



Movement	WBL	WBR	NBL	NBR	SBL	SBR
Lane Configurations	↰		↱			
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Volume (veh/h)	0	16	536	3	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	17	583	3	0	0
Pedestrians	21				21	
Lane Width (ft)	12.0				0.0	
Walking Speed (ft/s)	4.0				4.0	
Percent Blockage	2				0	
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	175					
pX, platoon unblocked						
vC, conflicting volume	605	626			607	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	605	626			607	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	453	476			954	
Direction/Lane #	WBL	T	NBL	T	SBL	T
Volume Total	17		586			
Volume Left	0		0			
Volume Right	17		3			
cSH	476		1700			
Volume to Capacity	0.04		0.34			
Queue Length 95th (ft)	3		0			
Control Delay (s)	12.9		0.0			
Lane LOS	B					
Approach Delay (s)	12.9		0.0			
Approach LOS	B					
Intersection Summary						
Average Delay	0.4					
Intersection Capacity Utilization	46.6%		ICU Level of Service		A	
Analysis Period (min)	15					

Square 859
1: H Street & 6th Street

Total Future PM
Improvements



MOVEMENT	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SEB
Lane Configurations	↕↑			↑↑			↑	↑	↑			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0			4.0	4.0	4.0			
Lane Util. Factor	0.95			0.95			1.00	1.00	1.00			
Frpb, ped/bikes	1.00			1.00			0.88	1.00	0.98			
Flpb, ped/bikes	1.00			1.00			1.00	0.99	1.00			
Frt	1.00			1.00			0.85	1.00	0.98			
Flt Protected	1.00			1.00			1.00	0.95	1.00			
Satd. Flow (prot)	3165			3185			1257	1578	1595			
Flt Permitted	0.81			1.00			1.00	0.95	1.00			
Satd. Flow (perm)	2572			3185			1257	1578	1595			
Volume (vph)	123	1556	0	0	602	73	49	304	61	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	134	1691	0	0	654	79	53	330	66	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	26	0	8	0	0	0	0
Lane Group Flow (vph)	0	1825	0	0	654	53	53	388	0	0	0	0
Confl. Peds. (#/hr)	32		31	31		32	5		72	72		5
Turn Type	Perm			Perm			Perm	Perm				
Protected Phases	4			8			2					
Permitted Phases	4						8	2				
Actuated Green, G (s)	66.5			66.5			66.5	23.5	23.5			
Effective Green, g (s)	67.5			67.5			67.5	24.5	24.5			
Actuated g/C Ratio	0.68			0.68			0.68	0.24	0.24			
Clearance Time (s)	5.0			5.0			5.0	5.0	5.0			
Lane Grp Cap (vph)	1736			2150			848	387	391			
v/s Ratio Prot				0.21			0.24					
v/s Ratio Perm	0.71						0.04	0.03				
v/c Ratio	1.05			0.30			0.06	0.14	0.99			
Uniform Delay, d1	16.2			6.6			5.5	29.5	37.7			
Progression Factor	1.00			0.55			0.30	1.00	1.00			
Incremental Delay, d2	36.5			0.4			0.1	0.7	43.9			
Delay (s)	52.8			4.0			1.8	30.2	81.6			
Level of Service	D			A			A	C	F			
Approach Delay (s)	52.8			3.8			75.5			0.0		
Approach LOS	D			A			E			A		
Intersection Summary												
HCM Average Control Delay	44.2			HCM Level of Service			D					
HCM Volume to Capacity ratio	1.04											
Actuated Cycle Length (s)	100.0			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	103.0%			ICU Level of Service			G					
Analysis Period (min)	15											
c Critical Lane Group												

