Lane Group	SET	NWL	NWT	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	602	293	696	303	440	80	280	112
v/c Ratio	0.93	0.90	0.83	1.05	0.70	0.71	0.81	0.45
Control Delay	57.6	55.1	36.0	97.9	37.0	76.0	59.2	45.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.6	55.1	36.0	97.9	37.0	76.0	59.2	45.2
Queue Length 50th (ft)	165	93	303	123	195	41	147	54
Queue Length 95th (ft)	#340	#273	#766	#414	345	#88	#362	93
Internal Link Dist (ft)	190		102		416		824	
Turn Bay Length (ft)		200		200		100		50
Base Capacity (vph)	647	324	840	288	645	119	370	264
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	0.93	0.90	0.83	1.05	0.68	0.67	0.76	0.42

Intersection Summary

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		0.95		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.98		1.00	0.99		1.00	0.99		1.00	1.00	0.86
Flpb, ped/bikes		1.00		1.00	1.00		0.99	1.00		0.97	1.00	1.00
Frt		0.94		1.00	0.98		1.00	0.97		1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3203		1733	1774		1759	1773		1671	1827	1329
Flt Permitted		0.83		0.25	1.00		0.20	1.00		0.48	1.00	1.00
Satd. Flow (perm)		2653		457	1774		376	1773		852	1827	1329
Volume (vph)	25	264	209	237	551	81	279	280	47	53	260	72
Peak-hour factor, PHF	0.78	0.83	0.83	0.81	0.93	0.78	0.92	0.77	0.62	0.66	0.93	0.64
Adj. Flow (vph)	32	318	252	293	592	104	303	364	76	80	280	112
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	602	0	293	696	0	303	440	0	80	280	112
Confl. Peds. (#/hr)	13		17	17		13	85		20	20		85
Heavy Vehicles (%)	6%	4%	2%	4%	4%	5%	2%	3%	6%	5%	4%	4%
Turn Type	Perm			pm+pt			pm+pt			Perm		Perm
Protected Phases		6		5	2		7	3			8	
Permitted Phases	6			2			3			8		8
Actuated Green, G (s)		30.7		45.9	45.9		35.1	35.1		18.9	18.9	18.9
Effective Green, g (s)		31.7		46.9	46.9		35.1	35.1		18.9	18.9	18.9
Actuated g/C Ratio		0.32		0.47	0.47		0.35	0.35		0.19	0.19	0.19
Clearance Time (s)		5.0		5.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		839		357	830		300	621		161	345	251
v/s Ratio Prot				0.09	c0.39		c0.12	0.25			0.15	
v/s Ratio Perm		0.23		0.29			c0.23			0.09		0.08
v/c Ratio		0.72		0.82	0.84		1.01	0.71		0.50	0.81	0.45
Uniform Delay, d1		30.3		18.8	23.3		28.3	28.1		36.4	38.9	36.0
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		3.0		14.0	7.4		54.5	3.7		2.4	13.5	1.3
Delay (s)		33.2		32.8	30.8		82.8	31.8		38.8	52.4	37.3
Level of Service		C		C	C		F	C		D	D	D
Approach Delay (s)		33.2			31.4			52.6			46.5	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	39.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	100.2	Sum of lost time (s)	18.2
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	SET	NWL	NWT	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	672	322	760	333	492	88	312	139
v/c Ratio	1.24	1.10	0.92	1.16	0.76	1.16	0.84	0.53
Control Delay	156.0	108.2	45.5	131.0	39.7	193.7	62.0	47.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	156.0	108.2	45.5	131.0	39.7	193.7	62.0	47.1
Queue Length 50th (ft)	~235	~119	351	~160	227	~55	167	69
Queue Length 95th (ft)	#429	#356	#872	#466	394	#129	#419	112
Internal Link Dist (ft)	190		102		416		824	
Turn Bay Length (ft)		200		200		100		50
Base Capacity (vph)	541	292	825	288	646	76	370	264
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	1.24	1.10	0.92	1.16	0.76	1.16	0.84	0.53

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	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		0.95		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.98		1.00	0.99		1.00	0.99		1.00	1.00	0.86
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		0.98	1.00	1.00
Frt		0.94		1.00	0.98		1.00	0.97		1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3204		1734	1774		1762	1775		1680	1827	1341
Flt Permitted		0.68		0.20	1.00		0.17	1.00		0.38	1.00	1.00
Satd. Flow (perm)		2173		374	1774		320	1775		677	1827	1341
Volume (vph)	36	264	229	237	601	81	306	315	47	53	290	89
Peak-hour factor, PHF	0.78	0.83	0.83	0.81	0.93	0.78	0.92	0.77	0.62	0.66	0.93	0.64
Growth Factor (vph)	100%	110%	100%	110%	100%	110%	100%	100%	110%	110%	100%	100%
Adj. Flow (vph)	46	350	276	322	646	114	333	409	83	88	312	139
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	672	0	322	760	0	333	492	0	88	312	139
Confl. Peds. (#/hr)	13		17	17		13	85		20	20		85
Heavy Vehicles (%)	6%	4%	2%	4%	4%	5%	2%	3%	6%	5%	4%	4%
Turn Type	Perm			pm+pt			pm+pt			Perm		Perm
Protected Phases		6		5	2		7	3			8	
Permitted Phases	6			2			3			8		8
Actuated Green, G (s)		30.5		45.7	45.7		36.6	36.6		20.4	20.4	20.4
Effective Green, g (s)		31.5		46.7	46.7		36.6	36.6		20.4	20.4	20.4
Actuated g/C Ratio		0.31		0.46	0.46		0.36	0.36		0.20	0.20	0.20
Clearance Time (s)		5.0		5.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		674		322	815		288	639		136	367	269
v/s Ratio Prot				0.11	c0.43		c0.14	0.28			0.17	
v/s Ratio Perm		0.31		c0.35			c0.28			0.13		0.10
v/c Ratio		1.00		1.00	0.93		1.16	0.77		0.65	0.85	0.52
Uniform Delay, d1		35.0		22.7	26.0		27.4	28.8		37.3	39.1	36.2
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		33.7		50.2	17.3		102.1	5.6		10.1	16.9	1.7
Delay (s)		68.7		72.8	43.2		129.6	34.4		47.4	56.0	37.9
Level of Service		E		E	D		F	C		D	E	D
Approach Delay (s)		68.7			52.0			72.8			49.9	
Approach LOS		E			D			E			D	

Intersection Summary			
HCM Average Control Delay	60.8	HCM Level of Service	E
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	101.6	Sum of lost time (s)	18.3
Intersection Capacity Utilization	99.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	396	276	322	760	333	492	88	451
v/c Ratio	0.89	0.52	0.55	0.46	0.90	0.76	0.65	0.92
Control Delay	65.9	28.2	21.1	17.8	61.3	42.3	70.9	74.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.9	28.2	21.1	17.8	61.3	42.3	70.9	74.4
Queue Length 50th (ft)	160	165	130	170	203	331	65	183
Queue Length 95th (ft)	#215	223	#255	294	#374	370	87	#279
Internal Link Dist (ft)	190			102		168		824
Turn Bay Length (ft)		100	95				80	
Base Capacity (vph)	447	534	587	1648	369	653	136	497
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	0.89	0.52	0.55	0.46	0.90	0.75	0.65	0.91

Intersection Summary

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00		1.00	0.95	
Frpb, ped/bikes		1.00	0.99	1.00	1.00		1.00	1.00		1.00	0.95	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		0.98	1.00	
Frt		1.00	0.85	1.00	0.98		1.00	0.97		1.00	0.95	
Flt Protected		0.99	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3438	1563	1734	3371		1762	1781		1686	3136	
Flt Permitted		0.78	1.00	0.24	1.00		0.18	1.00		0.48	1.00	
Satd. Flow (perm)		2681	1563	430	3371		325	1781		858	3136	
Volume (vph)	36	264	229	237	601	81	306	315	47	53	290	89
Peak-hour factor, PHF	0.78	0.83	0.83	0.81	0.93	0.78	0.92	0.77	0.62	0.66	0.93	0.64
Growth Factor (vph)	100%	110%	100%	110%	100%	110%	100%	100%	110%	110%	100%	100%
Adj. Flow (vph)	46	350	276	322	646	114	333	409	83	88	312	139
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	396	276	322	760	0	333	492	0	88	451	0
Confl. Peds. (#/hr)	13		17	17		13	85		20	20		85
Heavy Vehicles (%)	6%	4%	2%	4%	4%	5%	2%	3%	6%	5%	4%	4%
Turn Type	Perm		pm+ov	pm+pt			pm+pt			Perm		
Protected Phases		6	7	5	2		7	3			8	
Permitted Phases	6		6	2			3			8		
Actuated Green, G (s)		19.0	39.9	56.5	56.5		43.7	43.7		18.8	18.8	
Effective Green, g (s)		20.0	40.9	57.5	57.5		43.7	43.7		18.8	18.8	
Actuated g/C Ratio		0.17	0.34	0.48	0.48		0.36	0.36		0.16	0.16	
Clearance Time (s)		5.0	4.0	5.0	5.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		447	585	570	1615		369	649		134	491	
v/s Ratio Prot			0.08	c0.16	0.23		c0.16	0.28			0.14	
v/s Ratio Perm		c0.15	0.09	0.11			c0.17			0.10		
v/c Ratio		0.89	0.47	0.56	0.47		0.90	0.76		0.66	0.92	
Uniform Delay, d1		48.9	31.1	21.1	21.0		31.8	33.5		47.6	49.8	
Progression Factor		0.89	0.84	0.74	0.75		1.00	1.00		1.00	1.00	
Incremental Delay, d2		18.4	0.6	3.3	0.8		24.4	5.1		11.0	22.1	
Delay (s)		61.9	26.6	18.9	16.5		56.2	38.6		58.6	71.9	
Level of Service		E	C	B	B		E	D		E	E	
Approach Delay (s)		47.4			17.2			45.7			69.8	
Approach LOS		D			B			D			E	

Intersection Summary			
HCM Average Control Delay	40.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.8
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SET	NWL	NWT	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	970	196	628	228	424	72	272	55
v/c Ratio	1.49	0.72	0.76	0.79	0.69	0.59	0.80	0.19
Control Delay	254.2	37.6	31.9	48.5	36.7	61.8	59.2	39.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	254.2	37.6	31.9	48.5	36.7	61.8	59.2	39.4
Queue Length 50th (ft)	~389	58	259	87	187	36	142	25
Queue Length 95th (ft)	#692	#188	#665	#273	#426	#111	#334	72
Internal Link Dist (ft)	161		103		416		824	
Turn Bay Length (ft)		200		200		100		50
Base Capacity (vph)	653	273	829	289	636	133	370	314
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	1.49	0.72	0.76	0.79	0.67	0.54	0.74	0.18

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	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		0.95		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.98		1.00	0.99		1.00	0.99		1.00	1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		0.98	1.00	1.00
Frt		0.96		1.00	0.96		1.00	0.96		1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3269		1735	1740		1762	1747		1680	1827	1553
Flt Permitted		0.79		0.11	1.00		0.21	1.00		0.51	1.00	1.00
Satd. Flow (perm)		2603		205	1740		389	1747		911	1827	1553
Volume (vph)	37	554	247	161	434	106	205	289	89	61	239	48
Peak-hour factor, PHF	0.58	0.89	0.87	0.82	0.93	0.66	0.90	0.90	0.86	0.85	0.88	0.87
Adj. Flow (vph)	64	622	284	196	467	161	228	321	103	72	272	55
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	970	0	196	628	0	228	424	0	72	272	55
Confl. Peds. (#/hr)	8		22	22		8	53		15	15		
Heavy Vehicles (%)	6%	4%	2%	4%	4%	5%	2%	3%	6%	5%	4%	4%
Turn Type	Perm			pm+pt			pm+pt			Perm		Perm
Protected Phases		6		5	2		7	3			8	
Permitted Phases	6			2			3			8		8
Actuated Green, G (s)		30.7		45.9	45.9		34.6	34.6		18.4	18.4	18.4
Effective Green, g (s)		31.7		46.9	46.9		34.6	34.6		18.4	18.4	18.4
Actuated g/C Ratio		0.32		0.47	0.47		0.35	0.35		0.18	0.18	0.18
Clearance Time (s)		5.0		5.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		828		268	819		303	606		168	337	287
v/s Ratio Prot				0.08	c0.36		0.09	c0.24			0.15	
v/s Ratio Perm		c0.37		0.26			c0.17			0.08		0.04
v/c Ratio		1.17		0.73	0.77		0.75	0.70		0.43	0.81	0.19
Uniform Delay, d1		34.0		20.5	21.9		25.7	28.1		36.0	38.9	34.4
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		89.9		9.8	4.3		10.1	3.5		1.8	13.2	0.3
Delay (s)		123.9		30.4	26.2		35.8	31.6		37.8	52.1	34.7
Level of Service		F		C	C		D	C		D	D	C
Approach Delay (s)		123.9			27.2			33.1			47.1	
Approach LOS		F			C			C			D	

Intersection Summary			
HCM Average Control Delay	64.3	HCM Level of Service	E
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	99.7	Sum of lost time (s)	22.2
Intersection Capacity Utilization	92.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	SET	NWL	NWT	NEL	NET	SWL	SWT	SWR
Lane Group Flow (vph)	1088	216	679	250	479	79	315	90
v/c Ratio	2.10	0.81	0.84	0.87	0.75	0.91	0.85	0.29
Control Delay	524.7	47.0	37.4	57.4	39.3	118.5	62.9	40.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	524.7	47.0	37.4	57.4	39.3	118.5	62.9	40.4
Queue Length 50th (ft)	~505	68	294	97	220	43	169	42
Queue Length 95th (ft)	#832	#223	#749	#315	#530	#154	#410	107
Internal Link Dist (ft)	161		103		416		824	
Turn Bay Length (ft)		200		200		100		50
Base Capacity (vph)	518	267	808	289	637	87	370	314
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	2.10	0.81	0.84	0.87	0.75	0.91	0.85	0.29

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	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		0.95		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes		0.98		1.00	0.99		1.00	0.99		1.00	1.00	1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00		0.98	1.00	1.00
Frt		0.96		1.00	0.96		1.00	0.96		1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3268		1735	1738		1765	1750		1689	1827	1553
Flt Permitted		0.65		0.11	1.00		0.17	1.00		0.41	1.00	1.00
Satd. Flow (perm)		2120		206	1738		311	1750		727	1827	1553
Volume (vph)	56	606	270	161	467	106	225	329	97	61	277	78
Peak-hour factor, PHF	0.58	0.89	0.87	0.82	0.93	0.66	0.90	0.90	0.86	0.85	0.88	0.87
Growth Factor (vph)	100%	100%	100%	110%	100%	110%	100%	100%	100%	110%	100%	100%
Adj. Flow (vph)	97	681	310	216	502	177	250	366	113	79	315	90
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1088	0	216	679	0	250	479	0	79	315	90
Confl. Peds. (#/hr)	8		22	22		8	53		15	15		
Heavy Vehicles (%)	6%	4%	2%	4%	4%	5%	2%	3%	6%	5%	4%	4%
Turn Type	Perm			pm+pt			pm+pt			Perm		Perm
Protected Phases		6		5	2		7	3			8	
Permitted Phases	6			2			3			8		8
Actuated Green, G (s)		30.5		45.7	45.7		36.6	36.6		20.4	20.4	20.4
Effective Green, g (s)		31.5		46.7	46.7		36.6	36.6		20.4	20.4	20.4
Actuated g/C Ratio		0.31		0.46	0.46		0.36	0.36		0.20	0.20	0.20
Clearance Time (s)		5.0		5.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		657		263	799		287	630		146	367	312
v/s Ratio Prot				0.09	c0.39		c0.10	0.27			0.17	
v/s Ratio Perm		c0.51		0.29			c0.21			0.11		0.06
v/c Ratio		1.66		0.82	0.85		0.87	0.76		0.54	0.86	0.29
Uniform Delay, d1		35.0		23.7	24.3		26.1	28.6		36.4	39.2	34.4
Progression Factor		1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		302.0		18.3	8.4		23.8	5.4		4.0	17.7	0.5
Delay (s)		337.0		42.0	32.8		49.9	34.0		40.5	56.9	35.0
Level of Service		F		D	C		D	C		D	E	C
Approach Delay (s)		337.0			35.0			39.5			50.1	
Approach LOS		F			C			D			D	

Intersection Summary			
HCM Average Control Delay	141.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.18		
Actuated Cycle Length (s)	101.6	Sum of lost time (s)	22.3
Intersection Capacity Utilization	100.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	778	310	216	679	250	479	79	405
v/c Ratio	0.81	0.35	0.93	0.38	0.80	0.86	0.71	0.73
Control Delay	33.6	8.2	74.1	15.8	52.8	54.8	79.1	55.1
Queue Delay	2.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.4	8.7	74.1	15.8	52.8	54.8	79.1	55.1
Queue Length 50th (ft)	243	34	53	88	155	351	59	159
Queue Length 95th (ft)	#506	117	#247	218	#236	458	105	198
Internal Link Dist (ft)	161			103		168		824
Turn Bay Length (ft)		100	95				80	
Base Capacity (vph)	966	884	232	1775	311	630	140	699
Starvation Cap Reductn	101	234	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	0.90	0.48	0.93	0.38	0.80	0.76	0.56	0.58

Intersection Summary

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

COMMUTER PM BUILD 2029
2: Hancock St & East Squantum St 12/4/2009

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00		1.00	0.95	
Frpb, ped/bikes		1.00	0.98	1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		0.99	1.00	
Frt		1.00	0.85	1.00	0.96		1.00	0.96		1.00	0.97	
Flt Protected		0.99	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3440	1554	1734	3303		1762	1756		1700	3355	
Flt Permitted		0.71	1.00	0.26	1.00		0.22	1.00		0.30	1.00	
Satd. Flow (perm)		2455	1554	474	3303		417	1756		534	3355	
Volume (vph)	56	606	270	161	467	106	225	329	97	61	277	78
Peak-hour factor, PHF	0.58	0.89	0.87	0.82	0.93	0.66	0.90	0.90	0.86	0.85	0.88	0.87
Growth Factor (vph)	100%	100%	100%	110%	100%	110%	100%	100%	100%	110%	100%	100%
Adj. Flow (vph)	97	681	310	216	502	177	250	366	113	79	315	90
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	778	310	216	679	0	250	479	0	79	405	0
Confl. Peds. (#/hr)	8		22	22		8	53		15	15		
Heavy Vehicles (%)	6%	4%	2%	4%	4%	5%	2%	3%	6%	5%	4%	4%
Turn Type	Perm		pm+ov	pm+pt			pm+pt			Perm		
Protected Phases		6	7	5	2		7	3			8	
Permitted Phases	6		6	2			3			8		
Actuated Green, G (s)		52.3	66.3	62.3	62.3		37.9	37.9		19.9	19.9	
Effective Green, g (s)		53.3	67.3	63.3	63.3		37.9	37.9		19.9	19.9	
Actuated g/C Ratio		0.44	0.56	0.53	0.53		0.32	0.32		0.17	0.17	
Clearance Time (s)		5.0	4.0	5.0	5.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		1090	872	313	1742		289	555		89	556	
v/s Ratio Prot			0.04	c0.03	0.21		0.10	c0.27			0.12	
v/s Ratio Perm		c0.32	0.16	0.33			c0.17			0.15		
v/c Ratio		0.71	0.36	0.69	0.39		0.87	0.86		0.89	0.73	
Uniform Delay, d1		27.1	14.5	32.6	16.9		33.8	38.6		49.0	47.5	
Progression Factor		0.78	0.61	0.87	0.78		1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.9	0.2	5.9	0.1		22.6	13.1		59.4	4.7	
Delay (s)		25.0	9.0	34.2	13.3		56.3	51.7		108.3	52.2	
Level of Service		C	A	C	B		E	D		F	D	
Approach Delay (s)		20.5			18.3			53.3			61.4	
Approach LOS		C			B			D			E	

Intersection Summary			
HCM Average Control Delay	33.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.8
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Build Conditions

Lane Group	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	396	276	322	760	333	492	88	451
v/c Ratio	0.89	0.52	0.55	0.46	0.90	0.76	0.65	0.92
Control Delay	65.9	28.2	21.1	17.8	61.3	42.3	70.9	74.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.9	28.2	21.1	17.8	61.3	42.3	70.9	74.4
Queue Length 50th (ft)	160	165	130	170	203	331	65	183
Queue Length 95th (ft)	#215	223	#255	294	#374	370	87	#279
Internal Link Dist (ft)	190			102		168		824
Turn Bay Length (ft)		100	95				80	
Base Capacity (vph)	447	534	587	1648	369	653	136	497
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	0.89	0.52	0.55	0.46	0.90	0.75	0.65	0.91

