Appendix D

Total Future Levels of Service

ZONING COMMISSION
District of Columbia
CASE NO.05-15
EXHIBIT NO.13AA2

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)		4.0			4.0			4.0			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		0.99			1.00			0.99			0.98	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		3478			3523			1806			1814	
Flt Permitted		0.87			0.93			0.73			0.95	
Satd. Flow (perm)		3050			3293			1359			1740	
Volume (vph)	15	238	28	37	1109	23	182	150	13	13	92	19
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)	16	259	30	40	1205	25	198	163	14	14	100	21
RTOR Reduction (vph)	0	8	0	0	2	0	0	1	0	0	7	0
Lane Group Flow (vph)	0	297	0	0	1268	0	0	374	0	0	128	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		60.0			60.0			30.0			30.0	
Effective Green, g (s)		61.0			61.0			31.0			31.0	
Actuated g/C Ratio		0.61			0.61			0.31			0.31	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1861			2009			421			539	
v/s Ratio Prot												
v/s Ratio Perm		0.10			c0.39			c0.27			0.07	
v/c Ratio		0.16			0.63			0.89			0.24	
Uniform Delay, d1		8.4			12.4			32.8			25.7	
Progression Factor		1.00			0.44			1.00			1.00	
Incremental Delay, d2		0.2			1.3			23.1			1.0	
Delay (s)		8.6			6.8			56.0			26.7	
Level of Service		A			A			E			C	
Approach Delay (s)		8.6			6.8			56.0			26.7	
Approach LOS		A			A			E			C	

Intersection Summary			
HCM Average Control Delay	17.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
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)		4.0			4.0			4.0			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		0.99			1.00			0.99			0.98	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		3478			3523			1806			1814	
Flt Permitted		0.87			0.93			0.75			0.95	
Satd. Flow (perm)		3046			3292			1386			1735	
Volume (vph)	15	238	28	37	1109	23	182	150	13	13	92	19
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)	16	259	30	40	1205	25	198	163	14	14	100	21
RTOR Reduction (vph)	0	8	0	0	1	0	0	1	0	0	6	0
Lane Group Flow (vph)	0	297	0	0	1269	0	0	374	0	0	129	0
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)		56.0			56.0			36.0			36.0	
Actuated g/C Ratio		0.56			0.56			0.36			0.36	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1706			1844			499			625	
v/s Ratio Prot												
v/s Ratio Perm		0.10			c0.39			c0.27			0.07	
v/c Ratio		0.17			0.69			0.75			0.21	
Uniform Delay, d1		10.7			15.7			28.0			22.1	
Progression Factor		1.00			0.48			1.00			1.00	
Incremental Delay, d2		0.2			1.9			9.9			0.7	
Delay (s)		10.9			9.4			37.9			22.9	
Level of Service		B			A			D			C	
Approach Delay (s)		10.9			9.4			37.9			22.9	
Approach LOS		B			A			D			C	

Intersection Summary			
HCM Average Control Delay	15.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
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)		4.0			4.0			4.0			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		0.99			0.99			0.98			0.99	
Flt Protected		1.00			0.99			0.99			0.99	
Satd. Flow (prot)		3515			3495			1806			1832	
Flt Permitted		0.95			0.72			0.92			0.90	
Satd. Flow (perm)		3341			2517			1684			1672	
Volume (vph)	13	1100	49	43	252	11	32	126	31	45	153	9
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)	14	1196	53	47	274	12	35	137	34	49	166	10
RTOR Reduction (vph)	0	3	0	0	3	0	0	7	0	0	1	0
Lane Group Flow (vph)	0	1260	0	0	330	0	0	199	0	0	224	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		60.0			60.0			30.0			30.0	
Effective Green, g (s)		61.0			61.0			31.0			31.0	
Actuated g/C Ratio		0.61			0.61			0.31			0.31	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		2038			1535			522			518	
v/s Ratio Prot												
v/s Ratio Perm		c0.38			0.13			0.12			c0.13	
v/c Ratio		0.62			0.22			0.38			0.43	
Uniform Delay, d1		12.2			8.8			27.0			27.5	
Progression Factor		1.00			0.56			1.00			1.00	
Incremental Delay, d2		1.4			0.3			2.1			2.6	
Delay (s)		13.6			5.2			29.1			30.1	
Level of Service		B			A			C			C	
Approach Delay (s)		13.6			5.2			29.1			30.1	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM Average Control Delay	15.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
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)		4.0			4.0			4.0			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		0.99			0.99			0.98			0.99	
Flt Protected		1.00			0.99			0.99			0.99	
Satd. Flow (prot)		3515			3495			1806			1832	
Flt Permitted		0.95			0.70			0.92			0.90	
Satd. Flow (perm)		3341			2450			1680			1661	
Volume (vph)	13	1100	49	43	252	11	32	126	31	45	153	9
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)	14	1196	53	47	274	12	35	137	34	49	166	10
RTOR Reduction (vph)	0	3	0	0	3	0	0	7	0	0	2	0
Lane Group Flow (vph)	0	1260	0	0	330	0	0	199	0	0	223	0
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)		56.0			56.0			36.0			36.0	
Actuated g/C Ratio		0.56			0.56			0.36			0.36	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Lane Grp Cap (vph)		1871			1372			605			598	
v/s Ratio Prot												
v/s Ratio Perm		c0.38			0.13			0.12			c0.13	
v/c Ratio		0.67			0.24			0.33			0.37	
Uniform Delay, d1		15.5			11.2			23.2			23.7	
Progression Factor		1.00			0.55			1.00			1.00	
Incremental Delay, d2		2.0			0.4			1.5			1.8	
Delay (s)		17.5			6.5			24.7			25.4	
Level of Service		B			A			C			C	
Approach Delay (s)		17.5			6.5			24.7			25.4	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM Average Control Delay	17.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
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			Yield			Stop			Stop	
Volume (vph)	21	21	65	0	0	0	55	333	20	14	106	13
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)	23	23	71	0	0	0	60	362	22	15	115	14

