Vanasse & Associates, Inc.
Transportation Engineers & Planners

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Suite 140
Andover, MA 01810
Office 978-474-8800
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Ref: 7413

March 22, 2019

Ms. Rachna D. Balakrishna
Mason & Murphy, Inc.
1299 Beacon Street
Brookline, MA 02446

Re: Updated Level of Services
1299 Beacon Street
Brookline, Massachusetts

Dear Rachna:

Vanasse & Associates, Inc. (VAI) is pleased to provide the updated level-of-service analysis for the above-referenced project. The updated level-of-service analysis was completed for the trip-generation estimates of February 15, 2019 (attached). In December 2018, VAI provided an updated analysis and at that time the project resulted in no changes to levels of service at the eight (8) study area intersections. The site driveway intersection was projected to operate at level-of-service (LOS) B. The February 15, 2019 trip-generation estimates are less than the prior estimates as the restaurant/retail space has been reduced to 5,000 sf and the number of units has been reduced to 74 units. With the reduced traffic, all operating conditions remain the same and the site driveway operates at LOS B.

Overall, based upon the traffic analysis provided, it is concluded that the project traffic generation is relatively low at approximately one (1) vehicle every 90 seconds at the busiest times of the day. Impact at the signalized intersections will be in the order of 0.5 seconds or less and there will be no perceptible impact from this project to the area.

We look forward to meeting with the Town and their consultant to discuss the project in further detail.

Sincerely,

VANASSE & ASSOCIATES, INC.

F. Giles Ham, P.E.
Managing Partner

FGH/mef

Attachments

ATTACHMENTS

- FEBRUARY 15, 2019 TRIP GENERATION
- UPDATED NETWORKS
- DECEMBER 21, 2018 LEVEL-OF-SERVICE SUMMARY
- MARCH 22, 2019 LEVEL-OF-SERVICE SUMMARY

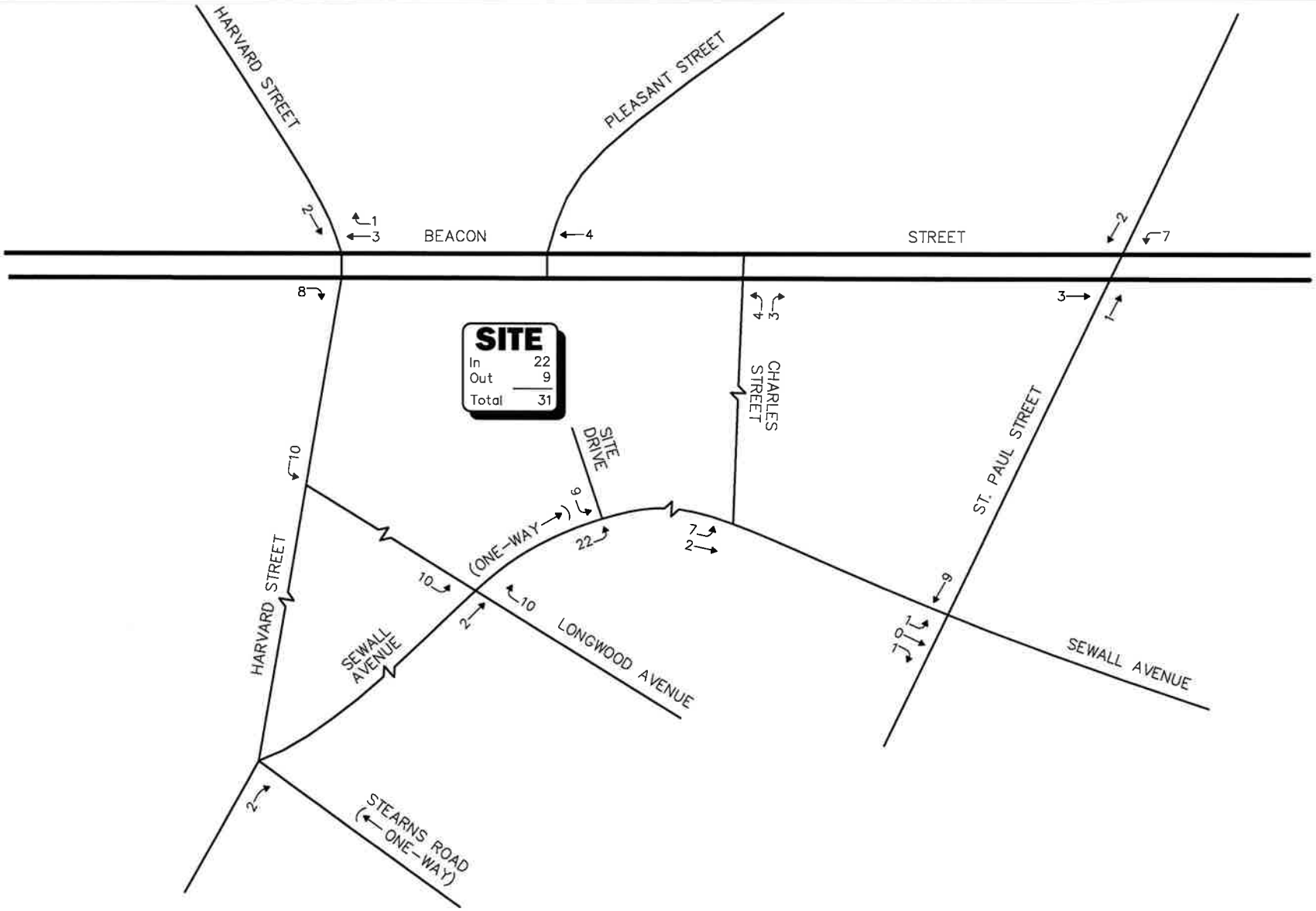
FEBRUARY 15, 2019 TRIP GENERATION

Table 1
TRIP-GENERATION SUMMARY (UPDATE) (2/15/19)

	Residential Trips[a]	Residential Transit Reduction[b]	Retail/Restaurant 5,000 sf	Retail/Restaurant Transit Reduction[d]	**Total New Trips**
Weekday Morning Peak Hour:					
Entering	5	-4	7	-3	**5**
Exiting	10	-6	5	-2	**7**
Total	15	-10	12[c]	-5[d]	**12**
Weekday Evening Peak Hour:					
Entering	11	-7	26	-8	**22**
Exiting	9	-6	13	-7	**9**
Total	20	-13	39[e]	-15[f]	**31**
Saturday Midday Peak Hour:					
Entering	15	-10	32	-11	**26**
Exiting	9	-6	22	-10	**15**
Total	24	-16	54[e]	-21[f]	**41**

Source: *Institute of Transportation Engineers – Trip Generation 10th Edition.*
[a]Based on ITE trip generation rates for LUC 252 applied to 74 apartments.
[b]Based on 65% percent transit usage for residential use.
[c]Based on ITE LUC 820 applied to 5,000 sf retail space – selected points.
[d]Based on 38% percent transit usage for retail use.
[e]Based on ITE trip generation rates for LUC 931 applied to 5,000 sf quality restaurant space.
[f]Based on 38% percent transit usage for restaurant use.

UPDATED NETWORKS



Not To Scale

Figure 1

Site Generated (Revised)
Weekday Evening
Peak Hour Traffic Volumes

Vanasse & Associates, Inc.
Transportation Engineers & Planners

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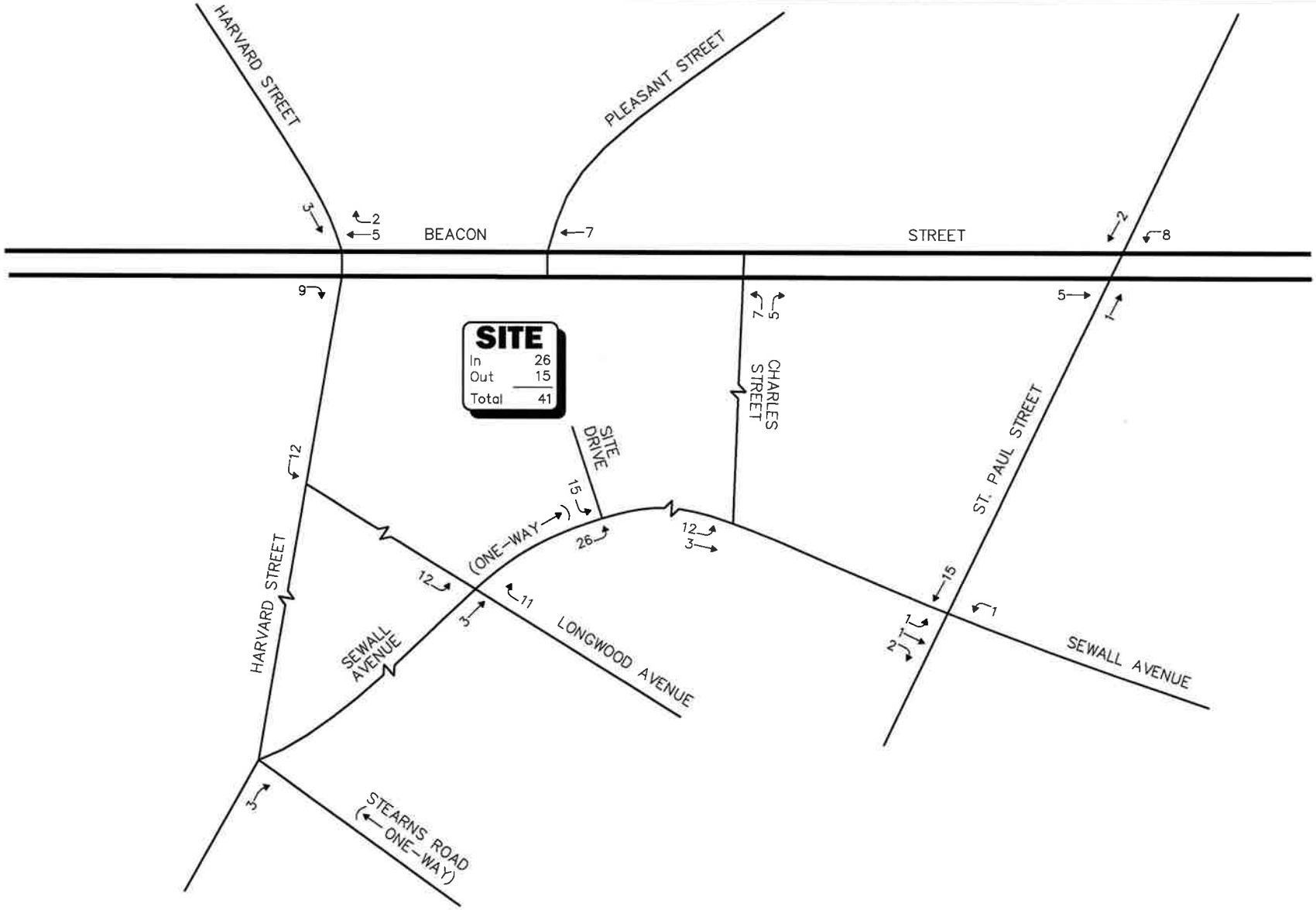

