

Appendix C

Background Future Levels of Service

Capitol Place
1: Massachusetts Ave. & 2nd Street

Background AM

												
Movement	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)		3.0			3.0			3.0			3.0	3.0
Lane Util. Factor		0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes		0.99			0.99			1.00			1.00	0.78
Flpb, ped/bikes		1.00			1.00			0.92			1.00	1.00
Frt		0.97			1.00			1.00			1.00	0.85
Flt Protected		0.99			1.00			0.97			1.00	1.00
Satd. Flow (prot)		3364			3484			1659			1858	1241
Flt Permitted		0.52			0.95			0.69			0.99	1.00
Satd. Flow (perm)		1768			3320			1172			1845	1241
Volume (vph)	97	239	69	6	1125	25	136	95	5	5	171	237
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	108	266	77	7	1250	28	151	106	6	6	190	263
RTOR Reduction (vph)	0	17	0	0	1	0	0	1	0	0	0	138
Lane Group Flow (vph)	0	434	0	0	1284	0	0	262	0	0	196	125
Confl. Peds. (#/hr)	225		18	18		225	111		29	29		111
Turn Type	pm+pt			Perm			Perm			Perm		Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)		51.0			36.0			39.0			39.0	39.0
Effective Green, g (s)		52.0			37.0			42.0			42.0	42.0
Actuated g/C Ratio		0.52			0.37			0.42			0.42	0.42
Clearance Time (s)		5.0			4.0			6.0			6.0	6.0
Lane Grp Cap (vph)		1111			1228			492			775	521
v/s Ratio Prot		c0.05										
v/s Ratio Perm		0.16			c0.39			c0.22			0.11	0.10
v/c Ratio		0.39			1.05			0.53			0.25	0.24
Uniform Delay, d1		14.5			31.5			21.7			18.8	18.7
Progression Factor		1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2		1.0			38.4			4.1			0.8	1.1
Delay (s)		15.5			69.9			25.8			19.6	19.8
Level of Service		B			E			C			B	B
Approach Delay (s)		15.5			69.9			25.8			19.7	
Approach LOS		B			E			C			B	
Intersection Summary												
HCM Average Control Delay		45.8			HCM Level of Service			D				
HCM Volume to Capacity ratio		0.70										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			6.0				
Intersection Capacity Utilization		85.6%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

Capitol Place
1: Massachusetts Ave. & 2nd Street

Background AM
Improvements

												
Movement	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)		3.0			3.0			3.0			3.0	3.0
Lane Util. Factor		0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes		0.99			0.99			1.00			1.00	0.78
Flpb, ped/bikes		1.00			1.00			0.92			1.00	1.00
Frt		0.97			1.00			1.00			1.00	0.85
Flt Protected		0.99			1.00			0.97			1.00	1.00
Satd. Flow (prot)		3364			3484			1663			1858	1241
Flt Permitted		0.54			0.95			0.65			0.99	1.00
Satd. Flow (perm)		1847			3320			1107			1844	1241
Volume (vph)	97	239	69	6	1125	25	136	95	5	5	171	237
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	108	266	77	7	1250	28	151	106	6	6	190	263
RTOR Reduction (vph)	0	17	0	0	2	0	0	1	0	0	0	97
Lane Group Flow (vph)	0	434	0	0	1283	0	0	262	0	0	196	166
Confl. Peds. (#/hr)	225		18	18		225	111		29	29		111
Turn Type	pm+pt			Perm			Perm			Perm		Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)		57.0			45.0			33.0			33.0	33.0
Effective Green, g (s)		58.0			46.0			36.0			36.0	36.0
Actuated g/C Ratio		0.58			0.46			0.36			0.36	0.36
Clearance Time (s)		5.0			4.0			6.0			6.0	6.0
Lane Grp Cap (vph)		1208			1527			399			664	447
v/s Ratio Prot		c0.03										
v/s Ratio Perm		0.18			c0.39			c0.24			0.11	0.13
v/c Ratio		0.36			0.84			0.66			0.30	0.37
Uniform Delay, d1		11.1			23.8			26.8			22.9	23.6
Progression Factor		1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2		0.8			5.7			8.2			1.1	2.4
Delay (s)		12.0			29.5			35.1			24.0	26.0
Level of Service		B			C			D			C	C
Approach Delay (s)		12.0			29.5			35.1			25.2	
Approach LOS		B			C			D			C	
Intersection Summary												
HCM Average Control Delay		26.1			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.70										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			6.0				
Intersection Capacity Utilization		85.6%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	67	163	214	0	0	168
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	74	181	238	0	0	187
Pedestrians	90		45			5
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	8		4			0
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	1316					
pX, platoon unblocked						
vC, conflicting volume	559	333			328	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	559	333			328	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	83	72			100	
cM capacity (veh/h)	436	653			1139	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	256	238	187			
Volume Left	74	0	0			
Volume Right	181	0	0			
cSH	570	1700	1700			
Volume to Capacity	0.45	0.14	0.11			
Queue Length 95th (ft)	58	0	0			
Control Delay (s)	16.3	0.0	0.0			
Lane LOS	C					
Approach Delay (s)	16.3	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			6.1			
Intersection Capacity Utilization			34.0%	ICU Level of Service	A	
Analysis Period (min)			15			

Capitol Place
3: I Street & 2nd Street

Background AM
Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	2	2	4	38	13	65	20	261	48	27	171	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	2	2	4	42	14	72	22	290	53	30	190	9
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	9	129	366	229								
Volume Left (vph)	2	42	22	30								
Volume Right (vph)	4	72	53	9								
Hadj (s)	-0.22	-0.24	-0.04	0.04								
Departure Headway (s)	5.3	5.0	4.5	4.7								
Degree Utilization, x	0.01	0.18	0.46	0.30								
Capacity (veh/h)	584	640	776	728								
Control Delay (s)	8.3	9.1	11.2	9.7								
Approach Delay (s)	8.3	9.1	11.2	9.7								
Approach LOS	A	A	B	A								
Intersection Summary												
Delay				10.4								
HCM Level of Service				B								
Intersection Capacity Utilization				39.4%	ICU Level of Service	A						
Analysis Period (min)				15								

												
Movement	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)		3.0			3.0			3.0			3.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		0.96			1.00			1.00			0.99	
Flpb, ped/bikes		1.00			0.99			1.00			1.00	
Frt		0.97			1.00			1.00			0.96	
Flt Protected		1.00			1.00			0.99			1.00	
Satd. Flow (prot)		3291			3493			1840			1765	
Flt Permitted		0.95			0.94			0.86			0.97	
Satd. Flow (perm)		3124			3275			1607			1710	
Volume (vph)	2	150	35	37	981	24	94	349	4	9	92	49
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2	167	39	41	1090	27	104	388	4	10	102	54
RTOR Reduction (vph)	0	14	0	0	2	0	0	0	0	0	18	0
Lane Group Flow (vph)	0	194	0	0	1156	0	0	496	0	0	149	0
Confl. Peds. (#/hr)	25		68	68		25	3		6	6		3
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)		64.0			64.0			30.0			30.0	
Actuated g/C Ratio		0.64			0.64			0.30			0.30	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1999			2096			482			513	
v/s Ratio Prot												
v/s Ratio Perm		0.06			0.35			0.31			0.09	
v/c Ratio		0.10			0.55			1.03			0.29	
Uniform Delay, d1		6.9			10.0			35.0			26.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			1.1			48.6			1.4	
Delay (s)		7.0			11.1			83.6			28.3	
Level of Service		A			B			F			C	
Approach Delay (s)		7.0			11.1			83.6			28.3	
Approach LOS		A			B			F			C	
Intersection Summary												
HCM Average Control Delay		29.8			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.70										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			6.0				
Intersection Capacity Utilization		92.8%			ICU Level of Service			F				
Analysis Period (min)		15										
c Critical Lane Group												