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	116	443	145
Volume Left (vph)	23	60	15
Volume Right (vph)	71	22	14
Hadj (s)	-0.29	0.03	0.00
Departure Headway (s)	4.9	4.4	4.7
Degree Utilization, x	0.16	0.54	0.19
Capacity (veh/h)	654	800	729
Control Delay (s)	8.9	12.5	8.8
Approach Delay (s)	8.9	12.5	8.8
Approach LOS	A	B	A

Intersection Summary			
Delay		11.2	
HCM Level of Service		B	
Intersection Capacity Utilization		41.4%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔						↔			↔	
Sign Control		Stop			Yield			Stop			Stop	
Volume (vph)	18	50	59	0	0	0	37	131	31	29	114	20
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)	20	54	64	0	0	0	40	142	34	32	124	22

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total (vph)	138	216	177
Volume Left (vph)	20	40	32
Volume Right (vph)	64	34	22
Hadj (s)	-0.22	-0.02	0.00
Departure Headway (s)	4.6	4.4	4.5
Degree Utilization, x	0.18	0.27	0.22
Capacity (veh/h)	725	784	766
Control Delay (s)	8.5	9.0	8.7
Approach Delay (s)	8.5	9.0	8.7
Approach LOS	A	A	A

Intersection Summary			
Delay		8.8	
HCM Level of Service		A	
Intersection Capacity Utilization		28.6%	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		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	7	43	0	0	0	0	0	4	2	0	1	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)	8	47	0	0	0	0	0	4	2	0	1	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	0			47			62	62	47	66	62	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			47			62	62	47	66	62	0
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	99	100	100	100	100
cM capacity (veh/h)	1623			1561			928	825	1023	918	825	1085

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	54	7	1
Volume Left	8	0	0
Volume Right	0	2	0
cSH	1623	882	825
Volume to Capacity	0.00	0.01	0.00
Queue Length 95th (ft)	0	1	0
Control Delay (s)	1.0	9.1	9.4
Lane LOS	A	A	A
Approach Delay (s)	1.0	9.1	9.4
Approach LOS		A	A

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	13.3%	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		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	2	119	0	0	0	0	0	1	1	2	2	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)	2	129	0	0	0	0	0	1	1	2	2	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	0			129			135	134	129	135	134	0
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	0			129			135	134	129	135	134	0
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1623			1456			834	756	920	833	756	1085

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	132	2	4
Volume Left	2	0	2
Volume Right	0	1	0
cSH	1623	830	793
Volume to Capacity	0.00	0.00	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.1	9.3	9.6
Lane LOS	A	A	A
Approach Delay (s)	0.1	9.3	9.6
Approach LOS		A	A

Intersection Summary			
Average Delay		0.6	
Intersection Capacity Utilization		16.4%	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)	9	36	0	0	39	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	10	39	0	0	42	0
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	0				59	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				59	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	100
cM capacity (veh/h)	1623				943	1085

Direction, Lane #	EB 1	SB 1
Volume Total	49	42
Volume Left	10	42
Volume Right	0	0
cSH	1623	943
Volume to Capacity	0.01	0.04
Queue Length 95th (ft)	0	4
Control Delay (s)	1.5	9.0
Lane LOS	A	A
Approach Delay (s)	1.5	9.0
Approach LOS		A