Square 859
2: H Street & Garage Entrance

Total Future PM
Improvements



	EBL	EBR	WBL	WBR	NBL	NBR
Lane Configurations	↑↑		↑↑		↑↑	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	
Lane Util. Factor	0.95		0.95		1.00	
Frpb, ped/bikes	0.99		1.00		1.00	
Flpb, ped/bikes	1.00		1.00		1.00	
Frt	0.99		1.00		0.96	
Flt Protected	1.00		1.00		0.97	
Satd. Flow (prot)	3121		3183		1551	
Flt Permitted	1.00		0.91		0.97	
Satd. Flow (perm)	3121		2905		1551	
Volume (vph)	1597	61	10	626	47	22
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1736	66	11	680	51	24
RTOR Reduction (vph)	3	0	0	0	17	0
Lane Group Flow (vph)	1799	0	0	691	58	0
Confl. Peds. (#/hr)	125		125			
Turn Type			Perm			
Protected Phases	4		8		2	
Permitted Phases			8			
Actuated Green, G (s)	71.0		71.0		19.0	
Effective Green, g (s)	72.0		72.0		20.0	
Actuated g/C Ratio	0.72		0.72		0.20	
Clearance Time (s)	5.0		5.0		5.0	
Lane Grp Cap (vph)	2247		2092		310	
v/s Ratio Prot	0.58				0.04	
v/s Ratio Perm			0.24			
v/c Ratio	0.80		0.33		0.19	
Uniform Delay, d1	9.3		5.1		33.2	
Progression Factor	0.07		0.65		1.00	
Incremental Delay, d2	0.3		0.4		1.3	
Delay (s)	0.9		3.7		34.6	
Level of Service	A		A		C	
Approach Delay (s)	0.9		3.7		34.6	
Approach LOS	A		A		C	
Intersection Summary						
HCM Average Control Delay	2.7		HCM Level of Service		A	
HCM Volume to Capacity ratio	0.67					
Actuated Cycle Length (s)	100.0		Sum of lost time (s)		8.0	
Intersection Capacity Utilization	62.5%		ICU Level of Service		B	
Analysis Period (min)	15					
Critical Lane Group						

Square 859
3: H Street & 7th Street

Total Future PM
Improvements



Move	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕						↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0						4.0		
Lane Util. Factor	0.95			0.95						1.00		
Frpb, ped/bikes	0.98			0.99						0.99		
Flpb, ped/bikes	1.00			1.00						0.97		
Frt	0.99			0.99						0.98		
Flt Protected	1.00			1.00						0.98		
Satd. Flow (prot)	3094			3133						1548		
Flt Permitted	0.92			0.77						0.98		
Satd. Flow (perm)	2853			2402						1548		
Volume (vph)	31	1486	75	34	699	31	0	0	0	82	91	32
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	1615	82	37	760	34	0	0	0	89	99	35
RTOR Reduction (vph)	0	4	0	0	3	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	1727	0	0	828	0	0	0	0	0	216	0
Confl. Peds. (#/hr)	59		131	131		59				40		21
Turn Type	Perm			Perm						Perm		
Protected Phases	4			8						6		
Permitted Phases	4			8						6		
Actuated Green, G (s)	66.0			66.0						24.0		
Effective Green, g (s)	67.0			67.0						25.0		
Actuated g/C Ratio	0.67			0.67						0.25		
Clearance Time (s)	5.0			5.0						5.0		
Lane Grp Cap (vph)	1912			1609						387		
v/s Ratio Prot												
v/s Ratio Perm	0.61			0.34						0.14		
v/c Ratio	0.90			0.51						0.56		
Uniform Delay, d1	13.8			8.3						32.7		
Progression Factor	0.12			0.64						1.00		
Incremental Delay, d2	4.6			1.1						5.7		
Delay (s)	6.4			6.4						38.4		
Level of Service	A			A						D		
Approach Delay (s)	6.4			6.4			0.0			38.4		
Approach LOS	A			A			A			D		
Intersection Summary												
HCM Average Control Delay	9.0			HCM Level of Service			A					
HCM Volume to Capacity ratio	0.81											
Actuated Cycle Length (s)	100.0			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	93.3%			ICU Level of Service			F					
Analysis Period (min)	15											
Critical Lane Group												