Not To Scale

Figure 2

Site Generated (Revised)
Saturday Midday
Peak Hour Traffic Volumes

Vanasse & Associates, Inc.
Transportation Engineers & Planners

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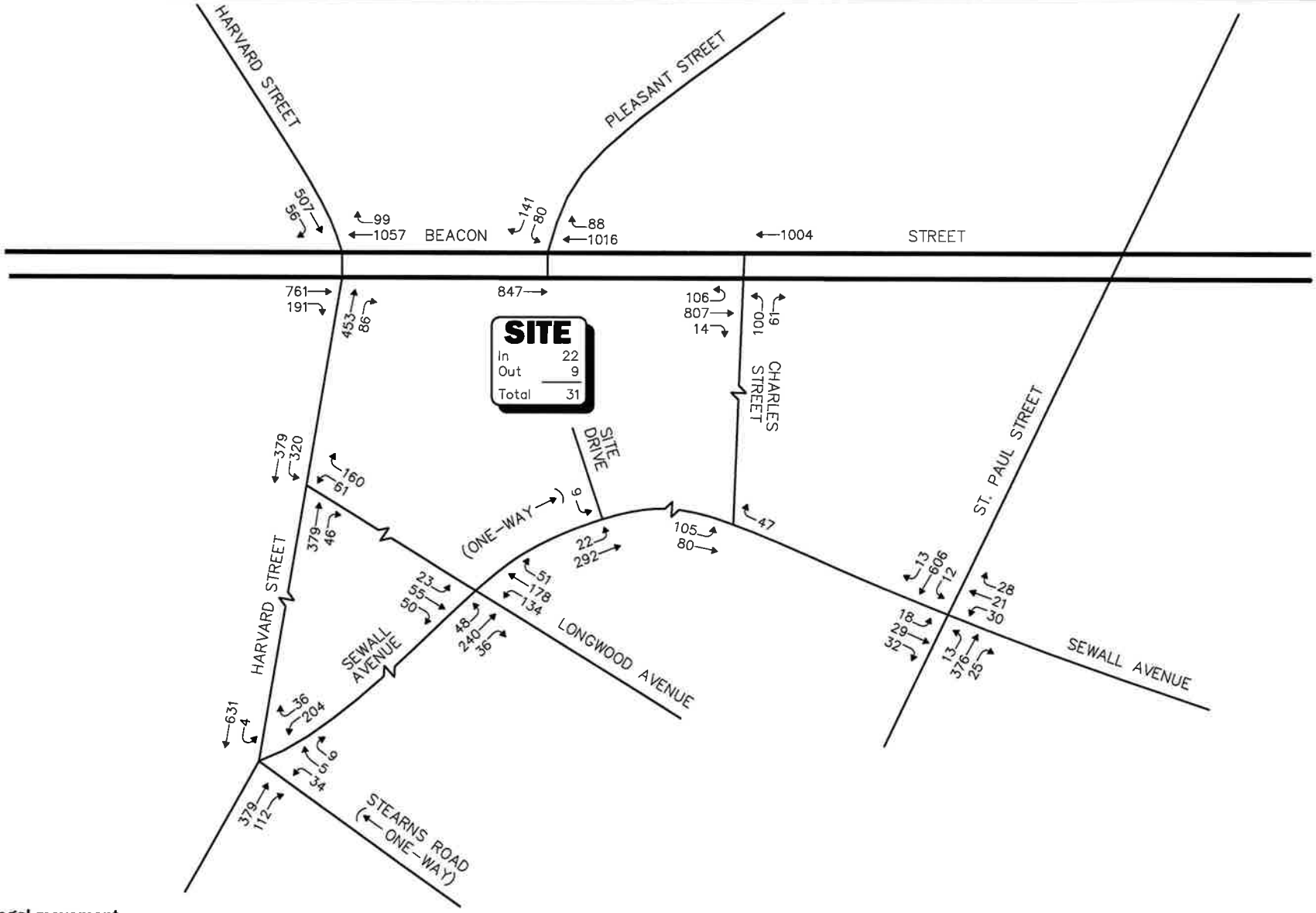

* Illegal movement.

Not To Scale

Figure 3

2025 Build (Revised)
Weekday Evening
Peak Hour Traffic Volumes

Vanasse & Associates, Inc.
Transportation Engineers & Planners

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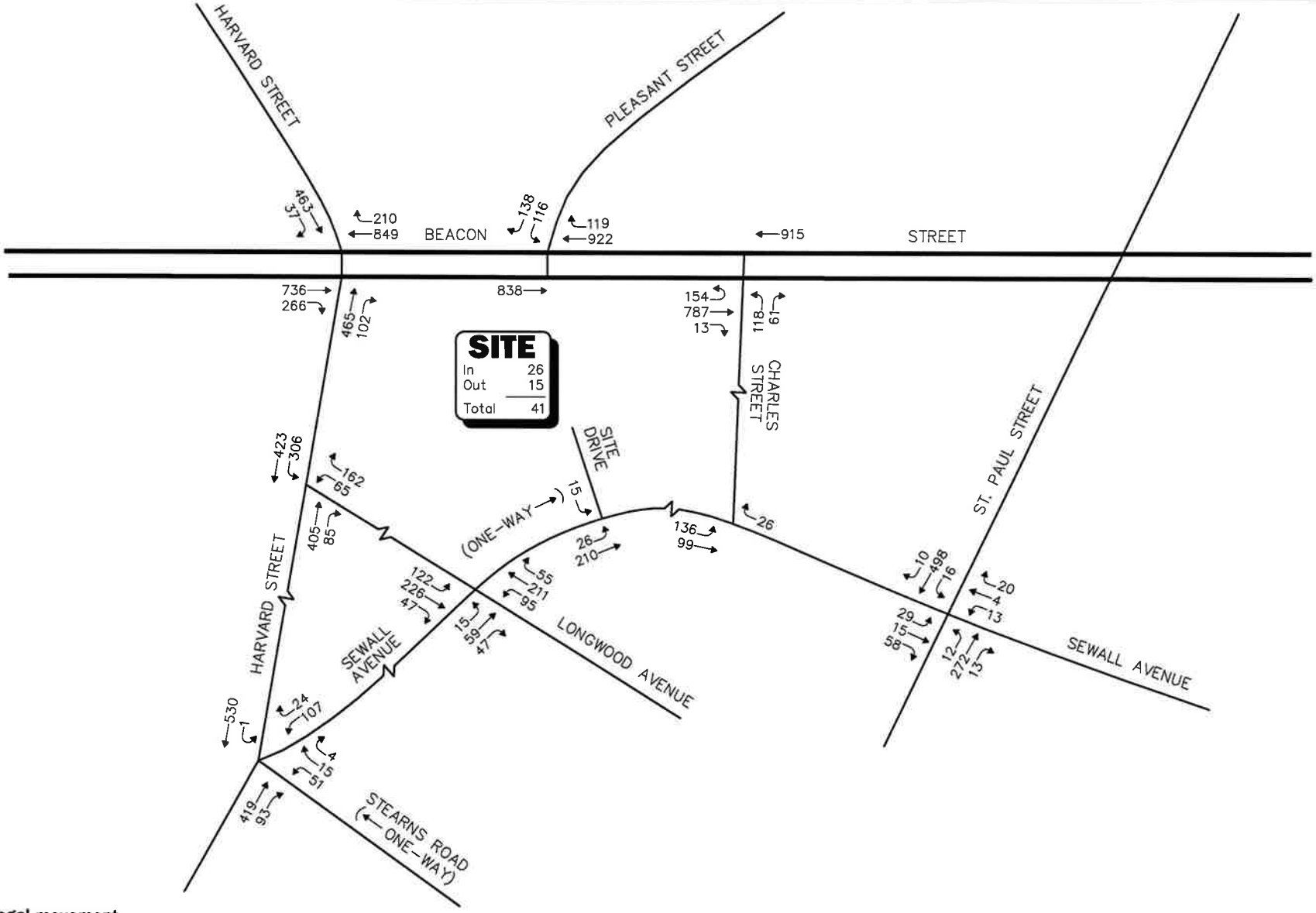

* Illegal movement.

