






















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)	57	399	64	256	559	107	42	32	158	116	32	60
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	1697	1697	1660	1613	1602	1561	1701	1701	1609	1609	1609
Lanes	1	1	0	1	1	1	1	1	0	1	1	0
Lane Assignment												
Capacity, veh/h	397	1039	156	0	1162	962	222	47	278	102	104	194
Proportion Arriving On Green	0.72	0.72	0.72	0.01	0.72	0.71	0.22	0.22	0.22	0.21	0.21	0.21
Movement Delay, s/veh	17.6	0.0	9.9	0.0	11.1	7.3	56.0	0.0	63.0	236.4	0.0	51.4
Movement LOS	B		A		B	A	E		E	F		D
Approach Volume, veh/h		595			724			292			226	
Approach Delay, s/veh		10.7			10.5			61.8			154.6	
Approach LOS		B			B			E			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			113.00		37.00		113.00		37.00			
Change Period (Y+Rc), s			7.00		6.00		7.00		6.00			
Max. Allowable Headway (MAH), s			3.60		4.66		3.60		4.66			
Maximum Green Setting (G _{max}), s			82.80		31.00		106.00		31.00			
Max. Queue Clearance Time (g _c +I ₁), s			34.69		33.00		27.38		24.68			
Green Extension Time (g _e), s			4.36		0.00		4.36		1.32			
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		0.596			
Left-Turn Movement Data												
Assigned Movement			5		7				3			
Mvmt. Sat Flow, veh/h			633.06		980.57				1080.70			
Through Movement Data												
Assigned Movement			2		4		6		8			
Mvmt. Sat Flow, veh/h			1442.67		501.78		1613.21		214.23			
Right-Turn Movement Data												
Assigned Movement			12		14		16		18			
Mvmt. Sat Flow, veh/h			216.31		940.84		1361.84		1263.84			
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	62.0	0.0	126.1	0.0	0.0	0.0	51.9			
Group Sat. Flow (s), veh/h/ln		0.0	633.1	0.0	980.6	0.0	0.0	0.0	1080.7			
Queue Serve Time (g _s), s		0.0	7.3	0.0	8.3	0.0	0.0	0.0	6.3			
Cycle Queue Clear Time (g _c), s		0.0	32.7	0.0	31.0	0.0	0.0	0.0	15.2			

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	633.1	0.0	980.6	0.0	0.0	0.0	1080.7
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	108.0	0.0	31.0	0.0	0.0	0.0	33.0
Perm LT Serve Time (g_u), s	0.0	82.6	0.0	8.3	0.0	0.0	0.0	24.1
Perm LT Que Serve Time (g_ps), s	0.0	7.3	0.0	8.3	0.0	0.0	0.0	6.3
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	396.7	0.0	102.4	0.0	0.0	0.0	221.9
Volume-to-Capacity Ratio (X)	0.000	0.156	0.000	1.231	0.000	0.000	0.000	0.234
Available Capacity (c_a), veh/h	0.0	396.7	0.0	102.4	0.0	0.0	0.0	221.9
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	16.8	0.0	72.8	0.0	0.0	0.0	55.5
Incremental Delay (d2), s/veh	0.0	0.8	0.0	163.6	0.0	0.0	0.0	0.5
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	17.6	0.0	236.4	0.0	0.0	0.0	56.0
First-Term Queue (Q1), veh/ln	0.0	1.1	0.0	4.0	0.0	0.0	0.0	1.7
Second-Term Queue (Q2), veh/ln	0.0	0.1	0.0	4.7	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	1.2	0.0	8.6	0.0	0.0	0.0	1.8
Percentile Storage Ratio (RQ%)	0.00	0.23	0.00	2.22	0.00	0.00	0.00	0.56
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	5.9	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	0.3	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	607.6	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	25.4	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	25.4	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	0.0	0.0	0.0	0.0	1161.5	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.000	0.000	0.000	0.000	0.523	0.000	0.000
Available Capacity (c_a), veh/h	0.0	0.0	0.0	0.0	0.0	1161.5	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	9.4	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	1.7	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	0.0	0.0	0.0	0.0	11.1	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	8.3	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.5	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	8.9	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00

