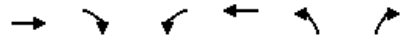
Synchro Traffic Modeling Results

2020 Existing Conditions
2020 Baseline Conditions
2020 Build Condition
2025 Future Condition

Synchro - 2020 Existing Conditions



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	562	201	200	266	10	145
Future Volume (Veh/h)	562	201	200	266	10	145
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.95	0.95
Hourly flow rate (vph)	604	216	215	286	11	153
Pedestrians	44			22	62	
Lane Width (ft)	11.0			11.0	12.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	4			2	6	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			882		1534	796
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			882		1534	796
tC, single (s)			4.1		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			70		86	55
cM capacity (veh/h)			714		78	340

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	820	501	164
Volume Left	0	215	11
Volume Right	216	0	153
cSH	1700	714	277
Volume to Capacity	0.48	0.30	0.59
Queue Length 95th (ft)	0	32	87
Control Delay (s)	0.0	7.8	35.1
Lane LOS		A	E
Approach Delay (s)	0.0	7.8	35.1
Approach LOS			E

Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	98.5%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	89	9	46	0	20	0	164	267	64	267	0
Future Volume (Veh/h)	27	89	9	46	0	20	0	164	267	64	267	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	97	10	50	0	22	0	178	290	70	290	0
Pedestrians		44			41			17			43	
Lane Width (ft)		16.0			12.0			10.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		6			4			1			4	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								532				
pX, platoon unblocked	0.90	0.90		0.90	0.90	0.90				0.90		
vC, conflicting volume	862	983	351	870	838	407	334			509		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	790	925	351	799	764	284	334			398		
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	53	98	65	100	97	100			93		
cM capacity (veh/h)	215	206	649	144	255	632	1168			1012		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	136	72	468	360
Volume Left	29	50	0	70
Volume Right	10	22	290	0
cSH	219	189	1700	1012
Volume to Capacity	0.62	0.38	0.28	0.07
Queue Length 95th (ft)	91	42	0	6
Control Delay (s)	45.1	35.4	0.0	2.3
Lane LOS	E	E		A
Approach Delay (s)	45.1	35.4	0.0	2.3
Approach LOS	E	E		

Intersection Summary				
Average Delay			9.2	
Intersection Capacity Utilization			72.5%	ICU Level of Service
Analysis Period (min)			15	

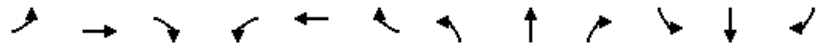
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	503	257	30	275	33	319
v/c Ratio	1.11	0.58	0.13	0.47	0.14	0.56
Control Delay	100.2	24.2	15.0	18.5	20.4	26.6
Queue Delay	8.7	63.1	0.0	4.3	0.0	0.5
Total Delay	108.9	87.3	15.0	22.8	20.4	27.1
Queue Length 50th (ft)	~329	103	9	83	12	140
Queue Length 95th (ft)	#493	145	m16	m113	33	218
Internal Link Dist (ft)	303	140		95		452
Turn Bay Length (ft)			45		95	
Base Capacity (vph)	455	441	237	584	238	574
Starvation Cap Reductn	0	0	0	231	0	0
Spillback Cap Reductn	239	232	0	0	0	54
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.33	1.23	0.13	0.78	0.14	0.61

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	239	166	6	121	71	28	242	17	29	259	22
Future Volume (vph)	32	239	166	6	121	71	28	242	17	29	259	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	12	11	11	11	11
Total Lost time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.87			0.84		1.00	0.98		1.00	0.98	
Flpb, ped/bikes		0.98			1.00		0.85	1.00		0.78	1.00	
Frt		0.95			0.95		1.00	0.99		1.00	0.99	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1013			961		1237	1547		1116	1520	
Flt Permitted		0.96			0.98		0.48	1.00		0.54	1.00	
Satd. Flow (perm)		976			946		628	1547		630	1520	
Peak-hour factor, PHF	0.87	0.87	0.87	0.77	0.77	0.77	0.94	0.94	0.94	0.88	0.88	0.88
Adj. Flow (vph)	37	275	191	8	157	92	30	257	18	33	294	25
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	503	0	0	257	0	30	275	0	33	319	0
Confl. Peds. (#/hr)	360		157	157		360	172		225	225		172
Confl. Bikes (#/hr)			220			13			6			23
Heavy Vehicles (%)	9%	6%	1%	0%	14%	14%	4%	7%	6%	10%	5%	5%
Bus Blockages (#/hr)	0	5	0	0	5	0	0	0	0	0	0	0
Parking (#/hr)		12			5							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		42.0			42.0		34.0	34.0		34.0	34.0	
Effective Green, g (s)		42.0			42.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio		0.47			0.47		0.38	0.38		0.38	0.38	
Clearance Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		455			441		237	584		238	574	
v/s Ratio Prot								0.18			c0.21	
v/s Ratio Perm		c0.52			0.27		0.05			0.05		
v/c Ratio		1.11			0.58		0.13	0.47		0.14	0.56	
Uniform Delay, d1		24.0			17.6		18.3	21.2		18.4	22.1	
Progression Factor		1.00			1.00		0.74	0.75		1.00	1.00	
Incremental Delay, d2		74.0			5.5		0.8	2.1		1.2	3.8	
Delay (s)		98.0			23.1		14.4	18.1		19.6	25.9	
Level of Service		F			C		B	B		B	C	
Approach Delay (s)		98.0			23.1			17.7			25.3	
Approach LOS		F			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	49.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

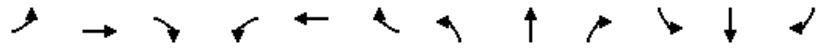
c Critical Lane Group

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	450	311	40	225	49	477
v/c Ratio	0.98	0.62	0.27	0.42	0.16	0.85
Control Delay	63.2	23.8	25.4	23.8	13.5	30.3
Queue Delay	39.3	3.8	0.0	0.2	1.2	8.4
Total Delay	102.5	27.6	25.4	24.0	14.7	38.7
Queue Length 50th (ft)	239	123	15	93	13	269
Queue Length 95th (ft)	#448	216	42	150	m20	m233
Internal Link Dist (ft)	813	207		330		95
Turn Bay Length (ft)			210		45	
Base Capacity (vph)	459	503	149	532	298	564
Starvation Cap Reductn	0	0	0	0	143	63
Spillback Cap Reductn	108	118	0	47	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.28	0.81	0.27	0.46	0.32	0.95

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	278	38	32	215	39	35	150	46	40	336	55
Future Volume (vph)	98	278	38	32	215	39	35	150	46	40	336	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	15	10	15	10	10	10	10	12	11	11	11	11
Total Lost time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.96			0.97		1.00	0.94		1.00	0.95	
Flpb, ped/bikes		0.97			0.98		0.88	1.00		0.84	1.00	
Frt		0.99			0.98		1.00	0.96		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1159			1157		1255	1409		1250	1493	
Flt Permitted		0.83			0.92		0.30	1.00		0.60	1.00	
Satd. Flow (perm)		976			1066		397	1409		789	1493	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	107	302	41	35	234	42	40	172	53	49	410	67
RTOR Reduction (vph)	0	4	0	0	6	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	446	0	0	305	0	40	225	0	49	477	0
Confl. Peds. (#/hr)	174		318	318		174	203		152	152		203
Confl. Bikes (#/hr)			89			12			11			36
Heavy Vehicles (%)	2%	4%	3%	13%	7%	5%	6%	8%	17%	5%	3%	4%
Bus Blockages (#/hr)	0	10	0	0	10	0	0	0	0	0	0	0
Parking (#/hr)		8			5							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		42.0			42.0		34.0	34.0		34.0	34.0	
Effective Green, g (s)		42.0			42.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio		0.47			0.47		0.38	0.38		0.38	0.38	
Clearance Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		455			497		149	532		298	564	
v/s Ratio Prot								0.16			c0.32	
v/s Ratio Perm		c0.46			0.29		0.10			0.06		
v/c Ratio		0.98			0.61		0.27	0.42		0.16	0.85	
Uniform Delay, d1		23.6			17.9		19.4	20.7		18.6	25.6	
Progression Factor		1.00			1.00		1.00	1.00		0.66	0.71	
Incremental Delay, d2		37.4			5.6		4.4	2.5		0.8	10.3	
Delay (s)		61.0			23.5		23.8	23.2		13.0	28.6	
Level of Service		E			C		C	C		B	C	
Approach Delay (s)		61.0			23.5			23.3			27.1	
Approach LOS		E			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	35.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	94.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	159	349	47	67	250	37	80	296	104	16	363	205
v/c Ratio	0.98	0.79	0.64	0.64	0.65	0.45	0.96	0.55	1.17	0.13	0.80	1.45
Control Delay	111.9	48.9	84.4	75.4	44.4	61.6	140.3	33.6	192.0	44.9	47.7	274.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	111.9	48.9	84.4	75.4	44.4	61.6	140.3	33.6	192.0	44.9	47.7	274.1
Queue Length 50th (ft)	108	215	31	45	151	24	55	168	~83	10	222	~189
Queue Length 95th (ft)	#239	#359	#91	#111	239	57	#150	274	#193	31	#371	#335
Internal Link Dist (ft)		410			550			357			641	
Turn Bay Length (ft)	100		75	285		200	250			225		
Base Capacity (vph)	163	440	74	104	386	107	83	539	89	164	455	141
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.79	0.64	0.64	0.65	0.35	0.96	0.55	1.17	0.10	0.80	1.45

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
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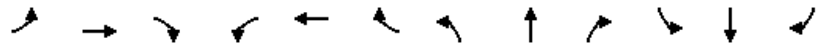


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	321	43	62	230	34	73	269	95	15	348	197
Future Volume (vph)	146	321	43	62	230	34	73	269	95	15	348	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	10	10	10	11	11	11	11	11	12	11	9
Total Lost time (s)	8.0	5.0	8.0	8.0	5.0	5.0	8.0	5.0	8.0	5.0	5.0	8.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1317	1492	1119	1366	1559	937	1256	1476	1172	1438	1450	1140
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1317	1492	1119	1366	1559	937	1256	1476	1172	1438	1450	1140
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.91	0.96	0.96	0.96
Adj. Flow (vph)	159	349	47	67	250	37	80	296	104	16	362	205
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	159	349	47	67	250	37	80	296	104	16	363	205
Heavy Vehicles (%)	11%	7%	14%	11%	6%	41%	25%	12%	17%	13%	14%	12%
Bus Blockages (#/hr)	0	0	15	0	0	15	0	0	6	0	0	6
Turn Type	Prot	NA	Over	Prot	NA	Over	Prot	NA	Over	Prot	NA	Over
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases												
Actuated Green, G (s)	13.0	31.0	7.0	8.0	26.0	6.6	7.0	36.4	8.0	6.6	33.0	13.0
Effective Green, g (s)	13.0	31.0	7.0	8.0	26.0	6.6	7.0	36.4	8.0	6.6	33.0	13.0
Actuated g/C Ratio	0.12	0.30	0.07	0.08	0.25	0.06	0.07	0.35	0.08	0.06	0.31	0.12
Clearance Time (s)	8.0	5.0	8.0	8.0	5.0	5.0	8.0	5.0	8.0	5.0	5.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	163	440	74	104	386	58	83	511	89	90	455	141
v/s Ratio Prot	0.12	c0.23	0.04	0.05	0.16	0.04	c0.06	c0.20	0.09	0.01	c0.25	c0.18
v/s Ratio Perm												
v/c Ratio	0.98	0.79	0.64	0.64	0.65	0.64	0.96	0.58	1.17	0.18	0.80	1.45
Uniform Delay, d1	45.8	34.0	47.8	47.1	35.4	48.0	48.9	28.0	48.5	46.6	32.9	46.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	62.6	13.7	16.5	12.9	8.2	20.8	86.1	4.7	147.8	0.9	13.6	239.2
Delay (s)	108.5	47.7	64.2	60.0	43.5	68.8	134.9	32.8	196.3	47.6	46.5	285.2
Level of Service	F	D	E	E	D	E	F	C	F	D	D	F
Approach Delay (s)		66.5			49.3			85.2			130.3	
Approach LOS		E			D			F			F	

Intersection Summary			
HCM 2000 Control Delay	86.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	105.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	WBT	SBR	SEL2	SEL
Lane Group Flow (vph)	483	580	284	97	123
v/c Ratio	0.24	0.74	0.64	0.54	0.71
Control Delay	4.2	35.9	25.3	53.7	65.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	4.2	35.9	25.3	53.7	65.7
Queue Length 50th (ft)	41	170	95	59	77
Queue Length 95th (ft)	57	237	151	113	#163
Internal Link Dist (ft)	641	1473			857
Turn Bay Length (ft)				100	100
Base Capacity (vph)	1988	784	446	178	173
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.24	0.74	0.64	0.54	0.71

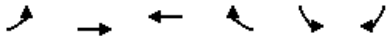
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL2	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	449	361	139	51	0	190	37	92	108	9
Future Volume (vph)	0	449	361	139	51	0	190	37	92	108	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	11	11	11	12	10	10
Total Lost time (s)		6.0	6.0				10.0		7.0	7.0	
Lane Util. Factor		0.95	0.95				1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.90				1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00				1.00		1.00	1.00	
Frt		1.00	0.95				0.86		1.00	0.99	
Flt Protected		1.00	1.00				1.00		0.95	0.96	
Satd. Flow (prot)		2651	2307				1197		1490	1443	
Flt Permitted		1.00	1.00				1.00		0.95	0.96	
Satd. Flow (perm)		2651	2307				1197		1490	1443	
Peak-hour factor, PHF	0.93	0.93	0.95	0.95	0.95	0.80	0.80	0.80	0.95	0.95	0.95
Adj. Flow (vph)	0	483	380	146	54	0	238	46	97	114	9
RTOR Reduction (vph)	0	0	0	0	0	0	75	0	0	0	0
Lane Group Flow (vph)	0	483	580	0	0	0	209	0	97	123	0
Confl. Peds. (#/hr)					148			149			
Confl. Bikes (#/hr)				29	34			28			
Heavy Vehicles (%)	0%	13%	17%	4%	2%	33%	4%	0%	9%	4%	11%
Bus Blockages (#/hr)	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)							7				
Turn Type		NA	NA				Prot		Prot	Prot	
Protected Phases		1 2	1				2		3	3	
Permitted Phases											
Actuated Green, G (s)		71.0	34.0				31.0		12.0	12.0	
Effective Green, g (s)		71.0	34.0				31.0		12.0	12.0	
Actuated g/C Ratio		0.71	0.34				0.31		0.12	0.12	
Clearance Time (s)			6.0				10.0		7.0	7.0	
Vehicle Extension (s)			2.0				2.0		2.0	2.0	
Lane Grp Cap (vph)		1882	784				371		178	173	
v/s Ratio Prot		0.18	c0.25				c0.17		0.07	c0.09	
v/s Ratio Perm											
v/c Ratio		0.26	0.74				0.56		0.54	0.71	
Uniform Delay, d1		5.1	29.1				28.8		41.4	42.3	
Progression Factor		1.00	1.00				1.00		1.00	1.00	
Incremental Delay, d2		0.3	6.2				6.1		11.5	21.9	
Delay (s)		5.5	35.3				34.9		52.9	64.2	
Level of Service		A	D				C		D	E	
Approach Delay (s)		5.5	35.3			34.9				59.2	
Approach LOS		A	D			C				E	

Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

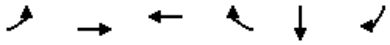
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		Y	
Traffic Volume (veh/h)	0	525	412	0	163	137
Future Volume (Veh/h)	0	525	412	0	163	137
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.95	0.95	0.77	0.77
Hourly flow rate (vph)	0	559	434	0	212	178
Pedestrians		8	39			
Lane Width (ft)		11.0	11.0			
Walking Speed (ft/s)		3.5	3.5			
Percent Blockage		1	3			
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	434				1032	442
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	434				1032	442
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	100				12	71
cM capacity (veh/h)	1136				240	605

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	559	434	390
Volume Left	0	0	212
Volume Right	0	0	178
cSH	1700	1700	331
Volume to Capacity	0.33	0.26	1.18
Queue Length 95th (ft)	0	0	409
Control Delay (s)	0.0	0.0	142.1
Lane LOS			F
Approach Delay (s)	0.0	0.0	142.1
Approach LOS			F

Intersection Summary			
Average Delay	40.1		
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	202	385	453	214	313	109
v/c Ratio	0.62	0.45	0.90	0.70	0.79	0.35
Control Delay	39.7	26.2	52.4	44.2	47.4	31.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.7	26.2	52.4	44.2	47.4	31.9
Queue Length 50th (ft)	102	90	244	110	166	51
Queue Length 95th (ft)	167	125	#407	#203	#275	94
Internal Link Dist (ft)		831	391		521	
Turn Bay Length (ft)	340			350		160
Base Capacity (vph)	327	860	504	304	394	312
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.45	0.90	0.70	0.79	0.35

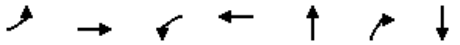
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	270	61	0	399	188	0	0	0	188	81	94
Future Volume (vph)	174	270	61	0	399	188	0	0	0	188	81	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	10	10	10	10	10	12	12	12	11	11	11
Total Lost time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Util. Factor	1.00	0.95			1.00	1.00					1.00	1.00
Frt	1.00	0.97			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.97	1.00
Satd. Flow (prot)	1341	2671			1565	1141					1480	1277
Flt Permitted	0.95	1.00			1.00	1.00					0.97	1.00
Satd. Flow (perm)	1341	2671			1565	1141					1480	1277
Peak-hour factor, PHF	0.86	0.86	0.86	0.88	0.88	0.88	0.92	0.92	0.92	0.86	0.86	0.86
Adj. Flow (vph)	202	314	71	0	453	214	0	0	0	219	94	109
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	202	385	0	0	453	214	0	0	0	0	313	109
Heavy Vehicles (%)	9%	3%	43%	0%	2%	4%	0%	0%	0%	4%	17%	10%
Parking (#/hr)						5						
Turn Type	Prot	NA			NA	Over				Split	NA	Over
Protected Phases	5	2			6	4				4	4	5
Permitted Phases												
Actuated Green, G (s)	22.0	29.0			29.0	24.0					24.0	22.0
Effective Green, g (s)	22.0	29.0			29.0	24.0					24.0	22.0
Actuated g/C Ratio	0.24	0.32			0.32	0.27					0.27	0.24
Clearance Time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Grp Cap (vph)	327	860			504	304					394	312
v/s Ratio Prot	c0.15	0.14			c0.29	0.19					c0.21	0.09
v/s Ratio Perm												
v/c Ratio	0.62	0.45			0.90	0.70					0.79	0.35
Uniform Delay, d1	30.3	24.2			29.1	29.8					30.7	28.1
Progression Factor	1.00	1.00			1.00	1.00					1.00	1.00
Incremental Delay, d2	8.5	1.7			21.5	12.8					15.2	3.1
Delay (s)	38.7	25.8			50.6	42.6					45.9	31.2
Level of Service	D	C			D	D					D	C
Approach Delay (s)		30.3			48.1			0.0			42.1	
Approach LOS		C			D			A			D	

Intersection Summary			
HCM 2000 Control Delay	40.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	107	287	164	378	177	66	488
v/c Ratio	1.10	0.55	1.13	0.54	0.51	0.09	0.95
Control Delay	164.0	35.7	153.7	32.3	26.9	8.9	58.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	164.0	35.7	153.7	32.3	26.9	8.9	58.0
Queue Length 50th (ft)	~70	76	~109	97	74	15	263
Queue Length 95th (ft)	#174	118	#232	143	141	34	#441
Internal Link Dist (ft)		1473		937	495		931
Turn Bay Length (ft)	205		240			140	
Base Capacity (vph)	97	519	145	700	345	737	512
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.55	1.13	0.54	0.51	0.09	0.95

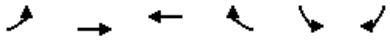
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	212	52	156	354	5	84	81	61	27	249	149
Future Volume (vph)	98	212	52	156	354	5	84	81	61	27	249	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	10	10	12	12	12	11	12	14	12
Total Lost time (s)	9.0	9.0		9.0	9.0			6.0	9.0		6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	0.96		1.00	1.00			1.00	1.00		0.94	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.97	1.00		0.98	
Frt	1.00	0.97		1.00	1.00			1.00	0.85		0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		1.00	
Satd. Flow (prot)	1253	2339		1307	2742			1509	1277		1313	
Flt Permitted	0.95	1.00		0.95	1.00			0.56	1.00		0.97	
Satd. Flow (perm)	1253	2339		1307	2742			864	1277		1281	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.93	0.93	0.93	0.87	0.87	0.87
Adj. Flow (vph)	107	230	57	164	373	5	90	87	66	31	286	171
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	107	287	0	164	378	0	0	177	66	0	488	0
Confl. Peds. (#/hr)			81			114	166		357	357		166
Confl. Bikes (#/hr)						20			17			6
Heavy Vehicles (%)	21%	24%	8%	16%	10%	0%	5%	9%	10%	4%	4%	13%
Parking (#/hr)											4	
Turn Type	Prot	NA		Prot	NA		Perm	NA	pt+ov	Perm	NA	
Protected Phases	5	2		1	6			4	1 4		8	
Permitted Phases							4			8		
Actuated Green, G (s)	7.0	20.0		10.0	23.0			36.0	52.0		36.0	
Effective Green, g (s)	7.0	20.0		10.0	23.0			36.0	46.0		36.0	
Actuated g/C Ratio	0.08	0.22		0.11	0.26			0.40	0.51		0.40	
Clearance Time (s)	9.0	9.0		9.0	9.0			6.0			6.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0			2.0	
Lane Grp Cap (vph)	97	519		145	700			345	652		512	
v/s Ratio Prot	0.09	0.12		c0.13	c0.14				0.05			
v/s Ratio Perm								0.20			c0.38	
v/c Ratio	1.10	0.55		1.13	0.54			0.51	0.10		0.95	
Uniform Delay, d1	41.5	31.0		40.0	28.9			20.4	11.3		26.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	121.9	4.2		114.3	3.0			5.4	0.0		29.7	
Delay (s)	163.4	35.2		154.3	31.9			25.7	11.4		55.9	
Level of Service	F	D		F	C			C	B		E	
Approach Delay (s)		70.1			68.9			21.8			55.9	
Approach LOS		E			E			C			E	

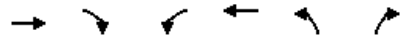
Intersection Summary			
HCM 2000 Control Delay	58.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	182	525	466	83	0	0
Future Volume (Veh/h)	182	525	466	83	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.92	0.92
Hourly flow rate (vph)	196	565	501	89	0	0
Pedestrians					121	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	711				1624	666
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	711				1624	666
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	78				100	100
cM capacity (veh/h)	893				89	463

Direction, Lane #	EB 1	WB 1
Volume Total	761	590
Volume Left	196	0
Volume Right	0	89
cSH	893	1700
Volume to Capacity	0.22	0.35
Queue Length 95th (ft)	21	0
Control Delay (s)	5.1	0.0
Lane LOS	A	
Approach Delay (s)	5.1	0.0
Approach LOS		

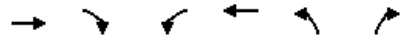
Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	468	220	26	412	0	0
Future Volume (Veh/h)	468	220	26	412	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.95	0.95	0.92	0.92
Hourly flow rate (vph)	498	234	27	434	0	0
Pedestrians					86	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			818		1189	701
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			818		1189	701
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		100	100
cM capacity (veh/h)			819		203	442

Direction, Lane #	EB 1	WB 1
Volume Total	732	461
Volume Left	0	27
Volume Right	234	0
cSH	1700	819
Volume to Capacity	0.43	0.03
Queue Length 95th (ft)	0	3
Control Delay (s)	0.0	1.0
Lane LOS		A
Approach Delay (s)	0.0	1.0
Approach LOS		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	494	40	117	348	13	235
Future Volume (Veh/h)	494	40	117	348	13	235
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.86	0.86	0.82	0.82
Hourly flow rate (vph)	520	42	136	405	16	287
Pedestrians	34			12	82	
Lane Width (ft)	11.0			11.0	12.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	3			1	8	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			644		1334	635
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			644		1334	635
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			84		87	34
cM capacity (veh/h)			863		124	433

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	562	541	303
Volume Left	0	136	16
Volume Right	42	0	287
cSH	1700	863	383
Volume to Capacity	0.33	0.16	0.79
Queue Length 95th (ft)	0	14	169
Control Delay (s)	0.0	4.0	42.0
Lane LOS		A	E
Approach Delay (s)	0.0	4.0	42.0
Approach LOS			E

Intersection Summary			
Average Delay	10.6		
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	45	3	125	0	69	0	359	176	17	135	0
Future Volume (Veh/h)	5	45	3	125	0	69	0	359	176	17	135	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	49	3	136	0	75	0	390	191	18	147	0
Pedestrians		18			55			18			33	
Lane Width (ft)		16.0			12.0			10.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		2			5			1			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								532				
pX, platoon unblocked	0.81	0.81		0.81	0.81	0.81				0.81		
vC, conflicting volume	794	837	183	769	742	574	165			636		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	628	680	183	596	562	355	165			432		
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	82	100	46	100	85	100			98		
cM capacity (veh/h)	243	275	833	253	322	516	1393			873		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	57	211	581	165
Volume Left	5	136	0	18
Volume Right	3	75	191	0
cSH	282	309	1700	873
Volume to Capacity	0.20	0.68	0.34	0.02
Queue Length 95th (ft)	19	117	0	2
Control Delay (s)	21.0	38.4	0.0	1.2
Lane LOS	C	E		A
Approach Delay (s)	21.0	38.4	0.0	1.2
Approach LOS	C	E		

Intersection Summary				
Average Delay		9.4		
Intersection Capacity Utilization		61.1%	ICU Level of Service	B
Analysis Period (min)		15		

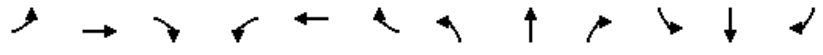
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	277	511	99	461	28	185
v/c Ratio	0.64	1.11	0.26	0.66	0.13	0.29
Control Delay	28.9	104.2	10.3	14.0	18.0	18.7
Queue Delay	0.5	0.5	2.1	4.0	0.0	0.0
Total Delay	29.4	104.7	12.4	18.0	18.0	18.7
Queue Length 50th (ft)	121	~336	17	77	10	67
Queue Length 95th (ft)	199	#493	m26	m109	22	89
Internal Link Dist (ft)	303	140		95		452
Turn Bay Length (ft)			45		95	
Base Capacity (vph)	432	459	380	695	214	642
Starvation Cap Reductn	0	0	179	157	0	0
Spillback Cap Reductn	23	24	0	0	0	25
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	1.17	0.49	0.86	0.13	0.30

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	139	73	9	271	160	92	413	16	20	115	18
Future Volume (vph)	26	139	73	9	271	160	92	413	16	20	115	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	12	11	11	11	11
Total Lost time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.95			0.86		1.00	0.99		1.00	0.98	
Flpb, ped/bikes		0.99			1.00		0.90	1.00		0.87	1.00	
Frt		0.96			0.95		1.00	0.99		1.00	0.98	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1112			1097		1335	1648		1359	1522	
Flt Permitted		0.92			0.99		0.64	1.00		0.35	1.00	
Satd. Flow (perm)		1025			1089		900	1648		508	1522	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.93	0.93	0.93	0.72	0.72	0.72
Adj. Flow (vph)	30	162	85	10	315	186	99	444	17	28	160	25
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	277	0	0	511	0	99	461	0	28	185	0
Confl. Peds. (#/hr)	233		121	121		233	88		208	208		88
Confl. Bikes (#/hr)			11			162			17			1
Heavy Vehicles (%)	4%	8%	4%	0%	3%	1%	2%	2%	0%	0%	4%	6%
Bus Blockages (#/hr)	0	3	0	0	3	0	0	0	0	0	0	0
Parking (#/hr)		12			5							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		38.0			38.0		38.0	38.0		38.0	38.0	
Effective Green, g (s)		38.0			38.0		38.0	38.0		38.0	38.0	
Actuated g/C Ratio		0.42			0.42		0.42	0.42		0.42	0.42	
Clearance Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		432			459		380	695		214	642	
v/s Ratio Prot								c0.28			0.12	
v/s Ratio Perm		0.27			c0.47		0.11			0.06		
v/c Ratio		0.64			1.11		0.26	0.66		0.13	0.29	
Uniform Delay, d1		20.6			26.0		16.9	20.9		15.9	17.1	
Progression Factor		1.00			1.00		0.51	0.47		1.00	1.00	
Incremental Delay, d2		7.1			76.6		1.3	3.8		1.3	1.1	
Delay (s)		27.7			102.6		9.9	13.6		17.2	18.2	
Level of Service		C			F		A	B		B	B	
Approach Delay (s)		27.7			102.6			13.0			18.1	
Approach LOS		C			F			B			B	

Intersection Summary			
HCM 2000 Control Delay	45.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	95.5%	ICU Level of Service	F
Analysis Period (min)	15		

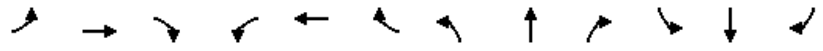
c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	76	255	456	75	470	26	218
v/c Ratio	0.25	0.50	0.90	0.22	0.70	0.12	0.35
Control Delay	19.6	22.2	47.0	18.9	28.2	12.4	14.2
Queue Delay	0.6	0.0	49.3	0.0	0.7	0.0	2.4
Total Delay	20.2	22.2	96.3	18.9	28.9	12.4	16.6
Queue Length 50th (ft)	27	98	231	26	213	6	55
Queue Length 95th (ft)	61	171	#376	59	330	m14	m75
Internal Link Dist (ft)		813	207		330		95
Turn Bay Length (ft)	25			210		45	
Base Capacity (vph)	306	507	508	335	670	222	624
Starvation Cap Reductn	0	0	0	0	0	0	285
Spillback Cap Reductn	77	0	128	0	44	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.50	1.20	0.22	0.75	0.12	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	192	38	29	311	43	72	410	41	21	152	24
Future Volume (vph)	68	192	38	29	311	43	72	410	41	21	152	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	15	10	15	10	10	10	10	12	11	11	11	11
Total Lost time (s)	7.0	7.0			7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.94			0.98		1.00	0.98		1.00	0.96	
Flpb, ped/bikes	0.94	1.00			0.98		0.80	1.00		0.92	1.00	
Frt	1.00	0.98			0.98		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1633	1183			1241		1220	1587		1447	1479	
Flt Permitted	0.42	1.00			0.96		0.62	1.00		0.35	1.00	
Satd. Flow (perm)	725	1183			1193		795	1587		527	1479	
Peak-hour factor, PHF	0.90	0.90	0.90	0.84	0.84	0.84	0.96	0.96	0.96	0.81	0.81	0.81
Adj. Flow (vph)	76	213	42	35	370	51	75	427	43	26	188	30
RTOR Reduction (vph)	0	8	0	0	5	0	0	0	0	0	0	0
Lane Group Flow (vph)	76	247	0	0	451	0	75	470	0	26	218	0
Confl. Peds. (#/hr)	109		267	267		109	177		124	124		177
Confl. Bikes (#/hr)			15			58			29			6
Heavy Vehicles (%)	3%	3%	3%	0%	3%	0%	0%	3%	15%	0%	6%	0%
Bus Blockages (#/hr)	0	9	0	0	9	0	0	0	0	0	0	0
Parking (#/hr)		8			5							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	38.0	38.0			38.0		38.0	38.0		38.0	38.0	
Effective Green, g (s)	38.0	38.0			38.0		38.0	38.0		38.0	38.0	
Actuated g/C Ratio	0.42	0.42			0.42		0.42	0.42		0.42	0.42	
Clearance Time (s)	7.0	7.0			7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	306	499			503		335	670		222	624	
v/s Ratio Prot		0.21						c0.30			0.15	
v/s Ratio Perm	0.10				c0.38		0.09			0.05		
v/c Ratio	0.25	0.49			0.90		0.22	0.70		0.12	0.35	
Uniform Delay, d1	16.8	19.0			24.2		16.6	21.3		15.8	17.6	
Progression Factor	1.00	1.00			1.00		1.00	1.00		0.69	0.71	
Incremental Delay, d2	1.9	3.5			21.2		1.5	6.0		1.0	1.4	
Delay (s)	18.7	22.5			45.4		18.1	27.4		11.8	13.8	
Level of Service	B	C			D		B	C		B	B	
Approach Delay (s)		21.6			45.4			26.1			13.6	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	114.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	172	327	24	123	301	51	95	445	114	7	399	212
v/c Ratio	1.01	0.81	0.19	0.82	0.77	0.52	0.63	0.84	0.87	0.06	0.86	1.44
Control Delay	117.8	51.8	44.4	83.3	49.2	62.0	61.6	48.4	96.3	42.0	54.8	267.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	117.8	51.8	44.4	83.3	49.2	62.0	61.6	48.4	96.3	42.0	54.8	267.3
Queue Length 50th (ft)	~113	195	14	78	178	31	58	274	73	4	254	~185
Queue Length 95th (ft)	#248	#338	40	#157	250	64	109	#449	#170	16	#384	#291
Internal Link Dist (ft)		410			550			357			641	
Turn Bay Length (ft)	100		75	285		200	250			225		
Base Capacity (vph)	170	402	142	150	393	112	169	531	131	138	464	147
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.81	0.17	0.82	0.77	0.46	0.56	0.84	0.87	0.05	0.86	1.44

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	304	22	102	250	42	84	392	100	6	327	174
Future Volume (vph)	160	304	22	102	250	42	84	392	100	6	327	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	10	10	10	11	11	11	11	11	12	11	9
Total Lost time (s)	8.0	5.0	8.0	8.0	5.0	5.0	8.0	5.0	8.0	5.0	5.0	8.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1419	1492	1291	1501	1574	1124	1540	1589	1319	1388	1545	1228
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1419	1492	1291	1501	1574	1124	1540	1589	1319	1388	1545	1228
Peak-hour factor, PHF	0.93	0.93	0.93	0.83	0.83	0.83	0.88	0.88	0.88	0.82	0.82	0.82
Adj. Flow (vph)	172	327	24	123	301	51	95	445	114	7	399	212
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	172	327	24	123	301	51	95	445	114	7	399	212
Heavy Vehicles (%)	3%	7%	0%	1%	5%	19%	2%	4%	4%	17%	7%	4%
Bus Blockages (#/hr)	0	0	12	0	0	12	0	0	6	0	0	6
Turn Type	Prot	NA	Over	Prot	NA	Over	Prot	NA	Over	Prot	NA	Over
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases												
Actuated Green, G (s)	12.0	27.0	8.5	10.0	25.0	7.6	8.5	32.4	10.0	7.6	28.5	12.0
Effective Green, g (s)	12.0	27.0	8.5	10.0	25.0	7.6	8.5	32.4	10.0	7.6	28.5	12.0
Actuated g/C Ratio	0.12	0.27	0.08	0.10	0.25	0.08	0.08	0.32	0.10	0.08	0.28	0.12
Clearance Time (s)	8.0	5.0	8.0	8.0	5.0	5.0	8.0	5.0	8.0	5.0	5.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	170	402	109	150	393	85	130	514	131	105	440	147
v/s Ratio Prot	0.12	c0.22	0.02	0.08	0.19	0.05	c0.06	c0.28	0.09	0.01	0.26	c0.17
v/s Ratio Perm												
v/c Ratio	1.01	0.81	0.22	0.82	0.77	0.60	0.73	0.87	0.87	0.07	0.91	1.44
Uniform Delay, d1	44.0	34.1	42.7	44.1	34.8	44.7	44.6	31.8	44.4	42.9	34.5	44.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	72.1	16.3	1.0	28.2	13.3	10.9	18.9	17.5	42.3	0.3	25.0	233.1
Delay (s)	116.1	50.5	43.7	72.3	48.1	55.6	63.6	49.3	86.7	43.2	59.4	277.1
Level of Service	F	D	D	E	D	E	E	D	F	D	E	F
Approach Delay (s)		71.8			55.2			57.9			133.9	
Approach LOS		E			E			E			F	

Intersection Summary			
HCM 2000 Control Delay	81.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	WBT	SBR	SEL2	SEL
Lane Group Flow (vph)	612	349	218	313	274
v/c Ratio	0.31	0.41	0.54	1.25	1.25
Control Delay	5.6	39.7	18.6	175.4	176.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	5.6	39.7	18.6	175.4	176.3
Queue Length 50th (ft)	60	113	45	~222	~194
Queue Length 95th (ft)	82	m157	75	m#309	m#278
Internal Link Dist (ft)	641	1473			857
Turn Bay Length (ft)				100	100
Base Capacity (vph)	1997	861	406	250	220
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.31	0.41	0.54	1.25	1.25

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

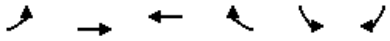
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL2	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	594	253	21	60	0	146	13	247	108	108
Future Volume (vph)	0	594	253	21	60	0	146	13	247	108	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	11	11	11	12	10	10
Total Lost time (s)		6.0	6.0				10.0		7.0	7.0	
Lane Util. Factor		0.95	0.95				1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.95				1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00				1.00		1.00	1.00	
Frt		1.00	0.96				0.86		1.00	0.93	
Flt Protected		1.00	1.00				1.00		0.95	0.98	
Satd. Flow (prot)		2853	2584				1237		1608	1419	
Flt Permitted		1.00	1.00				1.00		0.95	0.98	
Satd. Flow (perm)		2853	2584				1237		1608	1419	
Peak-hour factor, PHF	0.97	0.97	0.96	0.96	0.96	0.73	0.73	0.73	0.79	0.79	0.79
Adj. Flow (vph)	0	612	264	22	62	0	200	18	313	137	137
RTOR Reduction (vph)	0	0	0	0	0	0	90	0	0	0	0
Lane Group Flow (vph)	0	612	349	0	0	0	128	0	313	274	0
Confl. Peds. (#/hr)					99			71			
Confl. Bikes (#/hr)				18	21			10			
Heavy Vehicles (%)	0%	5%	9%	5%	2%	0%	0%	0%	1%	1%	2%
Bus Blockages (#/hr)	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)							7				
Turn Type		NA	NA				Prot		Prot	Prot	
Protected Phases		1 2	1				2		3	3	
Permitted Phases											
Actuated Green, G (s)		59.0	30.0				23.0		14.0	14.0	
Effective Green, g (s)		59.0	30.0				23.0		14.0	14.0	
Actuated g/C Ratio		0.66	0.33				0.26		0.16	0.16	
Clearance Time (s)			6.0				10.0		7.0	7.0	
Vehicle Extension (s)			2.0				2.0		2.0	2.0	
Lane Grp Cap (vph)		1870	861				316		250	220	
v/s Ratio Prot		0.21	c0.14				c0.10		c0.19	0.19	
v/s Ratio Perm											
v/c Ratio		0.33	0.41				0.40		1.25	1.25	
Uniform Delay, d1		6.8	23.1				27.8		38.0	38.0	
Progression Factor		1.00	1.64				1.00		0.97	0.97	
Incremental Delay, d2		0.5	1.2				3.8		141.5	142.1	
Delay (s)		7.3	39.1				31.6		178.4	179.0	
Level of Service		A	D				C		F	F	
Approach Delay (s)		7.3	39.1			31.6				178.7	
Approach LOS		A	D			C				F	

Intersection Summary			
HCM 2000 Control Delay	73.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

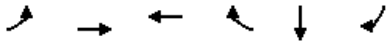
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↓	
Traffic Volume (veh/h)	0	459	351	0	90	145
Future Volume (Veh/h)	0	459	351	0	90	145
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.84	0.84	0.93	0.93	0.90	0.90
Hourly flow rate (vph)	0	546	377	0	100	161
Pedestrians		17	56			
Lane Width (ft)		11.0	11.0			
Walking Speed (ft/s)		3.5	3.5			
Percent Blockage		1	5			
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	377				979	394
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	377				979	394
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				62	75
cM capacity (veh/h)	1193				266	647

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	546	377	261
Volume Left	0	0	100
Volume Right	0	0	161
cSH	1700	1700	418
Volume to Capacity	0.32	0.22	0.62
Queue Length 95th (ft)	0	0	103
Control Delay (s)	0.0	0.0	26.9
Lane LOS			D
Approach Delay (s)	0.0	0.0	26.9
Approach LOS			D

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	228	510	312	106	479	89
v/c Ratio	0.75	0.57	0.64	0.30	1.03	0.30
Control Delay	50.1	29.0	33.6	27.2	81.6	32.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.1	29.0	33.6	27.2	81.6	32.4
Queue Length 50th (ft)	122	126	151	46	~293	42
Queue Length 95th (ft)	#233	178	238	90	#481	85
Internal Link Dist (ft)		831	391		521	
Turn Bay Length (ft)	340			350		160
Base Capacity (vph)	303	895	491	352	467	300
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.57	0.64	0.30	1.03	0.30

Intersection Summary

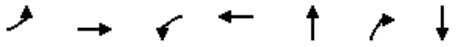
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	422	52	0	278	94	0	0	0	393	62	85
Future Volume (vph)	212	422	52	0	278	94	0	0	0	393	62	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	10	10	10	10	10	12	12	12	11	11	11
Total Lost time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Util. Factor	1.00	0.95			1.00	1.00					1.00	1.00
Frt	1.00	0.98			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (prot)	1366	2878			1580	1175					1558	1351
Flt Permitted	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (perm)	1366	2878			1580	1175					1558	1351
Peak-hour factor, PHF	0.93	0.93	0.93	0.89	0.89	0.89	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	228	454	56	0	312	106	0	0	0	414	65	89
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	228	510	0	0	312	106	0	0	0	0	479	89
Heavy Vehicles (%)	7%	1%	25%	0%	1%	1%	0%	0%	0%	1%	6%	4%
Parking (#/hr)						5						
Turn Type	Prot	NA			NA	Over				Split	NA	Over
Protected Phases	5	2			6	4				4	4	5
Permitted Phases												
Actuated Green, G (s)	20.0	28.0			28.0	27.0					27.0	20.0
Effective Green, g (s)	20.0	28.0			28.0	27.0					27.0	20.0
Actuated g/C Ratio	0.22	0.31			0.31	0.30					0.30	0.22
Clearance Time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Grp Cap (vph)	303	895			491	352					467	300
v/s Ratio Prot	c0.17	0.18			c0.20	0.09					c0.31	0.07
v/s Ratio Perm												
v/c Ratio	0.75	0.57			0.64	0.30					1.03	0.30
Uniform Delay, d1	32.7	26.0			26.6	24.2					31.5	29.1
Progression Factor	1.00	1.00			1.00	1.00					1.00	1.00
Incremental Delay, d2	15.8	2.6			6.2	2.2					48.4	2.5
Delay (s)	48.5	28.6			32.8	26.4					79.9	31.7
Level of Service	D	C			C	C					E	C
Approach Delay (s)		34.7			31.2			0.0			72.3	
Approach LOS		C			C			A			E	

Intersection Summary			
HCM 2000 Control Delay	46.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	309	479	60	299	343	100	273
v/c Ratio	1.19	0.53	0.44	0.48	0.80	0.15	0.64
Control Delay	150.7	33.3	48.2	33.4	43.7	12.5	33.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	150.7	33.3	48.2	33.4	43.7	12.5	33.6
Queue Length 50th (ft)	~217	130	33	78	175	30	130
Queue Length 95th (ft)	m#340	m170	61	103	#321	53	198
Internal Link Dist (ft)		1473		937	495		931
Turn Bay Length (ft)	205		240			140	
Base Capacity (vph)	259	905	206	627	427	735	426
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.19	0.53	0.29	0.48	0.80	0.14	0.64

Intersection Summary

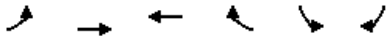
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	278	330	101	48	230	9	85	224	90	21	146	62
Future Volume (vph)	278	330	101	48	230	9	85	224	90	21	146	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	10	10	12	12	12	11	12	14	12
Total Lost time (s)	9.0	9.0		9.0	9.0			6.0	9.0		6.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	0.95		1.00	0.99			1.00	1.00		0.95	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.97	1.00		0.99	
Frt	1.00	0.96		1.00	0.99			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00		1.00	
Satd. Flow (prot)	1458	2673		1430	2824			1627	1351		1347	
Flt Permitted	0.95	1.00		0.95	1.00			0.78	1.00		0.95	
Satd. Flow (perm)	1458	2673		1430	2824			1282	1351		1280	
Peak-hour factor, PHF	0.90	0.90	0.90	0.80	0.80	0.80	0.90	0.90	0.90	0.84	0.84	0.84
Adj. Flow (vph)	309	367	112	60	288	11	94	249	100	25	174	74
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	309	479	0	60	299	0	0	343	100	0	273	0
Confl. Peds. (#/hr)			74			86	162		300	300		162
Confl. Bikes (#/hr)			19			1			13			2
Heavy Vehicles (%)	4%	5%	2%	6%	6%	0%	1%	1%	4%	5%	4%	16%
Parking (#/hr)											4	
Turn Type	Prot	NA		Prot	NA		Perm	NA	pt+ov	Perm	NA	
Protected Phases	5	2		1	6			4	1 4		8	
Permitted Phases							4			8		
Actuated Green, G (s)	16.0	28.7		7.3	20.0			30.0	43.3		30.0	
Effective Green, g (s)	16.0	28.7		7.3	20.0			30.0	37.3		30.0	
Actuated g/C Ratio	0.18	0.32		0.08	0.22			0.33	0.41		0.33	
Clearance Time (s)	9.0	9.0		9.0	9.0			6.0			6.0	
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0			2.0	
Lane Grp Cap (vph)	259	852		115	627			427	559		426	
v/s Ratio Prot	c0.21	c0.18		0.04	0.11				0.07			
v/s Ratio Perm								c0.27			0.21	
v/c Ratio	1.19	0.56		0.52	0.48			0.80	0.18		0.64	
Uniform Delay, d1	37.0	25.4		39.7	30.4			27.3	16.7		25.4	
Progression Factor	0.98	1.19		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	116.0	2.4		2.0	2.6			14.8	0.1		7.2	
Delay (s)	152.4	32.8		41.6	33.0			42.1	16.7		32.6	
Level of Service	F	C		D	C			D	B		C	
Approach Delay (s)		79.7			34.5			36.3			32.6	
Approach LOS		E			C			D			C	

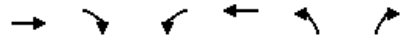
Intersection Summary			
HCM 2000 Control Delay	53.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	270	459	465	31	0	0
Future Volume (Veh/h)	270	459	465	31	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.86	0.86	0.92	0.92
Hourly flow rate (vph)	284	483	541	36	0	0
Pedestrians					112	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	689				1722	671
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	689				1722	671
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	68				100	100
cM capacity (veh/h)	901				68	460

Direction, Lane #	EB 1	WB 1
Volume Total	767	577
Volume Left	284	0
Volume Right	0	36
cSH	901	1700
Volume to Capacity	0.32	0.34
Queue Length 95th (ft)	34	0
Control Delay (s)	7.0	0.0
Lane LOS	A	
Approach Delay (s)	7.0	0.0
Approach LOS		

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		

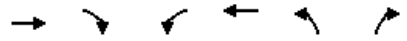


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	452	97	12	351	0	0
Future Volume (Veh/h)	452	97	12	351	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.93	0.93	0.92	0.92
Hourly flow rate (vph)	538	115	13	377	0	0
Pedestrians					112	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			765		1110	708
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			765		1110	708
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		100	100
cM capacity (veh/h)			857		230	438

Direction, Lane #	EB 1	WB 1
Volume Total	653	390
Volume Left	0	13
Volume Right	115	0
cSH	1700	857
Volume to Capacity	0.38	0.02
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	0.5
Lane LOS		A
Approach Delay (s)	0.0	0.5
Approach LOS		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	37.4%	ICU Level of Service	A
Analysis Period (min)	15		

Synchro - 2020 Baseline Conditions



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	562	201	200	266	10	145
Future Volume (Veh/h)	562	201	200	266	10	145
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.95	0.95
Hourly flow rate (vph)	604	216	215	286	11	153
Pedestrians	44			22	62	
Lane Width (ft)	11.0			11.0	12.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	4			2	6	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			882		1534	796
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			882		1534	796
tC, single (s)			4.1		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			70		86	55
cM capacity (veh/h)			714		78	340

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	820	501	164
Volume Left	0	215	11
Volume Right	216	0	153
cSH	1700	714	277
Volume to Capacity	0.48	0.30	0.59
Queue Length 95th (ft)	0	32	87
Control Delay (s)	0.0	7.8	35.1
Lane LOS		A	E
Approach Delay (s)	0.0	7.8	35.1
Approach LOS			E

Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	98.5%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	89	9	46	0	20	0	164	267	64	267	0
Future Volume (Veh/h)	27	89	9	46	0	20	0	164	267	64	267	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	97	10	50	0	22	0	178	290	70	290	0
Pedestrians		44			41			17			43	
Lane Width (ft)		16.0			12.0			10.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		6			4			1			4	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								532				
pX, platoon unblocked	0.90	0.90		0.90	0.90	0.90				0.90		
vC, conflicting volume	862	983	351	870	838	407	334			509		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	790	925	351	799	764	284	334			398		
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	53	98	65	100	97	100			93		
cM capacity (veh/h)	215	206	649	144	255	632	1168			1012		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	136	72	468	360
Volume Left	29	50	0	70
Volume Right	10	22	290	0
cSH	219	189	1700	1012
Volume to Capacity	0.62	0.38	0.28	0.07
Queue Length 95th (ft)	91	42	0	6
Control Delay (s)	45.1	35.4	0.0	2.3
Lane LOS	E	E		A
Approach Delay (s)	45.1	35.4	0.0	2.3
Approach LOS	E	E		

Intersection Summary				
Average Delay			9.2	
Intersection Capacity Utilization			72.5%	ICU Level of Service
Analysis Period (min)			15	

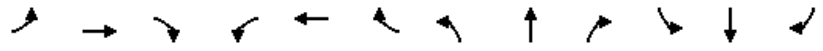
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	503	257	30	275	33	319
v/c Ratio	1.11	0.58	0.13	0.47	0.14	0.56
Control Delay	100.2	24.2	15.0	18.5	20.4	26.6
Queue Delay	8.7	63.1	0.0	4.3	0.0	0.5
Total Delay	108.9	87.3	15.0	22.8	20.4	27.1
Queue Length 50th (ft)	~329	103	9	83	12	140
Queue Length 95th (ft)	#493	145	m16	m113	33	218
Internal Link Dist (ft)	303	140		95		452
Turn Bay Length (ft)			45		95	
Base Capacity (vph)	455	441	237	584	238	574
Starvation Cap Reductn	0	0	0	231	0	0
Spillback Cap Reductn	239	232	0	0	0	54
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.33	1.23	0.13	0.78	0.14	0.61

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	239	166	6	121	71	28	242	17	29	259	22
Future Volume (vph)	32	239	166	6	121	71	28	242	17	29	259	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	12	11	11	11	11
Total Lost time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.87			0.84		1.00	0.98		1.00	0.98	
Flpb, ped/bikes		0.98			1.00		0.85	1.00		0.78	1.00	
Frt		0.95			0.95		1.00	0.99		1.00	0.99	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1013			961		1237	1547		1116	1520	
Flt Permitted		0.96			0.98		0.48	1.00		0.54	1.00	
Satd. Flow (perm)		976			946		628	1547		630	1520	
Peak-hour factor, PHF	0.87	0.87	0.87	0.77	0.77	0.77	0.94	0.94	0.94	0.88	0.88	0.88
Adj. Flow (vph)	37	275	191	8	157	92	30	257	18	33	294	25
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	503	0	0	257	0	30	275	0	33	319	0
Confl. Peds. (#/hr)	360		157	157		360	172		225	225		172
Confl. Bikes (#/hr)			220			13			6			23
Heavy Vehicles (%)	9%	6%	1%	0%	14%	14%	4%	7%	6%	10%	5%	5%
Bus Blockages (#/hr)	0	5	0	0	5	0	0	0	0	0	0	0
Parking (#/hr)		12			5							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		42.0			42.0		34.0	34.0		34.0	34.0	
Effective Green, g (s)		42.0			42.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio		0.47			0.47		0.38	0.38		0.38	0.38	
Clearance Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		455			441		237	584		238	574	
v/s Ratio Prot								0.18			c0.21	
v/s Ratio Perm		c0.52			0.27		0.05			0.05		
v/c Ratio		1.11			0.58		0.13	0.47		0.14	0.56	
Uniform Delay, d1		24.0			17.6		18.3	21.2		18.4	22.1	
Progression Factor		1.00			1.00		0.74	0.75		1.00	1.00	
Incremental Delay, d2		74.0			5.5		0.8	2.1		1.2	3.8	
Delay (s)		98.0			23.1		14.4	18.1		19.6	25.9	
Level of Service		F			C		B	B		B	C	
Approach Delay (s)		98.0			23.1			17.7			25.3	
Approach LOS		F			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	49.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	83.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	450	311	40	225	49	477
v/c Ratio	0.98	0.62	0.27	0.42	0.16	0.85
Control Delay	63.2	23.8	25.4	23.8	13.5	30.3
Queue Delay	39.3	3.8	0.0	0.2	1.2	8.4
Total Delay	102.5	27.6	25.4	24.0	14.7	38.7
Queue Length 50th (ft)	239	123	15	93	13	269
Queue Length 95th (ft)	#448	216	42	150	m20	m233
Internal Link Dist (ft)	813	207		330		95
Turn Bay Length (ft)			210		45	
Base Capacity (vph)	459	503	149	532	298	564
Starvation Cap Reductn	0	0	0	0	143	63
Spillback Cap Reductn	108	118	0	47	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.28	0.81	0.27	0.46	0.32	0.95

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	278	38	32	215	39	35	150	46	40	336	55
Future Volume (vph)	98	278	38	32	215	39	35	150	46	40	336	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	15	10	15	10	10	10	10	12	11	11	11	11
Total Lost time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.96			0.97		1.00	0.94		1.00	0.95	
Flpb, ped/bikes		0.97			0.98		0.88	1.00		0.84	1.00	
Frt		0.99			0.98		1.00	0.96		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1159			1157		1255	1409		1250	1493	
Flt Permitted		0.83			0.92		0.30	1.00		0.60	1.00	
Satd. Flow (perm)		976			1066		397	1409		789	1493	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	107	302	41	35	234	42	40	172	53	49	410	67
RTOR Reduction (vph)	0	4	0	0	6	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	446	0	0	305	0	40	225	0	49	477	0
Confl. Peds. (#/hr)	174		318	318		174	203		152	152		203
Confl. Bikes (#/hr)			89			12			11			36
Heavy Vehicles (%)	2%	4%	3%	13%	7%	5%	6%	8%	17%	5%	3%	4%
Bus Blockages (#/hr)	0	10	0	0	10	0	0	0	0	0	0	0
Parking (#/hr)		8			5							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		42.0			42.0		34.0	34.0		34.0	34.0	
Effective Green, g (s)		42.0			42.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio		0.47			0.47		0.38	0.38		0.38	0.38	
Clearance Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		455			497		149	532		298	564	
v/s Ratio Prot								0.16			c0.32	
v/s Ratio Perm		c0.46			0.29		0.10			0.06		
v/c Ratio		0.98			0.61		0.27	0.42		0.16	0.85	
Uniform Delay, d1		23.6			17.9		19.4	20.7		18.6	25.6	
Progression Factor		1.00			1.00		1.00	1.00		0.66	0.71	
Incremental Delay, d2		37.4			5.6		4.4	2.5		0.8	10.3	
Delay (s)		61.0			23.5		23.8	23.2		13.0	28.6	
Level of Service		E			C		C	C		B	C	
Approach Delay (s)		61.0			23.5			23.3			27.1	
Approach LOS		E			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	35.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	94.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	159	349	47	67	250	37	80	296	104	16	363	205
v/c Ratio	0.81	0.63	0.49	0.55	0.53	0.46	0.78	0.69	1.04	0.13	0.92	1.21
Control Delay	68.1	32.3	57.7	57.8	33.1	56.6	86.6	38.7	144.9	39.2	62.4	171.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.1	32.3	57.7	57.8	33.1	56.6	86.6	38.7	144.9	39.2	62.4	171.5
Queue Length 50th (ft)	89	173	26	37	124	20	45	152	~64	9	199	~143
Queue Length 95th (ft)	#194	#285	#67	#91	208	51	#122	#276	#166	28	#353	#279
Internal Link Dist (ft)		410			550			357			641	
Turn Bay Length (ft)	100		75	285		200	250		250	200		325
Base Capacity (vph)	197	550	99	121	469	100	107	437	100	149	418	170
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.63	0.47	0.55	0.53	0.37	0.75	0.68	1.04	0.11	0.87	1.21

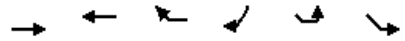
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	321	43	62	230	34	73	269	95	15	348	197
Future Volume (vph)	146	321	43	62	230	34	73	269	95	15	348	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	10	10	11	10	10	11	10	10	11	10
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1366	1545	1119	1366	1559	904	1213	1476	1132	1342	1450	1182
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1366	1545	1119	1366	1559	904	1213	1476	1132	1342	1450	1182
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.91	0.96	0.96	0.96
Adj. Flow (vph)	159	349	47	67	250	37	80	296	104	16	362	205
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	159	349	47	67	250	37	80	296	104	16	363	205
Heavy Vehicles (%)	11%	7%	14%	11%	6%	41%	25%	12%	17%	13%	14%	12%
Bus Blockages (#/hr)	0	0	15	0	0	15	0	0	6	0	0	6
Turn Type	Prot	NA	Over	Prot	NA	Over	Prot	NA	Over	Prot	NA	Over
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases												
Actuated Green, G (s)	13.0	30.1	6.4	8.0	25.1	5.6	6.4	26.3	8.0	5.6	25.5	13.0
Effective Green, g (s)	13.0	30.1	6.4	8.0	25.1	5.6	6.4	26.3	8.0	5.6	25.5	13.0
Actuated g/C Ratio	0.14	0.33	0.07	0.09	0.28	0.06	0.07	0.29	0.09	0.06	0.28	0.14
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	0.2	2.0	2.0	0.2	2.0	2.0	0.2	2.0	2.0	0.2	2.0
Lane Grp Cap (vph)	197	516	79	121	434	56	86	431	100	83	410	170
v/s Ratio Prot	0.12	c0.23	0.04	0.05	0.16	0.04	c0.07	0.20	0.09	0.01	c0.25	c0.17
v/s Ratio Perm												
v/c Ratio	0.81	0.68	0.59	0.55	0.58	0.66	0.93	0.69	1.04	0.19	0.89	1.21
Uniform Delay, d1	37.3	25.8	40.5	39.3	27.9	41.3	41.6	28.2	41.0	40.1	30.9	38.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	19.9	7.0	7.8	3.1	5.5	20.3	73.2	3.6	101.2	0.4	19.3	135.2
Delay (s)	57.2	32.7	48.3	42.4	33.4	61.6	114.8	31.8	142.2	40.5	50.2	173.7
Level of Service	E	C	D	D	C	E	F	C	F	D	D	F
Approach Delay (s)		41.0			38.0			69.6			93.3	
Approach LOS		D			D			E			F	

Intersection Summary			
HCM 2000 Control Delay	62.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	WBT	WBR	SBR	SEL2	SEL
Lane Group Flow (vph)	483	380	200	284	97	123
v/c Ratio	0.78	0.66	0.90	0.72	0.62	0.73
Control Delay	35.4	30.1	80.6	18.7	57.6	65.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.4	30.1	80.6	18.7	57.6	65.4
Queue Length 50th (ft)	241	177	117	21	56	72
Queue Length 95th (ft)	#450	#318	#286	69	#120	#156
Internal Link Dist (ft)	641	1473				859
Turn Bay Length (ft)			100		100	100
Base Capacity (vph)	622	576	222	436	162	174
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.66	0.90	0.65	0.60	0.71

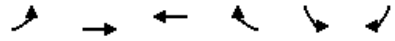
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL2	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	449	361	139	51	0	190	37	92	108	9
Future Volume (vph)	0	449	361	139	51	0	190	37	92	108	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	11	10	12	12	11	12	10	11	10
Total Lost time (s)		10.0	10.0	4.0			10.0		10.0	10.0	
Lane Util. Factor		1.00	1.00	1.00			1.00		1.00	1.00	
Frpb, ped/bikes		1.00	1.00	1.00			1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00			1.00		1.00	1.00	
Frt		1.00	1.00	0.85			0.86		1.00	0.99	
Flt Protected		1.00	1.00	1.00			1.00		0.95	0.96	
Satd. Flow (prot)		1526	1413	1280			1197		1391	1495	
Flt Permitted		1.00	1.00	1.00			1.00		0.95	0.96	
Satd. Flow (perm)		1526	1413	1280			1197		1391	1495	
Peak-hour factor, PHF	0.93	0.93	0.95	0.95	0.95	0.80	0.80	0.80	0.95	0.95	0.95
Adj. Flow (vph)	0	483	380	146	54	0	238	46	97	114	9
RTOR Reduction (vph)	0	0	0	0	0	0	205	0	0	0	0
Lane Group Flow (vph)	0	483	380	200	0	0	79	0	97	123	0
Confl. Peds. (#/hr)					148			149			
Confl. Bikes (#/hr)				29	34			28			
Heavy Vehicles (%)	0%	13%	17%	4%	2%	33%	4%	0%	9%	4%	11%
Bus Blockages (#/hr)	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)							7				
Turn Type		NA	NA	custom			Prot		Prot	Prot	
Protected Phases		2	2 6	5			3		4	4	
Permitted Phases											
Actuated Green, G (s)		38.3	42.3	16.3			15.0		10.7	10.7	
Effective Green, g (s)		38.3	42.3	16.3			15.0		10.7	10.7	
Actuated g/C Ratio		0.41	0.45	0.17			0.16		0.11	0.11	
Clearance Time (s)		10.0		4.0			10.0		10.0	10.0	
Vehicle Extension (s)		2.0		3.0			2.0		2.0	2.0	
Lane Grp Cap (vph)		621	635	221			191		158	170	
v/s Ratio Prot		c0.32	0.27	c0.16			c0.07		0.07	c0.08	
v/s Ratio Perm											
v/c Ratio		0.78	0.60	0.90			0.41		0.61	0.72	
Uniform Delay, d1		24.2	19.5	38.1			35.5		39.7	40.2	
Progression Factor		1.00	1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		9.3	4.1	35.6			0.5		4.9	12.1	
Delay (s)		33.4	23.6	73.7			36.1		44.6	52.3	
Level of Service		C	C	E			D		D	D	
Approach Delay (s)		33.4	40.9			36.1				48.9	
Approach LOS		C	D			D				D	

Intersection Summary			
HCM 2000 Control Delay	38.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

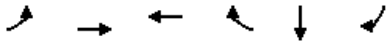
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		Y	
Traffic Volume (veh/h)	0	525	412	0	163	137
Future Volume (Veh/h)	0	525	412	0	163	137
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.95	0.95	0.77	0.77
Hourly flow rate (vph)	0	559	434	0	212	178
Pedestrians		8	39			
Lane Width (ft)		11.0	11.0			
Walking Speed (ft/s)		3.5	3.5			
Percent Blockage		1	3			
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	434				1032	442
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	434				1032	442
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	100				12	71
cM capacity (veh/h)	1136				240	605

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	559	434	390
Volume Left	0	0	212
Volume Right	0	0	178
cSH	1700	1700	331
Volume to Capacity	0.33	0.26	1.18
Queue Length 95th (ft)	0	0	409
Control Delay (s)	0.0	0.0	142.1
Lane LOS			F
Approach Delay (s)	0.0	0.0	142.1
Approach LOS			F

Intersection Summary			
Average Delay	40.1		
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	202	385	453	214	313	109
v/c Ratio	0.62	0.45	0.90	0.70	0.79	0.35
Control Delay	39.7	26.2	52.4	44.2	47.4	31.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.7	26.2	52.4	44.2	47.4	31.9
Queue Length 50th (ft)	102	90	244	110	166	51
Queue Length 95th (ft)	167	125	#407	#203	#275	94
Internal Link Dist (ft)		831	391		521	
Turn Bay Length (ft)	340			350		160
Base Capacity (vph)	327	860	504	304	394	312
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.45	0.90	0.70	0.79	0.35