Intersection Summary

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00		1.00	0.95	
Frpb, ped/bikes		1.00	0.99	1.00	1.00		1.00	1.00		1.00	0.95	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		0.98	1.00	
Frt		1.00	0.85	1.00	0.98		1.00	0.97		1.00	0.95	
Flt Protected		0.99	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3438	1563	1734	3371		1762	1781		1686	3136	
Flt Permitted		0.78	1.00	0.24	1.00		0.18	1.00		0.48	1.00	
Satd. Flow (perm)		2681	1563	430	3371		325	1781		858	3136	
Volume (vph)	36	264	229	237	601	81	306	315	47	53	290	89
Peak-hour factor, PHF	0.78	0.83	0.83	0.81	0.93	0.78	0.92	0.77	0.62	0.66	0.93	0.64
Growth Factor (vph)	100%	110%	100%	110%	100%	110%	100%	100%	110%	110%	100%	100%
Adj. Flow (vph)	46	350	276	322	646	114	333	409	83	88	312	139
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	396	276	322	760	0	333	492	0	88	451	0
Confl. Peds. (#/hr)	13		17	17		13	85		20	20		85
Heavy Vehicles (%)	6%	4%	2%	4%	4%	5%	2%	3%	6%	5%	4%	4%
Turn Type	Perm		pm+ov	pm+pt			pm+pt			Perm		
Protected Phases		6	7	5	2		7	3			8	
Permitted Phases	6		6	2			3			8		
Actuated Green, G (s)		19.0	39.9	56.5	56.5		43.7	43.7		18.8	18.8	
Effective Green, g (s)		20.0	40.9	57.5	57.5		43.7	43.7		18.8	18.8	
Actuated g/C Ratio		0.17	0.34	0.48	0.48		0.36	0.36		0.16	0.16	
Clearance Time (s)		5.0	4.0	5.0	5.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		447	585	570	1615		369	649		134	491	
v/s Ratio Prot			0.08	c0.16	0.23		c0.16	0.28			0.14	
v/s Ratio Perm		c0.15	0.09	0.11			c0.17			0.10		
v/c Ratio		0.89	0.47	0.56	0.47		0.90	0.76		0.66	0.92	
Uniform Delay, d1		48.9	31.1	21.1	21.0		31.8	33.5		47.6	49.8	
Progression Factor		0.89	0.84	0.74	0.75		1.00	1.00		1.00	1.00	
Incremental Delay, d2		18.4	0.6	3.3	0.8		24.4	5.1		11.0	22.1	
Delay (s)		61.9	26.6	18.9	16.5		56.2	38.6		58.6	71.9	
Level of Service		E	C	B	B		E	D		E	E	
Approach Delay (s)		47.4			17.2			45.7			69.8	
Approach LOS		D			B			D			E	

Intersection Summary			
HCM Average Control Delay	40.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.8
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	572	1	2	964	11	12
Peak Hour Factor	0.92	0.25	0.25	0.92	0.69	0.75
Hourly flow rate (vph)	622	4	9	1048	18	18
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						1
Median type					None	
Median storage veh)						
Upstream signal (ft)	318			50		
pX, platoon unblocked			0.96		0.97	0.96
vC, conflicting volume			626		1165	313
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			562		1003	234
tC, single (s)			4.1		7.0	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.6	3.3
p0 queue free %			99		92	98
cM capacity (veh/h)			974		219	740

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1
Volume Total	414	212	358	699	35
Volume Left	0	0	9	0	18
Volume Right	0	4	0	0	18
cSH	1700	1700	974	1700	438
Volume to Capacity	0.24	0.12	0.01	0.41	0.08
Queue Length 95th (ft)	0	0	1	0	7
Control Delay (s)	0.0	0.0	0.3	0.0	16.4
Lane LOS			A		C
Approach Delay (s)	0.0		0.1		16.4
Approach LOS					C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	38.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	SET	NWT	SWL
Lane Group Flow (vph)	461	974	97
v/c Ratio	0.33	0.69	0.52
Control Delay	12.8	11.5	27.6
Queue Delay	0.0	0.0	0.0
Total Delay	12.8	11.5	27.6
Queue Length 50th (ft)	241	178	16
Queue Length 95th (ft)	m330	660	0
Internal Link Dist (ft)	414	399	536
Turn Bay Length (ft)			
Base Capacity (vph)	1377	1409	188
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.33	0.69	0.52

Intersection Summary

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

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.88	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	1.00		0.90	
Flt Protected		1.00	1.00		0.99	
Satd. Flow (prot)		1760	1792		1429	
Flt Permitted		0.99	1.00		0.99	
Satd. Flow (perm)		1750	1792		1429	
Volume (vph)	2	407	829	1	8	47
Peak-hour factor, PHF	0.50	0.89	0.94	0.25	0.40	0.69
Growth Factor (vph)	110%	100%	110%	100%	110%	110%
Adj. Flow (vph)	4	457	970	4	22	75
RTOR Reduction (vph)	0	0	0	0	69	0
Lane Group Flow (vph)	0	461	974	0	28	0
Confl. Peds. (#/hr)	38			38	10	24
Heavy Vehicles (%)	0%	8%	6%	0%	0%	4%
Turn Type	Perm					
Protected Phases		6	2		8	
Permitted Phases	6					
Actuated Green, G (s)		93.2	93.2		10.0	
Effective Green, g (s)		93.2	93.2		10.0	
Actuated g/C Ratio		0.78	0.78		0.08	
Clearance Time (s)		4.0	4.0		4.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1359	1392		119	
v/s Ratio Prot			c0.54		c0.02	
v/s Ratio Perm		0.26				
v/c Ratio		0.34	0.70		0.24	
Uniform Delay, d1		4.1	6.6		51.4	
Progression Factor		2.44	1.00		1.00	
Incremental Delay, d2		0.1	2.9		1.0	
Delay (s)		10.0	9.5		52.5	
Level of Service		B	A		D	
Approach Delay (s)		10.0	9.5		52.5	
Approach LOS		B	A		D	

Intersection Summary			
HCM Average Control Delay	12.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.8
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	26	378	861	18	16	73
Peak Hour Factor	0.72	0.92	0.92	0.30	0.57	0.58
Hourly flow rate (vph)	36	411	936	66	31	126
Pedestrians		15	3		47	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	0		4	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		182	494			
pX, platoon unblocked					0.91	
vC, conflicting volume	1049				1297	563
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1049				1226	563
tC, single (s)	4.2				6.9	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.3
p0 queue free %	94				77	72
cM capacity (veh/h)	622				136	450

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	SW 1
Volume Total	173	274	624	378	157
Volume Left	36	0	0	0	31
Volume Right	0	0	0	66	126
cSH	622	1700	1700	1700	309
Volume to Capacity	0.06	0.16	0.37	0.22	0.51
Queue Length 95th (ft)	5	0	0	0	68
Control Delay (s)	2.9	0.0	0.0	0.0	28.0
Lane LOS	A				D
Approach Delay (s)	1.1		0.0		28.0
Approach LOS					D

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	SET	NWT
Lane Group Flow (vph)	665	1098
v/c Ratio	0.21	0.34
Control Delay	0.3	1.6
Queue Delay	0.0	0.0
Total Delay	0.3	1.7
Queue Length 50th (ft)	0	0
Queue Length 95th (ft)	4	m92
Internal Link Dist (ft)	1	63
Turn Bay Length (ft)		
Base Capacity (vph)	3225	3225
Starvation Cap Reductn	384	263
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.23	0.37

Intersection Summary

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

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0		
Lane Util. Factor	0.95			0.95		
Frt	1.00			1.00		
Flt Protected	1.00			1.00		
Satd. Flow (prot)	3505			3505		
Flt Permitted	1.00			1.00		
Satd. Flow (perm)	3505			3505		
Volume (vph)	585	0	0	966	0	0
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor (vph)	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	665	0	0	1098	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	665	0	0	1098	0	0
Turn Type						
Protected Phases	6			2		
Permitted Phases						
Actuated Green, G (s)	105.8			105.8		
Effective Green, g (s)	106.8			106.8		
Actuated g/C Ratio	0.89			0.89		
Clearance Time (s)	5.0			5.0		
Vehicle Extension (s)	3.0			3.0		
Lane Grp Cap (vph)	3119			3119		
v/s Ratio Prot	0.19			c0.31		
v/s Ratio Perm						
v/c Ratio	0.21			0.35		
Uniform Delay, d1	0.9			1.1		
Progression Factor	0.11			0.81		
Incremental Delay, d2	0.0			0.2		
Delay (s)	0.1			1.1		
Level of Service	A			A		
Approach Delay (s)	0.1			1.1	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM Average Control Delay	0.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	30.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SET	NWT	NET	NER
Lane Group Flow (vph)	846	988	87	37
v/c Ratio	0.43	0.65	0.55	0.31
Control Delay	8.3	10.0	64.1	55.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	8.3	10.1	64.1	55.3
Queue Length 50th (ft)	96	151	65	27
Queue Length 95th (ft)	226	224	102	53
Internal Link Dist (ft)	168	238	121	
Turn Bay Length (ft)				
Base Capacity (vph)	1981	1524	234	182
Starvation Cap Reductn	0	22	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.43	0.66	0.37	0.20

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		0.95			0.95			1.00	1.00			
Frpb, ped/bikes		1.00			1.00			1.00	0.67			
Flpb, ped/bikes		1.00			1.00			0.77	1.00			
Frt		0.97			1.00			1.00	0.85			
Flt Protected		1.00			0.99			0.95	1.00			
Satd. Flow (prot)		3370			3455			1386	1083			
Flt Permitted		0.78			0.63			0.95	1.00			
Satd. Flow (perm)		2653			2200			1386	1083			
Volume (vph)	53	544	161	141	728	15	63	0	27	0	0	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.91	0.91	0.91	0.80	0.80	0.80	0.25	0.25	0.25
Growth Factor (vph)	110%	100%	110%	110%	100%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	63	591	192	170	800	18	87	0	37	0	0	0
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	846	0	0	987	0	0	87	37	0	0	0
Confl. Peds. (#/hr)	3					3	67		121			
Heavy Vehicles (%)	1%	4%	1%	0%	4%	2%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			pm+pt			Perm		Perm			
Protected Phases		6		5	2			4				
Permitted Phases	6			2			4		4			
Actuated Green, G (s)		88.1			88.1			10.4	10.4			
Effective Green, g (s)		89.1			89.1			10.4	10.4			
Actuated g/C Ratio		0.74			0.74			0.09	0.09			
Clearance Time (s)		5.0			5.0			4.0	4.0			
Vehicle Extension (s)		3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)		1970			1634			120	94			
v/s Ratio Prot												
v/s Ratio Perm		0.32			c0.45			0.06	0.03			
v/c Ratio		0.43			0.60			0.72	0.39			
Uniform Delay, d1		5.8			7.2			53.4	51.8			
Progression Factor		1.00			0.76			1.00	1.00			
Incremental Delay, d2		0.7			0.6			19.4	2.7			
Delay (s)		6.5			6.1			72.8	54.5			
Level of Service		A			A			E	D			
Approach Delay (s)		6.5			6.1			67.4			0.0	
Approach LOS		A			A			E			A	

Intersection Summary			
HCM Average Control Delay	10.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	20.5
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	506	189	239	619	189	414	80	410
v/c Ratio	0.48	0.23	0.54	0.32	0.74	0.80	0.70	0.81
Control Delay	21.7	6.1	18.7	9.7	46.9	45.8	71.2	54.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.7	6.1	18.7	9.7	46.9	45.8	71.2	54.2
Queue Length 50th (ft)	110	20	39	53	94	241	49	133
Queue Length 95th (ft)	#258	39	m#131	111	#158	#378	#122	#200
Internal Link Dist (ft)	161			103		168		824
Turn Bay Length (ft)		100	95				80	
Base Capacity (vph)	1054	821	443	1927	255	527	120	528
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	0.48	0.23	0.54	0.32	0.74	0.79	0.67	0.78

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	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00		1.00	0.95	
Frpb, ped/bikes		1.00	0.97	1.00	0.99		1.00	0.99		1.00	0.98	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		0.97	1.00	
Frt		1.00	0.85	1.00	0.97		1.00	0.97		1.00	0.96	
Flt Protected		0.99	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3435	1541	1729	3343		1766	1758		1672	3295	
Flt Permitted		0.81	1.00	0.41	1.00		0.21	1.00		0.42	1.00	
Satd. Flow (perm)		2814	1541	737	3343		386	1758		731	3295	
Volume (vph)	53	402	170	198	468	87	168	288	80	67	288	89
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	0.89	0.89	0.89	0.92	0.92	0.92
Growth Factor (vph)	100%	100%	100%	110%	100%	110%	100%	100%	100%	110%	100%	100%
Adj. Flow (vph)	59	447	189	239	514	105	189	324	90	80	313	97
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	506	189	239	619	0	189	414	0	80	410	0
Confl. Peds. (#/hr)	46		38	38		46	29		28	28		29
Heavy Vehicles (%)	6%	4%	2%	4%	4%	5%	2%	3%	6%	5%	4%	4%
Turn Type	Perm		pm+ov	pm+pt			pm+pt			Perm		
Protected Phases		6	7	5	2		7	3			8	
Permitted Phases	6		6	2			3			8		
Actuated Green, G (s)		41.2	51.2	55.2	55.2		29.4	29.4		15.4	15.4	
Effective Green, g (s)		42.2	52.2	56.2	56.2		29.4	29.4		15.4	15.4	
Actuated g/C Ratio		0.42	0.52	0.56	0.56		0.29	0.29		0.15	0.15	
Clearance Time (s)		5.0	4.0	5.0	5.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		1188	804	513	1879		251	517		113	507	
v/s Ratio Prot			0.02	c0.05	0.19		0.08	c0.24			0.12	
v/s Ratio Perm		0.18	0.10	c0.21			0.15			0.11		
v/c Ratio		0.43	0.24	0.47	0.33		0.75	0.80		0.71	0.81	
Uniform Delay, d1		20.4	13.0	17.3	11.8		28.7	32.6		40.2	40.9	
Progression Factor		0.85	0.64	0.72	0.72		1.00	1.00		1.00	1.00	
Incremental Delay, d2		1.1	0.1	0.6	0.4		12.0	8.7		18.3	9.2	
Delay (s)		18.5	8.5	13.1	8.9		40.8	41.3		58.5	50.1	
Level of Service		B	A	B	A		D	D		E	D	
Approach Delay (s)		15.8			10.0			41.1			51.5	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM Average Control Delay	26.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	14.4
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	597	1	1	664	24	37
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	678	1	1	755	30	46
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)	310			73		
pX, platoon unblocked			0.97		0.98	0.97
vC, conflicting volume			680		1059	340
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			645		959	297
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		88	93
cM capacity (veh/h)			906		247	679

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1	NE 2
Volume Total	452	227	253	503	30	46
Volume Left	0	0	1	0	30	0
Volume Right	0	1	0	0	0	46
cSH	1700	1700	906	1700	247	679
Volume to Capacity	0.27	0.13	0.00	0.30	0.12	0.07
Queue Length 95th (ft)	0	0	0	0	10	5
Control Delay (s)	0.0	0.0	0.1	0.0	21.6	10.7
Lane LOS			A		C	B
Approach Delay (s)	0.0		0.0		15.0	
Approach LOS					B	

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	29.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	610	25	60	661	4	19
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	693	31	75	751	5	24
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)	141			241		
pX, platoon unblocked			0.97		0.94	0.97
vC, conflicting volume			724		1234	362
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			683		1082	309
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		97	96
cM capacity (veh/h)			871		180	662

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1
Volume Total	462	262	325	501	29
Volume Left	0	0	75	0	5
Volume Right	0	31	0	0	24
cSH	1700	1700	871	1700	452
Volume to Capacity	0.27	0.15	0.09	0.29	0.06
Queue Length 95th (ft)	0	0	7	0	5
Control Delay (s)	0.0	0.0	2.9	0.0	13.5
Lane LOS			A		B
Approach Delay (s)	0.0		1.2		13.5
Approach LOS					B

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	SET	NWT	SWL
Lane Group Flow (vph)	644	713	154
v/c Ratio	0.47	0.52	0.72
Control Delay	6.1	10.9	33.6
Queue Delay	0.0	0.0	0.0
Total Delay	6.2	10.9	33.6
Queue Length 50th (ft)	10	105	28
Queue Length 95th (ft)	214	440	20
Internal Link Dist (ft)	414	399	536
Turn Bay Length (ft)			
Base Capacity (vph)	1369	1360	266
Starvation Cap Reductn	42	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.49	0.52	0.58

Intersection Summary

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.58	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	1.00		0.90	
Flt Protected		1.00	1.00		0.99	
Satd. Flow (prot)		1881	1863		968	
Flt Permitted		1.00	1.00		0.99	
Satd. Flow (perm)		1876	1863		968	
Volume (vph)	1	570	670	0	21	52
Peak-hour factor, PHF	0.25	0.89	0.94	0.25	0.52	0.52
Growth Factor (vph)	110%	100%	100%	110%	110%	110%
Adj. Flow (vph)	4	640	713	0	44	110
RTOR Reduction (vph)	0	0	0	0	96	0
Lane Group Flow (vph)	0	644	713	0	58	0
Confl. Peds. (#/hr)	73			73	21	205
Heavy Vehicles (%)	0%	1%	2%	0%	0%	2%
Turn Type	Perm					
Protected Phases		6	2		8	
Permitted Phases	6					
Actuated Green, G (s)		71.8	71.8		10.4	
Effective Green, g (s)		71.8	71.8		11.4	
Actuated g/C Ratio		0.72	0.72		0.11	
Clearance Time (s)		4.0	4.0		5.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1347	1338		110	
v/s Ratio Prot			c0.38		c0.06	
v/s Ratio Perm		0.34				
v/c Ratio		0.48	0.53		0.53	
Uniform Delay, d1		6.1	6.4		41.8	
Progression Factor		0.58	1.00		1.00	
Incremental Delay, d2		1.1	1.5		4.8	
Delay (s)		4.6	8.0		46.6	
Level of Service		A	A		D	
Approach Delay (s)		4.6	8.0		46.6	
Approach LOS		A	A		D	

Intersection Summary			
HCM Average Control Delay	10.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.8
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SET	NWT
Lane Group Flow (vph)	725	756
v/c Ratio	0.23	0.24
Control Delay	1.0	2.5
Queue Delay	0.0	0.0
Total Delay	1.1	2.5
Queue Length 50th (ft)	0	0
Queue Length 95th (ft)	16	93
Internal Link Dist (ft)	1	61
Turn Bay Length (ft)		
Base Capacity (vph)	3169	3169
Starvation Cap Reductn	248	271
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.25	0.26

Intersection Summary

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0		
Lane Util. Factor	0.95			0.95		
Frt	1.00			1.00		
Flt Protected	1.00			1.00		
Satd. Flow (prot)	3505			3505		
Flt Permitted	1.00			1.00		
Satd. Flow (perm)	3505			3505		
Volume (vph)	638	0	0	665	0	0
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor (vph)	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	725	0	0	756	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	725	0	0	756	0	0
Turn Type						
Protected Phases	6			2		
Permitted Phases						
Actuated Green, G (s)	85.8			85.8		
Effective Green, g (s)	86.8			86.8		
Actuated g/C Ratio	0.87			0.87		
Clearance Time (s)	5.0			5.0		
Vehicle Extension (s)	3.0			3.0		
Lane Grp Cap (vph)	3042			3042		
v/s Ratio Prot	0.21			c0.22		
v/s Ratio Perm						
v/c Ratio	0.24			0.25		
Uniform Delay, d1	1.1			1.1		
Progression Factor	0.48			1.27		
Incremental Delay, d2	0.2			0.2		
Delay (s)	0.7			1.6		
Level of Service	A			A		
Approach Delay (s)	0.7			1.6	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM Average Control Delay	1.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	21.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	673	830	0	0	0
Peak Hour Factor	0.73	0.92	0.92	0.85	0.79	0.86
Hourly flow rate (vph)	0	732	902	0	0	0
Pedestrians		29	3		42	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	0		4	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		183	494			
pX, platoon unblocked					0.91	
vC, conflicting volume	944				1313	522
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	944				1246	522
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	709				148	475

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	SW 1
Volume Total	244	488	601	301	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	709	1700	1700	1700	1700
Volume to Capacity	0.00	0.29	0.35	0.18	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	39.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	SET	NWT	NET	NER
Lane Group Flow (vph)	675	711	27	21
v/c Ratio	0.25	0.25	0.20	0.19
Control Delay	3.3	1.9	46.9	47.1
Queue Delay	0.0	0.1	0.0	0.0
Total Delay	3.3	2.0	46.9	47.1
Queue Length 50th (ft)	28	15	17	13
Queue Length 95th (ft)	130	55	39	33
Internal Link Dist (ft)	169	230	131	
Turn Bay Length (ft)				
Base Capacity (vph)	2683	2866	352	297
Starvation Cap Reductn	0	933	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.25	0.37	0.08	0.07

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		0.95			0.95			1.00	1.00			
Frpb, ped/bikes		1.00			1.00			1.00	0.70			
Flpb, ped/bikes		1.00			1.00			0.89	1.00			
Frt		1.00			0.99			1.00	0.85			
Flt Protected		1.00			1.00			0.95	1.00			
Satd. Flow (prot)		3516			3483			1609	1131			
Flt Permitted		0.89			0.95			0.95	1.00			
Satd. Flow (perm)		3121			3312			1609	1131			
Volume (vph)	32	580	18	5	594	49	20	0	16	0	0	0
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.82	0.82	0.82	0.25	0.25	0.25
Growth Factor (vph)	110%	100%	110%	110%	100%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	37	617	21	6	646	59	27	0	21	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	675	0	0	709	0	0	27	21	0	0	0
Confl. Peds. (#/hr)							17		46			
Heavy Vehicles (%)	1%	2%	1%	0%	2%	6%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			Perm			Perm		Perm			
Protected Phases		6			2			4				
Permitted Phases	6			2			4		4			
Actuated Green, G (s)		80.7			80.7			4.7	4.7			
Effective Green, g (s)		81.7			81.7			4.7	4.7			
Actuated g/C Ratio		0.82			0.82			0.05	0.05			
Clearance Time (s)		5.0			5.0			4.0	4.0			
Vehicle Extension (s)		3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)		2550			2706			76	53			
v/s Ratio Prot												
v/s Ratio Perm		c0.22			0.21			0.02	c0.02			
v/c Ratio		0.26			0.26			0.36	0.40			
Uniform Delay, d1		2.1			2.1			46.2	46.3			
Progression Factor		1.00			0.56			1.00	1.00			
Incremental Delay, d2		0.3			0.2			2.8	4.8			
Delay (s)		2.4			1.4			49.0	51.1			
Level of Service		A			A			D	D			
Approach Delay (s)		2.4			1.4			49.9			0.0	
Approach LOS		A			A			D			A	