HCM 2010 Signalized Intersection Capacity Analysis

8: Dreher Ave/School Drive & 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		T+R		R		T+R	
Lanes in Group	0	1	0	1	0	1	0	1
Group Volume (v), veh/h	0.0	533.5	0.0	100.0	0.0	116.3	0.0	240.0
Group Sat. Flow (s), veh/h/ln	0.0	1659.0	0.0	1442.6	0.0	1361.8	0.0	1478.1
Queue Serve Time (g_s), s	0.0	19.9	0.0	8.9	0.0	4.1	0.0	22.7
Cycle Queue Clear Time (g_c), s	0.0	19.9	0.0	8.9	0.0	4.1	0.0	22.7
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	0.130	0.000	0.652	0.000	1.000	0.000	0.855
Lane Group Capacity (c), veh/h	0.0	1194.5	0.0	298.1	0.0	962.4	0.0	325.2
Volume-to-Capacity Ratio (X)	0.000	0.447	0.000	0.335	0.000	0.121	0.000	0.738
Available Capacity (c_a), veh/h	0.0	1194.5	0.0	298.1	0.0	962.4	0.0	325.2
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	8.7	0.0	50.7	0.0	7.1	0.0	54.5
Incremental Delay (d2), s/veh	0.0	1.2	0.0	0.7	0.0	0.3	0.0	8.6
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	9.9	0.0	51.4	0.0	7.3	0.0	63.0
First-Term Queue (Q1), veh/ln	0.0	6.7	0.0	3.3	0.0	1.2	0.0	8.4
Second-Term Queue (Q2), veh/ln	0.0	0.4	0.0	0.1	0.0	0.1	0.0	0.8
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	7.1	0.0	3.3	0.0	1.2	0.0	9.2
Percentile Storage Ratio (RQ%)	0.00	0.37	0.00	0.58	0.00	0.16	0.00	0.42
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	36.4							
HCM Level of Service	D							

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)	177	383	7	2	405	161	43	74	63	301	8	35
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	1591	1591	1591	1652	1652	1636	1638	1638	1638	1710	1703	1703
Lanes	0	2	0	0	1	1	0	1	0	1	1	0
Lane Assignment												
Capacity, veh/h	0	1556	69	26	887	678	121	239	168	312	67	530
Proportion Arriving On Green	0.00	0.54	0.54	0.43	0.43	0.44	0.41	0.41	0.41	0.41	0.41	0.41
Movement Delay, s/veh	0.0	19.6	19.7	31.9	0.0	25.1	33.3	0.0	0.0	125.8	0.0	28.0
Movement LOS		B	B	C		C	C			F		C
Approach Volume, veh/h		471			713			259			402	
Approach Delay, s/veh		19.6			29.9			33.3			108.4	
Approach LOS		B			C			C			F	
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		85.20			64.80		85.20		64.80			
Change Period (Y+Rc), s		4.50			6.00		4.50		6.00			
Max. Allowable Headway (MAH), s		3.81			4.69		3.81		4.69			
Maximum Green Setting (G _{max}), s		80.70			58.80		80.70		58.80			
Max. Queue Clearance Time (g _c +I ₁), s		14.83			62.80		36.54		24.07			
Green Extension Time (g _e), s		4.16			0.00		4.14		3.45			
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		0.001			
Left-Turn Movement Data												
Assigned Movement					7		1		3			
Mvmt. Sat Flow, veh/h					1024.44		13.03		265.29			
Through Movement Data												
Assigned Movement		2			4		6		8			
Mvmt. Sat Flow, veh/h		2873.77			164.36		1628.69		549.28			
Right-Turn Movement Data												
Assigned Movement			12		14		16		18			
Mvmt. Sat Flow, veh/h			127.26		1307.42		1251.55		415.67			
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	330.8	0.0	504.0	0.0	259.0			
Group Sat. Flow (s), veh/h/ln		0.0	0.0	0.0	1024.4	0.0	1641.7	0.0	1230.2			
Queue Serve Time (g _s), s		0.0	0.0	0.0	38.7	0.0	0.0	0.0	14.8			
Cycle Queue Clear Time (g _c), s		0.0	0.0	0.0	60.8	0.0	34.5	0.0	22.1			