Capitol Place
4: K Street & 2nd Street

Background AM
Improvements

												
Movement	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)		3.0			3.0			3.0			3.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		0.96			1.00			1.00			0.99	
Flpb, ped/bikes		1.00			0.99			1.00			1.00	
Frt		0.97			1.00			1.00			0.96	
Flt Protected		1.00			1.00			0.99			1.00	
Satd. Flow (prot)		3291			3493			1840			1765	
Flt Permitted		0.95			0.94			0.89			0.97	
Satd. Flow (perm)		3123			3275			1663			1715	
Volume (vph)	2	150	35	37	981	24	94	349	4	9	92	49
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2	167	39	41	1090	27	104	388	4	10	102	54
RTOR Reduction (vph)	0	17	0	0	2	0	0	0	0	0	18	0
Lane Group Flow (vph)	0	191	0	0	1156	0	0	496	0	0	148	0
Confl. Peds. (#/hr)	25		68	68		25	3		6	6		3
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		55.0			55.0			35.0			35.0	
Effective Green, g (s)		57.0			57.0			37.0			37.0	
Actuated g/C Ratio		0.57			0.57			0.37			0.37	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1780			1867			615			635	
v/s Ratio Prot												
v/s Ratio Perm		0.06			c0.35			c0.30			0.09	
v/c Ratio		0.11			0.62			0.81			0.23	
Uniform Delay, d1		9.8			14.3			28.3			21.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			1.6			10.8			0.9	
Delay (s)		10.0			15.8			39.1			22.6	
Level of Service		A			B			D			C	
Approach Delay (s)		10.0			15.8			39.1			22.6	
Approach LOS		A			B			D			C	
Intersection Summary												
HCM Average Control Delay		21.5			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.69										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			6.0				
Intersection Capacity Utilization		92.8%			ICU Level of Service			F				
Analysis Period (min)		15										
c Critical Lane Group												

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	0	27	132	85	39	117	0	0	129	62
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	30	147	94	43	130	0	0	143	69
Direction, Lane #	WB 1	NB 1	SB 1									
Volume Total (vph)	271	173	212									
Volume Left (vph)	30	43	0									
Volume Right (vph)	94	0	69									
Hadj (s)	-0.15	0.08	-0.16									
Departure Headway (s)	4.7	4.9	4.7									
Degree Utilization, x	0.35	0.24	0.27									
Capacity (veh/h)	721	686	726									
Control Delay (s)	10.2	9.5	9.4									
Approach Delay (s)	10.2	9.5	9.4									
Approach LOS	B	A	A									
Intersection Summary												
Delay			9.8									
HCM Level of Service			A									
Intersection Capacity Utilization		54.9%										
Analysis Period (min)		15										

												
Movement	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)		3.0			3.0			3.0			3.0	
Lane Util. Factor		0.91			0.91			1.00			1.00	
Frpb, ped/bikes		0.99			0.99			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.98			0.99			0.99			0.95	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		4951			4959			1797			1703	
Flt Permitted		0.70			0.91			0.70			0.76	
Satd. Flow (perm)		3464			4511			1273			1312	
Volume (vph)	61	387	51	43	1676	182	60	133	20	68	98	99
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	68	430	57	48	1862	202	67	148	22	76	109	110
RTOR Reduction (vph)	0	14	0	0	13	0	0	4	0	0	21	0
Lane Group Flow (vph)	0	541	0	0	2099	0	0	233	0	0	274	0
Confl. Peds. (#/hr)	25		10	10		25	23		24	24		23
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		69.0			59.0			19.0			19.0	
Effective Green, g (s)		72.0			62.0			22.0			22.0	
Actuated g/C Ratio		0.72			0.62			0.22			0.22	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		2598			2797			280			289	
v/s Ratio Prot		c0.01										
v/s Ratio Perm		0.14			c0.47			0.18			c0.21	
v/c Ratio		0.21			0.75			0.83			0.95	
Uniform Delay, d1		4.6			13.5			37.2			38.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			1.9			24.2			41.1	
Delay (s)		4.8			15.4			61.4			79.6	
Level of Service		A			B			E			E	
Approach Delay (s)		4.8			15.4			61.4			79.6	
Approach LOS		A			B			E			E	
Intersection Summary												
HCM Average Control Delay		22.9				HCM Level of Service		C				
HCM Volume to Capacity ratio		0.76										
Actuated Cycle Length (s)		100.0				Sum of lost time (s)		9.0				
Intersection Capacity Utilization		80.9%				ICU Level of Service		D				
Analysis Period (min)		15										
c Critical Lane Group												

Capitol Place
6: H Street & 3rd Street

Background AM
Improvements

												
Movement	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)		3.0			3.0			3.0			3.0	
Lane Util. Factor		0.91			0.91			1.00			1.00	
Frpb, ped/bikes		0.99			0.99			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			1.00			0.99	
Frt		0.98			0.99			0.99			0.95	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		4951			4959			1796			1702	
Flt Permitted		0.69			0.91			0.78			0.82	
Satd. Flow (perm)		3429			4510			1416			1417	
Volume (vph)	61	387	51	43	1676	182	60	133	20	68	98	99
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	68	430	57	48	1862	202	67	148	22	76	109	110
RTOR Reduction (vph)	0	14	0	0	13	0	0	4	0	0	21	0
Lane Group Flow (vph)	0	541	0	0	2099	0	0	233	0	0	274	0
Confl. Peds. (#/hr)	25		10	10		25	23		24	24		23
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		62.0			54.0			26.0			26.0	
Effective Green, g (s)		65.0			57.0			29.0			29.0	
Actuated g/C Ratio		0.65			0.57			0.29			0.29	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		2305			2571			411			411	
v/s Ratio Prot		c0.01										
v/s Ratio Perm		0.14			c0.47			0.16			c0.19	
v/c Ratio		0.23			0.82			0.57			0.67	
Uniform Delay, d1		7.2			17.3			30.2			31.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			3.0			5.6			8.3	
Delay (s)		7.5			20.3			35.8			39.5	
Level of Service		A			C			D			D	
Approach Delay (s)		7.5			20.3			35.8			39.5	
Approach LOS		A			C			D			D	
Intersection Summary												
HCM Average Control Delay			21.0		HCM Level of Service					C		
HCM Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)					9.0		
Intersection Capacity Utilization			80.9%		ICU Level of Service					D		
Analysis Period (min)			15									
c Critical Lane Group												

