0	0.0	3.0		0.3				

Intersection Summary

HCM 6th Ctrl Delay	10.7
HCM 6th LOS	B

Notes

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

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 2: Carillion Blvd & Lake Park Ave 2040 Conditions (Signal Alt) - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕		↙	↕	↙
Traffic Volume (veh/h)	60	20	80	95	15	20	95	360	60	105	555	80
Future Volume (veh/h)	60	20	80	95	15	20	95	360	60	105	555	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	65	22	87	103	16	22	103	391	65	114	603	87
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	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	86	29	115	140	22	30	132	1131	186	149	710	602
Arrive On Green	0.14	0.14	0.14	0.11	0.11	0.11	0.07	0.37	0.37	0.08	0.38	0.38
Sat Flow, veh/h	635	215	850	1294	201	276	1795	3077	507	1795	1885	1598
Grp Volume(v), veh/h	174	0	0	141	0	0	103	226	230	114	603	87
Grp Sat Flow(s),veh/h/ln1700	0	0	0	1771	0	0	1795	1791	1793	1795	1885	1598
Q Serve(g_s), s	5.8	0.0	0.0	4.5	0.0	0.0	3.3	5.4	5.5	3.7	17.3	2.1
Cycle Q Clear(g_c), s	5.8	0.0	0.0	4.5	0.0	0.0	3.3	5.4	5.5	3.7	17.3	2.1
Prop In Lane	0.37		0.50	0.73		0.16	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	230	0	0	192	0	0	132	658	659	149	710	602
V/C Ratio(X)	0.75	0.00	0.00	0.74	0.00	0.00	0.78	0.34	0.35	0.77	0.85	0.14
Avail Cap(c_a), veh/h	520	0	0	541	0	0	180	724	725	372	964	817
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.5	0.0	0.0	25.4	0.0	0.0	26.8	13.5	13.5	26.4	16.8	12.1
Incr Delay (d2), s/veh	5.0	0.0	0.0	5.4	0.0	0.0	13.8	0.3	0.3	7.9	5.4	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	2.5	0.0	0.0	2.1	0.0	0.0	1.8	1.8	1.8	1.7	6.9	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.5	0.0	0.0	30.9	0.0	0.0	40.6	13.8	13.8	34.3	22.3	12.2
LnGrp LOS	C	A	A	C	A	A	D	B	B	C	C	B
Approach Vol, veh/h		174			141			559			804	
Approach Delay, s/veh		29.5			30.9			18.7			22.9	
Approach LOS		C			C			B			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	26.1		12.5	8.8	26.7		10.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	23.8	23.8		18.0	5.9	30.1		18.0				
Max Q Clear Time (g_c+1/5), s	7.5	7.5		7.8	5.3	19.3		6.5				
Green Ext Time (p_c), s	0.1	2.2		0.7	0.0	2.9		0.5				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				22.9								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 3: Carillion Blvd & Lake Canyon Ave 2040 Conditions (Signal Alt) - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕		↙	↕	
Traffic Volume (veh/h)	75	10	40	60	10	20	85	420	55	35	615	80
Future Volume (veh/h)	75	10	40	60	10	20	85	420	55	35	615	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	82	11	43	65	11	22	92	457	60	38	668	87
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	125	17	65	94	16	32	137	1094	143	75	985	128
Arrive On Green	0.12	0.12	0.12	0.08	0.08	0.08	0.08	0.35	0.35	0.04	0.31	0.31
Sat Flow, veh/h	1031	138	541	1155	195	391	1781	3159	413	1781	3160	411
Grp Volume(v), veh/h	136	0	0	98	0	0	92	256	261	38	375	380
Grp Sat Flow(s),veh/h/ln	1710	0	0	1741	0	0	1781	1777	1795	1781	1777	1794
Q Serve(g_s), s	3.3	0.0	0.0	2.4	0.0	0.0	2.2	4.8	4.9	0.9	8.1	8.1
Cycle Q Clear(g_c), s	3.3	0.0	0.0	2.4	0.0	0.0	2.2	4.8	4.9	0.9	8.1	8.1
Prop In Lane	0.60		0.32	0.66		0.22	1.00		0.23	1.00		0.23
Lane Grp Cap(c), veh/h	207	0	0	142	0	0	137	615	622	75	554	559
V/C Ratio(X)	0.66	0.00	0.00	0.69	0.00	0.00	0.67	0.42	0.42	0.51	0.68	0.68
Avail Cap(c_a), veh/h	700	0	0	712	0	0	223	844	853	207	828	836
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.5	0.0	0.0	19.7	0.0	0.0	19.8	11.0	11.0	20.6	13.2	13.2
Incr Delay (d2), s/veh	3.5	0.0	0.0	5.9	0.0	0.0	5.6	0.4	0.5	5.2	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.0	1.1	0.0	0.0	1.0	1.6	1.6	0.4	2.9	2.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.0	0.0	0.0	25.6	0.0	0.0	25.4	11.4	11.4	25.8	14.7	14.7
LnGrp LOS	C	A	A	C	A	A	C	B	B	C	B	B
Approach Vol, veh/h		136			98			609			793	
Approach Delay, s/veh		22.0			25.6			13.5			15.2	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.4	19.7		9.8	7.9	18.2		8.1				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	20.9			18.0	5.5	20.5		18.0				
Max Q Clear Time (g_c+1/2g), s	6.9			5.3	4.2	10.1		4.4				
Green Ext Time (p_c), s	0.0	2.7		0.5	0.0	3.5		0.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				15.8								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 4: Carillion Blvd & Elk Hills Dr 2040 Conditions (Signal Alt) - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↙	↕		↙	↕	
Traffic Volume (veh/h)	35	15	25	20	5	35	30	490	40	60	595	110
Future Volume (veh/h)	35	15	25	20	5	35	30	490	40	60	595	110
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.99	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	38	16	27	22	5	38	33	533	43	65	647	120
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	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	70	30	50	37	8	64	70	998	80	118	976	181
Arrive On Green	0.09	0.09	0.09	0.07	0.07	0.07	0.04	0.30	0.30	0.07	0.32	0.32
Sat Flow, veh/h	808	340	574	564	128	974	1795	3349	269	1795	3002	556
Grp Volume(v), veh/h	81	0	0	65	0	0	33	284	292	65	386	381
Grp Sat Flow(s),veh/h/ln	1723	0	0	1666	0	0	1795	1791	1828	1795	1791	1767
Q Serve(g_s), s	1.7	0.0	0.0	1.4	0.0	0.0	0.7	4.9	5.0	1.3	6.9	6.9
Cycle Q Clear(g_c), s	1.7	0.0	0.0	1.4	0.0	0.0	0.7	4.9	5.0	1.3	6.9	6.9
Prop In Lane	0.47		0.33	0.34		0.58	1.00		0.15	1.00		0.31
Lane Grp Cap(c), veh/h	150	0	0	110	0	0	70	534	545	118	582	574
V/C Ratio(X)	0.54	0.00	0.00	0.59	0.00	0.00	0.47	0.53	0.54	0.55	0.66	0.66
Avail Cap(c_a), veh/h	833	0	0	806	0	0	241	866	884	241	866	855
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	16.3	0.0	0.0	16.9	0.0	0.0	17.5	10.9	10.9	16.9	10.8	10.8
Incr Delay (d2), s/veh	3.0	0.0	0.0	5.0	0.0	0.0	4.9	0.8	0.8	4.0	1.3	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	0.0	0.0	0.6	0.0	0.0	0.3	1.7	1.7	0.5	1.9	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.3	0.0	0.0	21.9	0.0	0.0	22.4	11.7	11.7	20.8	12.1	12.1
LnGrp LOS	B	A	A	C	A	A	C	B	B	C	B	B
Approach Vol, veh/h		81			65			609			832	
Approach Delay, s/veh		19.3			21.9			12.3			12.8	
Approach LOS		B			C			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	15.6		7.7	5.9	16.6		6.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.0	18.0		18.0	5.0	18.0		18.0				
Max Q Clear Time (g_c+1), s	13.3	7.0		3.7	2.7	8.9		3.4				
Green Ext Time (p_c), s	0.0	2.8		0.3	0.0	3.0		0.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				13.3								
HCM 6th LOS				B								



HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 5: Carillion Blvd & Walnut Ave 2040 Conditions (Signal Alt) - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	215	390	120	550	65	155	400	295	90	490	60
Future Volume (veh/h)	95	215	390	120	550	65	155	400	295	90	490	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	103	234	424	130	598	71	168	435	321	98	533	65
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	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	134	1000	629	169	1068	470	215	959	571	128	785	343
Arrive On Green	0.07	0.28	0.28	0.09	0.30	0.30	0.12	0.27	0.27	0.07	0.22	0.22
Sat Flow, veh/h	1795	3582	1569	1795	3582	1576	1795	3582	1571	1795	3582	1564
Grp Volume(v), veh/h	103	234	424	130	598	71	168	435	321	98	533	65
Grp Sat Flow(s),veh/h/ln	1795	1791	1569	1795	1791	1576	1795	1791	1571	1795	1791	1564
Q Serve(g_s), s	3.5	3.1	13.9	4.4	8.8	2.1	5.7	6.3	10.2	3.3	8.5	2.1
Cycle Q Clear(g_c), s	3.5	3.1	13.9	4.4	8.8	2.1	5.7	6.3	10.2	3.3	8.5	2.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	134	1000	629	169	1068	470	215	959	571	128	785	343
V/C Ratio(X)	0.77	0.23	0.67	0.77	0.56	0.15	0.78	0.45	0.56	0.77	0.68	0.19
Avail Cap(c_a), veh/h	331	1233	731	359	1290	568	417	1577	842	302	1348	588
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	28.4	17.4	15.5	27.6	18.5	16.1	26.7	19.1	16.0	28.5	22.4	19.9
Incr Delay (d2), s/veh	8.8	0.1	2.0	7.2	0.5	0.1	6.1	0.3	0.9	9.3	1.0	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	1.7	1.1	4.3	2.0	3.2	0.7	2.5	2.3	3.2	1.6	3.2	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.1	17.5	17.5	34.9	18.9	16.3	32.8	19.4	16.9	37.8	23.4	20.1
LnGrp LOS	D	B	B	C	B	B	C	B	B	D	C	C
Approach Vol, veh/h		761			799			924			696	
Approach Delay, s/veh		20.1			21.3			21.0			25.1	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.9	21.2	10.4	21.9	12.0	18.2	9.2	23.1				
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	27.5	12.5	21.5	14.5	23.5	11.5	22.5				
Max Q Clear Time (g_c+1), s	15.3	12.2	6.4	15.9	7.7	10.5	5.5	10.8				
Green Ext Time (p_c), s	0.1	3.3	0.1	1.5	0.2	2.8	0.1	3.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											21.8	
HCM 6th LOS											C	

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 6: Carillion Blvd & Vintage Oak Ave/Ambrogio Way 2040 Conditions (Signal Alt) - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕	↗	↗	↕↔		↗	↕↔	
Traffic Volume (veh/h)	275	20	70	15	40	65	105	510	30	90	660	245
Future Volume (veh/h)	275	20	70	15	40	65	105	510	30	90	660	245
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		1.00	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	299	22	76	16	43	71	114	554	33	98	717	266
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	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	363	27	341	36	98	115	146	1187	71	155	897	333
Arrive On Green	0.22	0.22	0.22	0.07	0.07	0.07	0.08	0.35	0.35	0.09	0.35	0.35
Sat Flow, veh/h	1678	123	1577	504	1356	1598	1795	3430	204	1795	2557	949
Grp Volume(v), veh/h	321	0	76	59	0	71	114	289	298	98	502	481
Grp Sat Flow(s),veh/h/ln	1801	0	1577	1860	0	1598	1795	1791	1843	1795	1791	1714
Q Serve(g_s), s	11.0	0.0	2.6	2.0	0.0	2.8	4.0	8.1	8.1	3.4	16.3	16.3
Cycle Q Clear(g_c), s	11.0	0.0	2.6	2.0	0.0	2.8	4.0	8.1	8.1	3.4	16.3	16.3
Prop In Lane	0.93		1.00	0.27		1.00	1.00		0.11	1.00		0.55
Lane Grp Cap(c), veh/h	390	0	341	134	0	115	146	620	638	155	628	601
V/C Ratio(X)	0.82	0.00	0.22	0.44	0.00	0.62	0.78	0.47	0.47	0.63	0.80	0.80
Avail Cap(c_a), veh/h	503	0	440	519	0	446	198	620	638	501	802	768
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.1	0.0	20.8	28.7	0.0	29.1	29.1	16.4	16.5	28.5	18.9	18.9
Incr Delay (d2), s/veh	8.4	0.0	0.3	2.2	0.0	5.2	12.9	0.5	0.5	4.2	4.5	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	0.9	0.9	0.0	1.2	2.1	2.9	3.0	1.5	6.4	6.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.5	0.0	21.1	30.9	0.0	34.3	42.0	17.0	17.0	32.7	23.4	23.6
LnGrp LOS	C	A	C	C	A	C	D	B	B	C	C	C
Approach Vol, veh/h		397			130			701			1081	
Approach Delay, s/veh		30.3			32.8			21.1			24.3	
Approach LOS		C			C			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	0.1	26.8		18.5	9.8	27.1		9.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	18.0	18.0		18.0	7.1	28.9		18.0				
Max Q Clear Time (g_c+1), s	10.1	10.1		13.0	6.0	18.3		4.8				
Green Ext Time (p_c), s	0.2	2.0		1.0	0.0	4.3		0.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				24.8								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	15	630	35	20	720
Future Vol, veh/h	20	15	630	35	20	720
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	22	16	685	38	22	783

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	1140	362	0	0	723
Stage 1	704	-	-	-	-
Stage 2	436	-	-	-	-
Critical Hdwy	6.82	6.92	-	-	4.12
Critical Hdwy Stg 1	5.82	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-
Follow-up Hdwy	3.51	3.31	-	-	2.21
Pot Cap-1 Maneuver	196	638	-	-	882
Stage 1	454	-	-	-	-
Stage 2	622	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	191	638	-	-	882
Mov Cap-2 Maneuver	191	-	-	-	-
Stage 1	454	-	-	-	-
Stage 2	606	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19.7	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	191	638	882
HCM Lane V/C Ratio	-	-	0.114	0.026	0.025
HCM Control Delay (s)	-	-	26.3	10.8	9.2
HCM Lane LOS	-	-	D	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1	0.1