Square 859
4: H Street & 8th Street

Total Future PM
Improvements



Movement	EBL	EBH	EBR	WBL	WBH	WBR	NBL	NBH	NBR	SBL	SBH	SBR
Lane Configurations	↑↑			↑↑			↕			↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0			4.0			4.0		
Lane Util. Factor	0.95			0.95			1.00			1.00		
Frpb, ped/bikes	0.99			0.97			0.95			0.95		
Flpb, ped/bikes	0.99			1.00			1.00			0.98		
Frft	1.00			0.99			0.97			0.98		
Flt Protected	1.00			1.00			1.00			0.99		
Satd. Flow (prot)	3107			3066			1541			1514		
Flt Permitted	0.89			0.95			0.98			0.89		
Satd. Flow (perm)	2763			2898			1510			1358		
Volume (vph)	60	1486	35	4	594	35	13	186	47	46	208	57
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	1615	38	4	646	38	14	202	51	50	226	62
RTOR Reduction (vph)	0	1	0	0	4	0	0	6	0	0	8	0
Lane Group Flow (vph)	0	1717	0	0	684	0	0	261	0	0	330	0
Confl. Peds. (#/hr)	189		297	297		189	146		135	135		146
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases	4			8			2			6		
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	62.0			62.0			28.0			28.0		
Effective Green, g (s)	63.0			63.0			29.0			29.0		
Actuated g/C Ratio	0.63			0.63			0.29			0.29		
Clearance Time (s)	5.0			5.0			5.0			5.0		
Lane Grp Cap (vph)	1741			1826			438			394		
v/s Ratio Prot												
v/s Ratio Perm	c0.62			0.24			0.17			c0.24		
v/c Ratio	0.99			0.37			0.60			0.84		
Uniform Delay, d1	18.1			9.0			30.5			33.3		
Progression Factor	0.35			1.00			1.00			1.00		
Incremental Delay, d2	11.5			0.6			5.8			18.8		
Delay (s)	17.9			9.5			36.3			52.1		
Level of Service	B			A			D			D		
Approach Delay (s)	17.9			9.5			36.3			52.1		
Approach LOS	B			A			D			D		
Intersection Summary												
HCM Average Control Delay	21.4			HCM Level of Service			C					
HCM Volume to Capacity ratio	0.94											
Actuated Cycle Length (s)	100.0			Sum of lost time (s)			8.0					
Intersection Capacity Utilization	115.1%			ICU Level of Service			H					
Analysis Period (min)	15											
c Critical Lane Group												

Square 859
5: Garage Entrance & 7th Street

Total Future PM
Improvements



Move	Peak	EB	NB	EB	SB	
Lane Configurations		↗		↘		
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	0	25	0	0	217	18
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	27	0	0	236	20
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)		173				
pX, platoon unblocked						
vC, conflicting volume	246	246	255			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	246	246	255			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	97	100			
cM capacity (veh/h)	743	793	1310			
Direction Lane #						
Volume Total	27	255				
Volume Left	0	0				
Volume Right	27	20				
cSH	793	1700				
Volume to Capacity	0.03	0.15				
Queue Length 95th (ft)	3	0				
Control Delay (s)	9.7	0.0				
Lane LOS	A					
Approach Delay (s)	9.7	0.0				
Approach LOS	A					
Intersection Summary						
Average Delay	0.9					
Intersection Capacity Utilization	23.9%		ICU Level of Service		A	
Analysis Period (min)	15					



Volume	EB	EB	NB	NB	SB	SB
Lane Configurations	T		T			
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Volume (veh/h)	0	1	0	0	227	9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	1	0	0	247	10
Pedestrians	7		24			
Lane Width (ft)	12.0		0.0			
Walking Speed (ft/s)	4.0		4.0			
Percent Blockage	1		0			
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	341					
pX, platoon unblocked						
VC conflicting volume	259	283	264			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	259	283	264			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	100	100	100			
cM capacity (veh/h)	726	752	1293			
Direction Lane #	EB	SB				
Volume Total	1	257				
Volume Left	0	0				
Volume Right	1	10				
cSH	752	1700				
Volume to Capacity	0.00	0.15				
Queue Length 95th (ft)	0	0				
Control Delay (s)	9.8	0.0				
Lane LOS	A					
Approach Delay (s)	9.8	0.0				
Approach LOS	A					
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			29.4%	ICU Level of Service	A	
Analysis Period (min)			15			

