






















HCM 2010 Signalized Intersection Capacity Analysis

8: Dreher Ave/School Drive & Main Street

3/27/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	113	432	79	130	345	207	24	56	220	103	45	54
Movement Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A _{pbT})	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1456	1695	1695	1660	1613	1602	1561	1698	1698	1609	1609	1609
Lanes	1	1	0	1	1	1	1	1	0	1	1	0
Lane Assignment												
Capacity, veh/h	520	979	167	0	1120	927	247	64	301	50	155	186
Proportion Arriving On Green	0.69	0.69	0.69	0.01	0.69	0.68	0.25	0.25	0.25	0.23	0.23	0.23
Movement Delay, s/veh	15.2	0.0	12.5	0.0	10.0	9.8	51.4	0.0	90.1	686.4	0.0	48.2
Movement LOS	B		B		A	A	D		F	F		D
Approach Volume, veh/h		711			600			376			220	
Approach Delay, s/veh		13.0			9.9			87.0			373.6	
Approach LOS		B			A			F			F	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phase			2		4		6		8			
Case No			6.3		6.0		3.0		6.0			
Phase Duration (G+Y+Rc), s			109.10		40.90		109.10		40.90			
Change Period (Y+Rc), s			7.00		6.00		7.00		6.00			
Max. Allowable Headway (MAH), s			3.68		4.63		3.68		4.63			
Maximum Green Setting (G _{max}), s			85.10		34.90		102.10		34.90			
Max. Queue Clearance Time (g _c +I ₁), s			27.38		36.90		15.90		36.52			
Green Extension Time (g _e), s			4.44		0.00		4.44		0.00			
Probability of Phase Call (p _c)			1.000		1.000		1.000		1.000			
Probability of Max Out (p _x)			0.000		1.000		0.000		1.000			
Left-Turn Movement Data												
Assigned Movement			5		7				3			
Mvmt. Sat Flow, veh/h			784.58		889.48				1073.27			
Through Movement Data												
Assigned Movement			2		4		6		8			
Mvmt. Sat Flow, veh/h			1410.96		667.00		1613.21		260.29			
Right-Turn Movement Data												
Assigned Movement			12		14		16		18			
Mvmt. Sat Flow, veh/h			241.19		800.40		1361.84		1221.78			
Left Lane Group Data												
Assigned Movement		0	5	0	7	0	0	0	3			
Lane Assignment			L		L				L			
Lanes in Group		0	1	0	1	0	0	0	1			
Group Volume (v), veh/h		0.0	122.8	0.0	112.0	0.0	0.0	0.0	29.6			
Group Sat. Flow (s), veh/h/ln		0.0	784.6	0.0	889.5	0.0	0.0	0.0	1073.3			
Queue Serve Time (g _s), s		0.0	11.1	0.0	0.4	0.0	0.0	0.0	3.5			
Cycle Queue Clear Time (g _c), s		0.0	25.0	0.0	34.9	0.0	0.0	0.0	12.6			

HCM 2010 Signalized Intersection Capacity Analysis

8: Dreher Ave/School Drive & Main Street

3/27/2015

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	784.6	0.0	889.5	0.0	0.0	0.0	1073.3
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	104.1	0.0	34.9	0.0	0.0	0.0	36.9
Perm LT Serve Time (g_u), s	0.0	90.2	0.0	0.4	0.0	0.0	0.0	27.8
Perm LT Que Serve Time (g_ps), s	0.0	11.1	0.0	0.4	0.0	0.0	0.0	3.5
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	0.000	1.000	0.000	1.000	0.000	0.000	0.000	1.000
Lane Group Capacity (c), veh/h	0.0	519.8	0.0	50.2	0.0	0.0	0.0	246.9
Volume-to-Capacity Ratio (X)	0.000	0.236	0.000	2.228	0.000	0.000	0.000	0.120
Available Capacity (c_a), veh/h	0.0	519.8	0.0	50.2	0.0	0.0	0.0	246.9
Upstream Filter Factor (I)	0.000	1.000	0.000	1.000	0.000	0.000	0.000	1.000
Uniform Delay (d1), s/veh	0.0	14.1	0.0	75.0	0.0	0.0	0.0	51.2
Incremental Delay (d2), s/veh	0.0	1.1	0.0	611.4	0.0	0.0	0.0	0.2
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	15.2	0.0	686.4	0.0	0.0	0.0	51.4
First-Term Queue (Q1), veh/ln	0.0	2.0	0.0	2.0	0.0	0.0	0.0	0.9
Second-Term Queue (Q2), veh/ln	0.0	0.2	0.0	8.5	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	0.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	2.1	0.0	10.5	0.0	0.0	0.0	1.0
Percentile Storage Ratio (RQ%)	0.00	0.42	0.00	2.70	0.00	0.00	0.00	0.30
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	15.4	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0