Intersection Summary			
HCM Average Control Delay	3.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.6
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SET	SER	NWL	NWT	NEL	NET	SWL	SWT
Lane Group Flow (vph)	778	310	216	679	250	479	79	405
v/c Ratio	0.81	0.35	0.93	0.38	0.80	0.86	0.71	0.73
Control Delay	33.6	8.2	74.1	15.8	52.8	54.8	79.1	55.1
Queue Delay	2.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.4	8.7	74.1	15.8	52.8	54.8	79.1	55.1
Queue Length 50th (ft)	243	34	53	88	155	351	59	159
Queue Length 95th (ft)	#506	117	#247	218	#236	458	105	198
Internal Link Dist (ft)	161			103		168		824
Turn Bay Length (ft)		100	95				80	
Base Capacity (vph)	966	884	232	1775	311	630	140	699
Starvation Cap Reductn	101	234	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	0.90	0.48	0.93	0.38	0.80	0.76	0.56	0.58

Intersection Summary

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

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		0.95	1.00	1.00	0.95		1.00	1.00		1.00	0.95	
Frpb, ped/bikes		1.00	0.98	1.00	0.99		1.00	0.99		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00	1.00		1.00	1.00		0.99	1.00	
Frt		1.00	0.85	1.00	0.96		1.00	0.96		1.00	0.97	
Flt Protected		0.99	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		3440	1554	1734	3303		1762	1756		1700	3355	
Flt Permitted		0.71	1.00	0.26	1.00		0.22	1.00		0.30	1.00	
Satd. Flow (perm)		2455	1554	474	3303		417	1756		534	3355	
Volume (vph)	56	606	270	161	467	106	225	329	97	61	277	78
Peak-hour factor, PHF	0.58	0.89	0.87	0.82	0.93	0.66	0.90	0.90	0.86	0.85	0.88	0.87
Growth Factor (vph)	100%	100%	100%	110%	100%	110%	100%	100%	100%	110%	100%	100%
Adj. Flow (vph)	97	681	310	216	502	177	250	366	113	79	315	90
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	778	310	216	679	0	250	479	0	79	405	0
Confl. Peds. (#/hr)	8		22	22		8	53		15	15		
Heavy Vehicles (%)	6%	4%	2%	4%	4%	5%	2%	3%	6%	5%	4%	4%
Turn Type	Perm		pm+ov	pm+pt			pm+pt			Perm		
Protected Phases		6	7	5	2		7	3			8	
Permitted Phases	6		6	2			3			8		
Actuated Green, G (s)		52.3	66.3	62.3	62.3		37.9	37.9		19.9	19.9	
Effective Green, g (s)		53.3	67.3	63.3	63.3		37.9	37.9		19.9	19.9	
Actuated g/C Ratio		0.44	0.56	0.53	0.53		0.32	0.32		0.17	0.17	
Clearance Time (s)		5.0	4.0	5.0	5.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		1090	872	313	1742		289	555		89	556	
v/s Ratio Prot			0.04	c0.03	0.21		0.10	c0.27			0.12	
v/s Ratio Perm		c0.32	0.16	0.33			c0.17			0.15		
v/c Ratio		0.71	0.36	0.69	0.39		0.87	0.86		0.89	0.73	
Uniform Delay, d1		27.1	14.5	32.6	16.9		33.8	38.6		49.0	47.5	
Progression Factor		0.78	0.61	0.87	0.78		1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.9	0.2	5.9	0.1		22.6	13.1		59.4	4.7	
Delay (s)		25.0	9.0	34.2	13.3		56.3	51.7		108.3	52.2	
Level of Service		C	A	C	B		E	D		F	D	
Approach Delay (s)		20.5			18.3			53.3			61.4	
Approach LOS		C			B			D			E	

Intersection Summary			
HCM Average Control Delay	33.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.8
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	931	0	0	770	0	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	1058	0	0	875	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)	106			241		
pX, platoon unblocked			0.95		0.93	0.95
vC, conflicting volume			1058		1495	529
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1010		1301	454
tC, single (s)			4.2		6.9	7.0
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			643		141	524

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	NE 1
Volume Total	705	353	292	583	0
Volume Left	0	0	0	0	0
Volume Right	0	0	0	0	0
cSH	1700	1700	643	1700	1700
Volume to Capacity	0.41	0.21	0.00	0.34	0.00
Queue Length 95th (ft)	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0
Lane LOS					A
Approach Delay (s)	0.0		0.0		0.0
Approach LOS					A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	SET	NWT	SWL
Lane Group Flow (vph)	709	779	70
v/c Ratio	0.50	0.51	0.38
Control Delay	4.4	7.0	23.8
Queue Delay	0.3	0.0	0.0
Total Delay	4.7	7.0	23.8
Queue Length 50th (ft)	30	112	10
Queue Length 95th (ft)	m142	384	29
Internal Link Dist (ft)	414	399	536
Turn Bay Length (ft)			
Base Capacity (vph)	1432	1527	259
Starvation Cap Reductn	244	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.60	0.51	0.27

Intersection Summary

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

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	
Lane Util. Factor		1.00	1.00		1.00	
Frpb, ped/bikes		1.00	1.00		0.92	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	1.00		0.89	
Flt Protected		1.00	1.00		0.99	
Satd. Flow (prot)		1878	1858		1517	
Flt Permitted		0.96	1.00		0.99	
Satd. Flow (perm)		1805	1858		1517	
Volume (vph)	18	669	697	11	8	43
Peak-hour factor, PHF	0.75	0.98	0.91	0.92	0.67	0.83
Growth Factor (vph)	110%	100%	100%	110%	110%	110%
Adj. Flow (vph)	26	683	766	13	13	57
RTOR Reduction (vph)	0	0	0	0	53	0
Lane Group Flow (vph)	0	709	779	0	17	0
Confl. Peds. (#/hr)	41			41	23	20
Heavy Vehicles (%)	0%	1%	2%	0%	0%	2%
Turn Type	Perm					
Protected Phases		6	2		8	
Permitted Phases	6					
Actuated Green, G (s)		95.8	95.8		8.2	
Effective Green, g (s)		95.8	95.8		8.2	
Actuated g/C Ratio		0.80	0.80		0.07	
Clearance Time (s)		4.0	4.0		4.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)		1441	1483		104	
v/s Ratio Prot			c0.42		c0.01	
v/s Ratio Perm		0.39				
v/c Ratio		0.49	0.53		0.16	
Uniform Delay, d1		4.0	4.2		52.7	
Progression Factor		0.65	1.00		1.00	
Incremental Delay, d2		0.7	0.3		0.7	
Delay (s)		3.3	4.5		53.4	
Level of Service		A	A		D	
Approach Delay (s)		3.3	4.5		53.4	
Approach LOS		A	A		D	

Intersection Summary			
HCM Average Control Delay	6.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	SET	NWT
Lane Group Flow (vph)	1058	875
v/c Ratio	0.33	0.27
Control Delay	0.3	1.8
Queue Delay	0.0	0.0
Total Delay	0.3	1.8
Queue Length 50th (ft)	0	0
Queue Length 95th (ft)	2	90
Internal Link Dist (ft)	1	26
Turn Bay Length (ft)		
Base Capacity (vph)	3225	3225
Starvation Cap Reductn	306	365
Spillback Cap Reductn	241	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.36	0.31

Intersection Summary

Movement	SET	SER	NWL	NWT	NEL	NER
Lane Configurations	↑↑			↑↑		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0		
Lane Util. Factor	0.95			0.95		
Frt	1.00			1.00		
Flt Protected	1.00			1.00		
Satd. Flow (prot)	3505			3505		
Flt Permitted	1.00			1.00		
Satd. Flow (perm)	3505			3505		
Volume (vph)	931	0	0	770	0	0
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88
Growth Factor (vph)	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	1058	0	0	875	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1058	0	0	875	0	0
Turn Type						
Protected Phases	6			2		
Permitted Phases						
Actuated Green, G (s)	105.8			105.8		
Effective Green, g (s)	106.8			106.8		
Actuated g/C Ratio	0.89			0.89		
Clearance Time (s)	5.0			5.0		
Vehicle Extension (s)	3.0			3.0		
Lane Grp Cap (vph)	3119			3119		
v/s Ratio Prot	c0.30			0.25		
v/s Ratio Perm						
v/c Ratio	0.34			0.28		
Uniform Delay, d1	1.0			1.0		
Progression Factor	0.04			1.00		
Incremental Delay, d2	0.3			0.0		
Delay (s)	0.3			1.0		
Level of Service	A			A		
Approach Delay (s)	0.3			1.0	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM Average Control Delay	0.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.2
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	45	746	726	17	22	31
Peak Hour Factor	0.73	0.92	0.92	0.85	0.79	0.86
Hourly flow rate (vph)	62	811	789	22	31	40
Pedestrians		29	3		42	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	0		4	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)		183	494			
pX, platoon unblocked					0.85	
vC, conflicting volume	853				1374	477
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	853				1260	477
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				75	92
cM capacity (veh/h)	767				124	509

Direction, Lane #	SE 1	SE 2	NW 1	NW 2	SW 1
Volume Total	332	541	526	285	70
Volume Left	62	0	0	0	31
Volume Right	0	0	0	22	40
cSH	767	1700	1700	1700	216
Volume to Capacity	0.08	0.32	0.31	0.17	0.33
Queue Length 95th (ft)	7	0	0	0	34
Control Delay (s)	2.7	0.0	0.0	0.0	29.5
Lane LOS	A				D
Approach Delay (s)	1.0		0.0		29.5
Approach LOS					D

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	SET	NWT	NET	NER
Lane Group Flow (vph)	1109	825	235	146
v/c Ratio	0.54	0.41	0.81	0.57
Control Delay	12.6	7.1	68.8	54.5
Queue Delay	0.0	0.2	0.0	0.0
Total Delay	12.6	7.3	68.8	54.5
Queue Length 50th (ft)	150	68	176	105
Queue Length 95th (ft)	341	135	202	133
Internal Link Dist (ft)	169	262	131	
Turn Bay Length (ft)				
Base Capacity (vph)	2042	2028	346	303
Starvation Cap Reductn	0	490	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.54	0.54	0.68	0.48

Intersection Summary

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.0	4.0			
Lane Util. Factor		0.95			0.95			1.00	1.00			
Frpb, ped/bikes		1.00			1.00			1.00	0.93			
Flpb, ped/bikes		1.00			1.00			0.94	1.00			
Frt		0.99			0.99			1.00	0.85			
Flt Protected		1.00			1.00			0.96	1.00			
Satd. Flow (prot)		3491			3512			1714	1499			
Flt Permitted		0.84			0.87			0.96	1.00			
Satd. Flow (perm)		2934			3073			1714	1499			
Volume (vph)	48	824	60	24	666	23	142	14	97	0	0	0
Peak-hour factor, PHF	0.85	0.85	0.85	0.87	0.87	0.87	0.73	0.73	0.73	0.25	0.25	0.25
Growth Factor (vph)	110%	100%	110%	110%	100%	110%	110%	110%	110%	110%	110%	110%
Adj. Flow (vph)	62	969	78	30	766	29	214	21	146	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1109	0	0	823	0	0	235	146	0	0	0
Confl. Peds. (#/hr)			1	1			35		34			
Heavy Vehicles (%)	1%	2%	1%	0%	2%	6%	0%	0%	0%	0%	0%	0%
Turn Type	Perm			pm+pt			Perm		Perm			
Protected Phases		6		5	2			4				
Permitted Phases	6			2			4		4			
Actuated Green, G (s)		81.7			81.7			20.1	20.1			
Effective Green, g (s)		82.7			82.7			20.1	20.1			
Actuated g/C Ratio		0.69			0.69			0.17	0.17			
Clearance Time (s)		5.0			5.0			4.0	4.0			
Vehicle Extension (s)		3.0			3.0			3.0	3.0			
Lane Grp Cap (vph)		2022			2118			287	251			
v/s Ratio Prot												
v/s Ratio Perm		c0.38			0.27			0.14	0.10			
v/c Ratio		0.55			0.39			0.82	0.58			
Uniform Delay, d1		9.3			7.9			48.2	46.1			
Progression Factor		1.00			0.65			1.00	1.00			
Incremental Delay, d2		1.1			0.1			16.4	3.4			
Delay (s)		10.4			5.3			64.6	49.5			
Level of Service		B			A			E	D			
Approach Delay (s)		10.4			5.3			58.8			0.0	
Approach LOS		B			A			E			A	

Intersection Summary			
HCM Average Control Delay	16.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.2
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

2007 Existing Volumes Without Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations		↕			↕			↕			↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	10	11	11	10	11	11	16	11	11	16	11	
Total Lost Time (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	
Leading Detector (ft)	49	49		49	49		49	49		49	49		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
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		0.953			0.974			0.994			0.989		
Flt Protected		0.979			0.985			0.996			0.999		
Satd. Flow (prot)	0	1606	0	0	1684	0	0	2077	0	0	2073	0	
Flt Permitted		0.758			0.874			0.934			0.983		
Satd. Flow (perm)	0	1244	0	0	1495	0	0	1948	0	0	2040	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		31			14			4			8		
Headway Factor	1.04	1.09	1.04	1.04	1.09	1.04	1.04	0.87	1.04	1.04	0.87	1.04	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		388			356			309			585		
Travel Time (s)		8.8			8.1			7.0			13.3		
Volume (vph)	40	22	33	60	101	38	31	377	20	19	604	55	
Peak Hour Factor	0.65	0.65	0.65	0.80	0.80	0.80	0.88	0.88	0.88	0.97	0.97	0.97	
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0	
Adj. Flow (vph)	62	34	51	75	126	48	35	428	23	20	623	57	
Lane Group Flow (vph)	0	147	0	0	249	0	0	486	0	0	700	0	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		9
Permitted Phases	4			8			2			6			
Detector Phases	4	4		8	8		2	2		6	6		
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0		8.0
Minimum Split (s)	11.0	11.0		11.0	11.0		39.0	39.0		39.0	39.0		15.0
Total Split (s)	24.0	24.0	0.0	24.0	24.0	0.0	44.0	44.0	0.0	44.0	44.0	0.0	15.0
Total Split (%)	28.9%	28.9%	0.0%	28.9%	28.9%	0.0%	53.0%	53.0%	0.0%	53.0%	53.0%	0.0%	18%
Maximum Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		13.0

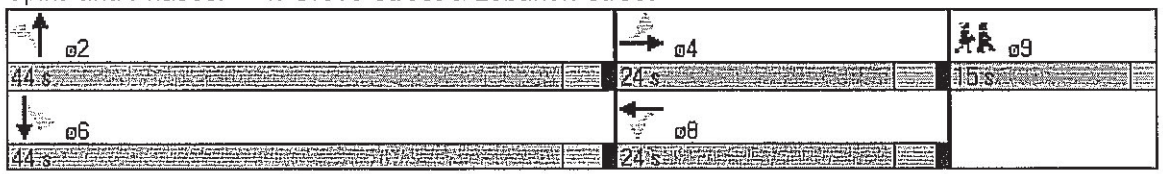
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		2.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0		0.0
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0		3.0
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max		None
Walk Time (s)													8.0
Flash Dont Walk (s)													5.0
Pedestrian Calls (#/hr)													5
Act Effct Green (s)		21.1			21.1			41.3			41.3		
Actuated g/C Ratio		0.30			0.30			0.58			0.58		
v/c Ratio		0.38			0.55			0.43			0.59		
Control Delay		20.0			26.3			10.7			13.0		
Queue Delay		0.0			0.0			0.0			0.2		
Total Delay		20.0			26.3			10.7			13.3		
LOS		C			C			B			B		
Approach Delay		20.0			26.3			10.7			13.3		
Approach LOS		C			C			B			B		
90th %ile Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		13.0
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Ped
70th %ile Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		0.0
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
50th %ile Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		0.0
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
30th %ile Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		0.0
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
10th %ile Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		0.0
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
Queue Length 50th (ft)		36			80			94			153		
Queue Length 95th (ft)		67			161			236			389		
Internal Link Dist (ft)		308			276			229			505		
Turn Bay Length (ft)													
Base Capacity (vph)		392			455			1134			1189		
Starvation Cap Reductn		0			0			0			100		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Spillback Cap Reductn		0			0			0			0		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		0.38			0.55			0.43			0.64		

Intersection Summary

Area Type: Other
Cycle Length: 83
Actuated Cycle Length: 71
Natural Cycle: 70
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 15.1 Intersection LOS: B
Intersection Capacity Utilization 59.5% ICU Level of Service B
Analysis Period (min) 15
90th %ile Actuated Cycle: 83
70th %ile Actuated Cycle: 68
50th %ile Actuated Cycle: 68
30th %ile Actuated Cycle: 68
10th %ile Actuated Cycle: 68

Splits and Phases: 1: Grove Street & Lebanon Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations		↕			↕			↕			↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	10	11	11	10	11	11	11	11	11	11	11	
Total Lost Time (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	
Leading Detector (ft)	49	49		49	49		49	49		49	49		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
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		0.959			0.988			0.998			0.993		
Flt Protected		0.987			0.988			0.995					
Satd. Flow (prot)	0	1679	0	0	1731	0	0	1777	0	0	1777	0	
Flt Permitted		0.904			0.913			0.798			0.996		
Satd. Flow (perm)	0	1537	0	0	1600	0	0	1425	0	0	1770	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		30			6			1			4		
Headway Factor	1.04	1.09	1.04	1.04	1.09	1.04	1.04	1.07	1.04	1.04	1.07	1.04	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		142			162			585			729		
Travel Time (s)		3.2			3.7			13.3			16.6		
Volume (vph)	29	50	35	32	92	12	42	405	8	5	611	35	
Peak Hour Factor	0.77	0.77	0.77	0.83	0.83	0.83	0.88	0.88	0.88	0.96	0.96	0.96	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0	
Adj. Flow (vph)	38	65	45	39	111	14	48	460	9	5	636	36	
Lane Group Flow (vph)	0	148	0	0	164	0	0	517	0	0	677	0	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		9
Permitted Phases	4			8			2			6			
Detector Phases	4	4		8	8		2	2		6	6		
Minimum Initial (s)	10.0	10.0		10.0	10.0		28.0	28.0		28.0	28.0		4.0
Minimum Split (s)	16.0	16.0		16.0	16.0		34.0	34.0		34.0	34.0		15.0
Total Split (s)	36.0	36.0	0.0	36.0	36.0	0.0	34.0	34.0	0.0	34.0	34.0	0.0	15.0
Total Split (%)	42.4%	42.4%	0.0%	42.4%	42.4%	0.0%	40.0%	40.0%	0.0%	40.0%	40.0%	0.0%	18%
Maximum Green (s)	30.0	30.0		30.0	30.0		28.0	28.0		28.0	28.0		13.0

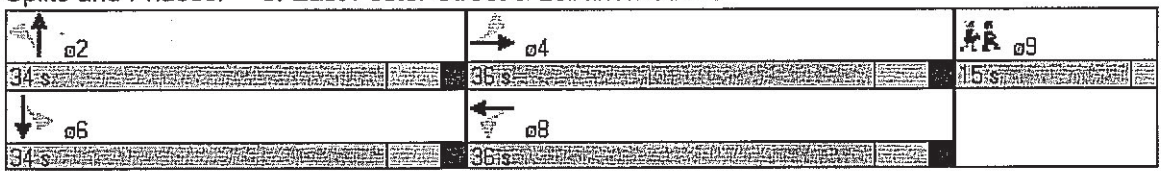
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0		3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max		None
Walk Time (s)													7.0
Flash Dont Walk (s)													6.0
Pedestrian Calls (#/hr)													5
Act Effct Green (s)		14.9			14.9			37.8			37.8		
Actuated g/C Ratio		0.25			0.25			0.66			0.66		
v/c Ratio		0.37			0.41			0.55			0.58		
Control Delay		16.8			20.3			13.2			12.9		
Queue Delay		0.0			0.0			0.0			0.0		
Total Delay		16.8			20.3			13.2			13.0		
LOS		B			C			B			B		
Approach Delay		16.8			20.3			13.2			13.0		
Approach LOS		B			C			B			B		
90th %ile Green (s)	16.4	16.4		16.4	16.4		28.0	28.0		28.0	28.0		13.0
90th %ile Term Code	Hold	Hold		Gap	Gap		MaxR	MaxR		MaxR	MaxR		Ped
70th %ile Green (s)	11.0	11.0		11.0	11.0		28.0	28.0		28.0	28.0		0.0
70th %ile Term Code	Hold	Hold		Gap	Gap		MaxR	MaxR		MaxR	MaxR		Skip
50th %ile Green (s)	10.0	10.0		10.0	10.0		28.0	28.0		28.0	28.0		0.0
50th %ile Term Code	Min	Min		Min	Min		MaxR	MaxR		MaxR	MaxR		Skip
30th %ile Green (s)	10.0	10.0		10.0	10.0		28.0	28.0		28.0	28.0		0.0
30th %ile Term Code	Min	Min		Min	Min		MaxR	MaxR		MaxR	MaxR		Skip
10th %ile Green (s)	0.0	0.0		0.0	0.0		59.4	59.4		59.4	59.4		0.0
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell		Skip
Queue Length 50th (ft)		28			38			73			98		
Queue Length 95th (ft)		71			97			#357			#468		
Internal Link Dist (ft)		62			82			505			649		
Turn Bay Length (ft)													
Base Capacity (vph)		671			684			936			1163		
Starvation Cap Reductn		0			0			0			0		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Spillback Cap Reductn		0			0			0			9		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		0.22			0.24			0.55			0.59		