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	270	61	0	399	188	0	0	0	188	81	94
Future Volume (vph)	174	270	61	0	399	188	0	0	0	188	81	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	10	10	10	10	10	12	12	12	11	11	11
Total Lost time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Util. Factor	1.00	0.95			1.00	1.00					1.00	1.00
Frt	1.00	0.97			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.97	1.00
Satd. Flow (prot)	1341	2671			1565	1141					1480	1277
Flt Permitted	0.95	1.00			1.00	1.00					0.97	1.00
Satd. Flow (perm)	1341	2671			1565	1141					1480	1277
Peak-hour factor, PHF	0.86	0.86	0.86	0.88	0.88	0.88	0.92	0.92	0.92	0.86	0.86	0.86
Adj. Flow (vph)	202	314	71	0	453	214	0	0	0	219	94	109
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	202	385	0	0	453	214	0	0	0	0	313	109
Heavy Vehicles (%)	9%	3%	43%	0%	2%	4%	0%	0%	0%	4%	17%	10%
Parking (#/hr)						5						
Turn Type	Prot	NA			NA	Over				Split	NA	Over
Protected Phases	5	2			6	4				4	4	5
Permitted Phases												
Actuated Green, G (s)	22.0	29.0			29.0	24.0					24.0	22.0
Effective Green, g (s)	22.0	29.0			29.0	24.0					24.0	22.0
Actuated g/C Ratio	0.24	0.32			0.32	0.27					0.27	0.24
Clearance Time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Grp Cap (vph)	327	860			504	304					394	312
v/s Ratio Prot	c0.15	0.14			c0.29	0.19					c0.21	0.09
v/s Ratio Perm												
v/c Ratio	0.62	0.45			0.90	0.70					0.79	0.35
Uniform Delay, d1	30.3	24.2			29.1	29.8					30.7	28.1
Progression Factor	1.00	1.00			1.00	1.00					1.00	1.00
Incremental Delay, d2	8.5	1.7			21.5	12.8					15.2	3.1
Delay (s)	38.7	25.8			50.6	42.6					45.9	31.2
Level of Service	D	C			D	D					D	C
Approach Delay (s)		30.3			48.1			0.0			42.1	
Approach LOS		C			D			A			D	

Intersection Summary			
HCM 2000 Control Delay	40.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	107	230	57	164	378	177	66	488
v/c Ratio	1.10	0.78	0.26	1.13	0.54	0.53	0.09	1.01
Control Delay	164.0	52.6	32.5	153.7	32.3	27.5	8.9	72.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	164.0	52.6	32.5	153.7	32.3	27.5	8.9	72.2
Queue Length 50th (ft)	~70	124	27	~109	97	75	15	~276
Queue Length 95th (ft)	#174	#240	62	#232	143	143	34	#458
Internal Link Dist (ft)		1473			937	495		931
Turn Bay Length (ft)	200		200	240			140	
Base Capacity (vph)	97	296	223	145	700	337	737	484
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.78	0.26	1.13	0.54	0.53	0.09	1.01

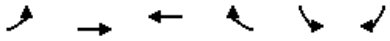
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	212	52	156	354	5	84	81	61	27	249	149
Future Volume (vph)	98	212	52	156	354	5	84	81	61	27	249	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	10	10	10	10	12	12	11	12	14	12
Total Lost time (s)	9.0	9.0	9.0	9.0	9.0			6.0	9.0		6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.80	1.00	1.00			1.00	1.00		0.90	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			0.95	1.00		0.97	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98	1.00		1.00	
Satd. Flow (prot)	1253	1333	1007	1307	2742			1475	1277		1242	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.56	1.00		0.97	
Satd. Flow (perm)	1253	1333	1007	1307	2742			845	1277		1212	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.93	0.93	0.93	0.87	0.87	0.87
Adj. Flow (vph)	107	230	57	164	373	5	90	87	66	31	286	171
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	107	230	57	164	378	0	0	177	66	0	488	0
Confl. Peds. (#/hr)			81			114	166		357	357		166
Confl. Bikes (#/hr)						20			17			6
Heavy Vehicles (%)	21%	24%	8%	16%	10%	0%	5%	9%	10%	4%	4%	13%
Parking (#/hr)											4	
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	pt+ov	Perm	NA	
Protected Phases	5	2		1	6			4	1 4		8	
Permitted Phases			2				4			8		
Actuated Green, G (s)	7.0	20.0	20.0	10.0	23.0			36.0	52.0		36.0	
Effective Green, g (s)	7.0	20.0	20.0	10.0	23.0			36.0	46.0		36.0	
Actuated g/C Ratio	0.08	0.22	0.22	0.11	0.26			0.40	0.51		0.40	
Clearance Time (s)	9.0	9.0	9.0	9.0	9.0			6.0			6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0			2.0			2.0	
Lane Grp Cap (vph)	97	296	223	145	700			338	652		484	
v/s Ratio Prot	0.09	c0.17		c0.13	c0.14				0.05			
v/s Ratio Perm			0.06					0.21			c0.40	
v/c Ratio	1.10	0.78	0.26	1.13	0.54			0.52	0.10		1.01	
Uniform Delay, d1	41.5	32.9	28.9	40.0	28.9			20.5	11.3		27.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	121.9	18.0	2.7	114.3	3.0			5.7	0.0		43.0	
Delay (s)	163.4	50.9	31.6	154.3	31.9			26.2	11.4		70.0	
Level of Service	F	D	C	F	C			C	B		E	
Approach Delay (s)		78.7			68.9			22.2			70.0	
Approach LOS		E			E			C			E	

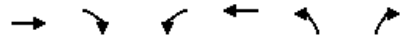
Intersection Summary			
HCM 2000 Control Delay	64.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	182	525	466	83	0	0
Future Volume (Veh/h)	182	525	466	83	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.92	0.92
Hourly flow rate (vph)	196	565	501	89	0	0
Pedestrians					121	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	711				1624	666
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	711				1624	666
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	78				100	100
cM capacity (veh/h)	893				89	463

Direction, Lane #	EB 1	WB 1
Volume Total	761	590
Volume Left	196	0
Volume Right	0	89
cSH	893	1700
Volume to Capacity	0.22	0.35
Queue Length 95th (ft)	21	0
Control Delay (s)	5.1	0.0
Lane LOS	A	
Approach Delay (s)	5.1	0.0
Approach LOS		

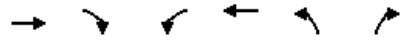
Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	468	220	26	412	0	0
Future Volume (Veh/h)	468	220	26	412	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.95	0.95	0.92	0.92
Hourly flow rate (vph)	498	234	27	434	0	0
Pedestrians					86	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			818		1189	701
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			818		1189	701
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		100	100
cM capacity (veh/h)			819		203	442

Direction, Lane #	EB 1	WB 1
Volume Total	732	461
Volume Left	0	27
Volume Right	234	0
cSH	1700	819
Volume to Capacity	0.43	0.03
Queue Length 95th (ft)	0	3
Control Delay (s)	0.0	1.0
Lane LOS		A
Approach Delay (s)	0.0	1.0
Approach LOS		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	51.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	494	40	117	348	13	235
Future Volume (Veh/h)	494	40	117	348	13	235
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.86	0.86	0.82	0.82
Hourly flow rate (vph)	520	42	136	405	16	287
Pedestrians	34			12	82	
Lane Width (ft)	11.0			11.0	12.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	3			1	8	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			644		1334	635
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			644		1334	635
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			84		87	34
cM capacity (veh/h)			863		124	433

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	562	541	303
Volume Left	0	136	16
Volume Right	42	0	287
cSH	1700	863	383
Volume to Capacity	0.33	0.16	0.79
Queue Length 95th (ft)	0	14	169
Control Delay (s)	0.0	4.0	42.0
Lane LOS		A	E
Approach Delay (s)	0.0	4.0	42.0
Approach LOS			E

Intersection Summary			
Average Delay	10.6		
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	45	3	125	0	69	0	359	176	17	135	0
Future Volume (Veh/h)	5	45	3	125	0	69	0	359	176	17	135	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	49	3	136	0	75	0	390	191	18	147	0
Pedestrians		18			55			18			33	
Lane Width (ft)		16.0			12.0			10.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		2			5			1			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								532				
pX, platoon unblocked	0.81	0.81		0.81	0.81	0.81				0.81		
vC, conflicting volume	794	837	183	769	742	574	165			636		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	628	680	183	596	562	355	165			432		
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	82	100	46	100	85	100			98		
cM capacity (veh/h)	243	275	833	253	322	516	1393			873		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	57	211	581	165
Volume Left	5	136	0	18
Volume Right	3	75	191	0
cSH	282	309	1700	873
Volume to Capacity	0.20	0.68	0.34	0.02
Queue Length 95th (ft)	19	117	0	2
Control Delay (s)	21.0	38.4	0.0	1.2
Lane LOS	C	E		A
Approach Delay (s)	21.0	38.4	0.0	1.2
Approach LOS	C	E		

Intersection Summary				
Average Delay		9.4		
Intersection Capacity Utilization		61.1%	ICU Level of Service	B
Analysis Period (min)		15		

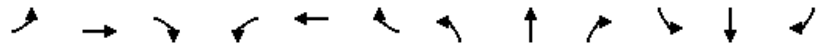
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	277	511	99	461	28	185
v/c Ratio	0.64	1.11	0.26	0.66	0.13	0.29
Control Delay	28.9	104.2	10.3	14.0	18.0	18.7
Queue Delay	0.5	0.5	2.1	4.0	0.0	0.0
Total Delay	29.4	104.7	12.4	18.0	18.0	18.7
Queue Length 50th (ft)	121	~336	17	77	10	67
Queue Length 95th (ft)	199	#493	m26	m109	22	89
Internal Link Dist (ft)	303	140		95		452
Turn Bay Length (ft)			45		95	
Base Capacity (vph)	432	459	380	695	214	642
Starvation Cap Reductn	0	0	179	157	0	0
Spillback Cap Reductn	23	24	0	0	0	25
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	1.17	0.49	0.86	0.13	0.30

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	139	73	9	271	160	92	413	16	20	115	18
Future Volume (vph)	26	139	73	9	271	160	92	413	16	20	115	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	12	11	11	11	11
Total Lost time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.95			0.86		1.00	0.99		1.00	0.98	
Flpb, ped/bikes		0.99			1.00		0.90	1.00		0.87	1.00	
Frt		0.96			0.95		1.00	0.99		1.00	0.98	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1112			1097		1335	1648		1359	1522	
Flt Permitted		0.92			0.99		0.64	1.00		0.35	1.00	
Satd. Flow (perm)		1025			1089		900	1648		508	1522	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.93	0.93	0.93	0.72	0.72	0.72
Adj. Flow (vph)	30	162	85	10	315	186	99	444	17	28	160	25
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	277	0	0	511	0	99	461	0	28	185	0
Confl. Peds. (#/hr)	233		121	121		233	88		208	208		88
Confl. Bikes (#/hr)			11			162			17			1
Heavy Vehicles (%)	4%	8%	4%	0%	3%	1%	2%	2%	0%	0%	4%	6%
Bus Blockages (#/hr)	0	3	0	0	3	0	0	0	0	0	0	0
Parking (#/hr)		12			5							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		38.0			38.0		38.0	38.0		38.0	38.0	
Effective Green, g (s)		38.0			38.0		38.0	38.0		38.0	38.0	
Actuated g/C Ratio		0.42			0.42		0.42	0.42		0.42	0.42	
Clearance Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		432			459		380	695		214	642	
v/s Ratio Prot								c0.28			0.12	
v/s Ratio Perm		0.27			c0.47		0.11			0.06		
v/c Ratio		0.64			1.11		0.26	0.66		0.13	0.29	
Uniform Delay, d1		20.6			26.0		16.9	20.9		15.9	17.1	
Progression Factor		1.00			1.00		0.51	0.47		1.00	1.00	
Incremental Delay, d2		7.1			76.6		1.3	3.8		1.3	1.1	
Delay (s)		27.7			102.6		9.9	13.6		17.2	18.2	
Level of Service		C			F		A	B		B	B	
Approach Delay (s)		27.7			102.6			13.0			18.1	
Approach LOS		C			F			B			B	

Intersection Summary			
HCM 2000 Control Delay	45.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	95.5%	ICU Level of Service	F
Analysis Period (min)	15		

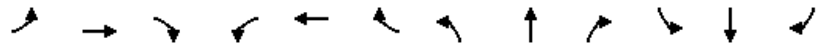
c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	76	255	456	75	470	26	218
v/c Ratio	0.25	0.50	0.90	0.22	0.70	0.12	0.35
Control Delay	19.6	22.2	47.0	18.9	28.2	12.4	14.2
Queue Delay	0.6	0.0	49.3	0.0	0.7	0.0	2.4
Total Delay	20.2	22.2	96.3	18.9	28.9	12.4	16.6
Queue Length 50th (ft)	27	98	231	26	213	6	55
Queue Length 95th (ft)	61	171	#376	59	330	m14	m75
Internal Link Dist (ft)		813	207		330		95
Turn Bay Length (ft)	25			210		45	
Base Capacity (vph)	306	507	508	335	670	222	624
Starvation Cap Reductn	0	0	0	0	0	0	285
Spillback Cap Reductn	77	0	128	0	44	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.50	1.20	0.22	0.75	0.12	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	192	38	29	311	43	72	410	41	21	152	24
Future Volume (vph)	68	192	38	29	311	43	72	410	41	21	152	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	15	10	15	10	10	10	10	12	11	11	11	11
Total Lost time (s)	7.0	7.0			7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.94			0.98		1.00	0.98		1.00	0.96	
Flpb, ped/bikes	0.94	1.00			0.98		0.80	1.00		0.92	1.00	
Frt	1.00	0.98			0.98		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1633	1183			1241		1220	1587		1447	1479	
Flt Permitted	0.42	1.00			0.96		0.62	1.00		0.35	1.00	
Satd. Flow (perm)	725	1183			1193		795	1587		527	1479	
Peak-hour factor, PHF	0.90	0.90	0.90	0.84	0.84	0.84	0.96	0.96	0.96	0.81	0.81	0.81
Adj. Flow (vph)	76	213	42	35	370	51	75	427	43	26	188	30
RTOR Reduction (vph)	0	8	0	0	5	0	0	0	0	0	0	0
Lane Group Flow (vph)	76	247	0	0	451	0	75	470	0	26	218	0
Confl. Peds. (#/hr)	109		267	267		109	177		124	124		177
Confl. Bikes (#/hr)			15			58			29			6
Heavy Vehicles (%)	3%	3%	3%	0%	3%	0%	0%	3%	15%	0%	6%	0%
Bus Blockages (#/hr)	0	9	0	0	9	0	0	0	0	0	0	0
Parking (#/hr)		8			5							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	38.0	38.0			38.0		38.0	38.0		38.0	38.0	
Effective Green, g (s)	38.0	38.0			38.0		38.0	38.0		38.0	38.0	
Actuated g/C Ratio	0.42	0.42			0.42		0.42	0.42		0.42	0.42	
Clearance Time (s)	7.0	7.0			7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	306	499			503		335	670		222	624	
v/s Ratio Prot		0.21						c0.30			0.15	
v/s Ratio Perm	0.10				c0.38		0.09			0.05		
v/c Ratio	0.25	0.49			0.90		0.22	0.70		0.12	0.35	
Uniform Delay, d1	16.8	19.0			24.2		16.6	21.3		15.8	17.6	
Progression Factor	1.00	1.00			1.00		1.00	1.00		0.69	0.71	
Incremental Delay, d2	1.9	3.5			21.2		1.5	6.0		1.0	1.4	
Delay (s)	18.7	22.5			45.4		18.1	27.4		11.8	13.8	
Level of Service	B	C			D		B	C		B	B	
Approach Delay (s)		21.6			45.4			26.1			13.6	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	114.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	172	327	24	123	301	51	95	445	114	7	399	212
v/c Ratio	0.91	0.71	0.20	0.66	0.64	0.61	0.67	0.96	0.70	0.07	0.93	1.30
Control Delay	86.6	39.0	41.7	53.8	34.5	70.5	63.2	66.9	58.8	40.2	65.3	207.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.6	39.0	41.7	53.8	34.5	70.5	63.2	66.9	58.8	40.2	65.3	207.3
Queue Length 50th (ft)	98	166	13	67	147	29	53	~279	62	4	~251	~156
Queue Length 95th (ft)	#218	#307	37	111	212	#72	#114	#445	113	16	#370	#258
Internal Link Dist (ft)		410			550			357			641	
Turn Bay Length (ft)	100		75	285		200	250		250	200		325
Base Capacity (vph)	189	460	129	233	472	87	154	465	205	107	428	163
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.71	0.19	0.53	0.64	0.59	0.62	0.96	0.56	0.07	0.93	1.30

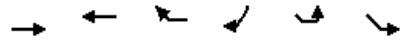
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	304	22	102	250	42	84	392	100	6	327	174
Future Volume (vph)	160	304	22	102	250	42	84	392	100	6	327	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	10	10	10	11	11	11	11	11	12	11	9
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1419	1492	1291	1501	1574	1124	1540	1589	1319	1388	1545	1228
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1419	1492	1291	1501	1574	1124	1540	1589	1319	1388	1545	1228
Peak-hour factor, PHF	0.93	0.93	0.93	0.83	0.83	0.83	0.88	0.88	0.88	0.82	0.82	0.82
Adj. Flow (vph)	172	327	24	123	301	51	95	445	114	7	399	212
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	172	327	24	123	301	51	95	445	114	7	399	212
Heavy Vehicles (%)	3%	7%	0%	1%	5%	19%	2%	4%	4%	17%	7%	4%
Bus Blockages (#/hr)	0	0	12	0	0	12	0	0	6	0	0	6
Turn Type	Prot	NA	Over	Prot	NA	Over	Prot	NA	Over	Prot	NA	Over
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases												
Actuated Green, G (s)	12.0	27.8	7.1	11.2	27.0	5.6	7.1	25.4	11.2	5.6	23.9	12.0
Effective Green, g (s)	12.0	27.8	7.1	11.2	27.0	5.6	7.1	25.4	11.2	5.6	23.9	12.0
Actuated g/C Ratio	0.13	0.31	0.08	0.12	0.30	0.06	0.08	0.28	0.12	0.06	0.27	0.13
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	0.2	2.0	2.0	0.2	2.0	2.0	0.2	2.0	2.0	0.2	2.0
Lane Grp Cap (vph)	189	460	101	186	472	69	121	448	164	86	410	163
v/s Ratio Prot	0.12	c0.22	0.02	0.08	0.19	0.05	c0.06	c0.28	0.09	0.01	0.26	c0.17
v/s Ratio Perm												
v/c Ratio	0.91	0.71	0.24	0.66	0.64	0.74	0.79	0.99	0.70	0.08	0.97	1.30
Uniform Delay, d1	38.5	27.5	38.9	37.6	27.3	41.5	40.7	32.2	37.8	39.8	32.7	39.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	40.4	9.0	0.4	6.7	6.5	29.5	25.8	40.9	9.9	0.1	38.2	172.7
Delay (s)	78.9	36.5	39.4	44.3	33.7	71.0	66.5	73.1	47.6	39.9	71.0	211.7
Level of Service	E	D	D	D	C	E	E	E	D	D	E	F
Approach Delay (s)		50.6			40.5			67.7			118.9	
Approach LOS		D			D			E			F	

Intersection Summary			
HCM 2000 Control Delay	72.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	WBT	WBR	SBR	SEL2	SEL
Lane Group Flow (vph)	612	264	85	218	313	274
v/c Ratio	0.97	0.46	0.61	0.57	1.31	1.17
Control Delay	60.4	24.8	58.0	11.4	200.4	150.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.4	24.8	58.0	11.4	200.4	150.1
Queue Length 50th (ft)	353	115	48	0	~242	~196
Queue Length 95th (ft)	#580	187	97	25	#337	#291
Internal Link Dist (ft)	641	1473				859
Turn Bay Length (ft)			100		100	100
Base Capacity (vph)	628	580	164	383	239	234
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.46	0.52	0.57	1.31	1.17

Intersection Summary

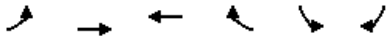
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL2	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	594	253	21	60	0	146	13	247	108	108
Future Volume (vph)	0	594	253	21	60	0	146	13	247	108	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	11	10	12	12	11	12	10	11	10
Total Lost time (s)		8.0	8.0	4.0			10.0		10.0	10.0	
Lane Util. Factor		1.00	1.00	1.00			1.00		1.00	1.00	
Frpb, ped/bikes		1.00	1.00	1.00			1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00			1.00		1.00	1.00	
Frt		1.00	1.00	0.85			0.86		1.00	0.93	
Flt Protected		1.00	1.00	1.00			1.00		0.95	0.98	
Satd. Flow (prot)		1642	1517	1288			1237		1501	1470	
Flt Permitted		1.00	1.00	1.00			1.00		0.95	0.98	
Satd. Flow (perm)		1642	1517	1288			1237		1501	1470	
Peak-hour factor, PHF	0.97	0.97	0.96	0.96	0.96	0.73	0.73	0.73	0.79	0.79	0.79
Adj. Flow (vph)	0	612	264	22	62	0	200	18	313	137	137
RTOR Reduction (vph)	0	0	0	0	0	0	183	0	0	0	0
Lane Group Flow (vph)	0	612	264	85	0	0	35	0	313	274	0
Confl. Peds. (#/hr)					99			71			
Confl. Bikes (#/hr)				18	21			10			
Heavy Vehicles (%)	0%	5%	9%	5%	2%	0%	0%	0%	1%	1%	2%
Bus Blockages (#/hr)	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)							7				
Turn Type		NA	NA	custom			Prot		Prot	Prot	
Protected Phases		2	2 6	5			3		4	4	
Permitted Phases											
Actuated Green, G (s)		36.0	38.0	9.0			15.0		15.0	15.0	
Effective Green, g (s)		36.0	38.0	9.0			15.0		15.0	15.0	
Actuated g/C Ratio		0.38	0.40	0.10			0.16		0.16	0.16	
Clearance Time (s)		8.0		4.0			10.0		10.0	10.0	
Vehicle Extension (s)		2.0		3.0			2.0		2.0	2.0	
Lane Grp Cap (vph)		628	613	123			197		239	234	
v/s Ratio Prot		c0.37	0.17	0.07			c0.03		c0.21	0.19	
v/s Ratio Perm											
v/c Ratio		0.97	0.43	0.69			0.18		1.31	1.17	
Uniform Delay, d1		28.5	20.2	41.2			34.2		39.5	39.5	
Progression Factor		1.00	1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		30.2	2.2	15.4			0.2		166.1	112.8	
Delay (s)		58.7	22.4	56.6			34.3		205.6	152.3	
Level of Service		E	C	E			C		F	F	
Approach Delay (s)		58.7	30.7			34.3				180.7	
Approach LOS		E	C			C				F	

Intersection Summary			
HCM 2000 Control Delay	90.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

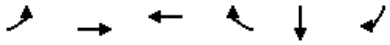
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		Y	
Traffic Volume (veh/h)	0	459	351	0	90	145
Future Volume (Veh/h)	0	459	351	0	90	145
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.84	0.84	0.93	0.93	0.90	0.90
Hourly flow rate (vph)	0	546	377	0	100	161
Pedestrians		17	56			
Lane Width (ft)		11.0	11.0			
Walking Speed (ft/s)		3.5	3.5			
Percent Blockage		1	5			
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	377				979	394
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	377				979	394
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				62	75
cM capacity (veh/h)	1193				266	647

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	546	377	261
Volume Left	0	0	100
Volume Right	0	0	161
cSH	1700	1700	418
Volume to Capacity	0.32	0.22	0.62
Queue Length 95th (ft)	0	0	103
Control Delay (s)	0.0	0.0	26.9
Lane LOS			D
Approach Delay (s)	0.0	0.0	26.9
Approach LOS			D

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	228	510	312	106	479	89
v/c Ratio	0.75	0.57	0.64	0.30	1.03	0.30
Control Delay	50.1	29.0	33.6	27.2	81.6	32.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.1	29.0	33.6	27.2	81.6	32.4
Queue Length 50th (ft)	122	126	151	46	~293	42
Queue Length 95th (ft)	#233	178	238	90	#481	85
Internal Link Dist (ft)		831	391		521	
Turn Bay Length (ft)	340			350		160
Base Capacity (vph)	303	895	491	352	467	300
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.57	0.64	0.30	1.03	0.30

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	422	52	0	278	94	0	0	0	393	62	85
Future Volume (vph)	212	422	52	0	278	94	0	0	0	393	62	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	10	10	10	10	10	12	12	12	11	11	11
Total Lost time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Util. Factor	1.00	0.95			1.00	1.00					1.00	1.00
Frt	1.00	0.98			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (prot)	1366	2878			1580	1175					1558	1351
Flt Permitted	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (perm)	1366	2878			1580	1175					1558	1351
Peak-hour factor, PHF	0.93	0.93	0.93	0.89	0.89	0.89	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	228	454	56	0	312	106	0	0	0	414	65	89
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	228	510	0	0	312	106	0	0	0	0	479	89
Heavy Vehicles (%)	7%	1%	25%	0%	1%	1%	0%	0%	0%	1%	6%	4%
Parking (#/hr)						5						
Turn Type	Prot	NA			NA	Over				Split	NA	Over
Protected Phases	5	2			6	4				4	4	5
Permitted Phases												
Actuated Green, G (s)	20.0	28.0			28.0	27.0					27.0	20.0
Effective Green, g (s)	20.0	28.0			28.0	27.0					27.0	20.0
Actuated g/C Ratio	0.22	0.31			0.31	0.30					0.30	0.22
Clearance Time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Grp Cap (vph)	303	895			491	352					467	300
v/s Ratio Prot	c0.17	0.18			c0.20	0.09					c0.31	0.07
v/s Ratio Perm												
v/c Ratio	0.75	0.57			0.64	0.30					1.03	0.30
Uniform Delay, d1	32.7	26.0			26.6	24.2					31.5	29.1
Progression Factor	1.00	1.00			1.00	1.00					1.00	1.00
Incremental Delay, d2	15.8	2.6			6.2	2.2					48.4	2.5
Delay (s)	48.5	28.6			32.8	26.4					79.9	31.7
Level of Service	D	C			C	C					E	C
Approach Delay (s)		34.7			31.2			0.0			72.3	
Approach LOS		C			C			A			E	

Intersection Summary			
HCM 2000 Control Delay	46.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	309	367	112	60	299	343	100	273
v/c Ratio	1.19	0.69	0.31	0.44	0.48	0.82	0.15	0.67
Control Delay	153.5	36.6	28.0	48.2	33.4	45.2	12.5	35.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	153.5	36.6	28.0	48.2	33.4	45.2	12.5	35.2
Queue Length 50th (ft)	~214	187	49	33	78	177	30	132
Queue Length 95th (ft)	#375	#358	103	61	103	#325	53	202
Internal Link Dist (ft)		1473			937	495		931
Turn Bay Length (ft)	200		200	240			140	
Base Capacity (vph)	259	533	358	206	627	420	735	408
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.19	0.69	0.31	0.29	0.48	0.82	0.14	0.67

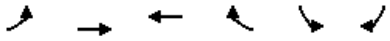
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	278	330	101	48	230	9	85	224	90	21	146	62
Future Volume (vph)	278	330	101	48	230	9	85	224	90	21	146	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	10	10	10	10	12	12	11	12	14	12
Total Lost time (s)	9.0	9.0	9.0	9.0	9.0			6.0	9.0		6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.80	1.00	0.99			1.00	1.00		0.92	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			0.96	1.00		0.98	
Frt	1.00	1.00	0.85	1.00	0.99			1.00	0.85		0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99	1.00		1.00	
Satd. Flow (prot)	1458	1574	1062	1430	2824			1598	1351		1291	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.78	1.00		0.95	
Satd. Flow (perm)	1458	1574	1062	1430	2824			1259	1351		1226	
Peak-hour factor, PHF	0.90	0.90	0.90	0.80	0.80	0.80	0.90	0.90	0.90	0.84	0.84	0.84
Adj. Flow (vph)	309	367	112	60	288	11	94	249	100	25	174	74
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	309	367	112	60	299	0	0	343	100	0	273	0
Confl. Peds. (#/hr)			74			86	162		300	300		162
Confl. Bikes (#/hr)			19			1			13			2
Heavy Vehicles (%)	4%	5%	2%	6%	6%	0%	1%	1%	4%	5%	4%	16%
Parking (#/hr)											4	
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	pt+ov	Perm	NA	
Protected Phases	5	2		1	6			4	1 4		8	
Permitted Phases			2				4			8		
Actuated Green, G (s)	16.0	28.7	28.7	7.3	20.0			30.0	43.3		30.0	
Effective Green, g (s)	16.0	28.7	28.7	7.3	20.0			30.0	37.3		30.0	
Actuated g/C Ratio	0.18	0.32	0.32	0.08	0.22			0.33	0.41		0.33	
Clearance Time (s)	9.0	9.0	9.0	9.0	9.0			6.0			6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0			2.0			2.0	
Lane Grp Cap (vph)	259	501	338	115	627			419	559		408	
v/s Ratio Prot	c0.21	c0.23		0.04	0.11				0.07			
v/s Ratio Perm			0.11					c0.27			0.22	
v/c Ratio	1.19	0.73	0.33	0.52	0.48			0.82	0.18		0.67	
Uniform Delay, d1	37.0	27.2	23.3	39.7	30.4			27.5	16.7		25.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	118.4	9.1	2.6	2.0	2.6			16.2	0.1		8.4	
Delay (s)	155.4	36.4	26.0	41.6	33.0			43.7	16.7		34.2	
Level of Service	F	D	C	D	C			D	B		C	
Approach Delay (s)		81.6			34.5			37.6			34.2	
Approach LOS		F			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	55.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	270	459	465	31	0	0
Future Volume (Veh/h)	270	459	465	31	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.86	0.86	0.92	0.92
Hourly flow rate (vph)	284	483	541	36	0	0
Pedestrians					112	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	689				1722	671
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	689				1722	671
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	68				100	100
cM capacity (veh/h)	901				68	460

Direction, Lane #	EB 1	WB 1
Volume Total	767	577
Volume Left	284	0
Volume Right	0	36
cSH	901	1700
Volume to Capacity	0.32	0.34
Queue Length 95th (ft)	34	0
Control Delay (s)	7.0	0.0
Lane LOS	A	
Approach Delay (s)	7.0	0.0
Approach LOS		

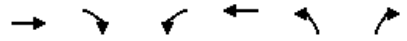
Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	452	97	12	351	0	0
Future Volume (Veh/h)	452	97	12	351	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.93	0.93	0.92	0.92
Hourly flow rate (vph)	538	115	13	377	0	0
Pedestrians					112	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			765		1110	708
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			765		1110	708
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		100	100
cM capacity (veh/h)			857		230	438

Direction, Lane #	EB 1	WB 1
Volume Total	653	390
Volume Left	0	13
Volume Right	115	0
cSH	1700	857
Volume to Capacity	0.38	0.02
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	0.5
Lane LOS		A
Approach Delay (s)	0.0	0.5
Approach LOS		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	37.4%	ICU Level of Service	A
Analysis Period (min)	15		

Synchro - 2020 Build Conditions



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	562	203	200	266	10	145
Future Volume (Veh/h)	562	203	200	266	10	145
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.95	0.95
Hourly flow rate (vph)	604	218	215	286	11	153
Pedestrians	44			22	62	
Lane Width (ft)	11.0			11.0	12.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	4			2	6	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			884		1535	797
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			884		1535	797
tC, single (s)			4.1		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			70		86	55
cM capacity (veh/h)			712		77	340

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	822	501	164
Volume Left	0	215	11
Volume Right	218	0	153
cSH	1700	712	277
Volume to Capacity	0.48	0.30	0.59
Queue Length 95th (ft)	0	32	87
Control Delay (s)	0.0	7.8	35.2
Lane LOS		A	E
Approach Delay (s)	0.0	7.8	35.2
Approach LOS			E

Intersection Summary			
Average Delay	6.5		
Intersection Capacity Utilization	98.6%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	27	91	9	48	0	21	0	164	335	66	267	0
Future Volume (Veh/h)	27	91	9	48	0	21	0	164	335	66	267	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	29	99	10	52	0	23	0	178	364	72	290	0
Pedestrians		44			41			17			43	
Lane Width (ft)		16.0			12.0			10.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		6			4			1			4	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								532				
pX, platoon unblocked	0.88	0.88		0.88	0.88	0.88				0.88		
vC, conflicting volume	904	1061	351	912	879	444	334			583		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	821	1000	351	829	792	297	334			455		
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 %	85	45	98	57	100	96	100			92		
cM capacity (veh/h)	199	180	649	120	238	607	1168			941		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	138	75	542	362
Volume Left	29	52	0	72
Volume Right	10	23	364	0
cSH	194	159	1700	941
Volume to Capacity	0.71	0.47	0.32	0.08
Queue Length 95th (ft)	112	55	0	6
Control Delay (s)	59.3	46.2	0.0	2.5
Lane LOS	F	E		A
Approach Delay (s)	59.3	46.2	0.0	2.5
Approach LOS	F	E		

Intersection Summary				
Average Delay		11.2		
Intersection Capacity Utilization		77.5%	ICU Level of Service	D
Analysis Period (min)		15		

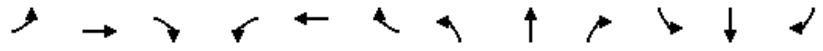
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	517	294	30	306	33	320
v/c Ratio	1.16	0.70	0.13	0.52	0.15	0.56
Control Delay	121.9	30.2	14.1	18.4	20.7	26.7
Queue Delay	8.7	62.5	0.0	3.7	0.0	0.5
Total Delay	130.7	92.7	14.1	22.1	20.7	27.1
Queue Length 50th (ft)	~352	128	8	88	12	141
Queue Length 95th (ft)	#519	178	m15	m122	33	218
Internal Link Dist (ft)	303	140		95		452
Turn Bay Length (ft)			45		95	
Base Capacity (vph)	444	418	236	586	225	574
Starvation Cap Reductn	0	0	0	194	0	0
Spillback Cap Reductn	232	219	0	0	0	54
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.44	1.48	0.13	0.78	0.15	0.62

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	239	166	6	121	99	28	271	17	29	260	22
Future Volume (vph)	44	239	166	6	121	99	28	271	17	29	260	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	12	11	11	11	11
Total Lost time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.87			0.81		1.00	0.98		1.00	0.98	
Flpb, ped/bikes		0.97			1.00		0.85	1.00		0.80	1.00	
Frt		0.95			0.94		1.00	0.99		1.00	0.99	
Flt Protected		1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1011			909		1237	1552		1136	1521	
Flt Permitted		0.94			0.98		0.48	1.00		0.50	1.00	
Satd. Flow (perm)		952			897		627	1552		596	1521	
Peak-hour factor, PHF	0.87	0.87	0.87	0.77	0.77	0.77	0.94	0.94	0.94	0.88	0.88	0.88
Adj. Flow (vph)	51	275	191	8	157	129	30	288	18	33	295	25
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	517	0	0	294	0	30	306	0	33	320	0
Confl. Peds. (#/hr)	360		157	157		360	172		225	225		172
Confl. Bikes (#/hr)			220			13			6			23
Heavy Vehicles (%)	9%	6%	1%	0%	14%	14%	4%	7%	6%	10%	5%	5%
Bus Blockages (#/hr)	0	5	0	0	5	0	0	0	0	0	0	0
Parking (#/hr)		12			5							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		42.0			42.0		34.0	34.0		34.0	34.0	
Effective Green, g (s)		42.0			42.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio		0.47			0.47		0.38	0.38		0.38	0.38	
Clearance Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		444			418		236	586		225	574	
v/s Ratio Prot								0.20			c0.21	
v/s Ratio Perm		c0.54			0.33		0.05			0.06		
v/c Ratio		1.16			0.70		0.13	0.52		0.15	0.56	
Uniform Delay, d1		24.0			19.1		18.3	21.7		18.4	22.1	
Progression Factor		1.00			1.00		0.69	0.71		1.00	1.00	
Incremental Delay, d2		96.1			9.5		0.8	2.5		1.4	3.9	
Delay (s)		120.1			28.6		13.5	17.9		19.8	25.9	
Level of Service		F			C		B	B		B	C	
Approach Delay (s)		120.1			28.6			17.5			25.4	
Approach LOS		F			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	56.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	456	311	40	252	49	478
v/c Ratio	1.01	0.62	0.27	0.47	0.17	0.85
Control Delay	70.2	23.8	25.4	24.7	13.4	30.0
Queue Delay	34.0	5.8	0.0	0.3	1.2	8.8
Total Delay	104.2	29.6	25.4	25.0	14.6	38.8
Queue Length 50th (ft)	~251	123	16	106	13	270
Queue Length 95th (ft)	#460	216	42	169	m19	m222
Internal Link Dist (ft)	813	207		330		95
Turn Bay Length (ft)			210		45	
Base Capacity (vph)	453	503	149	539	284	563
Starvation Cap Reductn	0	0	0	0	130	63
Spillback Cap Reductn	123	137	0	47	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.38	0.85	0.27	0.51	0.32	0.96

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

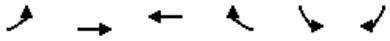
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	104	278	38	32	215	39	35	173	46	40	336	56
Future Volume (vph)	104	278	38	32	215	39	35	173	46	40	336	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	15	10	15	10	10	10	10	12	11	11	11	11
Total Lost time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.96			0.97		1.00	0.95		1.00	0.95	
Flpb, ped/bikes		0.97			0.98		0.88	1.00		0.84	1.00	
Frt		0.99			0.98		1.00	0.97		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1158			1157		1256	1427		1264	1492	
Flt Permitted		0.82			0.92		0.30	1.00		0.57	1.00	
Satd. Flow (perm)		963			1065		395	1427		752	1492	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	113	302	41	35	234	42	40	199	53	49	410	68
RTOR Reduction (vph)	0	4	0	0	6	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	452	0	0	305	0	40	252	0	49	478	0
Confl. Peds. (#/hr)	174		318	318		174	203		152	152		203
Confl. Bikes (#/hr)			89			12			11			36
Heavy Vehicles (%)	2%	4%	3%	13%	7%	5%	6%	8%	17%	5%	3%	4%
Bus Blockages (#/hr)	0	10	0	0	10	0	0	0	0	0	0	0
Parking (#/hr)		8			5							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		42.0			42.0		34.0	34.0		34.0	34.0	
Effective Green, g (s)		42.0			42.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio		0.47			0.47		0.38	0.38		0.38	0.38	
Clearance Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		449			497		149	539		284	563	
v/s Ratio Prot								0.18			c0.32	
v/s Ratio Perm		c0.47			0.29		0.10			0.07		
v/c Ratio		1.01			0.61		0.27	0.47		0.17	0.85	
Uniform Delay, d1		24.0			17.9		19.4	21.2		18.6	25.6	
Progression Factor		1.00			1.00		1.00	1.00		0.65	0.71	
Incremental Delay, d2		44.3			5.6		4.4	2.9		0.9	10.1	
Delay (s)		68.3			23.5		23.8	24.1		12.9	28.2	
Level of Service		E			C		C	C		B	C	
Approach Delay (s)		68.3			23.5			24.0			26.8	
Approach LOS		E			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	37.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	96.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	72	209	212	32	2	2
Future Volume (Veh/h)	72	209	212	32	2	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	78	227	230	35	2	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			351			
pX, platoon unblocked						
vC, conflicting volume	265				630	248
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	265				630	248
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				100	100
cM capacity (veh/h)	1311				422	796

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	305	265	4
Volume Left	78	0	2
Volume Right	0	35	2
cSH	1311	1700	551
Volume to Capacity	0.06	0.16	0.01
Queue Length 95th (ft)	5	0	1
Control Delay (s)	2.4	0.0	11.6
Lane LOS	A		B
Approach Delay (s)	2.4	0.0	11.6
Approach LOS			B

Intersection Summary			
Average Delay	1.4		
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	159	349	47	67	280	37	80	296	104	16	364	205
v/c Ratio	0.81	0.63	0.49	0.55	0.60	0.46	0.78	0.69	1.04	0.13	0.92	1.21
Control Delay	68.1	32.4	57.7	57.8	35.3	56.6	86.6	38.6	144.9	39.2	62.5	171.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.1	32.4	57.7	57.8	35.3	56.6	86.6	38.6	144.9	39.2	62.5	171.5
Queue Length 50th (ft)	89	173	26	37	142	20	45	152	~64	9	199	~143
Queue Length 95th (ft)	#194	#285	#67	#91	#251	51	#122	#276	#166	28	#354	#279
Internal Link Dist (ft)		410			550			357			641	
Turn Bay Length (ft)	100		75	285		200	250		250	200		325
Base Capacity (vph)	197	550	99	121	468	100	107	438	100	149	418	170
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.63	0.47	0.55	0.60	0.37	0.75	0.68	1.04	0.11	0.87	1.21

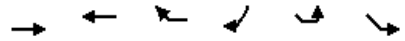
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	321	43	62	258	34	73	269	95	15	349	197
Future Volume (vph)	146	321	43	62	258	34	73	269	95	15	349	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	10	10	11	10	10	11	10	10	11	10
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1366	1545	1119	1366	1559	904	1213	1476	1132	1342	1450	1182
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1366	1545	1119	1366	1559	904	1213	1476	1132	1342	1450	1182
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.91	0.96	0.96	0.96
Adj. Flow (vph)	159	349	47	67	280	37	80	296	104	16	364	205
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	159	349	47	67	280	37	80	296	104	16	364	205
Heavy Vehicles (%)	11%	7%	14%	11%	6%	41%	25%	12%	17%	13%	14%	12%
Bus Blockages (#/hr)	0	0	15	0	0	15	0	0	6	0	0	6
Turn Type	Prot	NA	Over	Prot	NA	Over	Prot	NA	Over	Prot	NA	Over
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases												
Actuated Green, G (s)	13.0	30.1	6.4	8.0	25.1	5.6	6.4	26.3	8.0	5.6	25.5	13.0
Effective Green, g (s)	13.0	30.1	6.4	8.0	25.1	5.6	6.4	26.3	8.0	5.6	25.5	13.0
Actuated g/C Ratio	0.14	0.33	0.07	0.09	0.28	0.06	0.07	0.29	0.09	0.06	0.28	0.14
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	0.2	2.0	2.0	0.2	2.0	2.0	0.2	2.0	2.0	0.2	2.0
Lane Grp Cap (vph)	197	516	79	121	434	56	86	431	100	83	410	170
v/s Ratio Prot	0.12	c0.23	0.04	0.05	0.18	0.04	c0.07	0.20	0.09	0.01	c0.25	c0.17
v/s Ratio Perm												
v/c Ratio	0.81	0.68	0.59	0.55	0.65	0.66	0.93	0.69	1.04	0.19	0.89	1.21
Uniform Delay, d1	37.3	25.8	40.5	39.3	28.5	41.3	41.6	28.2	41.0	40.1	30.9	38.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	19.9	7.0	7.8	3.1	7.2	20.3	73.2	3.6	101.2	0.4	19.6	135.2
Delay (s)	57.2	32.7	48.3	42.4	35.7	61.6	114.8	31.8	142.2	40.5	50.5	173.7
Level of Service	E	C	D	D	D	E	F	C	F	D	D	F
Approach Delay (s)		41.0			39.4			69.6			93.4	
Approach LOS		D			D			E			F	

Intersection Summary			
HCM 2000 Control Delay	62.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	WBT	WBR	SBR	SEL2	SEL
Lane Group Flow (vph)	483	380	229	291	97	126
v/c Ratio	0.78	0.66	1.04	0.73	0.61	0.74
Control Delay	35.6	30.3	112.6	19.8	57.2	66.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.6	30.3	112.6	19.8	57.2	66.9
Queue Length 50th (ft)	241	177	137	25	56	74
Queue Length 95th (ft)	#450	#318	#329	74	#120	#161
Internal Link Dist (ft)	641	1473				271
Turn Bay Length (ft)			100		100	100
Base Capacity (vph)	620	574	220	436	162	174
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.66	1.04	0.67	0.60	0.72

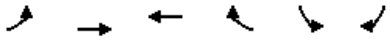
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL2	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	449	361	166	51	0	190	42	92	109	10
Future Volume (vph)	0	449	361	166	51	0	190	42	92	109	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	11	10	12	12	11	12	10	11	10
Total Lost time (s)		10.0	10.0	4.0			10.0		10.0	10.0	
Lane Util. Factor		1.00	1.00	1.00			1.00		1.00	1.00	
Frpb, ped/bikes		1.00	1.00	1.00			1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00			1.00		1.00	1.00	
Frt		1.00	1.00	0.85			0.86		1.00	0.99	
Flt Protected		1.00	1.00	1.00			1.00		0.95	0.96	
Satd. Flow (prot)		1526	1413	1279			1198		1391	1491	
Flt Permitted		1.00	1.00	1.00			1.00		0.95	0.96	
Satd. Flow (perm)		1526	1413	1279			1198		1391	1491	
Peak-hour factor, PHF	0.93	0.93	0.95	0.95	0.95	0.80	0.80	0.80	0.95	0.95	0.95
Adj. Flow (vph)	0	483	380	175	54	0	238	52	97	115	11
RTOR Reduction (vph)	0	0	0	0	0	0	205	0	0	0	0
Lane Group Flow (vph)	0	483	380	229	0	0	86	0	97	126	0
Confl. Peds. (#/hr)					148			149			
Confl. Bikes (#/hr)				29	34			28			
Heavy Vehicles (%)	0%	13%	17%	4%	2%	33%	4%	0%	9%	4%	11%
Bus Blockages (#/hr)	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)							7				
Turn Type		NA	NA	custom			Prot		Prot	Prot	
Protected Phases		2	2 6	5			3		4	4	
Permitted Phases											
Actuated Green, G (s)		38.2	42.2	16.2			15.1		10.7	10.7	
Effective Green, g (s)		38.2	42.2	16.2			15.1		10.7	10.7	
Actuated g/C Ratio		0.41	0.45	0.17			0.16		0.11	0.11	
Clearance Time (s)		10.0		4.0			10.0		10.0	10.0	
Vehicle Extension (s)		2.0		3.0			2.0		2.0	2.0	
Lane Grp Cap (vph)		620	634	220			192		158	169	
v/s Ratio Prot		c0.32	0.27	c0.18			c0.07		0.07	c0.08	
v/s Ratio Perm											
v/c Ratio		0.78	0.60	1.04			0.45		0.61	0.75	
Uniform Delay, d1		24.2	19.5	38.9			35.7		39.7	40.3	
Progression Factor		1.00	1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		9.4	4.2	71.8			0.6		4.9	14.4	
Delay (s)		33.6	23.7	110.7			36.3		44.6	54.7	
Level of Service		C	C	F			D		D	D	
Approach Delay (s)		33.6	56.4			36.3				50.3	
Approach LOS		C	E			D				D	

Intersection Summary			
HCM 2000 Control Delay	45.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

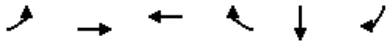
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		Y	
Traffic Volume (veh/h)	0	525	412	0	165	137
Future Volume (Veh/h)	0	525	412	0	165	137
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.95	0.95	0.77	0.77
Hourly flow rate (vph)	0	559	434	0	214	178
Pedestrians		8	39			
Lane Width (ft)		11.0	11.0			
Walking Speed (ft/s)		3.5	3.5			
Percent Blockage		1	3			
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	434				1032	442
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	434				1032	442
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	100				11	71
cM capacity (veh/h)	1136				240	605

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	559	434	392
Volume Left	0	0	214
Volume Right	0	0	178
cSH	1700	1700	330
Volume to Capacity	0.33	0.26	1.19
Queue Length 95th (ft)	0	0	415
Control Delay (s)	0.0	0.0	145.2
Lane LOS			F
Approach Delay (s)	0.0	0.0	145.2
Approach LOS			F

Intersection Summary			
Average Delay	41.1		
Intersection Capacity Utilization	57.2%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	202	385	485	230	313	109
v/c Ratio	0.62	0.45	0.96	0.76	0.79	0.35
Control Delay	39.7	26.2	63.7	48.2	47.4	31.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.7	26.2	63.7	48.2	47.4	31.9
Queue Length 50th (ft)	102	90	269	120	166	51
Queue Length 95th (ft)	167	125	#449	#226	#275	94
Internal Link Dist (ft)		831	391		521	
Turn Bay Length (ft)	340			350		160
Base Capacity (vph)	327	860	504	304	394	312
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.62	0.45	0.96	0.76	0.79	0.35

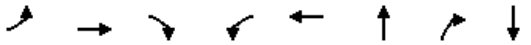
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	174	270	61	0	427	202	0	0	0	188	81	94
Future Volume (vph)	174	270	61	0	427	202	0	0	0	188	81	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	10	10	10	10	10	12	12	12	11	11	11
Total Lost time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Util. Factor	1.00	0.95			1.00	1.00					1.00	1.00
Frt	1.00	0.97			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.97	1.00
Satd. Flow (prot)	1341	2671			1565	1141					1480	1277
Flt Permitted	0.95	1.00			1.00	1.00					0.97	1.00
Satd. Flow (perm)	1341	2671			1565	1141					1480	1277
Peak-hour factor, PHF	0.86	0.86	0.86	0.88	0.88	0.88	0.92	0.92	0.92	0.86	0.86	0.86
Adj. Flow (vph)	202	314	71	0	485	230	0	0	0	219	94	109
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	202	385	0	0	485	230	0	0	0	0	313	109
Heavy Vehicles (%)	9%	3%	43%	0%	2%	4%	0%	0%	0%	4%	17%	10%
Parking (#/hr)						5						
Turn Type	Prot	NA			NA	Over				Split	NA	Over
Protected Phases	5	2			6	4				4	4	5
Permitted Phases												
Actuated Green, G (s)	22.0	29.0			29.0	24.0					24.0	22.0
Effective Green, g (s)	22.0	29.0			29.0	24.0					24.0	22.0
Actuated g/C Ratio	0.24	0.32			0.32	0.27					0.27	0.24
Clearance Time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Grp Cap (vph)	327	860			504	304					394	312
v/s Ratio Prot	c0.15	0.14			c0.31	0.20					c0.21	0.09
v/s Ratio Perm												
v/c Ratio	0.62	0.45			0.96	0.76					0.79	0.35
Uniform Delay, d1	30.3	24.2			30.0	30.3					30.7	28.1
Progression Factor	1.00	1.00			1.00	1.00					1.00	1.00
Incremental Delay, d2	8.5	1.7			31.7	16.1					15.2	3.1
Delay (s)	38.7	25.8			61.7	46.4					45.9	31.2
Level of Service	D	C			E	D					D	C
Approach Delay (s)		30.3			56.8			0.0			42.1	
Approach LOS		C			E			A			D	

Intersection Summary			
HCM 2000 Control Delay	44.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	63.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	107	232	57	164	386	192	66	493
v/c Ratio	1.10	0.78	0.26	1.13	0.55	0.62	0.09	1.02
Control Delay	164.0	53.2	32.5	153.7	32.6	32.3	8.9	75.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	164.0	53.2	32.5	153.7	32.6	32.3	8.9	75.4
Queue Length 50th (ft)	~70	125	27	~109	100	85	15	~288
Queue Length 95th (ft)	#174	#242	62	#232	146	166	34	#464
Internal Link Dist (ft)		1473			937	495		931
Turn Bay Length (ft)	200		200	240			140	
Base Capacity (vph)	97	296	223	145	700	308	737	483
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.78	0.26	1.13	0.55	0.62	0.09	1.02

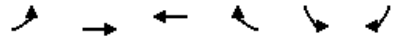
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	213	52	156	362	5	98	81	61	27	249	153
Future Volume (vph)	98	213	52	156	362	5	98	81	61	27	249	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	10	10	10	10	12	12	11	12	14	12
Total Lost time (s)	9.0	9.0	9.0	9.0	9.0			6.0	9.0		6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.80	1.00	1.00			1.00	1.00		0.89	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			0.94	1.00		0.97	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.97	1.00		1.00	
Satd. Flow (prot)	1253	1333	1007	1307	2742			1469	1277		1239	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.51	1.00		0.97	
Satd. Flow (perm)	1253	1333	1007	1307	2742			769	1277		1208	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.93	0.93	0.93	0.87	0.87	0.87
Adj. Flow (vph)	107	232	57	164	381	5	105	87	66	31	286	176
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	107	232	57	164	386	0	0	192	66	0	493	0
Confl. Peds. (#/hr)			81			114	166		357	357		166
Confl. Bikes (#/hr)						20			17			6
Heavy Vehicles (%)	21%	24%	8%	16%	10%	0%	5%	9%	10%	4%	4%	13%
Parking (#/hr)											4	
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	pt+ov	Perm	NA	
Protected Phases	5	2		1	6			4	1 4		8	
Permitted Phases			2				4			8		
Actuated Green, G (s)	7.0	20.0	20.0	10.0	23.0			36.0	52.0		36.0	
Effective Green, g (s)	7.0	20.0	20.0	10.0	23.0			36.0	46.0		36.0	
Actuated g/C Ratio	0.08	0.22	0.22	0.11	0.26			0.40	0.51		0.40	
Clearance Time (s)	9.0	9.0	9.0	9.0	9.0			6.0			6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0			2.0			2.0	
Lane Grp Cap (vph)	97	296	223	145	700			307	652		483	
v/s Ratio Prot	0.09	c0.17		c0.13	c0.14				0.05			
v/s Ratio Perm			0.06					0.25			c0.41	
v/c Ratio	1.10	0.78	0.26	1.13	0.55			0.63	0.10		1.02	
Uniform Delay, d1	41.5	33.0	28.9	40.0	29.0			21.6	11.3		27.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	121.9	18.5	2.7	114.3	3.1			9.3	0.0		46.3	
Delay (s)	163.4	51.5	31.6	154.3	32.1			30.9	11.4		73.3	
Level of Service	F	D	C	F	C			C	B		E	
Approach Delay (s)		78.9			68.6			25.9			73.3	
Approach LOS		E			E			C			E	

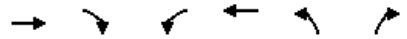
Intersection Summary			
HCM 2000 Control Delay	65.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	182	525	466	83	0	0
Future Volume (Veh/h)	182	525	466	83	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.92	0.92
Hourly flow rate (vph)	196	565	501	89	0	0
Pedestrians					121	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	711				1624	666
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	711				1624	666
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	78				100	100
cM capacity (veh/h)	893				89	463

Direction, Lane #	EB 1	WB 1
Volume Total	761	590
Volume Left	196	0
Volume Right	0	89
cSH	893	1700
Volume to Capacity	0.22	0.35
Queue Length 95th (ft)	21	0
Control Delay (s)	5.1	0.0
Lane LOS	A	
Approach Delay (s)	5.1	0.0
Approach LOS		

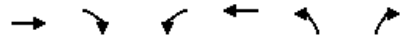
Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	468	222	28	412	0	0
Future Volume (Veh/h)	468	222	28	412	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.95	0.95	0.92	0.92
Hourly flow rate (vph)	498	236	29	434	0	0
Pedestrians					86	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			820		1194	702
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			820		1194	702
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		100	100
cM capacity (veh/h)			818		201	442

Direction, Lane #	EB 1	WB 1
Volume Total	734	463
Volume Left	0	29
Volume Right	236	0
cSH	1700	818
Volume to Capacity	0.43	0.04
Queue Length 95th (ft)	0	3
Control Delay (s)	0.0	1.0
Lane LOS		A
Approach Delay (s)	0.0	1.0
Approach LOS		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	494	40	117	348	19	243
Future Volume (Veh/h)	494	40	117	348	19	243
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.86	0.86	0.82	0.82
Hourly flow rate (vph)	520	42	136	405	23	296
Pedestrians	34			12	82	
Lane Width (ft)	11.0			11.0	12.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	3			1	8	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			644		1334	635
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			644		1334	635
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			84		81	32
cM capacity (veh/h)			863		124	433

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	562	541	319
Volume Left	0	136	23
Volume Right	42	0	296
cSH	1700	863	367
Volume to Capacity	0.33	0.16	0.87
Queue Length 95th (ft)	0	14	208
Control Delay (s)	0.0	4.0	53.8
Lane LOS		A	F
Approach Delay (s)	0.0	4.0	53.8
Approach LOS			F

Intersection Summary			
Average Delay	13.6		
Intersection Capacity Utilization	88.5%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	45	3	163	0	83	0	359	181	17	135	0
Future Volume (Veh/h)	5	45	3	163	0	83	0	359	181	17	135	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	49	3	177	0	90	0	390	197	18	147	0
Pedestrians		18			55			18			33	
Lane Width (ft)		16.0			12.0			10.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		2			5			1			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								532				
pX, platoon unblocked	0.81	0.81		0.81	0.81	0.81				0.81		
vC, conflicting volume	812	843	183	772	744	576	165			642		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	648	686	183	598	564	356	165			437		
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	82	100	30	100	83	100			98		
cM capacity (veh/h)	227	273	833	251	320	515	1393			867		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	57	267	587	165
Volume Left	5	177	0	18
Volume Right	3	90	197	0
cSH	278	304	1700	867
Volume to Capacity	0.21	0.88	0.35	0.02
Queue Length 95th (ft)	19	199	0	2
Control Delay (s)	21.3	63.3	0.0	1.2
Lane LOS	C	F		A
Approach Delay (s)	21.3	63.3	0.0	1.2
Approach LOS	C	F		

Intersection Summary				
Average Delay		17.0		
Intersection Capacity Utilization		64.7%	ICU Level of Service	C
Analysis Period (min)		15		

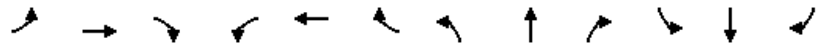
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	278	513	99	463	28	237
v/c Ratio	0.65	1.12	0.28	0.67	0.13	0.37
Control Delay	29.1	105.8	10.5	14.0	18.1	19.9
Queue Delay	0.5	0.5	2.1	4.1	0.0	0.1
Total Delay	29.6	106.3	12.6	18.2	18.1	20.0
Queue Length 50th (ft)	122	~339	17	77	10	90
Queue Length 95th (ft)	200	#495	m26	m110	22	113
Internal Link Dist (ft)	303	140		95		452
Turn Bay Length (ft)			45		95	
Base Capacity (vph)	431	459	357	695	213	641
Starvation Cap Reductn	0	0	158	157	0	0
Spillback Cap Reductn	22	24	0	0	0	34
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.68	1.18	0.50	0.86	0.13	0.39

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	139	73	9	271	162	92	415	16	20	147	24
Future Volume (vph)	27	139	73	9	271	162	92	415	16	20	147	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	12	11	11	11	11
Total Lost time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.95			0.86		1.00	0.99		1.00	0.98	
Flpb, ped/bikes		0.99			1.00		0.91	1.00		0.87	1.00	
Frt		0.96			0.95		1.00	0.99		1.00	0.98	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1112			1095		1347	1648		1360	1520	
Flt Permitted		0.91			0.99		0.60	1.00		0.35	1.00	
Satd. Flow (perm)		1022			1088		847	1648		505	1520	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.93	0.93	0.93	0.72	0.72	0.72
Adj. Flow (vph)	31	162	85	10	315	188	99	446	17	28	204	33
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	278	0	0	513	0	99	463	0	28	237	0
Confl. Peds. (#/hr)	233		121	121		233	88		208	208		88
Confl. Bikes (#/hr)			11			162			17			1
Heavy Vehicles (%)	4%	8%	4%	0%	3%	1%	2%	2%	0%	0%	4%	6%
Bus Blockages (#/hr)	0	3	0	0	3	0	0	0	0	0	0	0
Parking (#/hr)		12			5							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		38.0			38.0		38.0	38.0		38.0	38.0	
Effective Green, g (s)		38.0			38.0		38.0	38.0		38.0	38.0	
Actuated g/C Ratio		0.42			0.42		0.42	0.42		0.42	0.42	
Clearance Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		431			459		357	695		213	641	
v/s Ratio Prot								c0.28			0.16	
v/s Ratio Perm		0.27			c0.47		0.12			0.06		
v/c Ratio		0.65			1.12		0.28	0.67		0.13	0.37	
Uniform Delay, d1		20.6			26.0		17.0	20.9		15.9	17.8	
Progression Factor		1.00			1.00		0.51	0.47		1.00	1.00	
Incremental Delay, d2		7.3			78.2		1.4	3.8		1.3	1.6	
Delay (s)		27.9			104.2		10.1	13.7		17.2	19.4	
Level of Service		C			F		B	B		B	B	
Approach Delay (s)		27.9			104.2			13.0			19.2	
Approach LOS		C			F			B			B	

Intersection Summary			
HCM 2000 Control Delay	45.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	96.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	76	255	456	75	472	26	257
v/c Ratio	0.25	0.50	0.90	0.24	0.70	0.12	0.43
Control Delay	19.6	22.2	47.0	19.3	28.3	11.0	13.7
Queue Delay	0.6	0.0	49.4	0.0	0.7	0.0	1.7
Total Delay	20.2	22.2	96.4	19.3	29.1	11.0	15.4
Queue Length 50th (ft)	27	98	231	27	215	5	56
Queue Length 95th (ft)	61	171	#376	59	332	m12	m74
Internal Link Dist (ft)		813	207		330		95
Turn Bay Length (ft)	25			210		45	
Base Capacity (vph)	306	507	508	317	670	221	592
Starvation Cap Reductn	0	0	0	0	0	0	194
Spillback Cap Reductn	78	0	131	0	45	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.50	1.21	0.24	0.76	0.12	0.65

Intersection Summary

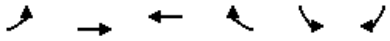
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	192	38	29	311	43	72	412	41	21	152	56
Future Volume (vph)	68	192	38	29	311	43	72	412	41	21	152	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	15	10	15	10	10	10	10	12	11	11	11	11
Total Lost time (s)	7.0	7.0			7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.94			0.98		1.00	0.98		1.00	0.92	
Flpb, ped/bikes	0.94	1.00			0.98		0.82	1.00		0.92	1.00	
Frt	1.00	0.98			0.98		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1633	1183			1241		1242	1587		1448	1404	
Flt Permitted	0.42	1.00			0.96		0.57	1.00		0.34	1.00	
Satd. Flow (perm)	725	1183			1193		751	1587		524	1404	
Peak-hour factor, PHF	0.90	0.90	0.90	0.84	0.84	0.84	0.96	0.96	0.96	0.81	0.81	0.81
Adj. Flow (vph)	76	213	42	35	370	51	75	429	43	26	188	69
RTOR Reduction (vph)	0	8	0	0	5	0	0	0	0	0	0	0
Lane Group Flow (vph)	76	247	0	0	451	0	75	472	0	26	257	0
Confl. Peds. (#/hr)	109		267	267		109	177		124	124		177
Confl. Bikes (#/hr)			15			58			29			6
Heavy Vehicles (%)	3%	3%	3%	0%	3%	0%	0%	3%	15%	0%	6%	0%
Bus Blockages (#/hr)	0	9	0	0	9	0	0	0	0	0	0	0
Parking (#/hr)		8			5							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	38.0	38.0			38.0		38.0	38.0		38.0	38.0	
Effective Green, g (s)	38.0	38.0			38.0		38.0	38.0		38.0	38.0	
Actuated g/C Ratio	0.42	0.42			0.42		0.42	0.42		0.42	0.42	
Clearance Time (s)	7.0	7.0			7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	306	499			503		317	670		221	592	
v/s Ratio Prot		0.21						c0.30			0.18	
v/s Ratio Perm	0.10				c0.38		0.10			0.05		
v/c Ratio	0.25	0.49			0.90		0.24	0.70		0.12	0.43	
Uniform Delay, d1	16.8	19.0			24.2		16.7	21.4		15.8	18.4	
Progression Factor	1.00	1.00			1.00		1.00	1.00		0.60	0.61	
Incremental Delay, d2	1.9	3.5			21.2		1.8	6.1		1.0	2.1	
Delay (s)	18.7	22.5			45.4		18.4	27.5		10.5	13.3	
Level of Service	B	C			D		B	C		B	B	
Approach Delay (s)		21.6			45.4			26.3			13.0	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	114.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	463	34	2	48	52
Future Volume (Veh/h)	6	463	34	2	48	52
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	503	37	2	52	57
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			351			
pX, platoon unblocked						
vC, conflicting volume	39				555	38
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	39				555	38
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				89	95
cM capacity (veh/h)	1584				494	1040