Capitol Place
7: I Street & 3rd Street

Background AM
Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop				Stop				Stop		
Volume (vph)	22	35	66	0	0	0	60	239	21	13	157	18
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	24	39	73	0	0	0	67	266	23	14	174	20
Direction, Lane #	EB 1	NB 1	SB 1									
Volume Total (vph)	137	356	209									
Volume Left (vph)	24	67	14									
Volume Right (vph)	73	23	20									
Hadj (s)	-0.25	0.03	-0.01									
Departure Headway (s)	4.9	4.5	4.7									
Degree Utilization, x	0.19	0.45	0.27									
Capacity (veh/h)	658	769	736									
Control Delay (s)	9.1	11.2	9.4									
Approach Delay (s)	9.1	11.2	9.4									
Approach LOS	A	B	A									
Intersection Summary												
Delay			10.2									
HCM Level of Service			B									
Intersection Capacity Utilization		53.4%		ICU Level of Service					A			
Analysis Period (min)			15									



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↩			↩
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	0	230	5	0	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	256	6	0	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	261				258	258
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	261				258	258
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)	1303				730	780
Direction, Lane #	WB 1	SB 1				
Volume Total	261	3				
Volume Left	0	0				
Volume Right	6	3				
cSH	1700	780				
Volume to Capacity	0.15	0.00				
Queue Length 95th (ft)	0	0				
Control Delay (s)	0.0	9.6				
Lane LOS		A				
Approach Delay (s)	0.0	9.6				
Approach LOS		A				
Intersection Summary						
Average Delay		0.1				
Intersection Capacity Utilization		22.4%		ICU Level of Service	A	
Analysis Period (min)		15				

Capitol Place
9: Driveway & 2nd Street

Background AM
Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Volume (veh/h)	5	0	10	2	0	1	46	322	8	3	159	42
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	0	11	2	0	1	51	358	9	3	177	47
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	672	676	200	682	694	362	223			367		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	672	676	200	682	694	362	223			367		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	99	99	100	100	96			100		
cM capacity (veh/h)	357	360	841	348	351	683	1345			1192		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	17	3	418	227								
Volume Left	6	2	51	3								
Volume Right	11	1	9	47								
cSH	580	416	1345	1192								
Volume to Capacity	0.03	0.01	0.04	0.00								
Queue Length 95th (ft)	2	1	3	0								
Control Delay (s)	11.4	13.7	1.3	0.1								
Lane LOS	B	B	A	A								
Approach Delay (s)	11.4	13.7	1.3	0.1								
Approach LOS	B	B										
Intersection Summary												
Average Delay				1.2								
Intersection Capacity Utilization				44.4%	ICU Level of Service			A				
Analysis Period (min)				15								

Capitol Place
1: Massachusetts Ave. & 2nd Street

Background PM

												
Movement	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)		3.0			3.0			3.0			3.0	3.0
Lane Util. Factor		0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes		0.99			0.96			1.00			1.00	0.78
Flpb, ped/bikes		0.97			1.00			0.93			1.00	1.00
Frt		0.99			0.99			1.00			1.00	0.85
Flt Protected		0.99			1.00			0.98			0.99	1.00
Satd. Flow (prot)		3346			3376			1698			1846	1241
Flt Permitted		0.71			0.95			0.80			0.96	1.00
Satd. Flow (perm)		2407			3208			1381			1779	1241
Volume (vph)	158	711	91	3	379	27	88	104	3	18	145	279
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	176	790	101	3	421	30	98	116	3	20	161	310
RTOR Reduction (vph)	0	8	0	0	5	0	0	1	0	0	0	158
Lane Group Flow (vph)	0	1059	0	0	449	0	0	216	0	0	181	152
Confl. Peds. (#/hr)	225		18	18		225	111		29	29		111
Turn Type	pm+pt			Perm			Perm			Perm		Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)		51.0			36.0			39.0			39.0	39.0
Effective Green, g (s)		52.0			37.0			42.0			42.0	42.0
Actuated g/C Ratio		0.52			0.37			0.42			0.42	0.42
Clearance Time (s)		5.0			4.0			6.0			6.0	6.0
Lane Grp Cap (vph)		1364			1187			580			747	521
v/s Ratio Prot		c0.09										
v/s Ratio Perm		c0.31			0.14			c0.16			0.10	0.12
v/c Ratio		0.78			0.38			0.37			0.24	0.29
Uniform Delay, d1		19.3			23.1			19.9			18.7	19.2
Progression Factor		1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2		4.4			0.9			1.8			0.8	1.4
Delay (s)		23.7			24.0			21.8			19.5	20.6
Level of Service		C			C			C			B	C
Approach Delay (s)		23.7			24.0			21.8			20.2	
Approach LOS		C			C			C			C	
Intersection Summary												
HCM Average Control Delay		22.8			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.59										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			6.0				
Intersection Capacity Utilization		80.6%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

Capitol Place
1: Massachusetts Ave. & 2nd Street

Background PM
Improvements

												
Movement	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)		3.0			3.0			3.0			3.0	3.0
Lane Util. Factor		0.95			0.95			1.00			1.00	1.00
Frbp, ped/bikes		0.99			0.96			1.00			1.00	0.78
Flpb, ped/bikes		0.97			1.00			0.94			1.00	1.00
Frt		0.99			0.99			1.00			1.00	0.85
Flt Protected		0.99			1.00			0.98			0.99	1.00
Satd. Flow (prot)		3336			3376			1702			1847	1241
Flt Permitted		0.74			0.95			0.76			0.96	1.00
Satd. Flow (perm)		2493			3209			1328			1776	1241
Volume (vph)	158	711	91	3	379	27	88	104	3	18	145	279
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	176	790	101	3	421	30	98	116	3	20	161	310
RTOR Reduction (vph)	0	8	0	0	5	0	0	1	0	0	0	149
Lane Group Flow (vph)	0	1059	0	0	449	0	0	216	0	0	181	162
Confl. Peds. (#/hr)	225		18	18		225	111		29	29		111
Turn Type	pm+pt			Perm			Perm			Perm		Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)		59.0			47.0			31.0			31.0	31.0
Effective Green, g (s)		60.0			48.0			34.0			34.0	34.0
Actuated g/C Ratio		0.60			0.48			0.34			0.34	0.34
Clearance Time (s)		5.0			4.0			6.0			6.0	6.0
Lane Grp Cap (vph)		1572			1540			452			604	422
v/s Ratio Prot		c0.06										
v/s Ratio Perm		c0.34			0.14			c0.16			0.10	0.13
v/c Ratio		0.67			0.29			0.48			0.30	0.38
Uniform Delay, d1		13.4			15.7			26.0			24.3	25.0
Progression Factor		1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2		2.3			0.5			3.6			1.3	2.6
Delay (s)		15.8			16.2			29.6			25.5	27.7
Level of Service		B			B			C			C	C
Approach Delay (s)		15.8			16.2			29.6			26.9	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM Average Control Delay		19.6			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.60										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			6.0				
Intersection Capacity Utilization		80.6%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	51	33	294	0	0	225
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	57	37	327	0	0	250
Pedestrians	90		45			5
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	8		4			0
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	1316					
pX, platoon unblocked						
vC, conflicting volume	712	422			417	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	712	422			417	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	84	94			100	
cM capacity (veh/h)	355	582			1057	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	93	327	250			
Volume Left	57	0	0			
Volume Right	37	0	0			
cSH	420	1700	1700			
Volume to Capacity	0.22	0.19	0.15			
Queue Length 95th (ft)	21	0	0			
Control Delay (s)	16.0	0.0	0.0			
Lane LOS	C					
Approach Delay (s)	16.0	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			28.5%	ICU Level of Service	A	
Analysis Period (min)			15			