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 57.6
Natural Cycle: 65
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 14.2 Intersection LOS: B
Intersection Capacity Utilization 67.0% ICU Level of Service C
Analysis Period (min) 15
90th %ile Actuated Cycle: 71.4
70th %ile Actuated Cycle: 51
50th %ile Actuated Cycle: 50
30th %ile Actuated Cycle: 50
10th %ile Actuated Cycle: 65.4
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: East Foster Street & Lebanon Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations		↕			↕			↕			↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	10	11	11	13	11	11	11	11	11	11	11	
Total Lost Time (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	
Leading Detector (ft)	49	49		49	49		49	49		49	49		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
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		0.985			0.986			0.964			0.998		
Flt Protected		0.998			0.978			0.996			0.992		
Satd. Flow (prot)	0	1676	0	0	1640	0	0	1718	0	0	1772	0	
Flt Permitted		0.980			0.757			0.939			0.810		
Satd. Flow (perm)	0	1646	0	0	1270	0	0	1620	0	0	1447	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		8			8			27			1		
Headway Factor	1.04	1.09	1.04	1.04	1.14	1.04	1.04	1.07	1.04	1.04	1.07	1.04	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		459			446			729			638		
Travel Time (s)		10.4			10.1			16.6			14.5		
Volume (vph)	5	108	14	272	271	63	35	281	115	70	343	7	
Peak Hour Factor	0.88	0.88	0.88	0.95	0.95	0.95	0.89	0.89	0.89	0.86	0.86	0.86	
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0	
Parking (#/hr)					5								
Adj. Flow (vph)	6	123	16	286	285	66	39	316	129	81	399	8	
Lane Group Flow (vph)	0	145	0	0	637	0	0	484	0	0	488	0	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		9
Permitted Phases	4			8			2			6			
Detector Phases	4	4		8	8		2	2		6	6		
Minimum Initial (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0		8.0
Minimum Split (s)	14.0	14.0		14.0	14.0		16.0	16.0		16.0	16.0		15.0
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	36.0	36.0	0.0	36.0	36.0	0.0	15.0
Total Split (%)	37.8%	37.8%	0.0%	37.8%	37.8%	0.0%	43.9%	43.9%	0.0%	43.9%	43.9%	0.0%	18%

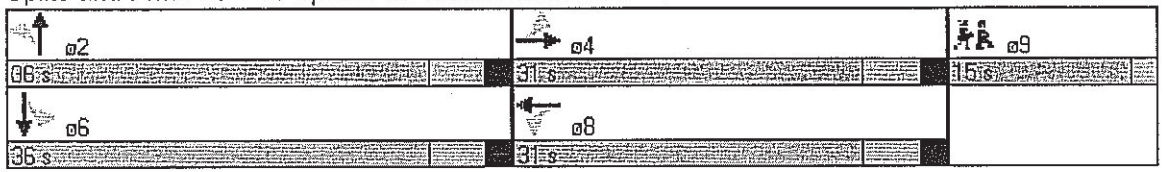
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Maximum Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		13.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max		None
Walk Time (s)													8.0
Flash Dont Walk (s)													5.0
Pedestrian Calls (#/hr)													5
Act Effct Green (s)		28.2			28.2			33.2			33.2		
Actuated g/C Ratio		0.40			0.40			0.47			0.47		
v/c Ratio		0.22			1.23			0.62			0.71		
Control Delay		15.3			145.2			18.3			23.5		
Queue Delay		0.0			0.0			0.0			0.0		
Total Delay		15.3			145.2			18.3			23.5		
LOS		B			F			B			C		
Approach Delay		15.3			145.2			18.3			23.5		
Approach LOS		B			F			B			C		
90th %ile Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		13.0
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Ped
70th %ile Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		0.0
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
50th %ile Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		0.0
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
30th %ile Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		0.0
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
10th %ile Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		0.0
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
Queue Length 50th (ft)		34			~324			125			143		
Queue Length 95th (ft)		92			#660			304			#365		
Internal Link Dist (ft)		379			366			649			558		
Turn Bay Length (ft)													
Base Capacity (vph)		668			516			783			687		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Starvation Cap Reductn		0			0			0			0		
Spillback Cap Reductn		0			0			0			0		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		0.22			1.23			0.62			0.71		

Intersection Summary

Area Type: Other
Cycle Length: 82
Actuated Cycle Length: 70
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.23
Intersection Signal Delay: 65.6 Intersection LOS: E
Intersection Capacity Utilization 88.0% ICU Level of Service E
Analysis Period (min) 15
90th %ile Actuated Cycle: 82
70th %ile Actuated Cycle: 67
50th %ile Actuated Cycle: 67
30th %ile Actuated Cycle: 67
10th %ile Actuated Cycle: 67
~ 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.

Splits and Phases: 8: Upham Street & Lebanon Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations		↕			↕			↕			↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Leading Detector (ft)	49	49		49	49		49	49		49	49		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
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		0.957			0.979			0.999			0.993		
Flt Protected		0.986			0.995			0.995			0.999		
Satd. Flow (prot)	0	1699	0	0	1565	0	0	1779	0	0	1775	0	
Flt Permitted		0.853			0.965			0.923			0.994		
Satd. Flow (perm)	0	1470	0	0	1518	0	0	1650	0	0	1766	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		27			10						4		
Headway Factor	1.04	1.04	1.04	1.04	1.24	1.04	1.04	1.07	1.04	1.04	1.07	1.04	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		378			311			638			756		
Travel Time (s)		8.6			7.1			14.5			17.2		
Volume (vph)	36	51	41	19	150	31	37	310	2	6	360	20	
Peak Hour Factor	0.89	0.89	0.89	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	1%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0	
Parking (#/hr)					5								
Adj. Flow (vph)	40	57	46	22	174	36	43	360	2	7	419	23	
Lane Group Flow (vph)	0	143	0	0	232	0	0	405	0	0	449	0	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		9
Permitted Phases	4			8			2			6			
Detector Phases	4	4		8	8		2	2		6	6		
Minimum Initial (s)	7.0	7.0		7.0	7.0		40.0	40.0		40.0	40.0		8.0
Minimum Split (s)	13.0	13.0		13.0	13.0		46.0	46.0		46.0	46.0		15.0
Total Split (s)	26.0	26.0	0.0	26.0	26.0	0.0	46.0	46.0	0.0	46.0	46.0	0.0	15.0
Total Split (%)	29.9%	29.9%	0.0%	29.9%	29.9%	0.0%	52.9%	52.9%	0.0%	52.9%	52.9%	0.0%	17%
Maximum Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		13.0

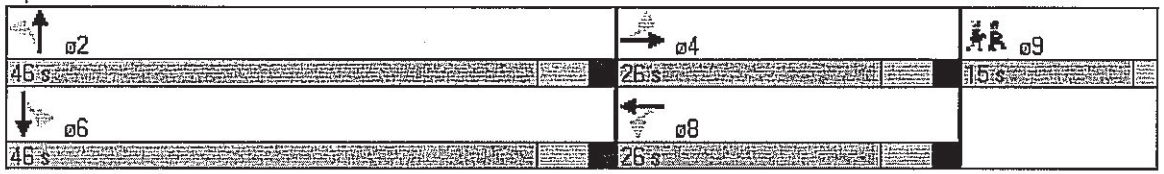
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0		3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max		None
Walk Time (s)													8.0
Flash Dont Walk (s)													5.0
Pedestrian Calls (#/hr)													5
Act Effct Green (s)		19.1			19.1			43.5			43.5		
Actuated g/C Ratio		0.27			0.27			0.61			0.61		
v/c Ratio		0.35			0.56			0.40			0.41		
Control Delay		20.2			28.0			10.5			10.4		
Queue Delay		0.0			0.0			0.0			0.0		
Total Delay		20.2			28.0			10.5			10.4		
LOS		C			C			B			B		
Approach Delay		20.2			28.0			10.5			10.4		
Approach LOS		C			C			B			B		
90th %ile Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		13.0
90th %ile Term Code	Hold	Hold		Max	Max		MaxR	MaxR		MaxR	MaxR		Ped
70th %ile Green (s)	19.8	19.8		19.8	19.8		40.0	40.0		40.0	40.0		0.0
70th %ile Term Code	Hold	Hold		Gap	Gap		MaxR	MaxR		MaxR	MaxR		Skip
50th %ile Green (s)	16.9	16.9		16.9	16.9		40.0	40.0		40.0	40.0		0.0
50th %ile Term Code	Hold	Hold		Gap	Gap		MaxR	MaxR		MaxR	MaxR		Skip
30th %ile Green (s)	14.1	14.1		14.1	14.1		40.0	40.0		40.0	40.0		0.0
30th %ile Term Code	Hold	Hold		Gap	Gap		MaxR	MaxR		MaxR	MaxR		Skip
10th %ile Green (s)	10.3	10.3		10.3	10.3		40.0	40.0		40.0	40.0		0.0
10th %ile Term Code	Hold	Hold		Gap	Gap		MaxR	MaxR		MaxR	MaxR		Skip
Queue Length 50th (ft)		38			78			74			82		
Queue Length 95th (ft)		101			169			207			226		
Internal Link Dist (ft)		298			231			558			676		
Turn Bay Length (ft)													
Base Capacity (vph)		472			475			1009			1082		
Starvation Cap Reductn		0			0			0			0		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Spillback Cap Reductn		0			0			0			0		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		0.30			0.49			0.40			0.41		

Intersection Summary

Area Type: Other
Cycle Length: 87
Actuated Cycle Length: 71.2
Natural Cycle: 75
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.56
Intersection Signal Delay: 14.9 Intersection LOS: B
Intersection Capacity Utilization 60.4% ICU Level of Service B
Analysis Period (min) 15
90th %ile Actuated Cycle: 87
70th %ile Actuated Cycle: 71.8
50th %ile Actuated Cycle: 68.9
30th %ile Actuated Cycle: 66.1
10th %ile Actuated Cycle: 62.3

Splits and Phases: 11: East Emerson Street & Lebanon Street



Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2	ø5	ø6	ø9
Lane Configurations														
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			
Leading Detector (ft)				49		49	49	49	49					
Trailing Detector (ft)				0		0	0	0	0					
Turning Speed (mph)	15	9	15		9	15		9	15	9	9			
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			
Frt				0.992				0.850	0.988					
Flt Protected							0.996		0.957					
Satd. Flow (prot)	0	0	0	1822	0	0	1811	1546	1719	0	0			
Flt Permitted							0.852		0.957					
Satd. Flow (perm)	0	0	0	1822	0	0	1549	1546	1719	0	0			
Right Turn on Red		Yes			Yes			Yes			Yes			
Satd. Flow (RTOR)				4				727	1					
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04			
Link Speed (mph)	30			30			30		30					
Link Distance (ft)	345			756			310		604					
Travel Time (s)	7.8			17.2			7.0		13.7					
Volume (vph)	0	0	0	355	22	34	381	676	327	28	5			
Peak Hour Factor	0.95	0.95	0.85	0.85	0.85	0.93	0.93	0.93	0.85	0.85	0.85			
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%			
Adj. Flow (vph)	0	0	0	418	26	37	410	727	385	33	6			
Lane Group Flow (vph)	0	0	0	444	0	0	447	727	424	0	0			
Turn Type						custom	Prot							
Protected Phases				2			5 6	4 6	4			5	6	9
Permitted Phases						5 6								
Detector Phases				2		5 6	5 6	4 6	4					
Minimum Initial (s)				8.0					8.0			4.0	4.0	1.0
Minimum Split (s)				14.0					14.0			16.0	10.0	15.0
Total Split (s)	0.0	0.0	0.0	38.0	0.0	38.0	38.0	60.0	38.0	0.0	0.0	16.0	22.0	15.0
Total Split (%)	0.0%	0.0%	0.0%	41.8%	0.0%	41.8%	41.8%	65.9%	41.8%	0.0%	0.0%	18%	24%	16%
Maximum Green (s)				32.0					32.0			12.0	18.0	13.0
Yellow Time (s)				4.0					4.0			3.0	3.0	2.0
All-Red Time (s)				2.0					2.0			1.0	1.0	0.0

Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2	ø5	ø6	ø9
Lead/Lag												Lead	Lag	
Lead-Lag Optimize?														
Vehicle Extension (s)				3.0					3.0			3.0	3.0	3.0
Recall Mode				None					Max			Max	Max	Min
Walk Time (s)														8.0
Flash Dont Walk (s)														5.0
Pedestrian Calls (#/hr)														10
Act Effct Green (s)				35.0			35.0	57.1	35.0					
Actuated g/C Ratio				0.41			0.41	0.67	0.41					
v/c Ratio				0.59			0.70	0.57	0.60					
Control Delay				23.6			28.4	2.5	24.3					
Queue Delay				0.0			3.6	0.8	0.0					
Total Delay				23.6			32.0	3.3	24.3					
LOS				C			C	A	C					
Approach Delay				23.6			14.3		24.3					
Approach LOS				C			B		C					
90th %ile Green (s)				32.0					32.0			12.0	18.0	13.0
90th %ile Term Code				Max					MaxR			MaxR	MaxR	Ped
70th %ile Green (s)				32.0					32.0			12.0	18.0	5.5
70th %ile Term Code				Hold					MaxR			MaxR	MaxR	Gap
50th %ile Green (s)				32.0					32.0			12.0	18.0	5.5
50th %ile Term Code				Hold					MaxR			MaxR	MaxR	Gap
30th %ile Green (s)				32.0					32.0			12.0	18.0	5.5
30th %ile Term Code				Hold					MaxR			MaxR	MaxR	Gap
10th %ile Green (s)				32.0					32.0			12.0	18.0	5.5
10th %ile Term Code				Hold					MaxR			MaxR	MaxR	Gap
Queue Length 50th (ft)				172			185	0	166					
Queue Length 95th (ft)				281			#342	39	274					
Internal Link Dist (ft)	265			676			230		524					
Turn Bay Length (ft)														
Base Capacity (vph)				753			638	1277	709					
Starvation Cap Reductn				0			114	274	0					
Spillback Cap Reductn				0			0	0	0					
Storage Cap Reductn				0			0	0	0					

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		2.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0		0.0
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0		3.0
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max		None
Walk Time (s)													8.0
Flash Dont Walk (s)													5.0
Pedestrian Calls (#/hr)													5
Act Effct Green (s)		21.1			21.1			41.3			41.3		
Actuated g/C Ratio		0.30			0.30			0.58			0.58		
v/c Ratio		0.38			0.55			0.43			0.59		
Control Delay		20.0			26.3			10.7			13.0		
Queue Delay		0.0			0.0			0.0			0.2		
Total Delay		20.0			26.3			10.7			13.3		
LOS		C			C			B			B		
Approach Delay		20.0			26.3			10.7			13.3		
Approach LOS		C			C			B			B		
90th %ile Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		13.0
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Ped
70th %ile Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		0.0
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
50th %ile Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		0.0
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
30th %ile Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		0.0
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
10th %ile Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		0.0
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
Queue Length 50th (ft)		36			80			94			153		
Queue Length 95th (ft)		67			161			236			389		
Internal Link Dist (ft)		308			276			229			505		
Turn Bay Length (ft)													
Base Capacity (vph)		392			455			1134			1189		
Starvation Cap Reductn		0			0			0			100		

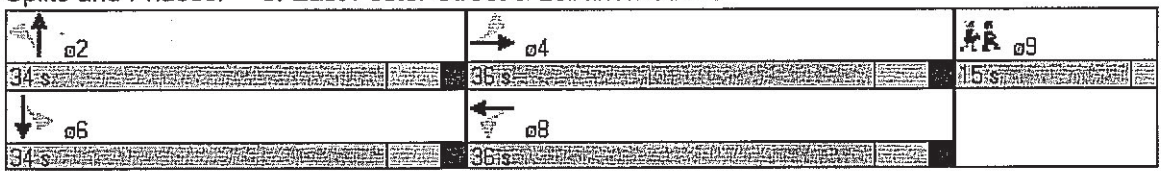
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations		↕			↕			↕			↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	10	11	11	10	11	11	11	11	11	11	11	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Leading Detector (ft)	49	49		49	49		49	49		49	49		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
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		0.959			0.988			0.998			0.993		
Flt Protected		0.987			0.988			0.995					
Satd. Flow (prot)	0	1679	0	0	1731	0	0	1777	0	0	1777	0	
Flt Permitted		0.904			0.913			0.798			0.996		
Satd. Flow (perm)	0	1537	0	0	1600	0	0	1425	0	0	1770	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		30			6			1			4		
Headway Factor	1.04	1.09	1.04	1.04	1.09	1.04	1.04	1.07	1.04	1.04	1.07	1.04	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		142			162			585			729		
Travel Time (s)		3.2			3.7			13.3			16.6		
Volume (vph)	29	50	35	32	92	12	42	405	8	5	611	35	
Peak Hour Factor	0.77	0.77	0.77	0.83	0.83	0.83	0.88	0.88	0.88	0.96	0.96	0.96	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0	
Adj. Flow (vph)	38	65	45	39	111	14	48	460	9	5	636	36	
Lane Group Flow (vph)	0	148	0	0	164	0	0	517	0	0	677	0	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		9
Permitted Phases	4			8			2			6			
Detector Phases	4	4		8	8		2	2		6	6		
Minimum Initial (s)	10.0	10.0		10.0	10.0		28.0	28.0		28.0	28.0		4.0
Minimum Split (s)	16.0	16.0		16.0	16.0		34.0	34.0		34.0	34.0		15.0
Total Split (s)	36.0	36.0	0.0	36.0	36.0	0.0	34.0	34.0	0.0	34.0	34.0	0.0	15.0
Total Split (%)	42.4%	42.4%	0.0%	42.4%	42.4%	0.0%	40.0%	40.0%	0.0%	40.0%	40.0%	0.0%	18%
Maximum Green (s)	30.0	30.0		30.0	30.0		28.0	28.0		28.0	28.0		13.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Spillback Cap Reductn		0			0			0			9		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		0.22			0.24			0.55			0.59		

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 57.6
Natural Cycle: 65
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 14.2 Intersection LOS: B
Intersection Capacity Utilization 67.0% ICU Level of Service C
Analysis Period (min) 15
90th %ile Actuated Cycle: 71.4
70th %ile Actuated Cycle: 51
50th %ile Actuated Cycle: 50
30th %ile Actuated Cycle: 50
10th %ile Actuated Cycle: 65.4
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: East Foster Street & Lebanon Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Maximum Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		13.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max		None
Walk Time (s)													8.0
Flash Dont Walk (s)													5.0
Pedestrian Calls (#/hr)													5
Act Effct Green (s)		28.2			28.2			33.2			33.2		
Actuated g/C Ratio		0.40			0.40			0.47			0.47		
v/c Ratio		0.22			1.23			0.62			0.71		
Control Delay		15.3			145.2			18.3			23.5		
Queue Delay		0.0			0.0			0.0			0.0		
Total Delay		15.3			145.2			18.3			23.5		
LOS		B			F			B			C		
Approach Delay		15.3			145.2			18.3			23.5		
Approach LOS		B			F			B			C		
90th %ile Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		13.0
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Ped
70th %ile Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		0.0
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
50th %ile Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		0.0
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
30th %ile Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		0.0
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
10th %ile Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		0.0
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
Queue Length 50th (ft)		34			~324			125			143		
Queue Length 95th (ft)		92			#660			304			#365		
Internal Link Dist (ft)		379			366			649			558		
Turn Bay Length (ft)													
Base Capacity (vph)		668			516			783			687		

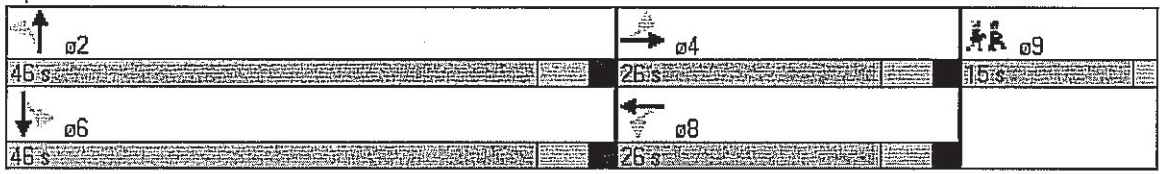
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations		↕			↕			↕			↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Leading Detector (ft)	49	49		49	49		49	49		49	49		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
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		0.957			0.979			0.999			0.993		
Flt Protected		0.986			0.995			0.995			0.999		
Satd. Flow (prot)	0	1699	0	0	1565	0	0	1779	0	0	1775	0	
Flt Permitted		0.853			0.965			0.923			0.994		
Satd. Flow (perm)	0	1470	0	0	1518	0	0	1650	0	0	1766	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		27			10						4		
Headway Factor	1.04	1.04	1.04	1.04	1.24	1.04	1.04	1.07	1.04	1.04	1.07	1.04	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		378			311			638			756		
Travel Time (s)		8.6			7.1			14.5			17.2		
Volume (vph)	36	51	41	19	150	31	37	310	2	6	360	20	
Peak Hour Factor	0.89	0.89	0.89	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	1%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0	
Parking (#/hr)					5								
Adj. Flow (vph)	40	57	46	22	174	36	43	360	2	7	419	23	
Lane Group Flow (vph)	0	143	0	0	232	0	0	405	0	0	449	0	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		9
Permitted Phases	4			8			2			6			
Detector Phases	4	4		8	8		2	2		6	6		
Minimum Initial (s)	7.0	7.0		7.0	7.0		40.0	40.0		40.0	40.0		8.0
Minimum Split (s)	13.0	13.0		13.0	13.0		46.0	46.0		46.0	46.0		15.0
Total Split (s)	26.0	26.0	0.0	26.0	26.0	0.0	46.0	46.0	0.0	46.0	46.0	0.0	15.0
Total Split (%)	29.9%	29.9%	0.0%	29.9%	29.9%	0.0%	52.9%	52.9%	0.0%	52.9%	52.9%	0.0%	17%
Maximum Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		13.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Spillback Cap Reductn		0			0			0			0		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		0.30			0.49			0.40			0.41		