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	510	39	109
Volume Left	7	0	52
Volume Right	0	2	57
cSH	1584	1700	681
Volume to Capacity	0.00	0.02	0.16
Queue Length 95th (ft)	0	0	14
Control Delay (s)	0.1	0.0	11.3
Lane LOS	A		B
Approach Delay (s)	0.1	0.0	11.3
Approach LOS			B

Intersection Summary			
Average Delay	2.0		
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	172	327	24	123	304	51	95	445	114	7	423	212
v/c Ratio	0.91	0.71	0.20	0.66	0.64	0.61	0.67	0.96	0.70	0.07	0.99	1.30
Control Delay	86.6	39.0	41.7	53.8	34.8	70.5	63.2	66.9	58.8	40.2	77.5	207.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	86.6	39.0	41.7	53.8	34.8	70.5	63.2	66.9	58.8	40.2	77.5	207.3
Queue Length 50th (ft)	98	166	13	67	149	29	53	~279	62	4	~280	~156
Queue Length 95th (ft)	#218	#307	37	111	215	#72	#114	#445	113	16	#398	#258
Internal Link Dist (ft)		410			550			357			641	
Turn Bay Length (ft)	100		75	285		200	250		250	200		325
Base Capacity (vph)	189	460	129	233	472	87	154	465	205	107	428	163
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.71	0.19	0.53	0.64	0.59	0.62	0.96	0.56	0.07	0.99	1.30

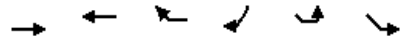
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	160	304	22	102	252	42	84	392	100	6	347	174
Future Volume (vph)	160	304	22	102	252	42	84	392	100	6	347	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	10	10	10	11	11	11	11	11	12	11	9
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1419	1492	1291	1501	1574	1124	1540	1589	1319	1388	1545	1228
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1419	1492	1291	1501	1574	1124	1540	1589	1319	1388	1545	1228
Peak-hour factor, PHF	0.93	0.93	0.93	0.83	0.83	0.83	0.88	0.88	0.88	0.82	0.82	0.82
Adj. Flow (vph)	172	327	24	123	304	51	95	445	114	7	423	212
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	172	327	24	123	304	51	95	445	114	7	423	212
Heavy Vehicles (%)	3%	7%	0%	1%	5%	19%	2%	4%	4%	17%	7%	4%
Bus Blockages (#/hr)	0	0	12	0	0	12	0	0	6	0	0	6
Turn Type	Prot	NA	Over	Prot	NA	Over	Prot	NA	Over	Prot	NA	Over
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases												
Actuated Green, G (s)	12.0	27.8	7.1	11.2	27.0	5.6	7.1	25.4	11.2	5.6	23.9	12.0
Effective Green, g (s)	12.0	27.8	7.1	11.2	27.0	5.6	7.1	25.4	11.2	5.6	23.9	12.0
Actuated g/C Ratio	0.13	0.31	0.08	0.12	0.30	0.06	0.08	0.28	0.12	0.06	0.27	0.13
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	0.2	2.0	2.0	0.2	2.0	2.0	0.2	2.0	2.0	0.2	2.0
Lane Grp Cap (vph)	189	460	101	186	472	69	121	448	164	86	410	163
v/s Ratio Prot	0.12	c0.22	0.02	0.08	0.19	0.05	c0.06	c0.28	0.09	0.01	0.27	c0.17
v/s Ratio Perm												
v/c Ratio	0.91	0.71	0.24	0.66	0.64	0.74	0.79	0.99	0.70	0.08	1.03	1.30
Uniform Delay, d1	38.5	27.5	38.9	37.6	27.3	41.5	40.7	32.2	37.8	39.8	33.0	39.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	40.4	9.0	0.4	6.7	6.6	29.5	25.8	40.9	9.9	0.1	52.8	172.7
Delay (s)	78.9	36.5	39.4	44.3	34.0	71.0	66.5	73.1	47.6	39.9	85.9	211.7
Level of Service	E	D	D	D	C	E	E	E	D	D	F	F
Approach Delay (s)		50.6			40.6			67.7			126.9	
Approach LOS		D			D			E			F	

Intersection Summary			
HCM 2000 Control Delay	74.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	WBT	WBR	SBR	SEL2	SEL
Lane Group Flow (vph)	612	264	87	218	328	335
v/c Ratio	0.97	0.46	0.62	0.57	1.37	1.43
Control Delay	60.4	24.8	58.6	11.4	225.0	249.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.4	24.8	58.6	11.4	225.0	249.2
Queue Length 50th (ft)	353	115	50	0	~260	~272
Queue Length 95th (ft)	#580	187	99	25	#356	#368
Internal Link Dist (ft)	641	1473				271
Turn Bay Length (ft)			100		100	100
Base Capacity (vph)	628	580	164	383	239	234
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.46	0.53	0.57	1.37	1.43

Intersection Summary

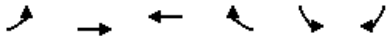
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL2	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	594	253	23	60	0	146	13	259	137	128
Future Volume (vph)	0	594	253	23	60	0	146	13	259	137	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	11	10	12	12	11	12	10	11	10
Total Lost time (s)		8.0	8.0	4.0			10.0		10.0	10.0	
Lane Util. Factor		1.00	1.00	1.00			1.00		1.00	1.00	
Frpb, ped/bikes		1.00	1.00	1.00			1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00			1.00		1.00	1.00	
Frt		1.00	1.00	0.85			0.86		1.00	0.93	
Flt Protected		1.00	1.00	1.00			1.00		0.95	0.97	
Satd. Flow (prot)		1642	1517	1288			1237		1501	1473	
Flt Permitted		1.00	1.00	1.00			1.00		0.95	0.97	
Satd. Flow (perm)		1642	1517	1288			1237		1501	1473	
Peak-hour factor, PHF	0.97	0.97	0.96	0.96	0.96	0.73	0.73	0.73	0.79	0.79	0.79
Adj. Flow (vph)	0	612	264	24	62	0	200	18	328	173	162
RTOR Reduction (vph)	0	0	0	0	0	0	183	0	0	0	0
Lane Group Flow (vph)	0	612	264	87	0	0	35	0	328	335	0
Confl. Peds. (#/hr)					99			71			
Confl. Bikes (#/hr)				18	21			10			
Heavy Vehicles (%)	0%	5%	9%	5%	2%	0%	0%	0%	1%	1%	2%
Bus Blockages (#/hr)	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)							7				
Turn Type		NA	NA	custom			Prot		Prot	Prot	
Protected Phases		2	2 6	5			3		4	4	
Permitted Phases											
Actuated Green, G (s)		36.0	38.0	9.0			15.0		15.0	15.0	
Effective Green, g (s)		36.0	38.0	9.0			15.0		15.0	15.0	
Actuated g/C Ratio		0.38	0.40	0.10			0.16		0.16	0.16	
Clearance Time (s)		8.0		4.0			10.0		10.0	10.0	
Vehicle Extension (s)		2.0		3.0			2.0		2.0	2.0	
Lane Grp Cap (vph)		628	613	123			197		239	235	
v/s Ratio Prot		c0.37	0.17	0.07			c0.03		0.22	c0.23	
v/s Ratio Perm											
v/c Ratio		0.97	0.43	0.71			0.18		1.37	1.43	
Uniform Delay, d1		28.5	20.2	41.2			34.2		39.5	39.5	
Progression Factor		1.00	1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		30.2	2.2	16.9			0.2		191.8	214.4	
Delay (s)		58.7	22.4	58.1			34.3		231.3	253.9	
Level of Service		E	C	E			C		F	F	
Approach Delay (s)		58.7	31.3			34.3				242.7	
Approach LOS		E	C			C				F	

Intersection Summary			
HCM 2000 Control Delay	116.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

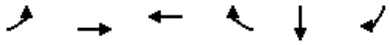
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↓	
Traffic Volume (veh/h)	0	459	351	0	90	145
Future Volume (Veh/h)	0	459	351	0	90	145
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.84	0.84	0.93	0.93	0.90	0.90
Hourly flow rate (vph)	0	546	377	0	100	161
Pedestrians		17	56			
Lane Width (ft)		11.0	11.0			
Walking Speed (ft/s)		3.5	3.5			
Percent Blockage		1	5			
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	377				979	394
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	377				979	394
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				62	75
cM capacity (veh/h)	1193				266	647

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	546	377	261
Volume Left	0	0	100
Volume Right	0	0	161
cSH	1700	1700	418
Volume to Capacity	0.32	0.22	0.62
Queue Length 95th (ft)	0	0	103
Control Delay (s)	0.0	0.0	26.9
Lane LOS			D
Approach Delay (s)	0.0	0.0	26.9
Approach LOS			D

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

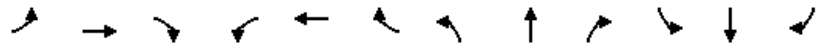


Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	228	510	315	107	482	89
v/c Ratio	0.75	0.57	0.64	0.30	1.03	0.30
Control Delay	50.1	29.0	33.8	27.2	83.3	32.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.1	29.0	33.8	27.2	83.3	32.4
Queue Length 50th (ft)	122	126	153	47	~297	42
Queue Length 95th (ft)	#233	178	241	90	#484	85
Internal Link Dist (ft)		831	391		521	
Turn Bay Length (ft)	340			350		160
Base Capacity (vph)	303	895	491	352	467	300
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.57	0.64	0.30	1.03	0.30

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	212	422	52	0	280	95	0	0	0	396	62	85
Future Volume (vph)	212	422	52	0	280	95	0	0	0	396	62	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	10	10	10	10	10	12	12	12	11	11	11
Total Lost time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Util. Factor	1.00	0.95			1.00	1.00					1.00	1.00
Frt	1.00	0.98			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (prot)	1366	2878			1580	1175					1558	1351
Flt Permitted	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (perm)	1366	2878			1580	1175					1558	1351
Peak-hour factor, PHF	0.93	0.93	0.93	0.89	0.89	0.89	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	228	454	56	0	315	107	0	0	0	417	65	89
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	228	510	0	0	315	107	0	0	0	0	482	89
Heavy Vehicles (%)	7%	1%	25%	0%	1%	1%	0%	0%	0%	1%	6%	4%
Parking (#/hr)						5						
Turn Type	Prot	NA			NA	Over				Split	NA	Over
Protected Phases	5	2			6	4				4	4	5
Permitted Phases												
Actuated Green, G (s)	20.0	28.0			28.0	27.0					27.0	20.0
Effective Green, g (s)	20.0	28.0			28.0	27.0					27.0	20.0
Actuated g/C Ratio	0.22	0.31			0.31	0.30					0.30	0.22
Clearance Time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Grp Cap (vph)	303	895			491	352					467	300
v/s Ratio Prot	c0.17	0.18			c0.20	0.09					c0.31	0.07
v/s Ratio Perm												
v/c Ratio	0.75	0.57			0.64	0.30					1.03	0.30
Uniform Delay, d1	32.7	26.0			26.7	24.3					31.5	29.1
Progression Factor	1.00	1.00			1.00	1.00					1.00	1.00
Incremental Delay, d2	15.8	2.6			6.3	2.2					50.2	2.5
Delay (s)	48.5	28.6			33.0	26.5					81.7	31.7
Level of Service	D	C			C	C					F	C
Approach Delay (s)		34.7			31.3			0.0			73.9	
Approach LOS		C			C			A			E	

Intersection Summary			
HCM 2000 Control Delay	46.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	317	387	116	60	300	345	100	273
v/c Ratio	1.22	0.73	0.32	0.44	0.48	0.83	0.15	0.67
Control Delay	164.6	38.4	28.2	48.2	33.5	46.6	12.5	35.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	164.6	38.4	28.2	48.2	33.5	46.6	12.5	35.2
Queue Length 50th (ft)	~224	200	51	33	78	179	30	132
Queue Length 95th (ft)	#385	#386	106	61	104	#330	53	202
Internal Link Dist (ft)		1473			937	495		931
Turn Bay Length (ft)	200		200	240			140	
Base Capacity (vph)	259	533	358	206	627	416	735	408
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.22	0.73	0.32	0.29	0.48	0.83	0.14	0.67

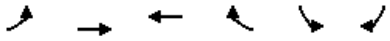
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	285	348	104	48	231	9	86	224	90	21	146	62
Future Volume (vph)	285	348	104	48	231	9	86	224	90	21	146	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	10	10	10	10	12	12	11	12	14	12
Total Lost time (s)	9.0	9.0	9.0	9.0	9.0			6.0	9.0		6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.80	1.00	0.99			1.00	1.00		0.92	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			0.96	1.00		0.98	
Frt	1.00	1.00	0.85	1.00	0.99			1.00	0.85		0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99	1.00		1.00	
Satd. Flow (prot)	1458	1574	1062	1430	2824			1597	1351		1291	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.77	1.00		0.95	
Satd. Flow (perm)	1458	1574	1062	1430	2824			1250	1351		1226	
Peak-hour factor, PHF	0.90	0.90	0.90	0.80	0.80	0.80	0.90	0.90	0.90	0.84	0.84	0.84
Adj. Flow (vph)	317	387	116	60	289	11	96	249	100	25	174	74
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	317	387	116	60	300	0	0	345	100	0	273	0
Confl. Peds. (#/hr)			74			86	162		300	300		162
Confl. Bikes (#/hr)			19			1			13			2
Heavy Vehicles (%)	4%	5%	2%	6%	6%	0%	1%	1%	4%	5%	4%	16%
Parking (#/hr)											4	
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	pt+ov	Perm	NA	
Protected Phases	5	2		1	6			4	1 4		8	
Permitted Phases			2				4			8		
Actuated Green, G (s)	16.0	28.7	28.7	7.3	20.0			30.0	43.3		30.0	
Effective Green, g (s)	16.0	28.7	28.7	7.3	20.0			30.0	37.3		30.0	
Actuated g/C Ratio	0.18	0.32	0.32	0.08	0.22			0.33	0.41		0.33	
Clearance Time (s)	9.0	9.0	9.0	9.0	9.0			6.0			6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0			2.0			2.0	
Lane Grp Cap (vph)	259	501	338	115	627			416	559		408	
v/s Ratio Prot	c0.22	c0.25		0.04	0.11				0.07			
v/s Ratio Perm			0.11					c0.28			0.22	
v/c Ratio	1.22	0.77	0.34	0.52	0.48			0.83	0.18		0.67	
Uniform Delay, d1	37.0	27.7	23.4	39.7	30.5			27.6	16.7		25.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	130.2	11.0	2.8	2.0	2.6			17.2	0.1		8.4	
Delay (s)	167.2	38.7	26.2	41.6	33.1			44.8	16.7		34.2	
Level of Service	F	D	C	D	C			D	B		C	
Approach Delay (s)		86.6			34.5			38.5			34.2	
Approach LOS		F			C			D			C	

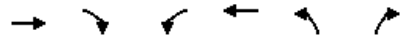
Intersection Summary			
HCM 2000 Control Delay	57.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	278	459	465	31	0	0
Future Volume (Veh/h)	278	459	465	31	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.86	0.86	0.92	0.92
Hourly flow rate (vph)	293	483	541	36	0	0
Pedestrians					112	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	689				1740	671
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	689				1740	671
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	67				100	100
cM capacity (veh/h)	901				65	460

Direction, Lane #	EB 1	WB 1
Volume Total	776	577
Volume Left	293	0
Volume Right	0	36
cSH	901	1700
Volume to Capacity	0.33	0.34
Queue Length 95th (ft)	35	0
Control Delay (s)	7.2	0.0
Lane LOS	A	
Approach Delay (s)	7.2	0.0
Approach LOS		

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

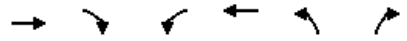


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	452	97	12	351	0	0
Future Volume (Veh/h)	452	97	12	351	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.93	0.93	0.92	0.92
Hourly flow rate (vph)	538	115	13	377	0	0
Pedestrians					112	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			765		1110	708
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			765		1110	708
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		100	100
cM capacity (veh/h)			857		230	438

Direction, Lane #	EB 1	WB 1
Volume Total	653	390
Volume Left	0	13
Volume Right	115	0
cSH	1700	857
Volume to Capacity	0.38	0.02
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	0.5
Lane LOS		A
Approach Delay (s)	0.0	0.5
Approach LOS		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	37.4%	ICU Level of Service	A
Analysis Period (min)	15		

Synchro - 2025 Future Conditions



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	598	210	225	276	10	155
Future Volume (Veh/h)	598	210	225	276	10	155
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.95	0.95
Hourly flow rate (vph)	643	226	242	297	11	163
Pedestrians	44			22	62	
Lane Width (ft)	11.0			11.0	12.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	4			2	6	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			931		1643	840
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			931		1643	840
tC, single (s)			4.1		6.5	6.3
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.4
p0 queue free %			65		82	49
cM capacity (veh/h)			684		61	321

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	869	539	174
Volume Left	0	242	11
Volume Right	226	0	163
cSH	1700	684	253
Volume to Capacity	0.51	0.35	0.69
Queue Length 95th (ft)	0	40	113
Control Delay (s)	0.0	9.0	45.5
Lane LOS		A	E
Approach Delay (s)	0.0	9.0	45.5
Approach LOS			E

Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	103.6%	ICU Level of Service	G
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	109	9	53	0	28	0	168	399	90	274	0
Future Volume (Veh/h)	28	109	9	53	0	28	0	168	399	90	274	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	30	118	10	58	0	30	0	183	434	98	298	0
Pedestrians		44			41			17			43	
Lane Width (ft)		16.0			12.0			10.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		6			4			1			4	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								532				
pX, platoon unblocked	0.85	0.85		0.85	0.85	0.85				0.85		
vC, conflicting volume	1011	1196	359	1021	979	484	342			658		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	924	1142	359	936	886	303	342			508		
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 %	81	15	98	0	100	95	100			89		
cM capacity (veh/h)	157	138	643	48	195	582	1160			871		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	158	88	617	396
Volume Left	30	58	0	98
Volume Right	10	30	434	0
cSH	149	70	1700	871
Volume to Capacity	1.06	1.26	0.36	0.11
Queue Length 95th (ft)	207	175	0	9
Control Delay (s)	151.3	297.7	0.0	3.4
Lane LOS	F	F		A
Approach Delay (s)	151.3	297.7	0.0	3.4
Approach LOS	F	F		

Intersection Summary				
Average Delay			40.9	
Intersection Capacity Utilization			84.3%	ICU Level of Service
Analysis Period (min)			15	

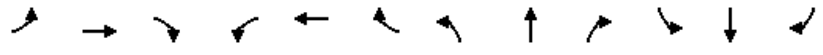
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	581	344	31	347	34	334
v/c Ratio	1.31	0.83	0.13	0.59	0.16	0.58
Control Delay	179.4	40.1	13.8	18.8	21.2	27.4
Queue Delay	9.0	60.0	0.0	4.1	0.0	0.6
Total Delay	188.5	100.1	13.8	22.9	21.2	28.0
Queue Length 50th (ft)	~429	163	8	99	13	149
Queue Length 95th (ft)	#600	224	m13	m135	34	230
Internal Link Dist (ft)	303	140		95		452
Turn Bay Length (ft)			45		95	
Base Capacity (vph)	444	416	230	588	207	572
Starvation Cap Reductn	0	0	0	165	0	0
Spillback Cap Reductn	236	221	0	0	0	55
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.79	1.76	0.13	0.82	0.16	0.65

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	283	170	6	141	118	29	309	17	30	269	25
Future Volume (vph)	53	283	170	6	141	118	29	309	17	30	269	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	12	11	11	11	11
Total Lost time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.88			0.80		1.00	0.98		1.00	0.98	
Flpb, ped/bikes		0.97			1.00		0.85	1.00		0.81	1.00	
Frt		0.95			0.94		1.00	0.99		1.00	0.99	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1028			906		1244	1557		1162	1517	
Flt Permitted		0.92			0.99		0.46	1.00		0.45	1.00	
Satd. Flow (perm)		953			894		608	1557		549	1517	
Peak-hour factor, PHF	0.87	0.87	0.87	0.77	0.77	0.77	0.94	0.94	0.94	0.88	0.88	0.88
Adj. Flow (vph)	61	325	195	8	183	153	31	329	18	34	306	28
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	581	0	0	344	0	31	347	0	34	334	0
Confl. Peds. (#/hr)	360		157	157		360	172		225	225		172
Confl. Bikes (#/hr)			220			13			6			23
Heavy Vehicles (%)	9%	6%	1%	0%	14%	14%	4%	7%	6%	10%	5%	5%
Bus Blockages (#/hr)	0	5	0	0	5	0	0	0	0	0	0	0
Parking (#/hr)		12			5							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		42.0			42.0		34.0	34.0		34.0	34.0	
Effective Green, g (s)		42.0			42.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio		0.47			0.47		0.38	0.38		0.38	0.38	
Clearance Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		444			417		229	588		207	573	
v/s Ratio Prot								c0.22			0.22	
v/s Ratio Perm		c0.61			0.38		0.05			0.06		
v/c Ratio		1.31			0.82		0.14	0.59		0.16	0.58	
Uniform Delay, d1		24.0			20.8		18.4	22.4		18.6	22.3	
Progression Factor		1.00			1.00		0.68	0.69		1.00	1.00	
Incremental Delay, d2		154.3			16.8		0.8	2.7		1.7	4.3	
Delay (s)		178.3			37.6		13.2	18.3		20.3	26.6	
Level of Service		F			D		B	B		C	C	
Approach Delay (s)		178.3			37.6			17.9			26.0	
Approach LOS		F			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	79.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	101.9%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	541	344	41	279	50	492
v/c Ratio	1.22	0.69	0.29	0.51	0.19	0.88
Control Delay	141.5	26.7	26.4	25.8	13.3	30.6
Queue Delay	4.7	45.4	0.0	0.3	1.3	13.3
Total Delay	146.2	72.1	26.4	26.1	14.6	43.9
Queue Length 50th (ft)	~381	143	16	120	14	281
Queue Length 95th (ft)	#582	251	44	188	m19	m210
Internal Link Dist (ft)	813	207		330		95
Turn Bay Length (ft)			210		45	
Base Capacity (vph)	445	502	142	543	270	562
Starvation Cap Reductn	0	0	0	0	118	64
Spillback Cap Reductn	160	180	0	46	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.90	1.07	0.29	0.56	0.33	0.99

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

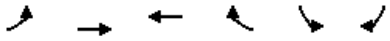
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	341	39	33	244	40	36	196	47	41	344	59
Future Volume (vph)	118	341	39	33	244	40	36	196	47	41	344	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	15	10	15	10	10	10	10	12	11	11	11	11
Total Lost time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.97			0.97		1.00	0.95		1.00	0.95	
Flpb, ped/bikes		0.97			0.98		0.88	1.00		0.85	1.00	
Frt		0.99			0.98		1.00	0.97		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1170			1167		1262	1439		1277	1489	
Flt Permitted		0.80			0.91		0.28	1.00		0.53	1.00	
Satd. Flow (perm)		946			1066		377	1439		714	1489	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.87	0.87	0.87	0.82	0.82	0.82
Adj. Flow (vph)	128	371	42	36	265	43	41	225	54	50	420	72
RTOR Reduction (vph)	0	3	0	0	6	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	538	0	0	338	0	41	279	0	50	492	0
Confl. Peds. (#/hr)	174		318	318		174	203		152	152		203
Confl. Bikes (#/hr)			89			12			11			36
Heavy Vehicles (%)	2%	4%	3%	13%	7%	5%	6%	8%	17%	5%	3%	4%
Bus Blockages (#/hr)	0	10	0	0	10	0	0	0	0	0	0	0
Parking (#/hr)		8			5							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		42.0			42.0		34.0	34.0		34.0	34.0	
Effective Green, g (s)		42.0			42.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio		0.47			0.47		0.38	0.38		0.38	0.38	
Clearance Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		441			497		142	543		269	562	
v/s Ratio Prot								0.19			c0.33	
v/s Ratio Perm		c0.57			0.32		0.11			0.07		
v/c Ratio		1.22			0.68		0.29	0.51		0.19	0.88	
Uniform Delay, d1		24.0			18.8		19.6	21.6		18.7	26.0	
Progression Factor		1.00			1.00		1.00	1.00		0.64	0.69	
Incremental Delay, d2		117.8			7.3		5.1	3.4		0.8	10.6	
Delay (s)		141.8			26.1		24.6	25.1		12.8	28.6	
Level of Service		F			C		C	C		B	C	
Approach Delay (s)		141.8			26.1			25.0			27.1	
Approach LOS		F			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	62.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	105.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	72	229	254	32	2	2
Future Volume (Veh/h)	72	229	254	32	2	2
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	78	249	276	35	2	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			351			
pX, platoon unblocked						
vC, conflicting volume	311				698	294
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	311				698	294
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				99	100
cM capacity (veh/h)	1261				384	751

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	327	311	4
Volume Left	78	0	2
Volume Right	0	35	2
cSH	1261	1700	508
Volume to Capacity	0.06	0.18	0.01
Queue Length 95th (ft)	5	0	1
Control Delay (s)	2.4	0.0	12.1
Lane LOS	A		B
Approach Delay (s)	2.4	0.0	12.1
Approach LOS			B

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	44.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	185	405	80	108	341	42	87	362	107	19	389	216
v/c Ratio	0.94	0.80	0.82	0.89	0.81	0.51	0.84	0.77	1.07	0.16	0.97	1.27
Control Delay	90.8	42.4	96.8	100.6	48.0	60.2	94.7	42.4	152.8	39.7	73.3	194.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	90.8	42.4	96.8	100.6	48.0	60.2	94.7	42.4	152.8	39.7	73.3	194.6
Queue Length 50th (ft)	106	210	46	62	182	23	49	198	~68	10	218	~156
Queue Length 95th (ft)	#233	#374	#127	#159	#336	57	#134	#367	#172	31	#389	#295
Internal Link Dist (ft)		410			550			357			641	
Turn Bay Length (ft)	100		75	285		200	250		250	200		325
Base Capacity (vph)	197	504	99	121	422	100	107	473	100	149	418	170
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.80	0.81	0.89	0.81	0.42	0.81	0.77	1.07	0.13	0.93	1.27

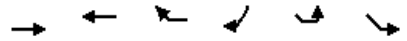
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	170	373	74	99	314	39	79	329	97	18	373	207
Future Volume (vph)	170	373	74	99	314	39	79	329	97	18	373	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	10	10	11	10	10	11	10	10	11	10
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1366	1545	1119	1366	1559	904	1213	1476	1132	1342	1450	1182
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1366	1545	1119	1366	1559	904	1213	1476	1132	1342	1450	1182
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.91	0.96	0.96	0.96
Adj. Flow (vph)	185	405	80	108	341	42	87	362	107	19	389	216
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	185	405	80	108	341	42	87	362	107	19	389	216
Heavy Vehicles (%)	11%	7%	14%	11%	6%	41%	25%	12%	17%	13%	14%	12%
Bus Blockages (#/hr)	0	0	15	0	0	15	0	0	6	0	0	6
Turn Type	Prot	NA	Over	Prot	NA	Over	Prot	NA	Over	Prot	NA	Over
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases												
Actuated Green, G (s)	13.0	27.4	7.8	8.0	22.4	5.7	7.8	28.9	8.0	5.7	26.8	13.0
Effective Green, g (s)	13.0	27.4	7.8	8.0	22.4	5.7	7.8	28.9	8.0	5.7	26.8	13.0
Actuated g/C Ratio	0.14	0.30	0.09	0.09	0.25	0.06	0.09	0.32	0.09	0.06	0.30	0.14
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	0.2	2.0	2.0	0.2	2.0	2.0	0.2	2.0	2.0	0.2	2.0
Lane Grp Cap (vph)	197	470	96	121	388	57	105	473	100	84	431	170
v/s Ratio Prot	0.14	c0.26	0.07	0.08	0.22	0.05	c0.07	0.25	0.09	0.01	c0.27	c0.18
v/s Ratio Perm												
v/c Ratio	0.94	0.86	0.83	0.89	0.88	0.74	0.83	0.77	1.07	0.23	0.90	1.27
Uniform Delay, d1	38.1	29.5	40.5	40.6	32.5	41.4	40.4	27.5	41.0	40.1	30.3	38.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	46.0	18.4	41.8	49.1	23.5	34.3	37.6	6.5	110.2	0.5	21.3	159.7
Delay (s)	84.1	47.9	82.2	89.7	56.0	75.7	78.1	34.0	151.2	40.6	51.7	198.2
Level of Service	F	D	F	F	E	E	E	C	F	D	D	F
Approach Delay (s)		62.0			65.1			63.5			102.1	
Approach LOS		E			E			E			F	

Intersection Summary			
HCM 2000 Control Delay	73.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	WBT	WBR	SBR	SEL2	SEL
Lane Group Flow (vph)	576	404	259	317	101	142
v/c Ratio	0.95	0.72	1.23	0.79	0.64	0.84
Control Delay	55.4	33.5	175.1	24.6	58.8	79.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.4	33.5	175.1	24.6	58.8	79.7
Queue Length 50th (ft)	315	193	~179	40	58	84
Queue Length 95th (ft)	#578	#366	#374	95	#127	#188
Internal Link Dist (ft)	641	1473				271
Turn Bay Length (ft)			100		100	100
Base Capacity (vph)	608	563	210	437	162	172
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.95	0.72	1.23	0.73	0.62	0.83

Intersection Summary

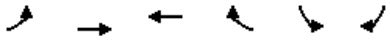
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL2	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	536	384	192	54	0	195	58	96	116	19
Future Volume (vph)	0	536	384	192	54	0	195	58	96	116	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	11	10	12	12	11	12	10	11	10
Total Lost time (s)		10.0	10.0	4.0			10.0		10.0	10.0	
Lane Util. Factor		1.00	1.00	1.00			1.00		1.00	1.00	
Frpb, ped/bikes		1.00	1.00	1.00			1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00			1.00		1.00	1.00	
Frt		1.00	1.00	0.85			0.86		1.00	0.98	
Flt Protected		1.00	1.00	1.00			1.00		0.95	0.96	
Satd. Flow (prot)		1526	1413	1279			1200		1391	1478	
Flt Permitted		1.00	1.00	1.00			1.00		0.95	0.96	
Satd. Flow (perm)		1526	1413	1279			1200		1391	1478	
Peak-hour factor, PHF	0.93	0.93	0.95	0.95	0.95	0.80	0.80	0.80	0.95	0.95	0.95
Adj. Flow (vph)	0	576	404	202	57	0	244	72	101	122	20
RTOR Reduction (vph)	0	0	0	0	0	0	203	0	0	0	0
Lane Group Flow (vph)	0	576	404	259	0	0	114	0	101	142	0
Confl. Peds. (#/hr)					148			149			
Confl. Bikes (#/hr)				29	34			28			
Heavy Vehicles (%)	0%	13%	17%	4%	2%	33%	4%	0%	9%	4%	11%
Bus Blockages (#/hr)	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)							7				
Turn Type		NA	NA	custom			Prot		Prot	Prot	
Protected Phases		2	2 6	5			3		4	4	
Permitted Phases											
Actuated Green, G (s)		37.5	41.5	15.5			15.7		10.8	10.8	
Effective Green, g (s)		37.5	41.5	15.5			15.7		10.8	10.8	
Actuated g/C Ratio		0.40	0.44	0.16			0.17		0.11	0.11	
Clearance Time (s)		10.0		4.0			10.0		10.0	10.0	
Vehicle Extension (s)		2.0		3.0			2.0		2.0	2.0	
Lane Grp Cap (vph)		608	623	210			200		159	169	
v/s Ratio Prot		c0.38	0.29	c0.20			c0.09		0.07	c0.10	
v/s Ratio Perm											
v/c Ratio		0.95	0.65	1.23			0.57		0.64	0.84	
Uniform Delay, d1		27.3	20.5	39.2			36.0		39.7	40.8	
Progression Factor		1.00	1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		25.6	5.2	139.2			2.2		6.0	28.5	
Delay (s)		52.9	25.7	178.4			38.2		45.7	69.3	
Level of Service		D	C	F			D		D	E	
Approach Delay (s)		52.9	85.4			38.2				59.5	
Approach LOS		D	F			D				E	

Intersection Summary			
HCM 2000 Control Delay	63.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

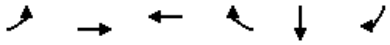
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↓	
Traffic Volume (veh/h)	0	561	430	0	184	155
Future Volume (Veh/h)	0	561	430	0	184	155
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.94	0.94	0.95	0.95	0.77	0.77
Hourly flow rate (vph)	0	597	453	0	239	201
Pedestrians		8	39			
Lane Width (ft)		11.0	11.0			
Walking Speed (ft/s)		3.5	3.5			
Percent Blockage		1	3			
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	453				1089	461
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	453				1089	461
tC, single (s)	4.1				6.5	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	100				0	66
cM capacity (veh/h)	1118				221	590

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	597	453	440
Volume Left	0	0	239
Volume Right	0	0	201
cSH	1700	1700	310
Volume to Capacity	0.35	0.27	1.42
Queue Length 95th (ft)	0	0	584
Control Delay (s)	0.0	0.0	239.2
Lane LOS			F
Approach Delay (s)	0.0	0.0	239.2
Approach LOS			F

Intersection Summary			
Average Delay	70.6		
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	238	399	684	275	501	167
v/c Ratio	0.73	0.46	1.36	0.90	1.28	0.54
Control Delay	46.0	26.5	201.6	66.4	177.0	36.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	26.5	201.6	66.4	177.0	36.9
Queue Length 50th (ft)	125	94	~516	151	~365	83
Queue Length 95th (ft)	#214	130	#704	#289	#521	140
Internal Link Dist (ft)		831	391		521	
Turn Bay Length (ft)	340			350		160
Base Capacity (vph)	327	861	504	304	390	312
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.46	1.36	0.90	1.28	0.54

Intersection Summary

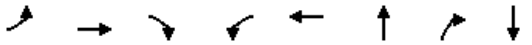
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	280	63	0	602	242	0	0	0	241	190	144
Future Volume (vph)	205	280	63	0	602	242	0	0	0	241	190	144
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	10	10	10	10	10	12	12	12	11	11	11
Total Lost time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Util. Factor	1.00	0.95			1.00	1.00					1.00	1.00
Frt	1.00	0.97			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.97	1.00
Satd. Flow (prot)	1341	2673			1565	1141					1465	1277
Flt Permitted	0.95	1.00			1.00	1.00					0.97	1.00
Satd. Flow (perm)	1341	2673			1565	1141					1465	1277
Peak-hour factor, PHF	0.86	0.86	0.86	0.88	0.88	0.88	0.92	0.92	0.92	0.86	0.86	0.86
Adj. Flow (vph)	238	326	73	0	684	275	0	0	0	280	221	167
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	238	399	0	0	684	275	0	0	0	0	501	167
Heavy Vehicles (%)	9%	3%	43%	0%	2%	4%	0%	0%	0%	4%	17%	10%
Parking (#/hr)						5						
Turn Type	Prot	NA			NA	Over				Split	NA	Over
Protected Phases	5	2			6	4				4	4	5
Permitted Phases												
Actuated Green, G (s)	22.0	29.0			29.0	24.0					24.0	22.0
Effective Green, g (s)	22.0	29.0			29.0	24.0					24.0	22.0
Actuated g/C Ratio	0.24	0.32			0.32	0.27					0.27	0.24
Clearance Time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Grp Cap (vph)	327	861			504	304					390	312
v/s Ratio Prot	c0.18	0.15			c0.44	0.24					c0.34	0.13
v/s Ratio Perm												
v/c Ratio	0.73	0.46			1.36	0.90					1.28	0.54
Uniform Delay, d1	31.2	24.3			30.5	31.9					33.0	29.6
Progression Factor	1.00	1.00			1.00	1.00					1.00	1.00
Incremental Delay, d2	13.3	1.8			173.3	32.1					146.3	6.4
Delay (s)	44.5	26.1			203.8	64.0					179.3	36.0
Level of Service	D	C			F	E					F	D
Approach Delay (s)		33.0			163.7			0.0			143.5	
Approach LOS		C			F			A			F	

Intersection Summary			
HCM 2000 Control Delay	121.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.15		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	123	274	73	225	460	219	92	628
v/c Ratio	1.27	0.93	0.33	1.55	0.66	0.87	0.12	1.26
Control Delay	217.0	72.9	34.2	310.1	35.2	58.6	9.2	158.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	217.0	72.9	34.2	310.1	35.2	58.6	9.2	158.0
Queue Length 50th (ft)	~89	153	35	~182	123	112	22	~452
Queue Length 95th (ft)	#198	#302	76	#323	176	#250	45	#625
Internal Link Dist (ft)		1473			937	495		931
Turn Bay Length (ft)	200		200	240			140	
Base Capacity (vph)	97	296	223	145	700	253	737	500
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.27	0.93	0.33	1.55	0.66	0.87	0.12	1.26

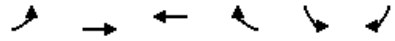
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	113	252	67	214	432	5	107	97	86	28	350	169
Future Volume (vph)	113	252	67	214	432	5	107	97	86	28	350	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	10	10	10	10	12	12	11	12	14	12
Total Lost time (s)	9.0	9.0	9.0	9.0	9.0			6.0	9.0		6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.80	1.00	1.00			1.00	1.00		0.91	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			0.96	1.00		0.98	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.97	1.00		1.00	
Satd. Flow (prot)	1253	1333	1007	1307	2744			1495	1277		1281	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.41	1.00		0.98	
Satd. Flow (perm)	1253	1333	1007	1307	2744			634	1277		1252	
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.93	0.93	0.93	0.87	0.87	0.87
Adj. Flow (vph)	123	274	73	225	455	5	115	104	92	32	402	194
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	123	274	73	225	460	0	0	219	92	0	628	0
Confl. Peds. (#/hr)			81			114	166		357	357		166
Confl. Bikes (#/hr)						20			17			6
Heavy Vehicles (%)	21%	24%	8%	16%	10%	0%	5%	9%	10%	4%	4%	13%
Parking (#/hr)											4	
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	pt+ov	Perm	NA	
Protected Phases	5	2		1	6			4	1 4		8	
Permitted Phases			2				4			8		
Actuated Green, G (s)	7.0	20.0	20.0	10.0	23.0			36.0	52.0		36.0	
Effective Green, g (s)	7.0	20.0	20.0	10.0	23.0			36.0	46.0		36.0	
Actuated g/C Ratio	0.08	0.22	0.22	0.11	0.26			0.40	0.51		0.40	
Clearance Time (s)	9.0	9.0	9.0	9.0	9.0			6.0			6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0			2.0			2.0	
Lane Grp Cap (vph)	97	296	223	145	701			253	652		500	
v/s Ratio Prot	0.10	c0.21		c0.17	c0.17				0.07			
v/s Ratio Perm			0.07					0.35			c0.50	
v/c Ratio	1.27	0.93	0.33	1.55	0.66			0.87	0.14		1.26	
Uniform Delay, d1	41.5	34.3	29.4	40.0	30.0			24.8	11.6		27.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	179.6	36.3	3.9	279.3	4.8			30.5	0.0		130.8	
Delay (s)	221.1	70.6	33.2	319.3	34.7			55.3	11.6		157.8	
Level of Service	F	E	C	F	C			E	B		F	
Approach Delay (s)		104.2			128.2			42.3			157.8	
Approach LOS		F			F			D			F	

Intersection Summary			
HCM 2000 Control Delay	118.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	108.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	192	561	501	85	0	0
Future Volume (Veh/h)	192	561	501	85	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.92	0.92
Hourly flow rate (vph)	206	603	539	91	0	0
Pedestrians					121	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	751				1720	706
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	751				1720	706
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	76				100	100
cM capacity (veh/h)	863				76	440

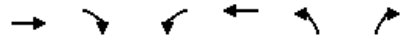
Direction, Lane #	EB 1	WB 1
Volume Total	809	630
Volume Left	206	0
Volume Right	0	91
cSH	863	1700
Volume to Capacity	0.24	0.37
Queue Length 95th (ft)	23	0
Control Delay (s)	5.6	0.0
Lane LOS	A	
Approach Delay (s)	5.6	0.0
Approach LOS		

Intersection Summary			
Average Delay	3.1		
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	502	243	29	430	0	0
Future Volume (Veh/h)	502	243	29	430	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.94	0.94	0.95	0.95	0.92	0.92
Hourly flow rate (vph)	534	259	31	453	0	0
Pedestrians					86	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			879		1264	750
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			879		1264	750
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			96		100	100
cM capacity (veh/h)			777		181	415

Direction, Lane #	EB 1	WB 1
Volume Total	793	484
Volume Left	0	31
Volume Right	259	0
cSH	1700	777
Volume to Capacity	0.47	0.04
Queue Length 95th (ft)	0	3
Control Delay (s)	0.0	1.1
Lane LOS		A
Approach Delay (s)	0.0	1.1
Approach LOS		

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	513	41	124	369	21	280
Future Volume (Veh/h)	513	41	124	369	21	280
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.95	0.95	0.86	0.86	0.82	0.82
Hourly flow rate (vph)	540	43	144	429	26	341
Pedestrians	34			12	82	
Lane Width (ft)	11.0			11.0	12.0	
Walking Speed (ft/s)	3.5			3.5	3.5	
Percent Blockage	3			1	8	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			665		1394	656
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			665		1394	656
tC, single (s)			4.1		6.5	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			83		77	19
cM capacity (veh/h)			848		112	422

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	583	573	367
Volume Left	0	144	26
Volume Right	43	0	341
cSH	1700	848	353
Volume to Capacity	0.34	0.17	1.04
Queue Length 95th (ft)	0	15	316
Control Delay (s)	0.0	4.3	93.9
Lane LOS		A	F
Approach Delay (s)	0.0	4.3	93.9
Approach LOS			F

Intersection Summary			
Average Delay	24.2		
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	52	3	191	0	118	0	368	195	21	138	0
Future Volume (Veh/h)	5	52	3	191	0	118	0	368	195	21	138	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	5	57	3	208	0	128	0	400	212	23	150	0
Pedestrians		18			55			18			33	
Lane Width (ft)		16.0			12.0			10.0			11.0	
Walking Speed (ft/s)		3.5			3.5			3.5			3.5	
Percent Blockage		2			5			1			3	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)								532				
pX, platoon unblocked	0.79	0.79		0.79	0.79	0.79				0.79		
vC, conflicting volume	881	881	186	806	775	594	168			667		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	721	721	186	628	588	360	168			452		
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 %	97	78	100	8	100	75	100			97		
cM capacity (veh/h)	179	255	830	226	304	504	1389			843		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	65	336	612	173
Volume Left	5	208	0	23
Volume Right	3	128	212	0
cSH	255	286	1700	843
Volume to Capacity	0.26	1.17	0.36	0.03
Queue Length 95th (ft)	25	369	0	2
Control Delay (s)	23.9	147.0	0.0	1.5
Lane LOS	C	F		A
Approach Delay (s)	23.9	147.0	0.0	1.5
Approach LOS	C	F		

Intersection Summary				
Average Delay		43.2		
Intersection Capacity Utilization		70.4%	ICU Level of Service	C
Analysis Period (min)		15		

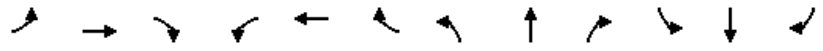
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	308	585	101	480	29	277
v/c Ratio	0.72	1.25	0.30	0.69	0.14	0.44
Control Delay	33.0	157.0	11.1	14.6	18.3	21.2
Queue Delay	0.7	0.4	2.2	5.4	0.0	0.1
Total Delay	33.7	157.4	13.4	20.0	18.3	21.4
Queue Length 50th (ft)	141	~420	17	80	10	109
Queue Length 95th (ft)	231	#581	m27	m134	22	132
Internal Link Dist (ft)	303	140		95		452
Turn Bay Length (ft)			45		95	
Base Capacity (vph)	429	467	332	696	204	630
Starvation Cap Reductn	0	0	137	157	0	0
Spillback Cap Reductn	19	21	0	0	0	36
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.75	1.31	0.52	0.89	0.14	0.47

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	161	75	9	325	169	94	431	16	21	161	38
Future Volume (vph)	29	161	75	9	325	169	94	431	16	21	161	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	10	10	10	10	10	12	11	11	11	11
Total Lost time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.95			0.87		1.00	0.99		1.00	0.97	
Flpb, ped/bikes		0.99			1.00		0.91	1.00		0.87	1.00	
Frt		0.96			0.95		1.00	0.99		1.00	0.97	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1121			1115		1358	1649		1369	1494	
Flt Permitted		0.90			0.99		0.55	1.00		0.34	1.00	
Satd. Flow (perm)		1017			1107		788	1649		484	1494	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.93	0.93	0.93	0.72	0.72	0.72
Adj. Flow (vph)	34	187	87	10	378	197	101	463	17	29	224	53
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	308	0	0	585	0	101	480	0	29	277	0
Confl. Peds. (#/hr)	233		121	121		233	88		208	208		88
Confl. Bikes (#/hr)			11			162			17			1
Heavy Vehicles (%)	4%	8%	4%	0%	3%	1%	2%	2%	0%	0%	4%	6%
Bus Blockages (#/hr)	0	3	0	0	3	0	0	0	0	0	0	0
Parking (#/hr)		12			5							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		38.0			38.0		38.0	38.0		38.0	38.0	
Effective Green, g (s)		38.0			38.0		38.0	38.0		38.0	38.0	
Actuated g/C Ratio		0.42			0.42		0.42	0.42		0.42	0.42	
Clearance Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)		429			467		332	696		204	630	
v/s Ratio Prot								c0.29			0.19	
v/s Ratio Perm		0.30			c0.53		0.13			0.06		
v/c Ratio		0.72			1.25		0.30	0.69		0.14	0.44	
Uniform Delay, d1		21.6			26.0		17.2	21.2		16.0	18.4	
Progression Factor		1.00			1.00		0.52	0.48		1.00	1.00	
Incremental Delay, d2		9.9			130.4		1.7	4.0		1.5	2.2	
Delay (s)		31.5			156.4		10.7	14.2		17.4	20.7	
Level of Service		C			F		B	B		B	C	
Approach Delay (s)		31.5			156.4			13.6			20.4	
Approach LOS		C			F			B			C	

Intersection Summary			
HCM 2000 Control Delay	64.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	100.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

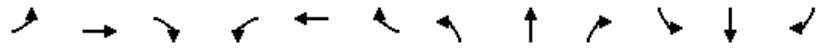
Lane Group	EBL	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	80	292	536	77	488	27	277
v/c Ratio	0.30	0.57	1.05	0.25	0.73	0.13	0.47
Control Delay	21.0	24.4	80.9	19.6	29.4	10.4	13.3
Queue Delay	1.2	0.0	22.0	0.0	0.8	0.0	1.5
Total Delay	22.3	24.4	102.9	19.6	30.2	10.4	14.7
Queue Length 50th (ft)	29	118	~333	28	225	5	58
Queue Length 95th (ft)	66	203	#476	61	348	m11	m75
Internal Link Dist (ft)		813	207		330		95
Turn Bay Length (ft)	25			210		45	
Base Capacity (vph)	270	511	511	306	670	211	584
Starvation Cap Reductn	0	0	0	0	0	0	157
Spillback Cap Reductn	81	0	154	0	44	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.57	1.50	0.25	0.78	0.13	0.65

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

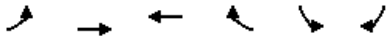
m Volume for 95th percentile queue is metered by upstream signal.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	224	39	30	376	44	74	426	42	22	156	68
Future Volume (vph)	72	224	39	30	376	44	74	426	42	22	156	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	15	10	15	10	10	10	10	12	11	11	11	11
Total Lost time (s)	7.0	7.0			7.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.95			0.98		1.00	0.98		1.00	0.91	
Flpb, ped/bikes	0.95	1.00			0.99		0.83	1.00		0.92	1.00	
Frt	1.00	0.98			0.99		1.00	0.99		1.00	0.95	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1647	1194			1251		1253	1588		1453	1384	
Flt Permitted	0.37	1.00			0.96		0.55	1.00		0.33	1.00	
Satd. Flow (perm)	640	1194			1204		727	1588		501	1384	
Peak-hour factor, PHF	0.90	0.90	0.90	0.84	0.84	0.84	0.96	0.96	0.96	0.81	0.81	0.81
Adj. Flow (vph)	80	249	43	36	448	52	77	444	44	27	193	84
RTOR Reduction (vph)	0	7	0	0	4	0	0	0	0	0	0	0
Lane Group Flow (vph)	80	285	0	0	532	0	77	488	0	27	277	0
Confl. Peds. (#/hr)	109		267	267		109	177		124	124		177
Confl. Bikes (#/hr)			15			58			29			6
Heavy Vehicles (%)	3%	3%	3%	0%	3%	0%	0%	3%	15%	0%	6%	0%
Bus Blockages (#/hr)	0	9	0	0	9	0	0	0	0	0	0	0
Parking (#/hr)		8			5							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)	38.0	38.0			38.0		38.0	38.0		38.0	38.0	
Effective Green, g (s)	38.0	38.0			38.0		38.0	38.0		38.0	38.0	
Actuated g/C Ratio	0.42	0.42			0.42		0.42	0.42		0.42	0.42	
Clearance Time (s)	7.0	7.0			7.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	2.0	2.0			2.0		2.0	2.0		2.0	2.0	
Lane Grp Cap (vph)	270	504			508		306	670		211	584	
v/s Ratio Prot		0.24						c0.31			0.20	
v/s Ratio Perm	0.12				c0.44		0.11			0.05		
v/c Ratio	0.30	0.57			1.05		0.25	0.73		0.13	0.47	
Uniform Delay, d1	17.2	19.7			26.0		16.8	21.7		15.9	18.8	
Progression Factor	1.00	1.00			1.00		1.00	1.00		0.56	0.56	
Incremental Delay, d2	2.8	4.5			52.8		2.0	6.8		1.1	2.3	
Delay (s)	20.0	24.3			78.8		18.8	28.5		10.0	12.9	
Level of Service	B	C			E		B	C		A	B	
Approach Delay (s)		23.3			78.8			27.2			12.6	
Approach LOS		C			E			C			B	

Intersection Summary			
HCM 2000 Control Delay	39.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	120.0%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	6	529	42	2	48	52
Future Volume (Veh/h)	6	529	42	2	48	52
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	575	46	2	52	57
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			351			
pX, platoon unblocked						
vC, conflicting volume	48				636	47
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	48				636	47
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				88	94
cM capacity (veh/h)	1572				443	1028

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	582	48	109
Volume Left	7	0	52
Volume Right	0	2	57
cSH	1572	1700	631
Volume to Capacity	0.00	0.03	0.17
Queue Length 95th (ft)	0	0	16
Control Delay (s)	0.1	0.0	11.9
Lane LOS	A		B
Approach Delay (s)	0.1	0.0	11.9
Approach LOS			B

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	192	360	33	202	433	82	102	524	118	7	484	221
v/c Ratio	1.02	0.85	0.28	0.90	0.92	0.94	0.71	1.24	0.60	0.07	1.14	1.36
Control Delay	111.2	51.7	43.8	77.8	57.5	127.0	67.1	157.5	48.9	40.0	120.3	228.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	111.2	51.7	43.8	77.8	57.5	127.0	67.1	157.5	48.9	40.0	120.3	228.3
Queue Length 50th (ft)	~113	194	18	114	237	47	57	~373	63	4	~353	~166
Queue Length 95th (ft)	#248	#351	47	#208	#362	#122	#126	#549	117	16	#474	#270
Internal Link Dist (ft)		410			550			357			641	
Turn Bay Length (ft)	100		75	285		200	250		250	200		325
Base Capacity (vph)	189	422	129	233	472	87	154	423	205	107	426	163
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.02	0.85	0.26	0.87	0.92	0.94	0.66	1.24	0.58	0.07	1.14	1.36

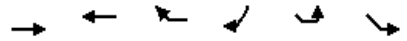
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	179	335	31	168	359	68	90	461	104	6	397	181
Future Volume (vph)	179	335	31	168	359	68	90	461	104	6	397	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	10	10	10	11	11	11	11	11	12	11	9
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1419	1492	1291	1501	1574	1124	1540	1589	1319	1388	1545	1228
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1419	1492	1291	1501	1574	1124	1540	1589	1319	1388	1545	1228
Peak-hour factor, PHF	0.93	0.93	0.93	0.83	0.83	0.83	0.88	0.88	0.88	0.82	0.82	0.82
Adj. Flow (vph)	192	360	33	202	433	82	102	524	118	7	484	221
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	192	360	33	202	433	82	102	524	118	7	484	221
Heavy Vehicles (%)	3%	7%	0%	1%	5%	19%	2%	4%	4%	17%	7%	4%
Bus Blockages (#/hr)	0	0	12	0	0	12	0	0	6	0	0	6
Turn Type	Prot	NA	Over	Prot	NA	Over	Prot	NA	Over	Prot	NA	Over
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases												
Actuated Green, G (s)	12.0	25.5	7.2	13.5	27.0	7.0	7.2	24.0	13.5	7.0	23.8	12.0
Effective Green, g (s)	12.0	25.5	7.2	13.5	27.0	7.0	7.2	24.0	13.5	7.0	23.8	12.0
Actuated g/C Ratio	0.13	0.28	0.08	0.15	0.30	0.08	0.08	0.27	0.15	0.08	0.26	0.13
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	0.2	2.0	2.0	0.2	2.0	2.0	0.2	2.0	2.0	0.2	2.0
Lane Grp Cap (vph)	189	422	103	225	472	87	123	423	197	107	408	163
v/s Ratio Prot	0.14	0.24	0.03	0.13	c0.28	c0.07	0.07	c0.33	0.09	0.01	0.31	c0.18
v/s Ratio Perm												
v/c Ratio	1.02	0.85	0.32	0.90	0.92	0.94	0.83	1.24	0.60	0.07	1.19	1.36
Uniform Delay, d1	39.0	30.5	39.1	37.6	30.4	41.3	40.8	33.0	35.7	38.5	33.1	39.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	69.7	19.2	0.7	32.9	25.2	76.5	33.5	126.2	3.2	0.1	106.0	194.7
Delay (s)	108.7	49.7	39.7	70.4	55.6	117.8	74.3	159.2	39.0	38.6	139.1	233.7
Level of Service	F	D	D	E	E	F	E	F	D	D	F	F
Approach Delay (s)		68.5			66.9			128.5			167.5	
Approach LOS		E			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	109.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	80.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	WBT	WBR	SBR	SEL2	SEL
Lane Group Flow (vph)	730	280	95	227	351	395
v/c Ratio	1.16	0.48	0.66	0.59	1.47	1.70
Control Delay	118.9	25.4	61.1	12.7	263.8	358.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	118.9	25.4	61.1	12.7	263.8	358.9
Queue Length 50th (ft)	~520	124	54	3	~289	~348
Queue Length 95th (ft)	#739	200	#116	30	#386	#444
Internal Link Dist (ft)	641	1473				271
Turn Bay Length (ft)			100		100	100
Base Capacity (vph)	628	580	164	383	239	233
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.16	0.48	0.58	0.59	1.47	1.70

Intersection Summary

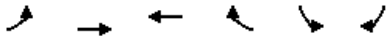
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL2	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	708	269	28	63	0	150	16	277	146	166
Future Volume (vph)	0	708	269	28	63	0	150	16	277	146	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	11	10	12	12	11	12	10	11	10
Total Lost time (s)		8.0	8.0	4.0			10.0		10.0	10.0	
Lane Util. Factor		1.00	1.00	1.00			1.00		1.00	1.00	
Frpb, ped/bikes		1.00	1.00	1.00			1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00			1.00		1.00	1.00	
Frt		1.00	1.00	0.85			0.86		1.00	0.92	
Flt Protected		1.00	1.00	1.00			1.00		0.95	0.98	
Satd. Flow (prot)		1642	1517	1287			1237		1501	1464	
Flt Permitted		1.00	1.00	1.00			1.00		0.95	0.98	
Satd. Flow (perm)		1642	1517	1287			1237		1501	1464	
Peak-hour factor, PHF	0.97	0.97	0.96	0.96	0.96	0.73	0.73	0.73	0.79	0.79	0.79
Adj. Flow (vph)	0	730	280	29	66	0	205	22	351	185	210
RTOR Reduction (vph)	0	0	0	0	0	0	186	0	0	0	0
Lane Group Flow (vph)	0	730	280	95	0	0	41	0	351	395	0
Confl. Peds. (#/hr)					99			71			
Confl. Bikes (#/hr)				18	21			10			
Heavy Vehicles (%)	0%	5%	9%	5%	2%	0%	0%	0%	1%	1%	2%
Bus Blockages (#/hr)	0	6	0	6	0	0	0	0	0	0	0
Parking (#/hr)							7				
Turn Type		NA	NA	custom			Prot		Prot	Prot	
Protected Phases		2	2 6	5			3		4	4	
Permitted Phases											
Actuated Green, G (s)		36.0	38.0	9.2			15.0		15.0	15.0	
Effective Green, g (s)		36.0	38.0	9.2			15.0		15.0	15.0	
Actuated g/C Ratio		0.38	0.40	0.10			0.16		0.16	0.16	
Clearance Time (s)		8.0		4.0			10.0		10.0	10.0	
Vehicle Extension (s)		2.0		3.0			2.0		2.0	2.0	
Lane Grp Cap (vph)		628	613	125			197		239	233	
v/s Ratio Prot		c0.44	0.18	0.07			c0.03		0.23	c0.27	
v/s Ratio Perm											
v/c Ratio		1.16	0.46	0.76			0.21		1.47	1.70	
Uniform Delay, d1		29.0	20.5	41.3			34.3		39.5	39.5	
Progression Factor		1.00	1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		89.8	2.4	23.4			0.2		232.3	330.7	
Delay (s)		118.8	22.9	64.7			34.5		271.8	370.2	
Level of Service		F	C	E			C		F	F	
Approach Delay (s)		118.8	33.5			34.5				323.9	
Approach LOS		F	C			C				F	

Intersection Summary			
HCM 2000 Control Delay	167.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	93.4%	ICU Level of Service	F
Analysis Period (min)	15		

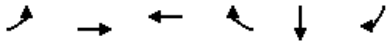
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		Y	
Traffic Volume (veh/h)	0	483	373	0	95	152
Future Volume (Veh/h)	0	483	373	0	95	152
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.84	0.84	0.93	0.93	0.90	0.90
Hourly flow rate (vph)	0	575	401	0	106	169
Pedestrians		17	56			
Lane Width (ft)		11.0	11.0			
Walking Speed (ft/s)		3.5	3.5			
Percent Blockage		1	5			
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	401				1032	418
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	401				1032	418
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				57	73
cM capacity (veh/h)	1169				247	628

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	575	401	275
Volume Left	0	0	106
Volume Right	0	0	169
cSH	1700	1700	394
Volume to Capacity	0.34	0.24	0.70
Queue Length 95th (ft)	0	0	129
Control Delay (s)	0.0	0.0	32.7
Lane LOS			D
Approach Delay (s)	0.0	0.0	32.7
Approach LOS			D

Intersection Summary			
Average Delay	7.2		
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	363	549	376	144	608	108
v/c Ratio	1.20	0.61	0.77	0.41	1.30	0.36
Control Delay	150.0	29.9	40.1	29.5	180.3	33.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	150.0	29.9	40.1	29.5	180.3	33.7
Queue Length 50th (ft)	~253	138	192	65	~447	52
Queue Length 95th (ft)	#422	194	#321	119	#652	101
Internal Link Dist (ft)		831	391		521	
Turn Bay Length (ft)	340			350		160
Base Capacity (vph)	303	896	491	352	467	300
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.20	0.61	0.77	0.41	1.30	0.36

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	338	458	53	0	335	128	0	0	0	479	99	103
Future Volume (vph)	338	458	53	0	335	128	0	0	0	479	99	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	10	10	10	10	10	12	12	12	11	11	11
Total Lost time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Util. Factor	1.00	0.95			1.00	1.00					1.00	1.00
Frt	1.00	0.98			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (prot)	1366	2884			1580	1175					1558	1351
Flt Permitted	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (perm)	1366	2884			1580	1175					1558	1351
Peak-hour factor, PHF	0.93	0.93	0.93	0.89	0.89	0.89	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	363	492	57	0	376	144	0	0	0	504	104	108
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	363	549	0	0	376	144	0	0	0	0	608	108
Heavy Vehicles (%)	7%	1%	25%	0%	1%	1%	0%	0%	0%	1%	6%	4%
Parking (#/hr)						5						
Turn Type	Prot	NA			NA	Over				Split	NA	Over
Protected Phases	5	2			6	4				4	4	5
Permitted Phases												
Actuated Green, G (s)	20.0	28.0			28.0	27.0					27.0	20.0
Effective Green, g (s)	20.0	28.0			28.0	27.0					27.0	20.0
Actuated g/C Ratio	0.22	0.31			0.31	0.30					0.30	0.22
Clearance Time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Grp Cap (vph)	303	897			491	352					467	300
v/s Ratio Prot	c0.27	0.19			c0.24	0.12					c0.39	0.08
v/s Ratio Perm												
v/c Ratio	1.20	0.61			0.77	0.41					1.30	0.36
Uniform Delay, d1	35.0	26.4			28.0	25.1					31.5	29.6
Progression Factor	1.00	1.00			1.00	1.00					1.00	1.00
Incremental Delay, d2	116.6	3.1			10.9	3.5					150.8	3.3
Delay (s)	151.6	29.5			38.9	28.6					182.3	32.9
Level of Service	F	C			D	C					F	C
Approach Delay (s)		78.1			36.1			0.0			159.8	
Approach LOS		E			D			A			F	

Intersection Summary			
HCM 2000 Control Delay	95.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	85.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	383	451	158	91	414	416	152	326
v/c Ratio	1.48	0.99	0.52	0.58	0.66	1.02	0.22	0.86
Control Delay	265.4	74.0	34.9	52.6	37.7	81.8	12.6	51.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	265.4	74.0	34.9	52.6	37.7	81.8	12.6	51.8
Queue Length 50th (ft)	~303	255	75	50	113	~243	45	171
Queue Length 95th (ft)	#476	#483	146	84	142	#431	75	#290
Internal Link Dist (ft)		1473			937	495		931
Turn Bay Length (ft)	200		200	240			140	
Base Capacity (vph)	259	457	306	206	629	408	735	379
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.48	0.99	0.52	0.44	0.66	1.02	0.21	0.86

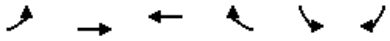
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	345	406	142	73	322	9	89	285	137	22	179	73
Future Volume (vph)	345	406	142	73	322	9	89	285	137	22	179	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	10	10	10	10	12	12	11	12	14	12
Total Lost time (s)	9.0	9.0	9.0	9.0	9.0			6.0	9.0		6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.80	1.00	0.99			1.00	1.00		0.92	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			0.97	1.00		0.98	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.99	1.00		1.00	
Satd. Flow (prot)	1458	1574	1060	1430	2834			1617	1351		1304	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.75	1.00		0.87	
Satd. Flow (perm)	1458	1574	1060	1430	2834			1224	1351		1138	
Peak-hour factor, PHF	0.90	0.90	0.90	0.80	0.80	0.80	0.90	0.90	0.90	0.84	0.84	0.84
Adj. Flow (vph)	383	451	158	91	402	11	99	317	152	26	213	87
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	383	451	158	91	414	0	0	416	152	0	326	0
Confl. Peds. (#/hr)			74			86	162		300	300		162
Confl. Bikes (#/hr)			19			1			13			2
Heavy Vehicles (%)	4%	5%	2%	6%	6%	0%	1%	1%	4%	5%	4%	16%
Parking (#/hr)											4	
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	pt+ov	Perm	NA	
Protected Phases	5	2		1	6			4	1 4		8	
Permitted Phases			2				4			8		
Actuated Green, G (s)	16.0	26.2	26.2	9.8	20.0			30.0	45.8		30.0	
Effective Green, g (s)	16.0	26.2	26.2	9.8	20.0			30.0	39.8		30.0	
Actuated g/C Ratio	0.18	0.29	0.29	0.11	0.22			0.33	0.44		0.33	
Clearance Time (s)	9.0	9.0	9.0	9.0	9.0			6.0			6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0			2.0			2.0	
Lane Grp Cap (vph)	259	458	308	155	629			408	597		379	
v/s Ratio Prot	c0.26	c0.29		0.06	0.15				0.11			
v/s Ratio Perm			0.15					c0.34			0.29	
v/c Ratio	1.48	0.98	0.51	0.59	0.66			1.02	0.25		0.86	
Uniform Delay, d1	37.0	31.7	26.6	38.2	31.9			30.0	15.8		28.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	235.1	38.4	6.0	3.6	5.3			49.6	0.1		21.7	
Delay (s)	272.1	70.1	32.6	41.8	37.2			79.6	15.9		49.8	
Level of Service	F	E	C	D	D			E	B		D	
Approach Delay (s)		142.1			38.0			62.6			49.8	
Approach LOS		F			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	88.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	104.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	311	483	493	32	0	0
Future Volume (Veh/h)	311	483	493	32	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.86	0.86	0.92	0.92
Hourly flow rate (vph)	327	508	573	37	0	0
Pedestrians					112	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	722				1866	704
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	722				1866	704
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	63				100	100
cM capacity (veh/h)	875				51	441