Not To Scale

Figure 4

2025 Build (Revised)
Saturday Midday
Peak Hour Traffic Volumes

Vanasse & Associates, Inc.
Transportation Engineers & Planners

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DECEMBER 21, 2018 LEVEL-OF-SERVICE SUMMARY

Table 2
SIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND QUEUE SUMMARY

Signalized Intersection/ Peak Hour	2025 No-Build				2025 Build			
	V/C[a]	Delay[b]	LOS[c]	Queue[d]	V/C[a]	Delay[b]	LOS[c]	Queue[d]
Beacon Street at Harvard Street								
Weekday Evening:	0.46	13.2	B	134/213	0.47	13.3	B	134/213
Beacon Street EB TH	0.32	12.4	B	56/120	0.34	12.8	B	60/129
Beacon Street EB RT	0.61	9.9	B	86/178	0.62	10.1	B	82/148
Beacon Street WB TH	0.20	7.1	A	15/45	0.20	7.4	A	15/38
Beacon Street WB RT	0.71	31.1	C	154/192	0.70	31.0	C	154/192
Harvard Street NB TH/RT	0.71	31.2	C	167/205	0.71	31.2	C	168/206
Harvard Street SB TH/RT	**0.65**	**18.2**	**B**	--	**0.65**	**18.2**	**B**	--
Overall								
Saturday Midday								
Beacon Street EB TH	0.43	12.9	B	119/191	0.43	12.9	B	119/191
Beacon Street EB RT	0.43	14.3	B	81/170	0.45	14.7	B	87/183
Beacon Street WB TH	0.51	9.1	A	87/96	0.52	9.1	A	73/115
Beacon Street WB RT	0.44	9.6	B	30/57	0.44	9.6	A	35/68
Harvard Street NB TH/RT	0.73	31.6	C	163/202	0.73	31.6	C	163/202
Harvard Street SB TH/RT	0.62	28.7	C	144/178	0.62	28.8	C	145/180
Overall	**0.59**	**17.7**	**B**	--	**0.59**	**17.7**	**B**	--
Beacon Street at Pleasant Street								
Weekday Evening								
Beacon Street EB TH	0.45	4.0	A	33/167	0.43	4.1	A	33/274
Beacon Street WB TH/RT	0.50	9.3	A	148/251	0.51	9.4	A	151/255
Pleasant Street SB LT	0.29	31.0	C	42/75	0.29	31.0	C	42/75
Pleasant Street SB RT	0.78	52.0	D	82/135	0.78	52.0	D	82/135
Overall	**0.57**	**11.0**	**B**	--	**0.57**	**11.1**	**B**	--
Saturday Midday								
Beacon Street EB TH	0.43	3.9	A	38/42	0.43	4.0	A	35/42
Beacon Street WB TH/RT	0.47	8.9	A	135/231	0.48	8.9	A	138/236
Pleasant Street SB LT	0.42	32.6	C	63/104	0.42	32.6	C	63/104
Pleasant Street SB RT	0.77	51.4	D	80/132	0.77	51.4	D	80/132
Overall	**0.54**	**11.3**	**B**	--	**0.54**	**11.3**	**B**	--
Beacon Street at Charles Street								
Weekday Evening								
Beacon Street EB LT	0.65	59.4	E	64/121	0.65	59.3	E	64/121
Beacon Street EB TH/RT	0.32	1.8	A	28/33	0.32	1.8	A	28/33
Beacon Street WB TH	0.42	8.5	A	135/174	0.52	9.6	A	183/234
Charles Street NB LT/RT	0.24	38.3	D	19/78	0.33	40.2	D	29/94
Overall	**0.44**	**10.8**	**B**	--	**0.53**	**11.5**	**B**	--
Saturday Midday								
Beacon Street EB LT	0.78	63.1	E	88/188	0.78	63.1	E	88/188
Beacon Street EB TH/RT	0.30	2.3	A	36/42	0.30	2.3	A	36/42
Beacon Street WB TH	0.37	8.8	A	111/146	0.51	10.2	B	170/218
Charles Street NB LT/RT	0.29	38.1	D	18/79	0.41	40.4	D	38/107
Overall	**0.43**	**13.1**	**B**	--	**0.55**	**13.7**	**B**	--

[a]Volume-to-capacity.
[b]Delay in seconds per vehicle.
[c]Level of service.
[d]Queue length in feet.

Table 3
UNSIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND QUEUE SUMMARY

Signalized Intersection/ Peak Hour	2025 No-Build				2025 Build			
	V/C[a]	Delay[b]	LOS[c]	Queue[d]	V/C[a]	Delay[b]	LOS[c]	Queue[d]
Harvard Street at Longwood Avenue								
Weekday Evening								
Longwood Avenue LT/RT	221	>50.0	F	251	221	>50.0	F	272
Saturday Midday								
Longwood Avenue LT/RT	227	>50.0	F	229	227	>50.0	F	256
Harvard Street at Stearns Road								
Weekday Evening								
Stearns Road WB LT/TH/RT	279	>50.0	F	336	279	>50.0	F	339
Saturday Midday								
Stearns Road WB LT/TH/RT	197	34.1	D	100	197	34.3	D	101
Sewall Avenue at Longwood Avenue								
Weekday Evening								
Sewall Avenue NB LT/TH/RT	322	>50.0	F	240	325	>50.0	F	281
Saturday Midday								
Sewall Avenue NB LT/TH/RT	118	21.8	C	43	122	24.8	C	51
Sewall Avenue at Site Drive								
Weekday Evening								
Site Drive SB LT	18	11.4	B	3	25	12.0	B	4
Saturday Midday								
Site Drive SB LT	25	10.6	B	3	35	11.3	B	5
Charles Street at Sewall Avenue								
Weekday Evening								
Sewall Avenue EB LT	98	4.5	A	7	117	4.8	A	8
Saturday Midday								
Sewall Avenue EB LT	122	4.5	A	7	148	4.7	A	9
St. Paul Street at Sewall Avenue								
Weekday Evening								
Sewall Avenue EB LT/TH/RT	76	28.8	D	38	82	30.4	D	44
Sewall Avenue WB LT/TH/RT	78	32.6	D	45	79	34.5	D	48
Saturday Midday								
Sewall Avenue EB LT/TH/RT	96	15.8	C	23	105	16.4	C	26
Sewall Avenue WB LT/TH/RT	36	14.0	B	7	37	14.5	B	8

[a]Vehicle Volume
[b]Delay in seconds per vehicle.
[c]Level of service.
[d]Queue length in feet.

MARCH 22, 2019 LEVEL-OF-SERVICE SUMMARY

SIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND QUEUE SUMMARY

Signalized Intersection/ Peak Hour	2025 No-Build				2025 Build			
	V/C[a]	Delay[b]	LOS[c]	Queue[d]	V/C[a]	Delay[b]	LOS[c]	Queue[d]
Beacon Street at Harvard Street								
Weekday Evening:	0.46	13.2	B	134/213	0.47	13.3	B	134/213
Beacon Street EB TH	0.32	12.4	B	56/120	0.33	12.7	B	59/127
Beacon Street EB RT	0.61	9.9	A	81/140	0.61	10.0	A	81/144
Beacon Street WB TH	0.20	7.1	A	14/36	0.20	7.3	A	14/37
Beacon Street WB RT	0.71	31.1	C	154/192	0.70	31.0	C	154/192
Harvard Street NB TH/RT	0.71	31.2	C	167/205	0.71	31.1	C	168/206
Harvard Street SB TH/RT	**0.65**	**18.2**	**B**	--	**0.65**	**18.2**	**B**	--
Overall								
Saturday Midday								
Beacon Street EB TH	0.43	12.9	B	119/191	0.43	12.9	B	119/191
Beacon Street EB RT	0.43	14.3	B	81/170	0.44	14.5	B	84/177
Beacon Street WB TH	0.51	9.1	A	69/112	0.52	9.1	A	73/113
Beacon Street WB RT	0.44	9.6	A	33/67	0.44	9.6	A	34/68
Harvard Street NB TH/RT	0.73	31.6	C	163/202	0.73	31.6	C	163/202
Harvard Street SB TH/RT	0.62	28.7	C	144/178	0.62	28.8	C	145/180
Overall	**0.59**	**17.7**	**B**	--	**0.59**	**17.7**	**B**	--
Beacon Street at Pleasant Street								
Weekday Evening								
Beacon Street EB TH	0.45	4.0	A	33/167	0.45	4.1	A	33/273
Beacon Street WB TH/RT	0.50	9.3	A	148/251	0.50	9.4	A	149/253
Pleasant Street SB LT	0.29	31.0	C	42/75	0.29	31.0	C	42/75
Pleasant Street SB RT	0.78	52.0	D	82/135	0.78	52.0	D	82/135
Overall	**0.57**	**11.0**	**B**	--	**0.57**	**11.1**	**B**	--
Saturday Midday								
Beacon Street EB TH	0.43	3.9	A	38/42	0.43	3.9	A	36/42
Beacon Street WB TH/RT	0.47	8.9	A	135/231	0.48	8.9	A	137/233
Pleasant Street SB LT	0.42	32.6	C	63/104	0.42	32.6	C	63/104
Pleasant Street SB RT	0.77	51.4	D	80/132	0.77	51.4	D	80/132
Overall	**0.54**	**11.3**	**B**	--	**0.55**	**11.3**	**B**	--
Beacon Street at Charles Street								
Weekday Evening								
Beacon Street EB LT	0.65	59.4	E	64/121	0.65	59.4	E	64/121
Beacon Street EB TH/RT	0.32	1.8	A	28/33	0.32	1.8	A	28/33
Beacon Street WB TH	0.42	8.5	A	135/174	0.47	9.0	A	157/202
Charles Street NB LT/RT	0.24	38.3	D	19/78	0.27	38.8	D	22/82
Overall	**0.44**	**10.8**	**B**	--	**0.48**	**11.1**	**B**	--
Saturday Midday								
Beacon Street EB LT	0.78	63.1	E	88/188	0.78	63.1	E	88/188
Beacon Street EB TH/RT	0.30	2.3	A	36/42	0.30	2.3	A	36/42
Beacon Street WB TH	0.37	8.8	A	111/146	0.44	9.5	A	140/182
Charles Street NB LT/RT	0.29	38.1	D	18/79	0.34	39.7	D	29/93
Overall	**0.43**	**13.1**	**B**	--	**0.49**	**13.4**	**B**	--

[a]Volume-to-capacity.
[b]Delay in seconds per vehicle.
[c]Level of service.
[d]Queue length in feet.

UNSIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND QUEUE SUMMARY

Signalized Intersection/ Peak Hour	2025 No-Build				2025 Build			
	V/C[a]	Delay[b]	LOS[c]	Queue[d]	V/C[a]	Delay[b]	LOS[c]	Queue[d]
Harvard Street at Longwood Avenue								
Weekday Evening								
Longwood Avenue WB LT/RT	221	>50.0	F	253	221	>50.0	F	267
Saturday Midday								
Longwood Avenue WB LT/RT	227	>50.0	F	223	227	>50.0	F	247
Harvard Street at Stearns Road								
Weekday Evening								
Stearns Road WB LT/TH/RT	279	>50.0	F	338	279	>50.0	F	338
Saturday Midday								
Stearns Road WB LT/TH/RT	197	34.1	D	100	197	34.3	D	101
Sewall Avenue at Longwood Avenue								
Weekday Evening								
Sewall Avenue NB LT/TH/RT	322	>50.0	F	240	324	>50.0	F	268
Saturday Midday								
Sewall Avenue NB LT/TH/RT	118	21.8	C	43	121	23.7	C	48
Sewall Avenue at Site Drive								
Weekday Evening								
Site Drive SB LT	18	11.4	B	3	9	11.6	B	1
Saturday Midday								
Site Drive SB LT	25	10.6	B	3	15	9.8	A	2
Charles Street at Sewall Avenue								
Weekday Evening								
Sewall Avenue EB LT	98	4.5	A	7	105	4.6	A	7
Saturday Midday								
Sewall Avenue EB LT	122	4.5	A	7	136	4.7	A	8
St. Paul Street at Sewall Avenue								
Weekday Evening								
Sewall Avenue EB LT/TH/RT	76	28.8	D	38	79	30.0	D	41
Sewall Avenue WB LT/TH/RT	78	32.6	D	45	79	34.1	D	47
Saturday Midday								
Sewall Avenue EB LT/TH/RT	96	15.8	C	23	100	16.2	C	25
Sewall Avenue WB LT/TH/RT	36	14.0	B	7	37	14.4	B	8

[a]Vehicle Volume
[b]Delay in seconds per vehicle.
[c]Level of service.
[d]Queue length in feet.

CAPACITY ANALYSIS

Beacon Street at Harvard Street
Beacon Street at Pleasant Street
Beacon Street at Charles Street
Harvard Street at Longwood Avenue
Harvard Street at Stearns Road
Longwood Avenue at Sewall Avenue
Sewall Avenue at Site Drive
Sewall Avenue at Charles Street
Sewall Avenue at St. Paul Street

Beacon Street at Harvard Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	761	183	0	1055	98	0	453	86	0	505	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0		7.0	7.0		8.0			8.0	
Lane Util. Factor		0.95	1.00		0.95	1.00		0.95			0.95	
Frpb, ped/bikes		1.00	0.79		1.00	0.65		0.93			0.96	
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.98			0.98	
Flt Protected		1.00	1.00		1.00	1.00		1.00			1.00	
Satd. Flow (prot)		3249	1151		3217	936		2788			2995	
Flt Permitted		1.00	1.00		1.00	1.00		1.00			1.00	
Satd. Flow (perm)		3249	1151		3217	936		2788			2995	
Peak-hour factor, PHF	0.92	0.92	0.92	0.98	0.98	0.98	0.96	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	0	827	199	0	1077	100	0	472	90	0	549	61
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	827	199	0	1077	100	0	562	0	0	610	0
Confl. Peds. (#/hr)			357			450			741			467
Confl. Bikes (#/hr)			17			134			87			48
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%	0%	4%	0%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	10	10	0	10	10
Turn Type		NA	Perm		NA	Perm		NA			NA	
Protected Phases		6			2			8			4	
Permitted Phases			6			2						
Actuated Green, G (s)		49.3	49.3		49.3	49.3		25.7			25.7	
Effective Green, g (s)		49.3	49.3		49.3	49.3		25.7			25.7	
Actuated g/C Ratio		0.55	0.55		0.55	0.55		0.29			0.29	
Clearance Time (s)		7.0	7.0		7.0	7.0		8.0			8.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0		2.0			2.0	
Lane Grp Cap (vph)		1779	630		1762	512		796			855	
v/s Ratio Prot		0.25			c0.33			0.20			c0.20	
v/s Ratio Perm			0.17			0.11						
v/c Ratio		0.46	0.32		0.61	0.20		0.71			0.71	
Uniform Delay, d1		12.3	11.1		13.8	10.3		28.8			28.8	
Progression Factor		1.00	1.00		0.61	0.62		1.00			1.00	
Incremental Delay, d2		0.9	1.3		1.4	0.7		2.3			2.4	
Delay (s)		13.2	12.4		9.9	7.1		31.1			31.2	
Level of Service		B	B		A	A		C			C	
Approach Delay (s)		13.1			9.6			31.1			31.2	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	827	199	1077	100	562	610
v/c Ratio	0.46	0.34	0.61	0.20	0.71	0.71
Control Delay	13.9	14.0	10.3	7.9	33.9	33.8
Queue Delay	0.0	0.0	0.1	0.0	0.0	0.0
Total Delay	13.9	14.0	10.5	7.9	33.9	33.8
Queue Length 50th (ft)	134	56	81	14	154	167
Queue Length 95th (ft)	213	120	140	m36	192	205
Internal Link Dist (ft)	434		199		228	124
Turn Bay Length (ft)		100		80		
Base Capacity (vph)	1779	589	1761	506	1116	1198
Starvation Cap Reductn	0	0	111	0	0	0
Spillback Cap Reductn	79	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.34	0.65	0.20	0.50	0.51

Intersection Summary

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												
Volume (vph)	0	761	191	0	1057	99	0	453	86	0	507	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0		7.0	7.0		8.0			8.0	
Lane Util. Factor		0.95	1.00		0.95	1.00		0.95			0.95	
Frpb, ped/bikes		1.00	0.79		1.00	0.65		0.93			0.96	
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.98			0.99	
Flt Protected		1.00	1.00		1.00	1.00		1.00			1.00	
Satd. Flow (prot)		3249	1150		3217	936		2788			2995	
Flt Permitted		1.00	1.00		1.00	1.00		1.00			1.00	
Satd. Flow (perm)		3249	1150		3217	936		2788			2995	
Peak-hour factor, PHF	0.92	0.92	0.92	0.98	0.98	0.98	0.96	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	0	827	208	0	1079	101	0	472	90	0	551	61
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	827	208	0	1079	101	0	562	0	0	612	0
Confl. Peds. (#/hr)			357			450			741			467
Confl. Bikes (#/hr)			17			134			87			48
Heavy Vehicles (%)	0%	0%	0%	0%	1%	1%	0%	4%	0%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	10	10	0	10	10
Turn Type		NA	Perm		NA	Perm		NA			NA	
Protected Phases		6			2			8			4	
Permitted Phases			6			2						
Actuated Green, G (s)		49.2	49.2		49.2	49.2		25.8			25.8	
Effective Green, g (s)		49.2	49.2		49.2	49.2		25.8			25.8	
Actuated g/C Ratio		0.55	0.55		0.55	0.55		0.29			0.29	
Clearance Time (s)		7.0	7.0		7.0	7.0		8.0			8.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0		2.0			2.0	
Lane Grp Cap (vph)		1776	628		1758	511		799			858	
v/s Ratio Prot		0.25			c0.34			0.20			c0.20	
v/s Ratio Perm			0.18			0.11						
v/c Ratio		0.47	0.33		0.61	0.20		0.70			0.71	
Uniform Delay, d1		12.4	11.3		13.9	10.4		28.7			28.8	
Progression Factor		1.00	1.00		0.62	0.63		1.00			1.00	
Incremental Delay, d2		0.9	1.4		1.4	0.8		2.3			2.4	
Delay (s)		13.3	12.7		10.0	7.3		31.0			31.1	
Level of Service		B	B		A	A		C			C	
Approach Delay (s)		13.2			9.7			31.0			31.1	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	827	208	1079	101	562	612
v/c Ratio	0.47	0.35	0.61	0.20	0.70	0.71
Control Delay	13.9	14.3	10.4	8.0	33.8	33.8
Queue Delay	0.0	0.0	0.2	0.0	0.0	0.0
Total Delay	13.9	14.3	10.6	8.0	33.8	33.8
Queue Length 50th (ft)	134	59	81	14	154	168
Queue Length 95th (ft)	213	127	144	m37	192	206
Internal Link Dist (ft)	434		199		228	124
Turn Bay Length (ft)		100		80		
Base Capacity (vph)	1777	589	1759	506	1116	1198
Starvation Cap Reductn	0	0	124	0	0	0
Spillback Cap Reductn	91	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.35	0.66	0.20	0.50	0.51

Intersection Summary

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												
Volume (vph)	0	736	257	0	844	209	0	465	102	0	460	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0		7.0	7.0		8.0			8.0	
Lane Util. Factor		0.95	1.00		0.95	1.00		0.95			0.95	
Frpb, ped/bikes		1.00	0.79		1.00	0.65		0.92			0.97	
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.97			0.99	
Flt Protected		1.00	1.00		1.00	1.00		1.00			1.00	
Satd. Flow (prot)		3249	1138		3249	945		2823			3035	
Flt Permitted		1.00	1.00		1.00	1.00		1.00			1.00	
Satd. Flow (perm)		3249	1138		3249	945		2823			3035	
Peak-hour factor, PHF	0.97	0.97	0.97	0.93	0.93	0.93	0.96	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	0	759	265	0	908	225	0	484	106	0	500	40
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	759	265	0	908	225	0	590	0	0	540	0
Confl. Peds. (#/hr)			357			450			741			467
Confl. Bikes (#/hr)			17			134			87			48
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	10	10	0	10	10
Turn Type		NA	Perm		NA	Perm		NA			NA	
Protected Phases		6			2			8			4	
Permitted Phases			6			2						
Actuated Green, G (s)		49.1	49.1		49.1	49.1		25.9			25.9	
Effective Green, g (s)		49.1	49.1		49.1	49.1		25.9			25.9	
Actuated g/C Ratio		0.55	0.55		0.55	0.55		0.29			0.29	
Clearance Time (s)		7.0	7.0		7.0	7.0		8.0			8.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0		2.0			2.0	
Lane Grp Cap (vph)		1772	620		1772	515		812			873	
v/s Ratio Prot		0.23			c0.28			c0.21			0.18	
v/s Ratio Perm			0.23			0.24						
v/c Ratio		0.43	0.43		0.51	0.44		0.73			0.62	
Uniform Delay, d1		12.1	12.1		12.9	12.2		28.9			27.8	
Progression Factor		1.00	1.00		0.63	0.59		1.00			1.00	
Incremental Delay, d2		0.8	2.1		0.9	2.4		2.8			0.9	
Delay (s)		12.9	14.3		9.1	9.6		31.6			28.7	
Level of Service		B	B		A	A		C			C	
Approach Delay (s)		13.2			9.2			31.6			28.7	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	759	265	908	225	590	540
v/c Ratio	0.43	0.46	0.51	0.44	0.73	0.62
Control Delay	13.5	16.3	9.5	10.5	34.4	30.9
Queue Delay	0.0	0.0	0.2	0.4	0.0	0.0
Total Delay	13.5	16.3	9.7	11.0	34.4	30.9
Queue Length 50th (ft)	119	81	69	33	163	144
Queue Length 95th (ft)	191	170	112	67	202	178
Internal Link Dist (ft)	434		199		228	124
Turn Bay Length (ft)		100		80		
Base Capacity (vph)	1773	581	1773	510	1130	1214
Starvation Cap Reductn	0	0	281	68	0	0
Spillback Cap Reductn	55	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.46	0.61	0.51	0.52	0.44