Middle Lane Group Data

Assigned Movement	0	2	0	4	0	6	0	8
Lane Assignment	T							
Lanes in Group	0	0	0	0	0	1	0	0
Group Volume (v), veh/h	0.0	0.0	0.0	0.0	0.0	375.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	0.0	0.0	0.0	0.0	1613.2	0.0	0.0
Queue Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	13.9	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	13.9	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	0.0	0.0	0.0	0.0	1119.6	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.000	0.000	0.000	0.000	0.335	0.000	0.000
Available Capacity (c_a), veh/h	0.0	0.0	0.0	0.0	0.0	1119.6	0.0	0.0
Upstream Filter Factor (I)	0.000	0.000	0.000	0.000	0.000	1.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	9.1	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	4.7	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00

HCM 2010 Signalized Intersection Capacity Analysis

8: Dreher Ave/School Drive & Main Street



















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Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Movement	0	12	0	14	0	16	0	18
Lane Assignment	T+R		T+R		R		T+R	
Lanes in Group	0	1	0	1	0	1	0	1
Group Volume (v), veh/h	0.0	588.2	0.0	107.6	0.0	225.0	0.0	346.6
Group Sat. Flow (s), veh/h/ln	0.0	1652.2	0.0	1467.4	0.0	1361.8	0.0	1482.1
Queue Serve Time (g_s), s	0.0	25.4	0.0	9.1	0.0	9.5	0.0	34.5
Cycle Queue Clear Time (g_c), s	0.0	25.4	0.0	9.1	0.0	9.5	0.0	34.5
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.000	0.146	0.000	0.545	0.000	1.000	0.000	0.824
Lane Group Capacity (c), veh/h	0.0	1146.6	0.0	341.4	0.0	927.0	0.0	364.6
Volume-to-Capacity Ratio (X)	0.000	0.513	0.000	0.315	0.000	0.243	0.000	0.951
Available Capacity (c_a), veh/h	0.0	1146.6	0.0	341.4	0.0	927.0	0.0	364.6
Upstream Filter Factor (I)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Uniform Delay (d1), s/veh	0.0	10.9	0.0	47.7	0.0	9.2	0.0	55.7
Incremental Delay (d2), s/veh	0.0	1.6	0.0	0.5	0.0	0.6	0.0	34.4
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	12.5	0.0	48.2	0.0	9.8	0.0	90.1
First-Term Queue (Q1), veh/ln	0.0	8.8	0.0	3.4	0.0	2.7	0.0	12.8
Second-Term Queue (Q2), veh/ln	0.0	0.5	0.0	0.0	0.0	0.2	0.0	3.5
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	9.3	0.0	3.5	0.0	2.9	0.0	16.3
Percentile Storage Ratio (RQ%)	0.00	0.48	0.00	0.60	0.00	0.38	0.00	0.75
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Intersection Summary								
HCM Average Control Delay	68.2							
HCM Level of Service	E							