Intersection Summary

Area Type: Other
Cycle Length: 87
Actuated Cycle Length: 71.2
Natural Cycle: 75
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.56
Intersection Signal Delay: 14.9 Intersection LOS: B
Intersection Capacity Utilization 60.4% ICU Level of Service B
Analysis Period (min) 15
90th %ile Actuated Cycle: 87
70th %ile Actuated Cycle: 71.8
50th %ile Actuated Cycle: 68.9
30th %ile Actuated Cycle: 66.1
10th %ile Actuated Cycle: 62.3

Splits and Phases: 11: East Emerson Street & Lebanon Street



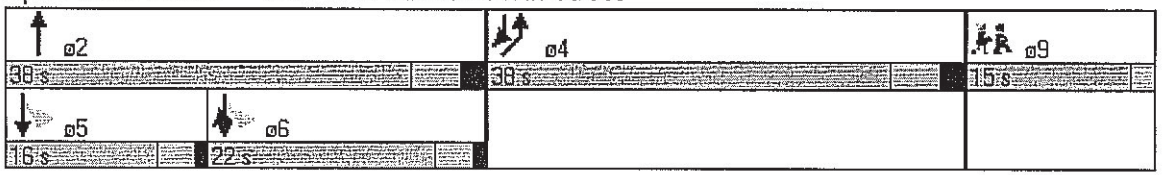
Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2	ø5	ø6	ø9
Lead/Lag												Lead	Lag	
Lead-Lag Optimize?														
Vehicle Extension (s)				3.0					3.0			3.0	3.0	3.0
Recall Mode				None					Max			Max	Max	Min
Walk Time (s)														8.0
Flash Dont Walk (s)														5.0
Pedestrian Calls (#/hr)														10
Act Effct Green (s)				35.0			35.0	57.1	35.0					
Actuated g/C Ratio				0.41			0.41	0.67	0.41					
v/c Ratio				0.59			0.70	0.57	0.60					
Control Delay				23.6			28.4	2.5	24.3					
Queue Delay				0.0			3.6	0.8	0.0					
Total Delay				23.6			32.0	3.3	24.3					
LOS				C			C	A	C					
Approach Delay				23.6			14.3		24.3					
Approach LOS				C			B		C					
90th %ile Green (s)				32.0					32.0			12.0	18.0	13.0
90th %ile Term Code				Max					MaxR			MaxR	MaxR	Ped
70th %ile Green (s)				32.0					32.0			12.0	18.0	5.5
70th %ile Term Code				Hold					MaxR			MaxR	MaxR	Gap
50th %ile Green (s)				32.0					32.0			12.0	18.0	5.5
50th %ile Term Code				Hold					MaxR			MaxR	MaxR	Gap
30th %ile Green (s)				32.0					32.0			12.0	18.0	5.5
30th %ile Term Code				Hold					MaxR			MaxR	MaxR	Gap
10th %ile Green (s)				32.0					32.0			12.0	18.0	5.5
10th %ile Term Code				Hold					MaxR			MaxR	MaxR	Gap
Queue Length 50th (ft)				172			185	0	166					
Queue Length 95th (ft)				281			#342	39	274					
Internal Link Dist (ft)	265			676			230		524					
Turn Bay Length (ft)														
Base Capacity (vph)				753			638	1277	709					
Starvation Cap Reductn				0			114	274	0					
Spillback Cap Reductn				0			0	0	0					
Storage Cap Reductn				0			0	0	0					

Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2	ø5	ø6	ø9
Reduced v/c Ratio				0.59			0.85	0.72	0.60					

Intersection Summary

Area Type: Other
Cycle Length: 91
Actuated Cycle Length: 85
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 18.4 Intersection LOS: B
Intersection Capacity Utilization 72.1% ICU Level of Service C
Analysis Period (min) 15
90th %ile Actuated Cycle: 91
70th %ile Actuated Cycle: 83.5
50th %ile Actuated Cycle: 83.5
30th %ile Actuated Cycle: 83.5
10th %ile Actuated Cycle: 83.5
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: Porter Street & Main Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Yellow Time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		2.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0		0.0
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0		3.0
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max		None
Walk Time (s)													8.0
Flash Dont Walk (s)													5.0
Pedestrian Calls (#/hr)													5
Act Effct Green (s)		21.1			21.1			41.3			41.3		
Actuated g/C Ratio		0.30			0.30			0.58			0.58		
v/c Ratio		0.38			0.55			0.43			0.59		
Control Delay		20.0			26.3			10.7			13.0		
Queue Delay		0.0			0.0			0.0			0.2		
Total Delay		20.0			26.3			10.7			13.3		
LOS		C			C			B			B		
Approach Delay		20.0			26.3			10.7			13.3		
Approach LOS		C			C			B			B		
90th %ile Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		13.0
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Ped
70th %ile Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		0.0
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
50th %ile Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		0.0
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
30th %ile Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		0.0
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
10th %ile Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		0.0
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
Queue Length 50th (ft)		36			80			94			153		
Queue Length 95th (ft)		67			161			236			389		
Internal Link Dist (ft)		308			276			229			505		
Turn Bay Length (ft)													
Base Capacity (vph)		392			455			1134			1189		
Starvation Cap Reductn		0			0			0			100		

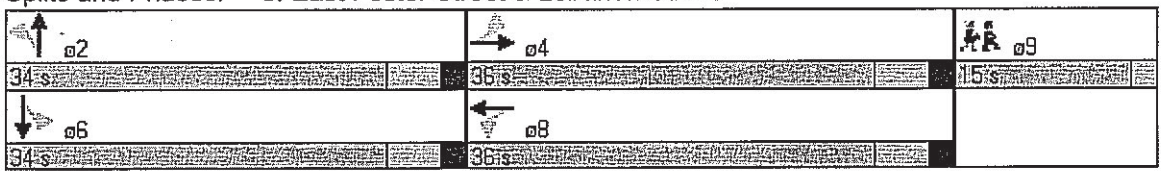
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations		↕			↕			↕			↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	10	11	11	10	11	11	11	11	11	11	11	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Leading Detector (ft)	49	49		49	49		49	49		49	49		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
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		0.959			0.988			0.998			0.993		
Flt Protected		0.987			0.988			0.995					
Satd. Flow (prot)	0	1679	0	0	1731	0	0	1777	0	0	1777	0	
Flt Permitted		0.904			0.913			0.798			0.996		
Satd. Flow (perm)	0	1537	0	0	1600	0	0	1425	0	0	1770	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		30			6			1			4		
Headway Factor	1.04	1.09	1.04	1.04	1.09	1.04	1.04	1.07	1.04	1.04	1.07	1.04	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		142			162			585			729		
Travel Time (s)		3.2			3.7			13.3			16.6		
Volume (vph)	29	50	35	32	92	12	42	405	8	5	611	35	
Peak Hour Factor	0.77	0.77	0.77	0.83	0.83	0.83	0.88	0.88	0.88	0.96	0.96	0.96	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0	
Adj. Flow (vph)	38	65	45	39	111	14	48	460	9	5	636	36	
Lane Group Flow (vph)	0	148	0	0	164	0	0	517	0	0	677	0	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		9
Permitted Phases	4			8			2			6			
Detector Phases	4	4		8	8		2	2		6	6		
Minimum Initial (s)	10.0	10.0		10.0	10.0		28.0	28.0		28.0	28.0		4.0
Minimum Split (s)	16.0	16.0		16.0	16.0		34.0	34.0		34.0	34.0		15.0
Total Split (s)	36.0	36.0	0.0	36.0	36.0	0.0	34.0	34.0	0.0	34.0	34.0	0.0	15.0
Total Split (%)	42.4%	42.4%	0.0%	42.4%	42.4%	0.0%	40.0%	40.0%	0.0%	40.0%	40.0%	0.0%	18%
Maximum Green (s)	30.0	30.0		30.0	30.0		28.0	28.0		28.0	28.0		13.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Spillback Cap Reductn		0			0			0			9		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		0.22			0.24			0.55			0.59		

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 57.6
Natural Cycle: 65
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.58
Intersection Signal Delay: 14.2 Intersection LOS: B
Intersection Capacity Utilization 67.0% ICU Level of Service C
Analysis Period (min) 15
90th %ile Actuated Cycle: 71.4
70th %ile Actuated Cycle: 51
50th %ile Actuated Cycle: 50
30th %ile Actuated Cycle: 50
10th %ile Actuated Cycle: 65.4
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: East Foster Street & Lebanon Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Maximum Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		13.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max		None
Walk Time (s)													8.0
Flash Dont Walk (s)													5.0
Pedestrian Calls (#/hr)													5
Act Effct Green (s)		28.2			28.2			33.2			33.2		
Actuated g/C Ratio		0.40			0.40			0.47			0.47		
v/c Ratio		0.22			1.23			0.62			0.71		
Control Delay		15.3			145.2			18.3			23.5		
Queue Delay		0.0			0.0			0.0			0.0		
Total Delay		15.3			145.2			18.3			23.5		
LOS		B			F			B			C		
Approach Delay		15.3			145.2			18.3			23.5		
Approach LOS		B			F			B			C		
90th %ile Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		13.0
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Ped
70th %ile Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		0.0
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
50th %ile Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		0.0
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
30th %ile Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		0.0
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
10th %ile Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		0.0
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
Queue Length 50th (ft)		34			~324			125			143		
Queue Length 95th (ft)		92			#660			304			#365		
Internal Link Dist (ft)		379			366			649			558		
Turn Bay Length (ft)													
Base Capacity (vph)		668			516			783			687		

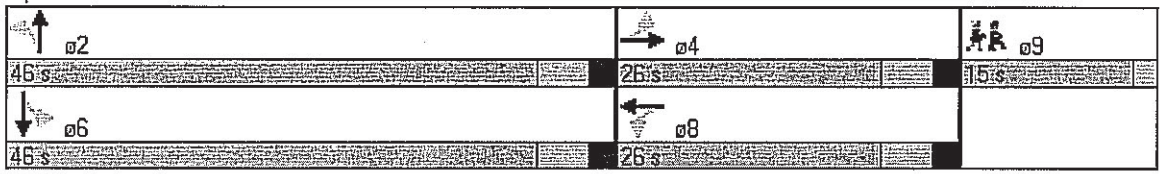
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations		↕			↕			↕			↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Leading Detector (ft)	49	49		49	49		49	49		49	49		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
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		0.957			0.979			0.999			0.993		
Flt Protected		0.986			0.995			0.995			0.999		
Satd. Flow (prot)	0	1699	0	0	1565	0	0	1779	0	0	1775	0	
Flt Permitted		0.853			0.965			0.923			0.994		
Satd. Flow (perm)	0	1470	0	0	1518	0	0	1650	0	0	1766	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		27			10						4		
Headway Factor	1.04	1.04	1.04	1.04	1.24	1.04	1.04	1.07	1.04	1.04	1.07	1.04	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		378			311			638			756		
Travel Time (s)		8.6			7.1			14.5			17.2		
Volume (vph)	36	51	41	19	150	31	37	310	2	6	360	20	
Peak Hour Factor	0.89	0.89	0.89	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	1%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0	
Parking (#/hr)					5								
Adj. Flow (vph)	40	57	46	22	174	36	43	360	2	7	419	23	
Lane Group Flow (vph)	0	143	0	0	232	0	0	405	0	0	449	0	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		9
Permitted Phases	4			8			2			6			
Detector Phases	4	4		8	8		2	2		6	6		
Minimum Initial (s)	7.0	7.0		7.0	7.0		40.0	40.0		40.0	40.0		8.0
Minimum Split (s)	13.0	13.0		13.0	13.0		46.0	46.0		46.0	46.0		15.0
Total Split (s)	26.0	26.0	0.0	26.0	26.0	0.0	46.0	46.0	0.0	46.0	46.0	0.0	15.0
Total Split (%)	29.9%	29.9%	0.0%	29.9%	29.9%	0.0%	52.9%	52.9%	0.0%	52.9%	52.9%	0.0%	17%
Maximum Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		13.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Spillback Cap Reductn		0			0			0			0		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		0.30			0.49			0.40			0.41		

Intersection Summary

Area Type: Other
Cycle Length: 87
Actuated Cycle Length: 71.2
Natural Cycle: 75
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.56
Intersection Signal Delay: 14.9 Intersection LOS: B
Intersection Capacity Utilization 60.4% ICU Level of Service B
Analysis Period (min) 15
90th %ile Actuated Cycle: 87
70th %ile Actuated Cycle: 71.8
50th %ile Actuated Cycle: 68.9
30th %ile Actuated Cycle: 66.1
10th %ile Actuated Cycle: 62.3

Splits and Phases: 11: East Emerson Street & Lebanon Street



Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2	ø5	ø6	ø9
Lead/Lag												Lead	Lag	
Lead-Lag Optimize?														
Vehicle Extension (s)				3.0					3.0			3.0	3.0	3.0
Recall Mode				None					Max			Max	Max	Min
Walk Time (s)														8.0
Flash Dont Walk (s)														5.0
Pedestrian Calls (#/hr)														10
Act Effct Green (s)				35.0			35.0	57.1	35.0					
Actuated g/C Ratio				0.41			0.41	0.67	0.41					
v/c Ratio				0.59			0.70	0.57	0.60					
Control Delay				23.6			28.4	2.5	24.3					
Queue Delay				0.0			3.6	0.8	0.0					
Total Delay				23.6			32.0	3.3	24.3					
LOS				C			C	A	C					
Approach Delay				23.6			14.3		24.3					
Approach LOS				C			B		C					
90th %ile Green (s)				32.0					32.0			12.0	18.0	13.0
90th %ile Term Code				Max					MaxR			MaxR	MaxR	Ped
70th %ile Green (s)				32.0					32.0			12.0	18.0	5.5
70th %ile Term Code				Hold					MaxR			MaxR	MaxR	Gap
50th %ile Green (s)				32.0					32.0			12.0	18.0	5.5
50th %ile Term Code				Hold					MaxR			MaxR	MaxR	Gap
30th %ile Green (s)				32.0					32.0			12.0	18.0	5.5
30th %ile Term Code				Hold					MaxR			MaxR	MaxR	Gap
10th %ile Green (s)				32.0					32.0			12.0	18.0	5.5
10th %ile Term Code				Hold					MaxR			MaxR	MaxR	Gap
Queue Length 50th (ft)				172			185	0	166					
Queue Length 95th (ft)				281			#342	39	274					
Internal Link Dist (ft)	265			676			230		524					
Turn Bay Length (ft)														
Base Capacity (vph)				753			638	1277	709					
Starvation Cap Reductn				0			114	274	0					
Spillback Cap Reductn				0			0	0	0					
Storage Cap Reductn				0			0	0	0					

Lane Group	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		131	0		0	0
Storage Lanes		1	0		1	0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	49	49	49	49	49	
Trailing Detector (ft)	0	0	0	0	0	
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.998	
Flt Protected					0.953	
Satd. Flow (prot)	1818	1546	0	1818	1747	0
Flt Permitted					0.953	
Satd. Flow (perm)	1818	1546	0	1818	1747	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		164			1	
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)	30			30	30	
Link Distance (ft)	68			494	490	
Travel Time (s)	1.5			11.2	11.1	
Volume (vph)	423	216	0	699	396	5
Peak Hour Factor	0.87	0.87	0.95	0.95	0.88	0.88
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Adj. Flow (vph)	486	248	0	736	450	6
Lane Group Flow (vph)	486	248	0	736	456	0
Turn Type		Free	Perm			
Protected Phases	2			6	8	
Permitted Phases		Free	6			
Detector Phases	2		6	6	8	
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	41.0		41.0	41.0	23.0	
Total Split (s)	46.0	0.0	46.0	46.0	24.0	0.0
Total Split (%)	65.7%	0.0%	65.7%	65.7%	34.3%	0.0%
Maximum Green (s)	42.0		42.0	42.0	20.0	

Lane Group	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		131	0		0	0
Storage Lanes		1	0		1	0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	49	49	49	49	49	
Trailing Detector (ft)	0	0	0	0	0	
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.998	
Flt Protected					0.953	
Satd. Flow (prot)	1818	1546	0	1818	1747	0
Flt Permitted					0.953	
Satd. Flow (perm)	1818	1546	0	1818	1747	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		164			1	
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)	30			30	30	
Link Distance (ft)	68			494	490	
Travel Time (s)	1.5			11.2	11.1	
Volume (vph)	423	216	0	699	396	5
Peak Hour Factor	0.87	0.87	0.95	0.95	0.88	0.88
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Adj. Flow (vph)	486	248	0	736	450	6
Lane Group Flow (vph)	486	248	0	736	456	0
Turn Type		Free	Perm			
Protected Phases	2			6	8	
Permitted Phases		Free	6			
Detector Phases	2		6	6	8	
Minimum Initial (s)	4.0		4.0	4.0	4.0	
Minimum Split (s)	41.0		41.0	41.0	23.0	
Total Split (s)	46.0	0.0	46.0	46.0	24.0	0.0
Total Split (%)	65.7%	0.0%	65.7%	65.7%	34.3%	0.0%
Maximum Green (s)	42.0		42.0	42.0	20.0	

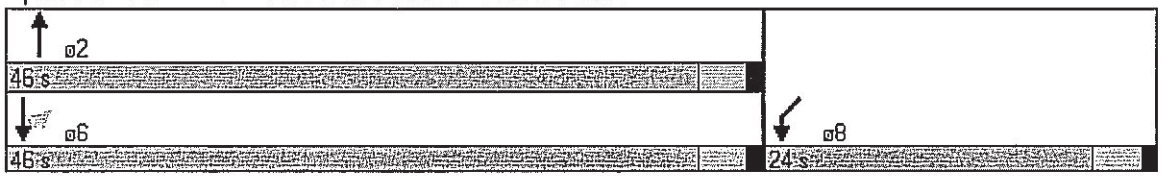
Lane Group	NBT	NBR	SBL	SBT	SWL	SWR
Yellow Time (s)	3.0		3.0	3.0	3.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	Max		Max	Max	None	
Walk Time (s)					7.0	
Flash Dont Walk (s)					12.0	
Pedestrian Calls (#/hr)					0	
Act Effct Green (s)	43.0	69.3		43.0	20.3	
Actuated g/C Ratio	0.62	1.00		0.62	0.29	
v/c Ratio	0.43	0.16		0.65	0.89	
Control Delay	8.4	0.2		12.0	45.8	
Queue Delay	1.0	0.0		0.1	1.9	
Total Delay	9.4	0.2		12.2	47.7	
LOS	A	A		B	D	
Approach Delay	6.3			12.2	47.7	
Approach LOS	A			B	D	
90th %ile Green (s)	42.0		42.0	42.0	20.0	
90th %ile Term Code	MaxR		MaxR	MaxR	Max	
70th %ile Green (s)	42.0		42.0	42.0	20.0	
70th %ile Term Code	MaxR		MaxR	MaxR	Max	
50th %ile Green (s)	42.0		42.0	42.0	20.0	
50th %ile Term Code	MaxR		MaxR	MaxR	Max	
30th %ile Green (s)	42.0		42.0	42.0	20.0	
30th %ile Term Code	MaxR		MaxR	MaxR	Max	
10th %ile Green (s)	42.0		42.0	42.0	16.5	
10th %ile Term Code	MaxR		MaxR	MaxR	Gap	
Queue Length 50th (ft)	97	0		181	184	
Queue Length 95th (ft)	147	0		291	#333	
Internal Link Dist (ft)	1			414	410	
Turn Bay Length (ft)		131				
Base Capacity (vph)	1129	1546		1129	525	
Starvation Cap Reductn	383	0		0	0	

Lane Group	NBT	NBR	SBL	SBT	SWL	SWR
Spillback Cap Reductn	0	0		41	18	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.65	0.16		0.68	0.90	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 69.3
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 18.4 Intersection LOS: B
Intersection Capacity Utilization 65.7% ICU Level of Service C
Analysis Period (min) 15
90th %ile Actuated Cycle: 70
70th %ile Actuated Cycle: 70
50th %ile Actuated Cycle: 70
30th %ile Actuated Cycle: 70
10th %ile Actuated Cycle: 66.5
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Main Street & Green Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations		↕			↕			↕			↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	10	11	11	10	11	11	16	11	11	16	11	
Total Lost Time (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	
Leading Detector (ft)	49	49		49	49		49	49		49	49		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
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		0.966			0.978			0.990			0.992		
Flt Protected		0.982			0.985			0.996			0.998		
Satd. Flow (prot)	0	1682	0	0	1708	0	0	2069	0	0	2077	0	
Flt Permitted		0.857			0.886			0.931			0.953		
Satd. Flow (perm)	0	1468	0	0	1537	0	0	1934	0	0	1983	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		19			11			7			5		
Headway Factor	1.04	1.09	1.04	1.04	1.09	1.04	1.04	0.87	1.04	1.04	0.87	1.04	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		388			356			309			585		
Travel Time (s)		8.8			8.1			7.0			13.3		
Volume (vph)	67	68	45	36	64	20	50	579	51	26	482	32	
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.93	0.93	0.93	0.89	0.89	0.89	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0	
Adj. Flow (vph)	71	72	48	40	72	22	54	623	55	29	542	36	
Lane Group Flow (vph)	0	191	0	0	134	0	0	732	0	0	607	0	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		9
Permitted Phases	4			8			2			6			
Detector Phases	4	4		8	8		2	2		6	6		
Minimum Initial (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0		8.0
Minimum Split (s)	12.0	12.0		12.0	12.0		39.0	39.0		39.0	39.0		15.0
Total Split (s)	24.0	24.0	0.0	24.0	24.0	0.0	44.0	44.0	0.0	44.0	44.0	0.0	15.0
Total Split (%)	28.9%	28.9%	0.0%	28.9%	28.9%	0.0%	53.0%	53.0%	0.0%	53.0%	53.0%	0.0%	18%
Maximum Green (s)	19.0	19.0		19.0	19.0		39.0	39.0		40.0	40.0		13.0