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	736	266	0	849	210	0	465	102	0	463	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		7.0	7.0		7.0	7.0		8.0			8.0	
Lane Util. Factor		0.95	1.00		0.95	1.00		0.95			0.95	
Frpb, ped/bikes		1.00	0.79		1.00	0.65		0.92			0.97	
Flpb, ped/bikes		1.00	1.00		1.00	1.00		1.00			1.00	
Frt		1.00	0.85		1.00	0.85		0.97			0.99	
Flt Protected		1.00	1.00		1.00	1.00		1.00			1.00	
Satd. Flow (prot)		3249	1138		3249	945		2823			3036	
Flt Permitted		1.00	1.00		1.00	1.00		1.00			1.00	
Satd. Flow (perm)		3249	1138		3249	945		2823			3036	
Peak-hour factor, PHF	0.97	0.97	0.97	0.93	0.93	0.93	0.96	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	0	759	274	0	913	226	0	484	106	0	503	40
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	759	274	0	913	226	0	590	0	0	543	0
Confl. Peds. (#/hr)			357			450			741			467
Confl. Bikes (#/hr)			17			134			87			48
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	10	10	0	10	10
Turn Type		NA	Perm		NA	Perm		NA			NA	
Protected Phases		6			2			8			4	
Permitted Phases			6			2						
Actuated Green, G (s)		49.1	49.1		49.1	49.1		25.9			25.9	
Effective Green, g (s)		49.1	49.1		49.1	49.1		25.9			25.9	
Actuated g/C Ratio		0.55	0.55		0.55	0.55		0.29			0.29	
Clearance Time (s)		7.0	7.0		7.0	7.0		8.0			8.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0		2.0			2.0	
Lane Grp Cap (vph)		1772	620		1772	515		812			873	
v/s Ratio Prot		0.23			c0.28			c0.21			0.18	
v/s Ratio Perm			0.24			0.24						
v/c Ratio		0.43	0.44		0.52	0.44		0.73			0.62	
Uniform Delay, d1		12.1	12.2		12.9	12.2		28.9			27.8	
Progression Factor		1.00	1.00		0.63	0.59		1.00			1.00	
Incremental Delay, d2		0.8	2.3		1.0	2.4		2.8			1.0	
Delay (s)		12.9	14.5		9.1	9.6		31.6			28.8	
Level of Service		B	B		A	A		C			C	
Approach Delay (s)		13.3			9.2			31.6			28.8	
Approach LOS		B			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	759	274	913	226	590	543
v/c Ratio	0.43	0.47	0.51	0.44	0.73	0.62
Control Delay	13.5	16.6	9.5	10.6	34.4	31.0
Queue Delay	0.0	0.0	0.2	0.4	0.0	0.0
Total Delay	13.5	16.6	9.7	11.0	34.4	31.0
Queue Length 50th (ft)	119	84	73	34	163	145
Queue Length 95th (ft)	191	177	113	68	202	180
Internal Link Dist (ft)	434		199		228	124
Turn Bay Length (ft)		100		80		
Base Capacity (vph)	1773	581	1773	510	1130	1214
Starvation Cap Reductn	0	0	277	68	0	0
Spillback Cap Reductn	58	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.44	0.47	0.61	0.51	0.52	0.45

Intersection Summary

Beacon Street at Pleasant Street

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↰	↱
Volume (vph)	0	847	1012	0	80	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	10	10
Total Lost time (s)		6.0	6.0		8.0	8.0
Lane Util. Factor		0.95	0.95		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	0.73
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3046	3249		1486	973
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3046	3249		1486	973
Peak-hour factor, PHF	0.96	0.96	0.97	0.97	0.92	0.92
Adj. Flow (vph)	0	882	1043	0	87	153
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	882	1043	0	87	153
Confl. Peds. (#/hr)					6	168
Confl. Bikes (#/hr)						19
Heavy Vehicles (%)	0%	0%	0%	1%	2%	2%
Parking (#/hr)		5				
Turn Type		NA	NA		Prot	Perm
Protected Phases		6	2		4	
Permitted Phases						4
Actuated Green, G (s)		57.8	57.8		18.2	18.2
Effective Green, g (s)		57.8	57.8		18.2	18.2
Actuated g/C Ratio		0.64	0.64		0.20	0.20
Clearance Time (s)		6.0	6.0		8.0	8.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1956	2086		300	196
v/s Ratio Prot		0.29	c0.32		0.06	
v/s Ratio Perm						c0.16
v/c Ratio		0.45	0.50		0.29	0.78
Uniform Delay, d1		8.1	8.5		30.4	34.0
Progression Factor		0.40	1.00		1.00	1.00
Incremental Delay, d2		0.7	0.9		0.5	18.0
Delay (s)		4.0	9.3		31.0	52.0
Level of Service		A	A		C	D
Approach Delay (s)		4.0	9.3		44.4	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	882	1043	87	153
v/c Ratio	0.45	0.50	0.29	0.73
Control Delay	4.4	10.5	30.7	51.9
Queue Delay	0.1	0.0	0.0	0.0
Total Delay	4.5	10.6	30.7	51.9
Queue Length 50th (ft)	33	148	42	82
Queue Length 95th (ft)	167	251	75	135
Internal Link Dist (ft)	199	133	80	
Turn Bay Length (ft)				
Base Capacity (vph)	1977	2109	390	273
Starvation Cap Reductn	169	0	0	0
Spillback Cap Reductn	0	50	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.49	0.51	0.22	0.56

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↖	↱
Volume (vph)	0	847	1016	0	80	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	10	10
Total Lost time (s)		6.0	6.0		8.0	8.0
Lane Util. Factor		0.95	0.95		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	0.73
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3046	3249		1486	973
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3046	3249		1486	973
Peak-hour factor, PHF	0.96	0.96	0.97	0.97	0.92	0.92
Adj. Flow (vph)	0	882	1047	0	87	153
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	882	1047	0	87	153
Confl. Peds. (#/hr)					6	168
Confl. Bikes (#/hr)						19
Heavy Vehicles (%)	0%	0%	0%	1%	2%	2%
Parking (#/hr)		5				
Turn Type		NA	NA		Prot	Perm
Protected Phases		6	2		4	
Permitted Phases						4
Actuated Green, G (s)		57.8	57.8		18.2	18.2
Effective Green, g (s)		57.8	57.8		18.2	18.2
Actuated g/C Ratio		0.64	0.64		0.20	0.20
Clearance Time (s)		6.0	6.0		8.0	8.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1956	2086		300	196
v/s Ratio Prot		0.29	c0.32		0.06	
v/s Ratio Perm						c0.16
v/c Ratio		0.45	0.50		0.29	0.78
Uniform Delay, d1		8.1	8.5		30.4	34.0
Progression Factor		0.42	1.00		1.00	1.00
Incremental Delay, d2		0.7	0.9		0.5	18.0
Delay (s)		4.1	9.4		31.0	52.0
Level of Service		A	A		C	D
Approach Delay (s)		4.1	9.4		44.4	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	59.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	882	1047	87	153
v/c Ratio	0.45	0.50	0.29	0.73
Control Delay	4.6	10.6	30.7	51.9
Queue Delay	0.1	0.0	0.0	0.0
Total Delay	4.7	10.6	30.7	51.9
Queue Length 50th (ft)	33	149	42	82
Queue Length 95th (ft)	273	253	75	135
Internal Link Dist (ft)	199	133	80	
Turn Bay Length (ft)				
Base Capacity (vph)	1977	2109	390	273
Starvation Cap Reductn	181	0	0	0
Spillback Cap Reductn	0	52	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.49	0.51	0.22	0.56

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↰	↱
Volume (vph)	0	838	915	0	116	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	10	10
Total Lost time (s)		6.0	6.0		8.0	8.0
Lane Util. Factor		0.95	0.95		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	0.73
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3046	3249		1516	985
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3046	3249		1516	985
Peak-hour factor, PHF	0.98	0.98	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	855	995	0	126	150
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	855	995	0	126	150
Confl. Peds. (#/hr)					6	168
Confl. Bikes (#/hr)						19
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Parking (#/hr)		5				
Turn Type		NA	NA		Prot	Perm
Protected Phases		6	2		4	
Permitted Phases						4
Actuated Green, G (s)		58.2	58.2		17.8	17.8
Effective Green, g (s)		58.2	58.2		17.8	17.8
Actuated g/C Ratio		0.65	0.65		0.20	0.20
Clearance Time (s)		6.0	6.0		8.0	8.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1969	2101		299	194
v/s Ratio Prot		0.28	c0.31		0.08	
v/s Ratio Perm						c0.15
v/c Ratio		0.43	0.47		0.42	0.77
Uniform Delay, d1		7.8	8.1		31.6	34.2
Progression Factor		0.42	1.00		1.00	1.00
Incremental Delay, d2		0.6	0.8		1.0	17.3
Delay (s)		3.9	8.9		32.6	51.4
Level of Service		A	A		C	D
Approach Delay (s)		3.9	8.9		42.8	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	855	995	126	150
v/c Ratio	0.43	0.47	0.42	0.71
Control Delay	4.4	10.0	34.3	51.4
Queue Delay	0.1	0.0	0.0	0.0
Total Delay	4.5	10.0	34.3	51.4
Queue Length 50th (ft)	38	135	63	80
Queue Length 95th (ft)	42	231	104	132
Internal Link Dist (ft)	199	133	80	
Turn Bay Length (ft)				
Base Capacity (vph)	1987	2120	396	277
Starvation Cap Reductn	197	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.48	0.47	0.32	0.54

