APPENDIX B

Existing Synchro Capacity Analysis

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	25	41	33	60	129	34	21	26	11	24	28	12
Peak Hour Factor	0.69	0.68	0.63	0.63	0.66	0.71	0.75	0.72	0.92	0.75	0.88	0.75
Hourly flow rate (vph)	36	60	52	95	195	48	28	36	12	32	32	16

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	149	339	76	80
Volume Left (vph)	36	95	28	32
Volume Right (vph)	52	48	12	16
Hadj (s)	-0.13	0.01	0.01	-0.01
Departure Headway (s)	4.6	4.5	5.2	5.1
Degree Utilization, x	0.19	0.42	0.11	0.11
Capacity (veh/h)	745	769	627	628
Control Delay (s)	8.7	10.8	8.8	8.8
Approach Delay (s)	8.7	10.8	8.8	8.8
Approach LOS	A	B	A	A

Intersection Summary				
Delay			9.8	
HCM Level of Service			A	
Intersection Capacity Utilization			36.4%	ICU Level of Service
Analysis Period (min)			15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	64	245	252	20	82	36
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.89	0.93	0.84	0.71	0.51	0.90
Hourly flow rate (vph)	72	263	300	28	161	40
Pedestrians		5	10		61	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		0	1		5	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		386				
pX, platoon unblocked					0.97	
vC, conflicting volume	389				792	380
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	389				770	380
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				49	94
cM capacity (veh/h)	1110				315	630

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	335	328	201
Volume Left	72	0	161
Volume Right	0	28	40
cSH	1110	1700	350
Volume to Capacity	0.06	0.19	0.57
Queue Length 95th (ft)	5	0	85
Control Delay (s)	2.3	0.0	28.3
Lane LOS	A		D
Approach Delay (s)	2.3	0.0	28.3
Approach LOS			D

Intersection Summary			
Average Delay	7.5		
Intersection Capacity Utilization	49.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	257	0	0	212	232	22
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.25	0.92	0.75	0.84	0.69
Hourly flow rate (vph)	282	0	0	283	276	32
Pedestrians				18		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				4.0		
Percent Blockage				1		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	170					
pX, platoon unblocked			0.95		0.95	0.95
vC, conflicting volume			282		565	300
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			220		517	239
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		44	96
cM capacity (veh/h)			1283		493	750

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	282	283	308
Volume Left	0	0	276
Volume Right	0	0	32
cSH	1700	1700	511
Volume to Capacity	0.17	0.17	0.60
Queue Length 95th (ft)	0	0	98
Control Delay (s)	0.0	0.0	22.2
Lane LOS			C
Approach Delay (s)	0.0	0.0	22.2
Approach LOS			C

Intersection Summary			
Average Delay		7.8	
Intersection Capacity Utilization		34.5%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	19	251	515	11	32	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	0.99		0.97	
Flpb, ped/bikes		0.99	1.00		1.00	
Frt		1.00	1.00		0.94	
Flt Protected		1.00	1.00		0.97	
Satd. Flow (prot)		1840	1836		1647	
Flt Permitted		0.93	1.00		0.97	
Satd. Flow (perm)		1714	1836		1647	
Peak-hour factor, PHF	0.68	0.95	0.91	0.55	0.67	0.72
Adj. Flow (vph)	28	264	566	20	48	36
RTOR Reduction (vph)	0	0	1	0	27	0
Lane Group Flow (vph)	0	292	585	0	57	0
Confl. Peds. (#/hr)	86			86	25	20
Turn Type	custom					
Protected Phases		4			6	
Permitted Phases	8		8			
Actuated Green, G (s)		68.0	68.0		24.0	
Effective Green, g (s)		68.0	68.0		24.0	
Actuated g/C Ratio		0.68	0.68		0.24	
Clearance Time (s)		4.0	4.0		4.0	
Lane Grp Cap (vph)		1166	1248		395	
v/s Ratio Prot					c0.03	
v/s Ratio Perm		0.17	c0.32			
v/c Ratio		0.25	0.47		0.14	
Uniform Delay, d1		6.2	7.5		29.9	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.5	1.3		0.8	
Delay (s)		6.7	8.8		30.7	
Level of Service		A	A		C	
Approach Delay (s)		6.7	8.8		30.7	
Approach LOS		A	A		C	

Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	0	13	5	56
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	14	5	61
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			130			
pX, platoon unblocked	0.00	0.00	0.00	0.00	0.00	0.00
vC, conflicting volume	0	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	0			0	
cM capacity (veh/h)	0	0			0	