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	1024.4	0.0	472.0	0.0	764.7
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	60.8	0.0	81.2	0.0	60.8
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	38.7	0.0	68.4	0.0	56.2
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	38.7	0.0	0.0	0.0	14.8
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	59.1	0.0	7.3
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	34.5	0.0	7.3
Proportion LT Inside Lane (P_L)	0.000	0.000	0.000	1.000	0.000	0.008	0.000	0.216
Lane Group Capacity (c), veh/h	0.0	0.0	0.0	312.5	0.0	912.9	0.0	527.8
Volume-to-Capacity Ratio (X)	0.000	0.000	0.000	1.058	0.000	0.552	0.000	0.491
Available Capacity (c_a), veh/h	0.0	0.0	0.0	312.5	0.0	912.9	0.0	527.8
Upstream Filter Factor (I)	0.000	0.000	0.000	1.000	0.000	0.935	0.000	1.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	58.6	0.0	29.6	0.0	32.6
Incremental Delay (d2), s/veh	0.0	0.0	0.0	67.2	0.0	2.2	0.0	0.7
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	125.8	0.0	31.9	0.0	33.3
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	12.0	0.0	14.5	0.0	7.1
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	5.8	0.0	0.6	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	17.9	0.0	15.0	0.0	7.2
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	3.34	0.00	0.79	0.00	0.46
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	4.6	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	0.3	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	249.0	0.0	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	1591.3	0.0	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	12.8	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	12.8	0.0	0.0	0.0	0.0	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	861.4	0.0	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.289	0.000	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	861.4	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	18.7	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	19.6	0.0	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	4.9	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	5.1	0.0	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.45	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	221.5	0.0	71.6	0.0	209.1	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	1409.7	0.0	1471.8	0.0	1251.5	0.0	0.0
Queue Serve Time (g_s), s	0.0	12.8	0.0	4.6	0.0	16.3	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	12.8	0.0	4.6	0.0	16.3	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	0.090	0.000	0.888	0.000	1.000	0.000	0.338
Lane Group Capacity (c), veh/h	0.0	763.1	0.0	596.6	0.0	677.5	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.290	0.000	0.120	0.000	0.309	0.000	0.000
Available Capacity (c_a), veh/h	0.0	763.1	0.0	596.6	0.0	677.5	0.0	0.0
Upstream Filter Factor (I)	0.000	1.000	0.000	1.000	0.000	0.935	0.000	0.000
Uniform Delay (d1), s/veh	0.0	18.7	0.0	27.9	0.0	24.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	1.0	0.0	0.1	0.0	1.1	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	19.7	0.0	28.0	0.0	25.1	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	4.3	0.0	1.6	0.0	5.2	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.2	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	4.5	0.0	1.6	0.0	5.4	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.40	0.00	0.03	0.00	0.28	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	44.9							
HCM Level of Service	D							

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)	44	539	22	6	351	8	65	76	35	43	19	68
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	1673	1673	1673	1690	1690	1690
Lanes	0	2	0	0	1	0	0	1	0	0	1	0
Lane Assignment												
Capacity, veh/h	177	1551	84	61	1096	31	140	154	72	135	77	156
Proportion Arriving On Green	0.54	0.54	0.54	0.59	0.59	0.59	0.25	0.25	0.25	0.25	0.25	0.25
Movement Delay, s/veh	7.9	0.0	8.3	7.8	0.0	0.0	27.4	0.0	0.0	24.6	0.0	0.0
Movement LOS	A		A	A			C			C		
Approach Volume, veh/h		672			432			221			172	
Approach Delay, s/veh		8.1			7.8			27.4			24.6	
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		52.50			22.50		52.50		22.50			
Change Period (Y+Rc), s		4.50			5.50		4.50		5.50			
Max. Allowable Headway (MAH), s		3.57			4.47		3.57		4.47			
Maximum Green Setting (G _{max}), s		48.00			17.00		48.00		17.00			
Max. Queue Clearance Time (g _c +I ₁), s		11.60			10.01		11.63		12.97			
Green Extension Time (g _e), s		3.24			0.96		3.24		0.65			
Probability of Phase Call (p _c)		1.000			1.000		1.000		1.000			
Probability of Max Out (p _x)		0.000			0.354		0.000		1.000			
Left-Turn Movement Data												
Assigned Movement		5			7		1		3			
Mvmt. Sat Flow, veh/h		233.91			388.68		47.43		390.75			
Through Movement Data												
Assigned Movement		2			4		6		8			
Mvmt. Sat Flow, veh/h		2272.11			194.47		1613.22		520.50			
Right-Turn Movement Data												
Assigned Movement		12			14		16		18			
Mvmt. Sat Flow, veh/h		126.11			614.65		47.20		282.63			
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	332.2	0.0	172.1	0.0	432.1	0.0	220.7			
Group Sat. Flow (s), veh/h/ln		0.0	1289.2	0.0	1197.8	0.0	1707.8	0.0	1193.9			
Queue Serve Time (g _s), s		0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0			
Cycle Queue Clear Time (g _c), s		0.0	8.2	0.0	8.0	0.0	9.6	0.0	11.0			