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↰	↱
Volume (vph)	0	838	922	0	116	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	10	10
Total Lost time (s)		6.0	6.0		8.0	8.0
Lane Util. Factor		0.95	0.95		1.00	1.00
Frpb, ped/bikes		1.00	1.00		1.00	0.73
Flpb, ped/bikes		1.00	1.00		1.00	1.00
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3046	3249		1516	985
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3046	3249		1516	985
Peak-hour factor, PHF	0.98	0.98	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	855	1002	0	126	150
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	855	1002	0	126	150
Confl. Peds. (#/hr)					6	168
Confl. Bikes (#/hr)						19
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Parking (#/hr)		5				
Turn Type		NA	NA		Prot	Perm
Protected Phases		6	2		4	
Permitted Phases						4
Actuated Green, G (s)		58.2	58.2		17.8	17.8
Effective Green, g (s)		58.2	58.2		17.8	17.8
Actuated g/C Ratio		0.65	0.65		0.20	0.20
Clearance Time (s)		6.0	6.0		8.0	8.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1969	2101		299	194
v/s Ratio Prot		0.28	c0.31		0.08	
v/s Ratio Perm						c0.15
v/c Ratio		0.43	0.48		0.42	0.77
Uniform Delay, d1		7.8	8.1		31.6	34.2
Progression Factor		0.42	1.00		1.00	1.00
Incremental Delay, d2		0.6	0.8		1.0	17.3
Delay (s)		3.9	8.9		32.6	51.4
Level of Service		A	A		C	D
Approach Delay (s)		3.9	8.9		42.8	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	SBL	SBR
Lane Group Flow (vph)	855	1002	126	150
v/c Ratio	0.43	0.48	0.42	0.71
Control Delay	4.4	10.0	34.3	51.4
Queue Delay	0.1	0.0	0.0	0.0
Total Delay	4.5	10.0	34.3	51.4
Queue Length 50th (ft)	36	137	63	80
Queue Length 95th (ft)	42	233	104	132
Internal Link Dist (ft)	199	133	80	
Turn Bay Length (ft)				
Base Capacity (vph)	1987	2120	396	277
Starvation Cap Reductn	200	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.48	0.47	0.32	0.54

Intersection Summary

Beacon Street at Charles Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	106	807	14	0	898	0	96	0	58	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	12	12	12	12	12	14	12	12	12	12
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	0.95			0.95			1.00				
Frt	1.00	1.00			1.00			0.95				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1685	3481			3610			1866				
Flt Permitted	0.95	1.00			1.00			0.97				
Satd. Flow (perm)	1685	3481			3610			1866				
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.90	0.90	0.90	0.92	0.92	0.92
Adj. Flow (vph)	114	868	15	0	966	0	107	0	64	0	0	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	117	0	0	0	0
Lane Group Flow (vph)	114	882	0	0	966	0	0	54	0	0	0	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA			NA		Split	NA				
Protected Phases	1	6			2		8	8				
Permitted Phases												
Actuated Green, G (s)	6.4	68.0			54.6			8.0				
Effective Green, g (s)	9.4	71.0			57.6			11.0				
Actuated g/C Ratio	0.10	0.79			0.64			0.12				
Clearance Time (s)	7.0	7.0			7.0			7.0				
Vehicle Extension (s)	3.0	3.0			3.0			3.0				
Lane Grp Cap (vph)	175	2746			2310			228				
v/s Ratio Prot	c0.07	0.25			c0.27			c0.03				
v/s Ratio Perm												
v/c Ratio	0.65	0.32			0.42			0.24				
Uniform Delay, d1	38.7	2.7			8.0			35.7				
Progression Factor	1.32	0.55			1.00			1.00				
Incremental Delay, d2	8.2	0.3			0.6			2.4				
Delay (s)	59.4	1.8			8.5			38.3				
Level of Service	E	A			A			D				
Approach Delay (s)		8.4			8.5			38.3			0.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	114	883	966	171
v/c Ratio	0.57	0.32	0.41	0.50
Control Delay	61.2	1.8	8.6	16.5
Queue Delay	0.0	0.2	0.0	0.0
Total Delay	61.2	2.0	8.6	16.5
Queue Length 50th (ft)	64	28	135	19
Queue Length 95th (ft)	121	33	174	78
Internal Link Dist (ft)		215	825	140
Turn Bay Length (ft)				
Base Capacity (vph)	205	2745	2366	344
Starvation Cap Reductn	0	858	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.56	0.47	0.41	0.50

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	106	807	14	0	1004	0	100	0	61	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	12	12	12	12	12	14	12	12	12	12
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	0.95			0.95			1.00				
Frt	1.00	1.00			1.00			0.95				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1685	3481			3610			1865				
Flt Permitted	0.95	1.00			1.00			0.97				
Satd. Flow (perm)	1685	3481			3610			1865				
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.90	0.90	0.90	0.92	0.92	0.92
Adj. Flow (vph)	114	868	15	0	1080	0	111	0	68	0	0	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	117	0	0	0	0
Lane Group Flow (vph)	114	882	0	0	1080	0	0	62	0	0	0	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA			NA		Split	NA				
Protected Phases	1	6			2		8	8				
Permitted Phases												
Actuated Green, G (s)	6.4	68.0			54.6			8.0				
Effective Green, g (s)	9.4	71.0			57.6			11.0				
Actuated g/C Ratio	0.10	0.79			0.64			0.12				
Clearance Time (s)	7.0	7.0			7.0			7.0				
Vehicle Extension (s)	3.0	3.0			3.0			3.0				
Lane Grp Cap (vph)	175	2746			2310			227				
v/s Ratio Prot	c0.07	0.25			c0.30			c0.03				
v/s Ratio Perm												
v/c Ratio	0.65	0.32			0.47			0.27				
Uniform Delay, d1	38.7	2.7			8.3			35.9				
Progression Factor	1.32	0.55			1.00			1.00				
Incremental Delay, d2	8.2	0.3			0.7			3.0				
Delay (s)	59.4	1.8			9.0			38.8				
Level of Service	E	A			A			D				
Approach Delay (s)		8.4			9.0			38.8			0.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	114	883	1080	179
v/c Ratio	0.57	0.32	0.46	0.52
Control Delay	61.2	1.8	9.1	17.7
Queue Delay	0.0	0.2	0.0	0.0
Total Delay	61.2	1.9	9.1	17.7
Queue Length 50th (ft)	64	28	157	22
Queue Length 95th (ft)	121	33	202	82
Internal Link Dist (ft)		215	825	140
Turn Bay Length (ft)				
Base Capacity (vph)	205	2745	2366	344
Starvation Cap Reductn	0	859	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.56	0.47	0.46	0.52

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	154	787	13	0	769	0	111	0	56	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	12	12	12	12	12	14	12	12	12	12
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	0.95			0.95			1.00				
Frt	1.00	1.00			1.00			0.95				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1685	3481			3610			1873				
Flt Permitted	0.95	1.00			1.00			0.97				
Satd. Flow (perm)	1685	3481			3610			1873				
Peak-hour factor, PHF	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	159	811	13	0	836	0	121	0	61	0	0	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	117	0	0	0	0
Lane Group Flow (vph)	159	823	0	0	836	0	0	65	0	0	0	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA			NA		Split	NA				
Protected Phases	1	6			2		8	8				
Permitted Phases												
Actuated Green, G (s)	8.0	68.0			53.0			8.0				
Effective Green, g (s)	11.0	71.0			56.0			11.0				
Actuated g/C Ratio	0.12	0.79			0.62			0.12				
Clearance Time (s)	7.0	7.0			7.0			7.0				
Vehicle Extension (s)	3.0	3.0			3.0			3.0				
Lane Grp Cap (vph)	205	2746			2246			228				
v/s Ratio Prot	c0.09	0.24			c0.23			c0.03				
v/s Ratio Perm												
v/c Ratio	0.78	0.30			0.37			0.29				
Uniform Delay, d1	38.3	2.6			8.4			35.9				
Progression Factor	1.23	0.76			1.00			0.97				
Incremental Delay, d2	16.2	0.3			0.5			3.1				
Delay (s)	63.1	2.3			8.8			38.1				
Level of Service	E	A			A			D				
Approach Delay (s)		12.1			8.8			38.1			0.0	
Approach LOS		B			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	159	824	836	182
v/c Ratio	0.78	0.30	0.37	0.53
Control Delay	71.9	2.3	8.9	17.8
Queue Delay	0.0	0.2	0.0	0.0
Total Delay	71.9	2.4	8.9	17.8
Queue Length 50th (ft)	88	36	111	18
Queue Length 95th (ft)	#188	42	146	79
Internal Link Dist (ft)		215	825	140
Turn Bay Length (ft)				
Base Capacity (vph)	205	2748	2246	345
Starvation Cap Reductn	0	946	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.78	0.46	0.37	0.53

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												
Volume (vph)	154	787	13	0	915	0	118	0	61	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	12	12	12	12	12	14	12	12	12	12
Total Lost time (s)	4.0	4.0			4.0			4.0				
Lane Util. Factor	1.00	0.95			0.95			1.00				
Frt	1.00	1.00			1.00			0.95				
Flt Protected	0.95	1.00			1.00			0.97				
Satd. Flow (prot)	1685	3481			3610			1872				
Flt Permitted	0.95	1.00			1.00			0.97				
Satd. Flow (perm)	1685	3481			3610			1872				
Peak-hour factor, PHF	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	159	811	13	0	995	0	128	0	66	0	0	0
RTOR Reduction (vph)	0	1	0	0	0	0	0	117	0	0	0	0
Lane Group Flow (vph)	159	823	0	0	995	0	0	77	0	0	0	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA			NA		Split	NA				
Protected Phases	1	6			2		8	8				
Permitted Phases												
Actuated Green, G (s)	8.0	68.0			53.0			8.0				
Effective Green, g (s)	11.0	71.0			56.0			11.0				
Actuated g/C Ratio	0.12	0.79			0.62			0.12				
Clearance Time (s)	7.0	7.0			7.0			7.0				
Vehicle Extension (s)	3.0	3.0			3.0			3.0				
Lane Grp Cap (vph)	205	2746			2246			228				
v/s Ratio Prot	c0.09	0.24			c0.28			c0.04				
v/s Ratio Perm												
v/c Ratio	0.78	0.30			0.44			0.34				
Uniform Delay, d1	38.3	2.6			8.9			36.2				
Progression Factor	1.23	0.76			1.00			0.99				
Incremental Delay, d2	16.2	0.3			0.6			4.0				
Delay (s)	63.1	2.3			9.5			39.7				
Level of Service	E	A			A			D				
Approach Delay (s)		12.1			9.5			39.7			0.0	
Approach LOS		B			A			D			A	

