

Appendix B
Synchro Outputs

HCM Unsignalized Intersection Capacity Analysis
 3: Driveway/South High Street & Martinsburg Ave (15/33)

2/15/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	53	285	1	0	206	7	0	1	1	7	0	59
Sign Control		Free			Free			Stop			Stop	
Grade		0%			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
Hourly flow rate (vph)	55	294	1	0	212	7	0	1	1	7	0	61
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	220			295			680	623	294	621	620	216
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	220			295			680	623	294	621	620	216
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.2	6.7	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	96			100			100	100	100	98	100	92
cM capacity (veh/h)	1304			1250			325	384	743	368	371	792

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	349	220	2	68
Volume Left	55	0	0	7
Volume Right	1	7	1	61
cSH	1304	1250	506	706
Volume to Capacity	0.04	0.00	0.00	0.10
Queue Length 95th (ft)	3	0	0	8
Control Delay (s)	1.6	0.0	12.1	10.6
Lane LOS	A		B	B
Approach Delay (s)	1.6	0.0	12.1	10.6
Approach LOS			B	B

Intersection Summary			
Average Delay		2.0	
Intersection Capacity Utilization	49.6%		ICU Level of Service A
Analysis Period (min)		15	

HCM Unsignalized Intersection Capacity Analysis

3: Driveway/South High Street & Martinsburg Ave (15/33)

2/15/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	72	265	0	4	312	23	0	0	4	14	2	116
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	82	301	0	5	355	26	0	0	5	16	2	132
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	381			301			974	855	301	846	841	368
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	381			301			974	855	301	846	841	368
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.2	6.7	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	93			100			100	100	99	94	99	80
cM capacity (veh/h)	1135			1243			172	272	736	251	265	650

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	383	385	5	150
Volume Left	82	5	0	16
Volume Right	0	26	5	132
cSH	1135	1243	736	546
Volume to Capacity	0.07	0.00	0.01	0.27
Queue Length 95th (ft)	6	0	0	28
Control Delay (s)	2.4	0.1	9.9	14.1
Lane LOS	A	A	A	B
Approach Delay (s)	2.4	0.1	9.9	14.1
Approach LOS			A	B

Intersection Summary			
Average Delay		3.4	
Intersection Capacity Utilization	60.7%		ICU Level of Service
Analysis Period (min)		15	B

HCM Unsignalized Intersection Capacity Analysis

3: North High Street/Driveway & West Gordon Ave (231)/West Gordon Ave (231)

2/15/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Volume (veh/h)	1	186	19	47	272	0	40	0	43	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	1	221	23	56	324	0	48	0	51	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	324			244			671	671	233	722	682	324
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	324			244			671	671	233	722	682	324
tC, single (s)	4.1			4.2			7.2	6.7	6.4	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.6	4.1	3.4	3.5	4.0	3.3
p0 queue free %	100			96			86	100	93	100	100	100
cM capacity (veh/h)	1219			1277			341	345	775	307	354	715

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	245	380	0	99	0
Volume Left	1	56	0	48	0
Volume Right	23	0	0	51	0
cSH	1219	1277	1700	480	1700
Volume to Capacity	0.00	0.04	0.00	0.21	0.00
Queue Length 95th (ft)	0	3	0	19	0
Control Delay (s)	0.0	1.5	0.0	14.4	0.0
Lane LOS	A	A		B	A
Approach Delay (s)	0.0	1.5		14.4	0.0
Approach LOS				B	A

Intersection Summary		
Average Delay		2.8
Intersection Capacity Utilization	42.8%	ICU Level of Service
Analysis Period (min)		15
		A

HCM Unsignalized Intersection Capacity Analysis

3: North High Street/Driveway & West Gordon Ave (231)/West Gordon Ave (231)

2/15/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Volume (veh/h)	0	263	104	46	257	0	77	0	34	2	2	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	296	117	52	289	0	87	0	38	2	2	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	289			412			753	746	354	784	804	289
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	289			412			753	746	354	784	804	289
tC, single (s)	4.1			4.2			7.2	6.7	6.4	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.6	4.1	3.4	3.5	4.0	3.3
p0 queue free %	100			95			71	100	94	99	99	99
cM capacity (veh/h)	1256			1105			295	311	661	281	300	748

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	412	340	0	125	10
Volume Left	0	52	0	87	2
Volume Right	117	0	0	38	6
cSH	1256	1105	1700	356	440
Volume to Capacity	0.00	0.05	0.00	0.35	0.02
Queue Length 95th (ft)	0	4	0	38	2
Control Delay (s)	0.0	1.7	0.0	20.5	13.4
Lane LOS		A		C	B
Approach Delay (s)	0.0	1.7		20.5	13.4
Approach LOS				C	B