Intersection												
Int Delay, s/veh	1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↕		↗	↕	
Traffic Vol, veh/h	0	0	30	0	0	65	10	620	20	40	680	25
Future Vol, veh/h	0	0	30	0	0	65	10	620	20	40	680	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	6	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	115	-	-	140	-	-
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	33	0	0	71	11	674	22	43	739	27

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	384	-	-	354	767	0	0	702	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.92	-	-	6.92	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.31	-	-	3.31	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	0	0	617	0	0	645	849	-	-	898	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	616	-	-	641	848	-	-	893	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB			
HCM Control Delay, s	11.2		11.3		0.1		0.5			
HCM LOS	B		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	848	-	-	616	641	893	-	-
HCM Lane V/C Ratio	0.013	-	-	0.053	0.11	0.049	-	-
HCM Control Delay (s)	9.3	-	-	11.2	11.3	9.2	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.4	0.2	-	-























Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗			↗	↗	↗↗		↗	↗↗	
Traffic Vol, veh/h	0	0	40	0	0	35	20	615	15	60	635	15
Future Vol, veh/h	0	0	40	0	0	35	20	615	15	60	635	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	140	-	-	130	-	-
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, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	0	0	43	0	0	38	22	668	16	65	690	16

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	-	-	354	-	-	343	707	0	0	685	0	0
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.92	-	-	6.92	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.31	-	-	3.31	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	0	0	645	0	0	656	894	-	-	911	-	-
Stage 1	0	0	-	0	0	-	-	-	-	-	-	-
Stage 2	0	0	-	0	0	-	-	-	-	-	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	644	-	-	655	893	-	-	910	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	11		10.8		0.3			0.8		
HCM LOS	B		B							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	893	-	-	644	655	910	-	-
HCM Lane V/C Ratio	0.024	-	-	0.068	0.058	0.072	-	-
HCM Control Delay (s)	9.1	-	-	11	10.8	9.3	-	-
HCM Lane LOS	A	-	-	B	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.2	0.2	-	-

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 10: Simmerhorn Rd & Carillion Blvd 2040 Conditions (Signal Alt) - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	115	80	15	115	335	60	10	455	135	210	395	100
Future Volume (veh/h)	115	80	15	115	335	60	10	455	135	210	395	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	125	87	16	125	364	65	11	495	147	228	429	109
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	265	330	61	135	555	99	409	621	183	367	579	146
Arrive On Green	0.21	0.21	0.21	0.08	0.36	0.36	0.23	0.23	0.23	0.21	0.21	0.21
Sat Flow, veh/h	959	1537	283	1781	1545	276	1781	2705	799	1781	2812	708
Grp Volume(v), veh/h	125	0	103	125	0	429	11	324	318	228	270	268
Grp Sat Flow(s),veh/h/ln	959	0	1819	1781	0	1821	1781	1777	1727	1781	1777	1743
Q Serve(g_s), s	8.3	0.0	3.1	4.6	0.0	13.0	0.3	11.3	11.4	7.7	9.3	9.5
Cycle Q Clear(g_c), s	11.8	0.0	3.1	4.6	0.0	13.0	0.3	11.3	11.4	7.7	9.3	9.5
Prop In Lane	1.00		0.16	1.00		0.15	1.00		0.46	1.00		0.41
Lane Grp Cap(c), veh/h	265	0	391	135	0	654	409	408	396	367	366	359
V/C Ratio(X)	0.47	0.00	0.26	0.92	0.00	0.66	0.03	0.79	0.80	0.62	0.74	0.75
Avail Cap(c_a), veh/h	321	0	498	135	0	654	488	486	473	488	486	477
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.6	0.0	21.5	30.2	0.0	17.7	19.6	23.9	23.9	23.8	24.4	24.5
Incr Delay (d2), s/veh	1.3	0.0	0.4	54.5	0.0	2.4	0.0	7.5	8.2	1.7	4.0	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.7	0.0	1.2	3.8	0.0	4.7	0.1	5.3	5.3	3.0	3.9	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.9	0.0	21.8	84.7	0.0	20.0	19.7	31.4	32.1	25.5	28.5	29.0
LnGrp LOS	C	A	C	F	A	C	B	C	C	C	C	C
Approach Vol, veh/h		228			554			653			766	
Approach Delay, s/veh		25.2			34.6			31.6			27.8	
Approach LOS		C			C			C			C	
Timer - Assigned Phs		2	3	4		6		8				
Phs Duration (G+Y+Rc), s		19.6	9.5	18.6		18.0		28.1				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5		4.5				
Max Green Setting (Gmax), s		18.0	5.0	18.0		18.0		18.0				
Max Q Clear Time (g_c+I1), s		13.4	6.6	13.8		11.5		15.0				
Green Ext Time (p_c), s		1.7	0.0	0.4		2.0		0.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				30.3								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 12: Marengo Rd & Twin Cities Rd  
 2040 Conditions (Signal Alt) - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	770	100	220	455	15	200	60	150	20	55	40
Future Volume (veh/h)	45	770	100	220	455	15	200	60	150	20	55	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	49	837	109	239	495	16	217	65	163	22	60	43
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	87	1066	476	253	1383	45	373	90	225	47	110	79
Arrive On Green	0.05	0.30	0.30	0.14	0.39	0.39	0.11	0.19	0.19	0.03	0.11	0.11
Sat Flow, veh/h	1781	3554	1585	1781	3513	113	3456	472	1185	1781	1013	726
Grp Volume(v), veh/h	49	837	109	239	250	261	217	0	228	22	0	103
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1850	1728	0	1657	1781	0	1740
Q Serve(g_s), s	1.4	11.4	2.7	7.0	5.2	5.2	3.2	0.0	6.8	0.6	0.0	3.0
Cycle Q Clear(g_c), s	1.4	11.4	2.7	7.0	5.2	5.2	3.2	0.0	6.8	0.6	0.0	3.0
Prop In Lane	1.00		1.00	1.00		0.06	1.00		0.71	1.00		0.42
Lane Grp Cap(c), veh/h	87	1066	476	253	700	728	373	0	315	47	0	189
V/C Ratio(X)	0.57	0.79	0.23	0.94	0.36	0.36	0.58	0.00	0.72	0.47	0.00	0.55
Avail Cap(c_a), veh/h	169	1213	541	253	700	728	1180	0	990	169	0	610
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	24.5	16.9	13.9	22.4	11.3	11.3	22.4	0.0	20.0	25.3	0.0	22.3
Incr Delay (d2), s/veh	5.7	3.1	0.2	41.1	0.3	0.3	1.4	0.0	3.2	7.3	0.0	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	4.5	0.8	5.4	1.6	1.7	1.2	0.0	2.5	0.3	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.2	20.0	14.1	63.5	11.6	11.6	23.8	0.0	23.2	32.6	0.0	24.7
LnGrp LOS	C	B	B	E	B	B	C	A	C	C	A	C
Approach Vol, veh/h		995			750			445			125	
Approach Delay, s/veh		19.8			28.1			23.5			26.1	
Approach LOS		B			C			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	14.5	12.0	20.3	10.2	10.2	7.1	25.3				
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	5.0	31.5	7.5	18.0	18.0	18.5	5.0	20.5				
Max Q Clear Time (g_c+1), s	12.6	8.8	9.0	13.4	5.2	5.0	3.4	7.2				
Green Ext Time (p_c), s	0.0	1.2	0.0	2.4	0.5	0.4	0.0	2.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											23.6	
HCM 6th LOS											C	

Intersection						
Int Delay, s/veh	2.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	100	130	395	355	20
Future Vol, veh/h	15	100	130	395	355	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	16	109	141	429	386	22



















Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	894	204	408	0	-	0
Stage 1	397	-	-	-	-	-
Stage 2	497	-	-	-	-	-
Critical Hdwy	6.82	6.92	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	283	806	1154	-	-	-
Stage 1	651	-	-	-	-	-
Stage 2	579	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	248	806	1154	-	-	-
Mov Cap-2 Maneuver	248	-	-	-	-	-
Stage 1	572	-	-	-	-	-
Stage 2	579	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.2	2.1	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1154	-	623	-	-
HCM Lane V/C Ratio	0.122	-	0.201	-	-
HCM Control Delay (s)	8.6	-	12.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.4	-	0.7	-	-



HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 14: E. Stockton Blvd & SR 99 NB Ramps/Walnut Ave 2040 Conditions (Signal Alt) - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	140	880	0	0	795	335	115	0	135	0	0	0
Future Volume (veh/h)	140	880	0	0	795	335	115	0	135	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	1.00		0.98			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	152	957	0	0	864	364	125	0	147			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	201	2223	0	0	1440	629	285	0	249			
Arrive On Green	0.11	0.63	0.00	0.00	0.41	0.41	0.16	0.00	0.16			
Sat Flow, veh/h	1781	3647	0	0	3647	1552	1781	0	1559			
Grp Volume(v), veh/h	152	957	0	0	864	364	125	0	147			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1552	1781	0	1559			
Q Serve(g_s), s	3.5	5.8	0.0	0.0	8.0	7.6	2.7	0.0	3.7			
Cycle Q Clear(g_c), s	3.5	5.8	0.0	0.0	8.0	7.6	2.7	0.0	3.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	201	2223	0	0	1440	629	285	0	249			
V/C Ratio(X)	0.76	0.43	0.00	0.00	0.60	0.58	0.44	0.00	0.59			
Avail Cap(c_a), veh/h	616	4196	0	0	2586	1129	914	0	799			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	18.0	4.0	0.0	0.0	9.8	9.7	15.9	0.0	16.3			
Incr Delay (d2), s/veh	5.7	0.1	0.0	0.0	0.4	0.8	1.1	0.0	2.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.4	0.6	0.0	0.0	2.0	1.7	0.9	0.0	1.2			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.7	4.2	0.0	0.0	10.2	10.5	17.0	0.0	18.6			
LnGrp LOS	C	A	A	A	B	B	B	A	B			
Approach Vol, veh/h		1109			1228			272				
Approach Delay, s/veh		6.8			10.3			17.8				
Approach LOS		A			B			B				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		11.2		30.7			9.2	21.5				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		21.5		49.5			14.5	30.5				
Max Q Clear Time (g_c+I1), s		5.7		7.8			5.5	10.0				
Green Ext Time (p_c), s		1.0		7.4			0.2	7.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				9.6								
HCM 6th LOS				A								

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 15: Walnut Ave & Vintage Oak Ave 2040 Conditions (Signal Alt) - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	770	85	20	810	15	60	15	15	10	15	165
Future Volume (veh/h)	90	770	85	20	810	15	60	15	15	10	15	165
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	98	837	92	22	880	16	65	16	16	11	16	179
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	127	1152	127	46	1115	20	114	28	28	15	22	247
Arrive On Green	0.07	0.36	0.36	0.03	0.31	0.31	0.10	0.10	0.10	0.18	0.18	0.18
Sat Flow, veh/h	1767	3195	351	1767	3542	64	1169	288	288	85	124	1385
Grp Volume(v), veh/h	98	462	467	22	438	458	97	0	0	206	0	0
Grp Sat Flow(s),veh/h/ln	1767	1763	1783	1767	1763	1844	1745	0	0	1594	0	0
Q Serve(g_s), s	2.9	12.1	12.1	0.7	12.1	12.1	2.8	0.0	0.0	6.5	0.0	0.0
Cycle Q Clear(g_c), s	2.9	12.1	12.1	0.7	12.1	12.1	2.8	0.0	0.0	6.5	0.0	0.0
Prop In Lane	1.00		0.20	1.00		0.03	0.67		0.16	0.05		0.87
Lane Grp Cap(c), veh/h	127	636	643	46	555	580	169	0	0	284	0	0
V/C Ratio(X)	0.77	0.73	0.73	0.48	0.79	0.79	0.57	0.00	0.00	0.73	0.00	0.00
Avail Cap(c_a), veh/h	169	679	687	166	676	707	607	0	0	539	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	24.3	14.7	14.7	25.6	16.6	16.6	23.0	0.0	0.0	20.6	0.0	0.0
Incr Delay (d2), s/veh	14.3	3.6	3.6	7.5	5.2	5.0	3.0	0.0	0.0	3.5	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	1.6	4.3	4.4	0.3	4.6	4.8	1.2	0.0	0.0	2.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.5	18.4	18.4	33.0	21.8	21.6	26.0	0.0	0.0	24.2	0.0	0.0
LnGrp LOS	D	B	B	C	C	C	C	A	A	C	A	A
Approach Vol, veh/h		1027			918			97			206	
Approach Delay, s/veh		20.3			22.0			26.0			24.2	
Approach LOS		C			C			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		9.7	5.9	23.7		14.0	8.3	21.3				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.5	5.0	20.5		18.0	5.1	20.4				
Max Q Clear Time (g_c+I1), s		4.8	2.7	14.1		8.5	4.9	14.1				
Green Ext Time (p_c), s		0.3	0.0	2.8		0.8	0.0	2.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											21.6	
HCM 6th LOS											C	