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	NBT
Lane Group Flow (vph)	159	824	995	194
v/c Ratio	0.78	0.30	0.44	0.56
Control Delay	71.9	2.3	9.6	20.1
Queue Delay	0.0	0.2	0.0	0.0
Total Delay	71.9	2.4	9.6	20.1
Queue Length 50th (ft)	88	36	140	29
Queue Length 95th (ft)	#188	42	182	93
Internal Link Dist (ft)		215	825	140
Turn Bay Length (ft)				
Base Capacity (vph)	205	2748	2246	345
Starvation Cap Reductn	0	946	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.78	0.46	0.44	0.56

Intersection Summary

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

Harvard Street at Longwood Avenue

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	61	160	379	46	310	379
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.97	0.97	0.92	0.92
Hourly flow rate (vph)	65	170	391	47	337	412
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						258
pX, platoon unblocked	0.87					
vC, conflicting volume	1500	414			438	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1500	414			438	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	22	73			70	
cM capacity (veh/h)	83	640			1132	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	235	438	337	412
Volume Left	65	0	337	0
Volume Right	170	47	0	0
cSH	224	1700	1132	1700
Volume to Capacity	1.05	0.26	0.30	0.24
Queue Length 95th (ft)	253	0	31	0
Control Delay (s)	120.4	0.0	9.5	0.0
Lane LOS	F		A	
Approach Delay (s)	120.4	0.0	4.3	
Approach LOS	F			

Intersection Summary			
Average Delay	22.2		
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	61	160	379	46	320	379
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.94	0.94	0.97	0.97	0.92	0.92
Hourly flow rate (vph)	65	170	391	47	348	412
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						258
pX, platoon unblocked	0.87					
vC, conflicting volume	1522	414			438	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1525	414			438	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	18	73			69	
cM capacity (veh/h)	79	640			1132	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	235	438	348	412
Volume Left	65	0	348	0
Volume Right	170	47	0	0
cSH	216	1700	1132	1700
Volume to Capacity	1.09	0.26	0.31	0.24
Queue Length 95th (ft)	267	0	33	0
Control Delay (s)	134.5	0.0	9.6	0.0
Lane LOS	F		A	
Approach Delay (s)	134.5	0.0	4.4	
Approach LOS	F			

Intersection Summary			
Average Delay	24.4		
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	65	162	405	85	294	423
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.93	0.93	0.95	0.95
Hourly flow rate (vph)	67	167	435	91	309	445
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						258
pX, platoon unblocked	0.88					
vC, conflicting volume	1545	481			527	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1552	481			527	
tC, single (s)	*6.0	*6.0			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	28	72			71	
cM capacity (veh/h)	93	604			1050	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	234	527	309	445
Volume Left	67	0	309	0
Volume Right	167	91	0	0
cSH	235	1700	1050	1700
Volume to Capacity	1.00	0.31	0.29	0.26
Queue Length 95th (ft)	233	0	31	0
Control Delay (s)	102.2	0.0	9.9	0.0
Lane LOS	F		A	
Approach Delay (s)	102.2	0.0	4.0	
Approach LOS	F			

Intersection Summary			
Average Delay	17.8		
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	65	162	405	85	306	423
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.97	0.97	0.93	0.93	0.95	0.95
Hourly flow rate (vph)	67	167	435	91	322	445
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						258
pX, platoon unblocked	0.88					
vC, conflicting volume	1571	481			527	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1580	481			527	
tC, single (s)	*6.0	*6.0			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	24	72			69	
cM capacity (veh/h)	88	604			1050	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	234	527	322	445
Volume Left	67	0	322	0
Volume Right	167	91	0	0
cSH	226	1700	1050	1700
Volume to Capacity	1.04	0.31	0.31	0.26
Queue Length 95th (ft)	247	0	33	0
Control Delay (s)	115.6	0.0	9.9	0.0
Lane LOS	F		A	
Approach Delay (s)	115.6	0.0	4.2	
Approach LOS	F			

Intersection Summary			
Average Delay	19.8		
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		

* User Entered Value

Harvard Street at Stearns Road

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	238	41	379	110	4	631
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.95	0.95
Hourly flow rate (vph)	259	45	412	120	4	664
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						561
pX, platoon unblocked	0.87					
vC, conflicting volume	1144	472			532	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1092	472			532	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	93			100	
cM capacity (veh/h)	208	596			1046	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	259	45	532	668
Volume Left	259	0	0	4
Volume Right	0	45	120	0
cSH	208	596	1700	1046
Volume to Capacity	1.24	0.07	0.31	0.00
Queue Length 95th (ft)	338	6	0	0
Control Delay (s)	190.0	11.5	0.0	0.1
Lane LOS	F	B		A
Approach Delay (s)	163.7		0.0	0.1
Approach LOS	F			

Intersection Summary			
Average Delay	33.1		
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	238	41	379	112	4	631
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.95	0.95
Hourly flow rate (vph)	259	45	412	122	4	664
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						561
pX, platoon unblocked	0.87					
vC, conflicting volume	1145	473			534	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1094	473			534	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	93			100	
cM capacity (veh/h)	208	595			1044	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	259	45	534	668
Volume Left	259	0	0	4
Volume Right	0	45	122	0
cSH	208	595	1700	1044
Volume to Capacity	1.25	0.07	0.31	0.00
Queue Length 95th (ft)	338	6	0	0
Control Delay (s)	190.6	11.5	0.0	0.1
Lane LOS	F	B		A
Approach Delay (s)	164.2		0.0	0.1
Approach LOS	F			

Intersection Summary			
Average Delay	33.1		
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	158	39	419	90	1	530
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.96	0.96
Hourly flow rate (vph)	172	42	455	98	1	552
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						561
pX, platoon unblocked	0.88					
vC, conflicting volume	1059	504			553	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	999	504			553	
tC, single (s)	*6.0	*6.0			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	36	93			100	
cM capacity (veh/h)	268	588			1027	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	172	42	553	553
Volume Left	172	0	0	1
Volume Right	0	42	98	0
cSH	268	588	1700	1027
Volume to Capacity	0.64	0.07	0.33	0.00
Queue Length 95th (ft)	100	6	0	0
Control Delay (s)	39.7	11.6	0.0	0.0
Lane LOS	E	B		A
Approach Delay (s)	34.1		0.0	0.0
Approach LOS	D			

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	44.1%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	158	39	419	93	1	530
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.96	0.96
Hourly flow rate (vph)	172	42	455	101	1	552
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						561
pX, platoon unblocked	0.88					
vC, conflicting volume	1060	506			557	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1001	506			557	
tC, single (s)	*6.0	*6.0			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	36	93			100	
cM capacity (veh/h)	267	587			1024	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	172	42	557	553
Volume Left	172	0	0	1
Volume Right	0	42	101	0
cSH	267	587	1700	1024
Volume to Capacity	0.64	0.07	0.33	0.00
Queue Length 95th (ft)	101	6	0	0
Control Delay (s)	39.9	11.6	0.0	0.0
Lane LOS	E	B		A
Approach Delay (s)	34.3		0.0	0.0
Approach LOS	D			

Intersection Summary			
Average Delay	5.6		
Intersection Capacity Utilization	44.1%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Longwood Avenue at Sewall Avenue

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	13	55	50	134	178	41	48	238	36	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	59	53	146	193	45	52	259	39	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	238			112			620	642	85	762	646	216
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	238			112			620	642	85	762	646	216
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			90			86	27	96	100	100	100
cM capacity (veh/h)	1341			1491			370	353	979	116	351	829

Direction, Lane #	EB 1	EB 2	WB 1	NE 1
Volume Total	14	112	384	350
Volume Left	14	0	146	52
Volume Right	0	53	45	39
cSH	1341	1700	1491	383
Volume to Capacity	0.01	0.07	0.10	0.91
Queue Length 95th (ft)	1	0	8	240
Control Delay (s)	7.7	0.0	3.5	60.3
Lane LOS	A		A	F
Approach Delay (s)	0.8		3.5	60.3
Approach LOS				F

Intersection Summary			
Average Delay	26.2		
Intersection Capacity Utilization	50.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	23	55	50	134	178	51	48	240	36	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	24	59	53	146	193	55	52	261	39	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	249			112			647	674	85	790	673	221
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	249			112			647	674	85	790	673	221
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	98			90			85	22	96	100	100	100
cM capacity (veh/h)	1329			1491			353	335	979	99	336	823

Direction, Lane #	EB 1	EB 2	WB 1	NE 1
Volume Total	24	112	395	352
Volume Left	24	0	146	52
Volume Right	0	53	55	39
cSH	1329	1700	1491	365
Volume to Capacity	0.02	0.07	0.10	0.97
Queue Length 95th (ft)	1	0	8	268
Control Delay (s)	7.8	0.0	3.4	73.1
Lane LOS	A		A	F
Approach Delay (s)	1.4		3.4	73.1
Approach LOS				F

Intersection Summary			
Average Delay	30.9		
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	110	226	47	95	211	44	15	56	47	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	117	240	50	103	229	48	16	61	51	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	277			290			959	983	265	1016	984	253
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	277			290			959	983	265	1016	984	253
tC, single (s)	4.1			4.1			*6.0	*6.0	*6.0	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			92			94	75	94	100	100	100
cM capacity (veh/h)	1297			1283			280	240	790	145	209	790