Capitol Place
3: I Street & 2nd Street

Background PM
Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	8	13	8	24	0	22	0	270	97	90	140	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	14	9	27	0	24	0	300	108	100	156	2
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	32	51	408	258								
Volume Left (vph)	9	27	0	100								
Volume Right (vph)	9	24	108	2								
Hadj (s)	-0.08	-0.15	-0.12	0.11								
Departure Headway (s)	5.4	5.3	4.3	4.7								
Degree Utilization, x	0.05	0.08	0.49	0.33								
Capacity (veh/h)	579	596	817	742								
Control Delay (s)	8.7	8.7	11.3	10.0								
Approach Delay (s)	8.7	8.7	11.3	10.0								
Approach LOS	A	A	B	A								
Intersection Summary												
Delay			10.6									
HCM Level of Service			B									
Intersection Capacity Utilization			52.9%		ICU Level of Service				A			
Analysis Period (min)			15									

												
Movement	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)		3.0			3.0			3.0			3.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		0.98			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			1.00			0.99			0.98	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		3433			3498			1809			1808	
Flt Permitted		0.95			0.88			0.86			0.88	
Satd. Flow (perm)		3254			3104			1583			1616	
Volume (vph)	15	758	63	17	241	6	106	232	32	22	75	14
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	17	842	70	19	268	7	118	258	36	24	83	16
RTOR Reduction (vph)	0	6	0	0	2	0	0	4	0	0	6	0
Lane Group Flow (vph)	0	923	0	0	292	0	0	409	0	0	117	0
Confl. Peds. (#/hr)	25		68	68		25	3		6	6		3
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		63.0			63.0			29.0			29.0	
Effective Green, g (s)		64.0			64.0			30.0			30.0	
Actuated g/C Ratio		0.64			0.64			0.30			0.30	
Clearance Time (s)		4.0			4.0			4.0			4.0	
Lane Grp Cap (vph)		2083			1987			475			485	
v/s Ratio Prot												
v/s Ratio Perm		c0.28			0.09			c0.26			0.07	
v/c Ratio		0.44			0.15			0.86			0.24	
Uniform Delay, d1		9.0			7.2			33.0			26.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.7			0.2			18.1			1.2	
Delay (s)		9.7			7.3			51.1			27.6	
Level of Service		A			A			D			C	
Approach Delay (s)		9.7			7.3			51.1			27.6	
Approach LOS		A			A			D			C	
Intersection Summary												
HCM Average Control Delay		20.3										
HCM Volume to Capacity ratio		0.58										
Actuated Cycle Length (s)		100.0										
Intersection Capacity Utilization		67.5%										
Analysis Period (min)		15										
c Critical Lane Group												

Capitol Place
4: K Street & 2nd Street

Background PM
Improvements

												
Movement	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)		3.0			3.0			3.0			3.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		0.98			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			1.00			0.99			0.98	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		3433			3499			1809			1808	
Flt Permitted		0.95			0.88			0.88			0.90	
Satd. Flow (perm)		3253			3096			1611			1649	
Volume (vph)	15	758	63	17	241	6	106	232	32	22	75	14
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	17	842	70	19	268	7	118	258	36	24	83	16
RTOR Reduction (vph)	0	6	0	0	2	0	0	3	0	0	6	0
Lane Group Flow (vph)	0	923	0	0	292	0	0	409	0	0	117	0
Confl. Peds. (#/hr)	25		68	68		25	3		6	6		3
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		55.0			55.0			35.0			35.0	
Effective Green, g (s)		57.0			57.0			37.0			37.0	
Actuated g/C Ratio		0.57			0.57			0.37			0.37	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1854			1765			596			610	
v/s Ratio Prot												
v/s Ratio Perm		c0.28			0.09			c0.25			0.07	
v/c Ratio		0.50			0.17			0.69			0.19	
Uniform Delay, d1		12.9			10.2			26.6			21.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.0			0.2			6.3			0.7	
Delay (s)		13.9			10.4			32.9			22.1	
Level of Service		B			B			C			C	
Approach Delay (s)		13.9			10.4			32.9			22.1	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM Average Control Delay		18.3			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.57										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			6.0				
Intersection Capacity Utilization		67.5%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

Capitol Place
5: G Street & 3rd Street

Background PM
Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	0	13	20	37	9	137	0	0	187	40
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	14	22	41	10	152	0	0	208	44
Direction, Lane #	WB 1	NB 1	SB 1									
Volume Total (vph)	78	162	252									
Volume Left (vph)	14	10	0									
Volume Right (vph)	41	0	44									
Hadj (s)	-0.25	0.05	-0.07									
Departure Headway (s)	4.6	4.4	4.2									
Degree Utilization, x	0.10	0.20	0.29									
Capacity (veh/h)	720	793	830									
Control Delay (s)	8.1	8.5	8.9									
Approach Delay (s)	8.1	8.5	8.9									
Approach LOS	A	A	A									
Intersection Summary												
Delay			8.6									
HCM Level of Service			A									
Intersection Capacity Utilization		33.8%		ICU Level of Service		A						
Analysis Period (min)		15										

												
Movement	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)		3.0			3.0			3.0			3.0	
Lane Util. Factor		0.91			0.91			1.00			1.00	
Frpb, ped/bikes		1.00			0.99			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			1.00			0.99	
Frt		0.99			0.98			0.98			0.96	
Flt Protected		1.00			1.00			0.99			0.98	
Satd. Flow (prot)		5005			4884			1778			1708	
Flt Permitted		0.76			0.80			0.77			0.68	
Satd. Flow (perm)		3842			3939			1383			1180	
Volume (vph)	147	1494	88	27	516	98	43	96	30	160	125	123
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	163	1660	98	30	573	109	48	107	33	178	139	137
RTOR Reduction (vph)	0	6	0	0	26	0	0	8	0	0	16	0
Lane Group Flow (vph)	0	1915	0	0	686	0	0	180	0	0	438	0
Confl. Peds. (#/hr)	25		10	10		25	23		24	24		23
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		69.0			59.0			19.0			19.0	
Effective Green, g (s)		72.0			62.0			22.0			22.0	
Actuated g/C Ratio		0.72			0.62			0.22			0.22	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		2848			2442			304			260	
v/s Ratio Prot		c0.05										
v/s Ratio Perm		c0.44			0.17			0.13			c0.37	
v/c Ratio		0.67			0.28			0.59			1.69	
Uniform Delay, d1		7.6			8.7			35.0			39.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.3			0.3			8.2			324.9	
Delay (s)		8.9			9.0			43.2			363.9	
Level of Service		A			A			D			F	
Approach Delay (s)		8.9			9.0			43.2			363.9	
Approach LOS		A			A			D			F	
Intersection Summary												
HCM Average Control Delay		60.1			HCM Level of Service			E				
HCM Volume to Capacity ratio		0.91										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			6.0				
Intersection Capacity Utilization		94.7%			ICU Level of Service			F				
Analysis Period (min)		15										
c Critical Lane Group												