Direction, Lane #	NB 1	SB 1
Volume Total	14	66
Volume Left	0	5
Volume Right	14	0
cSH	0	0
Volume to Capacity	0.00	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		

Intersection Summary				
Average Delay	0.0			
Intersection Capacity Utilization	13.3%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	8	0	0	0	0	61
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	0	0	0	0	66
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			183			
pX, platoon unblocked						
vC, conflicting volume	66	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	66	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	939	1085			1623	

Direction, Lane #	WB 1	SB 1
Volume Total	9	66
Volume Left	9	0
Volume Right	0	0
cSH	939	1700
Volume to Capacity	0.01	0.04
Queue Length 95th (ft)	1	0
Control Delay (s)	8.9	0.0
Lane LOS	A	
Approach Delay (s)	8.9	0.0
Approach LOS	A	

Intersection Summary				
Average Delay		1.0		
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		Stop			Stop			Stop			Stop	
Volume (vph)	18	41	11	23	69	25	11	28	24	14	25	4
Peak Hour Factor	0.64	0.73	0.69	0.58	0.86	0.57	0.69	0.64	0.67	0.50	0.78	0.50
Hourly flow rate (vph)	28	56	16	40	80	44	16	44	36	28	32	8

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	100	164	96	68
Volume Left (vph)	28	40	16	28
Volume Right (vph)	16	44	36	8
Hadj (s)	-0.01	-0.08	-0.16	0.05
Departure Headway (s)	4.5	4.3	4.4	4.7
Degree Utilization, x	0.12	0.20	0.12	0.09
Capacity (veh/h)	769	790	760	716
Control Delay (s)	8.1	8.4	8.0	8.1
Approach Delay (s)	8.1	8.4	8.0	8.1
Approach LOS	A	A	A	A

Intersection Summary				
Delay			8.2	
HCM Level of Service			A	
Intersection Capacity Utilization			30.4%	ICU Level of Service
Analysis Period (min)			15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	82	397	130	24	47	18
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.71	0.84	0.79	0.86	0.78	0.56
Hourly flow rate (vph)	115	473	165	28	60	32
Pedestrians		6	7		40	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		386				
pX, platoon unblocked					0.91	
vC, conflicting volume	232				929	225
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	232				876	225
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				76	96
cM capacity (veh/h)	1291				256	784

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	588	192	92
Volume Left	115	0	60
Volume Right	0	28	32
cSH	1291	1700	334
Volume to Capacity	0.09	0.11	0.28
Queue Length 95th (ft)	7	0	28
Control Delay (s)	2.4	0.0	19.9
Lane LOS	A		C
Approach Delay (s)	2.4	0.0	19.9
Approach LOS			C

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	402	0	0	190	195	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.25	0.92	0.83	0.94	0.83
Hourly flow rate (vph)	462	0	0	229	207	48
Pedestrians				18		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				4.0		
Percent Blockage				1		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	170					
pX, platoon unblocked			0.91		0.91	0.91
vC, conflicting volume			462		691	480
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			354		607	374
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		50	92
cM capacity (veh/h)			1091		416	600

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	462	229	256
Volume Left	0	0	207
Volume Right	0	0	48
cSH	1700	1700	442
Volume to Capacity	0.27	0.13	0.58
Queue Length 95th (ft)	0	0	89
Control Delay (s)	0.0	0.0	23.7
Lane LOS			C
Approach Delay (s)	0.0	0.0	23.7
Approach LOS			C

Intersection Summary			
Average Delay		6.4	
Intersection Capacity Utilization		41.4%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	3	394	396	8	71	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	0.99		0.98	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	1.00		0.94	
Flt Protected		1.00	1.00		0.97	
Satd. Flow (prot)		1858	1845		1670	
Flt Permitted		0.99	1.00		0.97	
Satd. Flow (perm)		1847	1845		1670	
Peak-hour factor, PHF	0.38	0.90	0.96	0.67	0.74	0.68
Adj. Flow (vph)	8	438	412	12	96	68
RTOR Reduction (vph)	0	0	1	0	26	0
Lane Group Flow (vph)	0	446	423	0	138	0
Confl. Peds. (#/hr)	59			59	38	11
Turn Type	custom					
Protected Phases		4			6	
Permitted Phases	8		8			
Actuated Green, G (s)		68.0	68.0		24.0	
Effective Green, g (s)		68.0	68.0		24.0	
Actuated g/C Ratio		0.68	0.68		0.24	
Clearance Time (s)		4.0	4.0		4.0	
Lane Grp Cap (vph)		1256	1255		401	
v/s Ratio Prot					c0.08	
v/s Ratio Perm		c0.24	0.23			
v/c Ratio		0.36	0.34		0.34	
Uniform Delay, d1		6.7	6.6		31.5	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.8	0.7		2.3	
Delay (s)		7.5	7.4		33.8	
Level of Service		A	A		C	
Approach Delay (s)		7.5	7.4		33.8	
Approach LOS		A	A		C	

Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	0	7	2	26
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	8	2	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			211			
pX, platoon unblocked	0.00	0.00	0.00	0.00	0.00	0.00
vC, conflicting volume	0	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	0			0	
cM capacity (veh/h)	0	0			0	

Direction, Lane #	NB 1	SB 1
Volume Total	8	30
Volume Left	0	2
Volume Right	8	0
cSH	0	0
Volume to Capacity	0.00	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		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	17	0	0	0	0	28
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	0	0	0	0	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			321			
pX, platoon unblocked						
vC, conflicting volume	30	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	30	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	984	1085			1623	

Direction, Lane #	WB 1	SB 1
Volume Total	18	30
Volume Left	18	0
Volume Right	0	0
cSH	984	1700
Volume to Capacity	0.02	0.02
Queue Length 95th (ft)	1	0
Control Delay (s)	8.7	0.0
Lane LOS	A	
Approach Delay (s)	8.7	0.0
Approach LOS	A	

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX C

Future Background Synchro Capacity Analysis

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	25	41	33	60	129	34	21	26	11	24	28	12
Peak Hour Factor	0.69	0.68	0.63	0.63	0.66	0.71	0.75	0.72	0.92	0.75	0.88	0.75
Hourly flow rate (vph)	36	60	52	95	195	48	28	36	12	32	32	16

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	149	339	76	80
Volume Left (vph)	36	95	28	32
Volume Right (vph)	52	48	12	16
Hadj (s)	-0.13	0.01	0.01	-0.01
Departure Headway (s)	4.6	4.5	5.2	5.1
Degree Utilization, x	0.19	0.42	0.11	0.11
Capacity (veh/h)	745	769	627	628
Control Delay (s)	8.7	10.8	8.8	8.8
Approach Delay (s)	8.7	10.8	8.8	8.8
Approach LOS	A	B	A	A

Intersection Summary				
Delay		9.8		
HCM Level of Service		A		
Intersection Capacity Utilization		36.4%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	64	248	261	20	82	36
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.89	0.93	0.84	0.71	0.51	0.90
Hourly flow rate (vph)	72	267	311	28	161	40
Pedestrians		5	10		61	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		0	1		5	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		386				
pX, platoon unblocked					0.97	
vC, conflicting volume	400				806	391
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	400				784	391
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				48	94
cM capacity (veh/h)	1100				308	622

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	339	339	201
Volume Left	72	0	161
Volume Right	0	28	40
cSH	1100	1700	343
Volume to Capacity	0.07	0.20	0.59
Queue Length 95th (ft)	5	0	88
Control Delay (s)	2.3	0.0	29.3
Lane LOS	A		D
Approach Delay (s)	2.3	0.0	29.3
Approach LOS			D

Intersection Summary			
Average Delay	7.6		
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	259	0	0	221	232	22
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.25	0.92	0.75	0.84	0.69
Hourly flow rate (vph)	285	0	0	295	276	32
Pedestrians				18		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				4.0		
Percent Blockage				1		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	170					
pX, platoon unblocked			0.95		0.95	0.95
vC, conflicting volume			285		579	303
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			221		531	240
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		43	96
cM capacity (veh/h)			1281		483	748

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	285	295	308
Volume Left	0	0	276
Volume Right	0	0	32
cSH	1700	1700	502
Volume to Capacity	0.17	0.17	0.61
Queue Length 95th (ft)	0	0	102
Control Delay (s)	0.0	0.0	22.9
Lane LOS			C
Approach Delay (s)	0.0	0.0	22.9
Approach LOS			C