Intersection Summary

Average Delay		3.7			
Intersection Capacity Utilization		59.3%		ICU Level of Service	B
Analysis Period (min)		15			

HCM Unsignalized Intersection Capacity Analysis

3: Driveway/South High Street & Martinsburg Ave (15/33)

3/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	55	305	0	0	220	10	0	5	5	10	0	65
Sign Control		Free			Free			Stop			Stop	
Grade		0%			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
Hourly flow rate (vph)	57	314	0	0	227	10	0	5	5	10	0	67
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	237			314			727	665	314	668	660	232
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	237			314			727	665	314	668	660	232
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.2	6.7	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	96			100			100	99	99	97	100	91
cM capacity (veh/h)	1284			1229			299	363	724	337	351	776

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	371	237	10	77
Volume Left	57	0	0	10
Volume Right	0	10	5	67
cSH	1284	1229	483	661
Volume to Capacity	0.04	0.00	0.02	0.12
Queue Length 95th (ft)	3	0	2	10
Control Delay (s)	1.6	0.0	12.6	11.2
Lane LOS	A		B	B
Approach Delay (s)	1.6	0.0	12.6	11.2
Approach LOS			B	B

Intersection Summary			
Average Delay		2.3	
Intersection Capacity Utilization		52.5%	ICU Level of Service
Analysis Period (min)		15	A

HCM Unsignalized Intersection Capacity Analysis
 3: Driveway/South High Street & Martinsburg Ave (15/33)

3/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	80	285	0	5	335	25	0	0	5	15	5	125
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	91	324	0	6	381	28	0	0	6	17	6	142
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	409			324			1057	926	324	918	912	395
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	409			324			1057	926	324	918	912	395
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.2	6.7	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	92			100			100	100	99	92	98	77
cM capacity (veh/h)	1108			1219			143	244	715	222	238	627

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	415	415	6	165
Volume Left	91	6	0	17
Volume Right	0	28	6	142
cSH	1108	1219	715	503
Volume to Capacity	0.08	0.00	0.01	0.33
Queue Length 95th (ft)	7	0	1	35
Control Delay (s)	2.5	0.2	10.1	15.6
Lane LOS	A	A	B	C
Approach Delay (s)	2.5	0.2	10.1	15.6
Approach LOS			B	C

Intersection Summary			
Average Delay		3.7	
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis

3: North High Street/Driveway & West Gordon Ave (231)/West Gordon Ave (231)

3/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Volume (veh/h)	5	200	20	50	295	0	45	0	45	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	6	238	24	60	351	0	54	0	54	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	351			262			732	732	250	786	744	351
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	351			262			732	732	250	786	744	351
tC, single (s)	4.1			4.2			7.2	6.7	6.4	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.6	4.1	3.4	3.5	4.0	3.3
p0 queue free %	100			95			83	100	93	100	100	100
cM capacity (veh/h)	1191			1257			308	316	758	275	324	690

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	268	411	0	107	0
Volume Left	6	60	0	54	0
Volume Right	24	0	0	54	0
cSH	1191	1257	1700	438	1700
Volume to Capacity	0.00	0.05	0.00	0.24	0.00
Queue Length 95th (ft)	0	4	0	24	0
Control Delay (s)	0.2	1.6	0.0	15.9	0.0
Lane LOS	A	A		C	A
Approach Delay (s)	0.2	1.6		15.9	0.0
Approach LOS				C	A

Intersection Summary				
Average Delay			3.1	
Intersection Capacity Utilization		45.6%	ICU Level of Service	A
Analysis Period (min)		15		

HCM Unsignalized Intersection Capacity Analysis

3: North High Street/Driveway & West Gordon Ave (231)/West Gordon Ave (231)

3/22/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕			↕	
Volume (veh/h)	0	285	115	50	275	0	85	0	35	5	5	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	320	129	56	309	0	96	0	39	6	6	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	309			449			815	806	385	846	871	309
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	309			449			815	806	385	846	871	309
tC, single (s)	4.1			4.2			7.2	6.7	6.4	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.6	4.1	3.4	3.5	4.0	3.3
p0 queue free %	100			95			64	100	94	98	98	99
cM capacity (veh/h)	1235			1070			264	285	635	253	273	729

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	449	365	0	135	17
Volume Left	0	56	0	96	6
Volume Right	129	0	0	39	6
cSH	1235	1070	1700	318	334
Volume to Capacity	0.00	0.05	0.00	0.42	0.05
Queue Length 95th (ft)	0	4	0	51	4
Control Delay (s)	0.0	1.8	0.0	24.4	16.3
Lane LOS		A		C	C
Approach Delay (s)	0.0	1.8		24.4	16.3
Approach LOS				C	C