Direction, Lane #	EB 1	WB 1
Volume Total	835	610
Volume Left	327	0
Volume Right	0	37
cSH	875	1700
Volume to Capacity	0.37	0.36
Queue Length 95th (ft)	44	0
Control Delay (s)	8.3	0.0
Lane LOS	A	
Approach Delay (s)	8.3	0.0
Approach LOS		

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	476	102	12	373	0	0
Future Volume (Veh/h)	476	102	12	373	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.84	0.84	0.93	0.93	0.92	0.92
Hourly flow rate (vph)	567	121	13	401	0	0
Pedestrians					112	
Lane Width (ft)					0.0	
Walking Speed (ft/s)					3.5	
Percent Blockage					0	
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			800		1166	740
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			800		1166	740
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		100	100
cM capacity (veh/h)			832		213	420

Direction, Lane #	EB 1	WB 1
Volume Total	688	414
Volume Left	0	13
Volume Right	121	0
cSH	1700	832
Volume to Capacity	0.40	0.02
Queue Length 95th (ft)	0	1
Control Delay (s)	0.0	0.5
Lane LOS		A
Approach Delay (s)	0.0	0.5
Approach LOS		

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	39.2%	ICU Level of Service	A
Analysis Period (min)	15		

SimTrafficTraffic Modeling Results

2020 Existing Conditions
2020 Baseline Conditions
2020 Build Condition
2025 Future Condition

SimTraffic - 2020 Existing Conditions

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	8:00	8:00	8:00	8:00	8:00	8:00
End Time	9:15	9:15	9:15	9:15	9:15	9:15
Total Time (min)	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	7267	7238	7212	7452	7167	7268
Vehs Exited	7155	7152	7092	7324	7154	7172
Starting Vehs	192	216	235	272	275	238
Ending Vehs	304	302	355	400	288	330
Travel Distance (mi)	2310	2319	2290	2361	2279	2312
Travel Time (hr)	393.8	505.6	494.6	471.1	406.9	454.4
Total Delay (hr)	309.0	420.4	410.7	384.6	323.3	369.6
Total Stops	8028	8129	8025	8632	7852	8134
Fuel Used (gal)	158.0	182.8	178.3	177.5	159.7	171.3

Interval #0 Information Seeding

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	8:15
End Time	9:15
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	7267	7238	7212	7452	7167	7268
Vehs Exited	7155	7152	7092	7324	7154	7172
Starting Vehs	192	216	235	272	275	238
Ending Vehs	304	302	355	400	288	330
Travel Distance (mi)	2310	2319	2290	2361	2279	2312
Travel Time (hr)	393.8	505.6	494.6	471.1	406.9	454.4
Total Delay (hr)	309.0	420.4	410.7	384.6	323.3	369.6
Total Stops	8028	8129	8025	8632	7852	8134
Fuel Used (gal)	158.0	182.8	178.3	177.5	159.7	171.3

1: Cardinal Medeiros Ave & Cambridge Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Delay (hr)	3.2	1.4	0.1	0.1	0.0	0.0	1.2	6.0
Denied Del/Veh (s)	20.8	25.0	1.9	1.3	13.2	0.0	29.7	15.9
Total Delay (hr)	4.2	1.3	0.9	0.4	1.3	0.9	22.0	30.9
Total Del/Veh (s)	26.7	23.4	21.8	6.4	456.2	42.3	531.5	81.1
Stop Delay (hr)	2.9	1.0	0.8	0.3	1.3	0.8	22.4	29.5
Stop Del/Veh (s)	18.8	17.8	20.6	4.4	460.7	40.6	540.3	77.5

2: Cardinal Medeiros Ave & Bristol Street/"Little" Binney Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.2	0.2	0.0	0.0	0.0	0.2	0.2	0.0	0.0	0.1
Total Delay (hr)	0.1	0.5	0.0	0.2	0.0	0.0	0.2	0.2	0.1	0.2	1.7
Total Del/Veh (s)	18.8	21.4	12.7	15.6	0.4	8.3	4.1	3.2	8.5	2.6	5.7
Stop Delay (hr)	0.1	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	1.0
Stop Del/Veh (s)	16.6	17.8	11.9	13.3	0.1	7.7	0.4	0.5	5.8	0.9	3.3

3: Portland Street/Cardinal Medeiros Ave & Hampshire Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	1.7	14.4	10.4	0.1	2.1	1.2	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	201.7	211.1	229.1	92.6	65.8	61.3	0.0	0.1	0.0	0.3	0.0	0.0
Total Delay (hr)	0.9	6.6	4.6	0.2	1.5	0.8	0.2	0.9	0.1	0.2	1.5	0.1
Total Del/Veh (s)	123.7	106.4	113.5	152.5	46.4	39.7	23.1	13.2	15.9	34.4	21.6	25.5
Stop Delay (hr)	0.9	6.3	4.6	0.2	1.4	0.8	0.2	0.8	0.1	0.2	1.2	0.1
Stop Del/Veh (s)	121.0	101.4	111.8	150.3	43.1	39.2	21.1	10.9	15.4	30.7	17.6	23.4

3: Portland Street/Cardinal Medeiros Ave & Hampshire Street Performance by movement

Movement	All
Denied Delay (hr)	29.9
Denied Del/Veh (s)	88.3
Total Delay (hr)	17.6
Total Del/Veh (s)	54.0
Stop Delay (hr)	16.6
Stop Del/Veh (s)	50.9

4: Portland Street & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.1	0.6	0.1	0.1	0.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	5.7	7.7	5.9	6.0	8.3	8.2	3.9	0.4	0.4	0.0	0.0	0.0
Total Delay (hr)	3.2	9.4	1.2	0.4	2.1	0.4	0.4	1.0	0.3	0.2	1.2	0.2
Total Del/Veh (s)	121.7	115.5	113.7	47.3	33.6	31.6	37.4	22.8	24.9	20.7	15.4	15.9
Stop Delay (hr)	3.1	8.9	1.2	0.4	1.8	0.4	0.4	0.8	0.3	0.2	1.0	0.2
Stop Del/Veh (s)	116.8	109.6	110.4	44.6	29.4	29.8	34.6	18.5	22.9	18.2	12.5	14.9

4: Portland Street & Broadway Performance by movement

Movement	All
Denied Delay (hr)	1.6
Denied Del/Veh (s)	4.2
Total Delay (hr)	20.1
Total Del/Veh (s)	54.1
Stop Delay (hr)	18.6
Stop Del/Veh (s)	50.1

6: Galileo Galilei Way & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.2	0.3	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	1.2	0.9
Denied Del/Veh (s)	4.9	3.3	5.8	3.7	0.6	3.7	3.5	0.6	0.4	0.0	12.3	16.5
Total Delay (hr)	3.1	4.1	0.7	0.9	2.2	0.5	1.2	1.9	2.6	0.2	3.7	14.0
Total Del/Veh (s)	77.6	45.7	58.7	52.4	34.2	48.0	61.8	24.9	90.6	53.1	39.5	257.6
Stop Delay (hr)	2.8	3.4	0.7	0.8	1.8	0.5	1.1	1.5	2.5	0.2	3.0	13.9
Stop Del/Veh (s)	71.0	38.2	53.9	49.3	29.1	46.5	58.0	20.4	88.1	47.6	31.7	255.7

6: Galileo Galilei Way & Broadway Performance by movement

Movement	All
Denied Delay (hr)	2.9
Denied Del/Veh (s)	5.8
Total Delay (hr)	35.0
Total Del/Veh (s)	69.1
Stop Delay (hr)	32.3
Stop Del/Veh (s)	63.8

7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street Performance by movement

Movement	EBT	WBT	WBR	WBR2	SBR	SBR2	SEL2	SEL	SET	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.4
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	5.2	6.5	0.4	0.1	0.0	0.0	0.8
Total Delay (hr)	0.8	5.0	2.8	0.9	5.8	1.1	1.4	1.8	0.1	0.2	19.8
Total Del/Veh (s)	6.0	43.2	73.2	72.0	105.2	110.0	57.9	60.5	1.3	83.3	41.6
Stop Delay (hr)	0.4	4.2	2.6	0.8	5.7	1.1	1.3	1.7	0.0	0.2	17.9
Stop Del/Veh (s)	3.4	35.9	67.2	65.9	102.7	107.5	53.3	56.6	0.5	81.0	37.6

8: Cambridge Street & Lambert Street Performance by movement

Movement	EBT	WBT	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	62.0	49.5	111.6
Denied Del/Veh (s)	0.0	0.0	1321.4	1229.7	335.0
Total Delay (hr)	0.3	0.7	2.4	2.0	5.4
Total Del/Veh (s)	2.4	6.8	132.9	140.5	19.5
Stop Delay (hr)	0.0	0.6	2.4	2.1	5.1
Stop Del/Veh (s)	0.1	5.5	136.1	144.8	18.3

9: Main Street/Third Street & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.2	0.1	0.1	0.1	0.2	0.0	0.0	0.1	0.8
Denied Del/Veh (s)	3.4	1.2	3.6	1.3	3.6	0.7	0.7	3.6	1.9
Total Delay (hr)	1.3	2.0	0.4	3.3	1.4	1.6	0.6	0.7	11.3
Total Del/Veh (s)	27.8	24.1	22.2	28.9	28.0	32.2	29.8	27.4	27.8
Stop Delay (hr)	1.1	1.6	0.4	2.6	1.2	1.4	0.5	0.6	9.5
Stop Del/Veh (s)	24.6	19.6	20.5	23.0	25.2	27.7	24.2	24.2	23.4

10: Third Street & Binney Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.3	0.3	0.4	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.0	0.0	3.3	0.2	0.3	13.2	14.5	20.9	0.5	0.5	0.6
Total Delay (hr)	1.9	1.9	0.5	2.8	2.7	0.0	3.6	3.4	1.3	0.8	8.0	4.7
Total Del/Veh (s)	67.9	16.1	35.0	67.3	27.0	31.7	162.2	147.6	70.9	109.0	110.6	114.5
Stop Delay (hr)	1.8	1.5	0.5	2.6	2.2	0.0	3.6	3.2	1.2	0.8	7.3	4.4
Stop Del/Veh (s)	63.3	13.1	31.7	63.1	22.6	29.7	158.6	142.4	67.8	101.1	100.3	106.8

10: Third Street & Binney Street Performance by movement

Movement	All
Denied Delay (hr)	1.2
Denied Del/Veh (s)	2.5
Total Delay (hr)	31.7
Total Del/Veh (s)	65.3
Stop Delay (hr)	29.2
Stop Del/Veh (s)	60.1

100: Cambridge Street & Warren Street Performance by movement

Movement	EBL	EBT	WBT	WBR	All
Denied Delay (hr)	0.0	0.0	4.0	0.1	4.2
Denied Del/Veh (s)	0.3	0.3	38.0	7.1	13.2
Total Delay (hr)	0.4	0.4	6.7	1.2	8.6
Total Del/Veh (s)	7.2	2.7	63.3	58.4	27.1
Stop Delay (hr)	0.3	0.1	5.9	1.1	7.5
Stop Del/Veh (s)	6.0	1.0	56.0	53.3	23.4

800: Fulkerson Street & Cambridge Street Performance by movement

Movement	EBT	EBR	WBL	WBT	All
Denied Delay (hr)	0.0	0.0	0.8	10.1	10.9
Denied Del/Veh (s)	0.0	0.0	108.1	86.7	38.7
Total Delay (hr)	0.0	0.0	0.9	14.6	15.5
Total Del/Veh (s)	0.4	0.2	132.4	130.7	56.3
Stop Delay (hr)	0.0	0.0	0.9	14.0	14.9
Stop Del/Veh (s)	0.1	0.2	128.7	126.0	54.1

Total Zone Performance

Denied Delay (hr)	169.4
Denied Del/Veh (s)	80.5
Total Delay (hr)	197.8
Total Del/Veh (s)	620.2
Stop Delay (hr)	182.1
Stop Del/Veh (s)	571.1

Intersection: 1: Cardinal Medeiros Ave & Cambridge Street

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	391	90	1083
Average Queue (ft)	273	56	670
95th Queue (ft)	471	76	1313
Link Distance (ft)	340	45	1685
Upstream Blk Time (%)	26	58	
Queuing Penalty (veh)	0	271	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Cardinal Medeiros Ave & Bristol Street/"Little" Binney

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	TR	LT
Maximum Queue (ft)	128	75	79	102
Average Queue (ft)	54	32	23	26
95th Queue (ft)	100	60	63	69
Link Distance (ft)	277	836	450	1685
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Portland Street/Cardinal Medeiros Ave & Hampshire Street

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	388	202	69	120	119	253
Average Queue (ft)	349	111	17	83	24	115
95th Queue (ft)	405	209	53	133	75	207
Link Distance (ft)	332	167		95		450
Upstream Blk Time (%)	84	21		9		
Queuing Penalty (veh)	0	0		27		
Storage Bay Dist (ft)			45		95	
Storage Blk Time (%)			1	25	0	16
Queuing Penalty (veh)			4	7	0	5

Intersection: 4: Portland Street & Broadway

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	820	276	86	235	69	130
Average Queue (ft)	463	151	27	100	26	102
95th Queue (ft)	885	274	66	186	67	145
Link Distance (ft)	858	247		374		95
Upstream Blk Time (%)	10	10				17
Queuing Penalty (veh)	0	0				75
Storage Bay Dist (ft)			210		45	
Storage Blk Time (%)				0	2	34
Queuing Penalty (veh)				0	7	13

Intersection: 6: Galileo Galilei Way & Broadway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	124	469	100	158	275	152	198	281	255	167	575	554
Average Queue (ft)	109	273	41	51	119	37	73	133	114	19	307	431
95th Queue (ft)	148	476	101	111	230	100	153	235	227	95	613	708
Link Distance (ft)		433			571			387	387		614	614
Upstream Blk Time (%)		8									4	9
Queuing Penalty (veh)		0									10	25
Storage Bay Dist (ft)	100		75	285		200	250			225		
Storage Blk Time (%)	25	35	2		2	0	0	0		0	11	
Queuing Penalty (veh)	91	66	9		2	0	0	0		0	2	

Intersection: 7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street

Movement	EB	EB	WB	WB	SB	SE	SE
Directions Served	T	T	T	TR>	R>	<	LR
Maximum Queue (ft)	141	137	483	546	494	125	355
Average Queue (ft)	48	50	190	228	250	71	119
95th Queue (ft)	114	117	466	518	673	134	282
Link Distance (ft)	614	614	1486	1486	922		836
Upstream Blk Time (%)					4		
Queuing Penalty (veh)					0		
Storage Bay Dist (ft)						100	
Storage Blk Time (%)						6	15
Queuing Penalty (veh)						7	14

Intersection: 8: Cambridge Street & Lambert Street

Movement	EB	WB	SB
Directions Served	T	T	LR
Maximum Queue (ft)	92	92	152
Average Queue (ft)	13	49	116
95th Queue (ft)	54	87	138
Link Distance (ft)	282	1	98
Upstream Blk Time (%)		56	100
Queuing Penalty (veh)		229	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Main Street/Third Street & Broadway

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	TR	T	R	LT	R
Maximum Queue (ft)	195	221	189	310	194	280	185
Average Queue (ft)	92	107	79	186	95	142	69
95th Queue (ft)	165	180	158	284	159	240	152
Link Distance (ft)		870		446		563	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	340		200		350		160
Storage Blk Time (%)		0	0	0		7	0
Queuing Penalty (veh)		1	0	0		6	1

Intersection: 10: Third Street & Binney Street

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LTR
Maximum Queue (ft)	196	160	185	250	283	231	537	165	775
Average Queue (ft)	91	73	96	132	113	101	262	68	466
95th Queue (ft)	167	139	163	234	211	176	585	183	827
Link Distance (ft)		1486	1486		978	978	525		961
Upstream Blk Time (%)							14		
Queuing Penalty (veh)							0		
Storage Bay Dist (ft)	205			240				140	
Storage Blk Time (%)	0	0		3			43	0	
Queuing Penalty (veh)	0	0		5			27	0	

Intersection: 100: Cambridge Street & Warren Street

Movement	EB	WB
Directions Served	LT	TR
Maximum Queue (ft)	82	299
Average Queue (ft)	44	277
95th Queue (ft)	79	355
Link Distance (ft)	45	282
Upstream Blk Time (%)	20	46
Queuing Penalty (veh)	138	254
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 800: Fulkerson Street & Cambridge Street

Movement	EB	WB
Directions Served	TR	LT
Maximum Queue (ft)	91	733
Average Queue (ft)	16	522
95th Queue (ft)	64	933
Link Distance (ft)	1	679
Upstream Blk Time (%)	0	44
Queuing Penalty (veh)	1	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 1298

Intersection: 3: Portland Street/Cardinal Medeiros Ave & Hampshire Street

Phase	1	2
Movement(s) Served	EBWB	NBSB
Maximum Green (s)	42.0	34.0
Minimum Green (s)	25.0	25.0
Recall	C-Max	Max
Avg. Green (s)	42.0	34.0
g/C Ratio	NA	NA
Cycles Skipped (%)	0	0
Cycles @ Minimum (%)	0	0
Cycles Maxed Out (%)	100	100
Cycles with Peds (%)	100	100

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 6: Galileo Galilei Way & Broadway

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Maximum Green (s)	8.0	31.0	7.0	33.0	13.0	26.0	12.0	31.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Recall	None	Max	None	C-Max	None	Max	None	C-Max
Avg. Green (s)	7.9	31.1	7.1	33.6	13.0	26.0	8.5	38.1
g/C Ratio	NA	NA	-0.01	NA	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	3	0	0	0	26	0
Cycles @ Minimum (%)	0	0	6	0	0	0	15	0
Cycles Maxed Out (%)	94	100	88	100	100	100	15	100
Cycles with Peds (%)	0	100	0	94	0	0	0	0

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street

Phase	1	2	3
Movement(s) Served	EBWB	EBT	SEL
Maximum Green (s)	34.0	31.0	12.0
Minimum Green (s)	20.0	16.0	11.0
Recall	C-Max	Max	Max
Avg. Green (s)	34.0	31.0	12.0
g/C Ratio	NA	NA	NA
Cycles Skipped (%)	0	0	0
Cycles @ Minimum (%)	0	0	0
Cycles Maxed Out (%)	100	100	100
Cycles with Peds (%)	91	97	50

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 10: Third Street & Binney Street

Phase	1	2	4	5	6	8
Movement(s) Served	WBL	EBT	NBTL	EBL	WBT	SBTL
Maximum Green (s)	10.0	20.0	36.0	7.0	23.0	36.0
Minimum Green (s)	6.0	20.0	25.0	6.0	20.0	25.0
Recall	None	C-Max	Max	None	C-Max	Max
Avg. Green (s)	9.6	20.8	36.0	7.0	24.6	36.0
g/C Ratio	NA	NA	NA	-0.01	NA	NA
Cycles Skipped (%)	0	0	0	5	0	0
Cycles @ Minimum (%)	0	75	0	8	0	0
Cycles Maxed Out (%)	79	100	100	79	100	100
Cycles with Peds (%)	0	90	100	0	95	98

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:15	4:15	4:15	4:15	4:15	4:15
End Time	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	7460	7520	7434	7530	7458	7479
Vehs Exited	7336	7495	7373	7458	7334	7403
Starting Vehs	233	246	205	217	197	209
Ending Vehs	357	271	266	289	321	293
Travel Distance (mi)	2403	2454	2377	2442	2416	2418
Travel Time (hr)	347.6	332.5	317.1	268.3	311.6	315.4
Total Delay (hr)	260.0	242.8	230.4	179.1	223.4	227.1
Total Stops	8859	8809	8534	8866	8465	8706
Fuel Used (gal)	150.5	149.4	142.6	134.8	142.7	144.0

Interval #0 Information Seeding

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	7460	7520	7434	7530	7458	7479
Vehs Exited	7336	7495	7373	7458	7334	7403
Starting Vehs	233	246	205	217	197	209
Ending Vehs	357	271	266	289	321	293
Travel Distance (mi)	2403	2454	2377	2442	2416	2418
Travel Time (hr)	347.6	332.5	317.1	268.3	311.6	315.4
Total Delay (hr)	260.0	242.8	230.4	179.1	223.4	227.1
Total Stops	8859	8809	8534	8866	8465	8706
Fuel Used (gal)	150.5	149.4	142.6	134.8	142.7	144.0

1: Cardinal Medeiros Ave & Cambridge Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Delay (hr)	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.4
Denied Del/Veh (s)	1.0	0.9	0.0	0.0	0.0	0.0	3.3	0.9
Total Delay (hr)	1.5	0.1	0.2	0.2	1.1	1.8	22.5	27.3
Total Del/Veh (s)	10.9	7.2	6.9	1.5	384.4	33.8	346.5	68.8
Stop Delay (hr)	0.8	0.0	0.2	0.1	1.1	1.7	23.1	27.0
Stop Del/Veh (s)	6.3	4.6	5.8	0.7	392.2	32.7	354.8	68.1

2: Cardinal Medeiros Ave & Bristol Street/"Little" Binney Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.2	0.1	0.1	2.6	0.0	1.0	0.0	0.0	0.0	0.0	0.4
Total Delay (hr)	0.0	0.2	0.0	1.4	0.0	0.5	0.8	0.3	0.0	0.1	3.3
Total Del/Veh (s)	15.9	20.6	10.1	36.1	0.5	26.4	6.9	5.3	8.7	1.8	12.0
Stop Delay (hr)	0.0	0.2	0.0	1.3	0.0	0.5	0.4	0.1	0.0	0.0	2.6
Stop Del/Veh (s)	13.8	17.2	9.9	33.5	0.5	25.2	3.6	2.9	6.8	0.8	9.4

3: Portland Street/Cardinal Medeiros Ave & Hampshire Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	2.2	14.1	7.8	0.1	4.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	337.3	356.2	338.3	47.6	54.4	51.9	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay (hr)	1.5	6.5	3.6	0.1	3.0	1.8	0.5	1.5	0.1	0.1	0.6	0.1
Total Del/Veh (s)	254.9	186.3	181.9	63.4	42.7	40.2	17.2	12.8	11.8	31.3	9.7	18.9
Stop Delay (hr)	1.5	6.4	3.6	0.1	2.7	1.7	0.4	1.2	0.1	0.1	0.5	0.1
Stop Del/Veh (s)	253.2	182.9	181.2	60.2	38.3	39.0	14.7	10.0	11.0	29.0	7.9	18.0

3: Portland Street/Cardinal Medeiros Ave & Hampshire Street Performance by movement

Movement	All
Denied Delay (hr)	30.7
Denied Del/Veh (s)	74.5
Total Delay (hr)	19.4
Total Del/Veh (s)	48.7
Stop Delay (hr)	18.3
Stop Del/Veh (s)	46.1

4: Portland Street & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.1	0.1	0.0	0.1	0.7	0.1	0.1	0.2	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	4.2	1.1	0.8	6.8	7.8	7.6	4.0	1.7	1.0	0.0	0.0	0.0
Total Delay (hr)	3.0	5.5	1.2	0.4	3.4	0.5	0.7	3.6	0.4	0.3	0.5	0.1
Total Del/Veh (s)	153.0	100.5	99.8	49.5	39.5	45.2	34.4	31.0	32.7	42.2	12.5	18.4
Stop Delay (hr)	2.9	5.2	1.1	0.4	3.0	0.5	0.6	2.9	0.3	0.2	0.4	0.1
Stop Del/Veh (s)	148.1	94.4	96.1	46.3	34.9	43.2	29.8	24.4	28.5	40.3	10.2	18.0

4: Portland Street & Broadway Performance by movement

Movement	All
Denied Delay (hr)	1.3
Denied Del/Veh (s)	3.2
Total Delay (hr)	19.7
Total Del/Veh (s)	49.7
Stop Delay (hr)	17.7
Stop Del/Veh (s)	44.8

6: Galileo Galilei Way & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.2	0.2	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	4.3	2.1	4.7	3.7	0.8	3.6	3.4	0.8	0.4	0.0	0.0	0.0
Total Delay (hr)	3.6	3.7	0.3	1.2	2.2	0.6	1.1	3.2	1.4	0.1	2.9	3.7
Total Del/Veh (s)	77.3	43.8	51.2	44.9	31.6	47.2	46.3	29.1	48.5	59.4	32.4	77.2
Stop Delay (hr)	3.3	3.1	0.3	1.2	1.9	0.6	1.0	2.6	1.3	0.1	2.3	3.5
Stop Del/Veh (s)	70.9	36.3	46.6	41.7	26.3	45.7	42.5	23.3	46.2	54.6	26.0	73.4

6: Galileo Galilei Way & Broadway Performance by movement

Movement	All
Denied Delay (hr)	0.8
Denied Del/Veh (s)	1.4
Total Delay (hr)	24.0
Total Del/Veh (s)	43.7
Stop Delay (hr)	21.0
Stop Del/Veh (s)	38.2

7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street Performance by movement

Movement	EBT	WBT	WBR	WBR2	SBR	SBR2	SEL2	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	13.6	7.4	7.6	28.7
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.3	0.2	196.8	250.5	272.6	64.4
Total Delay (hr)	1.3	2.4	0.2	0.6	1.2	0.2	10.9	5.1	4.6	26.5
Total Del/Veh (s)	7.9	28.0	35.4	35.8	29.3	33.9	178.2	189.8	190.5	60.7
Stop Delay (hr)	0.8	1.9	0.2	0.6	1.1	0.2	10.4	4.8	4.4	24.3
Stop Del/Veh (s)	4.6	22.5	31.9	31.9	27.1	32.3	169.2	181.2	183.2	55.7

8: Cambridge Street & Lambert Street Performance by movement

Movement	EBT	WBT	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.1	0.1	0.2
Denied Del/Veh (s)	0.0	0.0	2.7	2.3	0.5
Total Delay (hr)	0.2	0.0	0.5	0.5	1.3
Total Del/Veh (s)	1.7	0.5	22.9	12.7	4.6
Stop Delay (hr)	0.0	0.0	0.5	0.5	1.1
Stop Del/Veh (s)	0.1	0.2	22.8	13.5	4.0

9: Main Street/Third Street & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.8
Denied Del/Veh (s)	3.4	1.3	3.4	0.8	3.6	1.2	1.1	3.7	1.8
Total Delay (hr)	1.9	3.1	0.4	1.9	0.6	5.4	0.9	0.9	15.2
Total Del/Veh (s)	33.0	26.2	25.2	26.1	22.8	50.0	49.8	35.9	34.1
Stop Delay (hr)	1.7	2.5	0.3	1.6	0.6	4.6	0.7	0.7	12.7
Stop Del/Veh (s)	28.9	20.7	22.8	21.3	21.1	42.3	40.9	30.2	28.6

10: Third Street & Binney Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.2	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	3.6	0.1	0.1	6.0	7.7	10.5	0.3	0.3	0.3
Total Delay (hr)	6.5	2.6	0.9	0.6	1.9	0.1	1.8	4.3	1.1	0.3	1.7	0.7
Total Del/Veh (s)	82.1	28.8	33.9	42.3	28.6	33.3	74.0	68.1	44.9	50.2	41.0	40.8
Stop Delay (hr)	5.8	2.0	0.8	0.5	1.6	0.1	1.7	3.9	1.0	0.3	1.5	0.7
Stop Del/Veh (s)	73.9	22.2	28.8	39.6	24.8	31.7	69.0	61.7	40.9	45.9	35.6	38.4

10: Third Street & Binney Street Performance by movement

Movement	All
Denied Delay (hr)	0.9
Denied Del/Veh (s)	2.1
Total Delay (hr)	22.4
Total Del/Veh (s)	49.4
Stop Delay (hr)	19.8
Stop Del/Veh (s)	43.7

100: Cambridge Street & Warren Street Performance by movement

Movement	EBL	EBT	WBT	WBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.4	0.3	0.7	0.0	1.4
Total Del/Veh (s)	5.3	2.4	5.4	3.4	4.2
Stop Delay (hr)	0.3	0.1	0.4	0.0	0.9
Stop Del/Veh (s)	4.3	1.2	3.3	2.3	2.7

800: Fulkerson Street & Cambridge Street Performance by movement

Movement	EBT	EBR	WBL	WBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.0	0.4	0.5	0.2
Total Delay (hr)	0.0	0.0	0.0	0.2	0.2
Total Del/Veh (s)	0.3	0.2	5.2	1.5	0.9
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	0.1	0.2	2.8	0.2	0.2

Total Zone Performance

Denied Delay (hr)	63.8
Denied Del/Veh (s)	30.1
Total Delay (hr)	160.7
Total Del/Veh (s)	818.3
Stop Delay (hr)	145.6
Stop Del/Veh (s)	741.5

Intersection: 1: Cardinal Medeiros Ave & Cambridge Street

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	320	61	1168
Average Queue (ft)	111	40	665
95th Queue (ft)	249	72	1367
Link Distance (ft)	340	45	1685
Upstream Blk Time (%)	1	11	2
Queuing Penalty (veh)	0	50	11
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Cardinal Medeiros Ave & Bristol Street/"Little" Binney

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	TR	LT
Maximum Queue (ft)	79	225	178	62
Average Queue (ft)	30	93	33	9
95th Queue (ft)	64	210	164	34
Link Distance (ft)	277	836	450	1685
Upstream Blk Time (%)			1	
Queuing Penalty (veh)			4	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Portland Street/Cardinal Medeiros Ave & Hampshire Street

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	382	207	69	122	42	142
Average Queue (ft)	319	174	33	86	9	61
95th Queue (ft)	450	224	75	120	29	118
Link Distance (ft)	332	167		88		450
Upstream Blk Time (%)	78	50	0	17		
Queuing Penalty (veh)	0	0	0	89		
Storage Bay Dist (ft)			45		95	
Storage Blk Time (%)			8	36		4
Queuing Penalty (veh)			32	33		1

Intersection: 4: Portland Street & Broadway

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	TR	L	TR
Maximum Queue (ft)	50	819	281	235	387	69	121
Average Queue (ft)	44	320	194	69	218	21	61
95th Queue (ft)	62	709	303	186	361	56	129
Link Distance (ft)		857	246		368		88
Upstream Blk Time (%)		2	16		3	0	7
Queuing Penalty (veh)		0	0		0	0	13
Storage Bay Dist (ft)	25			210		45	
Storage Blk Time (%)	67	34		0	13	4	15
Queuing Penalty (veh)	155	23		0	9	7	3

Intersection: 6: Galileo Galilei Way & Broadway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	124	467	100	147	221	156	242	371	174	32	317	282
Average Queue (ft)	113	263	24	63	124	35	65	193	74	4	167	150
95th Queue (ft)	149	451	82	118	209	95	149	327	137	20	278	248
Link Distance (ft)		433			571			387	387		614	614
Upstream Blk Time (%)		5						1				
Queuing Penalty (veh)		0						0				
Storage Bay Dist (ft)	100		75	285		200	250			225		
Storage Blk Time (%)	31	33	0		1	0		5			4	
Queuing Penalty (veh)	101	60	0		2	0		4			0	

Intersection: 7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street

Movement	EB	EB	WB	WB	SB	SE	SE
Directions Served	T	T	T	TR>	R>	<	LR
Maximum Queue (ft)	184	152	209	205	164	125	719
Average Queue (ft)	73	68	108	108	89	118	529
95th Queue (ft)	155	140	178	171	146	156	664
Link Distance (ft)	614	614	1486	1486	922		836
Upstream Blk Time (%)							0
Queuing Penalty (veh)							0
Storage Bay Dist (ft)						100	
Storage Blk Time (%)						47	56
Queuing Penalty (veh)						102	139

Intersection: 8: Cambridge Street & Lambert Street

Movement	EB	WB	SB
Directions Served	T	T	LR
Maximum Queue (ft)	62	52	116
Average Queue (ft)	13	10	75
95th Queue (ft)	45	36	123
Link Distance (ft)	282	1	98
Upstream Blk Time (%)		2	11
Queuing Penalty (veh)		5	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Main Street/Third Street & Broadway

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	TR	T	R	LT	R
Maximum Queue (ft)	274	226	196	252	121	523	185
Average Queue (ft)	122	137	92	121	50	300	100
95th Queue (ft)	207	201	178	203	97	525	225
Link Distance (ft)		870		446		563	
Upstream Blk Time (%)						2	
Queuing Penalty (veh)						0	
Storage Bay Dist (ft)	340		200		350		160
Storage Blk Time (%)		0	0			36	0
Queuing Penalty (veh)		2	0			30	0

Intersection: 10: Third Street & Binney Street

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	TR	L	T	TR	LT	R	LTR
Maximum Queue (ft)	230	460	390	100	149	140	484	165	267
Average Queue (ft)	189	200	154	37	79	62	249	92	138
95th Queue (ft)	269	447	283	80	126	113	501	205	237
Link Distance (ft)		1486	1486		978	978	525		961
Upstream Blk Time (%)							8		
Queuing Penalty (veh)							0		
Storage Bay Dist (ft)	205			240				140	
Storage Blk Time (%)	29	1					36	0	
Queuing Penalty (veh)	48	2					33	1	

Intersection: 100: Cambridge Street & Warren Street

Movement	EB	WB
Directions Served	LT	TR
Maximum Queue (ft)	65	204
Average Queue (ft)	54	52
95th Queue (ft)	65	172
Link Distance (ft)	45	282
Upstream Blk Time (%)	19	1
Queuing Penalty (veh)	135	4
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 800: Fulkerson Street & Cambridge Street

Movement	EB	WB
Directions Served	TR	LT
Maximum Queue (ft)	34	84
Average Queue (ft)	4	12
95th Queue (ft)	22	51
Link Distance (ft)	1	679
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	1	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 1100

Intersection: 3: Portland Street/Cardinal Medeiros Ave & Hampshire Street

Phase	1	2
Movement(s) Served	EBWB	NBSB
Maximum Green (s)	38.0	38.0
Minimum Green (s)	25.0	25.0
Recall	C-Max	Max
Avg. Green (s)	38.0	38.0
g/C Ratio	NA	NA
Cycles Skipped (%)	0	0
Cycles @ Minimum (%)	0	0
Cycles Maxed Out (%)	100	100
Cycles with Peds (%)	100	100

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 6: Galileo Galilei Way & Broadway

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Maximum Green (s)	10.0	27.0	11.0	26.0	12.0	25.0	10.0	30.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Recall	None	Max	None	C-Max	None	Max	None	C-Max
Avg. Green (s)	9.7	27.6	9.0	29.4	11.9	25.1	8.2	35.8
g/C Ratio	NA	NA	-0.01	NA	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	6	0	0	0	29	0
Cycles @ Minimum (%)	6	0	14	0	0	0	20	0
Cycles Maxed Out (%)	80	100	23	100	94	100	23	100
Cycles with Peds (%)	0	100	0	94	0	0	0	3

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street

Phase	1	2	3
Movement(s) Served	EBWB	EBT	SEL
Maximum Green (s)	30.0	23.0	14.0
Minimum Green (s)	20.0	16.0	11.0
Recall	C-Max	Max	Max
Avg. Green (s)	30.0	23.0	14.0
g/C Ratio	NA	NA	NA
Cycles Skipped (%)	0	0	0
Cycles @ Minimum (%)	0	0	0
Cycles Maxed Out (%)	100	100	100
Cycles with Peds (%)	79	83	40

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 10: Third Street & Binney Street

Phase	1	2	4	5	6	8
Movement(s) Served	WBL	EBT	NBTL	EBL	WBT	SBTL
Maximum Green (s)	13.0	23.0	30.0	16.0	20.0	30.0
Minimum Green (s)	6.0	20.0	25.0	6.0	20.0	25.0
Recall	None	C-Max	Max	None	C-Max	Max
Avg. Green (s)	7.3	33.2	30.0	15.4	20.6	30.0
g/C Ratio	-0.01	NA	NA	NA	NA	NA
Cycles Skipped (%)	26	0	0	0	0	0
Cycles @ Minimum (%)	36	0	0	0	85	0
Cycles Maxed Out (%)	3	100	100	85	100	100
Cycles with Peds (%)	0	85	100	0	83	95

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

SimTraffic - 2020 Baseline Conditions

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	8:00	8:00	8:00	8:00	8:00	8:00
End Time	9:15	9:15	9:15	9:15	9:15	9:15
Total Time (min)	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	7273	6906	7280	7180	7176	7164
Vehs Exited	7173	6683	7247	7100	7146	7071
Starting Vehs	205	239	254	246	285	249
Ending Vehs	305	462	287	326	315	338
Travel Distance (mi)	2316	2160	2352	2292	2281	2280
Travel Time (hr)	452.7	542.1	554.8	496.5	496.8	508.6
Total Delay (hr)	367.5	463.1	468.4	412.4	412.8	424.8
Total Stops	8332	8376	9126	8319	8468	8519
Fuel Used (gal)	171.6	186.0	195.5	180.2	180.4	182.8

Interval #0 Information Seeding

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	8:15
End Time	9:15
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	7273	6906	7280	7180	7176	7164
Vehs Exited	7173	6683	7247	7100	7146	7071
Starting Vehs	205	239	254	246	285	249
Ending Vehs	305	462	287	326	315	338
Travel Distance (mi)	2316	2160	2352	2292	2281	2280
Travel Time (hr)	452.7	542.1	554.8	496.5	496.8	508.6
Total Delay (hr)	367.5	463.1	468.4	412.4	412.8	424.8
Total Stops	8332	8376	9126	8319	8468	8519
Fuel Used (gal)	171.6	186.0	195.5	180.2	180.4	182.8

1: Cardinal Medeiros Ave & Cambridge Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Delay (hr)	5.8	2.0	0.1	0.1	0.1	0.0	1.7	9.8
Denied Del/Veh (s)	36.3	35.9	2.3	2.1	28.2	0.0	46.9	25.6
Total Delay (hr)	4.5	1.4	0.9	0.4	2.1	2.4	23.7	35.4
Total Del/Veh (s)	27.7	24.8	21.4	6.6	674.3	104.3	637.6	91.7
Stop Delay (hr)	3.2	1.1	0.9	0.3	2.1	2.4	24.0	33.8
Stop Del/Veh (s)	19.9	19.5	20.2	4.5	680.6	103.0	643.5	87.7

2: Cardinal Medeiros Ave & Bristol Street/"Little" Binney Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.1	0.4	0.1	0.0	0.0	0.0	0.6	0.7	0.0	0.0	1.9
Denied Del/Veh (s)	18.3	15.4	34.3	0.0	0.0	0.0	10.5	10.7	0.0	0.0	6.2
Total Delay (hr)	0.3	1.0	0.1	0.3	0.0	0.2	1.0	0.8	0.3	1.1	5.1
Total Del/Veh (s)	52.0	39.9	45.6	28.2	0.6	30.8	19.2	10.9	19.0	12.9	16.8
Stop Delay (hr)	0.3	0.9	0.1	0.3	0.0	0.2	0.8	0.6	0.3	0.9	4.4
Stop Del/Veh (s)	49.8	36.4	44.9	25.8	0.2	29.9	15.6	8.4	16.3	11.0	14.5

3: Portland Street/Cardinal Medeiros Ave & Hampshire Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	2.2	15.8	11.2	0.0	1.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	253.0	233.4	234.3	38.9	31.6	19.2	0.0	0.1	0.1	0.6	0.0	0.0
Total Delay (hr)	0.8	6.1	4.2	0.1	1.2	0.7	0.2	1.1	0.1	0.2	1.5	0.1
Total Del/Veh (s)	102.4	102.0	101.8	104.6	33.2	33.9	27.5	17.8	14.2	29.4	21.7	23.5
Stop Delay (hr)	0.8	5.7	4.1	0.1	1.1	0.6	0.2	1.0	0.1	0.2	1.2	0.1
Stop Del/Veh (s)	99.0	96.6	99.8	103.1	29.8	33.2	25.4	15.5	13.9	25.4	17.7	21.2

3: Portland Street/Cardinal Medeiros Ave & Hampshire Street Performance by movement

Movement	All
Denied Delay (hr)	30.7
Denied Del/Veh (s)	90.4
Total Delay (hr)	16.3
Total Del/Veh (s)	50.2
Stop Delay (hr)	15.2
Stop Del/Veh (s)	46.9

4: Portland Street & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.6	2.0	0.2	0.2	1.6	0.2	0.1	0.3	0.1	0.0	0.0	0.0
Denied Del/Veh (s)	24.5	25.4	17.7	25.9	26.8	17.4	12.0	6.4	5.6	0.0	0.0	0.0
Total Delay (hr)	3.5	9.7	1.3	0.5	2.4	0.5	0.4	1.4	0.4	0.2	1.2	0.2
Total Del/Veh (s)	135.4	124.5	116.4	52.3	42.7	45.9	45.4	32.2	31.2	23.8	14.9	14.8
Stop Delay (hr)	3.3	9.2	1.3	0.4	2.2	0.5	0.3	1.2	0.4	0.2	1.0	0.2
Stop Del/Veh (s)	130.7	117.6	112.4	49.4	38.4	44.0	42.4	28.1	29.3	21.4	12.0	13.8

4: Portland Street & Broadway Performance by movement

Movement	All
Denied Delay (hr)	5.4
Denied Del/Veh (s)	14.7
Total Delay (hr)	21.6
Total Del/Veh (s)	60.4
Stop Delay (hr)	20.1
Stop Del/Veh (s)	56.2

6: Galileo Galilei Way & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0
Denied Del/Veh (s)	3.6	1.2	3.6	3.8	0.7	3.6	3.8	1.1	3.7	0.2	0.0	0.0
Total Delay (hr)	2.2	2.5	0.5	0.7	1.7	0.4	1.0	2.0	1.8	0.2	3.7	3.6
Total Del/Veh (s)	56.8	29.1	39.8	39.8	27.2	40.5	47.3	26.4	65.3	50.5	37.3	68.3
Stop Delay (hr)	2.0	2.0	0.4	0.7	1.4	0.4	0.9	1.6	1.7	0.1	3.0	3.3
Stop Del/Veh (s)	51.1	22.9	36.4	36.7	22.5	39.2	43.6	21.4	62.7	44.3	29.8	63.0

6: Galileo Galilei Way & Broadway Performance by movement

Movement	All
Denied Delay (hr)	0.7
Denied Del/Veh (s)	1.4
Total Delay (hr)	20.3
Total Del/Veh (s)	39.9
Stop Delay (hr)	17.6
Stop Del/Veh (s)	34.5

7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street Performance by movement

Movement	EBT	WBT	WBR	WBR2	SBR	SBR2	SEL2	SEL	SET	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.3	0.1	0.0	0.4	0.3	0.5	0.0	0.0	0.1	0.1
Total Delay (hr)	3.3	5.4	3.9	1.5	4.3	0.9	1.2	1.5	0.0	0.1	22.2
Total Del/Veh (s)	26.0	49.1	103.8	100.0	79.9	79.0	48.7	50.9	0.9	53.2	47.5
Stop Delay (hr)	2.4	4.1	3.4	1.4	4.1	0.9	1.1	1.4	0.0	0.1	18.9
Stop Del/Veh (s)	19.0	37.6	91.9	89.1	76.0	75.3	44.7	47.3	0.2	50.5	40.5

8: Cambridge Street & Lambert Street Performance by movement

Movement	EBT	WBT	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	69.5	59.5	129.0
Denied Del/Veh (s)	0.0	0.0	1373.8	1478.5	382.6
Total Delay (hr)	0.4	0.7	2.0	2.4	5.5
Total Del/Veh (s)	3.0	7.0	138.5	178.0	20.0
Stop Delay (hr)	0.1	0.6	2.0	2.4	5.1
Stop Del/Veh (s)	0.6	5.6	141.7	182.0	18.7

9: Main Street/Third Street & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.2	0.1	0.1	0.2	0.2	0.0	0.0	0.1	0.8
Denied Del/Veh (s)	3.5	1.2	3.5	1.4	3.5	0.7	0.6	3.6	2.0
Total Delay (hr)	1.3	1.7	0.3	3.0	1.6	1.6	0.7	0.7	11.1
Total Del/Veh (s)	28.0	23.5	20.6	27.2	28.9	30.5	31.2	28.6	27.3
Stop Delay (hr)	1.2	1.4	0.3	2.4	1.4	1.4	0.6	0.7	9.3
Stop Del/Veh (s)	24.8	19.3	19.0	21.4	25.7	26.3	25.6	25.4	23.0

10: Third Street & Binney Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	8.8	9.6	7.5	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.0	0.1	3.3	0.2	0.1	354.7	438.2	422.1	0.5	0.6	0.5
Total Delay (hr)	2.3	2.4	0.6	4.3	5.2	0.1	8.1	6.6	3.1	0.5	5.3	3.0
Total Del/Veh (s)	85.7	20.1	40.1	101.0	51.4	64.6	398.4	372.4	225.4	81.6	76.3	71.8
Stop Delay (hr)	2.1	1.7	0.5	4.1	4.8	0.1	8.1	6.5	3.1	0.5	4.7	2.7
Stop Del/Veh (s)	78.1	14.2	34.4	95.9	46.9	63.5	397.0	368.4	222.6	74.5	67.2	65.3

10: Third Street & Binney Street Performance by movement

Movement	All
Denied Delay (hr)	26.1
Denied Del/Veh (s)	54.8
Total Delay (hr)	41.6
Total Del/Veh (s)	87.3
Stop Delay (hr)	38.9
Stop Del/Veh (s)	81.6

100: Cambridge Street & Warren Street Performance by movement

Movement	EBL	EBT	WBT	WBR	All
Denied Delay (hr)	0.0	0.0	4.8	0.3	5.1
Denied Del/Veh (s)	0.2	0.3	45.0	16.4	16.3
Total Delay (hr)	0.3	0.4	7.4	1.1	9.2
Total Del/Veh (s)	6.3	2.9	68.6	59.8	29.0
Stop Delay (hr)	0.2	0.2	6.6	1.0	8.0
Stop Del/Veh (s)	4.9	1.2	61.3	54.9	25.2

800: Fulkerson Street & Cambridge Street Performance by movement

Movement	EBT	EBR	WBL	WBT	All
Denied Delay (hr)	0.0	0.0	0.6	9.9	10.5
Denied Del/Veh (s)	0.0	0.0	104.4	85.8	38.3
Total Delay (hr)	0.1	0.0	0.7	13.2	14.0
Total Del/Veh (s)	0.5	0.3	127.1	117.8	51.5
Stop Delay (hr)	0.0	0.0	0.7	12.5	13.3
Stop Del/Veh (s)	0.1	0.3	123.3	111.9	48.8

Total Zone Performance

Denied Delay (hr)	220.2
Denied Del/Veh (s)	104.0
Total Delay (hr)	202.2
Total Del/Veh (s)	637.4
Stop Delay (hr)	184.6
Stop Del/Veh (s)	582.0

Intersection: 1: Cardinal Medeiros Ave & Cambridge Street

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	400	101	1372
Average Queue (ft)	284	58	739
95th Queue (ft)	486	79	1554
Link Distance (ft)	340	45	1688
Upstream Blk Time (%)	31	61	7
Queuing Penalty (veh)	0	282	14
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Cardinal Medeiros Ave & Bristol Street/"Little" Binney

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	TR	LT
Maximum Queue (ft)	149	115	186	352
Average Queue (ft)	68	42	57	52
95th Queue (ft)	159	100	244	317
Link Distance (ft)	277	846	451	1688
Upstream Blk Time (%)	4		5	
Queuing Penalty (veh)	0		19	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Portland Street/Cardinal Medeiros Ave & Hampshire Street

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	383	198	69	122	104	235
Average Queue (ft)	330	101	21	87	17	112
95th Queue (ft)	434	198	60	134	66	200
Link Distance (ft)	332	167		95		451
Upstream Blk Time (%)	72	14		14		
Queuing Penalty (veh)	0	0		39		
Storage Bay Dist (ft)			45		95	
Storage Blk Time (%)			3	30	0	16
Queuing Penalty (veh)			9	8	0	5

Intersection: 4: Portland Street & Broadway

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	792	292	102	248	69	133
Average Queue (ft)	471	160	22	106	28	100
95th Queue (ft)	907	296	73	230	73	150
Link Distance (ft)	858	247		374		95
Upstream Blk Time (%)	15	14		2		17
Queuing Penalty (veh)	0	0		0		71
Storage Bay Dist (ft)			210		45	
Storage Blk Time (%)				4	4	32
Queuing Penalty (veh)				2	14	13

Intersection: 6: Galileo Galilei Way & Broadway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	124	425	100	117	222	129	150	314	248	148	488	329
Average Queue (ft)	99	209	35	47	105	30	65	145	101	18	225	174
95th Queue (ft)	149	379	95	95	185	87	127	266	206	90	405	315
Link Distance (ft)		433			573			388			624	
Upstream Blk Time (%)		1						1				
Queuing Penalty (veh)		0						0				
Storage Bay Dist (ft)	100		75	285		200	250		250	200		325
Storage Blk Time (%)	18	24	1		1	0		0	1	0	13	2
Queuing Penalty (veh)	65	46	5		1	0		1	4	0	27	8

Intersection: 7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street

Movement	EB	WB	WB	SB	SE	SE
Directions Served	T	T	R>	R>	<	LR
Maximum Queue (ft)	430	794	125	366	124	260
Average Queue (ft)	213	399	118	193	71	93
95th Queue (ft)	367	779	141	339	132	206
Link Distance (ft)	624	1485		919		846
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			100		100	
Storage Blk Time (%)		17	51		5	10
Queuing Penalty (veh)		33	183		6	9

Intersection: 8: Cambridge Street & Lambert Street

Movement	EB	WB	SB
Directions Served	T	T	LR
Maximum Queue (ft)	162	94	154
Average Queue (ft)	20	45	117
95th Queue (ft)	93	79	142
Link Distance (ft)	282	1	98
Upstream Blk Time (%)	0	58	100
Queuing Penalty (veh)	1	237	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Main Street/Third Street & Broadway

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	TR	T	R	LT	R
Maximum Queue (ft)	195	211	168	331	224	297	185
Average Queue (ft)	94	96	61	177	108	148	73
95th Queue (ft)	164	167	134	277	192	246	157
Link Distance (ft)		870		446		563	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	340		200		350		160
Storage Blk Time (%)		0	0	0		7	0
Queuing Penalty (veh)		0	1	0		7	1

Intersection: 10: Third Street & Binney Street

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	R	L	T	TR	LT	R	LTR
Maximum Queue (ft)	220	357	198	264	416	390	576	165	722
Average Queue (ft)	109	149	47	157	203	166	468	72	346
95th Queue (ft)	221	300	120	284	429	383	703	202	686
Link Distance (ft)		1485			978	978	524		961
Upstream Blk Time (%)							66		1
Queuing Penalty (veh)							0		0
Storage Bay Dist (ft)	200		200	240				140	
Storage Blk Time (%)	3	5	0	15	4		83	0	
Queuing Penalty (veh)	8	7	0	27	6		50	0	

Intersection: 100: Cambridge Street & Warren Street

Movement	EB	WB
Directions Served	LT	TR
Maximum Queue (ft)	84	302
Average Queue (ft)	42	283
95th Queue (ft)	78	333
Link Distance (ft)	45	282
Upstream Blk Time (%)	18	49
Queuing Penalty (veh)	126	271
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 800: Fulkerson Street & Cambridge Street

Movement	EB	WB
Directions Served	TR	LT
Maximum Queue (ft)	95	727
Average Queue (ft)	17	470
95th Queue (ft)	64	871
Link Distance (ft)	1	679
Upstream Blk Time (%)	1	34
Queuing Penalty (veh)	7	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 1611

Intersection: 3: Portland Street/Cardinal Medeiros Ave & Hampshire Street

Phase	1	2
Movement(s) Served	EBWB	NBSB
Maximum Green (s)	42.0	34.0
Minimum Green (s)	25.0	25.0
Recall	C-Max	Max
Avg. Green (s)	42.0	34.0
g/C Ratio	NA	NA
Cycles Skipped (%)	0	0
Cycles @ Minimum (%)	0	0
Cycles Maxed Out (%)	100	100
Cycles with Peds (%)	100	100

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 6: Galileo Galilei Way & Broadway

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Maximum Green (s)	8.0	28.0	8.0	25.0	13.0	23.0	10.0	24.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Recall	None	C-Max	None	Max	None	C-Max	None	Ped
Avg. Green (s)	7.9	30.4	7.4	25.1	12.7	25.4	7.6	28.9
g/C Ratio	NA	NA	-0.01	NA	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	3	0	0	0	36	0
Cycles @ Minimum (%)	8	0	21	0	0	0	26	0
Cycles Maxed Out (%)	77	100	54	100	88	100	13	78
Cycles with Peds (%)	0	97	0	90	0	3	0	100

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street

Phase	2	3	4	5	6
Movement(s) Served	EBWB	SBR	SEL	WBR	WBT
Maximum Green (s)	38.0	19.0	11.0	12.0	22.0
Minimum Green (s)	20.0	10.0	10.0	6.0	20.0
Recall	C-Max	Ped	Ped	None	C-Max
Avg. Green (s)	39.3	18.1	10.6	12.9	22.8
g/C Ratio	NA	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0	0
Cycles @ Minimum (%)	0	0	32	3	0
Cycles Maxed Out (%)	100	76	61	84	100
Cycles with Peds (%)	0	100	100	0	97

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 10: Third Street & Binney Street

Phase	1	2	4	5	6	8
Movement(s) Served	WBL	EBT	NBTL	EBL	WBT	SBTL
Maximum Green (s)	10.0	20.0	36.0	7.0	23.0	36.0
Minimum Green (s)	6.0	20.0	25.0	6.0	20.0	25.0
Recall	None	C-Max	Max	None	C-Max	Max
Avg. Green (s)	9.7	20.7	36.0	7.0	24.8	36.0
g/C Ratio	NA	NA	NA	-0.01	NA	NA
Cycles Skipped (%)	0	0	0	10	0	0
Cycles @ Minimum (%)	0	78	0	8	0	0
Cycles Maxed Out (%)	79	100	100	77	100	100
Cycles with Peds (%)	0	85	100	0	93	98

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:15	4:15	4:15	4:15	4:15	4:15
End Time	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	7542	7415	7426	7356	7350	7418
Vehs Exited	7426	7431	7421	7173	7188	7329
Starting Vehs	215	244	295	211	240	233
Ending Vehs	331	228	300	394	402	322
Travel Distance (mi)	2429	2395	2429	2353	2358	2393
Travel Time (hr)	329.8	327.9	406.7	403.0	388.4	371.2
Total Delay (hr)	241.1	240.2	318.0	317.1	302.2	283.7
Total Stops	9197	8628	9138	8874	8895	8945
Fuel Used (gal)	147.1	146.4	164.5	161.3	157.6	155.4

Interval #0 Information Seeding

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	7542	7415	7426	7356	7350	7418
Vehs Exited	7426	7431	7421	7173	7188	7329
Starting Vehs	215	244	295	211	240	233
Ending Vehs	331	228	300	394	402	322
Travel Distance (mi)	2429	2395	2429	2353	2358	2393
Travel Time (hr)	329.8	327.9	406.7	403.0	388.4	371.2
Total Delay (hr)	241.1	240.2	318.0	317.1	302.2	283.7
Total Stops	9197	8628	9138	8874	8895	8945
Fuel Used (gal)	147.1	146.4	164.5	161.3	157.6	155.4

1: Cardinal Medeiros Ave & Cambridge Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Delay (hr)	0.1	0.0	0.0	0.0	0.1	0.0	1.3	1.5
Denied Del/Veh (s)	0.8	0.7	0.1	0.0	26.0	0.0	20.9	3.9
Total Delay (hr)	1.5	0.1	0.2	0.2	1.9	5.8	36.9	46.6
Total Del/Veh (s)	11.3	6.4	7.1	2.0	532.5	110.3	546.8	117.0
Stop Delay (hr)	0.9	0.0	0.2	0.1	2.0	5.8	37.9	47.0
Stop Del/Veh (s)	6.9	4.2	6.0	1.0	545.3	110.9	561.9	117.8

2: Cardinal Medeiros Ave & Bristol Street/"Little" Binney Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.5	0.0	0.2	0.0	0.0	0.0	0.0	0.7
Denied Del/Veh (s)	0.1	0.1	0.1	15.5	0.0	8.6	0.0	0.0	0.0	0.0	2.6
Total Delay (hr)	0.0	0.2	0.0	2.0	0.0	1.1	1.7	0.7	0.0	0.1	5.8
Total Del/Veh (s)	28.3	18.5	10.3	58.5	0.7	53.6	14.8	15.1	8.5	1.8	21.3
Stop Delay (hr)	0.0	0.2	0.0	1.9	0.0	1.0	1.3	0.6	0.0	0.0	5.1
Stop Del/Veh (s)	26.4	15.1	10.0	56.3	0.9	52.7	11.2	12.7	6.5	0.6	18.7

3: Portland Street/Cardinal Medeiros Ave & Hampshire Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	2.3	12.3	5.9	0.3	9.6	5.7	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	310.6	303.6	306.4	110.4	128.2	122.2	0.0	0.0	0.2	0.0	0.0	0.0
Total Delay (hr)	1.6	6.4	3.2	0.2	3.3	2.0	0.4	1.5	0.0	0.2	0.5	0.1
Total Del/Veh (s)	282.8	211.4	216.2	55.4	46.2	44.5	17.4	13.2	11.2	29.2	8.3	14.8
Stop Delay (hr)	1.6	6.3	3.2	0.1	3.0	2.0	0.4	1.2	0.0	0.1	0.4	0.1
Stop Del/Veh (s)	280.1	207.4	215.2	52.7	42.0	43.7	15.0	10.4	10.1	26.7	6.6	13.8

3: Portland Street/Cardinal Medeiros Ave & Hampshire Street Performance by movement

Movement	All
Denied Delay (hr)	36.1
Denied Del/Veh (s)	89.0
Total Delay (hr)	19.5
Total Del/Veh (s)	50.5
Stop Delay (hr)	18.4
Stop Del/Veh (s)	47.8

4: Portland Street & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.2	0.6	0.1	0.1	1.8	0.3	0.1	0.3	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	10.8	11.5	10.1	15.4	21.8	21.1	5.6	2.9	2.3	0.0	0.0	0.0
Total Delay (hr)	3.0	6.3	1.2	0.3	3.6	0.7	0.7	4.0	0.4	0.2	0.4	0.1
Total Del/Veh (s)	163.9	114.4	117.7	50.3	45.9	53.6	33.0	34.8	32.2	45.7	11.8	13.1
Stop Delay (hr)	2.9	6.0	1.1	0.3	3.3	0.7	0.6	3.2	0.3	0.2	0.3	0.1
Stop Del/Veh (s)	159.7	108.4	114.4	47.3	41.6	52.2	28.3	28.1	27.8	43.8	9.7	12.4

4: Portland Street & Broadway Performance by movement

Movement	All
Denied Delay (hr)	3.5
Denied Del/Veh (s)	9.5
Total Delay (hr)	20.8
Total Del/Veh (s)	55.7
Stop Delay (hr)	19.0
Stop Del/Veh (s)	50.8

6: Galileo Galilei Way & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.4	0.4	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0
Denied Del/Veh (s)	8.7	5.4	7.6	3.6	0.8	3.5	3.6	1.3	3.7	0.2	0.0	0.0
Total Delay (hr)	2.6	2.5	0.2	1.0	1.6	0.4	1.0	4.0	1.1	0.1	3.3	3.5
Total Del/Veh (s)	59.2	29.8	39.9	37.5	22.8	39.8	45.6	36.4	40.0	56.6	35.8	73.5
Stop Delay (hr)	2.3	2.0	0.2	0.9	1.3	0.4	0.9	3.3	1.0	0.1	2.7	3.3
Stop Del/Veh (s)	53.7	23.8	36.5	34.4	18.4	38.7	41.3	29.7	36.7	51.6	29.1	69.4

6: Galileo Galilei Way & Broadway Performance by movement

Movement	All
Denied Delay (hr)	1.4
Denied Del/Veh (s)	2.6
Total Delay (hr)	21.4
Total Del/Veh (s)	39.4
Stop Delay (hr)	18.5
Stop Del/Veh (s)	34.1

7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street Performance by movement

Movement	EBT	WBT	WBR	WBR2	SBR	SBR2	SEL2	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	15.0	5.3	5.2	25.5
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.3	0.4	209.8	191.7	185.7	58.0
Total Delay (hr)	5.7	1.5	0.2	0.9	2.8	0.3	11.2	4.4	4.5	31.5
Total Del/Veh (s)	34.1	19.2	47.8	51.3	60.7	67.4	164.2	166.5	168.1	71.8
Stop Delay (hr)	4.1	1.1	0.2	0.8	2.7	0.3	10.6	4.2	4.3	28.2
Stop Del/Veh (s)	24.5	13.9	43.3	46.8	57.7	64.5	155.3	157.6	160.7	64.2

8: Cambridge Street & Lambert Street Performance by movement

Movement	EBT	WBT	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.1	0.1	0.2
Denied Del/Veh (s)	0.0	0.0	3.3	3.0	0.7
Total Delay (hr)	0.2	0.0	0.5	0.5	1.3
Total Del/Veh (s)	1.8	0.4	22.6	12.0	4.6
Stop Delay (hr)	0.0	0.0	0.5	0.5	1.1
Stop Del/Veh (s)	0.2	0.2	22.4	12.8	3.9

9: Main Street/Third Street & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.2	0.2	0.0	0.1	0.1	0.2	0.0	0.1	0.9
Denied Del/Veh (s)	3.4	1.4	3.5	0.8	3.5	1.9	1.5	4.2	2.0
Total Delay (hr)	1.9	3.0	0.4	2.1	0.7	6.3	1.0	1.0	16.5
Total Del/Veh (s)	32.9	25.7	26.1	25.4	24.6	57.3	58.5	42.9	36.4
Stop Delay (hr)	1.7	2.4	0.3	1.7	0.6	5.4	0.9	0.9	13.9
Stop Del/Veh (s)	28.8	20.2	24.1	20.7	22.9	49.0	49.0	36.3	30.7

10: Third Street & Binney Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	3.7	8.0	3.3	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.1	3.5	0.1	0.1	159.5	127.3	126.3	0.3	0.4	0.3
Total Delay (hr)	4.8	2.6	0.9	0.5	2.1	0.1	3.5	8.5	2.4	0.5	3.7	1.4
Total Del/Veh (s)	62.4	29.5	31.2	41.1	32.2	31.0	162.7	146.1	99.6	106.3	85.9	75.7
Stop Delay (hr)	3.9	1.6	0.6	0.5	1.8	0.1	3.4	8.2	2.3	0.5	3.4	1.3
Stop Del/Veh (s)	51.0	18.6	21.9	38.2	28.3	30.2	156.9	139.9	95.1	101.7	80.0	72.5

10: Third Street & Binney Street Performance by movement

Movement	All
Denied Delay (hr)	15.1
Denied Del/Veh (s)	33.7
Total Delay (hr)	31.0
Total Del/Veh (s)	69.9
Stop Delay (hr)	27.7
Stop Del/Veh (s)	62.4

100: Cambridge Street & Warren Street Performance by movement

Movement	EBL	EBT	WBT	WBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	0.4	0.3	0.7	0.0	1.4
Total Del/Veh (s)	5.5	2.4	5.5	3.3	4.3
Stop Delay (hr)	0.3	0.1	0.4	0.0	0.9
Stop Del/Veh (s)	4.6	1.2	3.1	2.5	2.7