HCM 2010 Signalized Intersection Capacity Analysis

9: 9th St & Main Street

3/27/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	438	14	1	263	133	29	56	49	256	6	41
Movement Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A _{pbT})	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	0.90	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1599	1599	1599	1652	1652	1636	1639	1639	1639	1710	1711	1711
Lanes	0	2	0	0	1	1	0	1	0	1	1	0
Lane Assignment												
Capacity, veh/h	0	1673	129	25	988	752	97	214	154	309	38	471
Proportion Arriving On Green	0.00	0.60	0.60	0.51	0.51	0.52	0.35	0.35	0.35	0.35	0.35	0.35
Movement Delay, s/veh	0.0	15.5	15.6	19.7	0.0	17.9	37.5	0.0	0.0	88.0	0.0	34.1
Movement LOS		B	B	B		B	D			F		C
Approach Volume, veh/h		555			499			193			362	
Approach Delay, s/veh		15.6			19.1			37.5			76.0	
Approach LOS		B			B			D			E	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phase		2			4		6		8			
Case No		4.0			6.0		7.3		8.0			
Phase Duration (G+Y+Rc), s		94.10			55.90		94.10		55.90			
Change Period (Y+Rc), s		4.50			6.00		4.50		6.00			
Max. Allowable Headway (MAH), s		3.91			4.60		3.91		4.60			
Maximum Green Setting (Gmax), s		89.60			49.90		89.60		49.90			
Max. Queue Clearance Time (g _c +l ₁), s		15.65			53.90		19.41		17.95			
Green Extension Time (g _e), s		3.77			0.00		3.77		2.66			
Probability of Phase Call (p _c)		1.000			1.000		1.000		1.000			
Probability of Max Out (p _x)		0.000			1.000		0.000		0.000			
Left-Turn Movement Data												
Assigned Movement					7		1		3			
Mvmt. Sat Flow, veh/h					1087.74		10.08		246.12			
Through Movement Data												
Assigned Movement		2			4		6		8			
Mvmt. Sat Flow, veh/h		2785.06			109.54		1636.14		571.81			
Right-Turn Movement Data												
Assigned Movement			12		14		16		18			
Mvmt. Sat Flow, veh/h			215.59		1360.93		1251.55		444.74			
Left Lane Group Data												
Assigned Movement		0	0	0	7	0	1	0	3			
Lane Assignment					L		L+T		L+T+R			
Lanes in Group		0	0	0	1	0	1	0	1			
Group Volume (v), veh/h		0.0	0.0	0.0	281.3	0.0	326.7	0.0	193.2			
Group Sat. Flow (s), veh/h/ln		0.0	0.0	0.0	1087.7	0.0	1646.2	0.0	1262.7			
Queue Serve Time (g _s), s		0.0	0.0	0.0	36.0	0.0	0.0	0.0	7.7			
Cycle Queue Clear Time (g _c), s		0.0	0.0	0.0	51.9	0.0	17.4	0.0	15.9			

HCM 2010 Signalized Intersection Capacity Analysis

9: 9th St & Main Street

3/27/2015

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	1087.7	0.0	459.4	0.0	760.4
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	51.9	0.0	90.1	0.0	51.9
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	36.0	0.0	76.5	0.0	46.2
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	36.0	0.0	0.0	0.0	7.7
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	72.8	0.0	8.2
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	17.4	0.0	8.2
Proportion LT Inside Lane (P_L)	0.000	0.000	0.000	1.000	0.000	0.006	0.000	0.195
Lane Group Capacity (c), veh/h	0.0	0.0	0.0	308.7	0.0	1013.0	0.0	465.6
Volume-to-Capacity Ratio (X)	0.000	0.000	0.000	0.911	0.000	0.323	0.000	0.415
Available Capacity (c_a), veh/h	0.0	0.0	0.0	308.7	0.0	1013.0	0.0	465.6
Upstream Filter Factor (I)	0.000	0.000	0.000	1.000	0.000	0.946	0.000	1.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	58.3	0.0	18.9	0.0	36.9
Incremental Delay (d2), s/veh	0.0	0.0	0.0	29.6	0.0	0.8	0.0	0.6
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	88.0	0.0	19.7	0.0	37.5
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	10.8	0.0	7.1	0.0	5.5
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	2.5	0.0	0.2	0.0	0.1
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	0.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	0.0	13.4	0.0	7.3	0.0	5.6
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	2.50	0.00	0.38	0.00	0.36
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data

Assigned Movement	0	2	0	4	0	6	0	8
Lane Assignment	T							
Lanes in Group	0	1	0	0	0	0	0	0
Group Volume (v), veh/h	0.0	295.3	0.0	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	1599.3	0.0	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	13.6	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	13.6	0.0	0.0	0.0	0.0	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	960.7	0.0	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.307	0.000	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	960.7	0.0	0.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.000	1.000	0.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	14.7	0.0	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	15.5	0.0	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	5.1	0.0	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.46	0.00	0.00	0.00	0.00	0.00	0.00