Intersection Summary			
Average Delay	8.0		
Intersection Capacity Utilization	34.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	19	257	524	11	32	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	0.99		0.97	
Flpb, ped/bikes		0.99	1.00		1.00	
Frt		1.00	1.00		0.94	
Flt Protected		1.00	1.00		0.97	
Satd. Flow (prot)		1841	1837		1647	
Flt Permitted		0.93	1.00		0.97	
Satd. Flow (perm)		1716	1837		1647	
Peak-hour factor, PHF	0.68	0.95	0.91	0.55	0.67	0.72
Adj. Flow (vph)	28	271	576	20	48	36
RTOR Reduction (vph)	0	0	1	0	27	0
Lane Group Flow (vph)	0	299	595	0	57	0
Confl. Peds. (#/hr)	86			86	25	20
Turn Type	custom					
Protected Phases		4			6	
Permitted Phases	8		8			
Actuated Green, G (s)		68.0	68.0		24.0	
Effective Green, g (s)		68.0	68.0		24.0	
Actuated g/C Ratio		0.68	0.68		0.24	
Clearance Time (s)		4.0	4.0		4.0	
Lane Grp Cap (vph)		1167	1249		395	
v/s Ratio Prot					c0.03	
v/s Ratio Perm		0.17	c0.32			
v/c Ratio		0.26	0.48		0.14	
Uniform Delay, d1		6.2	7.6		29.9	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.5	1.3		0.8	
Delay (s)		6.7	8.9		30.7	
Level of Service		A	A		C	
Approach Delay (s)		6.7	8.9		30.7	
Approach LOS		A	A		C	

Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	0	13	5	56
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	14	5	61
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			141			
pX, platoon unblocked	0.00	0.00	0.00	0.00	0.00	0.00
vC, conflicting volume	0	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	0	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	0			0	
cM capacity (veh/h)	0	0			0	

Direction, Lane #	NB 1	SB 1
Volume Total	14	66
Volume Left	0	5
Volume Right	14	0
cSH	0	0
Volume to Capacity	0.00	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		

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	8	0	0	0	0	61
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	0	0	0	0	66
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			223			
pX, platoon unblocked						
vC, conflicting volume	66	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	66	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	939	1085			1623	

Direction, Lane #	WB 1	SB 1
Volume Total	9	66
Volume Left	9	0
Volume Right	0	0
cSH	939	1700
Volume to Capacity	0.01	0.04
Queue Length 95th (ft)	1	0
Control Delay (s)	8.9	0.0
Lane LOS	A	
Approach Delay (s)	8.9	0.0
Approach LOS	A	

Intersection Summary			
Average Delay	1.0		
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		Stop			Stop			Stop			Stop	
Volume (vph)	18	41	11	23	69	25	11	28	24	14	25	4
Peak Hour Factor	0.64	0.73	0.69	0.58	0.86	0.57	0.69	0.64	0.67	0.50	0.78	0.50
Hourly flow rate (vph)	28	56	16	40	80	44	16	44	36	28	32	8

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	100	164	96	68
Volume Left (vph)	28	40	16	28
Volume Right (vph)	16	44	36	8
Hadj (s)	-0.01	-0.08	-0.16	0.05
Departure Headway (s)	4.5	4.3	4.4	4.7
Degree Utilization, x	0.12	0.20	0.12	0.09
Capacity (veh/h)	769	790	760	716
Control Delay (s)	8.1	8.4	8.0	8.1
Approach Delay (s)	8.1	8.4	8.0	8.1
Approach LOS	A	A	A	A

Intersection Summary				
Delay		8.2		
HCM Level of Service		A		
Intersection Capacity Utilization		30.4%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	82	409	135	24	47	18
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.71	0.84	0.79	0.86	0.78	0.56
Hourly flow rate (vph)	115	487	171	28	60	32
Pedestrians		6	7		40	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		386				
pX, platoon unblocked					0.91	
vC, conflicting volume	239				950	231
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	239				895	231
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				76	96
cM capacity (veh/h)	1284				248	777

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	602	199	92
Volume Left	115	0	60
Volume Right	0	28	32
cSH	1284	1700	324
Volume to Capacity	0.09	0.12	0.28
Queue Length 95th (ft)	7	0	29
Control Delay (s)	2.4	0.0	20.5
Lane LOS	A		C
Approach Delay (s)	2.4	0.0	20.5
Approach LOS			C

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	53.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	412	0	0	199	195	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.25	0.92	0.83	0.94	0.83
Hourly flow rate (vph)	474	0	0	240	207	48
Pedestrians				18		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				4.0		
Percent Blockage				1		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	170					
pX, platoon unblocked			0.90		0.90	0.90
vC, conflicting volume			474		713	492
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			361		627	381
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		49	92
cM capacity (veh/h)			1079		403	591

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	474	240	256
Volume Left	0	0	207
Volume Right	0	0	48
cSH	1700	1700	429
Volume to Capacity	0.28	0.14	0.60
Queue Length 95th (ft)	0	0	94
Control Delay (s)	0.0	0.0	25.0
Lane LOS			D
Approach Delay (s)	0.0	0.0	25.0
Approach LOS			D