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	603.3	0.0	694.7	0.0	510.6	0.0	717.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	1666.8	0.0	1194.7	0.0	0.0	0.0	1330.3
Perm LT Eff. Green (g_p), s	0.0	50.0	0.0	19.0	0.0	50.0	0.0	19.0
Perm LT Serve Time (g_u), s	0.0	40.4	0.0	8.0	0.0	40.4	0.0	11.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0
Time to First Blk (g_f), s	0.0	9.0	0.0	4.1	0.0	31.5	0.0	3.6
Serve Time pre Blk (g_fs), s	0.0	8.2	0.0	4.1	0.0	9.6	0.0	3.6
Proportion LT Inside Lane (P_L)	0.000	0.181	0.000	0.324	0.000	0.028	0.000	0.327
Lane Group Capacity (c), veh/h	0.0	916.3	0.0	367.0	0.0	1188.0	0.0	366.1
Volume-to-Capacity Ratio (X)	0.000	0.363	0.000	0.469	0.000	0.364	0.000	0.603
Available Capacity (c_a), veh/h	0.0	916.3	0.0	367.0	0.0	1188.0	0.0	366.2
Upstream Filter Factor (I)	0.000	0.259	0.000	1.000	0.000	0.852	0.000	1.000
Uniform Delay (d1), s/veh	0.0	7.6	0.0	23.7	0.0	7.0	0.0	24.6
Incremental Delay (d2), s/veh	0.0	0.3	0.0	0.9	0.0	0.7	0.0	2.8
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	7.9	0.0	24.6	0.0	7.8	0.0	27.4
First-Term Queue (Q1), veh/ln	0.0	2.7	0.0	2.6	0.0	3.2	0.0	3.7
Second-Term Queue (Q2), veh/ln	0.0	0.1	0.0	0.1	0.0	0.2	0.0	0.3
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	2.8	0.0	2.7	0.0	3.5	0.0	3.9
Percentile Storage Ratio (RQ%)	0.00	0.14	0.00	0.25	0.00	0.18	0.00	0.33
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

