												
Movement	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)		3.0			3.0			3.0			3.0	
Lane Util. Factor		0.91			0.91			1.00			1.00	
Frpb, ped/bikes		1.00			0.99			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			1.00			0.99	
Frt		0.99			0.98			0.98			0.96	
Flt Protected		1.00			1.00			0.99			0.98	
Satd. Flow (prot)		5006			4885			1778			1706	
Flt Permitted		0.74			0.80			0.82			0.76	
Satd. Flow (perm)		3732			3913			1484			1322	
Volume (vph)	147	1494	88	27	516	98	43	96	30	160	125	123
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	163	1660	98	30	573	109	48	107	33	178	139	137
RTOR Reduction (vph)	0	6	0	0	26	0	0	7	0	0	16	0
Lane Group Flow (vph)	0	1915	0	0	686	0	0	181	0	0	439	0
Confl. Peds. (#/hr)	25		10	10		25	23		24	24		23
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		53.0			43.0			35.0			35.0	
Effective Green, g (s)		56.0			46.0			38.0			38.0	
Actuated g/C Ratio		0.56			0.46			0.38			0.38	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		2179			1800			564			502	
v/s Ratio Prot		c0.06										
v/s Ratio Perm		c0.43			0.18			0.12			c0.33	
v/c Ratio		0.88			0.38			0.32			0.87	
Uniform Delay, d1		19.1			17.7			21.9			28.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		5.5			0.6			1.5			18.7	
Delay (s)		24.5			18.3			23.4			47.4	
Level of Service		C			B			C			D	
Approach Delay (s)		24.5			18.3			23.4			47.4	
Approach LOS		C			B			C			D	
Intersection Summary												
HCM Average Control Delay		26.3			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.88										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			6.0				
Intersection Capacity Utilization		94.7%			ICU Level of Service			F				
Analysis Period (min)		15										
c Critical Lane Group												

Capitol Place
7: I Street & 3rd Street

Background PM
Improvements

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	27	61	84	0	0	0	55	207	26	16	229	21
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	30	68	93	0	0	0	61	230	29	18	254	23
Direction, Lane #	EB 1	NB 1	SB 1									
Volume Total (vph)	191	320	296									
Volume Left (vph)	30	61	18									
Volume Right (vph)	93	29	23									
Hadj (s)	-0.23	0.02	0.00									
Departure Headway (s)	5.1	4.8	4.8									
Degree Utilization, x	0.27	0.43	0.40									
Capacity (veh/h)	637	718	712									
Control Delay (s)	10.0	11.4	11.0									
Approach Delay (s)	10.0	11.4	11.0									
Approach LOS	B	B	B									
Intersection Summary												
Delay			10.9									
HCM Level of Service			B									
Intersection Capacity Utilization			55.5%	ICU Level of Service		B						
Analysis Period (min)			15									



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			↩			↩
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	0	76	1	0	9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	84	1	0	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	86				85	85
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	86				85	85
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	99
cM capacity (veh/h)	1511				916	974
Direction, Lane #	WB 1	SB 1				
Volume Total	86	10				
Volume Left	0	0				
Volume Right	1	10				
cSH	1700	974				
Volume to Capacity	0.05	0.01				
Queue Length 95th (ft)	0	1				
Control Delay (s)	0.0	8.7				
Lane LOS		A				
Approach Delay (s)	0.0	8.7				
Approach LOS		A				
Intersection Summary						
Average Delay		0.9				
Intersection Capacity Utilization		14.1%		ICU Level of Service		A
Analysis Period (min)		15				

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Volume (veh/h)	40	0	53	12	0	9	9	301	0	0	159	6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	44	0	59	13	0	10	10	334	0	0	177	7
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	544	534	180	593	538	334	183				334	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	544	534	180	593	538	334	183				334	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	90	100	93	97	100	99	99				100	
cM capacity (veh/h)	441	449	863	386	447	707	1392				1225	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	103	23	344	183								
Volume Left	44	13	10	0								
Volume Right	59	10	0	7								
cSH	611	480	1392	1225								
Volume to Capacity	0.17	0.05	0.01	0.00								
Queue Length 95th (ft)	15	4	1	0								
Control Delay (s)	12.1	12.9	0.3	0.0								
Lane LOS	B	B	A									
Approach Delay (s)	12.1	12.9	0.3	0.0								
Approach LOS	B	B										
Intersection Summary												
Average Delay				2.5								
Intersection Capacity Utilization				35.9%	ICU Level of Service			A				
Analysis Period (min)				15								

Appendix D

Total Future Levels of Service

Capitol Place
1: Massachusetts Ave. & 2nd Street

Total Future AM

												
Movement	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)		3.0			3.0			3.0			3.0	3.0
Lane Util. Factor		0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes		0.99			0.99			1.00			1.00	0.78
Flpb, ped/bikes		1.00			1.00			0.92			1.00	1.00
Frt		0.97			1.00			1.00			1.00	0.85
Flt Protected		0.99			1.00			0.97			1.00	1.00
Satd. Flow (prot)		3364			3484			1665			1859	1241
Flt Permitted		0.54			0.95			0.64			0.99	1.00
Satd. Flow (perm)		1842			3320			1099			1844	1241
Volume (vph)	98	239	69	6	1125	25	136	95	5	5	175	251
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	109	266	77	7	1250	28	151	106	6	6	194	279
RTOR Reduction (vph)	0	17	0	0	2	0	0	1	0	0	0	97
Lane Group Flow (vph)	0	435	0	0	1283	0	0	262	0	0	200	182
Confl. Peds. (#/hr)	225		18	18		225	111		29	29		111
Turn Type	pm+pt			Perm			Perm			Perm		Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)		57.0			45.0			33.0			33.0	33.0
Effective Green, g (s)		58.0			46.0			36.0			36.0	36.0
Actuated g/C Ratio		0.58			0.46			0.36			0.36	0.36
Clearance Time (s)		5.0			4.0			6.0			6.0	6.0
Lane Grp Cap (vph)		1205			1527			396			664	447
v/s Ratio Prot		c0.03										
v/s Ratio Perm		0.18			c0.39			c0.24			0.11	0.15
v/c Ratio		0.36			0.84			0.66			0.30	0.41
Uniform Delay, d1		11.2			23.8			26.9			23.0	24.0
Progression Factor		1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2		0.8			5.7			8.5			1.2	2.7
Delay (s)		12.0			29.5			35.3			24.1	26.7
Level of Service		B			C			D			C	C
Approach Delay (s)		12.0			29.5			35.3			25.6	
Approach LOS		B			C			D			C	
Intersection Summary												
HCM Average Control Delay		26.2			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.70										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			6.0				
Intersection Capacity Utilization		85.6%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