HCM 2010 Signalized Intersection Capacity Analysis

9: 9th St & Main Street

















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Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Movement	0	12	0	14	0	16	0	18
Lane Assignment	T+R		T+R		R			
Lanes in Group	0	1	0	1	0	1	0	0
Group Volume (v), veh/h	0.0	260.0	0.0	80.5	0.0	172.7	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	1401.3	0.0	1470.5	0.0	1251.5	0.0	0.0
Queue Serve Time (g_s), s	0.0	13.6	0.0	5.7	0.0	11.4	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	13.6	0.0	5.7	0.0	11.4	0.0	0.0
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.000	0.154	0.000	0.926	0.000	1.000	0.000	0.352
Lane Group Capacity (c), veh/h	0.0	841.7	0.0	508.8	0.0	751.8	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.309	0.000	0.158	0.000	0.230	0.000	0.000
Available Capacity (c_a), veh/h	0.0	841.7	0.0	508.8	0.0	751.8	0.0	0.0
Upstream Filter Factor (I)	0.000	1.000	0.000	1.000	0.000	0.946	0.000	0.000
Uniform Delay (d1), s/veh	0.0	14.7	0.0	33.9	0.0	17.3	0.0	0.0
Incremental Delay (d2), s/veh	0.0	1.0	0.0	0.1	0.0	0.7	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	15.6	0.0	34.1	0.0	17.9	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	4.5	0.0	2.1	0.0	3.5	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	4.7	0.0	2.1	0.0	3.6	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.41	0.00	0.04	0.00	0.19	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Intersection Summary								
HCM Average Control Delay	32.9							
HCM Level of Service	C							

HCM 2010 Signalized Intersection Capacity Analysis

10: 8th St & Main Street/Main Street

3/27/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	640	39	8	326	14	65	47	40	56	19	40
Movement Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A _{pbT})	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	0.90	1.00	1.00	0.90	1.00	1.00	0.90	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1667	1667	1667	1762	1762	1762	1667	1667	1667	1691	1691	1691
Lanes	0	2	0	0	1	0	0	1	0	0	1	0
Lane Assignment												
Capacity, veh/h	159	1611	130	67	1072	58	147	105	84	167	68	85
Proportion Arriving On Green	0.67	0.67	0.67	0.46	0.46	0.46	0.23	0.23	0.23	0.23	0.23	0.23
Movement Delay, s/veh	5.8	0.0	6.1	9.9	0.0	0.0	27.6	0.0	0.0	26.0	0.0	0.0
Movement LOS	A		A	A			C			C		
Approach Volume, veh/h		806			416			191			153	
Approach Delay, s/veh		6.0			9.9			27.6			26.0	
Approach LOS		A			A			C			C	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phase		2			4		6		8			
Case No		8.0			8.0		8.0		8.0			
Phase Duration (G+Y+Rc), s		54.00			20.99		54.00		20.99			
Change Period (Y+Rc), s		4.50			5.50		4.50		5.50			
Max. Allowable Headway (MAH), s		3.59			4.48		3.59		4.48			
Maximum Green Setting (G _{max}), s		49.50			15.50		49.50		15.50			
Max. Queue Clearance Time (g _c +I ₁), s		10.96			10.20		13.55		11.37			
Green Extension Time (g _e), s		3.74			0.68		3.73		0.56			
Probability of Phase Call (p _c)		1.000			0.999		1.000		0.999			
Probability of Max Out (p _x)		0.001			0.693		0.001		1.000			
Left-Turn Movement Data												
Assigned Movement		5			7		1		3			
Mvmt. Sat Flow, veh/h		204.81			508.67		64.25		436.96			
Through Movement Data												
Assigned Movement		2			4		6		8			
Mvmt. Sat Flow, veh/h		2291.54			195.43		1522.23		359.95			
Right-Turn Movement Data												
Assigned Movement		12			14		16		18			
Mvmt. Sat Flow, veh/h		188.63			363.34		83.91		361.21			
Left Lane Group Data												
Assigned Movement		0	5	0	7	0	1	0	3			
Lane Assignment			L+T		L+T+R		L+T+R		L+T+R			
Lanes in Group		0	1	0	1	0	1	0	1			
Group Volume (v), veh/h		0.0	407.3	0.0	152.6	0.0	416.0	0.0	191.4			
Group Sat. Flow (s), veh/h/ln		0.0	1353.2	0.0	1067.4	0.0	1670.4	0.0	1158.1			
Queue Serve Time (g _s), s		0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2			
Cycle Queue Clear Time (g _c), s		0.0	7.9	0.0	8.2	0.0	11.5	0.0	9.4			