Intersection Summary			
Average Delay		6.6	
Intersection Capacity Utilization		41.9%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	3	406	406	8	71	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	0.99		0.98	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	1.00		0.94	
Flt Protected		1.00	1.00		0.97	
Satd. Flow (prot)		1858	1846		1670	
Flt Permitted		0.99	1.00		0.97	
Satd. Flow (perm)		1848	1846		1670	
Peak-hour factor, PHF	0.38	0.90	0.96	0.67	0.74	0.68
Adj. Flow (vph)	8	451	423	12	96	68
RTOR Reduction (vph)	0	0	1	0	26	0
Lane Group Flow (vph)	0	459	434	0	138	0
Confl. Peds. (#/hr)	59			59	38	11
Turn Type	custom					
Protected Phases		4			6	
Permitted Phases	8		8			
Actuated Green, G (s)		68.0	68.0		24.0	
Effective Green, g (s)		68.0	68.0		24.0	
Actuated g/C Ratio		0.68	0.68		0.24	
Clearance Time (s)		4.0	4.0		4.0	
Lane Grp Cap (vph)		1257	1255		401	
v/s Ratio Prot					c0.08	
v/s Ratio Perm		c0.25	0.24			
v/c Ratio		0.37	0.35		0.34	
Uniform Delay, d1		6.8	6.7		31.5	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.8	0.8		2.3	
Delay (s)		7.6	7.5		33.8	
Level of Service		A	A		C	
Approach Delay (s)		7.6	7.5		33.8	
Approach LOS		A	A		C	

Intersection Summary			
HCM Average Control Delay	11.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	43.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	0	0	0	7	2	26
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	8	2	28
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			192			
pX, platoon unblocked						
vC, conflicting volume	33	0			8	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	33	0			8	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	980	1085			1613	

Direction, Lane #	NB 1	SB 1
Volume Total	8	30
Volume Left	0	2
Volume Right	8	0
cSH	1700	1613
Volume to Capacity	0.00	0.00
Queue Length 95th (ft)	0	0
Control Delay (s)	0.0	0.5
Lane LOS		A
Approach Delay (s)	0.0	0.5
Approach LOS		

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	17	0	0	0	0	28
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	0	0	0	0	30
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			287			
pX, platoon unblocked						
vC, conflicting volume	30	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	30	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	984	1085			1623	

Direction, Lane #	WB 1	SB 1
Volume Total	18	30
Volume Left	18	0
Volume Right	0	0
cSH	984	1700
Volume to Capacity	0.02	0.02
Queue Length 95th (ft)	1	0
Control Delay (s)	8.7	0.0
Lane LOS	A	
Approach Delay (s)	8.7	0.0
Approach LOS	A	

Intersection Summary				
Average Delay	3.3			
Intersection Capacity Utilization	13.3%	ICU Level of Service		A
Analysis Period (min)	15			

APPENDIX D

Total Future Synchro Capacity Analysis

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	25	41	33	59	129	34	21	26	12	24	27	12
Peak Hour Factor	0.69	0.68	0.63	0.63	0.66	0.71	0.75	0.72	0.92	0.75	0.88	0.75
Hourly flow rate (vph)	36	60	52	94	195	48	28	36	13	32	31	16

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	149	337	77	79
Volume Left (vph)	36	94	28	32
Volume Right (vph)	52	48	13	16
Hadj (s)	-0.13	0.00	0.01	-0.01
Departure Headway (s)	4.6	4.5	5.2	5.1
Degree Utilization, x	0.19	0.42	0.11	0.11
Capacity (veh/h)	746	769	629	628
Control Delay (s)	8.6	10.7	8.8	8.8
Approach Delay (s)	8.6	10.7	8.8	8.8
Approach LOS	A	B	A	A

Intersection Summary				
Delay		9.8		
HCM Level of Service		A		
Intersection Capacity Utilization		36.3%	ICU Level of Service	A
Analysis Period (min)		15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	65	251	259	20	82	36
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.89	0.93	0.84	0.71	0.51	0.90
Hourly flow rate (vph)	73	270	308	28	161	40
Pedestrians		5	10		61	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		0	1		5	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		386				
pX, platoon unblocked					0.97	
vC, conflicting volume	398				809	388
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	398				787	388
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				48	94
cM capacity (veh/h)	1102				307	624