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 16: Walnut Ave & Elk Hills Dr 2040 Conditions (Signal Alt) - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	430	60	5	635	15	45	15	5	5	20	30
Future Volume (veh/h)	85	430	60	5	635	15	45	15	5	5	20	30
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		0.97	1.00		0.97	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		No		No
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	92	467	65	5	690	16	49	16	5	5	22	33
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	1	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	135	1111	154	12	1015	24	170	56	17	16	70	106
Arrive On Green	0.08	0.35	0.35	0.01	0.28	0.28	0.14	0.14	0.14	0.11	0.11	0.11
Sat Flow, veh/h	1795	3154	437	1795	3575	83	1256	410	128	142	625	937
Grp Volume(v), veh/h	92	264	268	5	346	360	70	0	0	60	0	0
Grp Sat Flow(s),veh/h/ln	1795	1791	1799	1795	1791	1867	1794	0	0	1704	0	0
Q Serve(g_s), s	2.3	5.1	5.2	0.1	7.8	7.9	1.6	0.0	0.0	1.5	0.0	0.0
Cycle Q Clear(g_c), s	2.3	5.1	5.2	0.1	7.8	7.9	1.6	0.0	0.0	1.5	0.0	0.0
Prop In Lane	1.00		0.24	1.00		0.04	0.70		0.07	0.08		0.55
Lane Grp Cap(c), veh/h	135	631	634	12	508	530	243	0	0	192	0	0
V/C Ratio(X)	0.68	0.42	0.42	0.41	0.68	0.68	0.29	0.00	0.00	0.31	0.00	0.00
Avail Cap(c_a), veh/h	255	782	785	196	723	754	744	0	0	669	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	20.7	11.3	11.3	22.7	14.6	14.6	17.8	0.0	0.0	18.7	0.0	0.0
Incr Delay (d2), s/veh	5.9	0.4	0.4	21.1	1.6	1.5	0.6	0.0	0.0	0.9	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	1.0	1.5	1.5	0.1	2.6	2.7	0.7	0.0	0.0	0.6	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.5	11.7	11.7	43.7	16.2	16.1	18.5	0.0	0.0	19.6	0.0	0.0
LnGrp LOS	C	B	B	D	B	B	B	A	A	B	A	A
Approach Vol, veh/h		624			711			70			60	
Approach Delay, s/veh		13.9			16.3			18.5			19.6	
Approach LOS		B			B			B			B	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.7	4.8	20.6		9.7	8.0	17.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.0	5.0	20.0		18.0	6.5	18.5				
Max Q Clear Time (g_c+I1), s		3.6	2.1	7.2		3.5	4.3	9.9				
Green Ext Time (p_c), s		0.2	0.0	2.3		0.2	0.0	2.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				15.5								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 17: Walnut Ave & Marengo Rd  
 2040 Conditions (Signal Alt) - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↓		↔	↑↓		↔	↑↑	↔	↔	↑↑	↔
Traffic Volume (veh/h)	155	240	55	155	315	75	50	590	125	75	515	305
Future Volume (veh/h)	155	240	55	155	315	75	50	590	125	75	515	305
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		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1870	1870	1870	1870	1870	1900	1900	1870	1870	1900	1900
Adj Flow Rate, veh/h	168	261	60	168	342	82	54	641	136	82	560	332
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, %	0	2	2	2	2	2	0	0	2	2	0	0
Cap, veh/h	322	517	117	182	543	128	96	1018	447	122	1074	615
Arrive On Green	0.09	0.18	0.18	0.10	0.19	0.19	0.05	0.28	0.28	0.07	0.30	0.30
Sat Flow, veh/h	3510	2872	648	1781	2851	675	1810	3610	1585	1781	3610	1571
Grp Volume(v), veh/h	168	160	161	168	211	213	54	641	136	82	560	332
Grp Sat Flow(s),veh/h/ln	1755	1777	1743	1781	1777	1749	1810	1805	1585	1781	1805	1571
Q Serve(g_s), s	2.2	4.0	4.1	4.6	5.4	5.5	1.4	7.6	3.3	2.2	6.3	8.0
Cycle Q Clear(g_c), s	2.2	4.0	4.1	4.6	5.4	5.5	1.4	7.6	3.3	2.2	6.3	8.0
Prop In Lane	1.00		0.37	1.00		0.39	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	322	320	314	182	338	333	96	1018	447	122	1074	615
V/C Ratio(X)	0.52	0.50	0.51	0.92	0.63	0.64	0.56	0.63	0.30	0.67	0.52	0.54
Avail Cap(c_a), veh/h	1254	1106	1085	182	653	643	277	1584	696	182	1400	757
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	21.2	18.1	18.2	21.8	18.2	18.3	22.6	15.4	13.8	22.3	14.3	11.6
Incr Delay (d2), s/veh	1.3	1.2	1.3	45.5	1.9	2.0	5.1	0.6	0.4	6.2	0.4	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.6	1.6	4.0	2.1	2.2	0.7	2.5	1.1	1.0	2.0	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.5	19.3	19.5	67.3	20.1	20.3	27.7	16.0	14.2	28.5	14.7	12.3
LnGrp LOS	C	B	B	E	C	C	C	B	B	C	B	B
Approach Vol, veh/h		489			592			831			974	
Approach Delay, s/veh		20.5			33.6			16.5			15.1	
Approach LOS		C			C			B			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.9	18.3	9.5	13.3	7.1	19.1	9.0	13.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	21.5	5.0	30.5	7.5	19.0	17.5	18.0				
Max Q Clear Time (g_c+14.2), s	9.6	9.6	6.6	6.1	3.4	10.0	4.2	7.5				
Green Ext Time (p_c), s	0.0	3.5	0.0	1.9	0.0	3.1	0.4	1.8				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				20.2								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	15	10	895	805	20
Future Vol, veh/h	10	15	10	895	805	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	90	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	16	11	973	875	22

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1395	449	897	0	-	0
Stage 1	886	-	-	-	-	-
Stage 2	509	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	132	557	753	-	-	-
Stage 1	363	-	-	-	-	-
Stage 2	569	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	130	557	753	-	-	-
Mov Cap-2 Maneuver	256	-	-	-	-	-
Stage 1	358	-	-	-	-	-
Stage 2	569	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.2	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	753	-	379	-	-
HCM Lane V/C Ratio	0.014	-	0.072	-	-
HCM Control Delay (s)	9.9	-	15.2	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↘↗		↘	↑↑	↑	↘
Traffic Vol, veh/h	5	60	15	905	820	10
Future Vol, veh/h	5	60	15	905	820	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	90	-	-	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	2	2	2	2
Mvmt Flow	5	65	16	984	891	11

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1415	891	902	0	-	0
Stage 1	891	-	-	-	-	-
Stage 2	524	-	-	-	-	-
Critical Hdwy	6.63	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	139	340	751	-	-	-
Stage 1	400	-	-	-	-	-
Stage 2	560	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	136	340	751	-	-	-
Mov Cap-2 Maneuver	270	-	-	-	-	-
Stage 1	392	-	-	-	-	-
Stage 2	560	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.7	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	751	-	333	-	-
HCM Lane V/C Ratio	0.022	-	0.212	-	-
HCM Control Delay (s)	9.9	-	18.7	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.8	-	-

Intersection						
Int Delay, s/veh	32.7					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	210	85	315	45	175	45
Future Vol, veh/h	210	85	315	45	175	45
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	25	0	0	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	4	4	4	4	4	4
Mvmt Flow	228	92	342	49	190	49























Major/Minor	Minor2	Major1		Major2	
Conflicting Flow All	923	190	190	0	0
Stage 1	190	-	-	-	-
Stage 2	733	-	-	-	-
Critical Hdwy	6.44	6.24	4.14	-	-
Critical Hdwy Stg 1	5.44	-	-	-	-
Critical Hdwy Stg 2	5.44	-	-	-	-
Follow-up Hdwy	3.536	3.336	2.236	-	-
Pot Cap-1 Maneuver	297	847	1372	-	0
Stage 1	838	-	-	-	0
Stage 2	472	-	-	-	0
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	~ 223	847	1372	-	-
Mov Cap-2 Maneuver	~ 223	-	-	-	-
Stage 1	629	-	-	-	-
Stage 2	472	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	83.1	7.4	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	1372	-	223	847	-
HCM Lane V/C Ratio	0.25	-	1.024	0.109	-
HCM Control Delay (s)	8.5	-	112.8	9.8	-
HCM Lane LOS	A	-	F	A	-
HCM 95th %tile Q(veh)	1	-	9.6	0.4	-

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

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 21: Marengo Rd & Simmerhorn Rd 2040 Conditions (Signal Alt) - PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	150	55	85	255	25	50	705	60	70	635	170
Future Volume (veh/h)	190	150	55	85	255	25	50	705	60	70	635	170
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	207	163	60	92	277	27	54	766	65	76	690	185
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	163	308	113	122	358	35	91	1008	86	111	1121	500
Arrive On Green	0.09	0.24	0.24	0.07	0.21	0.21	0.05	0.30	0.30	0.06	0.32	0.32
Sat Flow, veh/h	1781	1304	480	1781	1677	163	1781	3315	281	1781	3554	1585
Grp Volume(v), veh/h	207	0	223	92	0	304	54	410	421	76	690	185
Grp Sat Flow(s),veh/h/ln	1781	0	1784	1781	0	1841	1781	1777	1819	1781	1777	1585
Q Serve(g_s), s	5.0	0.0	6.0	2.8	0.0	8.5	1.6	11.5	11.5	2.3	9.0	5.0
Cycle Q Clear(g_c), s	5.0	0.0	6.0	2.8	0.0	8.5	1.6	11.5	11.5	2.3	9.0	5.0
Prop In Lane	1.00		0.27	1.00		0.09	1.00		0.15	1.00		1.00
Lane Grp Cap(c), veh/h	163	0	421	122	0	393	91	540	553	111	1121	500
V/C Ratio(X)	1.27	0.00	0.53	0.75	0.00	0.77	0.59	0.76	0.76	0.68	0.62	0.37
Avail Cap(c_a), veh/h	163	0	733	163	0	756	211	730	747	211	1459	651
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.9	0.0	18.3	25.0	0.0	20.3	25.4	17.3	17.3	25.1	15.9	14.5
Incr Delay (d2), s/veh	162.1	0.0	1.0	12.7	0.0	3.3	6.0	3.2	3.2	7.1	0.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	0.0	2.4	1.4	0.0	3.2	0.8	4.2	4.3	1.1	3.0	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	187.0	0.0	19.3	37.8	0.0	23.6	31.5	20.5	20.4	32.3	16.5	15.0
LnGrp LOS	F	A	B	D	A	C	C	C	C	C	B	B
Approach Vol, veh/h		430			396			885			951	
Approach Delay, s/veh		100.0			26.9			21.1			17.5	
Approach LOS		F			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	7.9	21.2	8.3	17.4	7.3	21.8	9.5	16.2				
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	6.5	22.5	5.0	22.5	6.5	22.5	5.0	22.5				
Max Q Clear Time (g_c+I1), s	4.3	13.5	4.8	8.0	3.6	11.0	7.0	10.5				
Green Ext Time (p_c), s	0.0	3.2	0.0	1.0	0.0	3.8	0.0	1.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay			33.4									
HCM 6th LOS			C									



HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 22: Crystal Way & SR 99 SB Off Ramp 2040 Conditions (Signal Alt) - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑↑	
Traffic Volume (veh/h)	0	470	60	375	455	0	0	0	0	120	200	120
Future Volume (veh/h)	0	470	60	375	455	0	0	0	0	120	200	120
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	0				1856	1856	1856
Adj Flow Rate, veh/h	0	511	65	408	495	0				130	217	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	843	376	771	2015	0				353	431	248
Arrive On Green	0.00	0.24	0.24	0.22	0.57	0.00				0.20	0.20	0.20
Sat Flow, veh/h	0	3618	1572	3428	3618	0				1767	2156	1239
Grp Volume(v), veh/h	0	511	65	408	495	0				130	176	171
Grp Sat Flow(s),veh/h/ln	0	1763	1572	1714	1763	0				1767	1763	1632
Q Serve(g_s), s	0.0	4.8	1.2	3.9	2.6	0.0				2.4	3.3	3.5
Cycle Q Clear(g_c), s	0.0	4.8	1.2	3.9	2.6	0.0				2.4	3.3	3.5
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.76
Lane Grp Cap(c), veh/h	0	843	376	771	2015	0				353	353	327
V/C Ratio(X)	0.00	0.61	0.17	0.53	0.25	0.00				0.37	0.50	0.52
Avail Cap(c_a), veh/h	0	2178	972	829	3410	0				1828	1823	1688
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	12.6	11.2	12.7	4.0	0.0				12.9	13.2	13.3
Incr Delay (d2), s/veh	0.0	0.3	0.1	0.6	0.0	0.0				0.2	0.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.5	0.3	1.2	0.4	0.0				0.7	1.0	0.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.9	11.3	13.3	4.0	0.0				13.1	13.6	13.8
LnGrp LOS	A	B	B	B	A	A				B	B	B
Approach Vol, veh/h		576			903						477	
Approach Delay, s/veh		12.7			8.2						13.5	
Approach LOS		B			A						B	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	12.4	12.9		11.9		25.3						
Change Period (Y+Rc), s	4.0	4.0		4.5		4.0						
Max Green Setting (Gmax), s	23.0	23.0		38.5		36.0						
Max Q Clear Time (g_c+1/3g), s	6.8	6.8		5.5		4.6						
Green Ext Time (p_c), s	0.5	2.1		1.3		2.2						
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				10.8								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 23: SR 99 NB On Ramp & Crystal Way 2040 Conditions (Signal Alt) - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↑↑	↔	↔	↔↔				
Traffic Volume (veh/h)	145	445	0	0	690	50	140	275	415	0	0	0
Future Volume (veh/h)	145	445	0	0	690	50	140	275	415	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	158	484	0	0	750	54	152	299	451			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	392	1654	0	0	963	429	631	662	561			
Arrive On Green	0.11	0.47	0.00	0.00	0.27	0.27	0.35	0.35	0.35			
Sat Flow, veh/h	3456	3647	0	0	3647	1585	1781	1870	1585			
Grp Volume(v), veh/h	158	484	0	0	750	54	152	299	451			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	1781	1870	1585			
Q Serve(g_s), s	2.4	4.8	0.0	0.0	11.0	1.5	3.4	7.0	14.5			
Cycle Q Clear(g_c), s	2.4	4.8	0.0	0.0	11.0	1.5	3.4	7.0	14.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	392	1654	0	0	963	429	631	662	561			
V/C Ratio(X)	0.40	0.29	0.00	0.00	0.78	0.13	0.24	0.45	0.80			
Avail Cap(c_a), veh/h	550	2072	0	0	1319	588	1133	1190	1008			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	23.3	9.4	0.0	0.0	19.1	15.6	12.9	14.0	16.5			
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.0	1.3	0.0	0.1	0.2	1.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.9	1.6	0.0	0.0	4.1	0.5	1.2	2.6	4.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	9.4	0.0	0.0	20.4	15.6	13.0	14.2	17.5			
LnGrp LOS	C	A	A	A	C	B	B	B	B			
Approach Vol, veh/h		642			804			902				
Approach Delay, s/veh		12.9			20.1			15.7				
Approach LOS		B			C			B				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		31.4			11.0	20.4		25.1				
Change Period (Y+Rc), s		5.1			4.6	5.1		5.1				
Max Green Setting (Gmax), s		33.0			9.0	21.0		36.0				
Max Q Clear Time (g_c+I1), s		6.8			4.4	13.0		16.5				
Green Ext Time (p_c), s		2.2			0.1	2.3		3.5				