Intersection Summary

Average Delay	4.4
Intersection Capacity Utilization	62.6%
ICU Level of Service	B
Analysis Period (min)	15

ROUNDBABOUT REPORT																	
General Information									Site Information								
Analyst	GLu								Intersection	S High St and Martinsburg Ave							
Agency or Co.									E/W Street Name	Martinsburg Ave							
Date Performed	4/25/2013								N/S Street Name	S High St							
Time Period	AM Peak								Analysis Year	2018							
Project Description:									Project ID								
Volume Adjustment and Site Characteristics																	
	EB				WB				NB				SB				
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U	
Number of Lanes(N)	0	1	0		0	1	0		0	1	0		0	1	0		
Volume (V), veh/h	55	305	0	0	0	220	10	0	0	5	5	0	10	0	65	0	
Heavy Veh. Adj. (f_{HV}), %	10	10	10	10	5	5	5	5	3	3	3	3	15	15	15	15	
Peak Hour Factor (PHF)	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
No. of Pedestrians Crossing Entry	0				0				0				0				
Critical and Follow-Up Headway Adjustment																	
	EB			WB			NB			SB							
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass					
Critical Headway (sec)	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929					
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858					
Flow Computations																	
	EB			WB			NB			SB							
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass					
Circulating Flow (V_c), pc/h	12			67			420			238							
Exiting Flow (V_{ex}), pc/h	363			315			78			0							
Entry Flow (V_e), pc/h		408			249			10			89						
Entry Volume veh/h		371			237			10			77						
Capacity and v/c Ratios																	
	EB			WB			NB			SB							
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass					
Capacity (c_{PCE}), pc/h		1117			1057			742			891						
Capacity (c), veh/h		1015			1007			720			775						
v/c Ratio (X)		0.37			0.24			0.01			0.10						
Delay and Level of Service																	
	EB			WB			NB			SB							
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass					
Lane Control Delay (d), s/veh		7.4			5.9			5.1			5.7						
Lane LOS		A			A			A			A						
Lane 95% Queue		1.7			0.9			0.0			0.3						
Approach Delay, s/veh	7.40			5.85			5.14			5.66							
Approach LOS, s/veh	A			A			A			A							
Intersection Delay, s/veh	6.65																
Intersection LOS	A																

ROUNDBABOUT REPORT																	
General Information									Site Information								
Analyst	GLu								Intersection	S High St and Martinsburg Ave							
Agency or Co.									E/W Street Name	Martinsburg Ave							
Date Performed	4/25/2013								N/S Street Name	S High St							
Time Period	PM Peak								Analysis Year	2018							
Project Description:									Project ID								
Volume Adjustment and Site Characteristics																	
	EB				WB				NB				SB				
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U	
Number of Lanes(N)	0	1	0		0	1	0		0	1	0		0	1	0		
Volume (V), veh/h	80	285	0	0	5	335	25	0	0	0	5	0	15	5	125	0	
Heavy Veh. Adj. (f_{HV}), %	10	10	10	10	5	5	5	5	3	3	3	3	15	15	15	15	
Peak Hour Factor (PHF)	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	
No. of Pedestrians Crossing Entry	0				0				0				0				
Critical and Follow-Up Headway Adjustment																	
	EB			WB			NB			SB							
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass					
Critical Headway (sec)	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929					
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858					
Flow Computations																	
	EB			WB			NB			SB							
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass					
Circulating Flow (V_c), pc/h	33			100			476			406							
Exiting Flow (V_{ex}), pc/h	382			400			130			13							
Entry Flow (V_e), pc/h		456			436			6			27	163					
Entry Volume veh/h		415			415			6			23	142					
Capacity and v/c Ratios																	
	EB			WB			NB			SB							
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass					
Capacity (c_{PCE}), pc/h		1093			1022			702			753						
Capacity (c), veh/h		994			973			682			655						
v/c Ratio (X)		0.42			0.43			0.01			0.04						
Delay and Level of Service																	
	EB			WB			NB			SB							
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass					
Lane Control Delay (d), s/veh		8.3			8.6			5.4			5.9	0.0					
Lane LOS		A			A			A			A						
Lane 95% Queue		2.1			2.2			0.0			0.1						
Approach Delay, s/veh	8.27			8.56			5.37			0.82							
Approach LOS, s/veh	A			A			A			A							
Intersection Delay, s/veh	7.15																
Intersection LOS	A																