HCM 2010 Signalized Intersection Capacity Analysis

10: 8th St & Main Street/Main Street

3/27/2015

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	610.0	0.0	708.1	0.0	463.4	0.0	726.1
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	1666.7	0.0	1086.8	0.0	0.0	0.0	1319.9
Perm LT Eff. Green (g_p), s	0.0	51.5	0.0	17.5	0.0	51.5	0.0	17.5
Perm LT Serve Time (g_u), s	0.0	40.0	0.0	8.1	0.0	42.5	0.0	9.3
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
Time to First Blk (g_f), s	0.0	11.1	0.0	2.2	0.0	30.2	0.0	3.1
Serve Time pre Blk (g_fs), s	0.0	7.9	0.0	2.2	0.0	11.5	0.0	3.1
Proportion LT Inside Lane (P_L)	0.000	0.151	0.000	0.477	0.000	0.038	0.000	0.377
Lane Group Capacity (c), veh/h	0.0	984.6	0.0	319.8	0.0	1197.0	0.0	336.2
Volume-to-Capacity Ratio (X)	0.000	0.414	0.000	0.477	0.000	0.347	0.000	0.569
Available Capacity (c_a), veh/h	0.0	984.6	0.0	320.0	0.0	1197.0	0.0	336.4
Upstream Filter Factor (I)	0.000	0.560	0.000	1.000	0.000	0.456	0.000	1.000
Uniform Delay (d1), s/veh	0.0	5.1	0.0	24.9	0.0	9.5	0.0	25.4
Incremental Delay (d2), s/veh	0.0	0.7	0.0	1.1	0.0	0.4	0.0	2.3
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	5.8	0.0	26.0	0.0	9.9	0.0	27.6
First-Term Queue (Q1), veh/ln	0.0	2.2	0.0	2.5	0.0	4.7	0.0	3.2
Second-Term Queue (Q2), veh/ln	0.0	0.2	0.0	0.1	0.0	0.1	0.0	0.2
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	2.4	0.0	2.6	0.0	4.9	0.0	3.4
Percentile Storage Ratio (RQ%)	0.00	0.12	0.00	0.24	0.00	0.24	0.00	0.28
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data

Assigned Movement	0	2	0	4	0	6	0	8
Lane Assignment								
Lanes in Group	0	0	0	0	0	0	0	0
Group Volume (v), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

HCM 2010 Signalized Intersection Capacity Analysis

10: 8th St & Main Street/Main Street


3/27/2015

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Movement	0	12	0	14	0	16	0	18
Lane Assignment	T+R							
Lanes in Group	0	1	0	0	0	0	0	0
Group Volume (v), veh/h	0.0	399.0	0.0	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	1331.8	0.0	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.000	0.142	0.000	0.340	0.000	0.050	0.000	0.312
Lane Group Capacity (c), veh/h	0.0	914.6	0.0	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.436	0.000	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	914.6	0.0	0.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.000	0.560	0.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	6.1	0.0	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Intersection Summary								
HCM Average Control Delay	11.6							
HCM Level of Service	B							