Intersection Summary

HCM 6th Ctrl Delay	16.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 24: Fairway Dr & C Street 2040 Conditions (Signal Alt) - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑			↑↓		↑	↑↓	
Traffic Volume (veh/h)	0	635	55	515	685	0	75	0	150	255	150	230
Future Volume (veh/h)	0	635	55	515	685	0	75	0	150	255	150	230
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	0	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	690	60	560	745	0	82	0	163	277	163	250
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, %	0	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	0	973	434	449	1639	0	87	0	174	368	368	328
Arrive On Green	0.00	0.27	0.27	0.13	0.46	0.00	0.16	0.00	0.16	0.21	0.21	0.21
Sat Flow, veh/h	0	3647	1585	3456	3647	0	551	0	1095	1781	1777	1585
Grp Volume(v), veh/h	0	690	60	560	745	0	245	0	0	277	163	250
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0	1646	0	0	1781	1777	1585
Q Serve(g_s), s	0.0	12.1	2.0	9.0	9.9	0.0	10.2	0.0	0.0	10.1	5.6	10.3
Cycle Q Clear(g_c), s	0.0	12.1	2.0	9.0	9.9	0.0	10.2	0.0	0.0	10.1	5.6	10.3
Prop In Lane	0.00		1.00	1.00		0.00	0.33		0.67	1.00		1.00
Lane Grp Cap(c), veh/h	0	973	434	449	1639	0	261	0	0	368	368	328
V/C Ratio(X)	0.00	0.71	0.14	1.25	0.45	0.00	0.94	0.00	0.00	0.75	0.44	0.76
Avail Cap(c_a), veh/h	0	1179	526	449	1846	0	261	0	0	848	846	755
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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	22.7	19.0	30.2	12.7	0.0	28.8	0.0	0.0	25.8	24.0	25.9
Incr Delay (d2), s/veh	0.0	2.5	0.3	129.0	0.2	0.0	38.7	0.0	0.0	1.2	0.3	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.1	0.7	11.6	3.6	0.0	6.6	0.0	0.0	4.2	2.3	3.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	25.1	19.3	159.2	12.9	0.0	67.5	0.0	0.0	27.0	24.3	27.3
LnGrp LOS	A	C	B	F	B	A	E	A	A	C	C	C
Approach Vol, veh/h		750			1305			245			690	
Approach Delay, s/veh		24.7			75.7			67.5			26.5	
Approach LOS		C			E			E			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	3.0	23.0		18.3		36.0		15.0				
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s	3.0	23.0		33.0		36.0		11.0				
Max Q Clear Time (g_c+I1), s	3.0	14.1		12.3		11.9		12.2				
Green Ext Time (p_c), s	0.0	4.8		2.0		5.5		0.0				

Intersection Summary

HCM 6th Ctrl Delay	50.9
HCM 6th LOS	D

Notes

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

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 25: SR 99 NB Off Ramp/SR 99 NB On Ramp & C Street 2040 Conditions (Signal Alt) - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↑↑	↔	↔	↔↔				
Traffic Volume (veh/h)	420	620	0	0	785	110	415	300	75	0	0	0
Future Volume (veh/h)	420	620	0	0	785	110	415	300	75	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	457	674	0	0	853	120	286	557	82			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	832	1995	0	0	780	343	382	684	100			
Arrive On Green	0.24	0.56	0.00	0.00	0.22	0.22	0.21	0.21	0.21			
Sat Flow, veh/h	3456	3647	0	0	3647	1562	1781	3189	468			
Grp Volume(v), veh/h	457	674	0	0	853	120	286	326	313			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1562	1781	1870	1786			
Q Serve(g_s), s	5.3	4.7	0.0	0.0	10.0	3.0	6.8	7.6	7.6			
Cycle Q Clear(g_c), s	5.3	4.7	0.0	0.0	10.0	3.0	6.8	7.6	7.6			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.26			
Lane Grp Cap(c), veh/h	832	1995	0	0	780	343	382	401	383			
V/C Ratio(X)	0.55	0.34	0.00	0.00	1.09	0.35	0.75	0.81	0.82			
Avail Cap(c_a), veh/h	1366	1995	0	0	780	343	391	411	392			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	15.1	5.4	0.0	0.0	17.8	15.0	16.7	17.0	17.0			
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.0	60.6	0.2	6.7	10.7	11.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.8	1.1	0.0	0.0	10.1	0.9	3.1	4.0	3.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.3	5.4	0.0	0.0	78.3	15.2	23.4	27.7	28.6			
LnGrp LOS	B	A	A	A	F	B	C	C	C			
Approach Vol, veh/h		1131			973			925				
Approach Delay, s/veh		9.4			70.6			26.7				
Approach LOS		A			E			C				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		30.7			15.6	15.1		14.9				
Change Period (Y+Rc), s		5.1			4.6	5.1		5.1				
Max Green Setting (Gmax), s		10.0			18.0	10.0		10.0				
Max Q Clear Time (g_c+I1), s		6.7			7.3	12.0		9.6				
Green Ext Time (p_c), s		1.1			0.7	0.0		0.2				

Intersection Summary

HCM 6th Ctrl Delay	34.3
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 26: SR 99 SB On Ramp & Fairway Dr 2040 Conditions (Signal Alt) - PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↶		↷	↶
Traffic Volume (veh/h)	0	0	225	15	625	95
Future Volume (veh/h)	0	0	225	15	625	95
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1885	1885	1885	1885
Adj Flow Rate, veh/h			245	16	679	103
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			1	1	1	1
Cap, veh/h			403	26	817	1569
Arrive On Green			0.23	0.23	0.46	0.83
Sat Flow, veh/h			1750	114	1795	1885
Grp Volume(v), veh/h			0	261	679	103
Grp Sat Flow(s),veh/h/ln			0	1865	1795	1885
Q Serve(g_s), s			0.0	3.0	7.9	0.2
Cycle Q Clear(g_c), s			0.0	3.0	7.9	0.2
Prop In Lane				0.06	1.00	
Lane Grp Cap(c), veh/h			0	429	817	1569
V/C Ratio(X)			0.00	0.61	0.83	0.07
Avail Cap(c_a), veh/h			0	3521	2411	3559
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			0.0	8.2	5.7	0.4
Incr Delay (d2), s/veh			0.0	0.5	0.9	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.7	0.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	8.7	6.5	0.4
LnGrp LOS			A	A	A	A
Approach Vol, veh/h			261			782
Approach Delay, s/veh			8.7			5.7
Approach LOS			A			A
Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	4.4	9.5				23.8
Change Period (Y+Rc), s	3.5	4.0				* 4
Max Green Setting (Gmax), s	32.0	45.0				* 45
Max Q Clear Time (g_c+19.5), s	19.5	5.0				2.2
Green Ext Time (p_c), s	1.1	1.0				0.3
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			6.5			
HCM 6th LOS			A			
<b>Notes</b>						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 12: Marengo Rd & Twin Cities Rd

Year 2040 Conditions - Road Diet - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	551	273	300	493	16	319	67	237	20	56	40
Future Volume (veh/h)	38	551	273	300	493	16	319	67	237	20	56	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	41	599	297	326	536	17	347	73	258	22	61	43
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	75	914	408	241	1232	39	508	93	328	46	138	98
Arrive On Green	0.04	0.26	0.26	0.14	0.35	0.35	0.15	0.26	0.26	0.03	0.14	0.14
Sat Flow, veh/h	1781	3554	1585	1781	3516	111	3456	362	1278	1781	1021	720
Grp Volume(v), veh/h	41	599	297	326	271	282	347	0	331	22	0	104
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1850	1728	0	1640	1781	0	1741
Q Serve(g_s), s	1.3	8.3	9.5	7.5	6.5	6.5	5.3	0.0	10.4	0.7	0.0	3.0
Cycle Q Clear(g_c), s	1.3	8.3	9.5	7.5	6.5	6.5	5.3	0.0	10.4	0.7	0.0	3.0
Prop In Lane	1.00		1.00	1.00		0.06	1.00		0.78	1.00		0.41
Lane Grp Cap(c), veh/h	75	914	408	241	623	648	508	0	421	46	0	236
V/C Ratio(X)	0.55	0.66	0.73	1.35	0.43	0.44	0.68	0.00	0.79	0.48	0.00	0.44
Avail Cap(c_a), veh/h	161	1154	515	241	657	684	1122	0	932	161	0	581
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	26.0	18.4	18.8	24.0	13.8	13.8	22.4	0.0	19.2	26.6	0.0	22.0
Incr Delay (d2), s/veh	6.0	0.9	3.9	183.4	0.5	0.5	1.6	0.0	3.3	7.4	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.2	3.3	15.0	2.1	2.2	2.0	0.0	3.6	0.4	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.0	19.3	22.7	207.3	14.3	14.3	24.0	0.0	22.5	34.1	0.0	23.3
LnGrp LOS	C	B	C	F	B	B	C	A	C	C	A	C
Approach Vol, veh/h		937			879			678			126	
Approach Delay, s/veh		20.9			85.9			23.3			25.2	
Approach LOS		C			F			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	5.9	18.7	12.0	18.8	12.7	12.0	6.8	23.9				
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	5.0	31.5	7.5	18.0	18.0	18.5	5.0	20.5				
Max Q Clear Time (g_c+1/2), s	12.5	12.4	9.5	11.5	7.3	5.0	3.3	8.5				
Green Ext Time (p_c), s	0.0	1.8	0.0	2.8	0.9	0.4	0.0	2.3				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				43.5								
HCM 6th LOS				D								

Intersection						
Int Delay, s/veh	5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	225	255	608	623	10
Future Vol, veh/h	15	225	255	608	623	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	16	245	277	661	677	11

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1568	344	688	0	-	0
Stage 1	683	-	-	-	-	-
Stage 2	885	-	-	-	-	-
Critical Hdwy	6.82	6.92	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	103	655	909	-	-	-
Stage 1	466	-	-	-	-	-
Stage 2	366	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	72	655	909	-	-	-
Mov Cap-2 Maneuver	72	-	-	-	-	-
Stage 1	324	-	-	-	-	-
Stage 2	366	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.9	3.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	909	-	435	-	-
HCM Lane V/C Ratio	0.305	-	0.6	-	-
HCM Control Delay (s)	10.7	-	24.9	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	1.3	-	3.8	-	-

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 14: E. Stockton Blvd & SR 99 NB Ramps/Walnut Ave Year 2040 Conditions - Road Diet - AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	117	793	0	0	908	435	120	0	296	0	0	0
Future Volume (veh/h)	117	793	0	0	908	435	120	0	296	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	127	862	0	0	987	473	130	0	322			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	165	2091	0	0	1479	646	451	0	396			
Arrive On Green	0.09	0.59	0.00	0.00	0.42	0.42	0.25	0.00	0.25			
Sat Flow, veh/h	1781	3647	0	0	3647	1552	1781	0	1561			
Grp Volume(v), veh/h	127	862	0	0	987	473	130	0	322			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1552	1781	0	1561			
Q Serve(g_s), s	4.0	7.5	0.0	0.0	12.8	14.5	3.3	0.0	11.0			
Cycle Q Clear(g_c), s	4.0	7.5	0.0	0.0	12.8	14.5	3.3	0.0	11.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	165	2091	0	0	1479	646	451	0	396			
V/C Ratio(X)	0.77	0.41	0.00	0.00	0.67	0.73	0.29	0.00	0.81			
Avail Cap(c_a), veh/h	386	2996	0	0	1945	849	724	0	635			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	25.2	6.4	0.0	0.0	13.4	13.9	17.1	0.0	20.0			
Incr Delay (d2), s/veh	7.3	0.1	0.0	0.0	0.6	2.3	0.3	0.0	4.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.8	1.7	0.0	0.0	4.0	4.2	1.2	0.0	3.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.5	6.5	0.0	0.0	14.0	16.2	17.4	0.0	24.3			
LnGrp LOS	C	A	A	A	B	B	B	A	C			
Approach Vol, veh/h		989			1460			452				
Approach Delay, s/veh		9.8			14.7			22.3				
Approach LOS		A			B			C				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		18.9		37.9			9.8	28.2				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		23.1		47.9			12.3	31.1				
Max Q Clear Time (g_c+I1), s		13.0		9.5			6.0	16.5				
Green Ext Time (p_c), s		1.3		6.4			0.1	7.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				14.2								
HCM 6th LOS				B								



HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 15: Walnut Ave & Vintage Oak Ave Year 2040 Conditions - Road Diet - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	189	746	52	26	959	55	101	28	61	58	19	204
Future Volume (veh/h)	189	746	52	26	959	55	101	28	61	58	19	204
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	205	811	57	28	1042	60	110	30	66	63	21	222
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	206	1298	91	51	1021	59	137	37	82	70	23	248
Arrive On Green	0.12	0.39	0.39	0.03	0.30	0.30	0.15	0.15	0.15	0.21	0.21	0.21
Sat Flow, veh/h	1767	3336	234	1767	3388	195	914	249	548	334	111	1176
Grp Volume(v), veh/h	205	429	439	28	542	560	206	0	0	306	0	0
Grp Sat Flow(s),veh/h/ln	1767	1763	1807	1767	1763	1820	1711	0	0	1621	0	0
Q Serve(g_s), s	9.4	16.0	16.0	1.3	24.5	24.5	9.5	0.0	0.0	14.9	0.0	0.0
Cycle Q Clear(g_c), s	9.4	16.0	16.0	1.3	24.5	24.5	9.5	0.0	0.0	14.9	0.0	0.0
Prop In Lane	1.00		0.13	1.00		0.11	0.53		0.32	0.21		0.73
Lane Grp Cap(c), veh/h	206	686	703	51	531	548	256	0	0	342	0	0
V/C Ratio(X)	0.99	0.62	0.62	0.55	1.02	1.02	0.80	0.00	0.00	0.89	0.00	0.00
Avail Cap(c_a), veh/h	206	686	703	111	531	548	421	0	0	359	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(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	35.9	20.0	20.0	39.0	28.4	28.4	33.4	0.0	0.0	31.2	0.0	0.0
Incr Delay (d2), s/veh	60.6	1.8	1.7	8.9	44.4	43.9	5.9	0.0	0.0	23.1	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	7.3	6.1	6.3	0.6	15.8	16.3	4.2	0.0	0.0	7.8	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	96.5	21.8	21.8	47.9	72.8	72.3	39.3	0.0	0.0	54.3	0.0	0.0
LnGrp LOS	F	C	C	D	F	F	D	A	A	D	A	A
Approach Vol, veh/h		1073			1130			206			306	
Approach Delay, s/veh		36.1			71.9			39.3			54.3	
Approach LOS		D			E			D			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		16.7	6.8	36.2		21.7	14.0	29.0				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		20.0	5.1	28.9		18.0	9.5	24.5				
Max Q Clear Time (g_c+I1), s		11.5	3.3	18.0		16.9	11.4	26.5				
Green Ext Time (p_c), s		0.7	0.0	3.7		0.2	0.0	0.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay					53.3							
HCM 6th LOS					D							