800: Fulkerson Street & Cambridge Street Performance by movement

Movement	EBT	EBR	WBL	WBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.0	0.5	0.5	0.2
Total Delay (hr)	0.0	0.0	0.0	0.1	0.2
Total Del/Veh (s)	0.4	0.2	5.3	1.4	0.8
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	0.1	0.2	3.1	0.1	0.2

Total Zone Performance

Denied Delay (hr)	85.0
Denied Del/Veh (s)	40.2
Total Delay (hr)	196.1
Total Del/Veh (s)	977.7
Stop Delay (hr)	179.8
Stop Del/Veh (s)	896.7

Intersection: 1: Cardinal Medeiros Ave & Cambridge Street

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	307	92	1504
Average Queue (ft)	108	47	1127
95th Queue (ft)	240	77	1869
Link Distance (ft)	340	45	1689
Upstream Blk Time (%)	0	13	10
Queuing Penalty (veh)	0	60	42
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Cardinal Medeiros Ave & Bristol Street/"Little" Binney

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	TR	LT
Maximum Queue (ft)	88	386	377	61
Average Queue (ft)	27	121	87	11
95th Queue (ft)	59	318	336	40
Link Distance (ft)	277	850	451	1689
Upstream Blk Time (%)			3	
Queuing Penalty (veh)			19	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Portland Street/Cardinal Medeiros Ave & Hampshire Street

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	381	214	69	120	46	128
Average Queue (ft)	304	181	34	88	10	53
95th Queue (ft)	449	217	77	122	32	109
Link Distance (ft)	332	167		88		451
Upstream Blk Time (%)	68	61	0	20		
Queuing Penalty (veh)	0	0	0	103		
Storage Bay Dist (ft)			45		95	
Storage Blk Time (%)			7	37		3
Queuing Penalty (veh)			31	34		1

Intersection: 4: Portland Street & Broadway

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	TR	L	TR
Maximum Queue (ft)	55	823	279	234	382	61	120
Average Queue (ft)	42	326	191	74	225	14	50
95th Queue (ft)	63	780	304	208	383	45	119
Link Distance (ft)		857	246		368		88
Upstream Blk Time (%)		8	21		6	0	4
Queuing Penalty (veh)		0	0		0	0	8
Storage Bay Dist (ft)	25			210		45	
Storage Blk Time (%)	69	35		0	16	2	13
Queuing Penalty (veh)	158	24		0	11	4	3

Intersection: 6: Galileo Galilei Way & Broadway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	125	384	75	135	205	102	250	397	275	76	379	286
Average Queue (ft)	99	185	17	59	102	29	68	212	89	7	185	145
95th Queue (ft)	149	358	59	113	174	77	172	360	210	43	333	274
Link Distance (ft)		433			571			387			621	
Upstream Blk Time (%)		4						2			0	
Queuing Penalty (veh)		0						0			0	
Storage Bay Dist (ft)	100		75	285		200	250		250	200		325
Storage Blk Time (%)	18	21	0		0		0	6	0		8	2
Queuing Penalty (veh)	58	39	0		0		0	11	0		14	8

Intersection: 7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street

Movement	EB	WB	WB	SB	SE	SE
Directions Served	T	T	R>	R>	<	LR
Maximum Queue (ft)	465	255	125	273	125	636
Average Queue (ft)	275	114	73	132	124	519
95th Queue (ft)	447	212	132	246	132	644
Link Distance (ft)	621	1486		922		850
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			100		100	
Storage Blk Time (%)		11	4		61	45
Queuing Penalty (veh)		9	11		131	111

Intersection: 8: Cambridge Street & Lambert Street

Movement	EB	WB	SB
Directions Served	T	T	LR
Maximum Queue (ft)	88	59	121
Average Queue (ft)	12	11	77
95th Queue (ft)	50	39	124
Link Distance (ft)	282	1	98
Upstream Blk Time (%)		1	11
Queuing Penalty (veh)		4	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Main Street/Third Street & Broadway

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	TR	T	R	LT	R
Maximum Queue (ft)	232	226	207	223	118	562	185
Average Queue (ft)	112	138	96	125	52	334	106
95th Queue (ft)	196	204	188	204	97	577	233
Link Distance (ft)		870		446		563	
Upstream Blk Time (%)						5	
Queuing Penalty (veh)						0	
Storage Bay Dist (ft)	340		200		350		160
Storage Blk Time (%)		1	0			42	0
Queuing Penalty (veh)		3	0			36	1

Intersection: 10: Third Street & Binney Street

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	R	L	T	TR	LT	R	LTR
Maximum Queue (ft)	225	447	223	97	185	159	563	165	575
Average Queue (ft)	177	190	69	38	94	54	413	118	217
95th Queue (ft)	256	387	163	77	156	110	675	227	500
Link Distance (ft)		1486			978	978	524		961
Upstream Blk Time (%)							39		
Queuing Penalty (veh)							0		
Storage Bay Dist (ft)	200		200	240				140	
Storage Blk Time (%)	13	3	0				67	0	
Queuing Penalty (veh)	57	13	0				60	1	

Intersection: 100: Cambridge Street & Warren Street

Movement	EB	WB
Directions Served	LT	TR
Maximum Queue (ft)	70	256
Average Queue (ft)	54	56
95th Queue (ft)	68	168
Link Distance (ft)	45	282
Upstream Blk Time (%)	19	0
Queuing Penalty (veh)	142	1
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 800: Fulkerson Street & Cambridge Street

Movement	EB	WB
Directions Served	TR	LT
Maximum Queue (ft)	40	69
Average Queue (ft)	4	11
95th Queue (ft)	24	43
Link Distance (ft)	1	679
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 1206

Intersection: 3: Portland Street/Cardinal Medeiros Ave & Hampshire Street

Phase	1	2
Movement(s) Served	EBWB	NBSB
Maximum Green (s)	38.0	38.0
Minimum Green (s)	25.0	25.0
Recall	C-Max	Max
Avg. Green (s)	38.0	38.0
g/C Ratio	NA	NA
Cycles Skipped (%)	0	0
Cycles @ Minimum (%)	0	0
Cycles Maxed Out (%)	100	100
Cycles with Peds (%)	100	100

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 6: Galileo Galilei Way & Broadway

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Maximum Green (s)	14.0	25.0	9.0	22.0	12.0	27.0	7.0	24.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Recall	None	C-Max	None	Max	None	C-Max	None	Max
Avg. Green (s)	10.7	29.9	7.7	23.9	11.8	28.5	6.6	26.8
g/C Ratio	NA	NA	-0.01	NA	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	13	0	0	0	31	0
Cycles @ Minimum (%)	8	0	21	0	0	0	33	0
Cycles Maxed Out (%)	23	100	33	100	90	100	31	100
Cycles with Peds (%)	0	100	0	93	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street

Phase	2	3	4	5	6
Movement(s) Served	EBWB	SBR	SEL	WBR	WBT
Maximum Green (s)	38.0	15.0	15.0	12.0	22.0
Minimum Green (s)	20.0	10.0	10.0	6.0	20.0
Recall	C-Max	Ped	Ped	None	C-Max
Avg. Green (s)	39.0	14.0	15.0	9.6	27.9
g/C Ratio	NA	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	0	16	0
Cycles @ Minimum (%)	0	0	0	19	0
Cycles Maxed Out (%)	100	63	100	19	100
Cycles with Peds (%)	0	100	100	0	92

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 10: Third Street & Binney Street

Phase	1	2	4	5	6	8
Movement(s) Served	WBL	EBT	NBTL	EBL	WBT	SBTL
Maximum Green (s)	13.0	23.0	30.0	16.0	20.0	30.0
Minimum Green (s)	6.0	20.0	25.0	6.0	20.0	25.0
Recall	None	C-Max	Max	None	C-Max	Max
Avg. Green (s)	8.0	32.0	30.0	15.5	20.9	30.0
g/C Ratio	-0.01	NA	NA	NA	NA	NA
Cycles Skipped (%)	21	0	0	0	0	0
Cycles @ Minimum (%)	32	0	0	0	75	0
Cycles Maxed Out (%)	3	100	100	77	100	100
Cycles with Peds (%)	0	82	100	0	80	98

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

SimTraffic - 2020 Build Conditions

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	8:00	8:00	8:00	8:00	8:00	8:00
End Time	9:15	9:15	9:15	9:15	9:15	9:15
Total Time (min)	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	7279	7317	7339	7464	7452	7372
Vehs Exited	7215	7226	7265	7350	7335	7282
Starting Vehs	278	299	238	248	240	257
Ending Vehs	342	390	312	362	357	347
Travel Distance (mi)	2338	2312	2332	2389	2385	2351
Travel Time (hr)	593.6	614.8	503.8	522.7	426.7	532.3
Total Delay (hr)	507.5	529.9	417.9	434.9	338.9	445.8
Total Stops	8677	8625	8592	9171	9383	8886
Fuel Used (gal)	203.8	206.9	184.5	188.7	167.5	190.3

Interval #0 Information Seeding

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	8:15
End Time	9:15
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	7279	7317	7339	7464	7452	7372
Vehs Exited	7215	7226	7265	7350	7335	7282
Starting Vehs	278	299	238	248	240	257
Ending Vehs	342	390	312	362	357	347
Travel Distance (mi)	2338	2312	2332	2389	2385	2351
Travel Time (hr)	593.6	614.8	503.8	522.7	426.7	532.3
Total Delay (hr)	507.5	529.9	417.9	434.9	338.9	445.8
Total Stops	8677	8625	8592	9171	9383	8886
Fuel Used (gal)	203.8	206.9	184.5	188.7	167.5	190.3

1: Cardinal Medeiros Ave & Cambridge Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Delay (hr)	1.5	0.6	0.1	0.1	0.0	0.0	0.9	3.2
Denied Del/Veh (s)	9.8	10.2	2.1	0.9	7.7	0.0	23.5	8.3
Total Delay (hr)	3.4	1.2	0.8	0.5	1.6	1.5	20.0	29.0
Total Del/Veh (s)	22.1	20.0	18.9	7.2	633.5	66.9	477.7	75.0
Stop Delay (hr)	2.3	0.9	0.8	0.3	1.6	1.5	20.3	27.7
Stop Del/Veh (s)	14.8	15.1	17.6	5.2	639.2	65.9	485.1	71.7

2: Cardinal Medeiros Ave & Bristol Street/"Little" Binney Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.3
Denied Del/Veh (s)	2.9	5.9	0.2	0.0	0.0	0.0	0.5	0.6	0.0	0.0	0.8
Total Delay (hr)	0.3	0.9	0.1	0.2	0.0	0.1	0.4	0.6	0.2	0.3	3.0
Total Del/Veh (s)	44.0	35.7	24.9	17.7	0.3	10.9	6.4	6.5	9.7	3.6	8.8
Stop Delay (hr)	0.3	0.8	0.1	0.2	0.0	0.1	0.1	0.3	0.1	0.1	2.1
Stop Del/Veh (s)	42.0	32.2	24.4	15.5	0.0	10.2	2.2	3.4	6.9	1.6	6.2

3: Portland Street/Cardinal Medeiros Ave & Hampshire Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	3.8	22.7	14.5	0.0	1.7	1.5	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	307.1	320.4	320.4	33.6	48.8	54.1	0.0	0.1	0.0	0.3	0.0	0.0
Total Delay (hr)	1.3	6.8	4.5	0.2	1.2	1.0	0.2	1.0	0.1	0.3	1.6	0.1
Total Del/Veh (s)	133.4	117.8	117.0	148.4	35.8	37.2	24.6	13.6	15.2	34.7	21.4	22.6
Stop Delay (hr)	1.2	6.6	4.5	0.2	1.1	1.0	0.2	0.9	0.1	0.2	1.3	0.1
Stop Del/Veh (s)	130.9	113.6	116.0	146.5	32.2	36.4	22.5	11.3	14.9	30.8	17.3	20.6

3: Portland Street/Cardinal Medeiros Ave & Hampshire Street Performance by movement

Movement	All
Denied Delay (hr)	44.2
Denied Del/Veh (s)	120.6
Total Delay (hr)	18.3
Total Del/Veh (s)	53.0
Stop Delay (hr)	17.3
Stop Del/Veh (s)	50.1

4: Portland Street & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.1	0.3	0.1	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	3.5	3.1	5.8	4.0	4.2	7.0	3.8	0.4	0.5	0.1	0.0	0.0
Total Delay (hr)	3.1	8.9	1.2	0.4	1.9	0.4	0.3	1.1	0.3	0.2	1.2	0.2
Total Del/Veh (s)	111.7	107.5	103.3	47.8	31.5	28.9	40.5	23.2	23.7	22.0	14.3	15.2
Stop Delay (hr)	2.9	8.3	1.1	0.4	1.6	0.3	0.3	0.9	0.3	0.2	0.9	0.2
Stop Del/Veh (s)	105.6	100.4	98.7	45.2	27.4	27.1	37.6	18.7	21.7	19.6	11.3	14.2

4: Portland Street & Broadway Performance by movement

Movement	All
Denied Delay (hr)	0.8
Denied Del/Veh (s)	2.3
Total Delay (hr)	19.1
Total Del/Veh (s)	50.7
Stop Delay (hr)	17.5
Stop Del/Veh (s)	46.4

5: "Little" Binney & Site Driveway Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.1	0.1	0.1	0.0
Total Delay (hr)	0.1	0.1	0.1	0.0	0.0	0.0	0.3
Total Del/Veh (s)	3.8	1.2	0.9	0.6	6.5	2.3	1.3
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	1.3	0.3	0.1	0.1	5.3	2.3	0.3

6: Galileo Galilei Way & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.2	0.1	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0
Denied Del/Veh (s)	3.6	1.3	3.4	3.6	0.8	3.6	3.6	1.0	3.6	0.0	0.0	0.0
Total Delay (hr)	2.4	2.6	0.5	0.8	2.0	0.4	1.0	2.2	1.6	0.2	3.0	3.4
Total Del/Veh (s)	55.1	29.6	42.2	44.8	27.0	39.6	50.8	27.6	59.2	50.9	33.0	65.8
Stop Delay (hr)	2.1	2.1	0.5	0.7	1.6	0.4	0.9	1.8	1.5	0.2	2.4	3.2
Stop Del/Veh (s)	49.4	23.3	38.4	41.7	22.0	37.9	47.0	22.4	56.5	46.0	26.2	60.7

6: Galileo Galilei Way & Broadway Performance by movement

Movement	All
Denied Delay (hr)	0.7
Denied Del/Veh (s)	1.4
Total Delay (hr)	20.1
Total Del/Veh (s)	38.8
Stop Delay (hr)	17.4
Stop Del/Veh (s)	33.4

7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street Performance by movement

Movement	EBT	WBT	WBR	WBR2	SBR	SBR2	SEL2	SEL	SET	SER	All
Denied Delay (hr)	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
Denied Del/Veh (s)	0.0	2.3	0.7	0.0	0.4	0.4	0.4	0.0	0.0	0.1	0.7
Total Delay (hr)	3.8	8.9	6.3	1.9	4.2	1.0	1.1	1.4	0.0	0.1	28.7
Total Del/Veh (s)	28.1	83.3	141.6	145.4	79.4	85.7	43.7	47.2	2.0	45.5	67.7
Stop Delay (hr)	2.8	7.4	5.7	1.7	4.0	1.0	1.1	1.3	0.0	0.1	24.9
Stop Del/Veh (s)	20.5	69.4	127.3	130.6	75.8	82.6	40.6	44.5	1.0	44.3	58.9

8: Cambridge Street & Lambert Street Performance by movement

Movement	EBT	WBT	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	62.8	49.2	112.0
Denied Del/Veh (s)	0.0	0.0	1299.3	1238.3	338.2
Total Delay (hr)	0.3	0.8	2.3	2.1	5.5
Total Del/Veh (s)	2.3	7.1	127.1	145.6	19.9
Stop Delay (hr)	0.0	0.6	2.4	2.2	5.2
Stop Del/Veh (s)	0.1	5.8	130.3	149.8	18.8

9: Main Street/Third Street & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.2	0.1	0.1	0.2	0.2	0.0	0.0	0.1	0.8
Denied Del/Veh (s)	3.5	1.1	3.5	1.6	3.7	0.7	0.7	3.6	2.0
Total Delay (hr)	1.4	1.7	0.4	4.3	1.5	1.5	0.6	0.7	12.2
Total Del/Veh (s)	29.1	23.7	21.8	35.6	29.2	29.6	29.0	27.5	29.7
Stop Delay (hr)	1.3	1.4	0.3	3.4	1.4	1.3	0.5	0.6	10.2
Stop Del/Veh (s)	25.8	19.3	20.1	28.7	25.9	25.3	23.7	24.4	25.0

10: Third Street & Binney Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	20.9	17.7	14.4	0.0	0.3	0.2
Denied Del/Veh (s)	0.2	0.0	0.1	3.4	0.2	0.5	750.8	814.7	820.4	5.1	4.0	3.7
Total Delay (hr)	2.3	2.4	0.7	4.0	5.3	0.0	9.7	7.1	3.9	0.8	7.2	4.7
Total Del/Veh (s)	81.3	19.9	39.1	93.0	52.6	44.3	512.3	512.9	365.9	96.7	105.3	100.5
Stop Delay (hr)	2.1	1.7	0.6	3.8	4.9	0.0	9.7	7.1	3.9	0.8	6.5	4.3
Stop Del/Veh (s)	73.8	13.7	32.9	88.0	48.2	42.3	512.2	511.4	365.2	88.1	95.4	93.6

10: Third Street & Binney Street Performance by movement

Movement	All
Denied Delay (hr)	53.5
Denied Del/Veh (s)	108.3
Total Delay (hr)	48.2
Total Del/Veh (s)	100.4
Stop Delay (hr)	45.3
Stop Del/Veh (s)	94.4

100: Cambridge Street & Warren Street Performance by movement

Movement	EBL	EBT	WBT	WBR	All
Denied Delay (hr)	0.0	0.0	4.1	0.2	4.3
Denied Del/Veh (s)	0.1	0.1	37.6	11.1	13.6
Total Delay (hr)	0.3	0.4	7.3	1.0	8.9
Total Del/Veh (s)	5.5	2.6	66.7	56.4	28.1
Stop Delay (hr)	0.2	0.2	6.6	0.9	7.8
Stop Del/Veh (s)	4.4	1.1	59.9	51.7	24.6

800: Fulkerson Street & Cambridge Street Performance by movement

Movement	EBT	EBR	WBL	WBT	All
Denied Delay (hr)	0.0	0.0	0.8	11.9	12.7
Denied Del/Veh (s)	0.0	0.0	111.0	105.4	46.0
Total Delay (hr)	0.0	0.0	0.9	16.1	17.1
Total Del/Veh (s)	0.4	0.3	142.4	144.4	62.3
Stop Delay (hr)	0.0	0.0	0.9	15.5	16.5
Stop Del/Veh (s)	0.1	0.2	138.0	139.6	60.1

Total Zone Performance

Denied Delay (hr)	232.9
Denied Del/Veh (s)	107.3
Total Delay (hr)	210.5
Total Del/Veh (s)	627.7
Stop Delay (hr)	192.1
Stop Del/Veh (s)	572.9

Intersection: 1: Cardinal Medeiros Ave & Cambridge Street

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	389	97	1106
Average Queue (ft)	241	58	642
95th Queue (ft)	449	76	1413
Link Distance (ft)	340	45	1694
Upstream Blk Time (%)	19	58	3
Queuing Penalty (veh)	0	272	6
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Cardinal Medeiros Ave & Bristol Street/"Little" Binney

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	TR	LT
Maximum Queue (ft)	160	78	224	128
Average Queue (ft)	66	37	52	41
95th Queue (ft)	146	65	178	103
Link Distance (ft)	276	521	456	1694
Upstream Blk Time (%)	3		0	
Queuing Penalty (veh)	0		1	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Portland Street/Cardinal Medeiros Ave & Hampshire Street

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	386	210	69	120	119	233
Average Queue (ft)	353	119	16	86	25	123
95th Queue (ft)	383	219	52	136	80	210
Link Distance (ft)	332	167		95		456
Upstream Blk Time (%)	88	19		10		
Queuing Penalty (veh)	0	0		33		
Storage Bay Dist (ft)			45		95	
Storage Blk Time (%)			2	27	0	17
Queuing Penalty (veh)			5	8	0	5

Intersection: 4: Portland Street & Broadway

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	830	289	82	230	69	127
Average Queue (ft)	443	146	22	101	24	98
95th Queue (ft)	818	270	61	184	64	147
Link Distance (ft)	858	247		374		95
Upstream Blk Time (%)	4	9				16
Queuing Penalty (veh)	0	0				67
Storage Bay Dist (ft)			210		45	
Storage Blk Time (%)				0	2	31
Queuing Penalty (veh)				0	9	13

Intersection: 5: "Little" Binney & Site Driveway

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	81	4	27
Average Queue (ft)	16	0	2
95th Queue (ft)	52	3	15
Link Distance (ft)	521	259	160
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Galileo Galilei Way & Broadway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	125	436	100	170	256	154	230	340	245	160	457	332
Average Queue (ft)	103	203	35	51	118	32	77	156	96	19	178	163
95th Queue (ft)	151	368	90	118	208	93	177	282	192	75	328	287
Link Distance (ft)		433			573			388			625	
Upstream Blk Time (%)		1						0			0	
Queuing Penalty (veh)		0						0			0	
Storage Bay Dist (ft)	100		75	285		200	250		250	200		325
Storage Blk Time (%)	19	25	1		2	0	0	2	0	0	8	0
Queuing Penalty (veh)	68	47	3		2	0	0	3	2	0	17	1

Intersection: 7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street

Movement	EB	WB	WB	SB	SE	SE
Directions Served	T	T	R>	R>	<	LR
Maximum Queue (ft)	424	1086	125	413	123	181
Average Queue (ft)	231	590	119	198	71	87
95th Queue (ft)	389	1230	138	352	129	173
Link Distance (ft)	625	1485		915		259
Upstream Blk Time (%)		0				
Queuing Penalty (veh)		3				
Storage Bay Dist (ft)			100		100	
Storage Blk Time (%)		14	57		4	8
Queuing Penalty (veh)		31	206		5	8

Intersection: 8: Cambridge Street & Lambert Street

Movement	EB	WB	SB
Directions Served	T	T	LR
Maximum Queue (ft)	87	89	149
Average Queue (ft)	13	49	117
95th Queue (ft)	53	88	140
Link Distance (ft)	282	1	98
Upstream Blk Time (%)		59	100
Queuing Penalty (veh)		241	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Main Street/Third Street & Broadway

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	TR	T	R	LT	R
Maximum Queue (ft)	204	204	181	406	337	270	185
Average Queue (ft)	100	97	68	222	121	138	70
95th Queue (ft)	176	166	146	387	252	230	159
Link Distance (ft)		870		446		563	
Upstream Blk Time (%)				1			
Queuing Penalty (veh)				0			
Storage Bay Dist (ft)	340		200		350		160
Storage Blk Time (%)		0	0	3	0	6	0
Queuing Penalty (veh)		1	0	5	0	5	0

Intersection: 10: Third Street & Binney Street

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	R	L	T	TR	LT	R	LTR
Maximum Queue (ft)	219	375	221	264	495	475	574	165	668
Average Queue (ft)	108	152	54	152	189	155	513	83	439
95th Queue (ft)	214	296	136	279	388	348	658	217	859
Link Distance (ft)		1485			978	978	524		961
Upstream Blk Time (%)							86		6
Queuing Penalty (veh)							0		0
Storage Bay Dist (ft)	200		200	240				140	
Storage Blk Time (%)	4	4	0	14	2		93	0	
Queuing Penalty (veh)	11	6	0	25	3		57	0	

Intersection: 100: Cambridge Street & Warren Street

Movement	EB	WB
Directions Served	LT	TR
Maximum Queue (ft)	80	299
Average Queue (ft)	43	278
95th Queue (ft)	77	352
Link Distance (ft)	45	282
Upstream Blk Time (%)	16	48
Queuing Penalty (veh)	110	261
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 800: Fulkerson Street & Cambridge Street

Movement	EB	WB
Directions Served	TR	LT
Maximum Queue (ft)	90	728
Average Queue (ft)	17	549
95th Queue (ft)	66	945
Link Distance (ft)	1	679
Upstream Blk Time (%)	0	50
Queuing Penalty (veh)	3	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 1544

Intersection: 3: Portland Street/Cardinal Medeiros Ave & Hampshire Street

Phase	1	2
Movement(s) Served	EBWB	NBSB
Maximum Green (s)	42.0	34.0
Minimum Green (s)	25.0	25.0
Recall	C-Max	Max
Avg. Green (s)	42.0	34.0
g/C Ratio	NA	NA
Cycles Skipped (%)	0	0
Cycles @ Minimum (%)	0	0
Cycles Maxed Out (%)	100	100
Cycles with Peds (%)	100	100

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 6: Galileo Galilei Way & Broadway

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Maximum Green (s)	8.0	28.0	8.0	25.0	13.0	23.0	10.0	24.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Recall	None	C-Max	None	Max	None	C-Max	None	Max
Avg. Green (s)	7.9	29.9	7.4	25.9	12.8	24.8	7.4	29.1
g/C Ratio	NA	NA	-0.01	NA	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	5	0	0	0	31	0
Cycles @ Minimum (%)	8	0	18	0	0	0	23	0
Cycles Maxed Out (%)	74	100	54	100	90	100	13	100
Cycles with Peds (%)	0	100	0	93	0	5	0	0

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street

Phase	2	3	4	5	6
Movement(s) Served	EBWB	SBR	SEL	WBR	WBT
Maximum Green (s)	38.0	19.0	11.0	12.0	22.0
Minimum Green (s)	20.0	10.0	10.0	6.0	20.0
Recall	C-Max	Ped	Ped	None	C-Max
Avg. Green (s)	39.1	18.2	10.6	12.6	22.5
g/C Ratio	NA	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0	0
Cycles @ Minimum (%)	0	0	32	0	0
Cycles Maxed Out (%)	100	82	61	84	100
Cycles with Peds (%)	0	100	100	0	95

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 10: Third Street & Binney Street

Phase	1	2	4	5	6	8
Movement(s) Served	WBL	EBT	NBTL	EBL	WBT	SBTL
Maximum Green (s)	10.0	20.0	36.0	7.0	23.0	36.0
Minimum Green (s)	6.0	20.0	25.0	6.0	20.0	25.0
Recall	None	C-Max	Max	None	C-Max	Max
Avg. Green (s)	9.7	21.1	36.0	7.0	24.5	36.0
g/C Ratio	-0.01	NA	NA	-0.01	NA	NA
Cycles Skipped (%)	3	0	0	8	0	0
Cycles @ Minimum (%)	5	73	0	8	0	0
Cycles Maxed Out (%)	77	100	100	77	100	100
Cycles with Peds (%)	0	85	100	0	93	98

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:15	4:15	4:15	4:15	4:15	4:15
End Time	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	7606	7432	7423	7483	7481	7481
Vehs Exited	7554	7393	7267	7350	7411	7393
Starting Vehs	249	232	228	243	258	237
Ending Vehs	301	271	384	376	328	330
Travel Distance (mi)	2472	2387	2380	2399	2414	2411
Travel Time (hr)	419.0	429.7	518.8	480.9	392.9	448.2
Total Delay (hr)	328.6	342.5	431.9	393.1	304.6	360.1
Total Stops	9530	8890	9270	9302	9579	9314
Fuel Used (gal)	168.7	168.2	188.1	180.6	160.7	173.3

Interval #0 Information Seeding

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	7606	7432	7423	7483	7481	7481
Vehs Exited	7554	7393	7267	7350	7411	7393
Starting Vehs	249	232	228	243	258	237
Ending Vehs	301	271	384	376	328	330
Travel Distance (mi)	2472	2387	2380	2399	2414	2411
Travel Time (hr)	419.0	429.7	518.8	480.9	392.9	448.2
Total Delay (hr)	328.6	342.5	431.9	393.1	304.6	360.1
Total Stops	9530	8890	9270	9302	9579	9314
Fuel Used (gal)	168.7	168.2	188.1	180.6	160.7	173.3

1: Cardinal Medeiros Ave & Cambridge Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Delay (hr)	0.2	0.0	0.0	0.0	0.2	0.0	1.9	2.2
Denied Del/Veh (s)	1.1	0.9	0.0	0.0	36.8	0.0	30.3	5.5
Total Delay (hr)	1.5	0.1	0.2	0.2	2.5	5.2	31.8	41.5
Total Del/Veh (s)	11.0	7.0	7.2	1.8	520.0	100.3	487.4	103.7
Stop Delay (hr)	0.9	0.1	0.2	0.1	2.5	5.3	32.7	41.6
Stop Del/Veh (s)	6.2	4.3	6.1	0.8	530.4	101.4	500.4	104.0

2: Cardinal Medeiros Ave & Bristol Street/"Little" Binney Performance by movement

Movement	EBL	EBT	EBR	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.2
Denied Del/Veh (s)	0.2	0.1	0.1	2.8	4.3	0.0	0.0	0.0	0.0	0.7
Total Delay (hr)	0.0	0.3	0.0	1.2	0.7	1.2	0.5	0.0	0.1	4.1
Total Del/Veh (s)	19.6	18.8	6.1	36.6	37.7	10.9	10.3	9.1	1.6	15.0
Stop Delay (hr)	0.0	0.2	0.0	1.2	0.7	0.8	0.4	0.0	0.0	3.3
Stop Del/Veh (s)	17.6	15.4	5.5	34.6	37.2	7.0	7.5	6.9	0.6	12.2

3: Portland Street/Cardinal Medeiros Ave & Hampshire Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	2.6	21.1	10.7	0.3	9.2	5.4	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	403.1	497.4	557.9	103.6	119.1	122.3	0.0	0.1	0.0	0.0	0.0	0.0
Total Delay (hr)	1.7	7.8	3.4	0.2	3.4	1.8	0.5	1.2	0.0	0.2	0.6	0.1
Total Del/Veh (s)	303.5	226.9	217.6	66.6	44.7	42.0	18.2	10.8	11.5	28.9	10.8	15.7
Stop Delay (hr)	1.7	7.7	3.4	0.2	3.1	1.8	0.4	0.9	0.0	0.1	0.5	0.1
Stop Del/Veh (s)	300.8	223.1	217.0	64.4	40.4	40.8	15.8	8.0	10.6	26.3	8.7	14.5

3: Portland Street/Cardinal Medeiros Ave & Hampshire Street Performance by movement

Movement	All
Denied Delay (hr)	49.3
Denied Del/Veh (s)	121.2
Total Delay (hr)	21.0
Total Del/Veh (s)	53.3
Stop Delay (hr)	19.9
Stop Del/Veh (s)	50.6

4: Portland Street & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.1	0.1	0.0	0.1	0.6	0.1	0.1	0.1	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	5.1	2.0	3.1	7.6	6.7	9.7	3.7	1.0	1.1	0.0	0.0	0.0
Total Delay (hr)	1.9	3.1	0.6	0.3	3.3	0.5	0.7	3.5	0.4	0.2	0.4	0.2
Total Del/Veh (s)	99.4	58.5	58.6	36.6	36.8	41.7	34.4	29.9	30.4	35.6	12.7	14.8
Stop Delay (hr)	1.8	2.8	0.6	0.3	2.9	0.5	0.6	2.7	0.3	0.2	0.3	0.2
Stop Del/Veh (s)	95.8	53.3	56.0	33.5	32.0	39.7	30.0	23.4	26.3	33.7	10.3	13.9

4: Portland Street & Broadway Performance by movement

Movement	All
Denied Delay (hr)	1.2
Denied Del/Veh (s)	3.1
Total Delay (hr)	14.8
Total Del/Veh (s)	38.4
Stop Delay (hr)	13.0
Stop Del/Veh (s)	33.7

5: "Little" Binney & Site Driveway Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.3	28.6	0.0	0.0	23.3	23.8	76.0
Denied Del/Veh (s)	192.0	218.7	0.0	0.0	1614.4	1712.0	442.9
Total Delay (hr)	0.1	12.2	0.0	0.0	4.1	3.7	20.1
Total Del/Veh (s)	89.6	101.2	0.5	0.3	2955.3	2632.0	148.0
Stop Delay (hr)	0.1	11.3	0.0	0.0	4.1	3.7	19.2
Stop Del/Veh (s)	82.7	93.9	0.4	0.2	2954.7	2631.5	141.4

6: Galileo Galilei Way & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.2	0.1	0.0	0.1	0.1	0.0	0.1	0.3	0.1	0.0	0.0	0.0
Denied Del/Veh (s)	3.7	1.5	3.6	3.6	0.8	3.7	4.7	2.4	4.9	0.2	0.0	0.0
Total Delay (hr)	2.8	2.8	0.3	1.1	1.7	0.5	1.0	4.0	1.0	0.1	3.1	2.4
Total Del/Veh (s)	63.2	32.1	39.5	38.2	23.1	43.9	43.7	36.9	38.5	36.6	34.2	53.5
Stop Delay (hr)	2.5	2.2	0.2	1.0	1.4	0.5	0.9	3.3	1.0	0.0	2.6	2.2
Stop Del/Veh (s)	57.3	25.3	35.5	35.2	18.7	42.8	39.4	30.2	35.2	32.9	28.0	49.7

6: Galileo Galilei Way & Broadway Performance by movement

Movement	All
Denied Delay (hr)	1.0
Denied Del/Veh (s)	1.9
Total Delay (hr)	20.8
Total Del/Veh (s)	37.9
Stop Delay (hr)	17.8
Stop Del/Veh (s)	32.5

7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street Performance by movement

Movement	EBT	WBT	WBR	WBR2	SBR	SBR2	SEL2	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	3.1	2.0	2.5	7.7
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.3	0.3	50.3	66.9	89.0	17.8
Total Delay (hr)	5.8	1.5	0.4	0.9	2.3	0.3	6.3	3.3	3.0	23.7
Total Del/Veh (s)	35.0	18.3	53.6	48.4	56.1	65.3	102.0	108.9	107.1	54.4
Stop Delay (hr)	4.1	1.0	0.3	0.8	2.2	0.3	5.8	3.1	2.9	20.5
Stop Del/Veh (s)	25.1	13.1	48.4	44.0	53.5	62.7	94.1	101.4	100.8	47.1

8: Cambridge Street & Lambert Street Performance by movement

Movement	EBT	WBT	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.1	0.1	0.2
Denied Del/Veh (s)	0.0	0.0	2.6	2.5	0.6
Total Delay (hr)	0.2	0.0	0.5	0.5	1.2
Total Del/Veh (s)	1.8	0.5	20.3	11.6	4.4
Stop Delay (hr)	0.0	0.0	0.5	0.5	1.0
Stop Del/Veh (s)	0.1	0.2	20.0	12.4	3.7

9: Main Street/Third Street & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.2	0.2	0.1	0.1	0.1	0.8	0.2	0.3	1.8
Denied Del/Veh (s)	3.4	1.4	3.7	0.7	3.6	7.8	8.9	11.9	4.2
Total Delay (hr)	1.7	3.1	0.4	2.0	0.6	6.8	1.2	1.1	16.9
Total Del/Veh (s)	30.8	26.5	24.1	25.4	22.2	61.2	67.1	45.2	37.8
Stop Delay (hr)	1.5	2.5	0.3	1.7	0.5	5.9	1.0	0.9	14.3
Stop Del/Veh (s)	26.9	21.0	21.9	20.7	20.5	52.7	57.0	38.3	32.0

10: Third Street & Binney Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	3.3	8.8	3.7	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.0	3.8	0.1	0.1	136.9	146.0	150.4	0.3	0.3	0.3
Total Delay (hr)	5.5	3.2	1.0	0.5	2.1	0.1	4.5	11.5	3.3	0.5	3.0	1.1
Total Del/Veh (s)	70.3	34.1	33.7	42.8	32.4	30.1	190.4	192.7	136.3	93.7	73.2	64.0
Stop Delay (hr)	4.5	2.0	0.7	0.5	1.9	0.1	4.4	11.1	3.2	0.4	2.8	1.0
Stop Del/Veh (s)	58.1	22.0	24.0	40.0	28.4	29.2	185.8	187.2	132.1	89.2	67.2	60.9

10: Third Street & Binney Street Performance by movement

Movement	All
Denied Delay (hr)	15.9
Denied Del/Veh (s)	35.6
Total Delay (hr)	36.2
Total Del/Veh (s)	80.3
Stop Delay (hr)	32.7
Stop Del/Veh (s)	72.6

100: Cambridge Street & Warren Street Performance by movement

Movement	EBL	EBT	WBT	WBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.6	0.0
Total Delay (hr)	0.4	0.3	0.8	0.0	1.5
Total Del/Veh (s)	5.1	2.3	6.0	4.2	4.4
Stop Delay (hr)	0.3	0.1	0.4	0.0	0.9
Stop Del/Veh (s)	4.1	1.0	3.5	2.9	2.7

800: Fulkerson Street & Cambridge Street Performance by movement

Movement	EBT	EBR	WBL	WBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.4	0.5	0.2
Total Delay (hr)	0.0	0.0	0.0	0.2	0.2
Total Del/Veh (s)	0.3	0.2	4.9	1.7	0.9
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	0.1	0.2	2.7	0.3	0.2

Total Zone Performance

Denied Delay (hr)	155.5
Denied Del/Veh (s)	72.3
Total Delay (hr)	202.0
Total Del/Veh (s)	1044.6
Stop Delay (hr)	184.4
Stop Del/Veh (s)	953.8

Intersection: 1: Cardinal Medeiros Ave & Cambridge Street

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	334	74	1540
Average Queue (ft)	112	41	1007
95th Queue (ft)	249	76	1846
Link Distance (ft)	340	45	1694
Upstream Blk Time (%)	1	12	9
Queuing Penalty (veh)	0	54	38
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Cardinal Medeiros Ave & Bristol Street/"Little" Binney

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	TR	LT
Maximum Queue (ft)	73	263	342	57
Average Queue (ft)	32	91	76	12
95th Queue (ft)	60	207	270	40
Link Distance (ft)	276	524	456	1694
Upstream Blk Time (%)			1	
Queuing Penalty (veh)			5	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Portland Street/Cardinal Medeiros Ave & Hampshire Street

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	384	214	69	125	55	161
Average Queue (ft)	336	179	33	79	11	63
95th Queue (ft)	414	217	74	119	36	124
Link Distance (ft)	332	167		88		456
Upstream Blk Time (%)	84	61	0	12		
Queuing Penalty (veh)	0	0	0	64		
Storage Bay Dist (ft)			45		95	
Storage Blk Time (%)			7	28		3
Queuing Penalty (veh)			32	26		1

Intersection: 4: Portland Street & Broadway

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	TR	L	TR
Maximum Queue (ft)	50	577	278	234	387	69	121
Average Queue (ft)	41	195	184	55	215	17	60
95th Queue (ft)	62	494	295	148	365	53	128
Link Distance (ft)		857	246		368		88
Upstream Blk Time (%)		1	13		2	0	6
Queuing Penalty (veh)		0	0		0	0	13
Storage Bay Dist (ft)	25			210		45	
Storage Blk Time (%)	55	39		0	11	3	16
Queuing Penalty (veh)	126	27		0	8	6	3

Intersection: 5: "Little" Binney & Site Driveway

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	493	171
Average Queue (ft)	381	163
95th Queue (ft)	477	195
Link Distance (ft)	524	170
Upstream Blk Time (%)	0	96
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Galileo Galilei Way & Broadway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	125	423	88	146	234	157	237	393	246	32	299	246
Average Queue (ft)	105	212	19	62	108	32	68	207	86	5	170	119
95th Queue (ft)	151	393	68	117	191	90	169	352	204	20	273	206
Link Distance (ft)		433			571			387			624	
Upstream Blk Time (%)		2						3				
Queuing Penalty (veh)		0						0				
Storage Bay Dist (ft)	100		75	285		200	250		250	200		325
Storage Blk Time (%)	20	26	0		0	0	0	6	0		6	
Queuing Penalty (veh)	64	48	0		1	0	0	11	0		11	

Intersection: 7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street

Movement	EB	WB	WB	SB	SE	SE
Directions Served	T	T	R>	R>	<	LR
Maximum Queue (ft)	493	230	125	241	125	273
Average Queue (ft)	284	104	73	114	123	266
95th Queue (ft)	476	191	131	202	140	272
Link Distance (ft)	624	1486		917		260
Upstream Blk Time (%)	0					63
Queuing Penalty (veh)	0					323
Storage Bay Dist (ft)			100		100	
Storage Blk Time (%)		9	6		45	57
Queuing Penalty (veh)		8	15		119	148

Intersection: 8: Cambridge Street & Lambert Street

Movement	EB	WB	SB
Directions Served	T	T	LR
Maximum Queue (ft)	70	48	119
Average Queue (ft)	12	11	80
95th Queue (ft)	47	37	123
Link Distance (ft)	282	1	98
Upstream Blk Time (%)		1	9
Queuing Penalty (veh)		5	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Main Street/Third Street & Broadway

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	TR	T	R	LT	R
Maximum Queue (ft)	222	229	214	234	123	589	185
Average Queue (ft)	106	136	93	123	47	348	105
95th Queue (ft)	189	206	184	201	95	598	230
Link Distance (ft)		870		446		563	
Upstream Blk Time (%)						10	
Queuing Penalty (veh)						0	
Storage Bay Dist (ft)	340		200		350		160
Storage Blk Time (%)		1	0			44	0
Queuing Penalty (veh)		3	0			38	1

Intersection: 10: Third Street & Binney Street

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	R	L	T	TR	LT	R	LTR
Maximum Queue (ft)	225	634	225	102	175	144	573	165	467
Average Queue (ft)	183	237	59	37	97	53	503	119	192
95th Queue (ft)	258	529	147	76	154	113	683	235	429
Link Distance (ft)		1486			978	978	524		961
Upstream Blk Time (%)							75		
Queuing Penalty (veh)							0		
Storage Bay Dist (ft)	200		200	240				140	
Storage Blk Time (%)	19	4	0				79	0	
Queuing Penalty (veh)	85	14	0				72	1	

Intersection: 100: Cambridge Street & Warren Street

Movement	EB	WB
Directions Served	LT	TR
Maximum Queue (ft)	71	252
Average Queue (ft)	55	63
95th Queue (ft)	66	193
Link Distance (ft)	45	282
Upstream Blk Time (%)	18	0
Queuing Penalty (veh)	132	1
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 800: Fulkerson Street & Cambridge Street

Movement	EB	WB
Directions Served	TR	LT
Maximum Queue (ft)	30	108
Average Queue (ft)	4	16
95th Queue (ft)	20	66
Link Distance (ft)	1	679
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	1	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 1502

Intersection: 3: Portland Street/Cardinal Medeiros Ave & Hampshire Street

Phase	1	2
Movement(s) Served	EBWB	NBSB
Maximum Green (s)	38.0	38.0
Minimum Green (s)	25.0	25.0
Recall	C-Max	Max
Avg. Green (s)	38.0	38.0
g/C Ratio	NA	NA
Cycles Skipped (%)	0	0
Cycles @ Minimum (%)	0	0
Cycles Maxed Out (%)	100	100
Cycles with Peds (%)	100	100

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 6: Galileo Galilei Way & Broadway

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Maximum Green (s)	14.0	25.0	9.0	22.0	12.0	27.0	7.0	24.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Recall	None	C-Max	None	Max	None	C-Max	None	Max
Avg. Green (s)	10.7	28.9	7.9	24.1	11.7	28.0	6.7	27.4
g/C Ratio	NA	NA	-0.01	NA	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	10	0	0	0	31	0
Cycles @ Minimum (%)	8	0	21	0	0	0	28	0
Cycles Maxed Out (%)	28	100	36	100	85	100	36	100
Cycles with Peds (%)	0	97	0	93	0	0	0	3

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street

Phase	2	3	4	5	6
Movement(s) Served	EBWB	SBR	SEL	WBR	WBT
Maximum Green (s)	38.0	15.0	15.0	12.0	22.0
Minimum Green (s)	20.0	10.0	10.0	6.0	20.0
Recall	C-Max	Ped	Ped	None	C-Max
Avg. Green (s)	39.4	13.7	15.0	10.0	27.3
g/C Ratio	NA	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	0	14	0
Cycles @ Minimum (%)	0	0	0	19	0
Cycles Maxed Out (%)	100	58	100	22	100
Cycles with Peds (%)	0	100	100	0	87

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 10: Third Street & Binney Street

Phase	1	2	4	5	6	8
Movement(s) Served	WBL	EBT	NBTL	EBL	WBT	SBTL
Maximum Green (s)	13.0	23.0	30.0	16.0	20.0	30.0
Minimum Green (s)	6.0	20.0	25.0	6.0	20.0	25.0
Recall	None	C-Max	Max	None	C-Max	Max
Avg. Green (s)	7.8	32.9	30.0	15.2	20.8	30.0
g/C Ratio	-0.01	NA	NA	NA	NA	NA
Cycles Skipped (%)	26	0	0	0	0	0
Cycles @ Minimum (%)	28	0	0	0	80	0
Cycles Maxed Out (%)	5	100	100	80	100	100
Cycles with Peds (%)	0	82	98	0	85	98

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

SimTraffic - 2025 Future Conditions

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	8:00	8:00	8:00	8:00	8:00	8:00
End Time	9:15	9:15	9:15	9:15	9:15	9:15
Total Time (min)	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	8179	8418	8194	8085	8058	8182
Vehs Exited	8025	8227	8057	7992	7827	8025
Starting Vehs	370	351	382	370	349	363
Ending Vehs	524	542	519	463	580	523
Travel Distance (mi)	2546	2617	2538	2508	2495	2541
Travel Time (hr)	1170.7	1035.2	1087.4	1045.1	1047.7	1077.2
Total Delay (hr)	1077.1	939.4	994.1	953.0	956.2	983.9
Total Stops	10495	10186	10366	9721	9685	10094
Fuel Used (gal)	337.9	311.4	320.0	310.3	310.0	317.9

Interval #0 Information Seeding

Start Time	8:00
End Time	8:15
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	8:15
End Time	9:15
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	8179	8418	8194	8085	8058	8182
Vehs Exited	8025	8227	8057	7992	7827	8025
Starting Vehs	370	351	382	370	349	363
Ending Vehs	524	542	519	463	580	523
Travel Distance (mi)	2546	2617	2538	2508	2495	2541
Travel Time (hr)	1170.7	1035.2	1087.4	1045.1	1047.7	1077.2
Total Delay (hr)	1077.1	939.4	994.1	953.0	956.2	983.9
Total Stops	10495	10186	10366	9721	9685	10094
Fuel Used (gal)	337.9	311.4	320.0	310.3	310.0	317.9

1: Cardinal Medeiros Ave & Cambridge Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Delay (hr)	4.0	1.4	0.2	0.1	0.0	0.0	5.5	11.3
Denied Del/Veh (s)	23.8	23.4	5.4	2.3	13.2	0.0	142.5	29.6
Total Delay (hr)	4.2	1.4	1.0	0.5	3.3	4.5	38.1	52.9
Total Del/Veh (s)	25.4	22.6	25.1	8.6	1081.3	228.5	1000.0	139.0
Stop Delay (hr)	2.9	1.0	0.9	0.4	3.3	4.5	38.6	51.6
Stop Del/Veh (s)	17.4	17.0	23.9	6.6	1093.2	229.4	1013.2	135.6

2: Cardinal Medeiros Ave & Bristol Street/"Little" Binney Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.7
Denied Del/Veh (s)	12.6	7.0	8.5	0.0	0.0	0.0	2.1	2.6	0.0	0.0	2.0
Total Delay (hr)	0.5	2.3	0.2	0.5	0.0	0.3	0.6	1.1	0.2	0.3	6.0
Total Del/Veh (s)	67.6	72.7	62.3	36.7	1.1	63.8	10.9	10.6	10.9	3.8	16.6
Stop Delay (hr)	0.5	2.2	0.2	0.4	0.0	0.3	0.4	0.7	0.2	0.1	5.0
Stop Del/Veh (s)	66.1	69.9	63.3	34.6	0.6	63.1	6.3	7.1	8.0	1.7	13.8

3: Portland Street/Cardinal Medeiros Ave & Hampshire Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	10.2	62.0	36.1	0.1	1.4	1.2	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	694.7	743.9	747.7	56.4	37.6	34.0	0.7	0.1	0.2	0.5	0.0	0.0
Total Delay (hr)	1.4	7.2	4.2	0.2	1.3	1.3	0.2	1.1	0.1	0.2	1.4	0.1
Total Del/Veh (s)	138.1	127.5	130.0	83.9	35.7	39.8	23.7	13.8	15.3	34.1	19.1	20.4
Stop Delay (hr)	1.4	7.0	4.2	0.2	1.2	1.3	0.1	0.9	0.1	0.2	1.1	0.1
Stop Del/Veh (s)	136.0	124.1	129.3	82.1	32.0	39.1	21.6	11.4	15.0	30.8	15.2	18.4

3: Portland Street/Cardinal Medeiros Ave & Hampshire Street Performance by movement

Movement	All
Denied Delay (hr)	111.0
Denied Del/Veh (s)	280.9
Total Delay (hr)	18.7
Total Del/Veh (s)	53.6
Stop Delay (hr)	17.8
Stop Del/Veh (s)	51.0

4: Portland Street & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	7.6	22.9	2.5	0.1	0.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	237.8	238.7	245.7	7.6	9.5	8.3	3.8	0.4	0.5	0.0	0.0	0.0
Total Delay (hr)	7.2	20.2	2.1	0.5	2.8	0.4	0.4	1.4	0.3	0.2	1.0	0.2
Total Del/Veh (s)	245.8	230.5	231.9	61.4	41.0	37.1	37.3	25.7	27.0	20.6	13.6	14.0
Stop Delay (hr)	7.2	20.2	2.1	0.5	2.5	0.4	0.3	1.2	0.3	0.1	0.8	0.2
Stop Del/Veh (s)	247.2	230.6	233.9	58.4	36.7	35.2	34.4	21.2	24.6	18.3	10.8	13.0

4: Portland Street & Broadway Performance by movement

Movement	All
Denied Delay (hr)	33.8
Denied Del/Veh (s)	85.3
Total Delay (hr)	36.6
Total Del/Veh (s)	94.7
Stop Delay (hr)	35.8
Stop Del/Veh (s)	92.6

5: "Little" Binney & Site Driveway Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.1	0.1	0.0
Total Delay (hr)	0.1	0.2	0.1	0.0	0.0	0.0	0.3
Total Del/Veh (s)	3.8	1.1	0.9	0.6	5.1	2.6	1.3
Stop Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Stop Del/Veh (s)	1.3	0.3	0.2	0.2	3.7	2.6	0.3

6: Galileo Galilei Way & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	1.4	2.9	0.5	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0
Denied Del/Veh (s)	28.9	27.5	26.0	3.5	1.0	3.5	3.7	1.1	3.6	0.0	0.0	0.0
Total Delay (hr)	4.1	5.6	1.3	1.8	2.9	0.5	1.2	2.5	1.3	0.2	3.0	3.5
Total Del/Veh (s)	82.4	52.8	62.2	64.3	32.3	44.9	58.1	28.5	50.0	41.1	33.1	68.7
Stop Delay (hr)	3.7	4.6	1.2	1.7	2.4	0.5	1.1	2.0	1.3	0.1	2.4	3.3
Stop Del/Veh (s)	74.1	43.6	55.7	60.3	26.4	42.5	54.2	23.0	47.1	37.0	26.4	64.0

6: Galileo Galilei Way & Broadway Performance by movement

Movement	All
Denied Delay (hr)	5.3
Denied Del/Veh (s)	9.2
Total Delay (hr)	28.1
Total Del/Veh (s)	47.6
Stop Delay (hr)	24.3
Stop Del/Veh (s)	41.3

7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street Performance by movement

Movement	EBT	WBT	WBR	WBR2	SBR	SBR2	SEL2	SEL	SET	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.3
Denied Del/Veh (s)	0.0	0.4	1.2	0.0	3.5	2.7	0.4	0.1	0.0	0.4	0.8
Total Delay (hr)	4.8	8.3	6.4	1.7	11.4	3.2	1.0	1.4	0.0	0.2	38.4
Total Del/Veh (s)	32.1	75.4	149.2	133.5	198.8	204.0	42.6	47.5	2.0	46.5	85.3
Stop Delay (hr)	3.5	6.9	5.8	1.5	11.3	3.2	1.0	1.3	0.0	0.2	34.8
Stop Del/Veh (s)	23.3	63.0	135.6	121.0	198.2	203.5	39.4	44.9	0.9	45.3	77.2

8: Cambridge Street & Lambert Street Performance by movement

Movement	EBT	WBT	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	94.3	84.4	178.7
Denied Del/Veh (s)	0.0	0.0	1578.6	1678.4	520.4
Total Delay (hr)	0.4	0.8	2.2	2.2	5.7
Total Del/Veh (s)	2.8	9.1	177.8	231.3	22.1
Stop Delay (hr)	0.1	0.7	2.2	2.3	5.3
Stop Del/Veh (s)	0.5	7.7	180.9	235.3	20.6

9: Main Street/Third Street & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.2	0.1	0.1	48.9	20.5	1.9	1.5	1.3	74.4
Denied Del/Veh (s)	3.5	1.3	3.5	284.8	288.4	28.4	28.4	29.9	133.9
Total Delay (hr)	1.8	1.9	0.4	13.9	2.8	6.2	5.1	2.7	34.8
Total Del/Veh (s)	31.5	23.8	22.5	90.4	43.9	92.1	94.4	63.8	65.0
Stop Delay (hr)	1.6	1.5	0.4	12.1	2.4	5.4	4.5	2.3	30.2
Stop Del/Veh (s)	27.7	19.3	20.7	79.2	37.2	81.2	82.0	53.6	56.4

10: Third Street & Binney Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	1.9	3.5	0.1	47.8	39.9	37.9	0.7	10.1	5.3
Denied Del/Veh (s)	0.2	0.0	0.1	32.6	29.3	52.3	1400.1	1434.6	1452.4	99.7	110.1	112.7
Total Delay (hr)	2.8	3.3	0.9	21.1	22.1	0.2	10.0	7.7	4.5	1.2	17.3	9.0
Total Del/Veh (s)	92.2	24.8	43.5	366.8	182.6	145.8	820.9	766.0	526.7	184.1	199.3	202.8
Stop Delay (hr)	2.5	2.4	0.7	21.2	21.1	0.2	10.1	7.7	4.5	1.2	16.7	8.9
Stop Del/Veh (s)	83.3	17.8	36.5	368.2	175.0	140.3	822.6	766.8	527.4	177.8	192.5	199.3

10: Third Street & Binney Street Performance by movement

Movement	All
Denied Delay (hr)	147.2
Denied Del/Veh (s)	248.3
Total Delay (hr)	100.1
Total Del/Veh (s)	188.1
Stop Delay (hr)	97.2
Stop Del/Veh (s)	182.6

100: Cambridge Street & Warren Street Performance by movement

Movement	EBL	EBT	WBT	WBR	All
Denied Delay (hr)	0.0	0.0	8.2	0.3	8.5
Denied Del/Veh (s)	0.0	0.1	87.7	21.0	28.1
Total Delay (hr)	0.3	0.4	8.1	1.2	10.0
Total Del/Veh (s)	5.4	2.8	88.4	81.0	33.3
Stop Delay (hr)	0.2	0.2	7.5	1.2	9.0
Stop Del/Veh (s)	4.1	1.1	81.2	75.8	29.8

800: Fulkerson Street & Cambridge Street Performance by movement

Movement	EBT	EBR	WBL	WBT	All
Denied Delay (hr)	0.0	0.0	3.2	51.3	54.6
Denied Del/Veh (s)	0.1	0.0	400.7	436.9	195.1
Total Delay (hr)	0.1	0.0	1.3	22.2	23.5
Total Del/Veh (s)	0.5	0.2	199.5	224.5	90.7
Stop Delay (hr)	0.0	0.0	1.2	21.8	23.1
Stop Del/Veh (s)	0.2	0.2	195.4	220.4	88.9

Total Zone Performance

Denied Delay (hr)	625.9
Denied Del/Veh (s)	241.2
Total Delay (hr)	355.2
Total Del/Veh (s)	871.1
Stop Delay (hr)	334.1
Stop Del/Veh (s)	819.4

Intersection: 1: Cardinal Medeiros Ave & Cambridge Street

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	394	95	1691
Average Queue (ft)	274	59	1143
95th Queue (ft)	486	80	1806
Link Distance (ft)	340	45	1694
Upstream Blk Time (%)	29	66	7
Queuing Penalty (veh)	0	331	16
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Cardinal Medeiros Ave & Bristol Street/"Little" Binney

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	TR	LT
Maximum Queue (ft)	264	164	349	126
Average Queue (ft)	109	50	66	46
95th Queue (ft)	230	135	256	104
Link Distance (ft)	276	521	456	1694
Upstream Blk Time (%)	4		3	
Queuing Penalty (veh)	0		13	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Portland Street/Cardinal Medeiros Ave & Hampshire Street

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	391	216	69	117	120	226
Average Queue (ft)	356	141	16	90	22	109
95th Queue (ft)	381	231	52	135	80	191
Link Distance (ft)	332	167		95		456
Upstream Blk Time (%)	93	22		12		
Queuing Penalty (veh)	0	0		43		
Storage Bay Dist (ft)			45		95	
Storage Blk Time (%)			2	28	0	14
Queuing Penalty (veh)			5	8	0	4

Intersection: 4: Portland Street & Broadway

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	901	290	69	281	69	122
Average Queue (ft)	822	176	24	123	20	86
95th Queue (ft)	1094	298	57	223	59	145
Link Distance (ft)	858	247		374		95
Upstream Blk Time (%)	82	15		0		13
Queuing Penalty (veh)	0	0		0		56
Storage Bay Dist (ft)			210		45	
Storage Blk Time (%)				2	2	28
Queuing Penalty (veh)				1	8	11

Intersection: 5: "Little" Binney & Site Driveway

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	64	28
Average Queue (ft)	14	3
95th Queue (ft)	46	16
Link Distance (ft)	521	160
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 6: Galileo Galilei Way & Broadway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	125	482	100	236	349	206	224	312	220	160	367	296
Average Queue (ft)	114	355	59	86	161	42	75	164	85	16	186	156
95th Queue (ft)	150	570	117	182	268	126	168	271	162	79	320	289
Link Distance (ft)		433			573			388			625	
Upstream Blk Time (%)		28										
Queuing Penalty (veh)		0										
Storage Bay Dist (ft)	100		75	285		200	250		250	200		325
Storage Blk Time (%)	35	35	6	0	4	0	1	1	0	0	7	1
Queuing Penalty (veh)	154	86	30	1	5	0	3	2	0	0	16	3

Intersection: 7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street

Movement	EB	WB	WB	SB	SE	SE
Directions Served	T	T	R>	R>	<	LR
Maximum Queue (ft)	508	1185	125	698	124	200
Average Queue (ft)	269	575	119	428	66	88
95th Queue (ft)	455	1262	140	864	125	172
Link Distance (ft)	625	1485		915		259
Upstream Blk Time (%)		1		8		0
Queuing Penalty (veh)		9		0		0
Storage Bay Dist (ft)			100		100	
Storage Blk Time (%)		13	60		2	9
Queuing Penalty (veh)		31	230		3	8

Intersection: 8: Cambridge Street & Lambert Street

Movement	EB	WB	SB
Directions Served	T	T	LR
Maximum Queue (ft)	131	90	150
Average Queue (ft)	16	45	115
95th Queue (ft)	77	77	139
Link Distance (ft)	282	1	98
Upstream Blk Time (%)	0	69	100
Queuing Penalty (veh)	1	298	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Main Street/Third Street & Broadway

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	TR	T	R	LT	R
Maximum Queue (ft)	248	225	173	495	375	619	185
Average Queue (ft)	118	101	69	467	358	503	136
95th Queue (ft)	205	171	142	484	473	719	253
Link Distance (ft)		870		446		563	
Upstream Blk Time (%)				62		38	
Queuing Penalty (veh)				0		0	
Storage Bay Dist (ft)	340		200		350		160
Storage Blk Time (%)		0	0	60	1	60	1
Queuing Penalty (veh)		0	1	146	3	87	2

Intersection: 10: Third Street & Binney Street

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	R	L	T	TR	LT	R	LTR
Maximum Queue (ft)	224	504	225	265	1026	996	574	165	1022
Average Queue (ft)	121	202	66	262	752	690	539	57	825
95th Queue (ft)	232	410	163	296	1140	1090	562	186	1244
Link Distance (ft)		1485			978	978	524		961
Upstream Blk Time (%)					32	9	99		61
Queuing Penalty (veh)					0	0	0		0
Storage Bay Dist (ft)	200		200	240				140	
Storage Blk Time (%)	6	9	0	72	37		97	0	
Queuing Penalty (veh)	20	15	0	156	79		84	0	

Intersection: 100: Cambridge Street & Warren Street

Movement	EB	WB
Directions Served	LT	TR
Maximum Queue (ft)	69	300
Average Queue (ft)	38	289
95th Queue (ft)	75	301
Link Distance (ft)	45	282
Upstream Blk Time (%)	16	59
Queuing Penalty (veh)	119	348
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 800: Fulkerson Street & Cambridge Street

Movement	EB	WB
Directions Served	TR	LT
Maximum Queue (ft)	90	740
Average Queue (ft)	16	682
95th Queue (ft)	64	863
Link Distance (ft)	1	679
Upstream Blk Time (%)	1	84
Queuing Penalty (veh)	10	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 2448

Intersection: 3: Portland Street/Cardinal Medeiros Ave & Hampshire Street

Phase	1	2
Movement(s) Served	EBWB	NBSB
Maximum Green (s)	42.0	34.0
Minimum Green (s)	25.0	25.0
Recall	C-Max	Max
Avg. Green (s)	42.0	34.0
g/C Ratio	NA	NA
Cycles Skipped (%)	0	0
Cycles @ Minimum (%)	0	0
Cycles Maxed Out (%)	100	100
Cycles with Peds (%)	100	100

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 6: Galileo Galilei Way & Broadway

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Maximum Green (s)	8.0	28.0	8.0	25.0	13.0	23.0	10.0	24.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Recall	None	C-Max	None	Max	None	C-Max	None	Max
Avg. Green (s)	8.0	29.5	7.7	25.4	12.8	24.4	7.5	28.4
g/C Ratio	NA	NA	NA	NA	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	0	0	0	0	23	0
Cycles @ Minimum (%)	5	0	13	0	0	0	31	0
Cycles Maxed Out (%)	87	100	69	100	90	100	18	100
Cycles with Peds (%)	0	97	0	93	0	5	0	0

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street

Phase	2	3	4	5	6
Movement(s) Served	EBWB	SBR	SEL	WBR	WBT
Maximum Green (s)	38.0	19.0	11.0	12.0	22.0
Minimum Green (s)	20.0	10.0	10.0	6.0	20.0
Recall	C-Max	Ped	Ped	None	C-Max
Avg. Green (s)	38.7	18.7	10.7	12.6	22.5
g/C Ratio	NA	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0	0
Cycles @ Minimum (%)	0	0	29	0	0
Cycles Maxed Out (%)	100	92	61	92	100
Cycles with Peds (%)	0	100	100	0	97

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 10: Third Street & Binney Street

Phase	1	2	4	5	6	8
Movement(s) Served	WBL	EBT	NBTL	EBL	WBT	SBTL
Maximum Green (s)	10.0	20.0	36.0	7.0	23.0	36.0
Minimum Green (s)	6.0	20.0	25.0	6.0	20.0	25.0
Recall	None	C-Max	Max	None	C-Max	Max
Avg. Green (s)	9.9	20.1	36.0	7.0	23.7	36.0
g/C Ratio	NA	NA	NA	-0.01	NA	NA
Cycles Skipped (%)	0	0	0	3	0	0
Cycles @ Minimum (%)	0	95	0	8	0	0
Cycles Maxed Out (%)	95	100	100	85	100	100
Cycles with Peds (%)	0	88	100	0	90	98

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:15	4:15	4:15	4:15	4:15	4:15
End Time	5:30	5:30	5:30	5:30	5:30	5:30
Total Time (min)	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	8002	8520	8428	7565	8191	8138
Vehs Exited	7871	8354	8280	7442	8125	8015
Starting Vehs	330	329	350	390	401	355
Ending Vehs	461	495	498	513	467	482
Travel Distance (mi)	2579	2705	2677	2472	2647	2616
Travel Time (hr)	992.7	845.1	806.4	1374.8	824.0	968.6
Total Delay (hr)	898.7	746.3	708.7	1285.0	727.6	873.3
Total Stops	11745	12498	12604	11133	11289	11851
Fuel Used (gal)	301.6	272.1	263.4	385.5	264.5	297.4