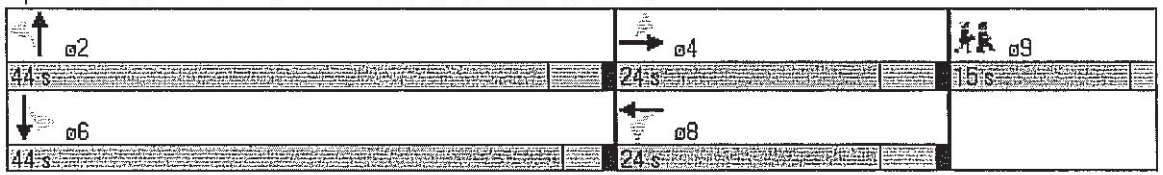
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	3.0		2.0
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0		0.0
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0		3.0
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max		None
Walk Time (s)													8.0
Flash Dont Walk (s)													5.0
Pedestrian Calls (#/hr)													5
Act Effct Green (s)		21.1			21.1			41.3			41.3		
Actuated g/C Ratio		0.30			0.30			0.58			0.58		
v/c Ratio		0.42			0.29			0.65			0.53		
Control Delay		22.7			20.9			14.5			12.0		
Queue Delay		0.0			0.0			0.0			0.0		
Total Delay		22.7			20.9			14.5			12.0		
LOS		C			C			B			B		
Approach Delay		22.7			20.9			14.5			12.0		
Approach LOS		C			C			B			B		
90th %ile Green (s)	19.0	19.0		19.0	19.0		39.0	39.0		40.0	40.0		13.0
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Ped
70th %ile Green (s)	19.0	19.0		19.0	19.0		39.0	39.0		40.0	40.0		0.0
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
50th %ile Green (s)	19.0	19.0		19.0	19.0		39.0	39.0		40.0	40.0		0.0
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
30th %ile Green (s)	19.0	19.0		19.0	19.0		39.0	39.0		40.0	40.0		0.0
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
10th %ile Green (s)	19.0	19.0		19.0	19.0		39.0	39.0		40.0	40.0		0.0
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
Queue Length 50th (ft)		56			38			170			127		
Queue Length 95th (ft)		141			100			438			318		
Internal Link Dist (ft)		308			276			229			505		
Turn Bay Length (ft)													
Base Capacity (vph)		450			465			1127			1155		
Starvation Cap Reductn		0			0			0			0		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Spillback Cap Reductn		0			0			0			0		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		0.42			0.29			0.65			0.53		

Intersection Summary

Area Type: Other
Cycle Length: 83
Actuated Cycle Length: 71
Natural Cycle: 70
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 15.1 Intersection LOS: B
Intersection Capacity Utilization 72.5% ICU Level of Service C
Analysis Period (min) 15
90th %ile Actuated Cycle: 83
70th %ile Actuated Cycle: 68
50th %ile Actuated Cycle: 68
30th %ile Actuated Cycle: 68
10th %ile Actuated Cycle: 68

Splits and Phases: 1: Grove Street & Lebanon Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations		↕			↕			↕			↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	10	11	11	10	11	11	11	11	11	11	11	
Total Lost Time (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	
Leading Detector (ft)	49	49		49	49		49	49		49	49		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
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		0.962			0.991			0.995			0.993		
Flt Protected		0.988			0.990			0.997			0.999		
Satd. Flow (prot)	0	1685	0	0	1740	0	0	1775	0	0	1775	0	
Flt Permitted		0.923			0.939			0.922			0.984		
Satd. Flow (perm)	0	1575	0	0	1650	0	0	1642	0	0	1748	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		27			4			3			4		
Headway Factor	1.04	1.09	1.04	1.04	1.09	1.04	1.04	1.07	1.04	1.04	1.07	1.04	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		142			162			585			729		
Travel Time (s)		3.2			3.7			13.3			16.6		
Volume (vph)	42	79	48	9	31	3	36	606	24	9	483	27	
Peak Hour Factor	0.85	0.85	0.85	0.67	0.67	0.67	0.93	0.93	0.93	0.93	0.93	0.93	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0	
Adj. Flow (vph)	49	93	56	13	46	4	39	652	26	10	519	29	
Lane Group Flow (vph)	0	198	0	0	63	0	0	717	0	0	558	0	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		9
Permitted Phases	4			8			2			6			
Detector Phases	4	4		8	8		2	2		6	6		
Minimum Initial (s)	10.0	10.0		10.0	10.0		28.0	28.0		28.0	28.0		8.0
Minimum Split (s)	16.0	16.0		16.0	16.0		34.0	34.0		34.0	34.0		15.0
Total Split (s)	36.0	36.0	0.0	36.0	36.0	0.0	34.0	34.0	0.0	34.0	34.0	0.0	15.0
Total Split (%)	42.4%	42.4%	0.0%	42.4%	42.4%	0.0%	40.0%	40.0%	0.0%	40.0%	40.0%	0.0%	18%
Maximum Green (s)	30.0	30.0		30.0	30.0		28.0	28.0		28.0	28.0		13.0

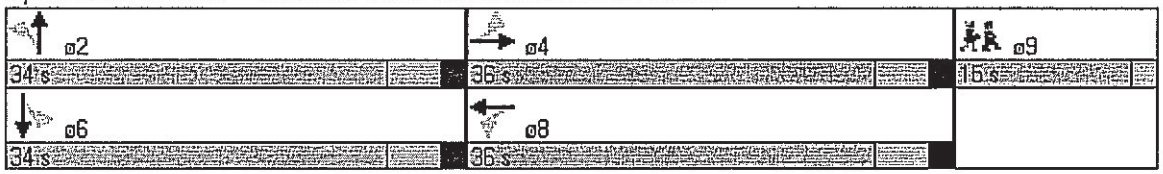
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0		3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max		None
Walk Time (s)													8.0
Flash Dont Walk (s)													5.0
Pedestrian Calls (#/hr)													5
Act Effct Green (s)		15.3			15.3			37.2			37.2		
Actuated g/C Ratio		0.25			0.25			0.65			0.65		
v/c Ratio		0.47			0.15			0.67			0.49		
Control Delay		19.2			16.5			16.1			11.2		
Queue Delay		0.0			0.0			0.0			0.0		
Total Delay		19.2			16.5			16.1			11.2		
LOS		B			B			B			B		
Approach Delay		19.2			16.5			16.1			11.2		
Approach LOS		B			B			B			B		
90th %ile Green (s)	18.2	18.2		18.2	18.2		28.0	28.0		28.0	28.0		13.0
90th %ile Term Code	Gap	Gap		Hold	Hold		MaxR	MaxR		MaxR	MaxR		Ped
70th %ile Green (s)	12.0	12.0		12.0	12.0		28.0	28.0		28.0	28.0		0.0
70th %ile Term Code	Gap	Gap		Hold	Hold		MaxR	MaxR		MaxR	MaxR		Skip
50th %ile Green (s)	10.0	10.0		10.0	10.0		28.0	28.0		28.0	28.0		0.0
50th %ile Term Code	Min	Min		Min	Min		MaxR	MaxR		MaxR	MaxR		Skip
30th %ile Green (s)	10.0	10.0		10.0	10.0		28.0	28.0		28.0	28.0		0.0
30th %ile Term Code	Min	Min		Hold	Hold		MaxR	MaxR		MaxR	MaxR		Skip
10th %ile Green (s)	0.0	0.0		0.0	0.0		54.1	54.1		54.1	54.1		0.0
10th %ile Term Code	Skip	Skip		Skip	Skip		Dwell	Dwell		Dwell	Dwell		Skip
Queue Length 50th (ft)		41			13			114			73		
Queue Length 95th (ft)		109			34			#558			#332		
Internal Link Dist (ft)		62			82			505			649		
Turn Bay Length (ft)													
Base Capacity (vph)		692			710			1071			1141		
Starvation Cap Reductn		0			0			0			0		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Spillback Cap Reductn		0			0			0			0		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		0.29			0.09			0.67			0.49		

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 57.1
Natural Cycle: 65
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.67
Intersection Signal Delay: 14.7 Intersection LOS: B
Intersection Capacity Utilization 73.2% ICU Level of Service D
Analysis Period (min) 15
90th %ile Actuated Cycle: 73.2
70th %ile Actuated Cycle: 52
50th %ile Actuated Cycle: 50
30th %ile Actuated Cycle: 50
10th %ile Actuated Cycle: 60.1
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 5: East Foster Street & Lebanon Street



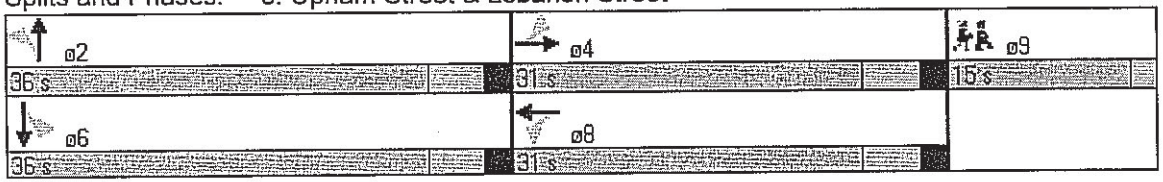
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations		↕			↕			↕			↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	10	11	11	13	11	11	11	11	11	11	11	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Leading Detector (ft)	49	49		49	49		49	49		49	49		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
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		0.984			0.978			0.958			0.996		
Flt Protected		0.998			0.982			0.998			0.989		
Satd. Flow (prot)	0	1724	0	0	1650	0	0	1711	0	0	1542	0	
Flt Permitted		0.978			0.672			0.972			0.670		
Satd. Flow (perm)	0	1690	0	0	1129	0	0	1666	0	0	1045	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		9			13			33			2		
Headway Factor	1.04	1.09	1.04	1.04	1.14	1.04	1.04	1.07	1.04	1.04	1.26	1.04	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		459			446			729			638		
Travel Time (s)		10.4			10.1			16.6			14.5		
Volume (vph)	8	168	23	201	247	87	28	392	191	80	279	11	
Peak Hour Factor	0.80	0.80	0.80	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.95	
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0	
Parking (#/hr)					5						5		
Adj. Flow (vph)	10	210	29	218	268	95	29	413	201	84	294	12	
Lane Group Flow (vph)	0	249	0	0	581	0	0	643	0	0	390	0	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		9
Permitted Phases	4			8			2			6			
Detector Phases	4	4		8	8		2	2		6	6		
Minimum Initial (s)	8.0	8.0		8.0	8.0		10.0	10.0		10.0	10.0		8.0
Minimum Split (s)	14.0	14.0		14.0	14.0		16.0	16.0		16.0	16.0		15.0
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	36.0	36.0	0.0	36.0	36.0	0.0	15.0
Total Split (%)	37.8%	37.8%	0.0%	37.8%	37.8%	0.0%	43.9%	43.9%	0.0%	43.9%	43.9%	0.0%	18%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Maximum Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		13.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0
Recall Mode	Max	Max		Max	Max		Max	Max		Max	Max		None
Walk Time (s)													8.0
Flash Dont Walk (s)													5.0
Pedestrian Calls (#/hr)													5
Act Effct Green (s)		28.2			28.2			33.2			33.2		
Actuated g/C Ratio		0.40			0.40			0.47			0.47		
v/c Ratio		0.36			1.26			0.80			0.78		
Control Delay		17.1			156.0			25.5			30.9		
Queue Delay		0.0			0.0			0.0			0.0		
Total Delay		17.1			156.0			25.5			30.9		
LOS		B			F			C			C		
Approach Delay		17.1			156.0			25.5			30.9		
Approach LOS		B			F			C			C		
90th %ile Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		13.0
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Ped
70th %ile Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		0.0
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
50th %ile Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		0.0
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
30th %ile Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		0.0
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
10th %ile Green (s)	25.0	25.0		25.0	25.0		30.0	30.0		30.0	30.0		0.0
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		MaxR	MaxR		Skip
Queue Length 50th (ft)		64			~298			191			120		
Queue Length 95th (ft)		136			#615			#515			#365		
Internal Link Dist (ft)		379			366			649			558		
Turn Bay Length (ft)													
Base Capacity (vph)		686			462			808			497		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Starvation Cap Reductn		0			0			0			0		
Spillback Cap Reductn		0			0			0			0		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		0.36			1.26			0.80			0.78		

Intersection Summary
Area Type: Other
Cycle Length: 82
Actuated Cycle Length: 70
Natural Cycle: 150
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.26
Intersection Signal Delay: 66.2 Intersection LOS: E
Intersection Capacity Utilization 98.2% ICU Level of Service F
Analysis Period (min) 15
90th %ile Actuated Cycle: 82
70th %ile Actuated Cycle: 67
50th %ile Actuated Cycle: 67
30th %ile Actuated Cycle: 67
10th %ile Actuated Cycle: 67
~ 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.

Splits and Phases: 8: Upham Street & Lebanon Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations		↕			↕			↕			↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Leading Detector (ft)	49	49		49	49		49	49		49	49		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
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		0.962			0.973			0.997			0.989		
Flt Protected		0.995			0.996			0.996			0.998		
Satd. Flow (prot)	0	1758	0	0	1542	0	0	1777	0	0	1766	0	
Flt Permitted		0.964			0.972			0.954			0.973		
Satd. Flow (perm)	0	1703	0	0	1505	0	0	1702	0	0	1722	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		22			14			2			7		
Headway Factor	1.04	1.04	1.04	1.04	1.24	1.04	1.04	1.07	1.04	1.04	1.07	1.04	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		378			311			638			756		
Travel Time (s)		8.6			7.1			14.5			17.2		
Volume (vph)	20	118	55	9	82	22	36	439	12	15	306	29	
Peak Hour Factor	0.91	0.91	0.91	0.89	0.89	0.89	0.93	0.93	0.93	0.96	0.96	0.96	
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0	
Parking (#/hr)					5								
Adj. Flow (vph)	22	130	60	10	92	25	39	472	13	16	319	30	
Lane Group Flow (vph)	0	212	0	0	127	0	0	524	0	0	365	0	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		9
Permitted Phases	4			8			2			6			
Detector Phases	4	4		8	8		2	2		6	6		
Minimum Initial (s)	7.0	7.0		7.0	7.0		40.0	40.0		40.0	40.0		8.0
Minimum Split (s)	13.0	13.0		13.0	13.0		46.0	46.0		46.0	46.0		15.0
Total Split (s)	26.0	26.0	0.0	26.0	26.0	0.0	46.0	46.0	0.0	46.0	46.0	0.0	15.0
Total Split (%)	29.9%	29.9%	0.0%	29.9%	29.9%	0.0%	52.9%	52.9%	0.0%	52.9%	52.9%	0.0%	17%
Maximum Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		13.0

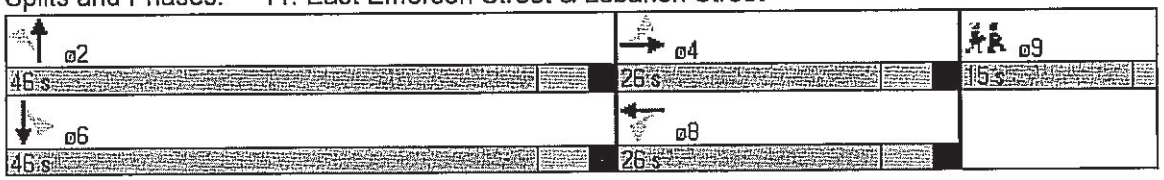
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0		3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max		None
Walk Time (s)													8.0
Flash Dont Walk (s)													5.0
Pedestrian Calls (#/hr)													5
Act Effct Green (s)		17.3			17.3			43.6			43.6		
Actuated g/C Ratio		0.25			0.25			0.63			0.63		
v/c Ratio		0.48			0.33			0.49			0.34		
Control Delay		24.5			22.2			11.0			8.9		
Queue Delay		0.0			0.0			0.0			0.0		
Total Delay		24.5			22.2			11.0			8.9		
LOS		C			C			B			A		
Approach Delay		24.5			22.2			11.0			8.9		
Approach LOS		C			C			B			A		
90th %ile Green (s)	20.0	20.0		20.0	20.0		40.0	40.0		40.0	40.0		13.0
90th %ile Term Code	Max	Max		Hold	Hold		MaxR	MaxR		MaxR	MaxR		Ped
70th %ile Green (s)	16.7	16.7		16.7	16.7		40.0	40.0		40.0	40.0		0.0
70th %ile Term Code	Gap	Gap		Hold	Hold		MaxR	MaxR		MaxR	MaxR		Skip
50th %ile Green (s)	14.4	14.4		14.4	14.4		40.0	40.0		40.0	40.0		0.0
50th %ile Term Code	Gap	Gap		Hold	Hold		MaxR	MaxR		MaxR	MaxR		Skip
30th %ile Green (s)	12.1	12.1		12.1	12.1		40.0	40.0		40.0	40.0		0.0
30th %ile Term Code	Gap	Gap		Hold	Hold		MaxR	MaxR		MaxR	MaxR		Skip
10th %ile Green (s)	9.0	9.0		9.0	9.0		40.0	40.0		40.0	40.0		0.0
10th %ile Term Code	Gap	Gap		Hold	Hold		MaxR	MaxR		MaxR	MaxR		Skip
Queue Length 50th (ft)		64			37			91			55		
Queue Length 95th (ft)		152			96			304			188		
Internal Link Dist (ft)		298			231			558			676		
Turn Bay Length (ft)													
Base Capacity (vph)		540			474			1071			1085		
Starvation Cap Reductn		0			0			0			0		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Spillback Cap Reductn		0			0			0			0		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		0.39			0.27			0.49			0.34		

Intersection Summary

Area Type: Other
Cycle Length: 87
Actuated Cycle Length: 69.4
Natural Cycle: 75
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.49
Intersection Signal Delay: 13.9 Intersection LOS: B
Intersection Capacity Utilization 59.2% ICU Level of Service B
Analysis Period (min) 15
90th %ile Actuated Cycle: 87
70th %ile Actuated Cycle: 68.7
50th %ile Actuated Cycle: 66.4
30th %ile Actuated Cycle: 64.1
10th %ile Actuated Cycle: 61

Splits and Phases: 11: East Emerson Street & Lebanon Street



Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2	ø5	ø6	ø9
Lane Configurations														
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0			
Leading Detector (ft)				49		49	49	49	49					
Trailing Detector (ft)				0		0	0	0	0					
Turning Speed (mph)	15	9	15		9	15		9	15	9	9			
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			
Frt				0.994				0.850	0.990					
Flt Protected							0.996		0.956					
Satd. Flow (prot)	0	0	0	1808	0	0	1811	1546	1721	0	0			
Flt Permitted							0.773		0.956					
Satd. Flow (perm)	0	0	0	1808	0	0	1406	1546	1721	0	0			
Right Turn on Red		Yes			Yes			Yes			Yes			
Satd. Flow (RTOR)				3				426	1					
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04			
Link Speed (mph)	30			30			30		30					
Link Distance (ft)	345			756			310		604					
Travel Time (s)	7.8			17.2			7.0		13.7					
Volume (vph)	0	0	0	461	20	28	341	413	552	35	9			
Peak Hour Factor	0.95	0.95	0.91	0.91	0.91	0.97	0.97	0.97	0.95	0.95	0.95			
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%			
Adj. Flow (vph)	0	0	0	507	22	29	352	426	581	37	9			
Lane Group Flow (vph)	0	0	0	529	0	0	381	426	627	0	0			
Turn Type						custom	Prot							
Protected Phases				2			5 6	4 6	4			5	6	9
Permitted Phases						5 6								
Detector Phases				2		5 6	5 6	4 6	4					
Minimum Initial (s)				8.0					8.0			4.0	4.0	1.0
Minimum Split (s)				14.0					14.0			16.0	10.0	15.0
Total Split (s)	0.0	0.0	0.0	38.0	0.0	38.0	38.0	60.0	38.0	0.0	0.0	16.0	22.0	15.0
Total Split (%)	0.0%	0.0%	0.0%	41.8%	0.0%	41.8%	41.8%	65.9%	41.8%	0.0%	0.0%	18%	24%	16%
Maximum Green (s)				32.0					32.0			12.0	18.0	13.0
Yellow Time (s)				4.0					4.0			3.0	3.0	2.0
All-Red Time (s)				2.0					2.0			1.0	1.0	0.0