Direction, Lane #	EB 1	EB 2	WB 1	NE 1
Volume Total	117	290	380	128
Volume Left	117	0	103	16
Volume Right	0	50	48	51
cSH	1297	1700	1283	341
Volume to Capacity	0.09	0.17	0.08	0.38
Queue Length 95th (ft)	7	0	7	43
Control Delay (s)	8.0	0.0	2.7	21.8
Lane LOS	A		A	C
Approach Delay (s)	2.3		2.7	21.8
Approach LOS				C

Intersection Summary			
Average Delay	5.2		
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (veh/h)	122	226	47	95	211	55	15	59	47	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	130	240	50	103	229	60	16	64	51	0	0	0
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	289			290			991	1021	265	1049	1016	259
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	289			290			991	1021	265	1049	1016	259
tC, single (s)	4.1			4.1			*6.0	*6.0	*6.0	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			92			94	72	94	100	100	100
cM capacity (veh/h)	1284			1283			266	227	790	132	198	784

Direction, Lane #	EB 1	EB 2	WB 1	NE 1
Volume Total	130	290	392	132
Volume Left	130	0	103	16
Volume Right	0	50	60	51
cSH	1284	1700	1283	322
Volume to Capacity	0.10	0.17	0.08	0.41
Queue Length 95th (ft)	8	0	7	48
Control Delay (s)	8.1	0.0	2.7	23.7
Lane LOS	A		A	C
Approach Delay (s)	2.5		2.7	23.7
Approach LOS				C

Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Sewall Avenue at Site Drive

Movement	WBL	WBR	SEL	SER	NEL	NER
Lane Configurations						
Volume (veh/h)	0	0	18	0	17	275
Sign Control	Stop		Stop		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	20	0	18	299
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	196	186	336	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	196	186	336	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	100	100	97	100	99	
cM capacity (veh/h)	741	704	581	1091	1636	

Direction, Lane #	SE 1	NE 1
Volume Total	20	317
Volume Left	0	18
Volume Right	0	299
cSH	581	1636
Volume to Capacity	0.03	0.01
Queue Length 95th (ft)	3	1
Control Delay (s)	11.4	0.5
Lane LOS	B	A
Approach Delay (s)	11.4	0.5
Approach LOS	B	

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	27.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	SEL	SER	NEL	NER
Lane Configurations						
Volume (veh/h)	0	0	9	0	22	292
Sign Control	Stop		Stop		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	10	0	24	317
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	211	207	365	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	211	207	365	0	0	
tC, single (s)	7.1	6.5	6.5	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	100	100	98	100	99	
cM capacity (veh/h)	732	684	558	1091	1636	

Direction, Lane #	SE 1	NE 1
Volume Total	10	341
Volume Left	0	24
Volume Right	0	317
cSH	558	1636
Volume to Capacity	0.02	0.01
Queue Length 95th (ft)	1	1
Control Delay (s)	11.6	0.6
Lane LOS	B	A
Approach Delay (s)	11.6	0.6
Approach LOS	B	

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	29.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	SEL	SER	NEL	NER
Lane Configurations						
Volume (veh/h)	0	0	25	0	21	188
Sign Control	Stop		Stop		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	27	0	23	204
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	161	148	250	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	161	148	250	0	0	
tC, single (s)	7.1	6.5	*6.0	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	100	100	96	100	99	
cM capacity (veh/h)	775	737	670	1091	1636	

Direction, Lane #	SE 1	NE 1
Volume Total	27	227
Volume Left	0	23
Volume Right	0	204
cSH	670	1636
Volume to Capacity	0.04	0.01
Queue Length 95th (ft)	3	1
Control Delay (s)	10.6	0.8
Lane LOS	B	A
Approach Delay (s)	10.6	0.8
Approach LOS	B	

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	22.8%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	WBL	WBR	SEL	SER	NEL	NER
Lane Configurations						
Volume (veh/h)	0	0	15	0	26	62
Sign Control	Stop		Stop		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	16	0	28	67
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	98	90	124	0	0	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	98	90	124	0	0	
tC, single (s)	7.1	6.5	*6.0	6.2	4.1	
tC, 2 stage (s)						
tF (s)	3.5	4.0	4.0	3.3	2.2	
p0 queue free %	100	100	98	100	98	
cM capacity (veh/h)	863	790	770	1091	1636	

Direction, Lane #	SE 1	NE 1
Volume Total	16	96
Volume Left	0	28
Volume Right	0	67
cSH	770	1636
Volume to Capacity	0.02	0.02
Queue Length 95th (ft)	2	1
Control Delay (s)	9.8	2.2
Lane LOS	A	A
Approach Delay (s)	9.8	2.2
Approach LOS	A	

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	15.3%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Sewall Avenue at Charles Street

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	98	76	0	47	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.74	0.74	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	132	103	0	51	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	51				368	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	51				368	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				100	100
cM capacity (veh/h)	1562				582	1091

Direction, Lane #	EB 1	WB 1
Volume Total	235	51
Volume Left	132	0
Volume Right	0	51
cSH	1562	1700
Volume to Capacity	0.08	0.03
Queue Length 95th (ft)	7	0
Control Delay (s)	4.5	0.0
Lane LOS	A	
Approach Delay (s)	4.5	0.0
Approach LOS		

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	19.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	105	80	0	47	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.74	0.74	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	142	108	0	51	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	51				392	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	51				392	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				100	100
cM capacity (veh/h)	1562				560	1091

Direction, Lane #	EB 1	WB 1
Volume Total	250	51
Volume Left	142	0
Volume Right	0	51
cSH	1562	1700
Volume to Capacity	0.09	0.03
Queue Length 95th (ft)	7	0
Control Delay (s)	4.6	0.0
Lane LOS	A	
Approach Delay (s)	4.6	0.0
Approach LOS		

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	20.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	122	96	0	26	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	136	107	0	28	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	28				378	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	28				378	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				100	100
cM capacity (veh/h)	1598				575	1091

Direction, Lane #	EB 1	WB 1
Volume Total	242	28
Volume Left	136	0
Volume Right	0	28
cSH	1598	1700
Volume to Capacity	0.08	0.02
Queue Length 95th (ft)	7	0
Control Delay (s)	4.5	0.0
Lane LOS	A	
Approach Delay (s)	4.5	0.0
Approach LOS		

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	21.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	136	99	0	26	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	151	110	0	28	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	28				412	0
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	28				412	0
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	91				100	100
cM capacity (veh/h)	1598				543	1091

Direction, Lane #	EB 1	WB 1
Volume Total	261	28
Volume Left	151	0
Volume Right	0	28
cSH	1598	1700
Volume to Capacity	0.09	0.02
Queue Length 95th (ft)	8	0
Control Delay (s)	4.7	0.0
Lane LOS	A	
Approach Delay (s)	4.7	0.0
Approach LOS		

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	22.7%	ICU Level of Service	A
Analysis Period (min)	15		

Sewall Avenue at St. Paul Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	17	28	31	29	21	28	13	376	25	12	597	13
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)	18	30	34	32	23	30	14	409	27	13	649	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1174	1146	656	1182	1140	422	663			436		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1174	1146	656	1182	1140	422	663			436		
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	84	93	77	88	95	98			99		
cM capacity (veh/h)	145	196	469	135	197	636	935			1135		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	83	85	450	676
Volume Left	18	32	14	13
Volume Right	34	30	27	14
cSH	233	213	935	1135
Volume to Capacity	0.36	0.40	0.02	0.01
Queue Length 95th (ft)	38	45	1	1
Control Delay (s)	28.8	32.6	0.5	0.3
Lane LOS	D	D	A	A
Approach Delay (s)	28.8	32.6	0.5	0.3
Approach LOS	D	D		

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	18	29	32	30	21	28	13	376	25	12	606	13
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)	20	32	35	33	23	30	14	409	27	13	659	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1184	1156	666	1193	1149	422	673			436		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1184	1156	666	1193	1149	422	673			436		
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 %	86	84	92	75	88	95	98			99		
cM capacity (veh/h)	142	193	463	131	195	636	928			1135		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	86	86	450	686
Volume Left	20	33	14	13
Volume Right	35	30	27	14
cSH	228	207	928	1135
Volume to Capacity	0.38	0.41	0.02	0.01
Queue Length 95th (ft)	41	47	1	1
Control Delay (s)	30.0	34.1	0.5	0.3
Lane LOS	D	D	A	A
Approach Delay (s)	30.0	34.1	0.5	0.3
Approach LOS	D	D		

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	28	12	56	12	4	20	12	272	13	16	483	10
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	0.96	0.96	0.96
Hourly flow rate (vph)	30	13	61	13	4	22	13	296	14	17	503	10
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	894	878	508	938	876	303	514			310		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	894	878	508	938	876	303	514			310		
tC, single (s)	*6.0	*6.0	*6.0	*6.0	*6.0	*6.0	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 %	91	96	90	95	99	97	99			99		
cM capacity (veh/h)	327	318	585	280	319	754	1062			1262		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	104	39	323	530
Volume Left	30	13	13	17
Volume Right	61	22	14	10
cSH	438	439	1062	1262
Volume to Capacity	0.24	0.09	0.01	0.01
Queue Length 95th (ft)	23	7	1	1
Control Delay (s)	15.8	14.0	0.5	0.4
Lane LOS	C	B	A	A
Approach Delay (s)	15.8	14.0	0.5	0.4
Approach LOS	C	B		

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	45.7%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	29	13	58	13	4	20	12	272	13	16	498	10
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	0.96	0.96	0.96
Hourly flow rate (vph)	32	14	63	14	4	22	13	296	14	17	519	10
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	910	893	524	956	891	303	529			310		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	910	893	524	956	891	303	529			310		
tC, single (s)	*6.0	*6.0	*6.0	*6.0	*6.0	*6.0	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	90	95	89	95	99	97	99			99		
cM capacity (veh/h)	320	312	574	270	313	754	1048			1262		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	109	40	323	546
Volume Left	32	14	13	17
Volume Right	63	22	14	10
cSH	429	424	1048	1262
Volume to Capacity	0.25	0.09	0.01	0.01
Queue Length 95th (ft)	25	8	1	1
Control Delay (s)	16.2	14.4	0.5	0.4
Lane LOS	C	B	A	A
Approach Delay (s)	16.2	14.4	0.5	0.4
Approach LOS	C	B		

Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		

* User Entered Value