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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	339.5	0.0	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	1342.9	0.0	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	9.6	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	9.6	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	0.094	0.000	0.513	0.000	0.028	0.000	0.237
Lane Group Capacity (c), veh/h	0.0	895.3	0.0	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.379	0.000	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	895.3	0.0	0.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.000	0.259	0.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	7.9	0.0	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.3	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	8.3	0.0	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.1	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	3.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.16	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	12.7							
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)	23	411	30	4	250	22	107	136	113	31	26	28
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	1673	1673	1673	1746	1746	1746	1682	1682	1682	1715	1715	1715
Lanes	0	2	0	0	1	0	0	1	0	0	1	0
Lane Assignment												
Capacity, veh/h	74	1287	91	28	746	104	201	184	136	221	77	134
Proportion Arriving On Green	0.41	0.41	0.41	0.43	0.43	0.43	0.28	0.28	0.28	0.45	0.45	0.45
Movement Delay, s/veh	29.1	0.0	29.4	29.4	0.0	0.0	80.7	0.0	0.0	25.8	0.0	0.0
Movement LOS	C		C	C			F			C		
Approach Volume, veh/h		585			391			513			143	
Approach Delay, s/veh		29.2			29.4			80.7			25.8	
Approach LOS		C			C			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		78.80			71.20		78.80		71.20			
Change Period (Y+Rc), s		5.00			5.00		5.00		5.00			
Max. Allowable Headway (MAH), s		3.53			4.55		3.53		4.55			
Maximum Green Setting (Gmax), s		73.80			66.20		73.80		66.20			
Max. Queue Clearance Time (g _c +l ₁), s		21.34			14.63		26.18		70.20			
Green Extension Time (g _e), s		2.71			3.45		2.71		0.00			
Probability of Phase Call (p _c)		1.000			1.000		1.000		1.000			
Probability of Max Out (p _x)		0.000			0.000		0.000		1.000			
Left-Turn Movement Data												
Assigned Movement		5			7		1		3			
Mvmt. Sat Flow, veh/h		134.30			393.93		23.06		380.42			
Through Movement Data												
Assigned Movement		2			4		6		8			
Mvmt. Sat Flow, veh/h		2506.94			184.41		1460.64		396.23			
Right-Turn Movement Data												
Assigned Movement		12			14		16		18			
Mvmt. Sat Flow, veh/h		179.81			294.46		206.78		300.05			
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	309.7	0.0	143.1	0.0	391.0	0.0	513.3			
Group Sat. Flow (s), veh/h/ln		0.0	1482.7	0.0	872.8	0.0	1690.5	0.0	1076.7			
Queue Serve Time (g _s), s		0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.6			
Cycle Queue Clear Time (g _c), s		0.0	19.3	0.0	12.6	0.0	24.2	0.0	68.2			

HCM 2010 Signalized Intersection Capacity Analysis

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

3/27/2015

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	620.4	0.0	570.6	0.0	542.7	0.0	730.6
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	1496.1	0.0	939.2	0.0	0.0	0.0	1196.9
Perm LT Eff. Green (g_p), s	0.0	75.8	0.0	68.2	0.0	75.8	0.0	68.2
Perm LT Serve Time (g_u), s	0.0	51.6	0.0	0.0	0.0	56.5	0.0	55.6
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	55.6
Time to First Blk (g_f), s	0.0	19.5	0.0	2.4	0.0	50.8	0.0	1.1
Serve Time pre Blk (g_fs), s	0.0	19.3	0.0	2.4	0.0	24.2	0.0	1.1
Proportion LT Inside Lane (P_L)	0.000	0.091	0.000	0.451	0.000	0.014	0.000	0.353
Lane Group Capacity (c), veh/h	0.0	775.4	0.0	431.7	0.0	878.6	0.0	522.0
Volume-to-Capacity Ratio (X)	0.000	0.399	0.000	0.331	0.000	0.445	0.000	0.983
Available Capacity (c_a), veh/h	0.0	775.4	0.0	431.7	0.0	878.6	0.0	522.0
Upstream Filter Factor (I)	0.000	0.952	0.000	1.000	0.000	0.961	0.000	0.584
Uniform Delay (d1), s/veh	0.0	27.6	0.0	25.4	0.0	27.8	0.0	54.7
Incremental Delay (d2), s/veh	0.0	1.5	0.0	0.4	0.0	1.6	0.0	25.9
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	29.1	0.0	25.8	0.0	29.4	0.0	80.7
First-Term Queue (Q1), veh/ln	0.0	8.2	0.0	3.3	0.0	10.4	0.0	19.7
Second-Term Queue (Q2), veh/ln	0.0	0.3	0.0	0.1	0.0	0.4	0.0	3.8
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	8.5	0.0	3.4	0.0	10.7	0.0	23.5
Percentile Storage Ratio (RQ%)	0.00	0.44	0.00	0.28	0.00	1.09	0.00	1.56
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

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	275.7	0.0	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	1338.4	0.0	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	19.3	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	19.3	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	0.134	0.000	0.337	0.000	0.122	0.000	0.279
Lane Group Capacity (c), veh/h	0.0	676.3	0.0	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.408	0.000	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	676.3	0.0	0.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.000	0.952	0.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	27.6	0.0	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	1.7	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	29.4	0.0	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	7.3	0.0	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.3	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	7.6	0.0	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.39	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	45.1							
HCM Level of Service	D							