Interval #0 Information Seeding

Start Time	4:15
End Time	4:30
Total Time (min)	15

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	4:30
End Time	5:30
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	8002	8520	8428	7565	8191	8138
Vehs Exited	7871	8354	8280	7442	8125	8015
Starting Vehs	330	329	350	390	401	355
Ending Vehs	461	495	498	513	467	482
Travel Distance (mi)	2579	2705	2677	2472	2647	2616
Travel Time (hr)	992.7	845.1	806.4	1374.8	824.0	968.6
Total Delay (hr)	898.7	746.3	708.7	1285.0	727.6	873.3
Total Stops	11745	12498	12604	11133	11289	11851
Fuel Used (gal)	301.6	272.1	263.4	385.5	264.5	297.4

1: Cardinal Medeiros Ave & Cambridge Street Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Delay (hr)	0.2	0.0	0.0	0.0	0.4	0.0	3.9	4.5
Denied Del/Veh (s)	1.4	1.3	0.0	0.0	101.1	0.0	68.4	11.5
Total Delay (hr)	2.1	0.1	0.3	0.2	3.3	10.2	46.4	62.6
Total Del/Veh (s)	14.9	12.2	7.8	2.2	704.3	240.5	745.5	155.8
Stop Delay (hr)	1.5	0.1	0.2	0.1	3.4	10.3	47.6	63.3
Stop Del/Veh (s)	10.1	9.7	6.7	1.1	722.2	245.0	765.1	157.4

2: Cardinal Medeiros Ave & Bristol Street/"Little" Binney Performance by movement

Movement	EBL	EBT	EBR	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0.0	0.0	0.0	21.1	13.0	0.0	0.0	0.0	0.0	34.1
Denied Del/Veh (s)	0.1	0.5	1.9	463.0	458.9	0.0	0.0	0.0	0.0	121.2
Total Delay (hr)	0.1	0.7	0.0	5.2	3.7	5.4	2.4	0.1	0.1	17.7
Total Del/Veh (s)	105.1	43.5	30.8	172.1	200.9	53.2	53.8	9.1	2.7	68.8
Stop Delay (hr)	0.1	0.7	0.0	5.2	3.8	5.1	2.3	0.0	0.1	17.2
Stop Del/Veh (s)	103.2	40.4	30.9	172.0	202.5	50.0	52.2	6.9	1.6	66.9

3: Portland Street/Cardinal Medeiros Ave & Hampshire Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	7.6	40.5	20.2	1.1	32.4	17.3	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	877.6	868.4	855.1	383.4	354.1	350.7	0.0	0.2	0.1	0.0	0.0	0.0
Total Delay (hr)	2.0	7.5	3.8	0.1	4.0	2.2	0.5	1.9	0.1	0.2	0.6	0.1
Total Del/Veh (s)	433.7	282.3	319.8	68.1	53.9	55.9	19.8	18.1	16.2	32.9	10.1	13.7
Stop Delay (hr)	2.0	7.4	3.8	0.1	3.6	2.2	0.4	1.6	0.1	0.1	0.5	0.1
Stop Del/Veh (s)	431.9	278.9	319.1	65.1	49.6	54.8	17.0	15.0	15.1	30.0	8.1	12.8

3: Portland Street/Cardinal Medeiros Ave & Hampshire Street Performance by movement

Movement	All
Denied Delay (hr)	119.1
Denied Del/Veh (s)	282.7
Total Delay (hr)	22.9
Total Del/Veh (s)	64.1
Stop Delay (hr)	22.0
Stop Del/Veh (s)	61.3

4: Portland Street & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	8.4	24.8	4.0	2.5	25.4	2.9	1.4	11.9	1.2	0.0	0.0	0.0
Denied Del/Veh (s)	403.2	384.9	359.2	268.0	243.8	240.7	64.8	101.8	106.3	0.0	0.0	0.0
Total Delay (hr)	7.4	16.1	3.0	0.6	6.3	1.0	0.9	6.3	0.6	0.2	0.3	0.1
Total Del/Veh (s)	427.5	324.5	351.6	72.9	68.3	93.3	43.6	58.0	59.9	45.2	10.8	12.5
Stop Delay (hr)	7.3	15.9	3.0	0.6	5.8	0.9	0.8	5.6	0.6	0.2	0.3	0.1
Stop Del/Veh (s)	425.2	320.6	350.0	69.6	63.4	91.2	38.7	51.3	55.9	43.2	8.5	11.7

4: Portland Street & Broadway Performance by movement

Movement	All
Denied Delay (hr)	82.5
Denied Del/Veh (s)	198.2
Total Delay (hr)	42.8
Total Del/Veh (s)	115.5
Stop Delay (hr)	41.1
Stop Del/Veh (s)	110.9

5: "Little" Binney & Site Driveway Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.5	53.4	0.0	0.0	22.6	29.7	106.2
Denied Del/Veh (s)	419.6	390.1	0.0	0.0	1808.2	1842.9	590.8
Total Delay (hr)	0.1	12.6	0.0	0.0	4.4	3.6	20.7
Total Del/Veh (s)	89.4	111.3	1.1	0.4	3168.9	3234.7	159.4
Stop Delay (hr)	0.1	11.8	0.0	0.0	4.4	3.6	19.9
Stop Del/Veh (s)	85.1	104.5	0.8	0.2	3169.7	3235.7	153.4

6: Galileo Galilei Way & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	1.8	3.4	0.3	0.2	0.1	0.1	5.0	26.2	5.9	0.0	0.0	0.0
Denied Del/Veh (s)	37.5	36.7	30.4	3.4	1.3	3.5	205.3	199.5	207.5	0.4	0.0	0.0
Total Delay (hr)	5.5	5.4	0.6	2.0	2.7	1.0	1.5	11.4	1.5	0.0	4.0	2.7
Total Del/Veh (s)	109.1	57.8	65.5	41.8	27.9	48.2	67.4	93.3	55.1	35.0	39.1	58.3
Stop Delay (hr)	5.1	4.6	0.6	1.8	2.2	0.9	1.4	10.3	1.3	0.0	3.3	2.5
Stop Del/Veh (s)	102.1	49.6	59.6	37.5	22.1	46.1	60.6	84.1	49.4	29.7	32.1	54.1

6: Galileo Galilei Way & Broadway Performance by movement

Movement	All
Denied Delay (hr)	43.0
Denied Del/Veh (s)	66.8
Total Delay (hr)	38.2
Total Del/Veh (s)	59.9
Stop Delay (hr)	33.9
Stop Del/Veh (s)	53.2

7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street Performance by movement

Movement	EBT	WBT	WBR	WBR2	SBR	SBR2	SEL2	SEL	SER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	3.6	1.4	3.4	8.4
Denied Del/Veh (s)	0.3	0.0	0.0	0.0	0.2	0.2	70.7	46.9	101.5	17.8
Total Delay (hr)	14.2	1.8	0.4	0.9	2.3	0.3	5.3	3.5	3.8	32.6
Total Del/Veh (s)	74.1	17.7	54.8	50.1	57.0	60.0	104.4	116.8	117.0	67.8
Stop Delay (hr)	11.1	1.3	0.4	0.8	2.2	0.3	4.9	3.2	3.6	27.9
Stop Del/Veh (s)	58.0	12.3	49.3	44.7	54.4	58.0	96.4	109.1	110.9	58.0

8: Cambridge Street & Lambert Street Performance by movement

Movement	EBT	WBT	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.2	0.3	0.5
Denied Del/Veh (s)	0.0	0.0	7.4	7.1	1.7
Total Delay (hr)	0.2	0.1	0.7	0.8	1.9
Total Del/Veh (s)	2.0	0.7	29.1	19.1	6.4
Stop Delay (hr)	0.0	0.0	0.7	0.9	1.7
Stop Del/Veh (s)	0.2	0.3	29.3	20.5	5.8

9: Main Street/Third Street & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.8	1.1	0.1	0.1	0.1	37.4	7.5	7.8	55.0
Denied Del/Veh (s)	8.9	8.0	8.8	1.1	3.6	273.8	275.9	282.5	97.9
Total Delay (hr)	10.0	5.5	0.6	2.5	0.9	14.4	2.9	2.3	39.0
Total Del/Veh (s)	101.9	40.4	39.3	26.9	23.8	121.1	122.8	90.8	71.4
Stop Delay (hr)	8.8	4.0	0.5	2.0	0.8	13.0	2.6	2.0	33.7
Stop Del/Veh (s)	89.7	29.2	31.0	21.7	21.7	109.4	109.7	80.4	61.6

10: Third Street & Binney Street Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.7	0.8	0.1	0.1	0.0	0.0	13.5	43.3	19.2	0.0	0.0	0.0
Denied Del/Veh (s)	8.5	7.3	2.9	3.5	0.2	0.2	538.7	567.3	516.9	0.4	0.8	0.6
Total Delay (hr)	12.1	8.9	3.0	0.7	5.6	0.1	4.5	11.8	4.0	0.6	5.1	1.9
Total Del/Veh (s)	139.0	82.6	85.4	39.9	59.7	40.4	243.2	210.7	141.3	117.9	96.9	89.8
Stop Delay (hr)	10.4	6.7	2.4	0.7	5.2	0.1	4.4	11.4	3.8	0.6	4.7	1.8
Stop Del/Veh (s)	119.5	62.7	67.8	36.1	55.8	38.8	237.4	203.9	135.5	112.6	89.9	85.6

10: Third Street & Binney Street Performance by movement

Movement	All
Denied Delay (hr)	77.8
Denied Del/Veh (s)	141.3
Total Delay (hr)	58.4
Total Del/Veh (s)	111.0
Stop Delay (hr)	52.3
Stop Del/Veh (s)	99.5

100: Cambridge Street & Warren Street Performance by movement

Movement	EBL	EBT	WBT	WBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.3	0.0
Total Delay (hr)	0.4	0.3	1.2	0.1	2.1
Total Del/Veh (s)	6.0	2.7	8.9	6.0	6.1
Stop Delay (hr)	0.4	0.2	0.9	0.0	1.4
Stop Del/Veh (s)	4.9	1.3	6.2	4.8	4.2

800: Fulkerson Street & Cambridge Street Performance by movement

Movement	EBT	EBR	WBL	WBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.1
Denied Del/Veh (s)	0.0	0.0	0.5	0.6	0.2
Total Delay (hr)	0.0	0.0	0.0	0.2	0.3
Total Del/Veh (s)	0.4	0.2	6.4	2.2	1.2
Stop Delay (hr)	0.0	0.0	0.0	0.1	0.1
Stop Del/Veh (s)	0.1	0.2	4.2	0.7	0.4

Total Zone Performance

Denied Delay (hr)	531.1
Denied Del/Veh (s)	207.4
Total Delay (hr)	339.2
Total Del/Veh (s)	1397.3
Stop Delay (hr)	314.4
Stop Del/Veh (s)	1295.2

Intersection: 1: Cardinal Medeiros Ave & Cambridge Street

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	368	74	1711
Average Queue (ft)	141	45	1443
95th Queue (ft)	311	74	2107
Link Distance (ft)	340	45	1694
Upstream Blk Time (%)	2	16	33
Queuing Penalty (veh)	0	77	160
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Cardinal Medeiros Ave & Bristol Street/"Little" Binney

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	TR	LT
Maximum Queue (ft)	128	420	486	90
Average Queue (ft)	47	244	243	15
95th Queue (ft)	120	457	597	55
Link Distance (ft)	276	524	456	1694
Upstream Blk Time (%)	1	1	18	
Queuing Penalty (veh)	0	1	114	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Portland Street/Cardinal Medeiros Ave & Hampshire Street

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	388	212	70	120	72	153
Average Queue (ft)	337	184	35	91	12	57
95th Queue (ft)	401	205	81	119	44	111
Link Distance (ft)	332	167		88		456
Upstream Blk Time (%)	90	77	0	31		
Queuing Penalty (veh)	0	0	0	169		
Storage Bay Dist (ft)			45		95	
Storage Blk Time (%)			7	48		2
Queuing Penalty (veh)			32	46		0

Intersection: 4: Portland Street & Broadway

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	TR	LTR	L	TR	L	TR
Maximum Queue (ft)	54	887	294	234	417	61	122
Average Queue (ft)	44	686	248	86	280	14	49
95th Queue (ft)	56	1098	318	232	459	47	118
Link Distance (ft)		857	246		368		88
Upstream Blk Time (%)		51	62		27	0	4
Queuing Penalty (veh)		0	0		0	0	9
Storage Bay Dist (ft)	25			210		45	
Storage Blk Time (%)	88	27			36	2	11
Queuing Penalty (veh)	231	20			26	5	2

Intersection: 5: "Little" Binney & Site Driveway

Movement	EB	WB	SB
Directions Served	LT	TR	LR
Maximum Queue (ft)	515	11	171
Average Queue (ft)	384	1	164
95th Queue (ft)	490	9	170
Link Distance (ft)	524	260	170
Upstream Blk Time (%)	1		100
Queuing Penalty (veh)	2		0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Galileo Galilei Way & Broadway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	124	484	100	252	323	177	275	437	275	113	358	281
Average Queue (ft)	118	348	27	104	154	56	158	393	195	6	204	129
95th Queue (ft)	146	565	83	189	260	138	348	476	376	51	342	240
Link Distance (ft)		433			571			387			624	
Upstream Blk Time (%)		32						60				
Queuing Penalty (veh)		0						0				
Storage Bay Dist (ft)	100		75	285		200	250		250	200		325
Storage Blk Time (%)	48	26	0	0	3	0	0	62	0		14	0
Queuing Penalty (veh)	176	54	1	0	6	0	0	121	1		25	0

Intersection: 7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street

Movement	EB	WB	WB	SB	SE	SE
Directions Served	T	T	R>	R>	<	LR
Maximum Queue (ft)	636	256	125	229	124	274
Average Queue (ft)	542	117	76	114	121	266
95th Queue (ft)	693	223	131	207	149	272
Link Distance (ft)	624	1486		917		260
Upstream Blk Time (%)	4					65
Queuing Penalty (veh)	27					373
Storage Bay Dist (ft)			100		100	
Storage Blk Time (%)		14	5		30	72
Queuing Penalty (veh)		12	15		93	200

Intersection: 8: Cambridge Street & Lambert Street

Movement	EB	WB	SB
Directions Served	T	T	LR
Maximum Queue (ft)	94	47	125
Average Queue (ft)	13	14	86
95th Queue (ft)	53	40	134
Link Distance (ft)	282	1	98
Upstream Blk Time (%)		3	23
Queuing Penalty (veh)		11	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 9: Main Street/Third Street & Broadway

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	TR	T	R	LT	R
Maximum Queue (ft)	364	842	221	266	147	614	185
Average Queue (ft)	297	422	104	145	64	582	122
95th Queue (ft)	430	944	196	235	118	618	256
Link Distance (ft)		870		446		563	
Upstream Blk Time (%)		9				79	
Queuing Penalty (veh)		0				0	
Storage Bay Dist (ft)	340		200		350		160
Storage Blk Time (%)	23	1	0			68	0
Queuing Penalty (veh)	116	6	1			70	1

Intersection: 10: Third Street & Binney Street

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	R	L	T	TR	LT	R	LTR
Maximum Queue (ft)	225	1078	225	144	283	252	580	165	724
Average Queue (ft)	216	697	84	54	148	118	516	112	285
95th Queue (ft)	251	1419	204	115	242	219	654	235	636
Link Distance (ft)		1486			978	978	524		961
Upstream Blk Time (%)		0					81		2
Queuing Penalty (veh)		1					0		0
Storage Bay Dist (ft)	200		200	240				140	
Storage Blk Time (%)	47	7	0		2		81	1	
Queuing Penalty (veh)	256	33	1		2		112	2	

Intersection: 100: Cambridge Street & Warren Street

Movement	EB	WB
Directions Served	LT	TR
Maximum Queue (ft)	75	271
Average Queue (ft)	54	82
95th Queue (ft)	67	235
Link Distance (ft)	45	282
Upstream Blk Time (%)	22	2
Queuing Penalty (veh)	175	9
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 800: Fulkerson Street & Cambridge Street

Movement	EB	WB
Directions Served	TR	LT
Maximum Queue (ft)	52	112
Average Queue (ft)	4	17
95th Queue (ft)	24	73
Link Distance (ft)	1	679
Upstream Blk Time (%)	0	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 2797

Intersection: 3: Portland Street/Cardinal Medeiros Ave & Hampshire Street

Phase	1	2
Movement(s) Served	EBWB	NBSB
Maximum Green (s)	38.0	38.0
Minimum Green (s)	25.0	25.0
Recall	C-Max	Max
Avg. Green (s)	38.0	38.0
g/C Ratio	NA	NA
Cycles Skipped (%)	0	0
Cycles @ Minimum (%)	0	0
Cycles Maxed Out (%)	100	100
Cycles with Peds (%)	100	100

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 6: Galileo Galilei Way & Broadway

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Maximum Green (s)	14.0	25.0	9.0	22.0	12.0	27.0	7.0	24.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Recall	None	C-Max	None	Max	None	C-Max	None	Max
Avg. Green (s)	12.3	27.5	7.6	24.2	11.8	27.7	6.9	25.6
g/C Ratio	NA	NA	-0.01	NA	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	10	0	0	0	15	0
Cycles @ Minimum (%)	3	0	23	0	0	0	26	0
Cycles Maxed Out (%)	51	100	33	100	93	100	56	100
Cycles with Peds (%)	0	97	0	93	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 7: Galileo Galilei Way/Binney Street & "Little" Binney & Fulkerson Street

Phase	2	3	4	5	6
Movement(s) Served	EBWB	SBR	SEL	WBR	WBT
Maximum Green (s)	38.0	15.0	15.0	12.0	22.0
Minimum Green (s)	20.0	10.0	10.0	6.0	20.0
Recall	C-Max	Ped	Ped	None	C-Max
Avg. Green (s)	39.3	13.7	15.0	9.8	27.2
g/C Ratio	NA	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	0	11	0
Cycles @ Minimum (%)	0	0	0	14	0
Cycles Maxed Out (%)	100	58	100	22	100
Cycles with Peds (%)	0	100	100	0	92

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 10: Third Street & Binney Street

Phase	1	2	4	5	6	8
Movement(s) Served	WBL	EBT	NBTL	EBL	WBT	SBTL
Maximum Green (s)	13.0	23.0	30.0	16.0	20.0	30.0
Minimum Green (s)	6.0	20.0	25.0	6.0	20.0	25.0
Recall	None	C-Max	Max	None	C-Max	Max
Avg. Green (s)	8.6	30.1	30.0	15.9	20.1	30.0
g/C Ratio	-0.01	NA	NA	NA	NA	NA
Cycles Skipped (%)	15	0	0	0	0	0
Cycles @ Minimum (%)	25	0	0	0	95	0
Cycles Maxed Out (%)	13	100	100	95	100	100
Cycles with Peds (%)	0	85	100	0	88	98

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Crash Summary Table

Year	Cambridge St at Warren St/Cardinal Medeiros Ave	Cardinal Medeiros Ave at Binney St/Bristol St	Hampshire St at Cardinal Medeiros Ave/Portland St	Broadway at Portland St	Binney St at Site Driveway	Broadway at Galileo Galilei Way	Binney St at Galileo Galilei Way/ Fulkerson St	Cambridge St at Lambert St/ Fulkerson St	Broadway at Third St	Binney St at Third St
2015	9	5	4	6	1	4	5	4	3	1
2016	3	5	3	6	0	4	1	6	3	2
2017	6	4	5	3	0	10	1	7	5	3
Total	**18**	**14**	**12**	**15**	**1**	**18**	**7**	**17**	**11**	**6**
Average	6.00	4.67	4.00	5.00	0.33	6.00	2.33	5.67	3.67	2.00
Collision Type										
Angle	7	9	5	5	0	0	0	7	3	1
Head-on	0	1	1	0	0	0	0	2	0	1
Rear-end	3	2	2	5	0	9	2	2	1	1
Rear-to-Rear	0	0	0	0	0	0	0	0	0	0
Sideswipe, opposite direction	2	0	0	1	0	0	0	0	1	0
Sideswipe, same direction	2	1	1	2	1	6	3	2	4	3
Single vehicle crash	1	0	0	0	0	2	2	4	0	0
Unknown	0	1	2	2	0	0	0	0	1	0
Not reported	3	0	1	0	0	1	0	0	1	0
Total	**18**	**14**	**12**	**15**	**1**	**18**	**7**	**17**	**11**	**6**
Crash Severity										
Fatal injury	0	0	0	0	0	0	0	0	0	0
Non-fatal injury	6	5	4	6	1	3	1	4	2	1
Property damage only (none injured)	6	4	6	7	0	13	6	9	4	2
Not Reported	5	3	1	1	0	2	0	3	2	2
Unknown	1	2	1	1	0	0	0	1	3	1
Total	**18**	**14**	**12**	**15**	**1**	**18**	**7**	**17**	**11**	**6**
Time of Day										
Weekday, 7 AM - 9 AM	2	1	0	1	0	2	2	3	2	0
Weekday, 4 PM - 6 PM	1	2	1	0	0	4	0	0	2	0
Saturday, 11 AM - 2 PM	0	0	0	0	0	0	0	1	0	0
Weekday, other time	14	7	10	10	1	10	3	11	5	6
Weekend, other time	1	4	1	4	0	2	2	2	2	0
Total	**18**	**14**	**12**	**15**	**1**	**18**	**7**	**17**	**11**	**6**
Pavement Conditions										
Dry	14	11	9	13	1	15	6	15	7	3
Wet	2	3	2	1	0	0	0	2	1	2
Snow	0	0	0	1	0	0	0	0	0	0
Slush	1	0	0	0	0	0	0	0	0	0
Ice	0	0	0	0	0	0	1	0	0	0
Not reported	1	0	0	0	0	1	0	0	0	0
Other	0	0	0	0	0	1	0	0	1	0
Unknown	0	0	1	0	0	1	0	0	2	1
Total	**18**	**14**	**12**	**15**	**1**	**18**	**7**	**17**	**11**	**6**
Non Motorist (Bike, Ped)	**6**	**0**	**4**	**5**	**0**	**0**	**1**	**7**	**4**	**1**
MassDOT Crash Rates	**1.16**	**1.23**	**0.73**	**0.88**	**0.17**	**0.75**	**0.37**	**1.32**	**0.57**	**0.30**

Crash Rate Reports

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Cambridge, MA COUNT DATE : 11/14/2018-11/1

DISTRICT : 6 UNSIGNALIZED : [X] SIGNALIZED : [ ]

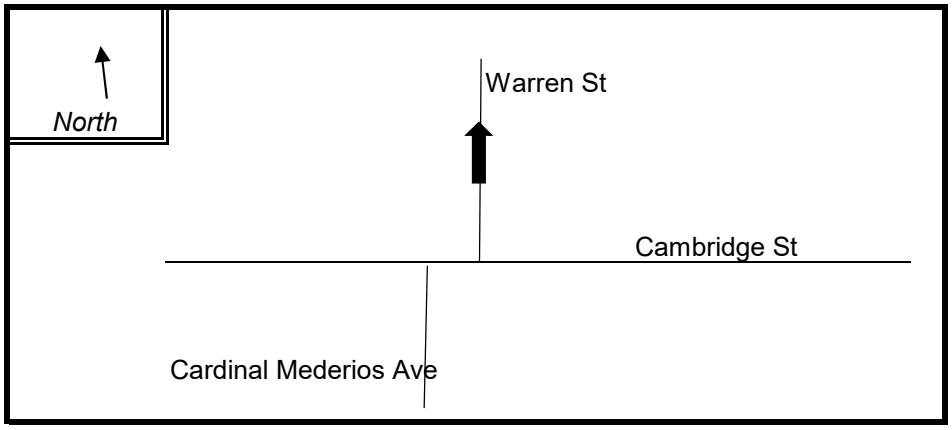
~ INTERSECTION DATA ~

MAJOR STREET : Cambridge Street

MINOR STREET(S) : Warren Street

Cardinal Medeiros Avenue

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

approach:	NB	SB	EB	WB		Total Peak Hourly Approach Volume
PEAK HOURLY VOLUMES (AM/PM) :	248	0	534	496		**1,278**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **14,200**

TOTAL # OF CRASHES : 18

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **6.00**

CRASH RATE CALCULATION : **1.16**

RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : PM Peak

Project Title & Date: 325 Binney St

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Cambridge, MA COUNT DATE : 11/14/2018-11/1

DISTRICT : 6 UNSIGNALIZED : [X] SIGNALIZED : [ ]

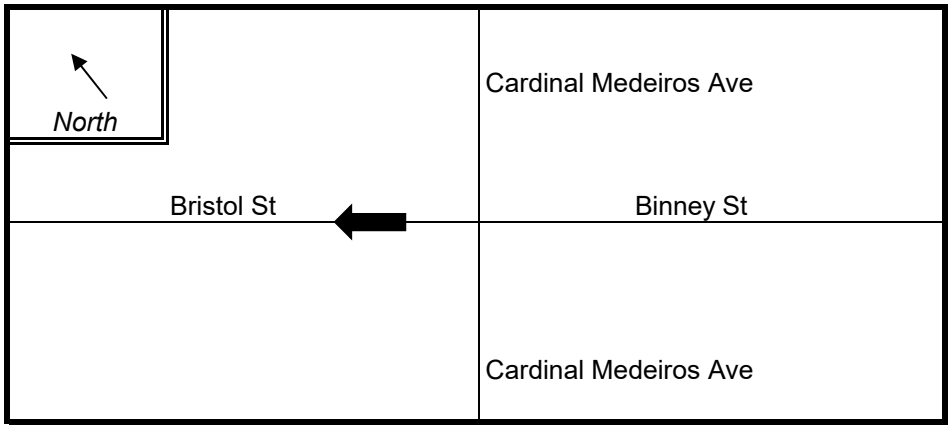
~ INTERSECTION DATA ~

MAJOR STREET : Cardinal Medeiros Avenue

MINOR STREET(S) : Binney Street

Bristol Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

approach:	NB	SB	EB	WB		Total Peak Hourly Approach Volume
PEAK HOURLY VOLUMES (AM/PM) :	535	152	53	194		**934**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **10,378**

TOTAL # OF CRASHES : 14

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **4.67**

CRASH RATE CALCULATION : **1.23**

RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : PM Peak

Project Title & Date: 325 Binney St

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Cambridge, MA COUNT DATE : 11/14/2018-11/1

DISTRICT : 6 UNSIGNALIZED : ☐ SIGNALIZED : ☒

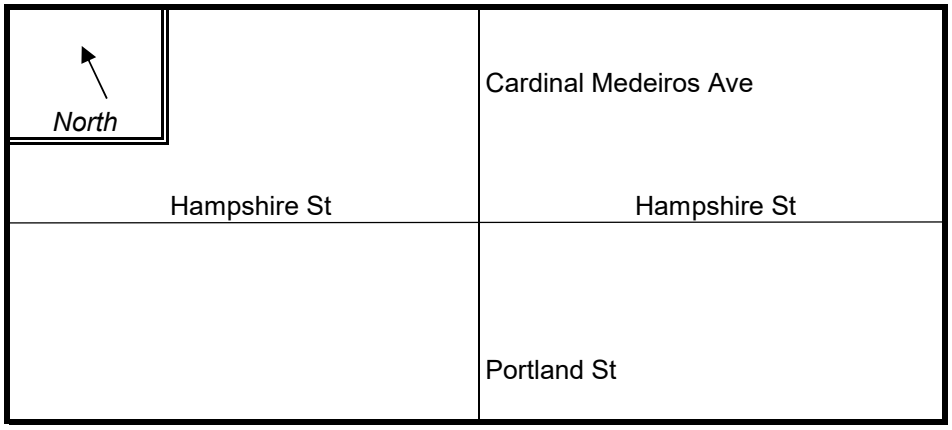
~ INTERSECTION DATA ~

MAJOR STREET : Hampshire Street

MINOR STREET(S) : Cardinal Medeiros Avenue

Portland Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

approach:	NB	SB	EB	WB		Total Peak Hourly Approach Volume
PEAK HOURLY VOLUMES (AM/PM) :	521	153	238	440		**1,352**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **15,022**

TOTAL # OF CRASHES : 12

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **4.00**

CRASH RATE CALCULATION : **0.73**

RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : PM Peak

Project Title & Date: 325 Binney St

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Cambridge, MA COUNT DATE : 11/14/2018-11/1

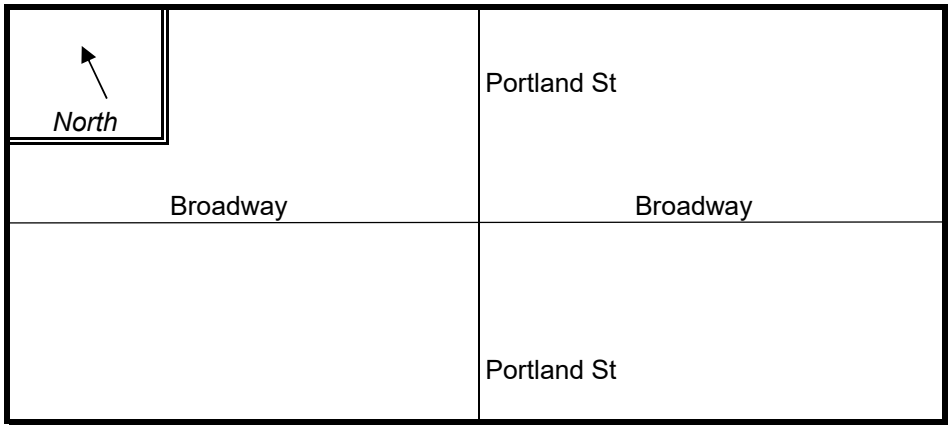
DISTRICT : 6 UNSIGNALIZED : ☐ SIGNALIZED : ☒

~ INTERSECTION DATA ~

MAJOR STREET : Broadway

MINOR STREET(S) : Portland Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

approach:	NB	SB	EB	WB		Total Peak Hourly Approach Volume
PEAK HOURLY VOLUMES (AM/PM) :	523	197	298	383		**1,401**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **15,567**

TOTAL # OF CRASHES : 15

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **5.00**

CRASH RATE CALCULATION : **0.88**

RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : PM Peak

Project Title & Date: 325 Binney St

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Cambridge, MA COUNT DATE : 11/14/2018-11/1

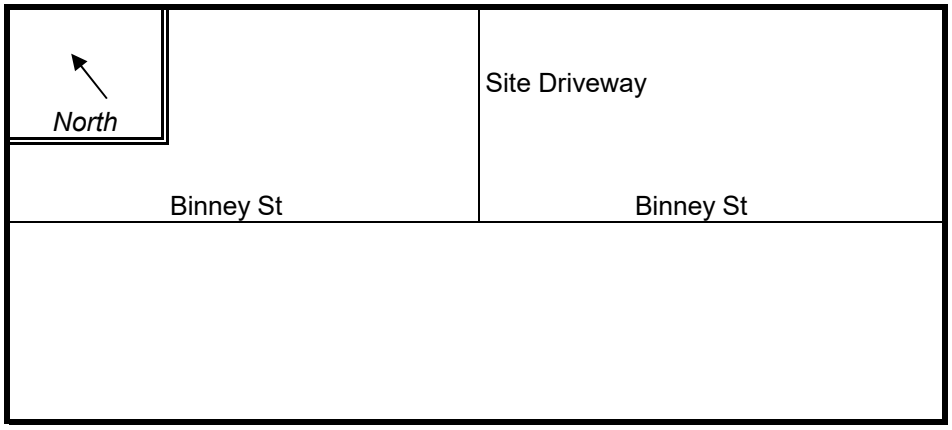
DISTRICT : 6 UNSIGNALIZED : [X] SIGNALIZED : [ ]

~ INTERSECTION DATA ~

MAJOR STREET : Binney Street

MINOR STREET(S) : Site Driveway

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

approach:	NB	SB	EB	WB		Total Peak Hourly Approach Volume
PEAK HOURLY VOLUMES (AM/PM) :	0	0	463	34		**497**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **5,522**

TOTAL # OF CRASHES : 1

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **0.33**

CRASH RATE CALCULATION : **0.17**

RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : PM Peak

Project Title & Date: 325 Binney St

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Cambridge, MA COUNT DATE : 11/14/2018-11/1

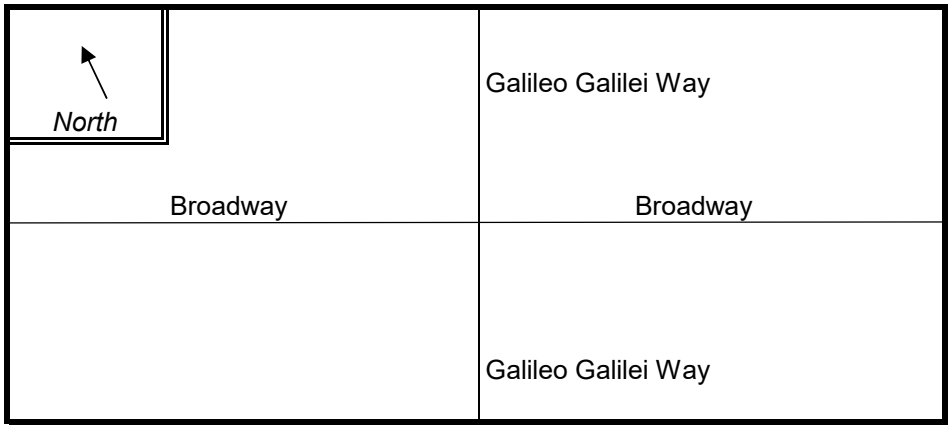
DISTRICT : 6 UNSIGNALIZED : ☐ SIGNALIZED : ☒

~ INTERSECTION DATA ~

MAJOR STREET : Broadway

MINOR STREET(S) : Galileo Galilei Way

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

approach:	NB	SB	EB	WB		Total Peak Hourly Approach Volume
PEAK HOURLY VOLUMES (AM/PM) :	576	507	486	394		**1,963**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **21,811**

TOTAL # OF CRASHES : 18

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **6.00**

CRASH RATE CALCULATION : 0.75

RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : PM Peak

Project Title & Date: 325 Binney St

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Cambridge, MA COUNT DATE : 11/14/2018-11/1

DISTRICT : 6 UNSIGNALIZED : ☐ SIGNALIZED : ☒

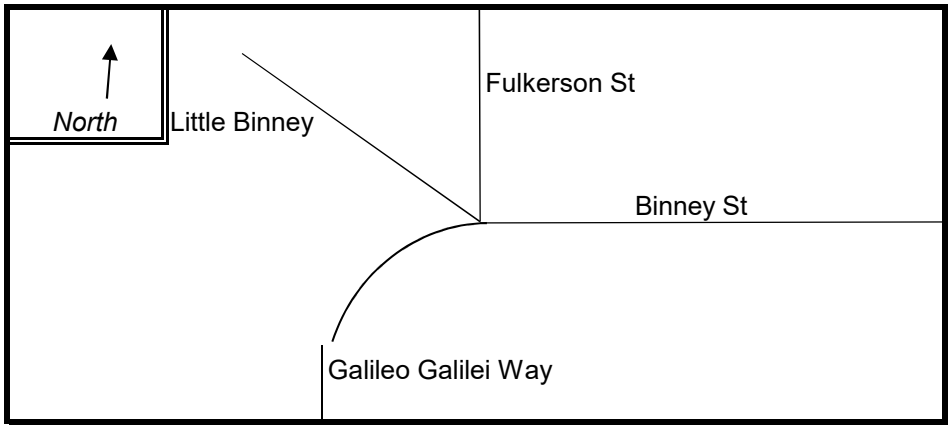
~ INTERSECTION DATA ~

MAJOR STREET : Binney Street

MINOR STREET(S) : Galileo Galilei Way

Fulkerson Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

approach:	NB	SB	EB	WB		Total Peak Hourly Approach Volume
PEAK HOURLY VOLUMES (AM/PM) :	594	159	463	334		**1,550**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **17,222**

TOTAL # OF CRASHES : 7

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **2.33**

CRASH RATE CALCULATION : **0.37**

RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : PM Peak

Project Title & Date: 325 Binney St

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Cambridge, MA COUNT DATE : 11/14/2018-11/1

DISTRICT : 6 UNSIGNALIZED : [X] SIGNALIZED : [ ]

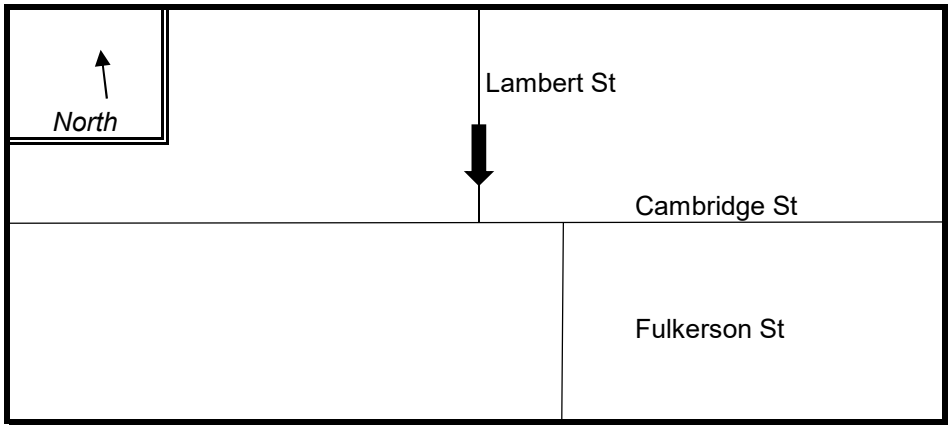
~ INTERSECTION DATA ~

MAJOR STREET : Cambridge Street

MINOR STREET(S) : Lambert Street

Fulkerson Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

approach:	NB	SB	EB	WB		Total Peak Hourly Approach Volume
PEAK HOURLY VOLUMES (AM/PM) :	0	235	459	363		**1,057**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **11,744**

TOTAL # OF CRASHES : 17

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **5.67**

CRASH RATE CALCULATION : **1.32**

RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : PM Peak

Project Title & Date: 325 Binney St

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Cambridge, MA COUNT DATE : 11/14/2018-11/1

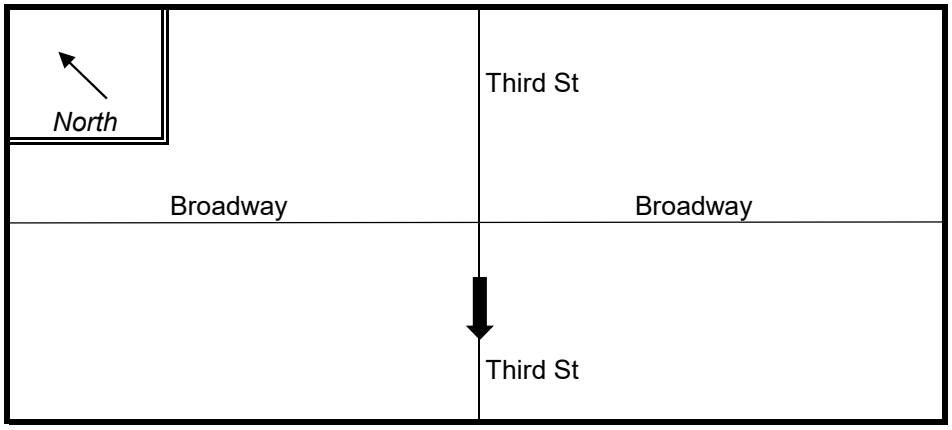
DISTRICT : 6 UNSIGNALIZED : ☐ SIGNALIZED : ☒

~ INTERSECTION DATA ~

MAJOR STREET : Broadway

MINOR STREET(S) : Third Street

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

approach:	NB	SB	EB	WB		Total Peak Hourly Approach Volume
PEAK HOURLY VOLUMES (AM/PM) :	0	540	686	372		**1,598**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **17,756**

TOTAL # OF CRASHES : 11

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **3.67**

CRASH RATE CALCULATION : **0.57**

RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : PM Peak

Project Title & Date: 325 Binney St

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Cambridge, MA COUNT DATE : 11/14/2018-11/1

DISTRICT : 6 UNSIGNALIZED : ☐ SIGNALIZED : ☒

~ INTERSECTION DATA ~

MAJOR STREET : Binney Street

MINOR STREET(S) : Third Street

INTERSECTION DIAGRAM (Label Approaches)

PEAK HOUR VOLUMES

approach:	NB	SB	EB	WB		**Total Peak Hourly Approach Volume**
PEAK HOURLY VOLUMES (AM/PM) :	399	229	709	287		**1,624**

" K " FACTOR : **0.090**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **18,044**

TOTAL # OF CRASHES : 6

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **2.00**

CRASH RATE CALCULATION : **0.30**

RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : PM Peak

Project Title & Date: 325 Binney St

Transit Capacity Analysis

MBTA Red Line Analysis

MBTA Bus Analysis

ARE Shuttle Data

Charles River TMA Data

MBTA Red Line Analysis

MBTA RED LINE ANALYSIS

325 Binney Street

RED LINE

STEP 1: Existing Capacity | **STEP 2: Existing Ridership** | **STEP 3: Existing V/C**

Red Line @ Kendall Station	Frequency (# Trains/Peak Hour)*	OTP Factor (on time performance)**	# Cars / Green Line Train	MBTA Policy Capacity (# Pax/Car)***	MBTA Policy Capacity (# Pax/Peak Hour)
Inbound (Soutbound to Ashmont/Braintree)	13	0.880	6	167	11,463
Outbound (Northbound to Alewife)	13	0.880	6	167	11,463

* Schedule frequency assuming 4.5 minute headways, 60/4.5 = 13 trains
** On-time performance for Red Line from MBTA Dashboard website (average 2019)
*** MBTA blue book 14th edition policy capacity & crush capacity

MBTA 2018 Data							
AM Peak Hour				PM Peak Hour			
Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting
9,171	438	1,615	7,995	3,756	2,263	217	5,802
5,638	99	2,685	3,052	7,342	1,516	615	8,242

Source: MBTA Spring 2018 data

MBTA CAPACITY AND MBTA RIDERSHIP			
AM Peak Hour		PM Peak Hour	
Enter V/C	Exit V/C	Enter V/C	Exit V/C
0.80	0.70	0.33	0.51
0.49	0.27	0.64	0.72

Existing Conditions

Years 2

Rate:** 1.5%

*

Growth 1.03

Based on the Boston Metropolitan Planning Organization/Central Transportation Planning Staff study of the impact of planned large developments in the Boston metropolitan area: B. Kaplan, W. Kuttner, and S. Peterson, Core-Capacity Constraints: Accommodating Growth on Greater

MBTA RED LINE ANALYSIS

325 Binney Street

STEP 4 (Continued): 2019 Build Condition

Red Line @ Kendall Station	MBTA 2020 Data								MBTA CAPACITY AND MBTA RIDERSHIP				STEP 4: Project-Generated Trips RED LINE				
	AM Peak Hour				PM Peak Hour				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		
	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Enter V/C	Exit V/C	Enter V/C	Exit V/C	OUT (Boardings)	IN (Alightings)	OUT (Boardings)	IN (Alightings)	Load Entering
Inbound (Soutbound to Ashmont/Braintree)	9,455	452	1,665	8,243	3,872	2,334	224	5,982	0.82	0.72	0.34	0.52	2	28	43	2	9,484
Outbound (Northbound to Alewife)	5,812	102	2,768	3,147	7,569	1,563	634	8,498	0.51	0.27	0.66	0.74	1	47	29	4	5,859
													3	**75**	**72**	**6**	

Source: MBTA Spring 2018 data - adjusted to 2020 existing conditions year

check:

MBTA RED LINE ANALYSIS

325 Binney Street

STEP 5: 2024 No-Build Grown Ridership

Red Line @ Kendall Station	2020 MBTA RIDERSHIP + Project-Generated Transit Trips										
	AM Peak Hour			PM Peak Hour				AM Peak Hour		PM Peak Hour	
	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Enter V/C	Exit V/C	Enter V/C	Exit V/C
Inbound (Soutbound to Ashmont/Braintree)	454	1,693	8,245	3,874	2,377	226	6,025	0.83	0.72	0.34	0.53
Outbound (Northbound to Alewife)	102	2,815	3,147	7,573	1,591	638	8,527	0.51	0.27	0.66	0.74

adding project trips to existing loads - not incorporating boardings & alightings directly

growth from 2018 MBTA data

Years 7

Rate:*** 1.5%

Growth 1.11

Based on the Boston Metropolitan Planning Organization/Central Transportation Planning Staff study of the impact of planned large developments in the Boston metropolitan area: B. Kaplan, W. Kuttner, and S. Peterson, Core-Capacity Constraints: Accommodating Growth on Greater Boston's Congested Roads and Crowded Transit System, Central Transportation

Red Line @ Kendall Station	Frequency (# Trains/Peak Hour)*	OTP Factor (on time performance)**	# Cars / Red Line Train	MBTA Policy Capacity (# Pax/Car)***	MBTA Policy Capacity (# Pax/Peak Hour)
Inbound (Soutbound to Ashmont/Braintree)	13	0.880	6	167	11,463
Outbound (Northbound to Alewife)	13	0.880	6	167	11,463

	AM Peak Hour		
	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)
	10,521	503	1,852
	6,467	113	3,080

MBTA RED LINE ANALYSIS

325 Binney Street

STEP 6 (Continued): 2024 Grown + Background Project Ridership + Project Trips

STEP 6:

Red Line @ Kendall Station	2025 Grown MBTA Data					MBTA CAPACITY AND MBTA RIDERSHIP				Background Trips RED LINE				
		PM Peak Hour				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		
	Load Exiting	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Enter V/C	Exit V/C	Enter V/C	Exit V/C	OUT (Boardings)	IN (Alightings)	OUT (Boardings)	IN (Alightings)	Load Entering
Inbound (Soutbound to Ashmont/Braintree)	9,172	4,309	2,597	249	6,656	0.92	0.80	0.38	0.58	167	281	305	225	10,830
Outbound (Northbound to Alewife)	3,501	8,422	1,739	705	9,455	0.56	0.31	0.73	0.82	30	441	454	65	6,955
check:										**198**	**722**	**758**	**290**	

MBTA RED LINE ANALYSIS

325 Binney Street

STEP 7: 2024 Grown + Background Project Ridership + Project Trips + Increased Red Line Capacity

	2025 MBTA RIDERSHIP + Background Project Transit Trips + Project Trips										
	AM Peak Hour			PM Peak Hour				AM Peak Hour		PM Peak Hour	
Red Line @ Kendall Station	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Enter V/C	Exit V/C	Enter V/C	Exit V/C
Inbound (Soutbound to Ashmont/Braintree)	672	2,162	9,341	4,535	2,944	476	7,004	0.94	0.81	0.40	0.61
Outbound (Northbound to Alewife)	144	3,567	3,532	8,491	2,221	775	9,938	0.61	0.31	0.74	0.87

MBTA Bus Analysis

MBTA BUS ANALYSIS

325 Binney Street

BUS LINES

Bus Routes @ 325 Binney Street	AM Frequency (# Buses/Peak Hour)	PM Frequency (# Buses/Peak Hour)	Average Peak Hour Frequency	On-Time Performance	MBTA Policy Capacity (# Pax/Bus)***	AM Peak MBTA Policy Capacity (# Pax/Peak Hour)	PM Peak MBTA Policy Capacity (# Pax/Peak Hour)	Average Peak Hour MBTA Policy Capacity (# Pax/Peak Hour)
1 Inbound	7.00	8.00	7.50	1	54	378	432	405
1 Outbound	7.00	7.00	7.00	1	54	378	378	378
64 Inbound	4.00	2.00	3.00	1	54	216	108	162
64 Outbound	3.00	3.00	3.00	1	54	162	162	162
68 Inbound	1.00	1.00	1.00	1	54	54	54	54
68 Outbound	1.00	1.00	1.00	1	54	54	54	54
85 Inbound	2.00	2.00	2.00	1	54	108	108	108
85 Outbound	2.00	2.00	2.00	1	54	108	108	108
CT2 Inbound	3.00	2.00	2.50	1	54	162	108	135
CT2 Outbound	3.00	2.00	2.50	1	54	162	108	135

NOTES:
1. MBTA scheduled arrival time at specified analysis bus stop, Winter 2020 Schedule
2. On-time performance adjustment NOT requested for buses, leave as 100%
3. MBTA blue book 14th edition policy capacity & crush capacity (for crush used weighted average across red line vehicle fleet)

MBTA Route	Bus Stop Location
1 Inbound	Massachusetts Ave @ Albany St
1 Outbound	Massachusetts Ave @ Albany St
64 Inbound	Main St @ Kendall Station - Red Line
64 Outbound	Main St @ Kendall Station - Red Line
68 Inbound	Main St @ Kendall Station - Red Line
68 Outbound	Main St @ Kendall Station - Red Line
85 Inbound	Main St @ Kendall Station - Red Line
85 Outbound	Main St @ Kendall Station - Red Line
CT2 Inbound	Ames St @ Main St
CT2 Outbound	Ames St @ Broadway

MBTA BUS ANALYSIS

325 Binney Street

BUS LINES

Bus Routes @ 325 Binney Street	MBTA 2018 Data															
	AM Peak Hour				PM Peak Hour				AM Peak Hour (distribution %)		PM Peak Hour (distribution %)		AM Peak Hour		PM Peak Hour	
	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Boardings (Trips OUT)	Alightings (Trips IN)	Boardings (Trips OUT)	Alightings (Trips IN)	Enter V/C	Exit V/C	Enter V/C	Exit V/C
1 Inbound	307	10	12	305	213	50	6	258	20.6%	5.2%	26.7%	12.1%	0.81	0.81	0.49	0.60
1 Outbound	250	5	68	187	270	11	8	273	10.7%	29.7%	5.9%	17.2%	0.66	0.49	0.71	0.72
64 Inbound	33	0	33	0	7	0	5	2	0.0%	14.2%	0.0%	11.0%	0.15	0.00	0.06	0.01
64 Outbound	0	13	0	13	0	48	0	48	26.6%	0.0%	25.5%	0.0%	0.00	0.08	0.00	0.30
68 Inbound	5	0	5	0	4	0	4	0	0.0%	2.4%	0.0%	8.1%	0.10	0.00	0.07	0.00
68 Outbound	0	2	0	2	0	10	0	10	4.5%	0.0%	5.2%	0.0%	0.00	0.04	0.00	0.18
85 Inbound	67	0	67	0	6	0	6	0	0.0%	29.4%	0.0%	12.7%	0.62	0.00	0.06	0.00
85 Outbound	0	3	0	3	0	39	0	39	5.8%	0.0%	20.8%	0.0%	0.00	0.03	0.00	0.36
CT2 Inbound	101	12	27	86	22	12	3	31	25.4%	11.8%	6.4%	6.6%	0.62	0.53	0.21	0.29
CT2 Outbound	38	3	17	25	66	18	15	69	6.4%	7.2%	9.4%	32.4%	0.24	0.15	0.61	0.63
All Routes Inbound TOTAL		**49**	**229**			**189**	**47**		**46%**	**63%**	**33%**	**50%**				
All Routes Oubound TOTAL		**49**	**229**			**189**	**47**		**54%**	**37%**	**67%**	**50%**				
	Source: MBTA FY 2018 data								**100%**	**100%**	**100%**	**100%**				

MBTA BUS ANALYSIS

325 Binney Street

2020 Existing Condition growth from 2018 MBTA data

Years 2

Rate: 0.2%

Growth 1.00

To estimate the growth in background ridership between data collection and the existing conditions, an estimated average annual growth rate of 0.68 percent was applied. The growth rate is based on system-wide MBTA growth projections for local buses prepared by CTPS for the Boston Metropolitan

BUS LINES

Bus Routes @ 325 Binney Street	2020 Existing															
	AM Peak Hour				PM Peak Hour				AM Peak Hour (distribution %)		PM Peak Hour (distribution %)			AM Peak Hour		PM Peak Hour	
	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Boardings (Trips OUT)	Alightings (Trips IN)	Boardings (Trips OUT)	Alightings (Trips IN)		Enter V/C	Exit V/C	Enter V/C	Exit V/C
1 Inbound	308	10	12	306	214	51	6	259	20.6%	5.2%	26.7%	12.1%		0.81	0.81	0.49	0.60
1 Outbound	251	5	68	188	271	11	8	274	10.7%	29.7%	5.9%	17.2%		0.66	0.50	0.72	0.73
64 Inbound	33	0	33	0	7	0	5	2	0.0%	14.2%	0.0%	11.0%		0.15	0.00	0.06	0.01
64 Outbound	0	13	0	13	0	48	0	48	26.6%	0.0%	25.5%	0.0%		0.00	0.08	0.00	0.30
68 Inbound	5	0	5	0	4	0	4	0	0.0%	2.4%	0.0%	8.1%		0.10	0.00	0.07	0.00
68 Outbound	0	2	0	2	0	10	0	10	4.5%	0.0%	5.2%	0.0%		0.00	0.04	0.00	0.18
85 Inbound	68	0	68	0	6	0	6	0	0.0%	29.4%	0.0%	12.7%		0.63	0.00	0.06	0.00
85 Outbound	0	3	0	3	0	39	0	39	5.8%	0.0%	20.8%	0.0%		0.00	0.03	0.00	0.37
CT2 Inbound	101	12	27	86	22	12	3	31	25.4%	11.8%	6.4%	6.6%		0.62	0.53	0.21	0.29
CT2 Outbound	38	3	17	25	66	18	15	69	6.4%	7.2%	9.4%	32.4%		0.24	0.15	0.61	0.64
		49	**230**			**190**	**47**		**54%**	**37%**	**67%**	**50%**					
Source: MBTA FY 2018 data - adjusted to 2020 existing conditions year									**100%**	**100%**	**100%**	**100%**					

MBTA BUS ANALYSIS

325 Binney Street

BUS LINES

Bus Routes @ 325 Binney Street	Project Trips BUSES						Existing 2020 + Project Trips (2020 Build)											
	AM Peak Hour			PM Peak Hour			AM Peak Hour				PM Peak Hour				AM Peak Hour		PM Peak Hour	
	OUT (Boardings)	IN (Alightings)	TOTAL	OUT (Boardings)	IN (Alightings)	TOTAL	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Enter V/C	Exit V/C	Enter V/C	Exit V/C
1 Inbound	0	1	1	6	0	6	309	10	13	306	214	57	6	265	0.82	0.81	0.49	0.61
1 Outbound	0	7	7	2	0	2	258	5	75	188	271	13	8	276	0.68	0.50	0.72	0.73
64 Inbound	0	4	4	0	0	0	37	0	37	0	7	0	5	2	0.17	0.00	0.06	0.01
64 Outbound	1	0	1	6	0	6	0	14	0	14	0	54	0	54	0.00	0.09	0.00	0.34
68 Inbound	0	1	1	0	0	0	6	0	6	0	4	0	4	0	0.12	0.00	0.07	0.00
68 Outbound	0	0	0	1	0	1	0	2	0	2	0	11	0	11	0.00	0.04	0.00	0.20
85 Inbound	0	7	7	0	1	1	75	0	75	0	7	0	7	0	0.69	0.00	0.07	0.00
85 Outbound	0	0	0	5	0	5	0	3	0	3	0	44	0	44	0.00	0.03	0.00	0.41
CT2 Inbound	0	3	3	2	0	2	104	12	30	86	22	14	3	33	0.64	0.53	0.21	0.31
CT2 Outbound	0	2	2	2	1	3	40	3	19	25	67	20	16	71	0.25	0.15	0.62	0.66
check:	1	25	**26**	24	2	**26**												

	Bus Project Transit Trips					
	AM Peak Hour			PM Peak Hour		
Land Use	ENTER	EXIT	**TOTAL**	ENTER	EXIT	**TOTAL**
R&D	25	1	**26**	2	24	**26**
Total	25	1	**26**	2	24	**26**

MBTA BUS ANALYSIS

325 Binney Street

2025 Future Condition growth from 2018 MBTA data

Years 7

Rate: 0.2%

Growth 1.02

To estimate the growth in background ridership between the existing conditions and future conditions, an estimated average annual growth rate of 0.68 percent was applied. The growth rate is based on system-wide MBTA growth projections for local buses prepared by CTPS for the Boston Metropolitan Planning Organization's Long-Range

BUS LINES

Bus Routes @ 325 Binney Street	MBTA 2025 Grown Data											
	AM Peak Hour				PM Peak Hour				AM Peak Hour		PM Peak Hour	
	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Enter V/C	Exit V/C	Enter V/C	Exit V/C
1 Inbound	311	10	12	309	216	51	6	261	0.82	0.82	0.50	0.60
1 Outbound	254	5	69	190	274	11	8	277	0.67	0.50	0.72	0.73
64 Inbound	33	0	33	0	7	0	5	2	0.15	0.00	0.06	0.02
64 Outbound	0	13	0	13	0	49	0	49	0.00	0.08	0.00	0.30
68 Inbound	5	0	5	0	4	0	4	0	0.09	0.00	0.07	0.00
68 Outbound	0	2	0	2	0	10	0	10	0.00	0.04	0.00	0.19
85 Inbound	68	0	68	0	6	0	6	0	0.63	0.00	0.06	0.00
85 Outbound	0	3	0	3	0	40	0	40	0.00	0.03	0.00	0.37
CT2 Inbound	102	12	28	86	23	12	3	32	0.63	0.53	0.21	0.30
CT2 Outbound	39	3	17	25	67	18	16	69	0.24	0.15	0.62	0.64

MBTA BUS ANALYSIS

325 Binney Street

BUS LINES

Bus Routes @ 325 Binney Street	Background Project Trips BUSES						MBTA 2020 + Project Trips + Background Growth + Background Project Trips (2025 Future)											
	AM Peak Hour			PM Peak Hour			AM Peak Hour				PM Peak Hour				AM Peak Hour		PM Peak Hour	
	OUT (Boardings)	IN (Alightings)	**TOTAL**	OUT (Boardings)	IN (Alightings)	**TOTAL**	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Enter V/C	Exit V/C	Enter V/C	Exit V/C
1 Inbound	3	8	11	31	3	34	320	13	21	312	219	88	9	298	0.85	0.83	0.51	0.69
1 Outbound	3	22	25	14	6	20	283	8	98	193	280	27	14	293	0.75	0.51	0.74	0.78
64 Inbound	0	0	0	1	0	1	37	0	37	0	7	1	5	3	0.17	0.00	0.06	0.03
64 Outbound	8	0	8	29	0	29	0	22	0	22	0	84	0	84	0.00	0.14	0.00	0.52
68 Inbound	0	9	9	0	4	4	15	0	15	0	8	0	8	0	0.28	0.00	0.15	0.00
68 Outbound	9	0	9	22	0	22	0	11	0	11	0	33	0	33	0.00	0.21	0.00	0.61
85 Inbound	0	42	42	0	5	5	117	0	117	0	12	0	12	0	1.08	0.00	0.11	0.00
85 Outbound	6	0	6	17	37	54	0	9	0	9	37	62	37	62	0.00	0.08	0.34	0.57
CT2 Inbound	13	21	34	24	4	28	126	25	52	99	27	38	7	58	0.78	0.61	0.25	0.54
CT2 Outbound	4	33	37	19	40	59	74	7	52	29	108	39	57	90	0.46	0.18	1.00	0.83
	47	**135**	**182**	**158**	**100**	**258**												

Bus Route	Background Transit Trips					
	AM Peak Hour			PM Peak Hour		
	ENTER	EXIT	**TOTAL**	ENTER	EXIT	**TOTAL**
1 Inbound	8	3	**11**	3	31	**34**
1 Outboun	22	3	**25**	6	14	**20**
64 Inbound	0	0	**0**	0	1	**1**
64 Outbou	0	8	**8**	0	29	**29**
68 Inbound	9	0	**9**	4	0	**4**
68 Outbound	0	9	**9**	0	22	**22**
85 Inbound	42	0	**42**	5	0	**5**
85 Outbound	0	6	**105**	37	17	**116**
CT2 Inbound	21	13	**198**	4	24	**198**
CT2 Outbound	33	4	**371**	40	19	**375**

ARE Shuttle Data

	North Station		Lechmere		1st/Charles		2nd/Binney		Kendall		500 Main St		One Kendall Square		Total	
Vehicle	Month	On	Off	On	Off	On	Off	On	Off	On	Off	On	Off	On	Off	ON	OFF
531	**Jan**	1858	2	26	7	11	164	2	1112	115	88	5	471	14	184	2031	2031
532	**Jan**	1385	9	18	8	0	71	3	854	96	48	1	412	12	115	1517	1517
533	**Jan**	1237	22	21	9	2	58	1	795	107	38	6	323	15	145	1390	1390
534	**Jan**	1679	0	6	7	0	105	1	972	61	95	0	415	0	147	1747	1747
Total		6159	33	71	31	13	398	7	3733	379	269	12	1621	41	591	6685	6685

		500 Main St		One Kendall Square		Boston Marriott		2nd/Binney		1st/Charles		Lechmere		North Station		Total	
Vehicle	Month	On	Off	On	Off	On	Off	On	Off	On	Off	On	Off	On	Off	ON	OFF
531	**Jan**	314	5	152	0	18	60	440	3	38	1	7	32	3	868	972	972
532	**Jan**	335	5	95	4	10	95	401	0	82	3	6	37	4	632	933	933
533	**Jan**	273	0	157	1	36	51	503	3	28	0	2	26	0	919	1000	1000
534	**Jan**	177	0	123	0	18	32	297	2	11	2	2	22	0	412	628	628
Total		1099	10	527	5	82	238	1641	8	159	6	17	117	7	2831	3533	3533
																10218	10218

	North Station		Lechmere		1st/Charles		2nd/Binney		Kendall		500 Main St		One Kendall Square		Total	
Vehicle	Month	On	Off	On	Off	On	Off	On	Off	On	Off	On	Off	On	Off	ON	OFF
531	**FEB**	1684	2	22	4	8	117	4	1033	100	65	2	428	4	175	1824	1824
532	**FEB**	1155	3	14	3	0	87	2	688	82	35	6	362	9	79	1268	1268
533	**FEB**	1139	13	14	5	1	70	3	746	91	22	2	254	16	135	1266	1266
534	**FEB**	1453	4	17	6	5	75	19	869	96	89	6	410	0	100	1596	1596
Total		5431	22	67	18	14	349	28	3336	369	211	16	1454	29	489	5954	5954

		500 Main St		One Kendall Square		Boston Marriott		2nd/Binney		1st/Charles		Lechmere		North Station		Total	
Vehicle	Month	On	Off	On	Off	On	Off	On	Off	On	Off	On	Off	On	Off	ON	OFF
531	**FEB**	256	1	128	0	24	54	456	1	22	4	3	23	1	801	890	890
532	**FEB**	302	3	117	0	10	95	363	2	72	2	5	51	2	520	871	871
533	**FEB**	210	1	158	1	43	73	448	0	20	0	2	17	2	753	883	883
534	**FEB**	218	0	114	0	27	41	367	2	30	0	1	19	0	646	757	757
Total		986	5	517	1	104	263	1634	5	144	6	11	110	5	2720	3401	3401
																9355	9355