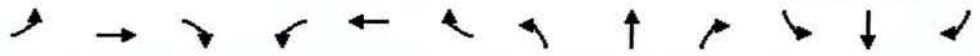
Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	37	85	0	0	18	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	40	92	0	0	20	0
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	0				173	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0				173	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				98	100
cM capacity (veh/h)	1623				797	1085

Direction, Lane #	EB 1	SB 1
Volume Total	133	20
Volume Left	40	20
Volume Right	0	0
cSH	1623	797
Volume to Capacity	0.02	0.02
Queue Length 95th (ft)	2	2
Control Delay (s)	2.3	9.6
Lane LOS	A	A
Approach Delay (s)	2.3	9.6
Approach LOS		A

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	16.5%	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			Yield			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	27	53	0	0	0	0	0	0	20	367	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	29	58	0	0	0	0	0	0	22	399	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)											446	
pX, platoon unblocked	0.89	0.89	0.89	0.89	0.89		0.89					
vC, conflicting volume	442	442	399	515	442	0	399			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	373	373	324	454	373	0	324			0		
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 %	100	94	91	100	100	100	100			99		
cM capacity (veh/h)	514	489	638	394	489	1085	1099			1623		

Direction, Lane #	EB 1	SB 1
Volume Total	87	421
Volume Left	0	22
Volume Right	58	0
cSH	578	1623
Volume to Capacity	0.15	0.01
Queue Length 95th (ft)	13	1
Control Delay (s)	12.3	0.5
Lane LOS	B	A
Approach Delay (s)	12.3	0.5
Approach LOS	B	

Intersection Summary				
Average Delay	2.5			
Intersection Capacity Utilization	31.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Yield			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	0	24	87	0	0	0	0	0	0	48	389	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	26	95	0	0	0	0	0	0	52	423	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)											446	
pX, platoon unblocked	0.84	0.84	0.84	0.84	0.84		0.84					
vC, conflicting volume	527	527	423	635	527	0	423			0		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	438	438	313	566	438	0	313			0		
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 %	100	94	85	100	100	100	100			97		
cM capacity (veh/h)	434	417	611	287	417	1085	1048			1623		

Direction, Lane #	EB 1	SB 1
Volume Total	121	475
Volume Left	0	52
Volume Right	95	0
cSH	555	1623
Volume to Capacity	0.22	0.03
Queue Length 95th (ft)	21	2
Control Delay (s)	13.3	1.1
Lane LOS	B	A
Approach Delay (s)	13.3	1.1
Approach LOS	B	

Intersection Summary				
Average Delay	3.5			
Intersection Capacity Utilization	36.4%	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)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		0.95						1.00	
Frt		1.00	0.85		1.00						0.98	
Flt Protected		1.00	1.00		1.00						1.00	
Satd. Flow (prot)		1862	1583		3526						1822	
Flt Permitted		1.00	1.00		0.90						1.00	
Satd. Flow (perm)		1858	1583		3198						1822	
Volume (vph)	1	199	27	75	921	0	0	0	0	8	266	50
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)	1	216	29	82	1001	0	0	0	0	9	289	54
RTOR Reduction (vph)	0	0	14	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	217	15	0	1083	0	0	0	0	0	346	0
Turn Type	Perm		Perm	Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)		50.0	50.0		50.0						40.0	
Effective Green, g (s)		51.0	51.0		51.0						41.0	
Actuated g/C Ratio		0.51	0.51		0.51						0.41	
Clearance Time (s)		5.0	5.0		5.0						5.0	
Lane Grp Cap (vph)		948	807		1631						747	
v/s Ratio Prot												
v/s Ratio Perm		0.12	0.01		c0.34						0.19	
v/c Ratio		0.23	0.02		0.66						0.46	
Uniform Delay, d1		13.6	12.1		18.2						21.5	
Progression Factor		0.59	0.22		1.00						1.00	
Incremental Delay, d2		0.6	0.0		2.2						2.1	
Delay (s)		8.6	2.7		20.3						23.5	
Level of Service		A	A		C						C	
Approach Delay (s)		7.9			20.3			0.0			23.5	
Approach LOS		A			C			A			C	