HCM Unsignalized Intersection Capacity Analysis
 3: Driveway/South High Street & Martinsburg Ave (15/33)

4/10/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	55	305	0	0	220	10	0	5	5	10	0	65
Sign Control		Free			Free			Stop			Stop	
Grade		0%			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
Hourly flow rate (vph)	57	314	0	0	227	10	0	5	5	10	0	67
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	237			314			727	665	314	668	660	232
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	237			314			727	665	314	668	660	232
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.2	6.7	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	96			100			100	99	99	97	100	91
cM capacity (veh/h)	1284			1229			299	363	724	337	351	776

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	57	314	237	10	77
Volume Left	57	0	0	0	10
Volume Right	0	0	10	5	67
cSH	1284	1700	1229	483	661
Volume to Capacity	0.04	0.18	0.00	0.02	0.12
Queue Length 95th (ft)	3	0	0	2	10
Control Delay (s)	7.9	0.0	0.0	12.6	11.2
Lane LOS	A			B	B
Approach Delay (s)	1.2		0.0	12.6	11.2
Approach LOS				B	B

Intersection Summary		
Average Delay		2.1
Intersection Capacity Utilization	49.5%	ICU Level of Service
Analysis Period (min)		15
		A

HCM Unsignalized Intersection Capacity Analysis

3: Driveway/South High Street & Martinsburg Ave (15/33)

4/10/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	80	285	0	5	335	25	0	0	5	15	5	125
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	91	324	0	6	381	28	0	0	6	17	6	142
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	409			324			1057	926	324	918	912	395
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	409			324			1057	926	324	918	912	395
tC, single (s)	4.2			4.1			7.1	6.5	6.2	7.2	6.7	6.4
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	92			100			100	100	99	92	98	77
cM capacity (veh/h)	1108			1219			143	244	715	222	238	627

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total	91	324	415	6	165
Volume Left	91	0	6	0	17
Volume Right	0	0	28	6	142
cSH	1108	1700	1219	715	503
Volume to Capacity	0.08	0.19	0.00	0.01	0.33
Queue Length 95th (ft)	7	0	0	1	35
Control Delay (s)	8.5	0.0	0.2	10.1	15.6
Lane LOS	A		A	B	C
Approach Delay (s)	1.9		0.2	10.1	15.6
Approach LOS				B	C

Intersection Summary

Average Delay		3.5			
Intersection Capacity Utilization		59.9%		ICU Level of Service	B
Analysis Period (min)		15			

ROUNDBABOUT REPORT																	
General Information									Site Information								
Analyst	GLu								Intersection	N High St and W Gordon Ave							
Agency or Co.									E/W Street Name	W Gordon Ave							
Date Performed	4/25/2013								N/S Street Name	N High St							
Time Period	AM Peak								Analysis Year	2018							
Project Description:									Project ID								
Volume Adjustment and Site Characteristics																	
	EB				WB				NB				SB				
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U	
Number of Lanes(N)	0	1	0		0	1	0		0	1	0		0	1	0		
Volume (V), veh/h	5	200	20	0	50	295	0	0	45	0	45	0	0	0	0	0	
Heavy Veh. Adj. (f_{HV}), %	5	5	5	5	10	10	10	10	15	15	15	15	3	3	3	3	
Peak Hour Factor (PHF)	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	
No. of Pedestrians Crossing Entry	0				0				0				0				
Critical and Follow-Up Headway Adjustment																	
	EB			WB			NB			SB							
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass					
Critical Headway (sec)	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929					
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858					
Flow Computations																	
	EB			WB			NB			SB							
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass					
Circulating Flow (V_c), pc/h	65			68			256			513							
Exiting Flow (V_{ex}), pc/h	312			448			6			90							
Entry Flow (V_e), pc/h		281			451			124			0						
Entry Volume veh/h		268			410			108									
Capacity and v/c Ratios																	
	EB			WB			NB			SB							
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass					
Capacity (c_{PCE}), pc/h		1059			1056			875			677						
Capacity (c), veh/h		1009			960			761			657						
v/c Ratio (X)		0.27			0.43			0.14									
Delay and Level of Service																	
	EB			WB			NB			SB							
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass					
Lane Control Delay (d), s/veh		6.2			8.7			6.2									
Lane LOS		A			A			A									
Lane 95% Queue		1.1			2.2			0.5									
Approach Delay, s/veh	6.18			8.65			6.22										
Approach LOS, s/veh	A			A			A										
Intersection Delay, s/veh	7.46																
Intersection LOS	A																