Charles TMA Shuttle Data

G: EZ RIDE PASSENGER COUNTS

June-19

		Leave North Station	3-Jun Mon	4-Jun Tue	5-Jun Wed	6-Jun Thu	7-Jun Fri	10-Jun Mon	11-Jun Tue	12-Jun Wed	13-Jun Thu	14-Jun Fri	17-Jun Mon	18-Jun Tue	19-Jun Wed	20-Jun Thu	21-Jun Fri	24-Jun Mon	25-Jun Tue	26-Jun Wed	27-Jun Thu	28-Jun Fri
	11	6:20	22	21	21	21	19	25	16	12	20	19	20	30	25	17	13	10	29	17	14	14
	12	6:30	13	23	58	55	13	0	37	67	52	17	25	23	49	55	13	20	40	50	53	11
	13	6:40	7	0	11	6	16	6	16	4	11	6	46	32	6	16	11	10	9	18	5	3
	14	6:50	26	21	18	0	28	15	6	10	27	0	34	8	5	38	56	8	8	30	4	24
	15	7:00	0	0	39	22	30	0	30	55	27	19	38	47	52	48	23	11	42	0	58	0
	16	7:10	60	54	37	33	48	69	59	48	57	33	19	47	52	48	44	0	45	75	55	57
	17	7:18	36	6	68	11	9	5	32	14	8	7	31	18	16	65	13	36	18	15	73	15
	11	7:26	36	52	8	7	35	30	61	20	18	30	45	23	28	11	25	41	42	56	37	36
	18	7:34	0	22	34	89	38	49	63	66	86	31	67	46	36	54	68	57	49	46	39	43
	12	7:42	40	44	69	60	45	57	56	78	73	12	61	63	64	70	45	48	102	102	94	57
	13	7:50	51	0	27	35	26	24	28	34	58	28	71	43	58	60	36	48	42	49	61	28
	14	7:58	20	49	32	0	36	59	69	80	38	0	58	53	57	45	78	74	58	57	39	30
	15	8:06	0	0	70	29	23	0	30	47	47	69	40	52	35	37	17	53	24	0	21	0
	16	8:14	50	65	45	66	85	66	79	63	71	60	66	72	31	75	70	0	55	82	73	56
	17	8:22	55	33	15	35	49	48	68	27	28	29	49	43	65	40	27	53	35	29	69	27
	11	8:30	84	95	20	43	59	61	72	40	60	56	60	39	55	50	62	58	68	47	72	52
	18	8:38	0	32	92	35	32	85	16	13	103	59	13	26	34	20	33	58	63	87	45	38
	12	8:46	59	68	39	109	8	33	88	116	61	45	66	90	106	97	34	31	75	89	82	47
	13	8:54	46	0	59	85	21	20	22	31	60	13	87	69	30	50	64	26	24	42	22	7
	14	9:02	36	38	18	0	22	58	34	64	19	0	50	8	45	49	44	52	68	43	40	52
	15	9:10	0	0	32	16	30	0	45	0	45	23	39	58	52	43	16	52	9	0	36	0
	16	9:18	70	42	54	52	38	59	33	40	21	33	24	24	28	33	19	0	19	30	42	50
	17	9:26	39	55	3	19	19	56	28	10	28	11	18	14	17	15	12	11	6	9	92	18
	11	9:35	45	31	11	21	1	31	43	18	31	22	29	28	29	13	37	34	35	24	29	13
	18	9:45	0	1	46	11	9	5	0	9	37	29	12	0	14	15	32	32	15	21	31	19
	13	9:55	6	0	9	33	0	19	23	39	17	7	58	25	15	13	14	8	2	5	7	14
	14	10:05	18	12	7	25	18	15	14	0	1	0	7	10	9	28	65	22	10	8	11	26
	15	10:15	0	0	21	6	6	23	20	8	1	5	0	15	26	12	8	21	21	0	5	0
	17	10:30	9	3	8	5	0	4	4	11	8	8	8	10	0	2	0	16	13	13	26	9
	Run #	Dp. Erie																				
38	14:55	1.00	18	15	17	0	20	16	16	22	16	19	25	19	13	20	20	14	32	14	15	20
33	15:10	2.00	22	17	15	17	34	38	38	27	42	37	26	25	25	31	51	40	54	30	33	44
34	15:04	3.00	4	5	4	4	4	4	4	4	4	5	6	5	4	4	0	5	4	5	4	7
34	15:20	3.00	49	56	58	56	53	53	53	61	52	52	53	62	50	49	48	50	57	52	48	47
36	15:24	5.00	0	2	0	0	2	0	0	0	2	2	1	0	0	1	0	0	1	1	0	2
35	15:30	4.00	29	23	20	12	19	23	23	8	29	11	24	15	12	13	13	14	16	29	21	7
32	15:30	7.00	3	4	6	3	4	2	5	1	6	2	3	5	3	4	2	6	0	8	3	6
36	15:40	5.00	8	12	29	24	21	15	0	16	55	15	24	35	10	18	27	16	18	26	14	26
31	15:50	6.00	21	41	32	24	31	14	26	25	17	18	14	14	29	36	9	6	47	28	20	34
32	16:00	7.00	23	20	22	19	18	24	25	32	49	21	35	26	13	23	36	34	17	34	26	27
38	16:10	8.00	20	23	51	0	38	22	19	33	61	32	25	52	21	25	25	14	29	15	18	28
33	16:20	9.00	49	35	3	41	57	38	37	43	66	49	35	63	61	52	71	66	73	62	37	57
34	16:30	10.00	63	62	112	84	52	72	58	54	73	62	74	68	52	81	60	54	48	54	49	51
35	16:40	11.00	18	28	23	37	15	27	40	20	32	24	16	19	21	27	13	37	10	25	31	18
36	16:46	12.00	38	24	33	33	28	27	0	26	80	22	30	48	13	30	5	5	14	37	25	18
37	16:54	13.00	14	40	0	8	22	23	0	0	28	24	28	29	19	24	39	31	28	0	0	0
31	16:58	14.00	24	24	28	18	29	31	34	38	21	25	15	33	19	14	13	19	96	26	29	16
32	17:06	15.00	10	16	13	38	9	23	21	39	49	12	35	49	14	18	13	26	43	39	18	32
38	17:14	16.00	28	15	39	0	15	27	43	25	9	17	22	22	41	34	27	20	36	8	27	13
33	17:22	17.00	23	38	0	34	51	49	44	40	28	38	18	15	5	50	57	32	14	47	56	39
34	17:30	18.00	22	32	63	60	42	35	65	27	28	35	44	50	41	60	42	35	56	40	35	28
35	17:38	19.00	27	28	20	8	3	3	24	17	5	2	9	53	38	10	5	4	11	8	6	11
36	17:50	20.00	9	0	21	8	15	26	21	10	4	9	21	6	18	19	0	26	12	8	13	12
37	17:58	21.00	26	26	0	44	26	4	0	0	35	6	24	26	29	20	6	21	16	0	0	0
31	18:06	22.00	15	15	16	10	26	23	18	10	4	5	9	5	12	3	16	10	15	21	11	13
32	18:14	23.00	11	22	9	2	10	8	15	10	0	1	16	3	3	8	3	15	70	14	10	18
38	18:22	24.00	7	3	8	0	4	4	6	4	0	4	8	1	11	6	1	3	0	4	2	3
33	18:30	25.00	2	9	0	4	17	0	5	1	0	4	5	5	3	9	7	0	6	6	9	5
34	18:38	26.00	21	26	25	15	25	22	21	16	0	11	14	0	7	12	13	16	8	16	10	16
35	18:48	27.00	7	3	4	0	6	0	5	0	0	2	2	2	4	2	2	9	5	0	5	1
36	18:58	28.00	5	1	5	0	6	5	0	0	0	0	3	0	3	5	3	4	1	0	0	3
37	19:08	29.00	8	2	0	7	4	7	0	0	0	3	6	15	3	7	6	17	10	0	0	0
31	19:18	30.00	9	9	6	4	16	5	9	3	0	6	6	0	6	0	2	4	2	10	2	5
32	19:28	31.00	2	6	3	0	0	2	5	3	7	1	2	0	0	1	0	2	14	0	2	3
	AM COUNT		828	767	971	929	763	922	1092	1024	1113	671	1141	1016	1039	1119	979	890	1026	1044	1235	746
	PM COUNT		635	682	685	614	722	672	680	615	802	576	678	770	603	716	635	655	863	667	579	610
	TOTAL COUNT		1463	1449	1656	1543	1485	1594	1772	1639	1915	1247	1819	1786	1642	1835	1614	1545	1889	1711	1814	1356

Loading Dock Observations – 100 Binney Street

100 Loading Dock

Date	Day of Week	Time in	Vender	Tenant	Est size truck	SU30+, including trash Large	SU30 and smaller Small	Passenger
8/15/2019	Thursday	6:09	K-Town	BMS			1	
8/15/2019	Thursday	6:50	WVR	Misc				1
8/15/2019	Thursday	6:55	Boston Bean	Misc	Van			1
8/15/2019	Thursday	7:31	Dry Ice	Misc	20ft			1
8/15/2019	Thursday	7:38	UPS	BMS	20 ft			1
8/15/2019	Thursday	7:47	ESC	BMS	20ft			1
8/15/2019	Thursday	7:51	Inter carrier	TCR2				1
8/15/2019	Thursday	8:04	Cero Coop	FB				1
8/15/2019	Thursday	8:05	Baldor	FB	25ft		1	
8/15/2019	Thursday	8:29	Allan Const	BMS				1
8/15/2019	Thursday	8:30	ABC, AM	TCR2				1
8/15/2019	Thursday	8:32	Direct Serv	CRL				1
8/15/2019	Thursday	8:35	Unifirst	Misc	20ft			1
8/15/2019	Thursday	8:38	Red-Cross	FB	20ft			1
8/15/2019	Thursday	8:50	Bio Trans	CRL	25ft		1	
8/15/2019	Thursday	8:53	JCC	CRL	25ft		1	0
8/15/2019	Thursday	9:04	WB Mason	Misc	20ft			1
8/15/2019	Thursday	9:10	Home D	BMS	25ft		1	
8/15/2019	Thursday	9:24	Triumvirate	TCR2	25ft		1	
8/15/2019	Thursday	10:03	Fed-ex	Misc	25ft			1
8/15/2019	Thursday	10:00	Bio Cair	Fog				1
8/15/2019	Thursday	10:05	Dry Ice	Tango	20ft			1
8/15/2019	Thursday	10:38	UPS	Misc	20 ft			1
8/15/2019	Thursday	10:45	Alert Log	TCR2				1
8/15/2019	Thursday	11:43	Hud Delivery	Sing	20ft			1
8/15/2019	Thursday	1:30	Fed-ex	Misc	25ft			1
8/15/2019	Thursday	1:55	Coffee Boston	FB	Van			1
8/15/2019	Thursday	2:00	Coffe Boston	CRL	Van			1
8/16/2019	Friday	6:00	Ozuna	Misc	20ft			1
8/16/2019	Friday	6:10	Coffee Boston	FB	Van			1
8/16/2019	Friday	6:20	IGGI	FB				1
8/16/2019	Friday	6:30	Shirazi Disp	FB	25ft		1	
8/16/2019	Friday	6:50	Staples	Sing	20ft			1
8/16/2019	Friday	7:00	Middlesex	BMS	25ft		1	
8/16/2019	Friday	7:06	Baldor	FB	25ft		1	
8/16/2019	Friday	8:00	ABC, AM	Misc				1
8/16/2019	Friday	8:30	Middlesex	Fog	25ft		1	
8/16/2019	Friday	8:40	NgKinds	FB				1
8/16/2019	Friday	9:29	Foleys Fish	FB	Van			1
8/16/2019	Friday	9:32	Stericycle	CRL	25ft		1	
8/16/2019	Friday	9:39	Kinneay Meat	FB	20ft			1
8/16/2019	Friday	9:40	Canteen	BMS	Van			1
8/16/2019	Friday	9:55	JCC		25ft		1	
8/16/2019	Friday	10:10	Fed-ex	Misc	25ft			1
8/16/2019	Friday	10:25	Dartugnan	FB				1
8/16/2019	Friday	10:30	UPS	Misc	20 ft			1
8/16/2019	Friday	11:02	ABC, AM	CRL	20ft			1
8/16/2019	Friday	11:45	Boston Bio Pro	Sing	20ft			1
8/16/2019	Friday	11:45	Shirazi Disp	FB	25ft		1	
8/16/2019	Friday	11:54	DoorDash	TCR2	Van			1
8/16/2019	Friday	12:28	Fazenda Coffee	FB	Van			1
8/16/2019	Friday	12:30	Fed-ex	Misc	25ft			1
8/16/2019	Friday	1:00	Four Season	Fog	van			1
8/16/2019	Friday	2:15	WB Mason	Tango	20ft			1
8/16/2019	Friday	3:00	World Cour	Sing	Van			1
8/19/2019	Monday	6:00	Salem Glass	Base	20Ft			1
8/19/2019	Monday	6:15	BWR					1
8/19/2019	Monday	6:30	Iggy Bakery	FB	Van			1
8/19/2019	Monday	6:50	Coffee Boston	Misc	Van			1
8/19/2019	Monday	6:57	Walsh					1
8/19/2019	Monday	7:15	Shirazi Disp	FB	25ft		1	
8/19/2019	Monday	7:25	Staples	Sing	20ft			1
8/19/2019	Monday	7:25	WB Mason		20ft			1
8/19/2019	Monday	7:44	Finagle	Misc	Van			1
8/19/2019	Monday	7:50	Foleys Fish	FB	Van			1
8/19/2019	Monday	7:56	Aramark		25ft		1	
8/19/2019	Monday	8:10	Direct Serv					1
8/19/2019	Monday	8:11	Stop-Shop		20ft			1
8/19/2019	Monday	8:15	Big Trans		25ft		1	
8/19/2019	Monday	8:18	Stericycle		25ft		1	
8/19/2019	Monday	8:38	Envigo					1
8/19/2019	Monday	8:53	Fed-ex	Misc	25ft			1
8/19/2019	Monday	9:45	Middlesex	Misc	25ft			1
8/19/2019	Monday	9:47	Cero Coop					1
8/19/2019	Monday	9:59	JN Kidds					1
8/19/2019	Monday	10:15	Shirazi Disp	FB	25ft		1	
8/19/2019	Monday	11:00	UPS	Misc	20 ft			1

	large	small	passenger
Thursday	6	19	3
Friday	7	13	7
Monday	8	20	7
Tuesday	9	24	9
Weds	8	15	6
	38	91	32
5day avg	7.6	18.2	6.4
50%	8	19	7
max	9	24	9

8/19/2019	Monday	11:28	Boston Org						1
8/19/2019	Monday	11:34	Kinneay Meat	FB	20ft			1	
8/19/2019	Monday	11:35	State Elec		25ft	1			
8/19/2019	Monday	12:09	State Cour						1
8/19/2019	Monday	12:09	Save that stuff		25ft	1			
8/19/2019	Monday	12:11	Stop-Shop		20ft			1	
8/19/2019	Monday	12:19	Bev 1	Misc	Van				1
8/19/2019	Monday	12:34	World Cour						1
8/19/2019	Monday	1:30	800-Junk		25ft	1			
8/19/2019	Monday	1:35	Fed-ex	Misc	25ft			1	
8/19/2019	Monday	1:37	M Vurley Paint	Misc	van			0	1
8/19/2019	Monday	2:45	WB Mason		20ft			1	
8/19/2019	Monday	3:00	Acme Ice		20ft			1	
8/20/2019	Tuesday	6:08	BWR					1	
8/20/2019	Tuesday	6:11	Shirazi Disp	FB	25ft	1			
8/20/2019	Tuesday	6:14	Middlesex	Misc	25ft	1			
8/20/2019	Tuesday	6:30	ESC		25ft	1			
8/20/2019	Tuesday	6:35	Iggy Bakery	FB	Van				1
8/20/2019	Tuesday	6:35	Coffee Boston	Misc	Van			0	1
8/20/2019	Tuesday	6:40	Baldor	FB	25ft	1			
8/20/2019	Tuesday	7:40	WB Mason		20ft			1	
8/20/2019	Tuesday	7:45	State Elec					1	
8/20/2019	Tuesday	8:10	Dartagnan					1	
8/20/2019	Tuesday	8:13	Kinneay Meat					1	
8/20/2019	Tuesday	8:49	New England Fin					1	
8/20/2019	Tuesday	5:53	Foleys Fish	FB	Van				1
8/20/2019	Tuesday	9:03	Clean Uniforms	Misc	Van				1
8/20/2019	Tuesday	9:05	Lab Furn					1	
8/20/2019	Tuesday	9:12	Bio Trans					1	
8/20/2019	Tuesday	9:29	Direct Serv					1	
8/20/2019	Tuesday	9:42	Bakers	Misc	Van				1
8/20/2019	Tuesday	9:44	World Cour					0	1
8/20/2019	Tuesday	9:53	Rent a Crate		25ft	1			
8/20/2019	Tuesday	10:00	Dry Ice					1	
8/20/2019	Tuesday	10:10	Middlesex	Misc	25ft	1			
8/20/2019	Tuesday	10:27	JN Kidds					1	
8/20/2019	Tuesday	10:37	Peak Event		25ft	1			
8/20/2019	Tuesday	10:40	QTX					1	
8/20/2019	Tuesday	10:48	Cintas		Van			0	1
8/20/2019	Tuesday	11:10	BioCair					1	
8/20/2019	Tuesday	11:19	KAI					1	
8/20/2019	Tuesday	11:21	Tec					1	
8/20/2019	Tuesday	11:21	Stop-Shop		20ft			1	
8/20/2019	Tuesday	11:30	Atlantic Coffee	Misc	Van				1
8/20/2019	Tuesday	11:37	UPS	Misc	20 ft			1	
8/20/2019	Tuesday	11:40	State Elec					1	
8/20/2019	Tuesday	11:49	Fed-ex	Misc	25ft			1	
8/20/2019	Tuesday	12:05	Cintas		Van				1
8/20/2019	Tuesday	12:27	Baldor	FB	25ft	1			
8/20/2019	Tuesday	12:28	Fed-ex	Misc	25ft			1	
8/20/2019	Tuesday	1:14	Willian Collins					1	
8/20/2019	Tuesday	1:54	Eastern Site					1	
8/20/2019	Tuesday	2:00	XPO Log		25ft	1			
8/20/2019	Tuesday	2:08	Fed-ex	Misc	25ft			1	
8/20/2019	Tuesday	2:41	Gordon beer	Misc	Van			1	
8/21/2019	Weds	6:04	BWR					1	
8/21/2019	Weds	6:08	Coffee Boston						1
8/21/2019	Weds	6:14	Harvey		Dumpster	1			
8/21/2019	Weds	6:34	Iggy Bakery	FB	Van				1
8/21/2019	Weds	6:38	Darttagnan					1	
8/21/2019	Weds	6:41	Shirazi Disp	FB	25ft	1			
8/21/2019	Weds	7:00	Baldor	FB	25ft	1			
8/21/2019	Weds	7:45	Staples	Sing	20ft			1	
8/21/2019	Weds	7:52	Kinneay Meat					1	
8/21/2019	Weds	8:00	Peak Event					1	
8/21/2019	Weds	8:00	UPS	Misc	20 ft			1	
8/21/2019	Weds	8:22	World Cour						1
8/21/2019	Weds	8:46	Foleys Fish	FB	Van				1
8/21/2019	Weds	9:17	PraxAir		25ft	1			
8/21/2019	Weds	9:21	Stericycle			1			
8/21/2019	Weds	9:48	JN Kidds					1	
8/21/2019	Weds	9:57	Valley Comm					1	
8/21/2019	Weds	10:09	Fed-ex	Misc	25ft			1	
8/21/2019	Weds	10:21	Cintas		Van				1
8/21/2019	Weds	10:38	UPS	Misc	20 ft			1	
8/21/2019	Weds	11:13	Shirazi Disp	FB	25ft	1			
8/21/2019	Weds	11:29	Rich's Trans					1	
8/21/2019	Weds	12:01	Fed-ex	Misc	25ft			1	
8/21/2019	Weds	12:03	Fooda					1	
8/21/2019	Weds	12:28	Acme Ice			1			

8/21/2019	Weds	1:57	Pipette Cal			1	
8/21/2019	Weds	2:26	Iron Mt	25ft	1		
8/21/2019	Weds	2:45	World Cour				1
8/21/2019	Weds	3:01	WB Mason	20ft		1	

CRA Streetscape Redesign Documents

CAMBRIDGE
KENDALL SQUARE STREETSCAPE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	41	62
PROJECT FILE NO.			

TRAFFIC SIGNAL PLAN
BROADWAY @ GALILEO GALILEI WAY

00-2016-268_TSP_LAYOUT.DWG Plotted on 12-Jun-2018 2:50 PM

N

GALILEO GALILEI WAY

BROADWAY

PROP VIDEO DETECTION ZONE (TYP)

PROP FISHEYE VIDEO DETECTOR MOUNTED ON LUMINAIRE ARM

BIKE LANE

45' MA

50' MA

40' MA

50' MA

PC=19.76

0 20 50 100

SCALE: 1" = 20'

NOTES:
1. REFER TO THE BASIS OF DESIGN AND THE LANDSCAPE VISION DOCUMENT FOR ADDITIONAL INFORMATION ON THE BASIS OF THE PROPOSED DESIGN.

TIMING PLAN

BROADWAY / GALILEO GALILEI WAY

	STREET	DIR.	HEAD	ø1 L	ø1 GR	ø1 CH	ø1 CL	ø2 L	ø2 GR	ø2 CH	ø2 CL	ø3 L	ø3 GR	ø3 CH	ø3 CL	ø4 L	ø4 GR	ø4 CH	ø4 CL	ø5 L	ø5 GR	ø5 CH	ø5 CL	ø6 L	ø6 GR	ø6 CH	ø6 CL	ø7 L	ø7 GR	ø7 CH	ø7 CL	ø8 L	ø8 GR	ø8 CH	ø8 CL	EMERGENCY	FLASH MODE
VEHICLE	BROADWAY	EB	A																																FR
	BROADWAY	EB	B,C																																FR
	BROADWAY	EB	D																																FR
	BROADWAY	WB	E																																FR
	BROADWAY	WB	F,G																																FR
	BROADWAY	WB	H																																FR
	GALILEO GALILEI WAY	NB	K																																FR
	GALILEO GALILEI WAY	NB	L,M																																FR
	GALILEO GALILEI WAY	NB	N																																FR
	GALILEO GALILEI WAY	SB	Q																																FR
	GALILEO GALILEI WAY	SB	R,S																																FR
	GALILEO GALILEI WAY	SB	T																																FR
WALK	BROADWAY	NB–SB	P5,P6	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	OUT
	BROADWAY	NB–SB	P1,P2	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	OUT
	GALILEO GALILEI WAY	EB–WB	P7,P8	DW	DW	DW	DW	DW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	OUT
	GALILEO GALILEI WAY	EB–WB	P3,P4	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	OUT
BIKE	GALILEO GALILEI WAY	EB	P	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FR
	GALILEO GALILEI WAY	WB	J	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	FR
	BROADWAY	NB	O	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	FR
	BROADWAY	SB	U	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	FR
INTERVAL	MINIMUM GREEN				6				6				6				6				6				6				6				6			
	EXTENSION				2				0.2				2				0.2				2				0.2				2				0.2			
	MAX 1 GREEN				8				28				9				25				13				23				10				24			
	MAX 2 GREEN				14				25				9				22				12				27				7				24			
	YELLOW CHANGE					3				3				3				3				3				3				3				3		
	RED CLEARANCE						2				2				2				2				2				2				2				2
	PEDESTRIAN WALK			–	–			0	7			–	–			0	10			–	–			0	7			–	–			0	7		
	PEDESTRIAN CLEARANCE					–				15				–				12				–				12				–				12		
	BIKE YELLOW CHANGE					–				3				–				3				–				3				–				3		
	BIKE RED CLEARANCE						–				4				–				4				–				5				–				4
	MEMORY			NON–LOCK				NON–LOCK				NON–LOCK				NON–LOCK				NON–LOCK				NON–LOCK				NON–LOCK				NON–LOCK			
	RECALL			NONE				MAX				NONE				MAX				NONE				MAX				NONE				MAX			

DETECTORS

IDENT	PHASE	TYPE	SIZE	TURNS	MODE
S1	SYSTEM	VIDEO	5'x5'	–	PULSE
S2	SYSTEM	VIDEO	5'x5'	–	PULSE
S3	SYSTEM	VIDEO	5'x5'	–	PULSE
S4	SYSTEM	VIDEO	5'x5'	–	PULSE
V1	ø2	VIDEO	6'x8'	–	PRES
V2	ø3	VIDEO	6'x30'	–	PRES
V3	ø2	VIDEO	6'x30'	–	PRES
V4	ø5	VIDEO	6'x30'	–	PRES
V5	ø4	VIDEO	6'x8'	–	PRES
V6	ø5	VIDEO	6'x30'	–	PRES
V7	ø4	VIDEO	6'x30'	–	PRES
V8	ø7	VIDEO	6'x30'	–	PRES
V9	ø6	VIDEO	6'x8'	–	PRES
V10	ø7	VIDEO	6'x30'	–	PRES
V11	ø6	VIDEO	6'x30'	–	PRES
V12	ø1	VIDEO	6'x30'	–	PRES
V13	ø8	VIDEO	6'x8'	–	PRES
V14	ø1	VIDEO	6'x30'	–	PRES
V15	ø8	VIDEO	6'x30'	–	PRES
V16	ø3	VIDEO	6'x30'	–	PRES

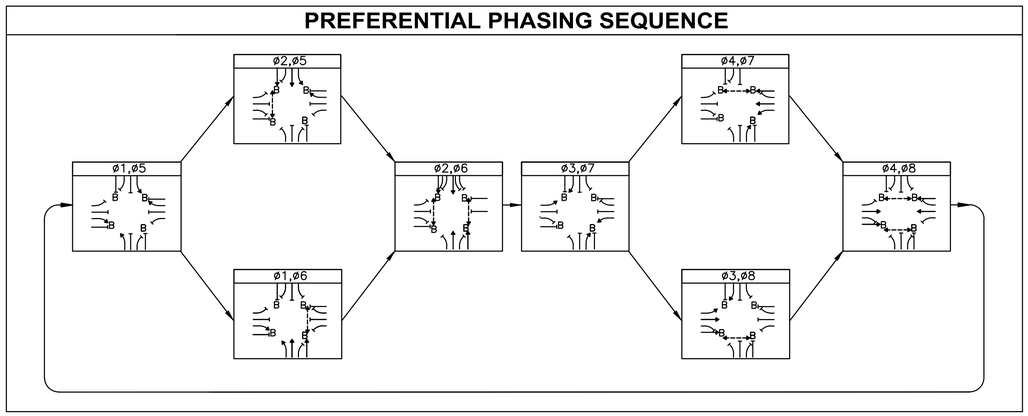
COORDINATION PLAN

PROGRAM	DAY	TIME	CYCLE LENGTH	OFFSET	PHASE SPLIT ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8
TP 1	M–F	0700–1100	MAX 1									
TP 2	M–F	1600–1900	MAX 2									
TP 3	M–Su	ALL OTHER	90		16	32	14	28	18	30	13	29

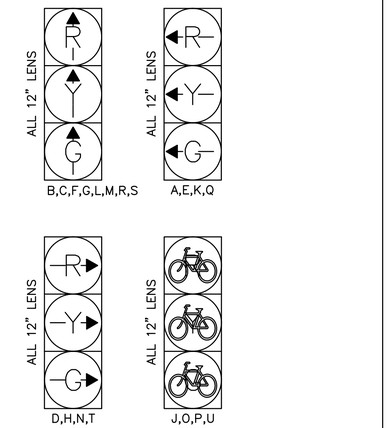
TECHNICAL NOTES

1. PEDESTRIAN PHASES REST IN WALK.
2. IF THE ASSIGNED RIGHT OF WAY FOR ANY MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.

PREFERENTIAL PHASING SEQUENCE



SIGNAL FACES



HAND/MAN
W/COUNTDOWN TIMER
(L.E.D.) SINGLE SECTION

P1,P2,P3,P4,P5,
P6,P7,P8

NOTES:
1. ALL SIGNAL HEADS SHALL BE RIGID MOUNTED AND EQUIPPED WITH 5" LOUVERED BACKPLATES AND TUNNEL VISORS.
2. ALL SIGNAL DISPLAYS SHALL BE EQUIPPED W/L.E.D. MODULES.

MAJOR ITEMS REQUIRED

BID ITEM	QUANTITY	ITEM
816.01	1	40' MAST ARM ASSEMBLY, BASE, & FOUNDATION (STEEL) WITH BLACK PAINT
	1	45' MAST ARM ASSEMBLY, BASE, & FOUNDATION (STEEL) WITH BLACK PAINT
	2	50' MAST ARM ASSEMBLY, BASE, & FOUNDATION (STEEL) WITH BLACK PAINT
	4	8' TRAFFIC SIGNAL POST, BASE, & FOUNDATION (STEEL) WITH BLACK PAINT
	4	10' TRAFFIC SIGNAL POST, BASE, & FOUNDATION (STEEL) WITH BLACK PAINT
	20	3 SECTION – 12" LENS SIGNAL HEAD
	8	PEDESTRIAN HOUSING (16" LED) COUNTDOWN – SINGLE SECTION
	8	AUDIBLE PEDESTRIAN SIGNAL PUSHBUTTON ASSEMBLY (COWBELL TONE)
	1	TS2 TYPE 1 SIGNAL CONTROLLER (EAGLE SIEMENS), CABINET (TYPE M), AND FOUNDATION
	2	DUAL CHANNEL LOOP DETECTOR AMPLIFIER (RACK MOUNTED)
	1	GPS TIME CLOCK MODULE (GARMIN), PER CITY SPEC
	1	24 POSITION FIBER PATCH PANEL
	1	SERVICE CONNECTION (LOCATION TBD)
	1	FISHEYE VIDEO DETECTOR, ASSOCIATED MATERIALS, AND LUMINAIRE ARM
	1	R&S SELECTED SIGNAL EQUIPMENT
811.31	TBD	12"X12" PULL BOX

PLUS ALL NECESSARY DUCT, CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION.

REVISION HISTORY	

TRAFFIC SIGNAL PLAN

CITY OF CAMBRIDGE
TRAFFIC, PARKING AND TRANSPORTATION DEPARTMENT

BROADWAY
AT
GALILEO GALILEI WAY

INTERSECTION # 009

N

NOTES:
1. EXISTING "TOW ZONE NO STOPPING" SIGNS AND VARIOUS REGULATORY AND WARNING SIGNS SHALL BE RETAINED AND RESET PER COORDINATION WITH THE CITY.
2. REFER TO THE BASIS OF DESIGN AND THE LANDSCAPE VISION DOCUMENT FOR ADDITIONAL INFORMATION ON THE BASIS OF THE PROPOSED DESIGN.

CAMBRIDGE
KENDALL SQUARE STREETSCAPE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	39	62
PROJECT FILE NO.			

MARKING & SIGNING PLAN - 8

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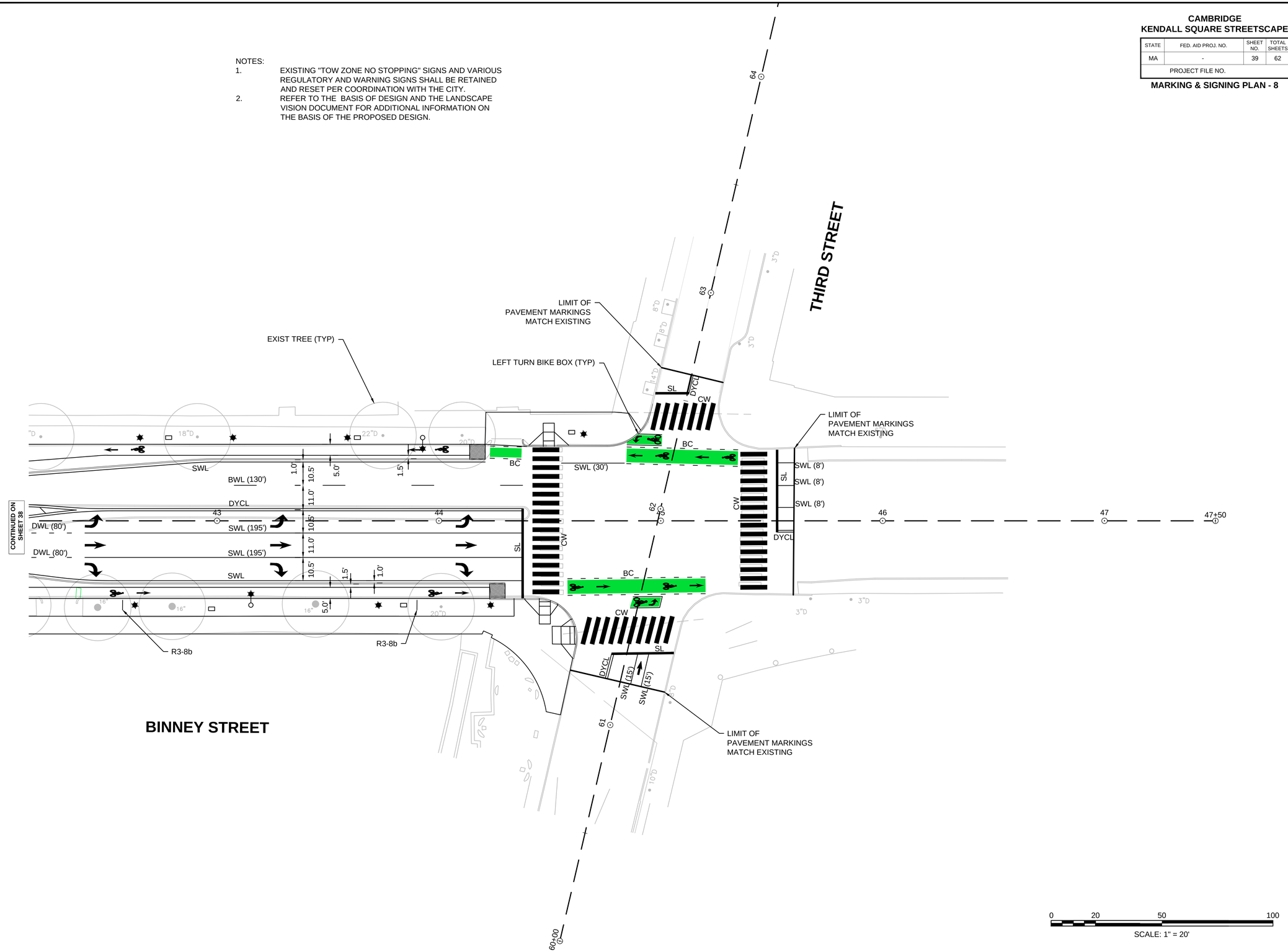


CAMBRIDGE
BROADWAY / GALILEO GALILEI WAY / BINNEY STREET
SIGNAGE & STRIPING PLANS
SHEET 44 OF 125

14313_HD(TR).DWG Plotted on 18-Sep-2019 4:38 PM

N

BROADWAY

PROP COLORED BIKE LANE (TYP)

MEET EXIST MARKINGS

2' BWL W/4' GAPS

PROP 12" SWCHL SEE DETAIL (TYP)

24" SL

R10-6a

GALILEO GALILEI WAY
PROJECT LIMIT
STA 19+26.00
N 2957960.5394
E 767079.6512

PROP 12" SYCHL SEE DETAIL (TYP)

MEET EXIST MARKINGS

CONTINUED BELOW LEFT

GALILEO GALILEI WAY

PROP 12" SYCHL SEE DETAIL (TYP)

CONTINUED ABOVE RIGHT

MEET EXIST MARKINGS

10' CW

15' CW

12' CW

D3-1

D3-2

R10-11b

R10-10b

R3-5L

R3-8b

2' BWL W/4' GAPS (TYP)

PC +26.17

PROP BIKE YIELD TO PED MARKINGS (TYP) (SEE DETAIL)

PROP BIKE LANE MARKING (TYP) SEE DETAIL

GALILEO GALILEI WAY
LIMIT OF PAVING
STA 20+00.00
N 2958033.3903
E 767093.4074

PROP 145 BROADWAY SITE CONSTRUCTION BY OTHERS

2' BWL W/4' GAPS

40' CW

CONTINUED ON SHEET NO. 48

CONTINUED ON SHEET NO. 45

N/F
NORTH PARCEL LIMITED PARTNERSHIP
TRACT VII

CONSTRUCTION NOTES

1. ALL PAVEMENT MARKINGS SHALL BE REFLECTORIZED THERMOPLASTIC. ALL BICYCLE PAVEMENT MARKING LEGENDS SHALL BE PRE-FORMED REFLECTORIZED THERMOPLASTIC, UNLESS OTHERWISE NOTED.
2. BICYCLE LANES, IN AREAS DESIGNATED ON THE PLANS, SHALL BE COLORED (GREEN) PRE-FORMED THERMOPLASTIC.
3. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.
4. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE R&S UNLESS OTHERWISE NOTED.

0 20 50 100
SCALE: 1" = 20'

CAMBRIDGE
KENDALL SQUARE STREETSCAPE

STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	43	62
PROJECT FILE NO.			

TRAFFIC SIGNAL PLAN
FULKERSON ST @ BINNEY ST / GALILEO GALILEI WAY

00-2016-268_TSP_LAYOUT.DWG Plotted on 12-Jun-2018 2:51 PM

N

GALILEO GALILEI WAY

BINNEY STREET

FULKERSON STREET

PROP FISHEYE VIDEO DETECTOR MOUNTED ON LUMINAIRE ARM

PROP VIDEO DETECTION ZONE (TYP)

BIKE LANE

25' MA

50' MA

P1 P2 P3 P4 P5 P6 P7 P8 P9 P10

V1 V2 V3 V4 V5 V6 V7 V8 V9

S1 S2 S3 S4

A B C D E F G H J K L M N O P

0 20 50 100

SCALE: 1" = 20'

NOTES:
1. REFER TO THE BASIS OF DESIGN AND THE LANDSCAPE VISION DOCUMENT FOR ADDITIONAL INFORMATION ON THE BASIS OF THE PROPOSED DESIGN.

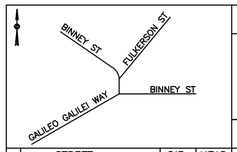
CAMBRIDGE
KENDALL SQUARE STREETSCAPE

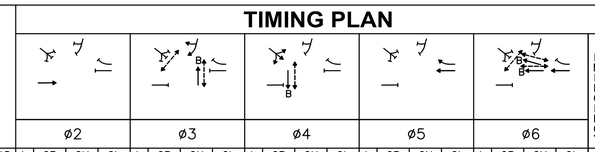
STATE	FED. AID PROJ. NO.	SHEET NO.	TOTAL SHEETS
MA	-	46	62
PROJECT FILE NO.			

TRAFFIC SIGNAL DATA
FULKERSON ST @ BINNEY ST /
GALILEO GALILEI WAY

Plotted on 12-Jun-2018 2:53 PM
00-2016-268_TSP_DATA.DWG

TIMING PLAN





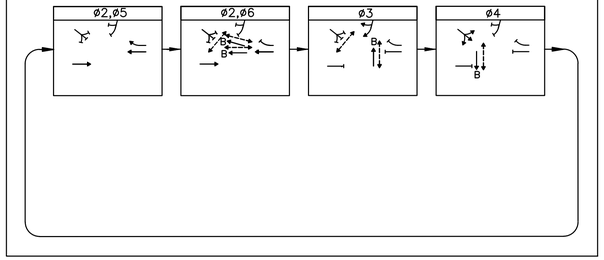
	STREET	DIR.	HEAD	ø2 L	ø2 GR	ø2 CH	ø2 CL	ø3 L	ø3 GR	ø3 CH	ø3 CL	ø4 L	ø4 GR	ø4 CH	ø4 CL	ø5 L	ø5 GR	ø5 CH	ø5 CL	ø6 L	ø6 GR	ø6 CH	ø6 CL	EMERGENCY	FLASH MODE
VEHICLE	GALILEO GALILEI WAY	EB	A,B,C																						FR
	BINNEY STREET	WB	E,F																						FR
	BINNEY STREET	WB	G,N																						FR
	FULKERSON STREET	SB	L,M	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R		FR
	BINNEY STREET	SEB	J,K	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R		FR
WALK	GALILEO GALILEI WAY	NB–SB	P1,P2	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW		OUT
	BINNEY STREET	NB–SB	P5,P6	DW	DW	DW	DW	DW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW		OUT
	FULKERSON STREET	EB–WB	P9,P10	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW		OUT
	BINNEY STREET	EB–WB	P7–P8	DW	DW	DW	DW	DW	W	FDW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW		OUT
	MIDBLOCK	EB–WB	P3–P4	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	DW	W	FDW	DW		OUT
BIKE	BINNEY STREET	WB	H,P	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	Y	R		FR
	FULKERSON STREET	NB–SB	O	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R		FR
	BINNEY STREET	SB	D	R	R	R	R	R	R	R	R	R	G	Y	R	R	R	R	R	R	R	R	R		FR
INTERVAL	MINIMUM GREEN				20				10				10				6				20				
	EXTENSION				2				2				2				3				2				
	MAX 1 GREEN				38				19				11				12				22				
	MAX 2 GREEN				38				15				15				12				22				
	YELLOW CHANGE					4				4				4				3				4			
	RED CLEARANCE						2				2				6				1				2		
	PEDESTRIAN WALK			–	–			0	7			4	3			–	–			0	7				
	PEDESTRIAN CLEARANCE					–				8				3				–				4			
	BIKE YELLOW CHANGE					–				3				3				–				3			
	BIKE RED CLEARANCE						–				3				3				–				2		
	MEMORY				NON–LOCK				NON–LOCK				NON–LOCK				NON–LOCK				NON–LOCK				
	RECALL				MAX				PED				PED				NONE				MAX				

DETECTORS					
IDENT	PHASE	TYPE	SIZE	TURNS	MODE
S1	SYSTEM	VIDEO	5'x5'	–	PULSE
S2	SYSTEM	VIDEO	5'x5'	–	PULSE
S3	SYSTEM	VIDEO	5'x5'	–	PULSE
S4	SYSTEM	VIDEO	5'x5'	–	PULSE
V1	ø2	VIDEO	6'x30'	–	PRES
V2	ø4	VIDEO	6'x8'	–	PRES
V3	ø4	VIDEO	6'x30'	–	PRES
V4	ø3	VIDEO	6'x30'	–	PRES
V5	ø6	VIDEO	6'x8'	–	PRES
V6	ø6	VIDEO	6'x8'	–	PRES
V7	ø5	VIDEO	6'x30'	–	PRES
V8	ø5,ø6	VIDEO	6'x30'	–	PRES
V9	ø3	VIDEO	6'x8'	–	PRES

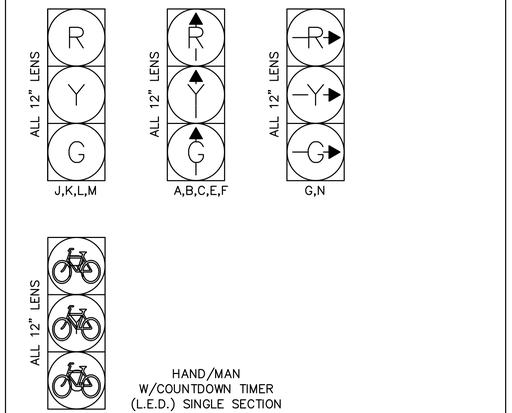
COORDINATION PLAN														
PROGRAM	DAY	TIME	CYCLE LENGTH	OFFSET	PHASE SPLIT ø1	ø2	ø3	ø4	ø5	ø6	ø7	ø8
TP 1	M–F	0700–1100	MAX 1									
TP 2	M–F	1600–1900	MAX 2									
TP 3	M–Su	ALL OTHER	90		–	44	23	23	16	28	–	–

TECHNICAL NOTES	
1.	PEDESTRIAN PHASES REST IN WALK.
2.	IF THE ASSIGNED RIGHT OF WAY FOR ANY MOVEMENT IS TO REMAIN IN EFFECT DURING THE NEXT CALLED PHASE, THE SIGNAL INDICATIONS FOR THAT MOVEMENT WILL NOT CHANGE DURING THE CLEARANCE INTERVAL.

PREFERENTIAL PHASING SEQUENCE



SIGNAL FACES



NOTES:
1. ALL SIGNAL HEADS SHALL BE RIGID MOUNTED AND EQUIPPED WITH 5" LOUVERED BACKPLATES AND TUNNEL VISORS.
2. ALL SIGNAL DISPLAYS SHALL BE EQUIPPED W/L.E.D. MODULES.

MAJOR ITEMS REQUIRED

BID ITEM	QUANTITY	ITEM
816.01	2	25' MAST ARM ASSEMBLY, BASE, & FOUNDATION (STEEL) WITH BLACK PAINT
	1	50' MAST ARM ASSEMBLY, BASE, & FOUNDATION (STEEL) WITH BLACK PAINT
	8	8' TRAFFIC SIGNAL POST, BASE, & FOUNDATION (STEEL) WITH BLACK PAINT
	4	10' TRAFFIC SIGNAL POST, BASE, & FOUNDATION (STEEL) WITH BLACK PAINT
	15	3 SECTION – 12" LENS SIGNAL HEAD
	9	PEDESTRIAN HOUSING (16" LED) COUNTDOWN – SINGLE SECTION
	9	AUDIBLE PEDESTRIAN SIGNAL PUSHBUTTON ASSEMBLY (COWBELL TONE)
	1	TS2 TYPE 1 SIGNAL CONTROLLER (EAGLE SIEMENS), CABINET (TYPE M), AND FOUNDATION
	2	DUAL CHANNEL LOOP DETECTOR AMPLIFIER (RACK MOUNTED)
	1	GPS TIME CLOCK MODULE (GARMIN), PER CITY SPEC
	1	24 POSITION FIBER PATCH PANEL
	1	SERVICE CONNECTION (LOCATION TBD)
	1	FISHEYE VIDEO DETECTOR, ASSOCIATED MATERIALS, AND LUMINAIRE ARM
	1	R&S SELECTED SIGNAL EQUIPMENT
811.31	TBD	12"X12" PULL BOX

PLUS ALL NECESSARY DUCT, CABLE, LABOR, MISCELLANEOUS MATERIAL AND EQUIPMENT TO COMPLETE THE INSTALLATION.

REVISION HISTORY	

TRAFFIC SIGNAL PLAN

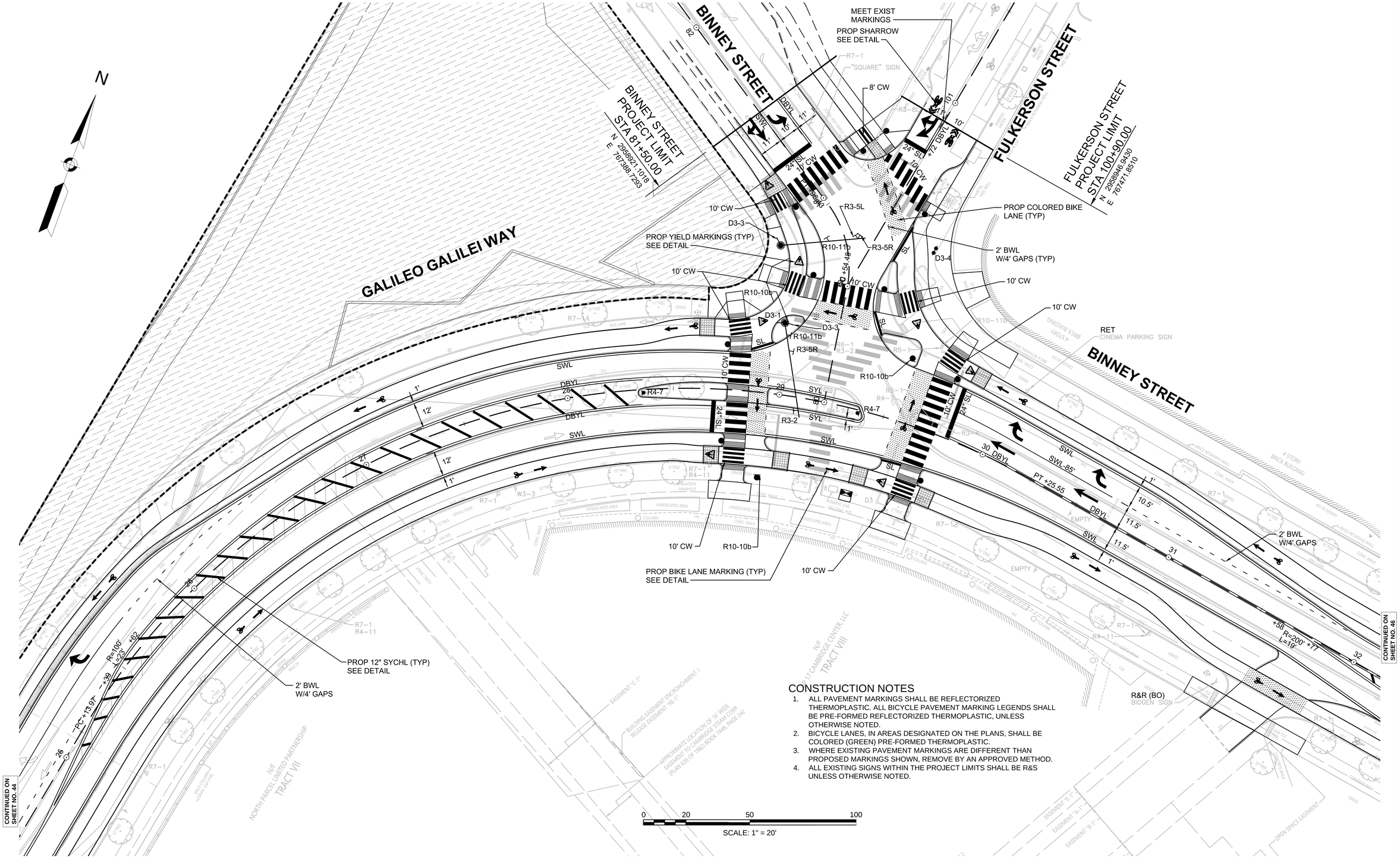
CITY OF CAMBRIDGE
TRAFFIC, PARKING AND TRANSPORTATION DEPARTMENT

GALILEO GALILEI WAY/BINNEY STREET
AT
FULKERSON STREET

INTERSECTION # 000

CAMBRIDGE
BROADWAY / GALILEO GALILEI WAY / BINNEY STREET
SIGNAGE & STRIPING PLANS
SHEET 45 OF 125

14313_HD(TR).DWG Plotted on 18-Sep-2019 4:38 PM



CONSTRUCTION NOTES

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2. BICYCLE LANES, IN AREAS DESIGNATED ON THE PLANS, SHALL BE COLORED (GREEN) PRE-FORMED THERMOPLASTIC.
3. WHERE EXISTING PAVEMENT MARKINGS ARE DIFFERENT THAN PROPOSED MARKINGS SHOWN, REMOVE BY AN APPROVED METHOD.
4. ALL EXISTING SIGNS WITHIN THE PROJECT LIMITS SHALL BE R&S UNLESS OTHERWISE NOTED.

0 20 50 100
SCALE: 1" = 20'

Certified Tree Study

HALVORSON
Tighe&Bond STUDIO

12 June 2020

Mr. David Lefcourt
City Arborist
City of Cambridge
Department of Public Works
Hampshire Street
Cambridge, MA 02140
dlefcourt@cambridgema.gov

Re: **325 Binney - Tree Study**
Cambridge, Massachusetts

Dear David:

As required, this memorandum and attached documentation comprise the Tree Study which we are submitting to you as City of Cambridge Arborist for your review.

Please find attached the following:

a. Tree Condition Assessment from Bartlett Tree Expert20s, certified arborist
b. Existing Conditions Tree Removal and Protection Plan
c. Overall Proposed Tree Plan

The Assessment identifies the existing trees on site, the size of each tree, the condition of each tree, recommendations for maintaining the trees in good health and identifies trees that could potentially be transplanted.

The Existing Conditions Tree Removal and Protection Plan identifies each existing tree ; each number corresponds to the chart in the Tree Condition Assessment; trees to be removed, trees to be protected; and location of protective measures.

The Overall Proposed Tree Plan identifies both proposed trees and existing trees to remain including calculations regarding DBH.

In summary the project consists of the following:

1. Existing Trees:

There are 20 existing trees on site- (16 of which are Significant trees). DBH of all existing trees totals 204" DBH and DBH of only the Significant trees totals 177" DBH.

2. Tree Removals:

We are proposing to remove 0 of the existing trees within the Limit of Work and of the removals there are only 0 trees of significance (over 8" DBH) for a total of 0 DBH of Significant Tree Removal.

3. Proposed Trees:

We are proposing 45 new trees on the Project Site:
a. 37 deciduous canopy trees at 3 ½" DBH = 129.5" DBH
b, 8 trees at 1.5" DBH ornamental flowering trees = 12" DBH

Total of 141.5" DBH of new trees.

We are also proposing 10 new trees at 3 ½" DBH on the streetscape, however these are not included in the tree calculations on the Project Site.

Therefore, the net total DBH on the Project Site for new trees proposed less existing Significant Trees being removed = 141.5" DBH (This is in addition to the existing 177" DBH of Significant Trees to Remain).

We therefore submit that the project is in full compliance with the City of Cambridge Tree Protection Ordinance and the purposes expressed in Section 8.66.020 of the City Ordinances. Pursuant to Section 8.66.050, we ask that you refer the Tree Study with your certification and approval to the Planning Board as submitted.

Sincerely,

Halvorson Tighe & Bond Studio

Robert Adams
Principal

325 Binney St, Cambridge: Tree Review

Halvorson
Tighe & Bond Studio
25 Kingston St- 5th Floor
Boston, MA 02111

Andrew Balon
Bartlett Tree Experts
50 Bear Hill Rd
Waltham, MA 02451

RE: 325 Binney St, Cambridge- Tree Review

On June 8th[h] 2020, the Bartlett Tree Experts evaluated the overall viability of existing trees throughout 325 Binney, St. Trees were evaluated and information collected included: overall condition (see below), estimated DBH, genus and species. The service was conducted to assist the Client (and/or Owner) with its tree care needs. This service did not include a tree risk assessment. As such, no trees were assessed for risk in accordance with industry standards, nor were there any tree risk ratings or risk mitigation recommendations provided with the below report.

Condition Definitions:

1) Good: Tree Health and condition are acceptable.
2) Fair: Parts of the canopy display undesirable leaf color, inappropriate leaf size, and inadequate new growth.
3) Poor: Most of the canopy displays dieback and undesirable leaf color, inappropriate leaf size or inadequate new growth.
4) Dead:

#	Genus	Species	Common Name	DBH	Condition	General Location
#1	Ailanthus	altissima	Tree of Heaven	8''	Fair	North Fence line
#2	Ailanthus	altissima	Tree of Heaven	6''	Fair	North Fence line
#3	Ailanthus	altissima	Tree of Heaven	8''	Fair	North Fence line
#4	Ailanthus	altissima	Tree of Heaven	7''	Fair	North Fence line
#5	Ulmus	americana	American Elm	8''	Fair	North Fence line
#6	Robinia	pseudoacacia	Black locust	13''	Fair	North Fence line
#7	Robinia	pseudoacacia	Black Locust	14''	Fair	North Fence Line
#8	Ailianthus	Altissima	Tree of Heaven	14''	Fair	North Fence Line

325 Binney St, Cambridge: Tree Review

#9	Pyrus	Calleryana	Flowerinig Pear	Multi-Stem: 8'', 6''	Fair	North Fence Line
#10	Robinia	pseudoacacia	Black Locust	10''	Fair	North Fence Line
#11	Robinia	pseudoacacia	Black Locust	10''	Fair	North Fence Line
#12	Robinia	pseudoacacia	Black Locust	9''	Fair	North Fence Line
#13	Robinia	pseudoacacia	Black Locust	17''	Fair	North Fence Line
#14	Robinia	pseudoacacia	Black Locust	7''	Fair	North Fence Line
#15	Populus	Deltoides	Cottonwood	13''	Good	East Along Building
#16	Quercus	palustris	Pin Oak	8''	Fair	West Side by Fence line
#17	Populus	Deltoides	Cottonwood	Mult-Stem, 8'', 3'', 3''	Fair	West Side By Fence Line
#18	Quercus	Palustris	Pin Oak	7''	Fair	West Side By Fence line
#19	Ailianthus	Altissima	Tree of Heaven	17''	Fair	East Corner By Utility Building
#20	Acer	plananoides	Norway Maple	12''	Fair	East Corner By Utility Building

North Section of Site

325 Binney St, Cambridge: Tree Review

Cottonwood Located at the east side of site along building

325 Binney St, Cambridge: Tree Review

Oak and Cottonwood located by the West of site by fenc line

325 Binney St, Cambridge: Tree Review

Norway maple and Tree of Heaven by Utility building

325 Binney St, Cambridge: Tree Review

Recommnended Tree Protection:

Note: Tree protection can be limited to protective fencing around the critical root system if no construction activities are anticipated to be within 20' of trees. If limits of work encroach upon the critical root zone, a certified arborist should be contacted. Remedial recommendations to be provided onsite.

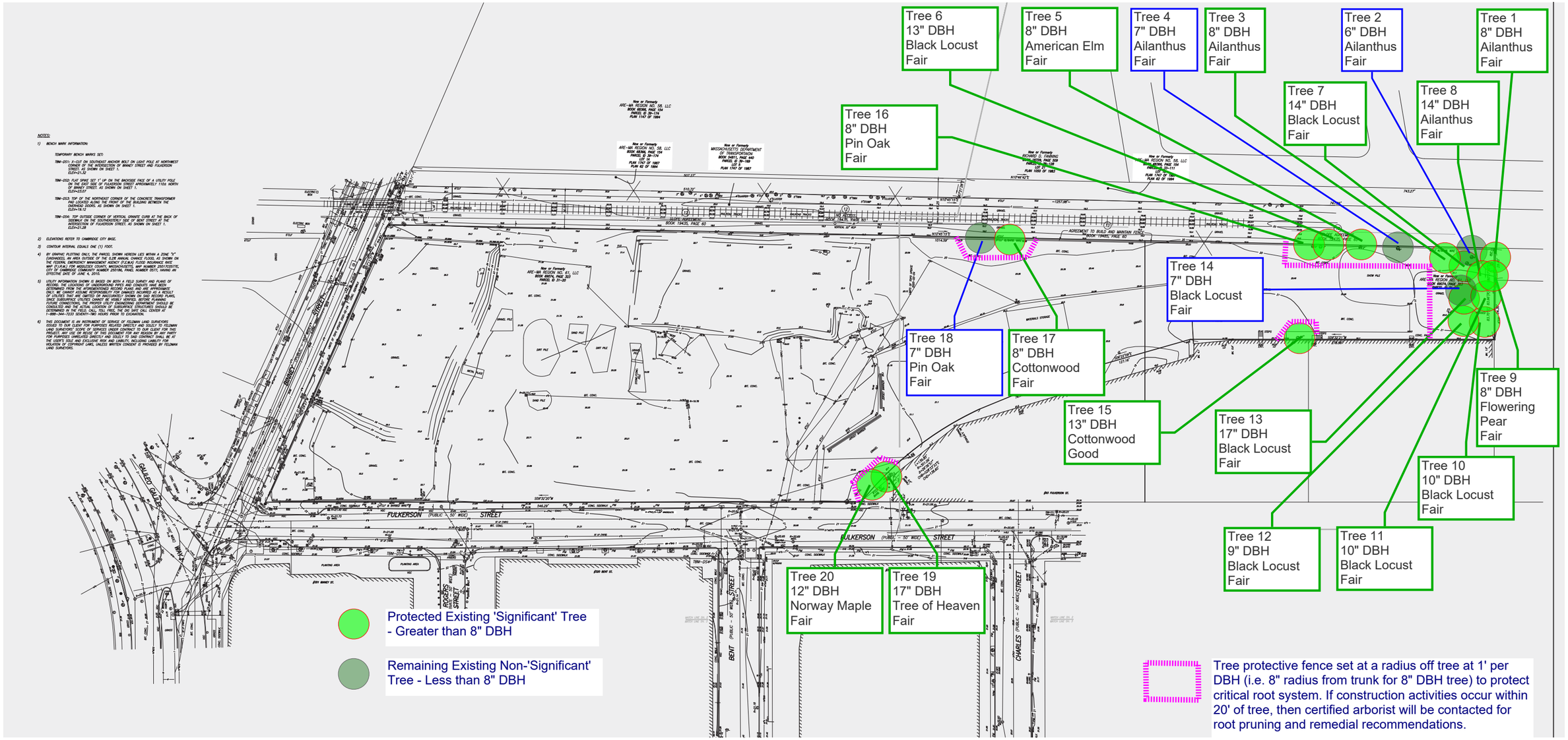
- Tree Fencing should be placed at 1' per DBH. (I.e. 8'' Tree to have 8' of protective fencing)

A site visit can be scheduled at any point to review trees on site.

Thank you,

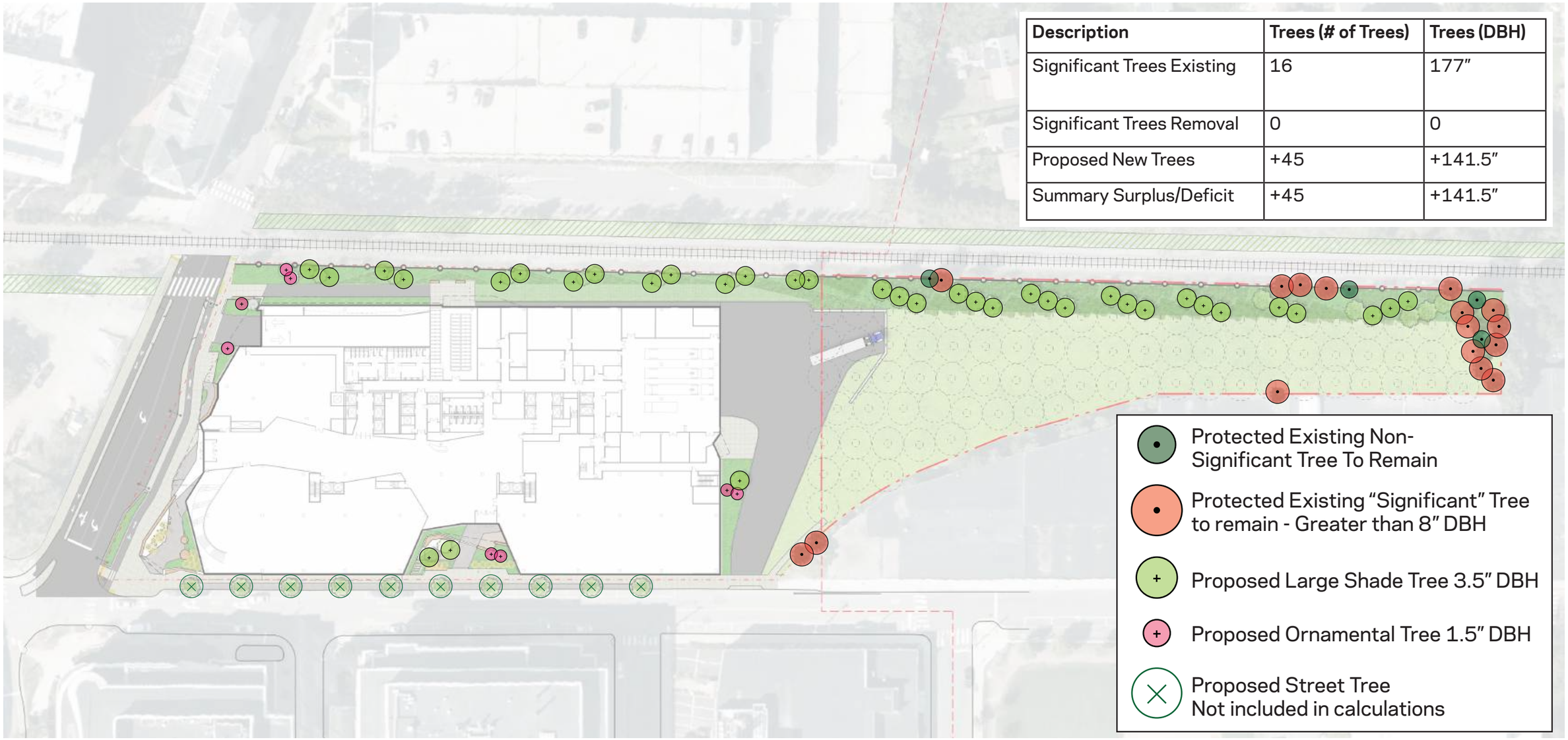
Andrew Balon
Bartlett Tree Experts
50 Bear Hill Rd, Waltham MA 02451
Commerical Arborist-New England
E: Abalon@bartlett.com
C: 401.617.1480
ISA Certified Arborist- NE-7015
Tree Risk Assesment Qualified

Existing Tree Protection / Removal Plan



Proposed Overall Tree Plan

Description	Trees (# of Trees)	Trees (DBH)
Significant Trees Existing	16	177″
Significant Trees Removal	0	0
Proposed New Trees	+45	+141.5″
Summary Surplus/Deficit	+45	+141.5″



Article 22 Green Building Report

Thornton Tomasetti

325 BINNEY STREET

GREEN BUILDING NARRATIVE
ARTICLE 22 COMPLIANCE

June 22, 2020

Updated July 29, 2020

PREPARED BY

THORNTON TOMASETTI
386 Fore Street, Suite 401
Portland, ME 04101

PREPARED For

NBBJ
One Beacon Street Suite 5200
Boston, Massachusetts 02108

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01 SUSTAINABILITY GOALS....4

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3 FITWEL NARRATIVE....21

4 WELL NARRATIVE....21

LEED CHECKLIST....22

NET ZERO NARRATIVE (DEVELOPED BY BR+A)....24

01 SUSTAINABILITY GOALS AND PROCESS

325 Binney Street (the "Project" or the "Building") will deliver best in class performance, exceeding or meeting the sustainability goals of the city of Cambridge. Guided by the goals outlined in Alexandria's Sustainability Guidelines for Design and Construction (see figure 5, page 9) including lowering energy consumption, reducing operational and embodied carbon, and minimizing water footprint, the Building will also focus on promoting health, wellbeing and productivity for occupants and visitors. In focusing on these goals, the Project aligns with Cambridge's Sustainability Special Permit requirements and is also designed for resiliency and flexibility, anticipating the challenges associated with climate change and the demands of Technology and life science research and development tenants.