Intersection Summary			
HCM Average Control Delay	19.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
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)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		0.95						1.00	
Frt		1.00	0.85		1.00						0.98	
Flt Protected		1.00	1.00		1.00						1.00	
Satd. Flow (prot)		1862	1583		3526						1822	
Flt Permitted		1.00	1.00		0.90						1.00	
Satd. Flow (perm)		1858	1583		3200						1822	
Volume (vph)	1	199	27	75	921	0	0	0	0	8	266	50
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)	1	216	29	82	1001	0	0	0	0	9	289	54
RTOR Reduction (vph)	0	0	11	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	217	18	0	1083	0	0	0	0	0	346	0
Turn Type	Perm		Perm	Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)		60.0	60.0		60.0						30.0	
Effective Green, g (s)		61.0	61.0		61.0						31.0	
Actuated g/C Ratio		0.61	0.61		0.61						0.31	
Clearance Time (s)		5.0	5.0		5.0						5.0	
Lane Grp Cap (vph)		1133	966		1952						565	
v/s Ratio Prot												
v/s Ratio Perm		0.12	0.01		c0.34						0.19	
v/c Ratio		0.19	0.02		0.55						0.61	
Uniform Delay, d1		8.6	7.7		11.5						29.4	
Progression Factor		0.60	0.28		1.00						1.00	
Incremental Delay, d2		0.4	0.0		1.1						4.9	
Delay (s)		5.6	2.2		12.6						34.3	
Level of Service		A	A		B						C	
Approach Delay (s)		5.2			12.6			0.0			34.3	
Approach LOS		A			B			A			C	

Intersection Summary			
HCM Average Control Delay	16.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
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)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		0.95						1.00	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.99						1.00	
Satd. Flow (prot)		1863	1583		3512						1835	
Flt Permitted		1.00	1.00		0.58						1.00	
Satd. Flow (perm)		1863	1583		2067						1835	
Volume (vph)	0	1001	74	43	256	1	0	0	0	37	345	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)	0	1088	80	47	278	1	0	0	0	40	375	35
RTOR Reduction (vph)	0	0	29	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	1088	51	0	326	0	0	0	0	0	447	0
Turn Type			Perm	Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		50.0	50.0		50.0						40.0	
Effective Green, g (s)		51.0	51.0		51.0						41.0	
Actuated g/C Ratio		0.51	0.51		0.51						0.41	
Clearance Time (s)		5.0	5.0		5.0						5.0	
Lane Grp Cap (vph)		950	807		1054						752	
v/s Ratio Prot		c0.58										
v/s Ratio Perm			0.03		0.16						0.24	
v/c Ratio		1.15	0.06		0.31						0.59	
Uniform Delay, d1		24.5	12.4		14.3						23.0	
Progression Factor		0.60	0.15		1.00						1.00	
Incremental Delay, d2		75.8	0.1		0.8						3.4	
Delay (s)		90.5	2.0		15.0						26.5	
Level of Service		F	A		B						C	
Approach Delay (s)		84.5			15.0			0.0			26.5	
Approach LOS		F			B			A			C	

Intersection Summary			
HCM Average Control Delay	59.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
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)		4.0	4.0		4.0						4.0	
Lane Util. Factor		1.00	1.00		0.95						1.00	
Frt		1.00	0.85		1.00						0.99	
Flt Protected		1.00	1.00		0.99						1.00	
Satd. Flow (prot)		1863	1583		3512						1835	
Flt Permitted		1.00	1.00		0.61						1.00	
Satd. Flow (perm)		1863	1583		2151						1835	
Volume (vph)	0	1001	74	43	256	1	0	0	0	37	345	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)	0	1088	80	47	278	1	0	0	0	40	375	35
RTOR Reduction (vph)	0	0	29	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	1088	51	0	326	0	0	0	0	0	447	0
Turn Type			Perm	Perm						Perm		
Protected Phases		4			8						6	
Permitted Phases			4	8						6		
Actuated Green, G (s)		60.0	60.0		60.0						30.0	
Effective Green, g (s)		61.0	61.0		61.0						31.0	
Actuated g/C Ratio		0.61	0.61		0.61						0.31	
Clearance Time (s)		5.0	5.0		5.0						5.0	
Lane Grp Cap (vph)		1136	966		1312						569	
v/s Ratio Prot		c0.58										
v/s Ratio Perm			0.03		0.15						0.24	
v/c Ratio		0.96	0.05		0.25						0.79	
Uniform Delay, d1		18.3	7.9		9.0						31.5	
Progression Factor		0.68	0.15		1.00						1.00	
Incremental Delay, d2		15.3	0.1		0.5						10.5	
Delay (s)		27.7	1.3		9.4						42.0	
Level of Service		C	A		A						D	
Approach Delay (s)		25.9			9.4			0.0			42.0	
Approach LOS		C			A			A			D	

Intersection Summary				
HCM Average Control Delay	26.8	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.90			
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	81.5%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group