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	44	230	33	148	340	0	0	168	64
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			0.96	
Flt Protected					0.99			0.99			1.00	
Satd. Flow (prot)					1849			2138			1516	
Flt Permitted					0.99			0.72			1.00	
Satd. Flow (perm)					1849			1555			1516	
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	85	280	48	180	425	0	0	185	88
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	0	0	13	0
Lane Group Flow (vph)	0	0	0	0	410	0	0	605	0	0	260	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)					62.3			77.2			77.2	
Effective Green, g (s)					63.3			78.2			78.2	
Actuated g/C Ratio					0.42			0.52			0.52	
Clearance Time (s)					5.0			5.5			5.5	
Vehicle Extension (s)					3.0			3.0			3.0	
Lane Grp Cap (vph)					780			811			790	
v/s Ratio Prot											0.17	
v/s Ratio Perm					0.22			c0.39				
v/c Ratio					0.53			0.75			0.33	
Uniform Delay, d1					32.2			28.1			20.7	
Progression Factor					1.00			1.00			0.93	
Incremental Delay, d2					2.5			3.8			0.2	
Delay (s)					34.7			31.9			19.6	
Level of Service					C			C			B	
Approach Delay (s)		0.0			34.7			31.9			19.6	
Approach LOS		A			C			C			B	
Intersection Summary												
HCM Average Control Delay			30.2									
HCM Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			150.0									
Intersection Capacity Utilization			66.2%									
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)	27	548	19	15	245	34	44	65	61	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		0.99			0.98			0.95				
Flt Protected		1.00			1.00			0.99				
Satd. Flow (prot)		2944			1677			1554				
Flt Permitted		0.90			0.93			0.99				
Satd. Flow (perm)		2655			1571			1554				
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)	44	609	28	24	295	48	56	96	76	0	0	0
RTOR Reduction (vph)	0	1	0	0	2	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	680	0	0	365	0	0	228	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)		112.1			112.1			27.9				
Effective Green, g (s)		113.1			113.1			28.9				
Actuated g/C Ratio		0.75			0.75			0.19				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		3.0			3.0			3.0				
Lane Grp Cap (vph)		2002			1185			299				
v/s Ratio Prot												
v/s Ratio Perm		0.26			0.23			0.15				
v/c Ratio		0.34			0.31			0.76				
Uniform Delay, d1		6.1			5.9			57.3				
Progression Factor		0.62			0.90			1.00				
Incremental Delay, d2		0.4			0.6			10.9				
Delay (s)		4.2			6.0			68.2				
Level of Service		A			A			E				
Approach Delay (s)		4.2			6.0			68.2			0.0	
Approach LOS		A			A			E			A	
Intersection Summary												
HCM Average Control Delay			16.1			HCM Level of Service			B			
HCM Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			150.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			47.8%			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)	534	84	267	601	78	639	348
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	0.98		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		0.19	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3372		304	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)	580	92	293	626	96	673	382
RTOR Reduction (vph)	0	0	0	0	0	0	87
Lane Group Flow (vph)	672	0	293	626	96	673	295
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)	32.2		104.3	92.5	82.5	77.2	115.9
Effective Green, g (s)	34.7		104.3	95.0	87.5	79.7	115.9
Actuated g/C Ratio	0.23		0.70	0.63	0.58	0.53	0.77
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)	780		377	885	1022	953	1064
v/s Ratio Prot	c0.20		c0.11	0.45	0.00	0.38	
v/s Ratio Perm			c0.43		0.05		0.21
v/c Ratio	0.86		0.78	0.71	0.09	0.71	0.28
Uniform Delay, d1	55.3		20.7	18.3	13.8	26.4	4.9
Progression Factor	1.05		1.00	1.00	0.94	1.00	1.53
Incremental Delay, d2	9.3		9.7	2.6	0.0	3.8	0.1
Delay (s)	67.3		30.3	20.9	12.9	30.2	7.7
Level of Service	E		C	C	B	C	A
Approach Delay (s)	67.3					21.3	
Approach LOS	E					C	

Intersection Summary

HCM Average Control Delay	33.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group