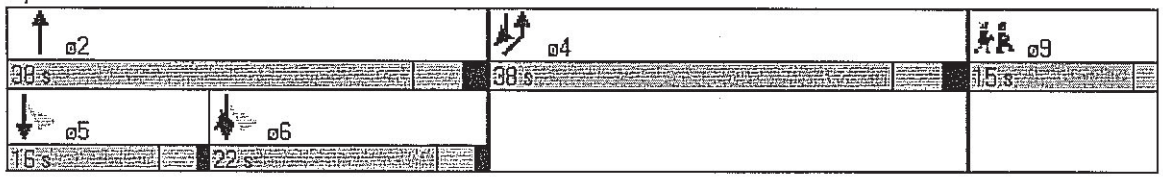
Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2	ø5	ø6	ø9
Lead/Lag												Lead	Lag	
Lead-Lag Optimize?														
Vehicle Extension (s)				3.0					3.0			3.0	3.0	3.0
Recall Mode				None					Max			None	None	Min
Walk Time (s)														8.0
Flash Dont Walk (s)														5.0
Pedestrian Calls (#/hr)														0
Act Effct Green (s)				29.8			29.8	51.9	35.1					
Actuated g/C Ratio				0.38			0.38	0.66	0.45					
v/c Ratio				0.77			0.71	0.37	0.81					
Control Delay				29.4			28.9	1.4	30.7					
Queue Delay				0.0			0.7	0.5	0.4					
Total Delay				29.4			29.6	1.9	31.1					
LOS				C			C	A	C					
Approach Delay				29.4			15.0		31.1					
Approach LOS				C			B		C					
90th %ile Green (s)				32.0					32.0			12.0	18.0	5.5
90th %ile Term Code				Max					MaxR			Max	Max	Gap
70th %ile Green (s)				32.0					32.0			12.0	18.0	5.5
70th %ile Term Code				Max					MaxR			Max	Max	Gap
50th %ile Green (s)				28.0					32.0			12.0	14.0	5.5
50th %ile Term Code				Gap					MaxR			Max	Hold	Gap
30th %ile Green (s)				23.2					32.0			12.0	9.2	5.5
30th %ile Term Code				Gap					MaxR			Max	Hold	Gap
10th %ile Green (s)				20.0					32.0			12.0	6.0	5.5
10th %ile Term Code				Hold					MaxR			Max	Gap	Gap
Queue Length 50th (ft)				219			154	0	263					
Queue Length 95th (ft)				335			254	25	#495					
Internal Link Dist (ft)	265			676			230		524					
Turn Bay Length (ft)														
Base Capacity (vph)				760			589	1191	770					
Starvation Cap Reductn				0			48	376	0					
Spillback Cap Reductn				4			0	0	17					
Storage Cap Reductn				0			0	0	0					

Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	NER2	ø5	ø6	ø9
Reduced v/c Ratio				0.70			0.70	0.52	0.83					

Intersection Summary

Area Type: Other
Cycle Length: 91
Actuated Cycle Length: 78.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 24.0 Intersection LOS: C
Intersection Capacity Utilization 81.0% ICU Level of Service D
Analysis Period (min) 15
90th %ile Actuated Cycle: 83.5
70th %ile Actuated Cycle: 83.5
50th %ile Actuated Cycle: 79.5
30th %ile Actuated Cycle: 74.7
10th %ile Actuated Cycle: 71.5
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: Porter Street & Main Street



Lane Group	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		131	0		0	0
Storage Lanes		1	0		1	0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Leading Detector (ft)	49	49	49	49	49	
Trailing Detector (ft)	0	0	0	0	0	
Turning Speed (mph)		9	15		15	9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.997	
Flt Protected					0.954	
Satd. Flow (prot)	1818	1546	0	1818	1747	0
Flt Permitted					0.954	
Satd. Flow (perm)	1818	1546	0	1818	1747	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		154			1	
Headway Factor	1.04	1.04	1.04	1.04	1.04	1.04
Link Speed (mph)	30			30	30	
Link Distance (ft)	68			494	490	
Travel Time (s)	1.5			11.2	11.1	
Volume (vph)	617	380	0	610	178	5
Peak Hour Factor	0.93	0.93	0.90	0.90	0.93	0.93
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Adj. Flow (vph)	663	409	0	678	191	5
Lane Group Flow (vph)	663	409	0	678	196	0
Turn Type		Free	Perm			
Protected Phases	2			6	8	
Permitted Phases		Free	6			
Detector Phases	2		6	6	8	
Minimum Initial (s)	41.0		41.0	41.0	4.0	
Minimum Split (s)	45.0		45.0	45.0	24.0	
Total Split (s)	66.0	0.0	66.0	66.0	24.0	0.0
Total Split (%)	73.3%	0.0%	73.3%	73.3%	26.7%	0.0%
Maximum Green (s)	62.0		62.0	62.0	20.0	

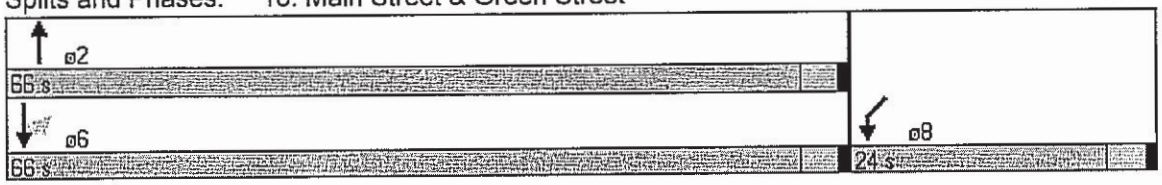
Lane Group	NBT	NBR	SBL	SBT	SWL	SWR
Yellow Time (s)	3.0		3.0	3.0	3.0	
All-Red Time (s)	1.0		1.0	1.0	1.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Recall Mode	Max		Max	Max	None	
Walk Time (s)					7.0	
Flash Dont Walk (s)					12.0	
Pedestrian Calls (#/hr)					0	
Act Effct Green (s)	63.1	84.5		63.1	15.4	
Actuated g/C Ratio	0.75	1.00		0.75	0.18	
v/c Ratio	0.49	0.26		0.50	0.62	
Control Delay	6.3	0.4		6.4	40.3	
Queue Delay	2.0	0.0		0.0	0.0	
Total Delay	8.3	0.4		6.5	40.3	
LOS	A	A		A	D	
Approach Delay	5.3			6.5	40.3	
Approach LOS	A			A	D	
90th %ile Green (s)	62.0		62.0	62.0	20.0	
90th %ile Term Code	MaxR		MaxR	MaxR	Max	
70th %ile Green (s)	62.0		62.0	62.0	17.1	
70th %ile Term Code	MaxR		MaxR	MaxR	Gap	
50th %ile Green (s)	62.0		62.0	62.0	14.6	
50th %ile Term Code	MaxR		MaxR	MaxR	Gap	
30th %ile Green (s)	62.0		62.0	62.0	12.1	
30th %ile Term Code	MaxR		MaxR	MaxR	Gap	
10th %ile Green (s)	62.0		62.0	62.0	8.7	
10th %ile Term Code	MaxR		MaxR	MaxR	Gap	
Queue Length 50th (ft)	113	0		118	96	
Queue Length 95th (ft)	227	0		235	163	
Internal Link Dist (ft)	1			414	410	
Turn Bay Length (ft)		131				
Base Capacity (vph)	1358	1546		1358	408	
Starvation Cap Reductn	519	0		0	0	

Lane Group	NBT	NBR	SBL	SBT	SWL	SWR
Spillback Cap Reductn	0	0		11	4	
Storage Cap Reductn	0	0		0	0	
Reduced v/c Ratio	0.79	0.26		0.50	0.49	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 84.5
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 9.2 Intersection LOS: A
Intersection Capacity Utilization 51.0% ICU Level of Service A
Analysis Period (min) 15
90th %ile Actuated Cycle: 90
70th %ile Actuated Cycle: 87.1
50th %ile Actuated Cycle: 84.6
30th %ile Actuated Cycle: 82.1
10th %ile Actuated Cycle: 78.7

Splits and Phases: 16: Main Street & Green Street



2027 Projected Volumes With Improvements

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations		↕			↕			↕			↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	12	11	11	12	11	11	12	11	11	12	11	
Total Lost Time (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	
Leading Detector (ft)	49	49		49	49		49	49		49	49		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
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		0.954			0.974			0.994			0.989		
Flt Protected		0.979			0.985			0.996			0.999		
Satd. Flow (prot)	0	1723	0	0	1805	0	0	1833	0	0	1829	0	
Flt Permitted		0.666			0.824			0.914			0.978		
Satd. Flow (perm)	0	1172	0	0	1510	0	0	1682	0	0	1790	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		27			12			4			7		
Headway Factor	1.04	1.00	1.04	1.04	1.00	1.04	1.04	1.02	1.04	1.04	1.02	1.04	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		388			356			309			585		
Travel Time (s)		8.8			8.1			7.0			13.3		
Volume (vph)	46	26	38	70	117	44	36	438	23	22	701	64	
Peak Hour Factor	0.65	0.65	0.65	0.80	0.80	0.80	0.88	0.88	0.88	0.97	0.97	0.97	
Heavy Vehicles (%)	3%	3%	3%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0	
Adj. Flow (vph)	71	40	58	88	146	55	41	498	26	23	723	66	
Lane Group Flow (vph)	0	169	0	0	289	0	0	565	0	0	812	0	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		9
Permitted Phases	4			8			2			6			
Detector Phases	4	4		8	8		2	2		6	6		
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0		8.0
Minimum Split (s)	13.0	13.0		13.0	13.0		16.0	16.0		16.0	16.0		17.0
Total Split (s)	24.0	24.0	0.0	24.0	24.0	0.0	49.0	49.0	0.0	49.0	49.0	0.0	17.0
Total Split (%)	26.7%	26.7%	0.0%	26.7%	26.7%	0.0%	54.4%	54.4%	0.0%	54.4%	54.4%	0.0%	19%
Maximum Green (s)	18.0	18.0		18.0	18.0		43.0	43.0		43.0	43.0		15.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0		3.0
Recall Mode	Min	Min		Min	Min		C-Max	C-Max		C-Max	C-Max		None
Walk Time (s)													7.0
Flash Dont Walk (s)													8.0
Pedestrian Calls (#/hr)													5
Act Effct Green (s)		20.6			20.6			60.0			60.0		
Actuated g/C Ratio		0.23			0.23			0.67			0.67		
v/c Ratio		0.58			0.81			0.50			0.68		
Control Delay		34.8			50.9			11.1			9.6		
Queue Delay		0.0			0.0			0.0			0.1		
Total Delay		34.8			50.9			11.1			9.7		
LOS		C			D			B			A		
Approach Delay		34.8			50.9			11.1			9.7		
Approach LOS		C			D			B			A		
90th %ile Green (s)	18.0	18.0		18.0	18.0		43.0	43.0		43.0	43.0		15.0
90th %ile Term Code	Max	Max		Max	Max		Coord	Coord		Coord	Coord		Ped
70th %ile Green (s)	18.0	18.0		18.0	18.0		60.0	60.0		60.0	60.0		0.0
70th %ile Term Code	Max	Max		Max	Max		Coord	Coord		Coord	Coord		Skip
50th %ile Green (s)	18.0	18.0		18.0	18.0		60.0	60.0		60.0	60.0		0.0
50th %ile Term Code	Max	Max		Max	Max		Coord	Coord		Coord	Coord		Skip
30th %ile Green (s)	18.0	18.0		18.0	18.0		60.0	60.0		60.0	60.0		0.0
30th %ile Term Code	Hold	Hold		Max	Max		Coord	Coord		Coord	Coord		Skip
10th %ile Green (s)	16.1	16.1		16.1	16.1		61.9	61.9		61.9	61.9		0.0
10th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord		Skip
Queue Length 50th (ft)		71			149			123			71		
Queue Length 95th (ft)		89			#224			326			#624		
Internal Link Dist (ft)		308			276			229			505		
Turn Bay Length (ft)													
Base Capacity (vph)		294			362			1123			1195		
Starvation Cap Reductn		0			0			0			22		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Spillback Cap Reductn		0			0			0			0		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		0.57			0.80			0.50			0.69		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 50 (56%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 18.9 Intersection LOS: B
Intersection Capacity Utilization 68.0% ICU Level of Service C
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: Grove Street & Lebanon Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations		↕			↕			↕			↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	12	11	11	12	11	11	12	11	11	12	11	
Total Lost Time (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	
Leading Detector (ft)	49	49		49	49		49	49		49	49		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
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		0.958			0.988			0.998			0.993		
Flt Protected		0.987			0.988			0.995					
Satd. Flow (prot)	0	1797	0	0	1855	0	0	1838	0	0	1838	0	
Flt Permitted		0.853			0.879			0.879			0.996		
Satd. Flow (perm)	0	1553	0	0	1650	0	0	1624	0	0	1831	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		23			5			1			5		
Headway Factor	1.04	1.00	1.04	1.04	1.00	1.04	1.04	1.02	1.04	1.04	1.02	1.04	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		142			162			585			729		
Travel Time (s)		3.2			3.7			13.3			16.6		
Volume (vph)	34	58	41	37	107	14	49	470	9	6	709	41	
Peak Hour Factor	0.77	0.77	0.77	0.83	0.83	0.83	0.88	0.88	0.88	0.96	0.96	0.96	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0	
Adj. Flow (vph)	44	75	53	45	129	17	56	534	10	6	739	43	
Lane Group Flow (vph)	0	172	0	0	191	0	0	600	0	0	788	0	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		9
Permitted Phases	4			8			2			6			
Detector Phases	4	4		8	8		2	2		6	6		
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0		4.0
Minimum Split (s)	16.0	16.0		16.0	16.0		34.0	34.0		34.0	34.0		17.0
Total Split (s)	23.0	23.0	0.0	23.0	23.0	0.0	50.0	50.0	0.0	50.0	50.0	0.0	17.0
Total Split (%)	25.6%	25.6%	0.0%	25.6%	25.6%	0.0%	55.6%	55.6%	0.0%	55.6%	55.6%	0.0%	19%
Maximum Green (s)	17.0	17.0		17.0	17.0		44.0	44.0		44.0	44.0		15.0

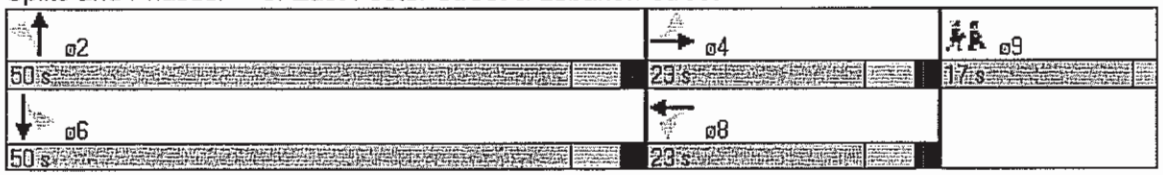
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0		3.0
Recall Mode	Min	Min		Min	Min		C-Max	C-Max		C-Max	C-Max		None
Walk Time (s)													7.0
Flash Dont Walk (s)													8.0
Pedestrian Calls (#/hr)													5
Act Effct Green (s)		16.6			16.6			64.0			64.0		
Actuated g/C Ratio		0.18			0.18			0.71			0.71		
v/c Ratio		0.56			0.62			0.52			0.60		
Control Delay		35.7			41.5			8.4			7.8		
Queue Delay		0.0			0.0			0.1			0.1		
Total Delay		35.7			41.5			8.5			7.9		
LOS		D			D			A			A		
Approach Delay		35.7			41.5			8.5			7.9		
Approach LOS		D			D			A			A		
90th %ile Green (s)	17.0	17.0		17.0	17.0		44.0	44.0		44.0	44.0		15.0
90th %ile Term Code	Max	Max		Max	Max		Coord	Coord		Coord	Coord		Ped
70th %ile Green (s)	16.8	16.8		16.8	16.8		61.2	61.2		61.2	61.2		0.0
70th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord		Skip
50th %ile Green (s)	14.1	14.1		14.1	14.1		63.9	63.9		63.9	63.9		0.0
50th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord		Skip
30th %ile Green (s)	11.7	11.7		11.7	11.7		66.3	66.3		66.3	66.3		0.0
30th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord		Skip
10th %ile Green (s)	8.2	8.2		8.2	8.2		69.8	69.8		69.8	69.8		0.0
10th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord		Skip
Queue Length 50th (ft)		77			97			70			151		
Queue Length 95th (ft)		111			146			m229			#508		
Internal Link Dist (ft)		62			82			505			649		
Turn Bay Length (ft)													
Base Capacity (vph)		363			371			1156			1304		
Starvation Cap Reductn		0			0			42			0		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Spillback Cap Reductn		0			0			0			43		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		0.47			0.51			0.54			0.62		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 43 (48%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 14.5 Intersection LOS: B
Intersection Capacity Utilization 76.6% ICU Level of Service D
Analysis Period (min) 15
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.

Splits and Phases: 5: East Foster Street & Lebanon Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	12	11	11	11	11	11	12	11	11	12	11	
Storage Length (ft)	0		0	100		0	0		0	0		0	
Storage Lanes	0		0	1		0	0		0	0		0	
Total Lost Time (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	
Leading Detector (ft)	49	49		49	49		49	49		49	49		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
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		0.985			0.972			0.964			0.998		
Flt Protected		0.998		0.950				0.996			0.992		
Satd. Flow (prot)	0	1796	0	1728	1547	0	0	1777	0	0	1833	0	
Flt Permitted		0.968		0.286				0.905			0.728		
Satd. Flow (perm)	0	1742	0	520	1547	0	0	1615	0	0	1345	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		6			14			24			1		
Headway Factor	1.04	1.00	1.04	1.04	1.24	1.04	1.04	1.02	1.04	1.04	1.02	1.04	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		459			446			729			638		
Travel Time (s)		10.4			10.1			16.6			14.5		
Volume (vph)	6	125	16	316	315	73	41	326	134	81	398	8	
Peak Hour Factor	0.88	0.88	0.88	0.95	0.95	0.95	0.89	0.89	0.89	0.86	0.86	0.86	
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0	
Parking (#/hr)					5								
Adj. Flow (vph)	7	142	18	333	332	77	46	366	151	94	463	9	
Lane Group Flow (vph)	0	167	0	333	409	0	0	563	0	0	566	0	
Turn Type	Perm			pm+pt			Perm			Perm			
Protected Phases		4		3	8			2			6		9
Permitted Phases	4			8			2			6			
Detector Phases	4	4		3	8		2	2		6	6		
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0		8.0
Minimum Split (s)	13.0	13.0		14.0	14.0		16.0	16.0		16.0	16.0		17.0

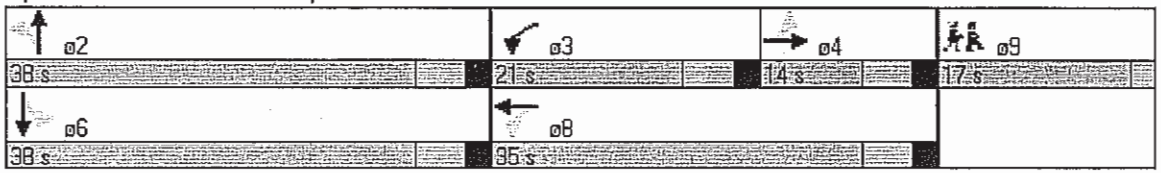
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Total Split (s)	14.0	14.0	0.0	21.0	35.0	0.0	38.0	38.0	0.0	38.0	38.0	0.0	17.0
Total Split (%)	15.6%	15.6%	0.0%	23.3%	38.9%	0.0%	42.2%	42.2%	0.0%	42.2%	42.2%	0.0%	19%
Maximum Green (s)	8.0	8.0		15.0	29.0		32.0	32.0		32.0	32.0		15.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lead/Lag	Lag	Lag		Lead									
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0
Recall Mode	Min	Min		Min	Min		C-Max	C-Max		C-Max	C-Max		None
Walk Time (s)													7.0
Flash Dont Walk (s)													8.0
Pedestrian Calls (#/hr)													5
Act Effct Green (s)		11.2		31.9	31.9			48.7			48.7		
Actuated g/C Ratio		0.12		0.35	0.35			0.54			0.54		
v/c Ratio		0.75		0.79	0.73			0.64			0.78		
Control Delay		59.1		38.8	33.7			23.5			25.6		
Queue Delay		0.0		0.0	0.0			0.0			0.0		
Total Delay		59.1		38.8	33.7			23.5			25.6		
LOS		E		D	C			C			C		
Approach Delay		59.1			36.0			23.5			25.6		
Approach LOS		E			D			C			C		
90th %ile Green (s)	8.0	8.0		15.0	29.0		32.0	32.0		32.0	32.0		15.0
90th %ile Term Code	Max	Max		Max	Max		Coord	Coord		Coord	Coord		Ped
70th %ile Green (s)	8.0	8.0		15.0	29.0		49.0	49.0		49.0	49.0		0.0
70th %ile Term Code	Max	Max		Max	Max		Coord	Coord		Coord	Coord		Skip
50th %ile Green (s)	8.0	8.0		15.0	29.0		49.0	49.0		49.0	49.0		0.0
50th %ile Term Code	Max	Max		Max	Hold		Coord	Coord		Coord	Coord		Skip
30th %ile Green (s)	8.0	8.0		15.0	29.0		49.0	49.0		49.0	49.0		0.0
30th %ile Term Code	Max	Max		Max	Hold		Coord	Coord		Coord	Coord		Skip
10th %ile Green (s)	9.1	9.1		13.3	28.4		49.6	49.6		49.6	49.6		0.0
10th %ile Term Code	Gap	Gap		Gap	Hold		Coord	Coord		Coord	Coord		Skip
Queue Length 50th (ft)		90		149	193			219			155		
Queue Length 95th (ft)		#184		#258	306			#490			#504		
Internal Link Dist (ft)		379			366			649			558		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Turn Bay Length (ft)				100									
Base Capacity (vph)		222		425	559			885			729		
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		0.75		0.78	0.73			0.64			0.78		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 31.6 Intersection LOS: C
Intersection Capacity Utilization 82.8% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 8: Upham Street & Lebanon Street