HCM 2010 Signalized Intersection Capacity Analysis

11: Seventh St/7th St & Main Street /Main Street

3/27/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (vph)	17	415	212	35	227	13	158	105	138	37	129	31
Movement Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A _{pbT})	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	0.90	1.00	1.00	0.90	1.00	1.00	1.00	1.00	1.00	0.90
Adj. Sat. Flow Rate, veh/h/ln	1680	1680	1680	1747	1747	1747	1680	1680	1680	1709	1709	1709
Lanes	0	2	0	0	1	0	0	1	0	0	1	0
Lane Assignment												
Capacity, veh/h	41	752	368	55	333	29	247	115	138	208	339	122
Proportion Arriving On Green	0.31	0.31	0.31	0.37	0.37	0.37	0.29	0.29	0.29	0.54	0.54	0.54
Movement Delay, s/veh	46.8	0.0	49.2	73.5	0.0	0.0	144.5	0.0	0.0	20.3	0.0	0.0
Movement LOS	D		D	E			F			C		
Approach Volume, veh/h		808			382			588			281	
Approach Delay, s/veh		47.9			73.5			144.5			20.3	
Approach LOS		D			E			F			C	
Timer:		1	2	3	4	5	6	7	8			
Assigned Phase		2			4		6		8			
Case No		8.0			8.0		8.0		8.0			
Phase Duration (G+Y+Rc), s		66.60			83.40		66.60		83.40			
Change Period (Y+Rc), s		5.00			5.00		5.00		5.00			
Max. Allowable Headway (MAH), s		3.69			4.72		3.69		4.72			
Maximum Green Setting (G _{max}), s		61.60			78.40		61.60		78.40			
Max. Queue Clearance Time (g _c +I ₁), s		38.37			19.48		64.23		82.40			
Green Extension Time (g _e), s		3.74			5.34		0.00		0.00			
Probability of Phase Call (p _c)		1.000			1.000		1.000		1.000			
Probability of Max Out (p _x)		0.021			0.000		1.000		1.000			
Left-Turn Movement Data												
Assigned Movement		5			7		1		3			
Mvmt. Sat Flow, veh/h		68.69			327.06		112.49		395.37			
Through Movement Data												
Assigned Movement		2			4		6		8			
Mvmt. Sat Flow, veh/h		1740.54			636.44		739.43		215.30			
Right-Turn Movement Data												
Assigned Movement		12			14		16		18			
Mvmt. Sat Flow, veh/h		867.38			226.78		68.12		257.90			
Left Lane Group Data												
Assigned Movement		0	5	0	7	0	1	0	3			
Lane Assignment			L+T		L+T+R		L+T+R		L+T+R			
Lanes in Group		0	1	0	1	0	1	0	1			
Group Volume (v), veh/h		0.0	438.7	0.0	280.5	0.0	381.7	0.0	588.3			
Group Sat. Flow (s), veh/h/ln		0.0	1453.5	0.0	1190.3	0.0	920.0	0.0	868.6			
Queue Serve Time (g _s), s		0.0	0.0	0.0	0.0	0.0	25.9	0.0	62.9			
Cycle Queue Clear Time (g _c), s		0.0	36.4	0.0	17.5	0.0	62.2	0.0	80.4			

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11: Seventh St/7th St & Main Street /Main Street

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Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	624.3	0.0	541.6	0.0	463.0	0.0	667.9
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	1289.4	0.0	1286.4	0.0	0.0	0.0	799.3
Perm LT Eff. Green (g_p), s	0.0	63.6	0.0	80.4	0.0	63.6	0.0	80.4
Perm LT Serve Time (g_u), s	0.0	1.4	0.0	0.0	0.0	27.2	0.0	62.9
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	25.9	0.0	62.9
Time to First Blk (g_f), s	0.0	25.8	0.0	5.3	0.0	14.1	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	25.8	0.0	5.3	0.0	14.1	0.0	0.0
Proportion LT Inside Lane (P_L)	0.000	0.047	0.000	0.275	0.000	0.122	0.000	0.455
Lane Group Capacity (c), veh/h	0.0	641.4	0.0	668.6	0.0	417.0	0.0	500.5
Volume-to-Capacity Ratio (X)	0.000	0.684	0.000	0.420	0.000	0.915	0.000	1.176
Available Capacity (c_a), veh/h	0.0	641.4	0.0	668.6	0.0	417.0	0.0	500.5
Upstream Filter Factor (I)	0.000	0.928	0.000	1.000	0.000	0.969	0.000	0.410
Uniform Delay (d1), s/veh	0.0	41.4	0.0	19.9	0.0	46.9	0.0	56.6
Incremental Delay (d2), s/veh	0.0	5.4	0.0	0.4	0.0	26.6	0.0	87.9
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	46.8	0.0	20.3	0.0	73.5	0.0	144.5
First-Term Queue (Q1), veh/ln	0.0	14.7	0.0	5.8	0.0	14.6	0.0	18.8
Second-Term Queue (Q2), veh/ln	0.0	1.0	0.0	0.1	0.0	3.1	0.0	12.2
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	15.7	0.0	5.9	0.0	17.7	0.0	31.0
Percentile Storage Ratio (RQ%)	0.00	0.80	0.00	0.49	0.00	1.80	0.00	2.06
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3