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	343	337	201
Volume Left	73	0	161
Volume Right	0	28	40
cSH	1102	1700	341
Volume to Capacity	0.07	0.20	0.59
Queue Length 95th (ft)	5	0	89
Control Delay (s)	2.3	0.0	29.5
Lane LOS	A		D
Approach Delay (s)	2.3	0.0	29.5
Approach LOS			D

Intersection Summary			
Average Delay	7.6		
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	263	0	0	219	230	22
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.91	0.25	0.92	0.75	0.84	0.69
Hourly flow rate (vph)	289	0	0	292	274	32
Pedestrians				18		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				4.0		
Percent Blockage				1		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	170					
pX, platoon unblocked			0.95		0.95	0.95
vC, conflicting volume			289		581	307
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			226		533	245
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		43	96
cM capacity (veh/h)			1276		482	743

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	289	292	306
Volume Left	0	0	274
Volume Right	0	0	32
cSH	1700	1700	501
Volume to Capacity	0.17	0.17	0.61
Queue Length 95th (ft)	0	0	101
Control Delay (s)	0.0	0.0	22.8
Lane LOS			C
Approach Delay (s)	0.0	0.0	22.8
Approach LOS			C

Intersection Summary			
Average Delay		7.9	
Intersection Capacity Utilization		34.7%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	20	257	524	7	36	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	0.99		0.96	
Flpb, ped/bikes		0.99	1.00		1.00	
Frt		1.00	1.00		0.94	
Flt Protected		1.00	1.00		0.97	
Satd. Flow (prot)		1840	1846		1642	
Flt Permitted		0.93	1.00		0.97	
Satd. Flow (perm)		1711	1846		1642	
Peak-hour factor, PHF	0.68	0.95	0.91	0.55	0.67	0.72
Adj. Flow (vph)	29	271	576	13	54	43
RTOR Reduction (vph)	0	0	1	0	29	0
Lane Group Flow (vph)	0	300	588	0	68	0
Confl. Peds. (#/hr)	86			86	25	20
Turn Type	custom					
Protected Phases		4			6	
Permitted Phases	8		8			
Actuated Green, G (s)		68.0	68.0		24.0	
Effective Green, g (s)		68.0	68.0		24.0	
Actuated g/C Ratio		0.68	0.68		0.24	
Clearance Time (s)		4.0	4.0		4.0	
Lane Grp Cap (vph)		1163	1255		394	
v/s Ratio Prot					c0.04	
v/s Ratio Perm		0.18	c0.32			
v/c Ratio		0.26	0.47		0.17	
Uniform Delay, d1		6.2	7.5		30.1	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		0.5	1.3		1.0	
Delay (s)		6.7	8.8		31.1	
Level of Service		A	A		C	
Approach Delay (s)		6.7	8.8		31.1	
Approach LOS		A	A		C	

Intersection Summary			
HCM Average Control Delay	10.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	3	0	0	10	1	62
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	3	0	0	11	1	67
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			141			
pX, platoon unblocked						
vC, conflicting volume	70	0			11	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	70	0			11	
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)	934	1085			1608	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	3	11	68
Volume Left	3	0	1
Volume Right	0	11	0
cSH	934	1700	1608
Volume to Capacity	0.00	0.01	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	8.9	0.0	0.1
Lane LOS	A		A
Approach Delay (s)	8.9	0.0	0.1
Approach LOS	A		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	14	0	0	0	0	57
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	0	0	0	0	62
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			233			
pX, platoon unblocked						
vC, conflicting volume	62	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	62	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	100			100	
cM capacity (veh/h)	944	1085			1623	

Direction, Lane #	WB 1	SB 1
Volume Total	15	62
Volume Left	15	0
Volume Right	0	0
cSH	944	1700
Volume to Capacity	0.02	0.04
Queue Length 95th (ft)	1	0
Control Delay (s)	8.9	0.0
Lane LOS	A	
Approach Delay (s)	8.9	0.0
Approach LOS	A	

Intersection Summary			
Average Delay	1.7		
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		Stop			Stop			Stop			Stop	
Volume (vph)	18	41	11	24	69	25	11	28	23	14	26	4
Peak Hour Factor	0.64	0.73	0.69	0.58	0.86	0.57	0.69	0.64	0.67	0.50	0.78	0.50
Hourly flow rate (vph)	28	56	16	41	80	44	16	44	34	28	33	8

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	100	165	94	69
Volume Left (vph)	28	41	16	28
Volume Right (vph)	16	44	34	8
Hadj (s)	-0.01	-0.08	-0.15	0.05
Departure Headway (s)	4.5	4.3	4.4	4.7
Degree Utilization, x	0.12	0.20	0.12	0.09
Capacity (veh/h)	768	790	758	716
Control Delay (s)	8.1	8.4	8.0	8.1
Approach Delay (s)	8.1	8.4	8.0	8.1
Approach LOS	A	A	A	A