ROUNDBABOUT REPORT																	
General Information									Site Information								
Analyst	GLu								Intersection	N High St and W Gordon Ave							
Agency or Co.									E/W Street Name	W Gordon Ave							
Date Performed	4/25/2013								N/S Street Name	N High St							
Time Period	PM Peak								Analysis Year	2018							
Project Description:									Project ID								
Volume Adjustment and Site Characteristics																	
	EB				WB				NB				SB				
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U	
Number of Lanes(N)	0	1	0		0	1	0		0	1	0		0	1	0		
Volume (V), veh/h	0	285	110	0	50	275	0	0	85	0	35	0	5	5	5	0	
Heavy Veh. Adj. (f_{HV}), %	5	5	5	5	10	10	10	10	15	15	15	15	3	3	3	3	
Peak Hour Factor (PHF)	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	
No. of Pedestrians Crossing Entry	0				0				0				0				
Critical and Follow-Up Headway Adjustment																	
	EB			WB			NB			SB							
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass					
Critical Headway (sec)	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929	5.1929					
Follow-Up Headway (sec)	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858	3.1858					
Flow Computations																	
	EB			WB			NB			SB							
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass					
Circulating Flow (V_c), pc/h	74			110			342			512							
Exiting Flow (V_{ex}), pc/h	387			456			0			198							
Entry Flow (V_e), pc/h		466			402			155			18						
Entry Volume veh/h		444			365			135			17						
Capacity and v/c Ratios																	
	EB			WB			NB			SB							
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass					
Capacity (c_{PCE}), pc/h		1049			1012			803			677						
Capacity (c), veh/h		999			920			698			657						
v/c Ratio (X)		0.44			0.40			0.19			0.03						
Delay and Level of Service																	
	EB			WB			NB			SB							
	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass					
Lane Control Delay (d), s/veh		8.7			8.5			7.4			5.8						
Lane LOS		A			A			A			A						
Lane 95% Queue		2.3			1.9			0.7			0.1						
Approach Delay, s/veh	8.67			8.45			7.35			5.76							
Approach LOS, s/veh	A			A			A			A							
Intersection Delay, s/veh	8.35																
Intersection LOS	A																

HCM Unsignalized Intersection Capacity Analysis

3: North High Street/Driveway & West Gordon Ave (231)/West Gordon Ave (231)

4/10/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↖	↗			↕			↕	
Volume (veh/h)	5	200	20	50	295	0	45	0	45	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Hourly flow rate (vph)	6	238	24	60	351	0	54	0	54	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	351			238			732	732	250	732	720	351
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	351			238			732	732	250	732	720	351
tC, single (s)	4.1			4.2			7.2	6.7	6.4	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.6	4.1	3.4	3.5	4.0	3.3
p0 queue free %	100			95			83	100	93	100	100	100
cM capacity (veh/h)	1191			1283			308	316	758	300	335	690

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	268	60	351	107	0
Volume Left	6	60	0	54	0
Volume Right	24	0	0	54	0
cSH	1191	1283	1700	438	1700
Volume to Capacity	0.00	0.05	0.21	0.24	0.00
Queue Length 95th (ft)	0	4	0	24	0
Control Delay (s)	0.2	7.9	0.0	15.9	0.0
Lane LOS	A	A		C	A
Approach Delay (s)	0.2	1.2		15.9	0.0
Approach LOS				C	A

Intersection Summary

Average Delay	2.8
Intersection Capacity Utilization	42.8%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

3: North High Street/Driveway & West Gordon Ave (231)/West Gordon Ave (231)

4/26/2013



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕			↕	
Volume (veh/h)	0	285	110	50	275	0	85	0	35	5	5	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Hourly flow rate (vph)	0	320	124	56	309	0	96	0	39	6	6	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	309			320			812	803	382	803	742	309
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	309			320			812	803	382	803	742	309
tC, single (s)	4.1			4.2			7.2	6.7	6.4	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.3			3.6	4.1	3.4	3.5	4.0	3.3
p0 queue free %	100			95			64	100	94	98	98	99
cM capacity (veh/h)	1235			1196			267	288	637	272	327	729

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	SB 1
Volume Total	444	56	309	135	17
Volume Left	0	56	0	96	6
Volume Right	124	0	0	39	6
cSH	1235	1196	1700	322	370
Volume to Capacity	0.00	0.05	0.18	0.42	0.05
Queue Length 95th (ft)	0	4	0	50	4
Control Delay (s)	0.0	8.2	0.0	24.0	15.2
Lane LOS		A		C	C
Approach Delay (s)	0.0	1.3		24.0	15.2
Approach LOS				C	C

Intersection Summary

Average Delay		4.1			
Intersection Capacity Utilization		59.6%		ICU Level of Service	B
Analysis Period (min)		15			