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 16: Walnut Ave & Elk Hills Dr

Year 2040 Conditions - Road Diet - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	133	660	18	10	811	86	28	29	10	33	21	74
Future Volume (veh/h)	133	660	18	10	811	86	28	29	10	33	21	74
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		0.97	1.00		0.96	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	145	717	20	11	882	93	30	32	11	36	23	80
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	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	168	1418	40	25	1039	110	88	94	32	56	36	125
Arrive On Green	0.09	0.40	0.40	0.01	0.32	0.32	0.12	0.12	0.12	0.13	0.13	0.13
Sat Flow, veh/h	1795	3558	99	1795	3257	343	735	784	269	436	279	969
Grp Volume(v), veh/h	145	361	376	11	485	490	73	0	0	139	0	0
Grp Sat Flow(s),veh/h/ln	1795	1791	1866	1795	1791	1810	1788	0	0	1684	0	0
Q Serve(g_s), s	4.2	8.1	8.1	0.3	13.5	13.5	2.0	0.0	0.0	4.2	0.0	0.0
Cycle Q Clear(g_c), s	4.2	8.1	8.1	0.3	13.5	13.5	2.0	0.0	0.0	4.2	0.0	0.0
Prop In Lane	1.00		0.05	1.00		0.19	0.41		0.15	0.26		0.58
Lane Grp Cap(c), veh/h	168	714	744	25	571	577	214	0	0	218	0	0
V/C Ratio(X)	0.86	0.51	0.51	0.43	0.85	0.85	0.34	0.00	0.00	0.64	0.00	0.00
Avail Cap(c_a), veh/h	168	714	744	168	605	611	604	0	0	569	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	23.8	12.1	12.1	26.1	16.9	16.9	21.5	0.0	0.0	22.0	0.0	0.0
Incr Delay (d2), s/veh	33.6	0.6	0.6	11.3	10.6	10.5	0.9	0.0	0.0	3.1	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	8.1	2.5	2.6	0.2	6.0	6.1	0.8	0.0	0.0	1.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.4	12.6	12.6	37.4	27.5	27.4	22.4	0.0	0.0	25.1	0.0	0.0
LnGrp LOS	E	B	B	D	C	C	C	A	A	C	A	A
Approach Vol, veh/h		882			986			73			139	
Approach Delay, s/veh		20.0			27.6			22.4			25.1	
Approach LOS		B			C			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		10.9	5.3	25.7		11.4	9.5	21.5				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	5.0	18.0		18.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s		4.0	2.3	10.1		6.2	6.2	15.5				
Green Ext Time (p_c), s		0.2	0.0	2.5		0.5	0.0	1.4				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				24.0								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 17: Walnut Ave & Marengo Rd Year 2040 Conditions - Road Diet - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↓		↖	↑↓		↖	↑↓		↖	↑↑	↗
Traffic Volume (veh/h)	375	236	98	156	312	76	87	729	129	76	591	446
Future Volume (veh/h)	375	236	98	156	312	76	87	729	129	76	591	446
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		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1870	1870	1870	1870	1870	1900	1900	1900	1870	1900	1900
Adj Flow Rate, veh/h	408	257	107	170	339	83	95	792	140	83	642	485
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, %	0	2	2	2	2	2	0	0	0	2	0	0
Cap, veh/h	560	619	250	146	493	119	123	952	168	110	1098	735
Arrive On Green	0.16	0.25	0.25	0.08	0.17	0.17	0.07	0.31	0.31	0.06	0.30	0.30
Sat Flow, veh/h	3510	2459	993	1781	2838	686	1810	3066	542	1781	3610	1572
Grp Volume(v), veh/h	408	184	180	170	211	211	95	466	466	83	642	485
Grp Sat Flow(s),veh/h/ln	1755	1777	1675	1781	1777	1747	1810	1805	1802	1781	1805	1572
Q Serve(g_s), s	6.8	5.3	5.5	5.0	6.8	7.0	3.2	14.7	14.7	2.8	9.2	14.6
Cycle Q Clear(g_c), s	6.8	5.3	5.5	5.0	6.8	7.0	3.2	14.7	14.7	2.8	9.2	14.6
Prop In Lane	1.00		0.59	1.00		0.39	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	560	447	421	146	309	304	123	560	560	110	1098	735
V/C Ratio(X)	0.73	0.41	0.43	1.17	0.68	0.70	0.77	0.83	0.83	0.75	0.58	0.66
Avail Cap(c_a), veh/h	1005	886	836	146	523	514	222	635	634	146	1122	745
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	24.4	19.1	19.2	28.1	23.7	23.7	28.0	19.6	19.6	28.2	18.0	12.7
Incr Delay (d2), s/veh	1.8	0.6	0.7	126.5	2.6	2.9	9.7	8.4	8.4	14.4	0.8	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	2.1	2.1	7.1	2.9	2.9	1.6	6.4	6.4	1.5	3.3	4.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.3	19.7	19.9	154.6	26.3	26.6	37.8	28.0	28.0	42.6	18.8	14.8
LnGrp LOS	C	B	B	F	C	C	D	C	C	D	B	B
Approach Vol, veh/h		772			592			1027			1210	
Approach Delay, s/veh		23.2			63.3			28.9			18.8	
Approach LOS		C			E			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.3	23.5	9.5	19.9	8.7	23.1	14.3	15.1				
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	5.0	21.5	5.0	30.5	7.5	19.0	17.5	18.0				
Max Q Clear Time (g_c+14), s	14.8	16.7	7.0	7.5	5.2	16.6	8.8	9.0				
Green Ext Time (p_c), s	0.0	2.3	0.0	2.2	0.0	1.4	1.0	1.7				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											29.9	
HCM 6th LOS											C	

Intersection						
Int Delay, s/veh	0.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	30	15	5	1048	968	4
Future Vol, veh/h	30	15	5	1048	968	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	90	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	16	5	1139	1052	4

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1634	528	1056	0	-	0
Stage 1	1054	-	-	-	-	-
Stage 2	580	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	92	495	655	-	-	-
Stage 1	296	-	-	-	-	-
Stage 2	523	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	91	495	655	-	-	-
Mov Cap-2 Maneuver	209	-	-	-	-	-
Stage 1	294	-	-	-	-	-
Stage 2	523	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.1	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	655	-	259	-	-
HCM Lane V/C Ratio	0.008	-	0.189	-	-
HCM Control Delay (s)	10.5	-	22.1	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.7	-	-

Intersection						
Int Delay, s/veh	1.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔		↔	↑↑	↑	↔
Traffic Vol, veh/h	44	52	15	1010	978	10
Future Vol, veh/h	44	52	15	1010	978	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	90	-	-	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	2	2	2	2
Mvmt Flow	48	57	16	1098	1063	11

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1644	1063	1074	0	-	0
Stage 1	1063	-	-	-	-	-
Stage 2	581	-	-	-	-	-
Critical Hdwy	6.63	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	100	270	647	-	-	-
Stage 1	331	-	-	-	-	-
Stage 2	523	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	98	270	647	-	-	-
Mov Cap-2 Maneuver	224	-	-	-	-	-
Stage 1	323	-	-	-	-	-
Stage 2	523	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	29.8	0.2	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	647	-	247	-	-
HCM Lane V/C Ratio	0.025	-	0.422	-	-
HCM Control Delay (s)	10.7	-	29.8	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0.1	-	2	-	-

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 21: Marengo Rd & Simmerhorn Rd

Year 2040 Conditions - Road Diet - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↕		↖	↕	↗
Traffic Volume (veh/h)	238	140	127	106	220	19	24	764	41	75	761	196
Future Volume (veh/h)	238	140	127	106	220	19	24	764	41	75	761	196
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	259	152	138	115	239	21	26	830	45	82	827	213
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	159	197	179	147	358	31	53	1070	58	115	1233	550
Arrive On Green	0.09	0.22	0.22	0.08	0.21	0.21	0.03	0.31	0.31	0.06	0.35	0.35
Sat Flow, veh/h	1781	903	820	1781	1694	149	1781	3428	186	1781	3554	1585
Grp Volume(v), veh/h	259	0	290	115	0	260	26	430	445	82	827	213
Grp Sat Flow(s),veh/h/ln	1781	0	1723	1781	0	1843	1781	1777	1837	1781	1777	1585
Q Serve(g_s), s	5.0	0.0	8.8	3.5	0.0	7.2	0.8	12.3	12.3	2.5	11.1	5.7
Cycle Q Clear(g_c), s	5.0	0.0	8.8	3.5	0.0	7.2	0.8	12.3	12.3	2.5	11.1	5.7
Prop In Lane	1.00		0.48	1.00		0.08	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	159	0	377	147	0	390	53	555	573	115	1233	550
V/C Ratio(X)	1.62	0.00	0.77	0.78	0.00	0.67	0.49	0.78	0.78	0.71	0.67	0.39
Avail Cap(c_a), veh/h	159	0	694	159	0	742	207	716	740	207	1431	638
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.4	0.0	20.5	25.1	0.0	20.2	26.7	17.4	17.4	25.6	15.5	13.8
Incr Delay (d2), s/veh	307.8	0.0	3.3	20.5	0.0	2.0	6.9	4.0	3.9	8.0	1.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	0.0	3.6	2.1	0.0	2.7	0.4	4.7	4.8	1.2	3.7	1.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	333.2	0.0	23.9	45.7	0.0	22.2	33.6	21.5	21.3	33.6	16.5	14.2
LnGrp LOS	F	A	C	D	A	C	C	C	C	C	B	B
Approach Vol, veh/h		549			375			901			1122	
Approach Delay, s/veh		169.8			29.4			21.8			17.3	
Approach LOS		F			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	21.9	9.1	16.7	6.2	23.9	9.5	16.3				
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	6.5	22.5	5.0	22.5	6.5	22.5	5.0	22.5				
Max Q Clear Time (g_c+14), s	14.5	14.3	5.5	10.8	2.8	13.1	7.0	9.2				
Green Ext Time (p_c), s	0.0	3.2	0.0	1.3	0.0	4.1	0.0	1.0				

Intersection Summary

HCM 6th Ctrl Delay	48.6
HCM 6th LOS	D

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 22: Crystal Way & SR 99 SB Off Ramp

Year 2040 Conditions - Road Diet - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑↑	
Traffic Volume (veh/h)	0	529	110	327	487	0	0	0	0	148	258	58
Future Volume (veh/h)	0	529	110	327	487	0	0	0	0	148	258	58
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	0				1856	1856	1856
Adj Flow Rate, veh/h	0	575	120	355	529	0				161	280	63
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	919	410	745	2053	0				345	560	124
Arrive On Green	0.00	0.26	0.26	0.22	0.58	0.00				0.20	0.20	0.20
Sat Flow, veh/h	0	3618	1572	3428	3618	0				1767	2869	635
Grp Volume(v), veh/h	0	575	120	355	529	0				161	170	173
Grp Sat Flow(s),veh/h/ln	0	1763	1572	1714	1763	0				1767	1763	1741
Q Serve(g_s), s	0.0	5.5	2.3	3.5	2.8	0.0				3.1	3.3	3.4
Cycle Q Clear(g_c), s	0.0	5.5	2.3	3.5	2.8	0.0				3.1	3.3	3.4
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.36
Lane Grp Cap(c), veh/h	0	919	410	745	2053	0				345	344	340
V/C Ratio(X)	0.00	0.63	0.29	0.48	0.26	0.00				0.47	0.49	0.51
Avail Cap(c_a), veh/h	0	2121	946	807	3320	0				1780	1775	1753
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	12.5	11.3	13.1	3.9	0.0				13.6	13.7	13.7
Incr Delay (d2), s/veh	0.0	0.3	0.1	0.5	0.0	0.0				0.4	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
%ile BackOfQ(50%),veh/ln	0.0	1.7	0.6	1.1	0.4	0.0				0.9	1.0	1.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.8	11.5	13.5	3.9	0.0				14.0	14.1	14.2
LnGrp LOS	A	B	B	B	A	A				B	B	B
Approach Vol, veh/h		695			884						504	
Approach Delay, s/veh		12.5			7.8						14.1	
Approach LOS		B			A						B	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	14.0			12.0		26.3						
Change Period (Y+Rc), s	4.0	4.0		4.5		4.0						
Max Green Setting (Gmax), s	23.0			38.5		36.0						
Max Q Clear Time (g_c+15), s	7.5			5.4		4.8						
Green Ext Time (p_c), s	0.4	2.5		1.3		2.4						

Intersection Summary

HCM 6th Ctrl Delay	10.9
HCM 6th LOS	B

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 23: SR 99 NB On Ramp & Crystal Way

Year 2040 Conditions - Road Diet - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↑↑	↔	↔	↔↔				
Traffic Volume (veh/h)	241	436	0	0	653	54	161	311	360	0	0	0
Future Volume (veh/h)	241	436	0	0	653	54	161	311	360	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	262	474	0	0	710	59	175	338	391			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	448	1715	0	0	945	422	578	607	515			
Arrive On Green	0.13	0.48	0.00	0.00	0.27	0.27	0.32	0.32	0.32			
Sat Flow, veh/h	3456	3647	0	0	3647	1585	1781	1870	1585			
Grp Volume(v), veh/h	262	474	0	0	710	59	175	338	391			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	1781	1870	1585			
Q Serve(g_s), s	3.8	4.2	0.0	0.0	9.7	1.5	3.9	7.9	11.7			
Cycle Q Clear(g_c), s	3.8	4.2	0.0	0.0	9.7	1.5	3.9	7.9	11.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	448	1715	0	0	945	422	578	607	515			
V/C Ratio(X)	0.59	0.28	0.00	0.00	0.75	0.14	0.30	0.56	0.76			
Avail Cap(c_a), veh/h	588	2218	0	0	1411	629	1213	1273	1079			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	21.7	8.2	0.0	0.0	17.8	14.8	13.4	14.7	16.0			
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.0	0.5	0.1	0.1	0.3	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			
%ile BackOfQ(50%),veh/ln	1.4	1.3	0.0	0.0	3.5	0.5	1.4	3.0	3.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.1	8.2	0.0	0.0	18.3	14.9	13.5	15.0	16.9			
LnGrp LOS	C	A	A	A	B	B	B	B	B			
Approach Vol, veh/h		736			769			904				
Approach Delay, s/veh		13.2			18.0			15.5				
Approach LOS		B			B			B				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		30.6			11.5	19.2		22.3				
Change Period (Y+Rc), s		5.1			4.6	5.1		5.1				
Max Green Setting (Gmax), s		33.0			9.0	21.0		36.0				
Max Q Clear Time (g_c+I1), s		6.2			5.8	11.7		13.7				
Green Ext Time (p_c), s		2.2			0.2	2.4		3.5				

Intersection Summary

HCM 6th Ctrl Delay	15.6
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.



# HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study

## 24: Fairway Dr & C Street

Year 2040 Conditions - Road Diet - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑			↑		↑	↑↑	
Traffic Volume (veh/h)	0	615	72	530	625	0	40	0	126	284	194	217
Future Volume (veh/h)	0	615	72	530	625	0	40	0	126	284	194	217
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	0	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	668	78	576	679	0	43	0	137	309	211	236
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, %	0	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	0	969	432	458	1650	0	52	0	166	400	399	356
Arrive On Green	0.00	0.27	0.27	0.13	0.46	0.00	0.13	0.00	0.13	0.22	0.22	0.22
Sat Flow, veh/h	0	3647	1585	3456	3647	0	389	0	1239	1781	1777	1585
Grp Volume(v), veh/h	0	668	78	576	679	0	180	0	0	309	211	236
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0	1628	0	0	1781	1777	1585
Q Serve(g_s), s	0.0	11.4	2.6	9.0	8.6	0.0	7.3	0.0	0.0	11.0	7.1	9.2
Cycle Q Clear(g_c), s	0.0	11.4	2.6	9.0	8.6	0.0	7.3	0.0	0.0	11.0	7.1	9.2
Prop In Lane	0.00		1.00	1.00		0.00	0.24		0.76	1.00		1.00
Lane Grp Cap(c), veh/h	0	969	432	458	1650	0	218	0	0	400	399	356
V/C Ratio(X)	0.00	0.69	0.18	1.26	0.41	0.00	0.83	0.00	0.00	0.77	0.53	0.66
Avail Cap(c_a), veh/h	0	1205	537	458	1886	0	264	0	0	866	864	771
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	22.1	18.9	29.4	12.0	0.0	28.6	0.0	0.0	24.7	23.1	24.0
Incr Delay (d2), s/veh	0.0	2.1	0.4	132.2	0.2	0.0	13.8	0.0	0.0	1.2	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(50%),veh/ln	0.0	4.7	0.9	12.0	3.1	0.0	3.5	0.0	0.0	4.5	2.8	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	24.2	19.3	161.6	12.2	0.0	42.4	0.0	0.0	25.9	23.5	24.7
LnGrp LOS		A	C	B	F	B	A	D	A	A	C	C
Approach Vol, veh/h		746			1255			180			756	
Approach Delay, s/veh		23.7			80.8			42.4			24.9	
Approach LOS		C			F			D			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	3.0	22.5		19.2		35.5		13.1				
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s	23.0	23.0		33.0		36.0		11.0				
Max Q Clear Time (g_c+fl), s	13.4	13.4		13.0		10.6		9.3				
Green Ext Time (p_c), s	0.0	5.1		2.2		5.0		0.1				

### Intersection Summary

HCM 6th Ctrl Delay	49.5
HCM 6th LOS	D

### Notes

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

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 25: SR 99 NB Off Ramp/SR 99 NB On Ramp & C Street Year 2040 Conditions - Road Diet - AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↑↑	↔	↔	↔↔				
Traffic Volume (veh/h)	412	613	0	0	768	161	387	259	56	0	0	0
Future Volume (veh/h)	412	613	0	0	768	161	387	259	56	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	448	666	0	0	835	175	255	515	61			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	843	2023	0	0	791	348	363	669	79			
Arrive On Green	0.24	0.57	0.00	0.00	0.22	0.22	0.20	0.20	0.20			
Sat Flow, veh/h	3456	3647	0	0	3647	1562	1781	3283	388			
Grp Volume(v), veh/h	448	666	0	0	835	175	255	293	283			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1562	1781	1870	1801			
Q Serve(g_s), s	5.1	4.5	0.0	0.0	10.0	4.4	6.0	6.6	6.7			
Cycle Q Clear(g_c), s	5.1	4.5	0.0	0.0	10.0	4.4	6.0	6.6	6.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.22			
Lane Grp Cap(c), veh/h	843	2023	0	0	791	348	363	381	367			
V/C Ratio(X)	0.53	0.33	0.00	0.00	1.06	0.50	0.70	0.77	0.77			
Avail Cap(c_a), veh/h	1385	2023	0	0	791	348	397	416	401			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	14.7	5.1	0.0	0.0	17.5	15.3	16.6	16.9	16.9			
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.0	47.5	0.4	3.9	6.6	7.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.7	1.0	0.0	0.0	8.7	1.4	2.5	3.2	3.1			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	14.9	5.2	0.0	0.0	65.0	15.7	20.5	23.5	24.1			
LnGrp LOS	B	A	A	A	F	B	C	C	C			
Approach Vol, veh/h		1114			1010			831				
Approach Delay, s/veh		9.1			56.5			22.8				
Approach LOS		A			E			C				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		30.7			15.6	15.1		14.2				
Change Period (Y+Rc), s		5.1			4.6	5.1		5.1				
Max Green Setting (Gmax), s		10.0			18.0	10.0		10.0				
Max Q Clear Time (g_c+I1), s		6.5			7.1	12.0		8.7				
Green Ext Time (p_c), s		1.1			0.7	0.0		0.5				

Intersection Summary

HCM 6th Ctrl Delay	29.1
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.

# HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study

## 26: SR 99 SB On Ramp & Fairway Dr

Year 2040 Conditions - Road Diet - AM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↔		↔	↑
Traffic Volume (veh/h)	0	0	166	5	700	96
Future Volume (veh/h)	0	0	166	5	700	96
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1885	1885	1885	1885
Adj Flow Rate, veh/h			180	5	761	104
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			1	1	1	1
Cap, veh/h			377	10	892	1587
Arrive On Green			0.21	0.21	0.50	0.84
Sat Flow, veh/h			1825	51	1795	1885
Grp Volume(v), veh/h			0	185	761	104
Grp Sat Flow(s),veh/h/ln			0	1876	1795	1885
Q Serve(g_s), s			0.0	2.2	9.4	0.2
Cycle Q Clear(g_c), s			0.0	2.2	9.4	0.2
Prop In Lane				0.03	1.00	
Lane Grp Cap(c), veh/h			0	387	892	1587
V/C Ratio(X)			0.00	0.48	0.85	0.07
Avail Cap(c_a), veh/h			0	3343	2275	3359
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(l)			0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			0.0	8.8	5.6	0.3
Incr Delay (d2), s/veh			0.0	0.3	0.9	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.6	0.8	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	9.2	6.5	0.3
LnGrp LOS			A	A	A	A
Approach Vol, veh/h			185			865
Approach Delay, s/veh			9.2			5.7
Approach LOS			A			A
Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	6.0	9.2				25.3
Change Period (Y+Rc), s	3.5	4.0				* 4
Max Green Setting (Gmax), s	32.0	45.0				* 45
Max Q Clear Time (g_c+I1), s	11.4	4.2				2.2
Green Ext Time (p_c), s	1.3	0.7				0.3
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			6.3			
HCM 6th LOS			A			
<b>Notes</b>						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 12: Marengo Rd & Twin Cities Rd

Year 2040 Conditions - Road Diet - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	38	756	113	225	453	16	204	67	207	20	56	40
Future Volume (veh/h)	38	756	113	225	453	16	204	67	207	20	56	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	41	822	123	245	492	17	222	73	225	22	61	43
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	75	1022	456	237	1327	46	368	94	290	46	156	110
Arrive On Green	0.04	0.29	0.29	0.13	0.38	0.38	0.11	0.23	0.23	0.03	0.15	0.15
Sat Flow, veh/h	1781	3554	1585	1781	3505	121	3456	403	1243	1781	1021	720
Grp Volume(v), veh/h	41	822	123	245	249	260	222	0	298	22	0	104
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1781	1777	1849	1728	0	1647	1781	0	1741
Q Serve(g_s), s	1.3	12.1	3.4	7.5	5.7	5.7	3.5	0.0	9.5	0.7	0.0	3.0
Cycle Q Clear(g_c), s	1.3	12.1	3.4	7.5	5.7	5.7	3.5	0.0	9.5	0.7	0.0	3.0
Prop In Lane	1.00		1.00	1.00		0.07	1.00		0.76	1.00		0.41
Lane Grp Cap(c), veh/h	75	1022	456	237	673	700	368	0	385	46	0	266
V/C Ratio(X)	0.55	0.80	0.27	1.03	0.37	0.37	0.60	0.00	0.77	0.48	0.00	0.39
Avail Cap(c_a), veh/h	158	1136	507	237	673	700	1105	0	921	158	0	572
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	26.4	18.6	15.5	24.4	12.6	12.6	24.0	0.0	20.2	27.0	0.0	21.5
Incr Delay (d2), s/veh	6.1	3.9	0.3	67.1	0.3	0.3	1.6	0.0	3.4	7.5	0.0	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(50%),veh/ln	0.6	5.0	1.0	7.2	1.8	1.9	1.3	0.0	3.4	0.4	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.5	22.5	15.8	91.5	13.0	13.0	25.6	0.0	23.6	34.5	0.0	22.4
LnGrp LOS	C	C	B	F	B	B	C	A	C	C	A	C
Approach Vol, veh/h		986			754			520			126	
Approach Delay, s/veh		22.1			38.5			24.4			24.5	
Approach LOS		C			D			C			C	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	6.0	17.6	12.0	20.7	10.5	13.1	6.9	25.8				
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5				
Max Green Setting (Gmax), s	5.0	31.5	7.5	18.0	18.0	18.5	5.0	20.5				
Max Q Clear Time (g_c+1/2), s	11.5	11.5	9.5	14.1	5.5	5.0	3.3	7.7				
Green Ext Time (p_c), s	0.0	1.6	0.0	2.1	0.5	0.4	0.0	2.2				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay												27.9
HCM 6th LOS												C

Intersection						
Int Delay, s/veh	2.5					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	W		W	↑↑	↑↑	
Traffic Vol, veh/h	15	110	140	463	373	20
Future Vol, veh/h	15	110	140	463	373	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	150	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	16	120	152	503	405	22

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	972	214	427	0	-	0
Stage 1	416	-	-	-	-	-
Stage 2	556	-	-	-	-	-
Critical Hdwy	6.82	6.92	4.12	-	-	-
Critical Hdwy Stg 1	5.82	-	-	-	-	-
Critical Hdwy Stg 2	5.82	-	-	-	-	-
Follow-up Hdwy	3.51	3.31	2.21	-	-	-
Pot Cap-1 Maneuver	252	794	1136	-	-	-
Stage 1	637	-	-	-	-	-
Stage 2	541	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	218	794	1136	-	-	-
Mov Cap-2 Maneuver	218	-	-	-	-	-
Stage 1	552	-	-	-	-	-
Stage 2	541	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1136	-	603	-	-
HCM Lane V/C Ratio	0.134	-	0.225	-	-
HCM Control Delay (s)	8.7	-	12.7	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0.5	-	0.9	-	-

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 14: E. Stockton Blvd & SR 99 NB Ramps/Walnut Ave Year 2040 Conditions - Road Diet - PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	147	793	0	0	908	365	120	0	311	0	0	0
Future Volume (veh/h)	147	793	0	0	908	365	120	0	311	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.98	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			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	160	862	0	0	987	397	130	0	338			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	186	1938	0	0	1234	539	476	0	417			
Arrive On Green	0.10	0.55	0.00	0.00	0.35	0.35	0.27	0.00	0.27			
Sat Flow, veh/h	1781	3647	0	0	3647	1552	1781	0	1562			
Grp Volume(v), veh/h	160	862	0	0	987	397	130	0	338			
Grp Sat Flow(s),veh/h/ln	1781	1777	0	0	1777	1552	1781	0	1562			
Q Serve(g_s), s	4.2	7.0	0.0	0.0	12.0	10.8	2.8	0.0	9.7			
Cycle Q Clear(g_c), s	4.2	7.0	0.0	0.0	12.0	10.8	2.8	0.0	9.7			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	186	1938	0	0	1234	539	476	0	417			
V/C Ratio(X)	0.86	0.44	0.00	0.00	0.80	0.74	0.27	0.00	0.81			
Avail Cap(c_a), veh/h	186	2039	0	0	1334	583	669	0	586			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	21.1	6.5	0.0	0.0	14.1	13.7	13.9	0.0	16.4			
Incr Delay (d2), s/veh	31.3	0.2	0.0	0.0	3.3	4.5	0.3	0.0	5.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.1	1.4	0.0	0.0	4.1	3.4	0.9	0.0	3.4			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.5	6.7	0.0	0.0	17.5	18.2	14.2	0.0	22.3			
LnGrp LOS	D	A	A	A	B	B	B	A	C			
Approach Vol, veh/h		1022			1384			468				
Approach Delay, s/veh		13.9			17.7			20.0				
Approach LOS		B			B			C				
Timer - Assigned Phs		2		4			7	8				
Phs Duration (G+Y+Rc), s		17.3		30.6			9.5	21.1				
Change Period (Y+Rc), s		4.5		4.5			4.5	4.5				
Max Green Setting (Gmax), s		18.0		27.5			5.0	18.0				
Max Q Clear Time (g_c+I1), s		11.7		9.0			6.2	14.0				
Green Ext Time (p_c), s		1.1		5.3			0.0	2.6				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				16.7								
HCM 6th LOS				B								