The Project is pursuing LEED and Fitwel certifications, as well as, meeting all the preconditions for WELL certification. The Fitwel system prioritizes wellness within the design, development, and operations of buildings with a focus on occupant health and activity. The WELL Building Standard also focuses on health and wellness over seven categories: air, water, comfort, light, fitness, nourishment, and mind. When combined with LEED, the Fitwel and WELL systems support a holistic, sustainable building design solution. A report on the progress made to date on certification can be found in the second section of this narrative.

INTEGRATED DESIGN

To meet these lofty sustainability goals in an efficient and thorough manner, the Team has used an integrated design approach for the Project. The Team meets during the week to review updates and ensure all aspects of the design respect the goals outlined for the Project. Within this holistic process, each element is integrated with the other systems to optimize performance while minimizing overall cost. Below are some of the highlights of these systems

ENERGY AND OPERATIONAL CARBON EMISSIONS

The design for 325 Binney is uniquely effective at reducing fossil fuel consumption. In particular, the use of ground-source is essentially unprecedented for commercial developer lab buildings, based on our survey of professionals and organizations throughout the industry.

The average comparable lab building in Cambridge and Boston has an Energy Use Intensity (EUI) of 345 kBtu/sf*yr. Using a baseline of an average existing large laboratory in Boston and Cambridge, built or largely renovated since 1985 is conservative as the default 2030 Challenge benchmark, based on national average lab energy data is 370 kBtu/sf-yr. Compared to this benchmark, the Project's proposed design is anticipated to reduce energy consumption by more than 50% and cut fossil fuel consumption by more than 80%.

To achieve this goal, the Building will rely on a variety of energy strategies, including a high performance envelope, advanced exhaust heat recovery, supplemental heating and cooling at the occupant zones, and a ground-source (geothermal) heat recovery chiller plant. Compared to the 9th edition Massachusetts Stretch Code baseline (effective Aug 8, 2020), the Building is anticipated to achieve at least 30% site energy savings and at least

50% reduction in fossil fuel consumption. Under LEEDv4, between 12 and 14 points are anticipated for the Optimize Energy Performance credit.

When paired with Alexandria's commitment to purchase Green Power meeting the definition of additionality, the combined performance targets a nearly carbon neutral energy building, almost a decade ahead of the Cambridge Net Zero Energy timeline

Ground-Source Heating and Cooling

The use of ground-source is essentially unprecedented for commercial developer lab buildings, based on our survey of professionals and organizations throughout the industry. This system plays an important role in achieving the aggressive fossil fuel reduction goals. A closed-loop bore field consisting of approximately 80 wells will provide a large percentage of the annual heating and (a portion of the annual) cooling for the Building. Each ground source borehole will be approximately 600 feet deep and will utilize two U-bend HDPE pipes (a.k.a. "quad loop") to optimize the heat exchange effectiveness. The innovative use of this system for the Building supports the cities goals.

The water from the bore field is circulated to the heat pump chiller plant. The chillers then extract, or reject, heat from the ground loop to produce the chilled and hot water needed to operate the Building. To supplement the energy from the bore field, gas-fired condensing boilers and a premium-efficiency water-cooled chiller plant supplement the ground-source system during peak load conditions. The ground-source system will be base-loaded, meaning it will operate year-round and is anticipated to supply a large percentage of the heating energy, and a significant portion of the cooling energy, on an annual basis. However, during peak heating and cooling demand days, the system will provide a portion of the total demand which will be supplemented by the boilers and chillers.

High Performance Envelope

The envelope design focuses on high thermal efficiency and air tightness. The exterior walls primarily include a heavily insulated rainscreen wall system, punched with high performance triple glazed windows. With this facade, there is little to no need for perimeter heating, freeing up additional program space for the tenant and offering additional energy savings. Thermal comfort of the occupant is maximized, and the impacts of massing and orientation are minimized.

This highly controlled approach to envelope heat gain and loss is one of the keys to unlocking the best-in-class energy performance of the mechanical system

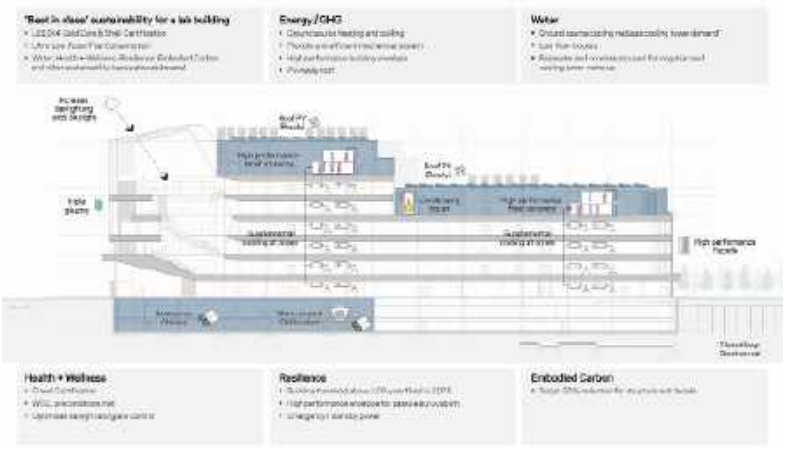

Fig.1. Schematic Building system

Flexible + Efficient Mechanical Systems Design

The Building is designed to accommodate 70% wet laboratory research space. Roof space has been allocated for future specialty exhaust and tenant equipment. The Building can also throttle down its energy consumption if the tenant occupancy is mostly dry laboratory research or technology office.

The mechanical design provides a high degree of flexibility, while dramatically reducing energy consumption. Large air handlers supply industry standard fresh air and make-up air rates throughout the Building. Rather than increase supply airflow during peak load conditions, fan coil units and/or chilled beams will also be applied to all zones, largely decoupling the air handlers from the heating and cooling demands. Alexandria and BR+A's past experience with this type of hybrid system has proven to be flexible, highly energy efficient, and cost effective.

To further reduce the heating and cooling demands, the make-up air handlers (AHUs) will rely on a Konvekta exhaust air energy recovery system. In the exhaust AHUs, a coil will recover energy from the exhaust air. In the supply AHUs, a coil will supply the recovered energy, pre-treating the air before supplying it to the Building. The heat recovery coils in the supply AHUs "wrap around" the chilled water coils, further reducing the peak cooling loads and largely eliminating reheat energy consumption.

Photovoltaic Array

The Building is designed to be solar-ready, providing Alexandria with the option to install an array covering most of the available roof area. The PV array will likely be developed with a solar developer to further reduce the carbon footprint, while allowing a third party to own and operate the system.

Path to Net Zero

The City released additional guidance in late May 2020 on energy modeling expectations in relation to building energy use and net zero energy use. The Team has included the Net Zero narrative as the last section in this report.

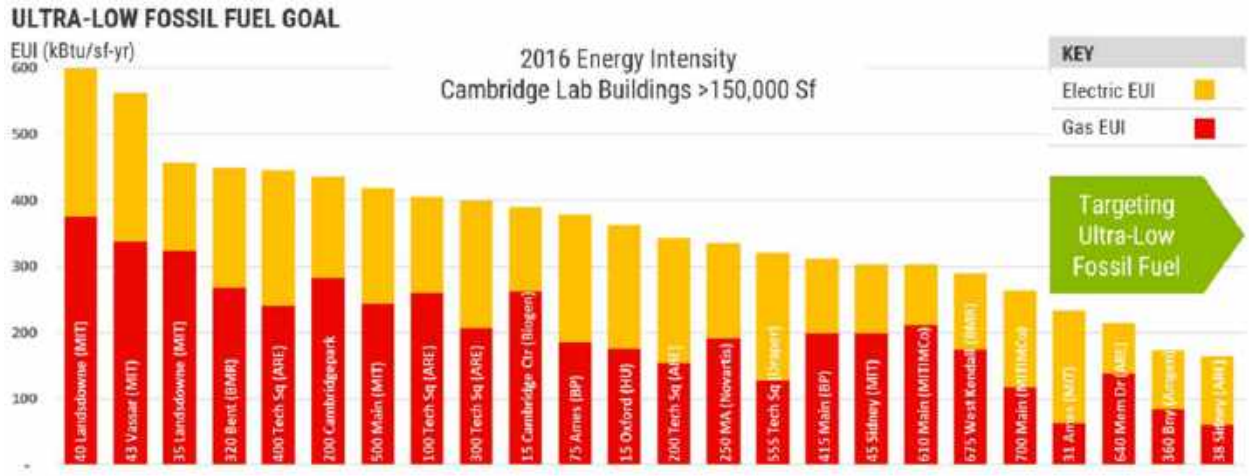

Fig.2. Energy preformance teagrt compared to other Cambrigde lab buildings

HEALTH + WELLNESS

325 Binney Street seeks to serve as an asset to help companies employ and retain talent in the competitive Cambridge research and technology job market. The Project will achieve this goal by supporting the health and vitality of the people that work and socialize in the Building, through the use of healthy building and construction materials, biophilic design, and spaces that encourage active occupants. In light of the SARS-CoV-2 pandemic, strategies to reduce transmission of pathogens are being considered, including consideration of the recently released LEED Safety Pilot Credits related to SARS-CoV-2 response.

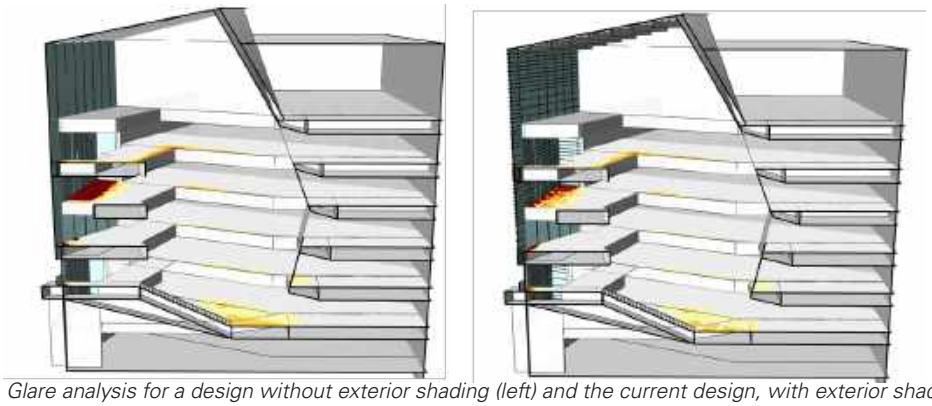

Fig.3. Glare analysis for a design without exterior shading (left) and the current design, with exterior shading (right)

The Project is designed to enhance access to daylight and views. Grand staircases are a primary design feature and offer access to natural light, encourage exercise and an alternative to using the elevators. The balance between daylight and glare control is being carefully evaluated through Building performance simulations, in order to maximize access to quality views. Opportunities to support social interaction, while considering physical distancing are also being considered.

Significant daylighting and facade studies were done to support the goal of a comfortable and well lit building including Facade radiation studies, daylighting studies (including glare), parametric review of shading options, daylight study of atrium, and daylighting vs peak load analysis. Utilizing the results of these studies the he façade is being designed to keep thermal comfort in mind, specifying high performance glass and strategically choosing dimensions to eliminate any potential winter thermal discomfort for occupants sitting adjacent to the perimeter. This careful design enhances the indoor environment, supporting LEED goals and also has the potential to reduce Building energy consumption.

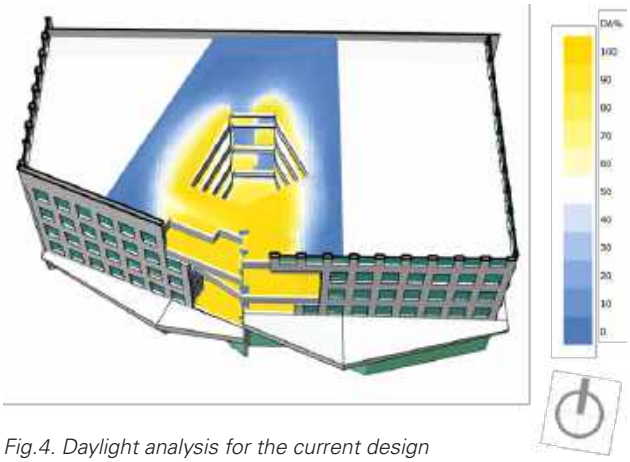

Fig.4. Daylight analysis for the current design

Healthy materials will be specified to avoid chemicals of concern. As a further commitment to health and wellness, the Project will be designed meet the WELL preconditions and achieve Fitwel certification.

WATER REDUCTION AND REUSE

Cooling towers are typically the largest consumer of water in laboratory buildings. The ground-source system will significantly reduce the cooling tower water consumption. To further reduce water consumption, low-flow fixtures will be installed in the restrooms.

Due to the combined sewer overflow (CSO), the Project must capture rainwater to not contribute to exceeding the storm system's capacity. In case of a heavy storm event, the Project must store wastewater on site until pressures on the CSO system have eased.

Rainwater and air handler condensate will be reused for irrigation and cooling tower make-up. Overall, compared to a typical lab building, 325 Binney Street will achieve more than a 30% reduction in potable water consumption compared to the LEED baseline.

RESILIENCE

The Project seeks to remain viable for many decades, and handle anticipated storm conditions. To address sea level rise, the Building threshold is elevated above the 100-year flood level projected for 2070. Much of the projects vulnerable infrastructure will be installed above the flood plain, either on the first floor or in the penthouse, some equipment will be placed in the garage but entrances to the garage are above the 100 year flood plain Many of the design strategies that contribute to efficiency and human comfort are a benefit in a carbon-constrained future and provide options for more passive operation under emergency conditions as well.

RESILIENT URBAN ECOLOGY

325 Binney Street's location provides excellent opportunities for multi-modal transportation and a lively human social and intellectual environment. It also has the potential to enhance and contribute to the local ecosystems in a way that creates both tenant and neighborhood benefits. As mentioned, the site is part of one of the last combined sewer overflow (CSO) zones in Cambridge. Rainwater capture within the Project is a critical strategy to help maintain the river water quality of the Charles River during extreme storm events when discharge of untreated water is possible. This also can be done in a beautiful way that engages the landscape and hardscape as part of an ecological treatment system. This will be pursued more deeply when the full landscape design is completed, but will include evaluation of roof systems, landscape, and subsurface features.

Landscape that provides shade and cooling for outdoor social spaces, ample provision for bicycle commuters and the potential to interact with nature are enhancements that add both to ecological and human health. The Building has been sited with a unique "sundial" aspect that places the slot between Buildings directly in the sun path at lunchtime throughout the year, creating opportunities for occupants to notice and be aware of nature. The biophilic design elements that bring occupants in contact with various aspects of nature – patterns, seasons, materials, shapes and spatial characteristics, and multi-sensory experiences – will be developed more fully as the Project continues.

EMBODIED CARBON

Understanding the embodied carbon in a project is essential to a low carbon future. As buildings become more energy efficient, the carbon which is generated or released in the mining, manufacturing, and installation of building materials becomes more critical to understand. These emissions are termed "embodied" carbon and are a significant contributor to the lifecycle greenhouse gas emissions of buildings, particularly low energy buildings. For 325 Binney Street the structural and façade design will incorporate design strategies and focus on sourcing lower carbon materials which may include local or recycled materials with a goal of achieving a minimum 10% with a stretch goal of 30% reduction of embodied carbon with respect to a baseline building. A building baseline has already been developed using a similar recent Boston lab building, and the structural engineering team has proposed several alternatives that would lead the Building to meet lower embodied carbon levels. Strategies explored to date include structural efficiency, structural material choice, sustainable sourcing, and life cycle analysis of all building materials The team plans to continue exploring strategies, particularly as façade elements are refined.

GOAL ALIGNMENT

325 Binney Street seeks to demonstrate exceptional levels of sustainability meeting both Alexandria's sustainability goals (above in this report) and meeting those of the City of Cambridge.


ALEXANDRIA. fitwel EC3 TCFD

Baseline Sustainability Goals for Ground-Up Development of New Buildings

Overall Certifications and Items to Document
- Achieve minimum LEED® Gold certification
- Achieve Fitwel certification
- Include design and construction elements that satisfy preconditions for WELL certification
- Reduce embodied carbon by 10% by calculating product-specific environmental product declarations (EPDs)
- Account for the 2050 climate projections, according to the RCP 8.5 scenario, for sea level rise, precipitation flooding, drought, heat, wildfire/smoke, and wind

Guidelines to Help Achieve Certifications and High Performance Outcomes

Location and Sites
- Provide 5% of total parking spaces as preferred parking, with striping for carpools and green vehicles
- Pre-wire 5% of total parking as electric vehicle-ready spaces
- Provide an outdoor recreation, fitness, rest, or amenity space

Energy
- Reduce whole-building energy consumption 25% below the ASHRAE 90.1-2010 baseline
- Meet the prescriptive levels of thermal insulation for building envelopes based on city and/or state code
- Design all new projects with pre-wiring and designated location to be energy storage ready
- Design all new projects with pre-wiring to be solar ready

Water
- Reduce outdoor potable water consumption to 50% below UPC baseline
- Reduce indoor potable water consumption to 37% below UPC baseline
- Provide accessible water bottle-filling ability at water outlets on every floor

Smart and High-Performance Buildings
- Develop a master metering strategy for energy and water that enables whole-building consumption readings, and provide submetering to tenants that lease 25,000 rentable square feet or more
- Conduct 12 months of post-occupancy performance monitoring, measurement, and verification
- Engage a third-party commissioning agent for enhanced and retro-commissioning for one year of services

Materials and Waste
- Procure 25% of sustainable project materials from sustainable sources
- Procure 10% of project materials regionally
- Divert ≥55% of project construction and demolition waste from landfills
- Specify and include project products to achieve 10 Environmental Product Declaration and 10 Health Product Declaration points

Indoor Environmental Quality
- Exceed ASHRAE 62.1-2010 guidelines for ventilation rates
- Plan and implement an Indoor Air Quality Management Plan
- Design workplaces to make natural daylight accessible from a majority of workspaces, and provide views of nature from the majority of workspaces
- Select low-emitting materials that achieve the relevant thresholds of four LEED categories

Physical Activity and Wellness
- Provide interior stairs that are accessible during regular business hours and clearly visible from the building's main entrance
- Provide a multi-purpose room that can be scheduled for wellness activities or on-site exercise by all regular occupants

ALEXANDRIA | SUSTAINABILITY

Fig.5. ARE Sustainability Goals for new buildings

02 BUILDING CERTIFICATION GOALS

With a focus on occupant health, resource conservation, and reduction of environmental impact the Project is targeting a variety of certification goals. The Project will achieve a minimum of a LEED Gold certification and the Team is considering to explore additional opportunities which could achieve a Platinum Certification . In addition, the Project is being designed to meet the Preconditions of the WELL Building Standard and is also targeting a Fitwel Certification.

The Project Team includes several LEED Accredited Professionals and is working together through an integrated design process to coordinate the sustainability efforts of the Project and the certification goals.

LEED

A LEED Checklist is provided at the end of this section to identify credits which will be pursued by the Project. The checklist also indicates where the Team has Sustainability Guidelines required by Alexandria and alignment with WELL preconditions. The Team will use the LEED BD+C v4 Core and Shell system and will utilize LEED v4.1 credit substitutions as appropriate for the Project. The Project Team is currently targeting a minimum of LEED Gold with a total of 72 out of a possible 110 points in the LEED BD+C rating system. An additional 8 points are undergoing study to determine the feasibility of attainment.. An additional 20 points are still possible but are not being strongly pursued by the Team and will not be discussed in detail.

The design team has attempted to be conservative in their approach in this checklist and for that reason some credits which are still possible and being evaluated are not being held as "Yes" or "Probable" at this point.

LEED checklist summary:

Integrative Process	1 Point	
Location and Transportation	15 Points	
Sustainable Site	5 Points	1 Possible Point
Water Efficiency	7 Points	1 Possible Point
Energy and Atmosphere	22 Points	3 Possible Points
Materials and Resources	5 Points	3 Possible Point
Indoor Environmental Quality	6 Points	1 Possible Points
Innovation and Design	6 Points	
Regional Priority	3 Point	1 Possible Point
Total Points	**70 Points**	**10 Possible Points**

AFFIDAVIT

As Thornton Tomasetti's Sustainability Practice leader overseeing certification and analytics staff involved in the planning, design and construction of 325 Binney Street, I, Gunnar Hubbard, certify that I am knowledgeable of the project's green building strategies, designs, plans and details and to the best of my knowledge this project has been planned and designed so as to meet the prerequisites and earn the credits necessary to achieve Gold level at minimum (minimum for Gold level is 60 points) using the LEED BD+C for Core and Shell v4 Rating System. The referenced project is being designed to meet the Green Building requirements under Article 22 of the Cambridge Zoning Ordinance.

Gunnar Hubbard, LEED Fellow, FAIA
Principal and Sustainability Practice Leader
Thornton Tomasetti

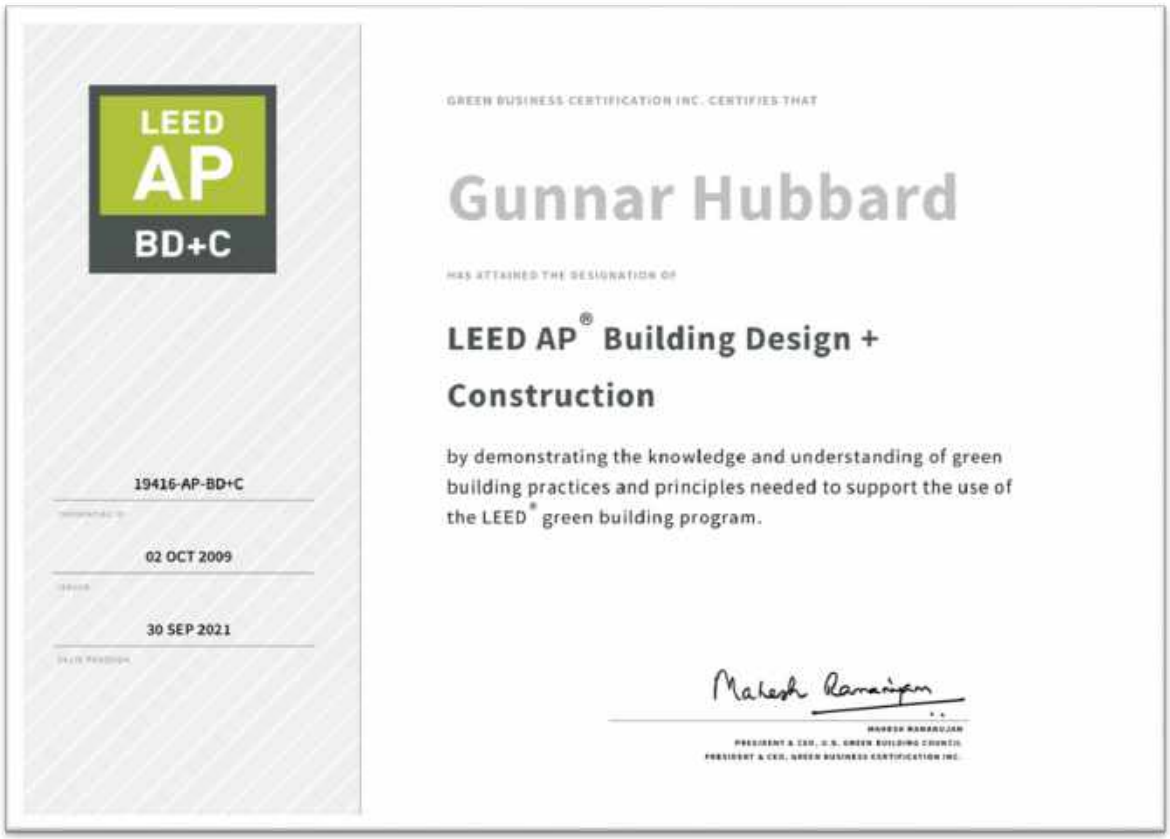

Fig.6. Gunnar Hubbard's LEED AP

INTEGRATIVE PROCESS

IP Credit 1: Integrative Process - 1 "Yes" point

The Project Team has been proceeding with an integrated design process which includes several LEED accredited professionals. Early design energy modeling is being performed and evaluation of building performance opportunities and load reduction strategies are underway. These evaluations will continue throughout design with the goal of designing a highly efficient building. Opportunities identified in these studies will be incorporated into the Project OPR and BOD.

LOCATION & TRANSPORTATION

LT Credit 2: Sensitive Land Protection - 2 "Yes" points

The Project is on a previously developed site and for this reason will qualify for credit achievement.

LT Credit 3: High Priority Site - 3 "Yes" points

The Project is located on a site with previous contamination of fill material. For this reason soil and groundwater at the site will require management under the Massachusetts Contingency Plan. The Project will remediate the contamination as required by the state.

LT Credit 4: Surrounding Density and Diverse Uses - 6 "Yes" points

The Project is in a dense area where the density within a quarter mile of the site exceeds 35,000 sf/acre. This earns the Project 4 credits.

In addition, the Project will earn 2 points for being in an area with significant amenities, far in excess of the eight required by LEED.

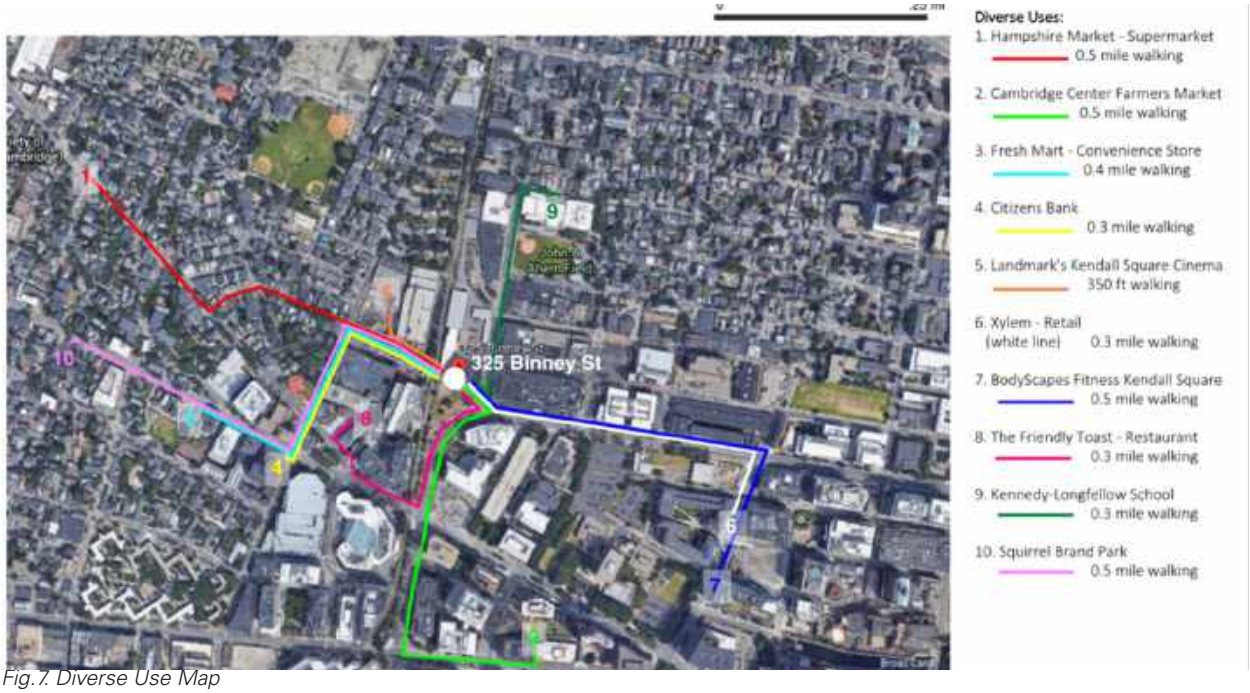

Fig.7 Diverse Use Map

LT Credit 5: Access to Quality Transit - 2 “Yes” points

There are several bus lines accessible within a quarter mile of the project site. These include MBTA #64, #68, #85. MBTA CT2 in addition to Private shuttles EZRide and Alexandrea Express. However, only MBTA #64 provides weekend rides (Sat 17, Sun 10). This makes weekend rides the determining factor in earning LEED credits.

The MIT Kendall/MIT Red Line Station is an .5 mile walk from the site. On weekends the Redline runs every 12-16 minutes from 6 am to 12:30 resulting in 72 rides a day. This results in a total weekend trips of 90 which is worth 2 points under LEED v4.1 methodology.

Fig.8. Bus Route Map

LT Credit 6: Bicycle Facilities - 1 “Yes” point

Project has a default FTE for 400,000 sf of 1,000 (400 sf/pp in lab). Anticipated visitors are 200. 50 Long term bike storage space, 5 short term, and 8 showers are required for LEED. The project team will exceed these numbers.

Long term bike storage is being provided in a bike room accessible from the lobby. Short term bike storage is being located within 200 feet (LEED v4.1) of the main building entry. Showers and changing facilities are being provided for the Project in the fitness room.

LT Credit 7: Reduced Parking Footprint

The Project does not meet the requirements.

LT Credit 8: Green Vehicles - 1 “Yes” point

The Project will pursue the credit under LEED v4.1 requirements. 2% of all parking spaces in the garage will be provided with electric vehicle charging stations . These stations will be dedicated to plug-in vehicles only and the charging stations will be level 2 and comply with ISO 15118.

SUSTAINABLE SITE

SS Prereq 1: Construction Activity Pollution Prevention

An Erosion and Sedimentation Control plan which meets EPA Construction General Permit of the National Pollution Discharge Elimination System (NPDES) program and local requirements will be implemented. The plan will be followed by the construction team and periodic inspections will be performed to control soil erosion, waterway sedimentation, and airborne dust.

SS Credit 1: Site Assessment - 1 “Yes” point

The Project Team will conduct a comprehensive site assessment and will study topography, hydrology, climate, vegetation, soils, human use, and human health effects specific to 325 Binney Project.

SS Credit 2: Site Development, Protect or Restore Habitat

Project is not targeting

SS Credit 3: Open Space -1 “?+" point

The Project will pursue Open space credit with a combination of grade area and roof. In addition, 25% of that space must be vegetated. The site area is 191,506. Current plans show 57,500 sq feet of publicly available open space (not including roof terraces). Which is just over 30% of the site area. Significant vegetated area including roof terraces are being included and can contribute to the approximately 14,500 sq ft of vegetated area required. The Team will continue to evaluate if the credit is possible as the landscape plan is finalized.

SS Credit 4: Rainwater Management

The Project is considering a series of rainwater measures including implementing a “Blue Roof” system, rainwater harvest, and onsite infiltration. In combination, these will treat stormwater as required by code, however, LEED requirements include low impact development (LID) strategies with a goal of onsite retention and infiltration. The Project Team will continue to evaluate if credits will be pursued. The Project will comply with the Mass DEP Stormwater Management Policy, as well as reduce the peak rate and total volume of runoff for the 25-year design storm in the post-development condition to meet the requirements of Cambridge Department of Public Work (CDPW).

The team will continue to evaluate the credit but the inclusion of the geothermal system in the project, and the limited site area not impacted by geothermal or building footprint makes it appear that hitting the LEED target for onsite infiltration will not be achievable, although the project is very much focusing on responsible rainwater management.

SS Credit 5: Heat Island Reduction - 2 “Yes” point

All parking spaces are located in an underground parking garage.

SS Credit 5: Heat Island Reduction - cont.

Roofing will include both high-reflectance roofing and vegetated roof area. Site hardscape will be designed to include both shaded areas and high-reflectance paving to reduce heat island effect.

SS Credit 6: Light Pollution Reduction - 1 "Yes" point

Site lighting will be selected to be compliant with BUG ratings required for LZ3 based on distance from the light fixture from the Project boundary.

SS Credit 7: Tenant Design & Construction Guidelines - 1 "Yes" point

Tenant Design and Construction Guidelines will be prepared later in design. These documents will be provided to the tenants and their compliance required by the leases. The Guidelines will discuss the sustainable measures in the building and the credits achieved through the LEED Certification Process. It will identify synergies the tenants can use to support their own LEED CI certification efforts.

WATER EFFICIENCY

WE Prereq p1 & Credit 1: Outdoor Water Use Reduction – 2 "Yes" points

Landscape plantings and drip irrigation systems will reduce water usage by at least 30% over the LEED Baseline. Rainwater collection is anticipated to serve all other irrigation needs. The Project will use at least 50% less water than typical for irrigation, and any irrigation needs will be served through rainwater reuse. This will reduce potable water use for irrigation by 100%.

WE Prereq p2 & Credit 2: Indoor Water Use Reduction - 3 "Yes" point,

The Team anticipates reducing indoor water use by 36% using low flow plumbing fixtures. The Project anticipates installing 1.28 gpf toilets, pint urinals, 0.35 lavs, 1.5 kitchen sinks, and 1.5 gpm showers. Savings over 36% are being considered and could include lower flow urinals or showerheads.

40% water savings is not anticipated, but when considering all water use in the building including water saved from cooling tower water use and irrigation in addition to indoor domestic fixtures the project is supporting potable water use reduction goals.

Group Name	Baseline Case (gallons/year)			Design Case (gallons/year)		
	Annual Flush Volume	Annual Flow Volume	Annual Consumption	Annual Flush Volume	Annual Flow Volume	Annual Consumption
Group 1	1,807,520.00	1,067,300.00	2,874,820.00	1,186,276.00	638,950.00	1,825,226.00

Annual baseline water consumption (gallons/year)	2,874,820.00
Annual design water consumption (gallons/year)	1,825,226.00
Percent water use reduction (%)	**36.51%**

Fig.9. Water Use Summary

WE Prereq 3: Building Level Water Metering

Metering for whole building water use is planned. Alexandria agrees to share whole building water use with the USGBC.

WE Credit 3: Cooling Tower Water Use - 1 "Yes" point, 1 "?+" point

Rainwater and air handler condensate will be reused for irrigation and cooling tower make-up. This, along with the use of the ground source heat pump will significantly reduce cooling tower makeup water.

WE Credit 4: Water Metering - 1 "Yes" point

To allow for finer tuning of ongoing performance and diagnosis of any performance aberrations, the Project plans on including submetering for at least two water uses, though these have not yet been determined.

ENERGY AND ATMOSPHERE

EA Prereq 1 & Credit 1: Commissioning & Verification - Prereq, 6 "Yes" points

As required by Alexandria's sustainability guidelines, the Project will include full monitoring-based commissioning of all mechanical, electrical, plumbing and renewable energy systems and will commission the passive envelope to ensure the intended performance thresholds are achieved for efficiency and comfort.

Commissioning requirements will be included in the Construction Documents and a commissioning agent will be engaged early in design. Twelve months of post-occupancy performance monitoring, measurement, and verification will be required.

EA Prereq 2 & Credit 2: Energy Performance – Prereq, 12 "Yes" point, 1 "?+"

The Project will be designed to comply with the Massachusetts Building Energy Code and to exceed the energy performance requirements of the Massachusetts Stretch Energy Code.

The project is planning to use the LEED alternative energy compliance metric, based on the average of source energy and GHG savings vs. the baseline. Building energy modeling is showing the current anticipated performance vs. the baseline is 30% savings, which corresponds to 13 points for LEED Core and Shell. To be conservative, we have therefore rounded down by 1 point and carried 12 points for Optimize Energy Performance.

Significant early energy work has occurred and will continue. A highly insulated envelope eliminated the need for perimeter heat. The Project is planning a ground source heat pump system. DOAS and energy recovery will further improve energy performance.

EA Prereq 3: Building-Level Energy Metering

Metering for whole building water use is planned. Alexandria agrees to share whole building energy use with the USGBC.

EA Prereq 4 & Credit 6: Refrigerant Management – Prereq, 1 "Yes" point

No CFC-based refrigerants will be utilized for the Project. Use of a ground source heat pump system supports the goals of the credit.

EA Credit 3: Advanced Energy Metering - 1 “Yes” point

All energy sources will have advanced energy metering, and each floor will have meters and submeters so tenants are able to independently meter their energy systems.

EA Credit 4: Demand Response

Based on the critical potential laboratory energy needs, this Project was not deemed a likely candidate for a demand response program.

EA Credit 5: Renewable Energy Production, 1%, 5%,10% - 2 “?+” point

The building is designed to be solar-ready. Although a solar array is not proposed as part of the initial construction, Alexandria Real Estate intends to install an array post-occupancy that will cover most of the available un-shaded roof area.. The PV array will likely be developed via a lease agreement with a solar developer to provide the carbon footprint reduction, while allowing a third party to cover the construction cost and own and operate the system. Depending on the timing of the system and the ownership of RECs credits could be achieved.

EA Credit 7: Green Power and Carbon Offsets, 50%, 100%- 2 “Yes” points

Alexandra Real Estate offsets 100% of electricity purchases with RECs. The project will also offset 100% of natural gas use for 5 years through the purchase of Carbon Credits.

MATERIALS AND RESOURCES

MR Prereq 1: Storage and Collection of Recyclables

A central area for sorting and collection of recyclables before removal from the site will be provided. This area will have space for the safe storage of mixed paper, corrugated cardboard, glass, plastics, and metals, and the disposal of batteries and electronic waste. The building will have a recycling policy to support recycling.

MR Prereq 2: Construction& Demo Waste Management Planning

Project specifications will require the Construction Team to provide a Construction Waste Management Plan which identifies at least 5 separate waste streams and establish waste diversion goals for the project. A minimum of 65% of construction waste will be diverted from landfills as required by ARE’s Sustainability Guidelines. The plan will specify whether materials will be separated or commingled and describe the diversion strategies planned for the project.

MR Credit 1: Building Life-Cycle Impact Reduction- 2 “Yes” point, 1 “?+” point

The Project Team is planning to conduct a whole-building life-cycle assessment of the building structure and enclosure using Tally. The target is at least a 10% reduction in the global warming potential, acidification of land and water sources, and depletion of nonrenewable energy sources when compared with a baseline building. The EC3 tool will also be used to help focus on impacts to whole building carbon.

MR Credit 1: Building Life-Cycle Impact Reduction- cont.

In addition to a LEED baseline the project is comparing itself to a comparable recently-constructed lab building in the Boston area. Embodied carbon reduction is being used as a design metric alongside typical code-required design metrics during structural analysis and design. Strategies such as structural efficiency, structural material choice, sustainable sourcing, and life cycle analysis of all building materials (through collection of EPDs), will support the goal of reducing the embodied carbon per square foot of 325 Binney in the range of 10% or more relative to a comparable project.

MR Credit 2: BPDO - Env Product Declarations - 1 "Yes" point

The Project specifications will require at least 20 Third party verified specific Environmental Product Declarations (EPDs). Industry wide EPDs will be required to comply with ISO 14025, and EN 15804 or ISO 21930 and have at least a cradle to gate scope. Product specific Environmental Product Declarations will conform to ISO 14025 and EN 15804 or ISO 21930 and have at least a cradle to gate scope. The construction team will track compliance during construction.

MR Credit 3: BPDO - Sourcing of Raw Materials - 1 "Yes" point

The Project will specify that at least 20% by cost of division 3-10 products to be either recycled content, biobased, or have FSC certified wood. A significant portion of this will be recycled content which will directly support the goals of MR Credit 1. The construction team will track compliance during construction.

MR Credit 4: BPDO - Material Ingredients - 1 "Yes" point

The Project specifications will require at least 20 Third party verified specific Health Product Declarations (HPDs). The construction team will track compliance during construction.

MR Credit 5: Construction and Demolition Waste Management, 75% - 2 "?+"

The construction team will continue to evaluate opportunities to include source separation of recyclable construction waste materials in addition to a comingled waste stream. If a total 75% diversion rate is obtained and includes at least three waste streams in addition to comingled two credits would be available.

INDOOR ENVIRONMENTAL QUALITY

EQ Prereq 1: Minimum IAQ Performance

The current design meets the minimum requirements of ASHRAE 62.1-2010. The system will largely decouple ventilation requirements from heating and cooling allowing the Project to provide high levels of ventilation in an energy efficient manner.

EQ Prereq 2: Environmental Tobacco Smoke Control

The building will have a no-smoking policy to comply with the Massachusetts Workplace Smoking law, and smoking will be prohibited outside within 25 feet of doors, outside air intakes, and on terraces or the roof.

EQ Credit 1: Enhanced IAQ Strategies - 2 "Yes" point

Densely occupied common spaces will be provided with carbon dioxide sensors and demand control ventilation.

Walk off matts will be installed at all entries. MERV 13 (minimum) filters will be used at all outdoor air intakes. All spaces with chemical mixing will have closers, deck to deck partitions, and negative pressure.

EQ Credit 2: Low-Emitting Materials - 3 "Yes" point

The Project will pursue the credit under the LEED v4.1 standards. VOC compliant Paints and Coatings will be used. The following categories will be targeted for Emissions compliance: Paints and Coatings, Ceilings, Flooring, and Insulation. In addition composite wood will meet the composite wood evaluation standards.

EQ Credit 3: Construction IAQ Management Plan - 1 "Yes" point

The base building will be constructed in accordance with the SMACNA Indoor Air Quality for Buildings under Construction Guideline. This guideline defines procedures for maintaining good indoor air quality inside the building during construction and also addresses construction practices to allow the best possible indoor environment after occupancy. These practices include cleaning during construction, interrupting paths of odor and dust travel within the building, segregating odor and dust producing activities from absorbent materials, and scheduling similar odor or duct producing activities to occur at the same time.

EQ Credit 4: Daylight

Not being sought.

The LEED metrics for daylighting are quite challenging to meet. The project has a deep floor plate which limits the ability of daylighting in interior spaces. While quality daylighting is important to the team and was a driver of design which includes the incorporation of connecting staircases and skylight, the project is not anticipated to meet the LEED requirements.

EQ Credit 5: Quality Views - 1 “?+” point

The Project may be able to demonstrate that 75% of regularly occupied spaces have access to quality views defined as view of nature, sky, or movement, being within 3 times the head height of a window, or having views at least 90 degrees apart. In future phases sample tenant fit plans will be used to evaluate.

INNOVATION AND DESIGN

One credit is awarded for a LEED AP being part of the project team. Five additional credits are available for a combination of "Exemplary Performance," "Pilot," and "Innovation" project elements.

As the Project progresses the Team will evaluate the possible opportunities for innovation credits which align with the goals of the Project. The Team will evaluate the new LEED Pilot “Safety” credits aligned with SARS-Covid-2 response. In addition the Project design is in alignment with Design for Active Occupants, Designing with Nature, and Walkable Project Sites in the credits. **- 6 “Yes” points**

REGIONAL PRIORITY

The Project anticipates regional priority points for: MR1 - Building life-cycle impact reduction (2 pt threshold); EA2 - Optimize Energy Performance (8 pt threshold); LT 3- High Priority Site (2 pt threshold). In addition the Project may earn a regional priority for a possible PV system, depending on system timing. For reasons discussed elsewhere in this report credits for Rainwater Management and 40% Indoor Water Use Reduction are not anticipated.**-3 “Yes” points, 1 "?+"**

03 FITWEL NARRATIVE

Fitwel Certification is a requirement of Alexandra Real Estate Equities, Inc. (ARE) for the Project. Because of the location of 325 Binney Street and the design of public spaces and exterior areas, the Project will earn many points in this system which focuses on occupant health and wellness. A Fitwel Checklist is provided at the end of this section to identify a preliminary path to Certification. The Team is still determining which credits will be pursued as many items relate Alexandria's policies or design decisions the Team is still considering.

Currently the Team is holding 75.6 credits in Yes and 48 points in Maybe, together totaling 124.6 points. One Star certification requires 90 points and Two Star 105 points. Fitwel Certification will clearly demonstrate a focus on occupant health and wellness, and how the Project is going beyond the minimum requirements of the city.

04 WELL NARRATIVE

In addition to LEED Gold and Fitwel certification, Alexandra Real Estate Equities, Inc. (ARE) asks that the Project meet all WELL Preconditions. The Team will work towards these goals as the design progresses but the credits the Project will be targeting includes credits in each of the categories of WELL System and together will generate a healthier building and will support the goals of both the LEED and Fitwel certifications.

LEED v4 for BD+C: Core & Shell

prepared by: Thornton Tomasetti

Project Name: 325 Binney Street

7/29/2020

Y	?+	?-	N		
1				Credi 1	Integrative Process

15		2	3	**Location and Transportation**	
				Credit 1	LEED for Neighborhood Development Location
				OR Points can be achieved in the following credits LTc2 through LTc8.	
2				Credit 2	Sensitive Land Protection
3				Credit 3	High Priority Site
6				Credit 4	Surrounding Density and Diverse Uses
2		1	3	Credit 5	Access to Quality Transit
1				Credit 6	Bicycle Facilities
		1		Credit 7	Reduced Parking Footprint
1				Credit 8	Green Vehicles

5	1	5		**Sustainable Sites**	
Y				Prereq 1	Construction Activity Pollution Prevention
1				Credit 1	Site Assessment
		2		Credit 2	Site Development--Protect or Restore Habitat
	1			Credit 3	Open Space
		3		Credit 4	Rainwater Management
2				Credit 5	Heat Island Reduction
1				Credit 6	Light Pollution Reduction
1				Credit 7	Tenant Design & Construction Guidelines

7	1	1	2	**Water Efficiency**	
Y				Prereq 1	Outdoor Water Use Reduction
Y				Prereq 2	Indoor Water Use Reduction
Y				Prereq 3	Building-Level Water Metering
2				Credit 1	Outdoor Water Use Reduction
3		1	2	Credit 2	Indoor Water Use Reduction
1	1			Credit 3	Cooling Tower Water Use
1				Credit 4	Water Metering

22	3	5	2	**Energy and Atmosphere**	
Y				Prereq 1	Fundamental Commissioning and Verification
Y				Prereq 2	Minimum Energy Performance
Y				Prereq 3	Building-Level Energy Metering
Y				Prereq 4	Fundamental Refrigerant Management
6				Credit 1	Enhanced Commissioning
12	1	2	2	Credit 2	Optimize Energy Performance
1				Credit 3	Advanced Energy Metering
		2		Credit 4	Demand Response
	2	1		Credit 5	Renewable Energy Production
1				Credit 6	Enhanced Refrigerant Management
2				Credit 7	Green Power and Carbon Offsets

5	3	4	2	**Materials and Resources**	
Y				Prereq 1	Storage and Collection of Recyclables
Y				Prereq 2	Construction and Demolition Waste Management Planning
2	1	1	2	Credit 1	Building Life-Cycle Impact Reduction
1		1		Credit 2	Building Product Disclosure and Optimization - Environmental Product Declarations
1		1		Credit 3	Building Product Disclosure and Optimization - Sourcing of Raw Materials
1		1		Credit 4	Building Product Disclosure and Optimization - Material Ingredients
	2			Credit 5	Construction and Demolition Waste Management

6	1	2	1	**Indoor Environmental Quality**	
Y				Prereq 1	Minimum Indoor Air Quality Performance
Y				Prereq 2	Environmental Tobacco Smoke Control
2				Credit 1	Enhanced Indoor Air Quality Strategies
3				Credit 2	Low-Emitting Materials
1				Credit 3	Construction Indoor Air Quality Management Plan
		2	1	Credit 4	Daylight
	1			Credit 5	Quality Views

6		0	0	**Innovation**	
1				Credit 1	ID Credit 1.1: Innovation in Design: Design for Active Occupants
1				Credit 2	ID Credit 1.2: Innovation in Design: Designing With Nature
1				Credit 3	ID Credit 1.3: Innovation in Design: Occupant Survey
1				Credit 4	ID Credit 1.4: Innovation in Design: Walkable project site
1				Credit 5	ID Credit 1.5: Innovation in Design: Exemp Performance in HPDs or EPDs
1				Credit 2	LEED Accredited Professional

3	1			**Regional Priority**	
1				Credit 1	RP Credit 1.1: Regional Priority:Building life-cycle impact reduction (2 pt threshold)
1				Credit 2	RP Credit 1.2: Regional Priority: Optimize Energy Performance (8 pt threshold)
				Credit 3	RP Credit 1.3: Regional Priority: Indoor Water Use Reduction (4 pt threshold)
1				Credit 4	RP Credit 1.4: Regional Priority: High Priority Site (2 pt threshold)
				Credit 5	RP Credit 1.5: Regional Priority: Rainwater management (2 pt threshold)
	1			Credit 6	RP Credit 1.6: Regional Priority): Renewable Energy Production (2 pt threshold)

70	10	19	10	**Total**

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

City of Cambridge Net Zero Narrative

Project Name/Address: 325 Binney Street

Submitted By: Alexandria Real Estate

Date of Submission: July 29, 2020

Project Profile:

Development Characteristics

Lot Area (sq.ft.):	191,506 sf
Existing Land Use(s) and Gross Floor Area (sq.ft.), by Use:	Conversion of land use from Industrial warehouse No structures
Proposed Land Use(s) and Gross Floor Area (sq.ft.), by Use:	Office / Lab 370,462 GFA
Proposed Building Height(s) (ft. and stories):	60-feet / 90-feet with 80-feet / 115-feet height penthouses 4 stories and 6 stories plus penthouse
Proposed Dwelling Units:	N/A
Proposed Open Space (sq.ft.):	71,549 sf
Proposed Parking Spaces:	297 spaces
Proposed Bicycle Parking Spaces (Long-Term and Short-Term):	88 long-term, 24 short-term

Green Building Rating System

LEED-Leadership in Energy & Environmental Design (U.S. Green Building Council)					
Rating System & Version:	LEED V4.0 for BD+C Core & Shell	***Seeking Certification?****	**Yes**	~~No~~	~~TBD~~
Rating Level:	GOLD	***# of Points:***	70 Yes + 10 Maybe		

Enterprise Green Communities					
Rating System & Version:	N/A	***Seeking Certification?****	~~Yes~~	**No**	~~TBD~~
Rating Level:	N/A	***# of Points:***	N/A		

Passive House Institute US (PHIUS) or Passivhaus Institut (PHI)					
Rating System & Version:	N/A	***Seeking Certification?****	~~Yes~~	**No**	~~TBD~~

City of Cambridge Net Zero Narrative

Project Name/Address: 325 Binney Street

Submitted By: Alexandria Real Estate

Date of Submission: July 29, 2020

Proposed Project Design Characteristics

Building Envelope

Assembly Descriptions:

Roof:	Composite metal deck / concrete slab with built-up insulation (R-30), membrane roof
Foundation:	Cast-in-place concrete spread footings bearing on marine clay with cast-in-place concrete foundation walls at the perimeter.
Exterior Walls:	Concrete Panel Rainscreen System (Panelized or stick-build): 1.Open joint concrete panel with custom corrugated metal wall panel system accent panel; 2. Air space; 3. Mineral fiber insulation; 4. Thermal clip; 5. Continuous air & vapor barrier - vapor permeable; 6. Gypsum sheathing; 7. Metal framing; 8. Fiber batt insulation
Windows:	Punched opening windows in rainscreen system, Kawneer AA 6400/6500/6600 or equivalent; Triple pane glass with air and low-e coatings on #2 and #4 surface
Window-to-Wall Ratio:	36.4%
Other Components:	SHGC: 0.25

Envelope Performance

Provide estimates of the thermal transmittance (U-value) for the building envelope compared to "Baseline" standards required by the Massachusetts Stretch Energy Code, latest adopted edition. ***Applicant Note: "Baseline" values input below are from IECC 2018, which is the standard upon which the MA revised 9th edition energy code mandatory U-value times Area calculation are based (effective January 2021). The envelope design therefore complies with the MA revised 9th edition energy code envelope performance requirements.***

	Proposed		***Baseline***	
	Area (sf)	*U-value*	*Area (sf)*	*U-value*
Window	47,972 SF	*0.32*	47,972 SF	*0.38*
Wall	83,780 SF	*0.064*	83,780 SF	*0.064*
Roof	72,828 SF	*0.033*	72,828 SF	*0.032*

Envelope Commissioning Process:

Alexandria will engage an envelope commissioning agent to conduct the commissioning of the envelope. This will include envelope air-tightness testing. The intent is to pursue all LEED commissioning credits, including Envelope Commissioning.

City of Cambridge Net Zero Narrative

Project Name/Address: 325 Binney Street

Submitted By: Alexandria Real Estate

Date of Submission: July 29, 2020

Building Mechanical Systems

Systems Descriptions:

Space Heating:	The heating hot water system will include a ground-source bore field with approximately 80 bore holes at 500' depth each, connected to heat recovery chillers, supplemented by gas fired condensing boilers. The ground-source bore field and heat recovery chillers will provide an electric carbon friendly heating source sized to utilize the available site area, supplemented by the gas-fired boilers for peak loads. Space heating will be supplied by fan coil units and/or chilled beams in the lab areas and fan coil units and/or fan-powered boxes serving chilled beams in the office areas. This allows full decoupling of ventilation rates from space conditioning.
Space Cooling:	The chilled water system will include a ground-source system, as described above, supplemented by water-cooled electric centrifugal chillers. Space cooling will be supplied by the terminal devices, as described above.
Heat Rejection:	The condenser water system will be supplied by cooling towers located on the roof to support the chiller plant.
Pumps & Auxiliary:	All pumps shall be equipped with variable frequency drives for variable volume operation.
Ventilation:	Supply AHUs will be 100% outside air units. Exhaust will be provided via exhaust air handling units. Heat recovery system is an intelligent, high efficiency run around glycol system by Konvekta or equal. It is utilized to recover energy from the exhaust air handling units and utilize it to pre-heat/pre-cool incoming air at the supply AHU's. A 'free reheat' coil will be located downstream of the supply AHU chilled water coils to reduce reheat energy and reduce load on the chilled water coil. The heat recovery system has an efficiency of approximately 70%, which is much higher than the efficiency of a typical run-around heat recovery system, which is approximately 45%.

City of Cambridge Net Zero Narrative

Project Name/Address: 325 Binney Street

Submitted By: Alexandria Real Estate

Date of Submission: July 29, 2020

Domestic Hot Water:	Gas-fired water heaters will generate domestic hot water for core restrooms. Tenants will install additional DHW for fit-out demands.
Interior Lighting:	Lighting, in general, shall be LED. Lighting power density will be required to meet the latest MA energy code.
Exterior Lighting:	Lighting, in general, shall be LED. Total exterior lighting power is yet to be determined, but will be an insignificant portion of total building energy.
Other Equipment:	Elevators will be standard type.

Systems Commissioning Process:

Alexandria Real Estate will engage an independent commissioning agent. The intent is to pursue all LEED commissioning credits, including Enhanced Commissioning and Monitoring Based Commissioning.

Anticipated Energy Loads and Greenhouse Gas Emissions

Assumptions

The energy analysis includes the garage, but the EUI values are based on the square footage of the building (not including the garage area). Typical lab occupancy and internal load assumptions have been utilized.

Annual Projected Energy Consumption and Greenhouse Gas (GHG) Emissions

	Baseline Building		*Proposed Design*		*Future Scenario*	
	kWh or Therms	*% of Total*	*kWh or Therms*	*% of Total*	*kWh or Therms*	*% of Total*
Space Heating	63,477	54%	17,791	26%	13,654	22%
Space Cooling	6,863	6%	4,804	7%	4,804	8%
Heat Rejection	91	0%	77	0%	77	0%
Pumps & Aux.	2,526	2%	3,500	5%	3,500	6%
Ventilation	13,602	12%	13,939	20%	13,939	22%
Domestic Hot Water	4,652	4%	3,918	6%	1,254	2%
Interior Lighting	4,835	4%	4,308	6%	4,308	7%
Exterior Lighting	30	0%	30	0%	30	0%
Misc. Equipment	20,881	18%	20,881	30%	20,881	33%
	$US, kBTU, kBTU/SF		*$US, kBTU, kBTU/SF*	*% Reduction from Baseline*	*$US, kBTU, kBTU/SF*	*% Reduction from Baseline*
Total Energy Cost	$3,121,600		$2,660,800	15%	$3,074,700	2%
Total Energy Use	116,957		69,248	41%	62,446	46%
Site EUI	246		146	41%	131	46%
Source EUI	438		337	23%	368	16%
	kWh or Therms	*% Total Energy*	*kWh or Therms*	*% Total Energy*	*kWh or Therms*	*% Total Energy*
On-Site Renewable Energy Generation	845,283	2.4%	0	0%	177,840	1%
Off-Site Renewable Energy Generation	0	0%	14,636,705	72%	18,315,238	99%
	Tons CO_2 [/SF]		*Tons CO_2 [/SF]*	*% Reduction from Baseline*	*Tons CO_2 [/SF]*	*% Reduction from Baseline*
GHG Emissions	16,831,540[b]		2,263,260[a] 11,887,060[b]	84%[a] 29%[b]	0[a]	100%[a]
GHG Emissions per GSF	35.4[b]		4.8[a] 25.0[b]	84%[a] 29%[b]	0[a]	100%[a]

a. Emissions values assuming carbon neutral electric.
b. Emissions values assuming grid average electric.

Building Energy Performance Measures

Overview

Broadly describe the ways in which building energy performance has been integrated into the following aspects of the project's planning, design, engineering, and commissioning. More detail on specific measures can be provided in appendices.

Land Uses:	*The site adjacent to the building is primarily soft passive use open space with large shade trees and groundcover to reduce solar gain and stormwater run off. In addition, portions of the pedestrian pathways consist of permeable pavers to further reduce surface runoff.*
Building Orientation and Massing:	*The building is oriented along a North-South axis, with its predominant facade facing South towards Binney St, its East facade facing Fulkerson St and it West facade facing the railways. The building massing is compact, minimizing envelope losses. The window-to-wall ratio has been carefully tailored to maximize daylight access and minimize unnecessary heat gains / losses.*
Envelope Systems:	*The envelope is being designed to be high performing both at the time of modeling and that of construction. The size of the windows has been optimized to maximize daylight and occupant comfort while minimizing heat losses. Triple pane glass with a high performance frame will be assumed.*
Mechanical Systems:	*Ground-Source Bore Field with Heat Pump Chillers, High-Efficiency Water-Cooled Chiller Plant, Condensing Boiler Plant, Intelligent Glycol Energy Recovery, Condensing Hot Water Heaters with Reduced Hot Water Demand, Low Flow Plumbing Fixtures*
Renewable Energy Systems:	*Solar-Ready Roof*
District-Wide Energy Systems:	*Reliance on district steam for humidification, in lieu of on-site combustion of natural gas may be considered, but is not assumed at this time.*
Other Systems:	*High Efficiency Lighting*

Integrative Design Process

Describe how different parties in the development process (owners, developers, architects, engineers, contractors, commissioning agents) have collaborated in the design. Include the Basis of Design and Owner's Project Requirements and describe how they have been informed by planning activities such as meetings or design charrettes. Describe how continuing collaborative processes will inform Schematic/Design and Construction Documents.

The team has been immersed in an integrated design process for more than a year, developing and refining the design and integrated systems for the building. Many hours of meetings, work-sessions, and collaborative investigations have been conducted. The team will continue in this vein to help ensure a successful outcome.

Solar-Ready Roof Assessment

The purpose of this assessment is to determine the technical feasibility of solar energy system installation, either as part of the proposed project or in the future. It is helpful to supplement this narrative with a plan depicting the information provided.

Total Roof Area (sq. ft.):	72,828 SF
Unshaded Roof Area (sq. ft.):	72,828 SF
Structural Support:	The primary structural system of the building above grade, will be steel columns and beam framing system with composite concrete and steel deck slabs. Below grade will be cast-in-place concrete foundation walls with concrete spread footings.
Electrical Infrastructure:	Provide spare circuit breakers to accommodate anticipated PV capacity in the main switchboard with empty conduit from roof to readily available location in Penthouse for future PV.
Other Roof Appurtenances:	Cooling towers, rooftop stairwell pressurization, exhaust fan stacks, future tenant lab exhaust provisions, (1) base building emergency generator, (3) future tenant generator space allocation, stair bulkheads. The space allocated for future tenant exhaust has been consolidated in an attempt to maximize usable PV panel area.
Solar-Ready Roof Area (sq. ft.):	25,000 SF
Capacity of Solar Array:	285 kW
Financial Incentives:	The financial incentives are contingent on whether the array is owner owned or through a Solar Power Purchase Agreement (PPA).
Cost Feasibility:	The cost feasibility is contingent on whether the array is owner owned or through a PPA.

Green Building Incentive Program Assistance

Describe any programs applicable to this project that would support improved energy performance or reduced greenhouse gas emissions, and which of those programs have been contacted and may be pursued. Programs may be offered by utility companies, government agencies, and other organizations, and might include rebates, grants, financing, technical assistance, and other incentives.

MassSave (Eversource) utility incentives, Massachusetts Clean Energy Center (if there are any relevant grants or funding available), MA Department of Energy Resources (Alternative Energy Credits for heat pumps).

Net Zero Scenario Transition

Describe the technical framework by which the project can be transitioned to net zero greenhouse gas emissions in the future, acknowledging that such a transition might not be economically feasible at first. This description should explain the future condition and the process of transitioning from the proposed design to the future condition.

	Net Zero Condition:	***Transition Process:***
Building Envelope:	*The proposed building envelope already includes triple glazing and meets the IECC 2018 overall envelope U-value requirements. The envelope heating load is below 4 Btu/h-GSF, which is approaching Passivehouse target metrics.*	*No changes required to achieve Net Zero.*
HVAC Systems:	*The HVAC system, including intelligent heat recovery, de-coupled ventilation and conditioning systems, and ground-source bore field with heat recovery chillers in the proposed design is anticipated to eliminate the majority of the fossil fuel consumption of the building.*	*Install air-to-water heat pumps, connect to building HW loop to boost ground-source heating capacity.* *-OR-* *Install heat pump chillers that extract additional heat out of the exhaust air to boost ground-source heating capacity.* *Air-to-water heat pumps will require structural upgrades to the roof and screening for vision/acoustics.* *For either technology, augment electrical infrastructure to power additional mechanical equipment.*
Domestic Hot Water:	*Air-to-water heat pump -OR- ground-source heat pump DHW heaters. Reduce peak demand with DHW thermal storage tanks.*	*Install air-to-water heat pump -OR- ground-source heat pump DHW heaters. Reduce peak demand with DHW thermal storage tanks.* *Air-to-water heat pumps will require structural upgrades to the roof and screening for vision/acoustics.* *DHW thermal storage tanks may require a reinforced concrete pad in the penthouse.* *For either technology, augment electrical infrastructure to power additional mechanical equipment.*

Lighting:	*More efficient LEDs, more stringent on lighting levels – allowable tenant LPD*	*As tenant renovations occur and lighting is replaced, more efficient lighting and controls will likely be implemented as technology advances.*
Renewable Energy Systems:	*Install on-site solar PV on roof* *Procure renewable electricity from off-site sources*	*The roof is solar-ready and the electrical infrastructure has been designed to have sufficient capacity to support a solar array covering the majority of the available un-shaded roof area.* *Alexandria anticipates installing solar after the building is occupied. Alexandria also anticipates procurement of 100% renewable electricity from off-site sources.*
Other Strategies:	*Occupant engagement, such as "shut the sash" programs.* *Increased electric vehicle charging.*	*Operational protocols, education, training, and social media.* *Augment electrical infrastructure to power additional EV charging stations in the garage.*