Middle Lane Group Data

Assigned Movement	0	2	0	4	0	6	0	8
Lane Assignment								
Lanes in Group	0	0	0	0	0	0	0	0
Group Volume (v), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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11: Seventh St/7th St & Main Street /Main Street


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Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Movement	0	12	0	14	0	16	0	18
Lane Assignment	T+R							
Lanes in Group	0	1	0	0	0	0	0	0
Group Volume (v), veh/h	0.0	369.1	0.0	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	1223.1	0.0	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	35.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	35.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.000	0.709	0.000	0.191	0.000	0.074	0.000	0.297
Lane Group Capacity (c), veh/h	0.0	518.6	0.0	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.712	0.000	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	518.6	0.0	0.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.000	0.928	0.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	41.7	0.0	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	7.5	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	49.2	0.0	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	12.3	0.0	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	13.4	0.0	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.69	0.00	0.00	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Intersection Summary								
HCM Average Control Delay	76.5							
HCM Level of Service	E							

HCM Signalized Intersection Capacity Analysis

12: Seventh St & Ann St
















3/27/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↔			↔			↔	
Volume (vph)	0	0	0	13	167	21	155	469	0	0	376	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	16	16	16	16	16	16	10	10	10
Grade (%)		0%			2%			-5%			0%	
Total Lost time (s)					4.0			4.5			4.5	
Lane Util. Factor					1.00			1.00			1.00	
Frt					0.98			1.00			0.98	
Flt Protected					1.00			0.99			1.00	
Satd. Flow (prot)					1861			2143			1556	
Flt Permitted					1.00			0.65			1.00	
Satd. Flow (perm)					1861			1417			1556	
Peak-hour factor, PHF	0.92	0.92	0.92	0.52	0.82	0.69	0.82	0.80	0.92	0.92	0.91	0.73
Adj. Flow (vph)	0	0	0	25	204	30	189	586	0	0	413	58
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	0	256	0	0	775	0	0	468	0
Heavy Vehicles (%)	0%	0%	0%	2%	1%	0%	1%	2%	0%	0%	1%	0%
Parking (#/hr)				0	0	0					0	0
Turn Type				Perm	NA		pm+pt	NA			NA	
Protected Phases					6		3	8			4	
Permitted Phases				6			8					
Actuated Green, G (s)					44.0			95.5			95.5	
Effective Green, g (s)					45.0			96.5			96.5	
Actuated g/C Ratio					0.30			0.64			0.64	
Clearance Time (s)					5.0			5.5			5.5	
Vehicle Extension (s)					3.0			3.0			3.0	
Lane Grp Cap (vph)					558			912			1001	
v/s Ratio Prot											0.30	
v/s Ratio Perm					0.14			c0.55				
v/c Ratio					0.46			0.85			0.47	
Uniform Delay, d1					42.6			21.0			13.6	
Progression Factor					1.00			1.00			0.83	
Incremental Delay, d2					2.7			7.5			0.3	
Delay (s)					45.3			28.5			11.5	
Level of Service					D			C			B	
Approach Delay (s)		0.0			45.3			28.5			11.5	
Approach LOS		A			D			C			B	
Intersection Summary												
HCM Average Control Delay			26.1									
HCM Volume to Capacity ratio			0.73									
Actuated Cycle Length (s)			150.0									
Intersection Capacity Utilization			77.2%									
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