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 15: Walnut Ave & Vintage Oak Ave Year 2040 Conditions - Road Diet - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	224	726	87	21	819	25	61	23	16	23	19	184
Future Volume (veh/h)	224	726	87	21	819	25	61	23	16	23	19	184
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856	1856
Adj Flow Rate, veh/h	243	789	95	23	890	27	66	25	17	25	21	200
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	3	3	3
Cap, veh/h	287	1367	165	46	1035	31	100	38	26	31	26	245
Arrive On Green	0.16	0.43	0.43	0.03	0.30	0.30	0.09	0.09	0.09	0.19	0.19	0.19
Sat Flow, veh/h	1767	3160	380	1767	3493	106	1071	406	276	163	137	1305
Grp Volume(v), veh/h	243	440	444	23	449	468	108	0	0	246	0	0
Grp Sat Flow(s),veh/h/ln	1767	1763	1778	1767	1763	1836	1752	0	0	1605	0	0
Q Serve(g_s), s	9.3	13.1	13.1	0.9	16.7	16.7	4.1	0.0	0.0	10.2	0.0	0.0
Cycle Q Clear(g_c), s	9.3	13.1	13.1	0.9	16.7	16.7	4.1	0.0	0.0	10.2	0.0	0.0
Prop In Lane	1.00		0.21	1.00		0.06	0.61		0.16	0.10		0.81
Lane Grp Cap(c), veh/h	287	763	769	46	522	544	164	0	0	302	0	0
V/C Ratio(X)	0.85	0.58	0.58	0.50	0.86	0.86	0.66	0.00	0.00	0.82	0.00	0.00
Avail Cap(c_a), veh/h	319	763	769	130	572	596	480	0	0	417	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	28.2	14.9	14.9	33.3	23.0	23.0	30.3	0.0	0.0	27.0	0.0	0.0
Incr Delay (d2), s/veh	17.5	1.1	1.1	8.4	11.8	11.4	4.4	0.0	0.0	8.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	4.5	4.6	0.5	7.7	8.0	1.9	0.0	0.0	4.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.7	15.9	15.9	41.7	34.8	34.4	34.7	0.0	0.0	35.5	0.0	0.0
LnGrp LOS	D	B	B	D	C	C	C	A	A	D	A	A
Approach Vol, veh/h		1127			940			108			246	
Approach Delay, s/veh		22.4			34.8			34.7			35.5	
Approach LOS		C			C			C			D	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		11.0	6.3	34.5		17.5	15.7	25.0				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		19.0	5.1	29.9		18.0	12.5	22.5				
Max Q Clear Time (g_c+I1), s		6.1	2.9	15.1		12.2	11.3	18.7				
Green Ext Time (p_c), s		0.4	0.0	4.5		0.7	0.1	1.9				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											29.1	
HCM 6th LOS											C	

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 16: Walnut Ave & Elk Hills Dr

Year 2040 Conditions - Road Diet - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	83	435	53	5	576	36	38	24	5	23	31	34
Future Volume (veh/h)	83	435	53	5	576	36	38	24	5	23	31	34
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.96	1.00		0.98	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885	1885
Adj Flow Rate, veh/h	90	473	58	5	626	39	41	26	5	25	34	37
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	1	1	1	1	1	1	1	1	1	1	1
Cap, veh/h	116	889	108	12	749	47	246	156	30	108	147	160
Arrive On Green	0.06	0.28	0.28	0.01	0.22	0.22	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1795	3206	391	1795	3415	212	1030	653	126	453	616	671
Grp Volume(v), veh/h	90	263	268	5	328	337	72	0	0	96	0	0
Grp Sat Flow(s),veh/h/ln	1795	1791	1806	1795	1791	1837	1808	0	0	1740	0	0
Q Serve(g_s), s	3.7	9.4	9.5	0.2	13.2	13.2	2.4	0.0	0.0	3.4	0.0	0.0
Cycle Q Clear(g_c), s	3.7	9.4	9.5	0.2	13.2	13.2	2.4	0.0	0.0	3.4	0.0	0.0
Prop In Lane	1.00		0.22	1.00		0.12	0.57		0.07	0.26		0.39
Lane Grp Cap(c), veh/h	116	496	501	12	393	403	432	0	0	415	0	0
V/C Ratio(X)	0.78	0.53	0.53	0.42	0.83	0.84	0.17	0.00	0.00	0.23	0.00	0.00
Avail Cap(c_a), veh/h	119	496	501	119	428	439	432	0	0	415	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	34.7	23.1	23.1	37.3	28.1	28.1	22.8	0.0	0.0	23.1	0.0	0.0
Incr Delay (d2), s/veh	26.7	1.1	1.1	22.1	12.5	12.5	0.8	0.0	0.0	1.3	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	2.4	3.7	3.8	0.2	6.5	6.7	1.1	0.0	0.0	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.4	24.2	24.2	59.4	40.7	40.6	23.6	0.0	0.0	24.4	0.0	0.0
LnGrp LOS	E	C	C	E	D	D	C	A	A	C	A	A
Approach Vol, veh/h		621			670			72			96	
Approach Delay, s/veh		29.6			40.8			23.6			24.4	
Approach LOS		C			D			C			C	
Timer - Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s		22.5	5.0	25.4		22.5	9.4	21.0				
Change Period (Y+Rc), s		4.5	4.5	4.5		4.5	4.5	4.5				
Max Green Setting (Gmax), s		18.0	5.0	18.0		18.0	5.0	18.0				
Max Q Clear Time (g_c+I1), s		4.4	2.2	11.5		5.4	5.7	15.2				
Green Ext Time (p_c), s		0.2	0.0	1.6		0.3	0.0	1.0				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay											34.1	
HCM 6th LOS											C	



HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 17: Walnut Ave & Marengo Rd

Year 2040 Conditions - Road Diet - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑↘		↖	↑↘		↖	↑↘		↖	↑↑	↗
Traffic Volume (veh/h)	215	236	73	156	312	76	72	609	129	76	551	296
Future Volume (veh/h)	215	236	73	156	312	76	72	609	129	76	551	296
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		1.00	1.00		1.00	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	1900	1870	1870	1870	1870	1870	1900	1900	1900	1870	1900	1900
Adj Flow Rate, veh/h	234	257	79	170	339	83	78	662	140	83	599	322
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, %	0	2	2	2	2	2	0	0	0	2	0	0
Cap, veh/h	383	533	160	167	521	126	116	898	190	118	1100	479
Arrive On Green	0.11	0.20	0.20	0.09	0.18	0.18	0.06	0.30	0.30	0.07	0.30	0.30
Sat Flow, veh/h	3510	2684	805	1781	2838	686	1810	2966	626	1781	3610	1572
Grp Volume(v), veh/h	234	168	168	170	211	211	78	403	399	83	599	322
Grp Sat Flow(s),veh/h/ln	1755	1777	1712	1781	1777	1747	1810	1805	1787	1781	1805	1572
Q Serve(g_s), s	3.4	4.5	4.6	5.0	5.8	6.0	2.2	10.6	10.7	2.4	7.4	9.5
Cycle Q Clear(g_c), s	3.4	4.5	4.6	5.0	5.8	6.0	2.2	10.6	10.7	2.4	7.4	9.5
Prop In Lane	1.00		0.47	1.00		0.39	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	383	353	340	167	326	320	116	546	541	118	1100	479
V/C Ratio(X)	0.61	0.48	0.49	1.02	0.65	0.66	0.67	0.74	0.74	0.70	0.54	0.67
Avail Cap(c_a), veh/h	1155	1019	982	167	601	591	255	730	723	167	1290	562
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.6	18.9	18.9	24.1	20.1	20.2	24.3	16.6	16.7	24.3	15.4	16.2
Incr Delay (d2), s/veh	1.6	1.0	1.1	73.5	2.1	2.3	6.5	2.7	2.7	7.3	0.4	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	1.8	1.8	5.4	2.4	2.4	1.0	3.9	3.9	1.1	2.5	3.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.2	19.9	20.1	97.6	22.3	22.5	30.8	19.3	19.4	31.6	15.8	18.7
LnGrp LOS	C	B	C	F	C	C	C	B	B	C	B	B
Approach Vol, veh/h		570			592			880			1004	
Approach Delay, s/veh		21.7			44.0			20.4			18.0	
Approach LOS		C			D			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.0	20.6	9.5	15.1	7.9	20.7	10.3	14.3				
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	5.0	21.5	5.0	30.5	7.5	19.0	17.5	18.0				
Max Q Clear Time (g_c+1/4), s	14.4	12.7	7.0	6.6	4.2	11.5	5.4	8.0				
Green Ext Time (p_c), s	0.0	3.0	0.0	2.0	0.0	2.9	0.6	1.8				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				24.4								
HCM 6th LOS				C								

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	15	10	963	883	4
Future Vol, veh/h	10	15	10	963	883	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	90	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	16	11	1047	960	4

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1508	482	964	0	-	0
Stage 1	962	-	-	-	-	-
Stage 2	546	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	111	530	710	-	-	-
Stage 1	331	-	-	-	-	-
Stage 2	544	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	109	530	710	-	-	-
Mov Cap-2 Maneuver	232	-	-	-	-	-
Stage 1	326	-	-	-	-	-
Stage 2	544	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.2	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	710	-	350	-	-
HCM Lane V/C Ratio	0.015	-	0.078	-	-
HCM Control Delay (s)	10.1	-	16.2	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Intersection						
Int Delay, s/veh	1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	24	57	10	955	898	10
Future Vol, veh/h	24	57	10	955	898	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	90	-	-	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	2	2	2	2
Mvmt Flow	26	62	11	1038	976	11

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1517	976	987	0	-	0
Stage 1	976	-	-	-	-	-
Stage 2	541	-	-	-	-	-
Critical Hdwy	6.63	6.23	4.13	-	-	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	2.219	-	-	-
Pot Cap-1 Maneuver	120	304	698	-	-	-
Stage 1	364	-	-	-	-	-
Stage 2	548	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	118	304	698	-	-	-
Mov Cap-2 Maneuver	248	-	-	-	-	-
Stage 1	358	-	-	-	-	-
Stage 2	548	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.2	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	698	-	285	-	-
HCM Lane V/C Ratio	0.016	-	0.309	-	-
HCM Control Delay (s)	10.2	-	23.2	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0	-	1.3	-	-

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 21: Marengo Rd & Simmerhorn Rd Year 2040 Conditions - Road Diet - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	193	145	52	86	255	24	49	749	51	75	681	196
Future Volume (veh/h)	193	145	52	86	255	24	49	749	51	75	681	196
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	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	210	158	57	93	277	26	53	814	55	82	740	213
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, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	160	306	110	122	357	33	89	1051	71	115	1157	516
Arrive On Green	0.09	0.23	0.23	0.07	0.21	0.21	0.05	0.31	0.31	0.06	0.33	0.33
Sat Flow, veh/h	1781	1312	473	1781	1684	158	1781	3378	228	1781	3554	1585
Grp Volume(v), veh/h	210	0	215	93	0	303	53	428	441	82	740	213
Grp Sat Flow(s),veh/h/ln	1781	0	1785	1781	0	1842	1781	1777	1829	1781	1777	1585
Q Serve(g_s), s	5.0	0.0	5.9	2.9	0.0	8.7	1.6	12.2	12.2	2.5	9.9	5.8
Cycle Q Clear(g_c), s	5.0	0.0	5.9	2.9	0.0	8.7	1.6	12.2	12.2	2.5	9.9	5.8
Prop In Lane	1.00		0.27	1.00		0.09	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	160	0	416	122	0	390	89	553	569	115	1157	516
V/C Ratio(X)	1.32	0.00	0.52	0.76	0.00	0.78	0.59	0.77	0.77	0.71	0.64	0.41
Avail Cap(c_a), veh/h	160	0	720	160	0	743	208	717	738	208	1433	639
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.4	0.0	18.6	25.5	0.0	20.7	25.9	17.4	17.4	25.6	16.0	14.7
Incr Delay (d2), s/veh	179.2	0.0	1.0	14.5	0.0	3.3	6.1	4.0	3.9	8.0	0.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	2.3	1.5	0.0	3.3	0.8	4.6	4.7	1.2	3.3	1.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	204.6	0.0	19.6	40.0	0.0	24.1	32.1	21.4	21.3	33.6	16.7	15.2
LnGrp LOS	F	A	B	D	A	C	C	C	C	C	B	B
Approach Vol, veh/h		425			396			922			1035	
Approach Delay, s/veh		111.0			27.8			22.0			17.7	
Approach LOS		F			C			C			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	8.1	21.9	8.3	17.5	7.3	22.7	9.5	16.3				
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	14.5	22.5	5.0	22.5	6.5	22.5	5.0	22.5				
Max Q Clear Time (g_c+14.5), s	14.5	14.2	4.9	7.9	3.6	11.9	7.0	10.7				
Green Ext Time (p_c), s	0.0	3.2	0.0	1.0	0.0	3.9	0.0	1.1				
<b>Intersection Summary</b>												
HCM 6th Ctrl Delay				34.8								
HCM 6th LOS				C								

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 22: Crystal Way & SR 99 SB Off Ramp