Intersection Summary				
Delay			8.2	
HCM Level of Service			A	
Intersection Capacity Utilization			30.5%	ICU Level of Service
Analysis Period (min)			15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	81	411	139	24	47	18
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.71	0.84	0.79	0.86	0.78	0.56
Hourly flow rate (vph)	114	489	176	28	60	32
Pedestrians		6	7		40	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		386				
pX, platoon unblocked					0.91	
vC, conflicting volume	244				954	236
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	244				899	236
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				75	96
cM capacity (veh/h)	1278				246	772

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	603	204	92
Volume Left	114	0	60
Volume Right	0	28	32
cSH	1278	1700	322
Volume to Capacity	0.09	0.12	0.29
Queue Length 95th (ft)	7	0	29
Control Delay (s)	2.4	0.0	20.6
Lane LOS	A		C
Approach Delay (s)	2.4	0.0	20.6
Approach LOS			C

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	54.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	413	0	0	203	198	40
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.87	0.25	0.92	0.83	0.94	0.83
Hourly flow rate (vph)	475	0	0	245	211	48
Pedestrians				18		
Lane Width (ft)				12.0		
Walking Speed (ft/s)				4.0		
Percent Blockage				1		
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)	170					
pX, platoon unblocked			0.90		0.90	0.90
vC, conflicting volume			475		719	493
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			356		629	376
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		47	92
cM capacity (veh/h)			1078		400	592

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	475	245	259
Volume Left	0	0	211
Volume Right	0	0	48
cSH	1700	1700	426
Volume to Capacity	0.28	0.14	0.61
Queue Length 95th (ft)	0	0	98
Control Delay (s)	0.0	0.0	25.7
Lane LOS			D
Approach Delay (s)	0.0	0.0	25.7
Approach LOS			D

Intersection Summary			
Average Delay		6.8	
Intersection Capacity Utilization		42.1%	ICU Level of Service A
Analysis Period (min)		15	

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	13	406	406	15	72	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	0.99		0.98	
Flpb, ped/bikes		0.99	1.00		1.00	
Frt		1.00	0.99		0.94	
Flt Protected		1.00	1.00		0.97	
Satd. Flow (prot)		1846	1832		1665	
Flt Permitted		0.95	1.00		0.97	
Satd. Flow (perm)		1764	1832		1665	
Peak-hour factor, PHF	0.38	0.90	0.96	0.67	0.74	0.68
Adj. Flow (vph)	34	451	423	22	97	75
RTOR Reduction (vph)	0	0	2	0	28	0
Lane Group Flow (vph)	0	485	443	0	144	0
Confl. Peds. (#/hr)	59			59	38	11
Turn Type	custom					
Protected Phases		4			6	
Permitted Phases	8		8			
Actuated Green, G (s)		68.0	68.0		24.0	
Effective Green, g (s)		68.0	68.0		24.0	
Actuated g/C Ratio		0.68	0.68		0.24	
Clearance Time (s)		4.0	4.0		4.0	
Lane Grp Cap (vph)		1200	1246		400	
v/s Ratio Prot					c0.09	
v/s Ratio Perm		c0.27	0.24			
v/c Ratio		0.40	0.36		0.36	
Uniform Delay, d1		7.1	6.8		31.6	
Progression Factor		1.00	1.00		1.00	
Incremental Delay, d2		1.0	0.8		2.5	
Delay (s)		8.1	7.5		34.1	
Level of Service		A	A		C	
Approach Delay (s)		8.1	7.5		34.1	
Approach LOS		A	A		C	

Intersection Summary			
HCM Average Control Delay	11.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	12	0	0	24	3	20
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	13	0	0	26	3	22
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			192			
pX, platoon unblocked						
vC, conflicting volume	28	0			26	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	28	0			26	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	984	1085			1588	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	13	26	25
Volume Left	13	0	3
Volume Right	0	26	0
cSH	984	1700	1588
Volume to Capacity	0.01	0.02	0.00
Queue Length 95th (ft)	1	0	0
Control Delay (s)	8.7	0.0	1.0
Lane LOS	A		A
Approach Delay (s)	8.7	0.0	1.0
Approach LOS	A		

Intersection Summary			
Average Delay	2.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	11	0	0	0	0	29
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	12	0	0	0	0	32
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			296			
pX, platoon unblocked						
vC, conflicting volume	32	0			0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	32	0			0	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	100			100	
cM capacity (veh/h)	982	1085			1623	