									
Movement	WBL	WBR	NBT	NBR	SBL	SBT			
Lane Configurations									
Sign Control	Stop		Free			Free			
Grade	0%		0%			0%			
Volume (veh/h)	67	170	214	0	0	186			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90			
Hourly flow rate (vph)	74	189	238	0	0	207			
Pedestrians	90		45			5			
Lane Width (ft)	12.0		12.0			12.0			
Walking Speed (ft/s)	4.0		4.0			4.0			
Percent Blockage	8		4			0			
Right turn flare (veh)									
Median type	None								
Median storage (veh)									
Upstream signal (ft)	1316								
pX, platoon unblocked									
vC, conflicting volume	579	333			328				
vC1, stage 1 conf vol									
vC2, stage 2 conf vol									
vCu, unblocked vol	579	333			328				
tC, single (s)	6.4	6.2			4.1				
tC, 2 stage (s)									
tF (s)	3.5	3.3			2.2				
p0 queue free %	82	71			100				
cM capacity (veh/h)	425	653			1139				
Direction, Lane #	WB 1	NB 1	SB 1						
Volume Total	263	238	207						
Volume Left	74	0	0						
Volume Right	189	0	0						
cSH	567	1700	1700						
Volume to Capacity	0.46	0.14	0.12						
Queue Length 95th (ft)	61	0	0						
Control Delay (s)	16.7	0.0	0.0						
Lane LOS	C								
Approach Delay (s)	16.7	0.0	0.0						
Approach LOS	C								
Intersection Summary									
Average Delay	6.2								
Intersection Capacity Utilization	34.5%		ICU Level of Service		A				
Analysis Period (min)	15								

Capitol Place
3: I Street & 2nd Street

Total Future AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Sign Control	Stop			Stop			Stop			Stop		
Volume (vph)	2	2	4	38	13	65	20	281	64	27	176	8
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	2	2	4	42	14	72	22	312	71	30	196	9
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	9	129	406	234								
Volume Left (vph)	2	42	22	30								
Volume Right (vph)	4	72	71	9								
Hadj (s)	-0.22	-0.24	-0.06	0.04								
Departure Headway (s)	5.4	5.1	4.5	4.8								
Degree Utilization, x	0.01	0.18	0.51	0.31								
Capacity (veh/h)	566	625	778	719								
Control Delay (s)	8.5	9.3	12.0	9.9								
Approach Delay (s)	8.5	9.3	12.0	9.9								
Approach LOS	A	A	B	A								
Intersection Summary												
Delay				10.9								
HCM Level of Service				B								
Intersection Capacity Utilization				41.6%	ICU Level of Service	A						
Analysis Period (min)				15								

Capitol Place
4: K Street & 2nd Street

Total Future AM

												
Movement	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)		3.0			3.0			3.0			3.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		0.95			1.00			1.00			0.99	
Flpb, ped/bikes		1.00			0.99			1.00			1.00	
Frt		0.97			1.00			1.00			0.96	
Flt Protected		1.00			1.00			0.99			1.00	
Satd. Flow (prot)		3266			3493			1837			1765	
Flt Permitted		0.95			0.94			0.87			0.97	
Satd. Flow (perm)		3101			3274			1615			1713	
Volume (vph)	2	150	40	37	981	24	111	352	4	9	92	49
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	2	167	44	41	1090	27	123	391	4	10	102	54
RTOR Reduction (vph)	0	19	0	0	2	0	0	0	0	0	18	0
Lane Group Flow (vph)	0	194	0	0	1156	0	0	518	0	0	148	0
Confl. Peds. (#/hr)	25		68	68		25	3		6	6		3
Turn Type	Perm		Perm		Perm		Perm		Perm		Perm	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		55.0			55.0			35.0			35.0	
Effective Green, g (s)		57.0			57.0			37.0			37.0	
Actuated g/C Ratio		0.57			0.57			0.37			0.37	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1768			1866			598			634	
v/s Ratio Prot												
v/s Ratio Perm		0.06			0.35			0.32			0.09	
v/c Ratio		0.11			0.62			0.87			0.23	
Uniform Delay, d1		9.9			14.3			29.2			21.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			1.6			15.5			0.9	
Delay (s)		10.0			15.9			44.7			22.6	
Level of Service		A			B			D			C	
Approach Delay (s)		10.0			15.9			44.7			22.6	
Approach LOS		A			B			D			C	
Intersection Summary												
HCM Average Control Delay		23.1			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.72										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			6.0				
Intersection Capacity Utilization		93.9%			ICU Level of Service			F				
Analysis Period (min)		15										
c Critical Lane Group												

Capitol Place
5: G Street & 3rd Street

Total Future AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	0	27	132	85	41	117	0	0	129	68
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	30	147	94	46	130	0	0	143	76
Direction, Lane #	WB 1	NB 1	SB 1									
Volume Total (vph)	271	176	219									
Volume Left (vph)	30	46	0									
Volume Right (vph)	94	0	76									
Hadj (s)	-0.15	0.09	-0.17									
Departure Headway (s)	4.7	4.9	4.6									
Degree Utilization, x	0.35	0.24	0.28									
Capacity (veh/h)	717	685	727									
Control Delay (s)	10.3	9.5	9.5									
Approach Delay (s)	10.3	9.5	9.5									
Approach LOS	B	A	A									
Intersection Summary												
Delay			9.8									
HCM Level of Service			A									
Intersection Capacity Utilization		55.1%		ICU Level of Service						B		
Analysis Period (min)		15										

												
Movement	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)		3.0			3.0			3.0			3.0	
Lane Util. Factor		0.91			0.91			1.00			1.00	
Frpb, ped/bikes		0.99			0.99			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			1.00			0.99	
Frt		0.98			0.99			0.99			0.95	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		4946			4958			1796			1698	
Flt Permitted		0.69			0.90			0.77			0.82	
Satd. Flow (perm)		3426			4491			1407			1418	
Volume (vph)	61	387	54	47	1676	182	60	133	20	68	98	104
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	68	430	60	52	1862	202	67	148	22	76	109	116
RTOR Reduction (vph)	0	15	0	0	13	0	0	4	0	0	23	0
Lane Group Flow (vph)	0	543	0	0	2103	0	0	233	0	0	278	0
Confl. Peds. (#/hr)	25		10	10		25	23		24	24		23
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		62.0			54.0			26.0			26.0	
Effective Green, g (s)		65.0			57.0			29.0			29.0	
Actuated g/C Ratio		0.65			0.57			0.29			0.29	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		2303			2560			408			411	
v/s Ratio Prot		c0.01										
v/s Ratio Perm		0.14			c0.47			0.17			c0.20	
v/c Ratio		0.24			0.82			0.57			0.68	
Uniform Delay, d1		7.2			17.4			30.2			31.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			3.1			5.7			8.7	
Delay (s)		7.5			20.5			35.9			40.0	
Level of Service		A			C			D			D	
Approach Delay (s)		7.5			20.5			35.9			40.0	
Approach LOS		A			C			D			D	
Intersection Summary												
HCM Average Control Delay		21.2			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.74										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		81.3%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