Square 859
7: G Street & 7th Street

Total Future PM
Improvements



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	4						1					
Signal Control	Stop			Stop			Stop			Stop		
Volume (vph)	0	0	0	26	87	0	0	0	0	0	181	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	28	95	0	0	0	0	0	197	59
Approach Lane #	WB		SB									
Volume Total (vph)	123		255									
Volume Left (vph)	28		0									
Volume Right (vph)	0		59									
Headway (s)	0.08		0.10									
Departure Headway (s)	4.5		4.1									
Degree Utilization, X	0.16		0.29									
Capacity (veh/h)	745		853									
Control Delay (s)	8.4		8.8									
Approach Delay (s)	8.4		8.8									
Approach LOS	A		A									
Intersection Summary												
Delay			8.6									
HCM Level of Service			A									
Intersection Capacity Utilization			28.0%		ICU Level of Service						A	
Analysis Period (min)			15									



Movement	EBL	EBT	WB-T	WB-P	SB-L	SB-P	
Lane Configurations	↰			↱			
Sign Control	Free		Free		Stop		
Grade	0%		0%		0%		
Volume (veh/h)	0	0	129	1	0	0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	0	140	1	0	0	
Pedestrians	17				17		
Lane Width (ft)	0.0				12.0		
Walking Speed (ft/s)	4.0				4.0		
Percent Blockage	0				1		
Right turn flare (veh)							
Median type	None						
Median storage veh							
Upstream signal (ft)							
pX, platoon unblocked							
VC, conflicting volume	158				158	175	
vC1, stage 1 conf vol							
VC2, stage 2 conf vol							
vCu, unblocked vol	158				158	175	
tC, single (s)	4.1				6.4	6.2	
tC, 2 stage (s)							
tF (s)	2.2				3.5	3.3	
p0 queue free %	100				100	100	
cM capacity (veh/h)	1401				822	856	
Direction Lane #	WB-L		SB-L				
Volume Total	141		0				
Volume Left	0		0				
Volume Right	1		0				
cSH	1700		1700				
Volume to Capacity	0.08		0.00				
Queue Length 95th (ft)	0		0				
Control Delay (s)	0.0		0.0				
Lane LOS	A						
Approach Delay (s)	0.0		0.0				
Approach LOS	A						
Intersection Summary							
Average Delay	0.0						
Intersection Capacity Utilization	24.4%		ICU Level of Service		A		
Analysis Period (min)	15						

Square 859
9: G Street & 6th Street

Total Future PM
Improvements



Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Lane Configurations					↑				↑			
Sign Control		Stop			Stop				Stop		Stop	
Volume (vph)	0	0	0	0	74	76	32	331	0	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	80	83	35	360	0	0	0	0
Through Lane(s)	WB			NB								
Volume Total (vph)	163			395								
Volume Left (vph)	0			35								
Volume Right (vph)	83			0								
Head (s)	0.27			0.05								
Departure Headway (s)	4.6			4.4								
Degree Utilization, x	0.21			0.48								
Capacity (veh/h)	731			807								
Control Delay (s)	8.7			11.3								
Approach Delay (s)	8.7			11.3								
Approach LOS	A			B								
Intersection Summary												
Delay				10.5								
HCM Level of Service				B								
Intersection Capacity Utilization				40.5%			ICU Level of Service			A		
Analysis Period (min)				15								



Direction	WB	EB	NB	SB
Volume (veh/h)	0	7	436	5
Peak Hour Factor	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	8	474	5
Pedestrians	17			17
Lane Width (ft)	12.0			0.0
Walking Speed (ft/s)	4.0			4.0
Percent Blockage	1			0
Right turn flare (veh)				
Median type	None			
Median storage veh				
Upstream signal (ft)				175
pX, platoon unblocked				
vC, conflicting volume	494	511		496
vC1, stage 1 conf vol				
vC2, stage 2 conf vol				
vCu, unblocked vol	494	511		496
tC, single (s)	6.4	6.2		4.1
tC, 2 stage (s)				
tF (s)	3.5	3.3		2.2
p0 queue free %	100	99		100
cM capacity (veh/h)	527	555		1052
Direction Lane #	WB 1	NB 1		
Volume Total	8	479		
Volume Left	0	0		
Volume Right	8	5		
cSH	555	1700		
Volume to Capacity	0.01	0.28		
Queue Length 95th (ft)	1	0		
Control Delay (s)	11.6	0.0		
Lane LOS	B			
Approach Delay (s)	11.6	0.0		
Approach LOS	B			
Intersection Summary				
Average Delay		0.2		
Intersection Capacity Utilization		40.2%	ICU Level of Service	A
Analysis Period (min)		15		