13: 6th St & Main Street

3/27/2015

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	104	504	14	8	244	45	10	69	36	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	16	16	16	11	11	11	12	12	12
Grade (%)		-1%			2%			-1%			0%	
Total Lost time (s)		4.0			4.0			4.0				
Lane Util. Factor		0.95			1.00			1.00				
Frt		1.00			0.98			0.96				
Flt Protected		0.99			1.00			1.00				
Satd. Flow (prot)		2931			1671			1571				
Flt Permitted		0.76			0.97			1.00				
Satd. Flow (perm)		2238			1620			1571				
Peak-hour factor, PHF	0.61	0.90	0.68	0.63	0.83	0.71	0.79	0.68	0.80	0.92	0.92	0.92
Adj. Flow (vph)	170	560	21	13	294	63	13	101	45	0	0	0
RTOR Reduction (vph)	0	1	0	0	3	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	750	0	0	367	0	0	159	0	0	0	0
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	2%	0%	0%	0%	0%
Parking (#/hr)		0	0	0	0	0						
Turn Type	Perm	NA		Perm	NA		Perm	NA				
Protected Phases		2			6			4				
Permitted Phases	2			6			4					
Actuated Green, G (s)		119.5			119.5			20.5				
Effective Green, g (s)		120.5			120.5			21.5				
Actuated g/C Ratio		0.80			0.80			0.14				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		1798			1301			225				
v/s Ratio Prot												
v/s Ratio Perm		0.34			0.23			0.10				
v/c Ratio		0.42			0.28			0.71				
Uniform Delay, d1		4.4			3.8			61.2				
Progression Factor		0.48			1.09			1.00				
Incremental Delay, d2		0.5			0.5			9.7				
Delay (s)		2.6			4.6			70.9				
Level of Service		A			A			E				
Approach Delay (s)		2.6			4.6			70.9			0.0	
Approach LOS		A			A			E			A	
Intersection Summary												
HCM Average Control Delay			11.6			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			54.2%			ICU Level of Service			A			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: Ann St & Broad St/5th St & Main Street

3/27/2015



Movement	EBT	EBR	NBL2	NBR	SBL	SBT	SBR2
Lane Configurations	↑↑		←	→	←	↑	→
Volume (vph)	400	32	220	560	87	438	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	10	11	10	10	11
Grade (%)	-5%					2%	
Total Lost time (s)	4.5		6.5	4.0	4.0	4.0	6.5
Lane Util. Factor	0.95		1.00	1.00	1.00	1.00	1.00
Frt	0.99		1.00	0.85	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3372		1509	1398	1752	1793	1377
Flt Permitted	1.00		0.38	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3372		609	1398	1752	1792	1377
Peak-hour factor, PHF	0.92	0.91	0.91	0.96	0.81	0.95	0.91
Adj. Flow (vph)	435	35	242	583	107	461	289
RTOR Reduction (vph)	0	0	0	0	0	0	52
Lane Group Flow (vph)	470	0	242	583	107	461	237
Heavy Vehicles (%)	0%	0%	1%	1%	3%	2%	1%
Turn Type	NA		custom	custom	pm+pt	NA	custom
Protected Phases	8		1	6	5	2	
Permitted Phases			6		2		2 8
Actuated Green, G (s)	26.3		110.2	97.3	96.7	90.3	123.1
Effective Green, g (s)	28.8		110.2	99.8	101.7	92.8	123.1
Actuated g/C Ratio	0.19		0.73	0.67	0.68	0.62	0.82
Clearance Time (s)	7.0		6.5	6.5	6.5	6.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	647		528	930	1188	1109	1130
v/s Ratio Prot	c0.14		c0.04	c0.42	0.01	0.26	
v/s Ratio Perm			0.30		0.06		0.17
v/c Ratio	0.73		0.46	0.63	0.09	0.42	0.21
Uniform Delay, d1	56.9		8.7	14.4	8.3	14.7	2.9
Progression Factor	0.91		1.00	1.00	1.12	1.10	1.27
Incremental Delay, d2	3.8		0.6	1.3	0.0	1.1	0.1
Delay (s)	55.3		9.3	15.7	9.3	17.2	3.8
Level of Service	E		A	B	A	B	A
Approach Delay (s)	55.3					11.7	
Approach LOS	E					B	

Intersection Summary

HCM Average Control Delay	22.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group