Capitol Place
7: I Street & 3rd Street

Total Future AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control	Stop			Stop			Stop			Stop		
Volume (vph)	22	47	71	0	0	0	60	239	21	13	157	18
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	24	52	79	0	0	0	67	266	23	14	174	20
Direction, Lane #	EB 1	NB 1	SB 1									
Volume Total (vph)	156	356	209									
Volume Left (vph)	24	67	14									
Volume Right (vph)	79	23	20									
Hadj (s)	-0.24	0.03	-0.01									
Departure Headway (s)	5.0	4.6	4.7									
Degree Utilization, x	0.21	0.45	0.27									
Capacity (veh/h)	656	758	725									
Control Delay (s)	9.3	11.4	9.5									
Approach Delay (s)	9.3	11.4	9.5									
Approach LOS	A	B	A									
Intersection Summary												
Delay			10.4									
HCM Level of Service			B									
Intersection Capacity Utilization			54.3%	ICU Level of Service		A						
Analysis Period (min)			15									

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	0	237	5	0	3
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	263	6	0	3
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	269				266	266
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	269				266	266
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)	1295				723	773
Direction, Lane #	WB 1	SB 1				
Volume Total	269	3				
Volume Left	0	0				
Volume Right	6	3				
cSH	1700	773				
Volume to Capacity	0.16	0.00				
Queue Length 95th (ft)	0	0				
Control Delay (s)	0.0	9.7				
Lane LOS		A				
Approach Delay (s)	0.0	9.7				
Approach LOS		A				
Intersection Summary						
Average Delay		0.1				
Intersection Capacity Utilization		22.8%		ICU Level of Service		A
Analysis Period (min)		15				

Capitol Place
9: Site Driveway & 2nd Street

Total Future AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Volume (veh/h)	5	0	10	20	0	37	46	322	16	8	159	42
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	6	0	11	22	0	41	51	358	18	9	177	47
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	728	696	200	698	710	367	223				376	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	728	696	200	698	710	367	223				376	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	98	100	99	93	100	94	96				99	
cM capacity (veh/h)	307	349	841	338	342	679	1345				1183	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	17	63	427	232								
Volume Left	6	22	51	9								
Volume Right	11	41	18	47								
cSH	533	502	1345	1183								
Volume to Capacity	0.03	0.13	0.04	0.01								
Queue Length 95th (ft)	2	11	3	1								
Control Delay (s)	12.0	13.2	1.3	0.4								
Lane LOS	B	B	A	A								
Approach Delay (s)	12.0	13.2	1.3	0.4								
Approach LOS	B	B										
Intersection Summary												
Average Delay				2.3								
Intersection Capacity Utilization				46.4%	ICU Level of Service			A				
Analysis Period (min)				15								

												
Movement	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)		3.0			3.0			3.0			3.0	3.0
Lane Util. Factor		0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes		0.99			0.96			1.00			1.00	0.78
Flpb, ped/bikes		0.97			1.00			0.94			1.00	1.00
Frt		0.99			0.99			1.00			1.00	0.85
Flt Protected		0.99			1.00			0.98			0.99	1.00
Satd. Flow (prot)		3332			3376			1706			1847	1241
Flt Permitted		0.73			0.95			0.76			0.96	1.00
Satd. Flow (perm)		2458			3209			1328			1777	1241
Volume (vph)	167	711	91	3	379	27	88	108	3	18	148	288
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	186	790	101	3	421	30	98	120	3	20	164	320
RTOR Reduction (vph)	0	8	0	0	5	0	0	1	0	0	0	149
Lane Group Flow (vph)	0	1069	0	0	449	0	0	220	0	0	184	172
Confl. Peds. (#/hr)	225		18	18		225	111		29	29		111
Turn Type	pm+pt			Perm			Perm			Perm		Perm
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)		59.0			47.0			31.0			31.0	31.0
Effective Green, g (s)		60.0			48.0			34.0			34.0	34.0
Actuated g/C Ratio		0.60			0.48			0.34			0.34	0.34
Clearance Time (s)		5.0			4.0			6.0			6.0	6.0
Lane Grp Cap (vph)		1553			1540			452			604	422
v/s Ratio Prot		c0.06										
v/s Ratio Perm		c0.35			0.14			c0.17			0.10	0.14
v/c Ratio		0.69			0.29			0.49			0.30	0.41
Uniform Delay, d1		13.6			15.7			26.1			24.3	25.3
Progression Factor		1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2		2.5			0.5			3.7			1.3	2.9
Delay (s)		16.1			16.2			29.8			25.6	28.2
Level of Service		B			B			C			C	C
Approach Delay (s)		16.1			16.2			29.8			27.2	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM Average Control Delay		20.0			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.61										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			6.0				
Intersection Capacity Utilization		80.9%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	51	58	308	0	0	236
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	57	64	342	0	0	262
Pedestrians	90		45			5
Lane Width (ft)	12.0		12.0			12.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	8		4			0
Right turn flare (veh)						
Median type	None					
Median storage (veh)						
Upstream signal (ft)	1316					
pX, platoon unblocked						
vC, conflicting volume	739	437			432	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	739	437			432	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	83	89			100	
cM capacity (veh/h)	342	570			1043	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	121	342	262			
Volume Left	57	0	0			
Volume Right	64	0	0			
cSH	435	1700	1700			
Volume to Capacity	0.28	0.20	0.15			
Queue Length 95th (ft)	28	0	0			
Control Delay (s)	16.4	0.0	0.0			
Lane LOS	C					
Approach Delay (s)	16.4	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay	2.7					
Intersection Capacity Utilization	30.6%		ICU Level of Service		A	
Analysis Period (min)	15					

Capitol Place
3: I Street & 2nd Street

Total Future PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Sign Control	Stop			Stop			Stop			Stop		
Volume (vph)	8	13	8	24	0	22	0	285	123	90	162	2
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	14	9	27	0	24	0	317	137	100	180	2
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	32	51	453	282								
Volume Left (vph)	9	27	0	100								
Volume Right (vph)	9	24	137	2								
Hadj (s)	-0.08	-0.15	-0.15	0.10								
Departure Headway (s)	5.6	5.4	4.3	4.7								
Degree Utilization, x	0.05	0.08	0.54	0.37								
Capacity (veh/h)	557	572	815	735								
Control Delay (s)	8.8	8.9	12.3	10.5								
Approach Delay (s)	8.8	8.9	12.3	10.5								
Approach LOS	A	A	B	B								
Intersection Summary												
Delay				11.3								
HCM Level of Service				B								
Intersection Capacity Utilization				56.2%	ICU Level of Service	B						
Analysis Period (min)				15								