Year 2040 Conditions - Road Diet - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑					↑	↑↑	
Traffic Volume (veh/h)	0	474	65	326	467	0	0	0	0	148	258	108
Future Volume (veh/h)	0	474	65	326	467	0	0	0	0	148	258	108
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	1856	1856	1856	1856	0				1856	1856	1856
Adj Flow Rate, veh/h	0	515	71	354	508	0				161	280	117
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	3	3	3	3	0				3	3	3
Cap, veh/h	0	849	379	763	2012	0				355	491	200
Arrive On Green	0.00	0.24	0.24	0.22	0.57	0.00				0.20	0.20	0.20
Sat Flow, veh/h	0	3618	1572	3428	3618	0				1767	2443	996
Grp Volume(v), veh/h	0	515	71	354	508	0				161	200	197
Grp Sat Flow(s),veh/h/ln	0	1763	1572	1714	1763	0				1767	1763	1676
Q Serve(g_s), s	0.0	4.8	1.3	3.3	2.7	0.0				3.0	3.8	4.0
Cycle Q Clear(g_c), s	0.0	4.8	1.3	3.3	2.7	0.0				3.0	3.8	4.0
Prop In Lane	0.00		1.00	1.00		0.00				1.00		0.59
Lane Grp Cap(c), veh/h	0	849	379	763	2012	0				355	354	337
V/C Ratio(X)	0.00	0.61	0.19	0.46	0.25	0.00				0.45	0.57	0.58
Avail Cap(c_a), veh/h	0	2179	972	829	3410	0				1828	1823	1734
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	12.6	11.2	12.5	4.0	0.0				13.1	13.4	13.5
Incr Delay (d2), s/veh	0.0	0.3	0.1	0.4	0.0	0.0				0.3	0.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.5	0.4	1.0	0.4	0.0				0.9	1.1	1.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	12.8	11.3	13.0	4.0	0.0				13.4	13.9	14.1
LnGrp LOS		A	B	B	A	A				B	B	B
Approach Vol, veh/h		586		862						558		
Approach Delay, s/veh		12.6		7.7						13.8		
Approach LOS		B		A						B		
Timer - Assigned Phs	1	2	4		6							
Phs Duration (G+Y+Rc), s	2.3	13.0	12.0		25.2							
Change Period (Y+Rc), s	4.0	4.0	4.5		4.0							
Max Green Setting (Gmax), s	23.0	23.0	38.5		36.0							
Max Q Clear Time (g_c+1/3), s	6.8	6.8	6.0		4.7							
Green Ext Time (p_c), s	0.5	2.1	1.5		2.3							

Intersection Summary

HCM 6th Ctrl Delay		10.9											
HCM 6th LOS		B											

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 23: SR 99 NB On Ramp & Crystal Way

Year 2040 Conditions - Road Diet - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↑↑	↔	↔	↔↔				
Traffic Volume (veh/h)	191	431	0	0	647	55	146	336	360	0	0	0
Future Volume (veh/h)	191	431	0	0	647	55	146	336	360	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	208	468	0	0	703	60	159	365	391			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	438	1702	0	0	940	419	582	611	518			
Arrive On Green	0.13	0.48	0.00	0.00	0.26	0.26	0.33	0.33	0.33			
Sat Flow, veh/h	3456	3647	0	0	3647	1585	1781	1870	1585			
Grp Volume(v), veh/h	208	468	0	0	703	60	159	365	391			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1585	1781	1870	1585			
Q Serve(g_s), s	2.9	4.2	0.0	0.0	9.5	1.5	3.5	8.6	11.6			
Cycle Q Clear(g_c), s	2.9	4.2	0.0	0.0	9.5	1.5	3.5	8.6	11.6			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	438	1702	0	0	940	419	582	611	518			
V/C Ratio(X)	0.47	0.27	0.00	0.00	0.75	0.14	0.27	0.60	0.75			
Avail Cap(c_a), veh/h	592	2232	0	0	1421	634	1221	1282	1086			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	21.3	8.2	0.0	0.0	17.7	14.8	13.1	14.8	15.8			
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.0	0.5	0.1	0.1	0.3	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			
%ile BackOfQ(50%),veh/ln	1.1	1.3	0.0	0.0	3.4	0.5	1.2	3.2	3.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.6	8.2	0.0	0.0	18.2	14.8	13.2	15.1	16.7			
LnGrp LOS	C	A	A	A	B	B	B	B	B			
Approach Vol, veh/h		676			763			915				
Approach Delay, s/veh		12.4			17.9			15.4				
Approach LOS		B			B			B				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		30.3			11.3	19.0		22.3				
Change Period (Y+Rc), s		5.1			4.6	5.1		5.1				
Max Green Setting (Gmax), s		33.0			9.0	21.0		36.0				
Max Q Clear Time (g_c+I1), s		6.2			4.9	11.5		13.6				
Green Ext Time (p_c), s		2.2			0.1	2.4		3.6				

Intersection Summary

HCM 6th Ctrl Delay	15.4
HCM 6th LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

# HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study

## 24: Fairway Dr & C Street

Year 2040 Conditions - Road Diet - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↑	↑↑	↑↑			↑		↑	↑↑	
Traffic Volume (veh/h)	0	620	92	470	645	0	75	0	131	289	148	212
Future Volume (veh/h)	0	620	92	470	645	0	75	0	131	289	148	212
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No		No		No		No		No		No
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	674	100	511	701	0	82	0	142	314	161	230
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, %	0	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	0	955	426	439	1608	0	94	0	163	396	395	353
Arrive On Green	0.00	0.27	0.27	0.13	0.45	0.00	0.16	0.00	0.16	0.22	0.22	0.22
Sat Flow, veh/h	0	3647	1585	3456	3647	0	605	0	1047	1781	1777	1585
Grp Volume(v), veh/h	0	674	100	511	701	0	224	0	0	314	161	230
Grp Sat Flow(s),veh/h/ln	0	1777	1585	1728	1777	0	1652	0	0	1781	1777	1585
Q Serve(g_s), s	0.0	12.1	3.5	9.0	9.5	0.0	9.4	0.0	0.0	11.8	5.5	9.3
Cycle Q Clear(g_c), s	0.0	12.1	3.5	9.0	9.5	0.0	9.4	0.0	0.0	11.8	5.5	9.3
Prop In Lane	0.00		1.00	1.00		0.00	0.37		0.63	1.00		1.00
Lane Grp Cap(c), veh/h	0	955	426	439	1608	0	257	0	0	396	395	353
V/C Ratio(X)	0.00	0.71	0.23	1.16	0.44	0.00	0.87	0.00	0.00	0.79	0.41	0.65
Avail Cap(c_a), veh/h	0	1155	515	439	1808	0	257	0	0	831	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)	0.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	23.3	20.2	30.9	13.2	0.0	29.2	0.0	0.0	26.0	23.5	25.0
Incr Delay (d2), s/veh	0.0	2.4	0.6	95.6	0.2	0.0	25.4	0.0	0.0	1.4	0.3	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.1	1.3	9.4	3.5	0.0	5.3	0.0	0.0	4.9	2.2	3.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	25.8	20.8	126.5	13.4	0.0	54.6	0.0	0.0	27.3	23.8	25.8
LnGrp LOS		A	C	C	F	B	A	D	A	A	C	C
Approach Vol, veh/h		774			1212			224			705	
Approach Delay, s/veh		25.1			61.1			54.6			26.0	
Approach LOS		C			E			D			C	
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	3.0	23.0		19.7		36.0		15.0				
Change Period (Y+Rc), s	4.0	4.0		4.0		4.0		4.0				
Max Green Setting (Gmax), s	3.0	23.0		33.0		36.0		11.0				
Max Q Clear Time (g_c+I1), s	3.0	14.1		13.8		11.5		11.4				
Green Ext Time (p_c), s	0.0	4.9		2.0		5.2		0.0				

### Intersection Summary

HCM 6th Ctrl Delay	42.6
HCM 6th LOS	D

### Notes

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

HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study  
 25: SR 99 NB Off Ramp/SR 99 NB On Ramp & C Street Year 2040 Conditions - Road Diet - PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↑↑			↑↑	↔	↔	↔↔				
Traffic Volume (veh/h)	427	613	0	0	698	131	417	284	76	0	0	0
Future Volume (veh/h)	427	613	0	0	698	131	417	284	76	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	1870	0	0	1870	1870	1870	1870	1870			
Adj Flow Rate, veh/h	464	666	0	0	759	142	282	549	83			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	833	1998	0	0	781	344	380	678	102			
Arrive On Green	0.24	0.56	0.00	0.00	0.22	0.22	0.21	0.21	0.21			
Sat Flow, veh/h	3456	3647	0	0	3647	1562	1781	3176	479			
Grp Volume(v), veh/h	464	666	0	0	759	142	282	323	309			
Grp Sat Flow(s),veh/h/ln	1728	1777	0	0	1777	1562	1781	1870	1784			
Q Serve(g_s), s	5.4	4.6	0.0	0.0	9.6	3.5	6.7	7.5	7.5			
Cycle Q Clear(g_c), s	5.4	4.6	0.0	0.0	9.6	3.5	6.7	7.5	7.5			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		0.27			
Lane Grp Cap(c), veh/h	833	1998	0	0	781	344	380	399	381			
V/C Ratio(X)	0.56	0.33	0.00	0.00	0.97	0.41	0.74	0.81	0.81			
Avail Cap(c_a), veh/h	1368	1998	0	0	781	344	392	411	392			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(l)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00			
Uniform Delay (d), s/veh	15.1	5.4	0.0	0.0	17.6	15.2	16.7	17.0	17.0			
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.0	25.1	0.3	6.2	10.2	11.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.8	1.1	0.0	0.0	6.1	1.1	3.0	3.9	3.8			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	15.3	5.4	0.0	0.0	42.7	15.5	23.0	27.2	28.1			
LnGrp LOS	B	A	A	A	D	B	C	C	C			
Approach Vol, veh/h		1130			901			914				
Approach Delay, s/veh		9.5			38.4			26.2				
Approach LOS		A			D			C				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		30.7			15.6	15.1		14.8				
Change Period (Y+Rc), s		5.1			4.6	5.1		5.1				
Max Green Setting (Gmax), s		10.0			18.0	10.0		10.0				
Max Q Clear Time (g_c+I1), s		6.6			7.4	11.6		9.5				
Green Ext Time (p_c), s		1.1			0.7	0.0		0.2				

Intersection Summary

HCM 6th Ctrl Delay	23.5
HCM 6th LOS	C

Notes

- User approved pedestrian interval to be less than phase max green.
- User approved volume balancing among the lanes for turning movement.



# HCM 6th Signalized Intersection Summary Carillion Boulevard Complete Street Corridor Study

## 26: SR 99 SB On Ramp & Fairway Dr

Year 2040 Conditions - Road Diet - PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			↶		↷	↶
Traffic Volume (veh/h)	0	0	206	15	620	90
Future Volume (veh/h)	0	0	206	15	620	90
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			1885	1885	1885	1885
Adj Flow Rate, veh/h			224	16	674	98
Peak Hour Factor			0.92	0.92	0.92	0.92
Percent Heavy Veh, %			1	1	1	1
Cap, veh/h			395	28	814	1564
Arrive On Green			0.23	0.23	0.45	0.83
Sat Flow, veh/h			1739	124	1795	1885
Grp Volume(v), veh/h			0	240	674	98
Grp Sat Flow(s),veh/h/ln			0	1863	1795	1885
Q Serve(g_s), s			0.0	2.7	7.7	0.2
Cycle Q Clear(g_c), s			0.0	2.7	7.7	0.2
Prop In Lane				0.07	1.00	
Lane Grp Cap(c), veh/h			0	423	814	1564
V/C Ratio(X)			0.00	0.57	0.83	0.06
Avail Cap(c_a), veh/h			0	3568	2446	3611
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(l)			0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			0.0	8.1	5.6	0.4
Incr Delay (d2), s/veh			0.0	0.4	0.8	0.0
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.0	0.6	0.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			0.0	8.5	6.5	0.4
LnGrp LOS			A	A	A	A
Approach Vol, veh/h			240			772
Approach Delay, s/veh			8.5			5.7
Approach LOS			A			A
Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	4.2	9.3				23.5
Change Period (Y+Rc), s	3.5	4.0				* 4
Max Green Setting (Gmax), s	32.0	45.0				* 45
Max Q Clear Time (g_c+19.7), s	19.7	4.7				2.2
Green Ext Time (p_c), s	1.1	0.9				0.3
<b>Intersection Summary</b>						
HCM 6th Ctrl Delay			6.4			
HCM 6th LOS			A			
<b>Notes</b>						
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.						

## Arterial Level of Service: NB Carillion Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
A Street	II	45	23.6	24.5	48.1	0.22	16.2	E
Simmerhorn Rd	II	45	28.2	43.0	71.2	0.28	14.4	E
Ambrogio Way	II	45	77.6	24.5	102.1	0.97	34.2	B
Walnut Ave	II	45	26.6	23.0	49.6	0.26	18.6	D
Elk Hills Dr	II	45	31.5	17.2	48.7	0.32	23.5	C
Lake Canyon Ave	II	45	25.2	16.0	41.2	0.24	21.1	D
Lake Park Ave	II	45	26.1	20.3	46.4	0.25	19.5	D
Twin Cities Rd	II	45	9.9	32.9	42.8	0.09	7.7	F
Total	II		248.7	201.4	450.1	2.63	21.0	D

## Arterial Level of Service: SB Carillion Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lake Park Ave	II	45	9.9	29.2	39.1	0.09	8.4	F
Lake Canyon Ave	II	45	26.1	23.7	49.8	0.25	18.1	D
Elk Hills Dr	II	45	25.2	15.2	40.4	0.24	21.6	D
Walnut Ave	II	45	31.5	30.7	62.2	0.32	18.4	D
Vintage Oak Ave	II	45	26.6	41.9	68.5	0.26	13.5	E
Simmerhorn Rd	II	45	77.6	15.4	93.0	0.97	37.6	A
A Street	II	45	28.2	31.6	59.8	0.28	17.1	D
Total	II		225.1	187.7	412.8	2.41	21.0	D

## Arterial Level of Service: NB Carillion Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Ambrogio Way	II	45	77.6	24.0	101.6	0.97	34.4	B
Walnut Ave	II	45	26.6	24.0	50.6	0.26	18.2	D
Elk Hills Dr	II	25	48.6	12.8	61.4	0.32	18.6	D
Lake Canyon Ave	II	30	30.7	13.7	44.4	0.24	19.6	D
Lake Park Ave	II	45	26.1	20.4	46.5	0.25	19.4	D
Twin Cities Rd	II	45	10.2	30.8	41.0	0.09	8.2	F
Total	II		219.8	125.7	345.5	2.13	22.2	C

## Arterial Level of Service: SB Carillion Blvd

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Lake Park Ave	II	45	10.2	35.1	45.3	0.09	7.4	F
Lake Canyon Ave	II	30	31.8	18.3	50.1	0.25	18.0	D
Elk Hills Dr	II	45	25.2	11.8	37.0	0.24	23.5	C
Walnut Ave	II	45	31.4	31.2	62.6	0.32	18.3	D
Vintage Oak Ave	II	45	26.6	26.8	53.4	0.26	17.3	D
Simmerhorn Rd	II	41	86.2	27.8	114.0	0.97	30.7	B
Total	II		211.4	151.0	362.4	2.13	21.2	D