Direction, Lane #	WB 1	SB 1
Volume Total	12	32
Volume Left	12	0
Volume Right	0	0
cSH	982	1700
Volume to Capacity	0.01	0.02
Queue Length 95th (ft)	1	0
Control Delay (s)	8.7	0.0
Lane LOS	A	
Approach Delay (s)	8.7	0.0
Approach LOS	A	

Intersection Summary				
Average Delay	2.4			
Intersection Capacity Utilization	13.3%	ICU Level of Service		A
Analysis Period (min)	15			

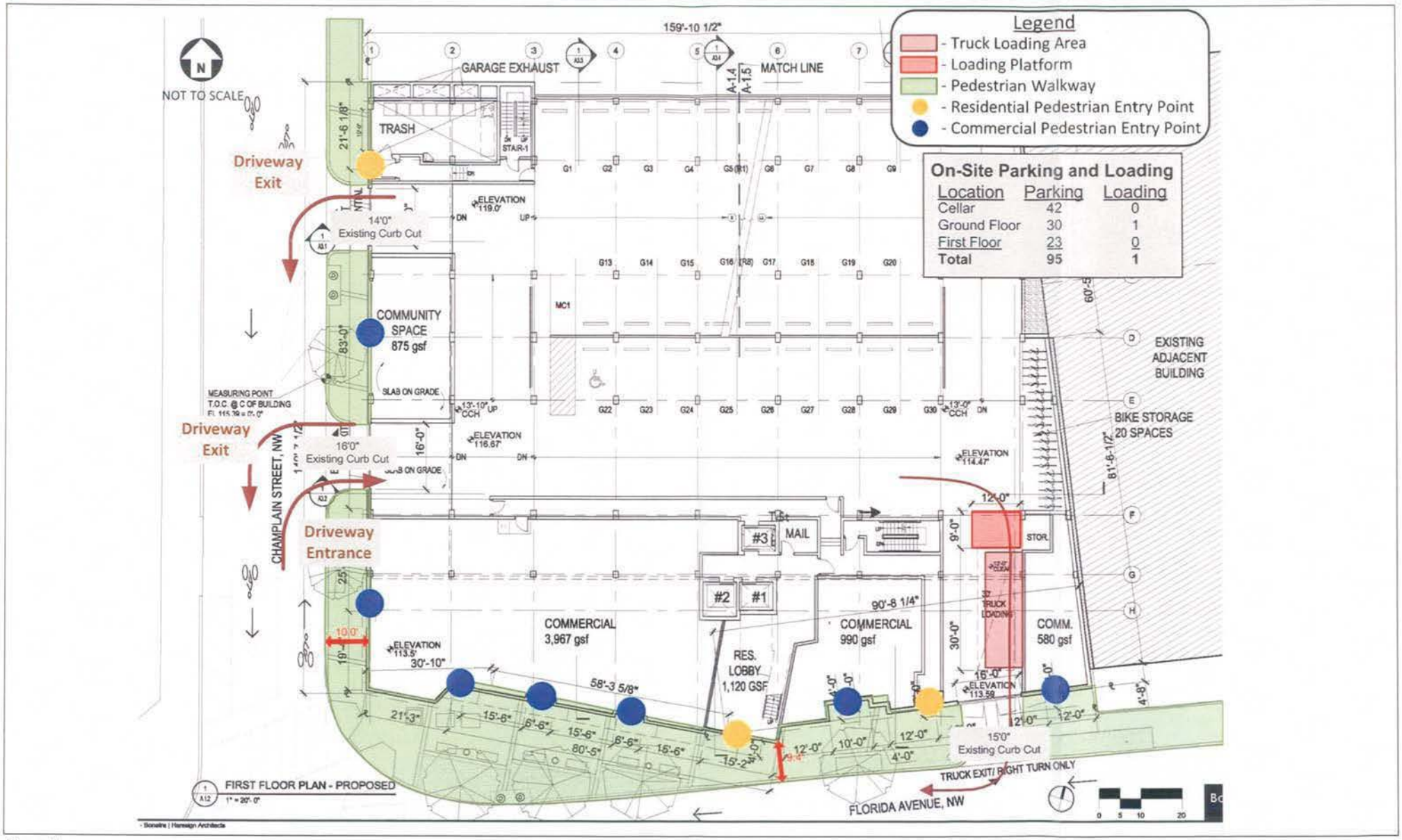

Figure 1
Site Access, Parking and Circulation Plan