Capitol Place
4: K Street & 2nd Street

Total Future PM

												
Movement	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)		3.0			3.0			3.0			3.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frpb, ped/bikes		0.98			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			1.00			0.99			0.98	
Flt Protected		1.00			1.00			0.98			0.99	
Satd. Flow (prot)		3407			3500			1806			1811	
Flt Permitted		0.95			0.88			0.85			0.91	
Satd. Flow (perm)		3229			3091			1558			1654	
Volume (vph)	15	758	81	17	241	6	126	228	32	22	80	14
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	17	842	90	19	268	7	140	253	36	24	89	16
RTOR Reduction (vph)	0	8	0	0	2	0	0	3	0	0	5	0
Lane Group Flow (vph)	0	941	0	0	292	0	0	426	0	0	124	0
Confl. Peds. (#/hr)	25		68	68		25	3		6	6		3
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		55.0			55.0			35.0			35.0	
Effective Green, g (s)		57.0			57.0			37.0			37.0	
Actuated g/C Ratio		0.57			0.57			0.37			0.37	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1841			1762			576			612	
v/s Ratio Prot												
v/s Ratio Perm		c0.29			0.09			c0.27			0.07	
v/c Ratio		0.51			0.17			0.74			0.20	
Uniform Delay, d1		13.0			10.2			27.3			21.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.0			0.2			8.3			0.7	
Delay (s)		14.1			10.4			35.6			22.2	
Level of Service		B			B			D			C	
Approach Delay (s)		14.1			10.4			35.6			22.2	
Approach LOS		B			B			D			C	
Intersection Summary												
HCM Average Control Delay		19.2			HCM Level of Service			B				
HCM Volume to Capacity ratio		0.60										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			6.0				
Intersection Capacity Utilization		69.1%			ICU Level of Service			C				
Analysis Period (min)		15										
c Critical Lane Group												

Capitol Place
5: G Street & 3rd Street

Total Future PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	0	13	20	37	12	137	0	0	187	61
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	14	22	41	13	152	0	0	208	68
Direction, Lane #	WB 1	NB 1	SB 1									
Volume Total (vph)	78	166	276									
Volume Left (vph)	14	13	0									
Volume Right (vph)	41	0	68									
Hadj (s)	-0.25	0.05	-0.11									
Departure Headway (s)	4.6	4.4	4.2									
Degree Utilization, x	0.10	0.20	0.32									
Capacity (veh/h)	710	788	838									
Control Delay (s)	8.1	8.5	9.1									
Approach Delay (s)	8.1	8.5	9.1									
Approach LOS	A	A	A									
Intersection Summary												
Delay			8.8									
HCM Level of Service			A									
Intersection Capacity Utilization		36.4%										
ICU Level of Service										A		
Analysis Period (min)		15										

Capitol Place
6: H Street & 3rd Street

Total Future PM

												
Movement	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)		3.0			3.0			3.0			3.0	
Lane Util. Factor		0.91			0.91			1.00			1.00	
Frpb, ped/bikes		1.00			0.99			0.99			0.98	
Flpb, ped/bikes		1.00			1.00			1.00			0.99	
Frt		0.99			0.98			0.98			0.96	
Flt Protected		1.00			1.00			0.99			0.98	
Satd. Flow (prot)		5000			4884			1778			1702	
Flt Permitted		0.74			0.76			0.82			0.76	
Satd. Flow (perm)		3719			3726			1477			1326	
Volume (vph)	147	1494	100	36	516	98	43	96	30	160	125	133
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	163	1660	111	40	573	109	48	107	33	178	139	148
RTOR Reduction (vph)	0	7	0	0	25	0	0	7	0	0	17	0
Lane Group Flow (vph)	0	1927	0	0	697	0	0	181	0	0	448	0
Confl. Peds. (#/hr)	25		10	10		25	23		24	24		23
Turn Type	pm+pt			Perm			Perm			Perm		
Protected Phases	7	4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		53.0			43.0			35.0			35.0	
Effective Green, g (s)		56.0			46.0			38.0			38.0	
Actuated g/C Ratio		0.56			0.46			0.38			0.38	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Lane Grp Cap (vph)		2172			1714			561			504	
v/s Ratio Prot		c0.06										
v/s Ratio Perm		c0.43			0.19			0.12			c0.34	
v/c Ratio		0.89			0.41			0.32			0.89	
Uniform Delay, d1		19.2			17.9			21.9			29.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		5.9			0.7			1.5			20.4	
Delay (s)		25.1			18.6			23.4			49.4	
Level of Service		C			B			C			D	
Approach Delay (s)		25.1			18.6			23.4			49.4	
Approach LOS		C			B			C			D	
Intersection Summary												
HCM Average Control Delay		27.0			HCM Level of Service			C				
HCM Volume to Capacity ratio		0.89										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			6.0				
Intersection Capacity Utilization		95.6%			ICU Level of Service			F				
Analysis Period (min)		15										
c Critical Lane Group												

Capitol Place
7: I Street & 3rd Street

Total Future PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕						↕				↕
Sign Control		Stop				Stop				Stop		
Volume (vph)	27	79	94	0	0	0	55	207	26	16	229	21
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	30	88	104	0	0	0	61	230	29	18	254	23
Direction, Lane #	EB 1	NB 1	SB 1									
Volume Total (vph)	222	320	296									
Volume Left (vph)	30	61	18									
Volume Right (vph)	104	29	23									
Hadj (s)	-0.22	0.02	0.00									
Departure Headway (s)	5.2	4.9	4.9									
Degree Utilization, x	0.32	0.44	0.40									
Capacity (veh/h)	637	701	694									
Control Delay (s)	10.6	11.7	11.2									
Approach Delay (s)	10.6	11.7	11.2									
Approach LOS	B	B	B									
Intersection Summary												
Delay			11.2									
HCM Level of Service			B									
Intersection Capacity Utilization			57.0%	ICU Level of Service	B							
Analysis Period (min)			15									

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	0	101	1	0	9
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	112	1	0	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	113				113	113
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	113				113	113
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	99
cM capacity (veh/h)	1476				884	940
Direction, Lane #	WB 1	SB 1				
Volume Total	113	10				
Volume Left	0	0				
Volume Right	1	10				
cSH	1700	940				
Volume to Capacity	0.07	0.01				
Queue Length 95th (ft)	0	1				
Control Delay (s)	0.0	8.9				
Lane LOS		A				
Approach Delay (s)	0.0	8.9				
Approach LOS		A				
Intersection Summary						
Average Delay		0.7				
Intersection Capacity Utilization		15.4%	ICU Level of Service		A	
Analysis Period (min)		15				

Capitol Place
9: Site Driveway & 2nd Street

Total Future PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Sign Control	Stop			Stop			Free			Free		
Grade	0%			0%			0%			0%		
Volume (veh/h)	40	0	53	23	0	52	9	301	37	22	159	6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	44	0	59	26	0	58	10	334	41	24	177	7
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	662	624	180	663	607	355	183				376	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	662	624	180	663	607	355	183				376	
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	87	100	93	93	100	92	99				98	
cM capacity (veh/h)	337	390	863	342	399	689	1392				1183	
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	103	83	386	208								
Volume Left	44	26	10	24								
Volume Right	59	58	41	7								
cSH	516	525	1392	1183								
Volume to Capacity	0.20	0.16	0.01	0.02								
Queue Length 95th (ft)	19	14	1	2								
Control Delay (s)	13.7	13.1	0.3	1.1								
Lane LOS	B	B	A	A								
Approach Delay (s)	13.7	13.1	0.3	1.1								
Approach LOS	B	B										
Intersection Summary												
Average Delay				3.7								
Intersection Capacity Utilization				34.8%	ICU Level of Service			A				
Analysis Period (min)				15								