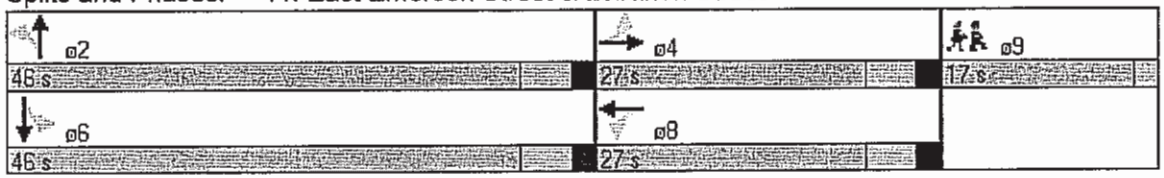
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations		↕			↕			↕			↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	12	11	11	12	11	11	12	11	11	12	11	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Leading Detector (ft)	49	49		49	49		49	49		49	49		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
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		0.956			0.979			0.999			0.993		
Flt Protected		0.986			0.995			0.995			0.999		
Satd. Flow (prot)	0	1756	0	0	1619	0	0	1840	0	0	1836	0	
Flt Permitted		0.796			0.961			0.915			0.993		
Satd. Flow (perm)	0	1418	0	0	1564	0	0	1692	0	0	1825	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		26			10						4		
Headway Factor	1.04	1.00	1.04	1.04	1.19	1.04	1.04	1.02	1.04	1.04	1.02	1.04	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		378			311			638			756		
Travel Time (s)		8.6			7.1			14.5			17.2		
Volume (vph)	42	59	48	22	174	36	43	360	2	7	417	23	
Peak Hour Factor	0.89	0.89	0.89	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	1%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0	
Parking (#/hr)					5								
Adj. Flow (vph)	47	66	54	26	202	42	50	419	2	8	485	27	
Lane Group Flow (vph)	0	167	0	0	270	0	0	471	0	0	520	0	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		9
Permitted Phases	4			8			2			6			
Detector Phases	4	4		8	8		2	2		6	6		
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0		8.0
Minimum Split (s)	13.0	13.0		13.0	13.0		46.0	46.0		46.0	46.0		17.0
Total Split (s)	27.0	27.0	0.0	27.0	27.0	0.0	46.0	46.0	0.0	46.0	46.0	0.0	17.0
Total Split (%)	30.0%	30.0%	0.0%	30.0%	30.0%	0.0%	51.1%	51.1%	0.0%	51.1%	51.1%	0.0%	19%

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Maximum Green (s)	21.0	21.0		21.0	21.0		40.0	40.0		40.0	40.0		15.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0		3.0
Recall Mode	Min	Min		Min	Min		C-Max	C-Max		C-Max	C-Max		None
Walk Time (s)													7.0
Flash Dont Walk (s)													8.0
Pedestrian Calls (#/hr)													5
Act Effct Green (s)		22.1			22.1			58.5			58.5		
Actuated g/C Ratio		0.25			0.25			0.65			0.65		
v/c Ratio		0.46			0.69			0.43			0.44		
Control Delay		28.0			39.3			6.9			8.7		
Queue Delay		0.0			0.0			0.0			0.0		
Total Delay		28.0			39.3			6.9			8.7		
LOS		C			D			A			A		
Approach Delay		28.0			39.3			6.9			8.7		
Approach LOS		C			D			A			A		
90th %ile Green (s)	21.0	21.0		21.0	21.0		40.0	40.0		40.0	40.0		15.0
90th %ile Term Code	Max	Max		Max	Max		Coord	Coord		Coord	Coord		Ped
70th %ile Green (s)	21.0	21.0		21.0	21.0		57.0	57.0		57.0	57.0		0.0
70th %ile Term Code	Hold	Hold		Max	Max		Coord	Coord		Coord	Coord		Skip
50th %ile Green (s)	21.0	21.0		21.0	21.0		57.0	57.0		57.0	57.0		0.0
50th %ile Term Code	Hold	Hold		Max	Max		Coord	Coord		Coord	Coord		Skip
30th %ile Green (s)	18.3	18.3		18.3	18.3		59.7	59.7		59.7	59.7		0.0
30th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord		Skip
10th %ile Green (s)	14.1	14.1		14.1	14.1		63.9	63.9		63.9	63.9		0.0
10th %ile Term Code	Hold	Hold		Gap	Gap		Coord	Coord		Coord	Coord		Skip
Queue Length 50th (ft)		65			131			73			107		
Queue Length 95th (ft)		123			202			109			218		
Internal Link Dist (ft)		298			231			558			676		
Turn Bay Length (ft)													
Base Capacity (vph)		397			424			1100			1188		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Starvation Cap Reductn		0			0			0			0		
Spillback Cap Reductn		0			0			0			0		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		0.42			0.64			0.43			0.44		

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 11 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.69
Intersection Signal Delay: 16.1 Intersection LOS: B
Intersection Capacity Utilization 69.1% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 11: East Emerson Street & Lebanon Street



Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	ø6	ø9
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	11	11	11	12	11	10	10	12	12	11		
Storage Length (ft)	0	0	0		0	150		0	0	0		
Storage Lanes	0	0	0		0	0		0	0	0		
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Leading Detector (ft)				49		49	49	49	49			
Trailing Detector (ft)				0		0	0	0	0			
Turning Speed (mph)	15	9	15		9	15		9	15	9		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt				0.992				0.850	0.989			
Flt Protected							0.996		0.956			
Satd. Flow (prot)	0	0	0	1885	0	0	1749	1599	1779	0		
Flt Permitted							0.835		0.956			
Satd. Flow (perm)	0	0	0	1885	0	0	1466	1599	1779	0		
Right Turn on Red		Yes			Yes			Yes				
Satd. Flow (RTOR)				4				844				
Headway Factor	1.04	1.04	1.04	1.00	1.04	1.09	1.09	1.00	1.00	1.04		
Link Speed (mph)	30			30			30		30			
Link Distance (ft)	345			756			196		604			
Travel Time (s)	7.8			17.2			4.5		13.7			
Volume (vph)	0	0	0	412	26	39	441	785	380	33		
Peak Hour Factor	0.95	0.95	0.85	0.85	0.85	0.93	0.93	0.93	0.85	0.85		
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%		
Adj. Flow (vph)	0	0	0	485	31	42	474	844	447	39		
Lane Group Flow (vph)	0	0	0	516	0	0	516	844	486	0		
Turn Type						custom	custom					
Protected Phases				8		1	1 8	8 6	2		6	9
Permitted Phases						8	6					
Detector Phases				8		1	1 8	8 6	2			
Minimum Initial (s)				8.0		7.0			8.0		8.0	18.0
Minimum Split (s)				19.0		12.0			19.0		14.0	20.0
Total Split (s)	0.0	0.0	0.0	30.0	0.0	12.0	42.0	70.0	28.0	0.0	40.0	20.0
Total Split (%)	0.0%	0.0%	0.0%	33.3%	0.0%	13.3%	46.7%	77.8%	31.1%	0.0%	44%	22%

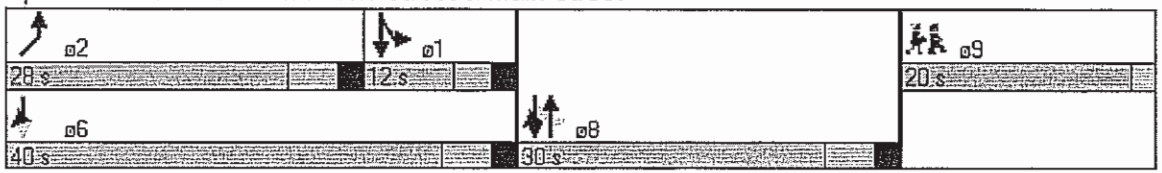
Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	ø6	ø9
Maximum Green (s)				24.0		7.0			22.0		34.0	18.0
Yellow Time (s)				4.0		3.0			4.0		4.0	2.0
All-Red Time (s)				2.0		2.0			2.0		2.0	0.0
Lead/Lag						Lag			Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0		3.0			3.0		3.0	3.0
Recall Mode				None		None			C-Max		C-Max	None
Walk Time (s)				7.0					7.0			7.0
Flash Dont Walk (s)				6.0					6.0			11.0
Pedestrian Calls (#/hr)				5					5			0
Act Effct Green (s)				26.9			87.0	90.0	45.1			
Actuated g/C Ratio				0.30			0.97	1.00	0.50			
v/c Ratio				0.91			0.34	0.53	0.54			
Control Delay				51.4			0.4	0.6	18.3			
Queue Delay				12.4			1.0	0.0	0.0			
Total Delay				63.8			1.4	0.6	18.3			
LOS				E			A	A	B			
Approach Delay				63.8			0.9		18.3			
Approach LOS				E			A		B			
90th %ile Green (s)				24.0		7.0			42.0		54.0	0.0
90th %ile Term Code				Max		Max			Coord		Coord	Skip
70th %ile Green (s)				24.0		7.0			42.0		54.0	0.0
70th %ile Term Code				Max		Max			Coord		Coord	Skip
50th %ile Green (s)				24.0		7.0			42.0		54.0	0.0
50th %ile Term Code				Max		Max			Coord		Coord	Skip
30th %ile Green (s)				24.0		7.0			42.0		54.0	0.0
30th %ile Term Code				Max		Max			Coord		Coord	Skip
10th %ile Green (s)				23.3		7.0			42.7		54.7	0.0
10th %ile Term Code				Gap		Max			Coord		Coord	Skip
Queue Length 50th (ft)				280			0	0	181			
Queue Length 95th (ft)				#428			m0	m0	250			
Internal Link Dist (ft)		265		676			116		524			
Turn Bay Length (ft)												
Base Capacity (vph)				568			1542	1595	893			

Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	ø6	ø9
Starvation Cap Reductn				0			732	0	0			
Spillback Cap Reductn				49			0	0	9			
Storage Cap Reductn				0			0	0	0			
Reduced v/c Ratio				0.99			0.64	0.53	0.55			

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NEL and 6:SBT, Start of Yellow, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 18.2 Intersection LOS: B
Intersection Capacity Utilization 81.7% ICU Level of Service D
Analysis Period (min) 15
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.

Splits and Phases: 14: Porter Street & Main Street



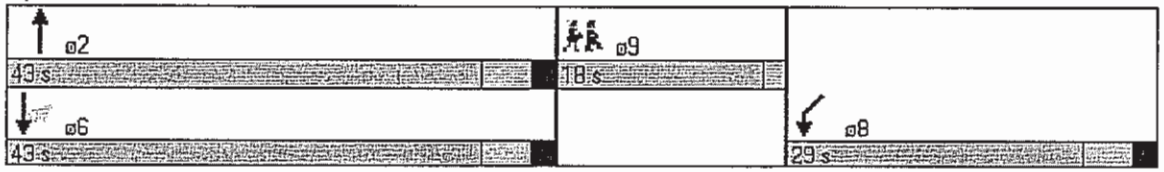
Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	ø9
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Storage Length (ft)		131	0		0	0	
Storage Lanes		1	0		1	0	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Leading Detector (ft)	49	49	49	49	49		
Trailing Detector (ft)	0	0	0	0	0		
Turning Speed (mph)		9	15		15	9	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.850					
Flt Protected					0.950		
Satd. Flow (prot)	1881	1599	0	1881	1805	0	
Flt Permitted					0.950		
Satd. Flow (perm)	1881	1599	0	1881	1805	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		128					
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Link Speed (mph)	30			30	30		
Link Distance (ft)	182			494	490		
Travel Time (s)	4.1			11.2	11.1		
Volume (vph)	491	251	0	811	460	0	
Peak Hour Factor	0.87	0.87	0.95	0.95	0.88	0.88	
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%	
Adj. Flow (vph)	564	289	0	854	523	0	
Lane Group Flow (vph)	564	289	0	854	523	0	
Turn Type		Free	Perm				
Protected Phases	2			6	8		9
Permitted Phases		Free	6				
Detector Phases	2		6	6	8		
Minimum Initial (s)	10.0		10.0	10.0	7.0		13.0
Minimum Split (s)	16.0		16.0	16.0	14.0		18.0
Total Split (s)	43.0	0.0	43.0	43.0	29.0	0.0	18.0
Total Split (%)	47.8%	0.0%	47.8%	47.8%	32.2%	0.0%	20%

Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	ø9
Maximum Green (s)	37.0		37.0	37.0	23.0		16.0
Yellow Time (s)	4.0		4.0	4.0	4.0		2.0
All-Red Time (s)	2.0		2.0	2.0	2.0		0.0
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0	3.0	3.0		3.0
Recall Mode	C-Max		C-Max	C-Max	Min		None
Walk Time (s)							7.0
Flash Dont Walk (s)							9.0
Pedestrian Calls (#/hr)							5
Act Effct Green (s)	42.5	90.0		42.5	37.9		
Actuated g/C Ratio	0.47	1.00		0.47	0.42		
v/c Ratio	0.64	0.18		0.96	0.69		
Control Delay	13.6	0.2		47.7	28.9		
Queue Delay	2.4	0.0		0.0	0.0		
Total Delay	15.9	0.2		47.7	28.9		
LOS	B	A		D	C		
Approach Delay	10.6			47.7	28.9		
Approach LOS	B			D	C		
90th %ile Green (s)	37.0		37.0	37.0	23.0		16.0
90th %ile Term Code	Coord		Coord	Coord	Max		Ped
70th %ile Green (s)	37.0		37.0	37.0	41.0		0.0
70th %ile Term Code	Coord		Coord	Coord	Max		Skip
50th %ile Green (s)	38.0		38.0	38.0	40.0		0.0
50th %ile Term Code	Coord		Coord	Coord	Gap		Skip
30th %ile Green (s)	40.8		40.8	40.8	37.2		0.0
30th %ile Term Code	Coord		Coord	Coord	Gap		Skip
10th %ile Green (s)	44.7		44.7	44.7	33.3		0.0
10th %ile Term Code	Coord		Coord	Coord	Gap		Skip
Queue Length 50th (ft)	178	0		468	210		
Queue Length 95th (ft)	m295	m0		#746	#489		
Internal Link Dist (ft)	102			414	410		
Turn Bay Length (ft)		131					
Base Capacity (vph)	888	1599		888	760		

Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	ø9
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	0.82	0.18		0.96	0.69		

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 74 (82%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 29.1 Intersection LOS: C
Intersection Capacity Utilization 74.8% ICU Level of Service D
Analysis Period (min) 15
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.

Splits and Phases: 16: Main Street & Green Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations													
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	10	11	11	10	11	11	16	11	11	16	11	
Total Lost Time (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	
Leading Detector (ft)	49	49		49	49		49	49		49	49		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
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		0.967			0.978			0.990			0.992		
Flt Protected		0.982			0.985			0.996			0.998		
Satd. Flow (prot)	0	1684	0	0	1708	0	0	2069	0	0	2077	0	
Flt Permitted		0.793			0.829			0.908			0.944		
Satd. Flow (perm)	0	1360	0	0	1438	0	0	1886	0	0	1965	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		17			10			7			5		
Headway Factor	1.04	1.09	1.04	1.04	1.09	1.04	1.04	0.87	1.04	1.04	0.87	1.04	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		388			356			309			585		
Travel Time (s)		8.8			8.1			7.0			13.3		
Volume (vph)	78	79	52	42	74	23	58	673	59	30	559	37	
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.93	0.93	0.93	0.89	0.89	0.89	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0	
Adj. Flow (vph)	83	84	55	47	83	26	62	724	63	34	628	42	
Lane Group Flow (vph)	0	222	0	0	156	0	0	849	0	0	704	0	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		9
Permitted Phases	4			8			2			6			
Detector Phases	4	4		8	8		2	2		6	6		
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0		8.0
Minimum Split (s)	13.0	13.0		13.0	13.0		39.0	39.0		39.0	39.0		17.0
Total Split (s)	24.0	24.0	0.0	24.0	24.0	0.0	49.0	49.0	0.0	49.0	49.0	0.0	17.0
Total Split (%)	26.7%	26.7%	0.0%	26.7%	26.7%	0.0%	54.4%	54.4%	0.0%	54.4%	54.4%	0.0%	19%
Maximum Green (s)	18.0	18.0		18.0	18.0		43.0	43.0		44.0	44.0		15.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.0	3.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0		3.0
Recall Mode	Max	Max		Max	Max		C-Max	C-Max		C-Max	C-Max		None
Walk Time (s)													7.0
Flash Dont Walk (s)													8.0
Pedestrian Calls (#/hr)													5
Act Effct Green (s)		21.0			21.0			59.6			59.6		
Actuated g/C Ratio		0.23			0.23			0.66			0.66		
v/c Ratio		0.67			0.45			0.68			0.54		
Control Delay		40.4			32.6			14.9			7.4		
Queue Delay		0.0			0.0			0.0			0.1		
Total Delay		40.4			32.6			14.9			7.5		
LOS		D			C			B			A		
Approach Delay		40.4			32.6			14.9			7.5		
Approach LOS		D			C			B			A		
90th %ile Green (s)	18.0	18.0		18.0	18.0		43.0	43.0		44.0	44.0		15.0
90th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord		Ped
70th %ile Green (s)	18.0	18.0		18.0	18.0		60.0	60.0		61.0	61.0		0.0
70th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord		Skip
50th %ile Green (s)	18.0	18.0		18.0	18.0		60.0	60.0		61.0	61.0		0.0
50th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord		Skip
30th %ile Green (s)	18.0	18.0		18.0	18.0		60.0	60.0		61.0	61.0		0.0
30th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord		Skip
10th %ile Green (s)	18.0	18.0		18.0	18.0		60.0	60.0		61.0	61.0		0.0
10th %ile Term Code	MaxR	MaxR		MaxR	MaxR		Coord	Coord		Coord	Coord		Skip
Queue Length 50th (ft)		106			71			223			92		
Queue Length 95th (ft)		#200			130			#661			155		
Internal Link Dist (ft)		308			276			229			505		
Turn Bay Length (ft)													
Base Capacity (vph)		330			343			1251			1303		
Starvation Cap Reductn		0			0			0			71		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Spillback Cap Reductn		0			0			0			0		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		0.67			0.45			0.68			0.57		

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 80 (89%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

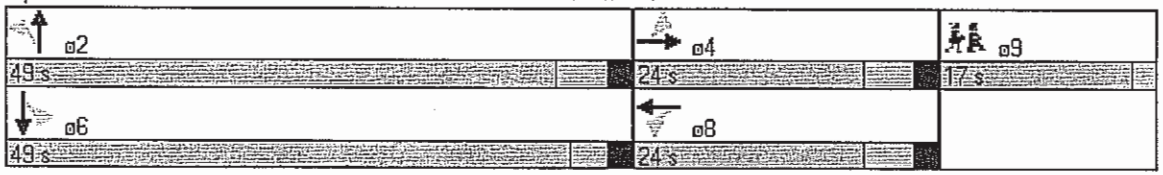
Intersection Signal Delay: 16.6 Intersection LOS: B

Intersection Capacity Utilization 83.1% ICU Level of Service E

Analysis Period (min) 15

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

Splits and Phases: 1: Grove Street & Lebanon Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations		↕			↕			↕			↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	10	11	11	10	11	11	11	11	11	11	11	
Total Lost Time (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	
Leading Detector (ft)	49	49		49	49		49	49		49	49		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
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		0.962			0.993			0.995			0.993		
Flt Protected		0.988			0.990			0.997			0.999		
Satd. Flow (prot)	0	1685	0	0	1743	0	0	1775	0	0	1775	0	
Flt Permitted		0.908			0.932			0.946			0.985		
Satd. Flow (perm)	0	1549	0	0	1641	0	0	1684	0	0	1750	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		21			3			3			4		
Headway Factor	1.04	1.09	1.04	1.04	1.09	1.04	1.04	1.07	1.04	1.04	1.07	1.04	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		142			162			585			729		
Travel Time (s)		3.2			3.7			13.3			16.6		
Volume (vph)	49	92	56	10	36	3	42	704	28	10	560	31	
Peak Hour Factor	0.85	0.85	0.85	0.67	0.67	0.67	0.93	0.93	0.93	0.93	0.93	0.93	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	1%	1%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0	
Adj. Flow (vph)	58	108	66	15	54	4	45	757	30	11	602	33	
Lane Group Flow (vph)	0	232	0	0	73	0	0	832	0	0	646	0	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		9
Permitted Phases	4			8			2			6			
Detector Phases	4	4		8	8		2	2		6	6		
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0		8.0
Minimum Split (s)	16.0	16.0		16.0	16.0		34.0	34.0		34.0	34.0		17.0
Total Split (s)	25.0	25.0	0.0	25.0	25.0	0.0	48.0	48.0	0.0	48.0	48.0	0.0	17.0
Total Split (%)	27.8%	27.8%	0.0%	27.8%	27.8%	0.0%	53.3%	53.3%	0.0%	53.3%	53.3%	0.0%	19%
Maximum Green (s)	19.0	19.0		19.0	19.0		42.0	42.0		42.0	42.0		15.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	2.0	2.0		2.0	2.0		3.0	3.0		3.0	3.0		3.0
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max		None
Walk Time (s)													7.0
Flash Dont Walk (s)													8.0
Pedestrian Calls (#/hr)													5
Act Effct Green (s)		18.4			18.4			62.2			62.2		
Actuated g/C Ratio		0.20			0.20			0.69			0.69		
v/c Ratio		0.70			0.22			0.71			0.53		
Control Delay		41.1			28.7			13.0			13.0		
Queue Delay		0.0			0.0			0.1			0.0		
Total Delay		41.1			28.7			13.1			13.0		
LOS		D			C			B			B		
Approach Delay		41.1			28.7			13.1			13.0		
Approach LOS		D			C			B			B		
90th %ile Green (s)	19.0	19.0		19.0	19.0		42.0	42.0		42.0	42.0		15.0
90th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord		Ped
70th %ile Green (s)	19.0	19.0		19.0	19.0		59.0	59.0		59.0	59.0		0.0
70th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord		Skip
50th %ile Green (s)	16.2	16.2		16.2	16.2		61.8	61.8		61.8	61.8		0.0
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord		Skip
30th %ile Green (s)	13.4	13.4		13.4	13.4		64.6	64.6		64.6	64.6		0.0
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord		Skip
10th %ile Green (s)	9.3	9.3		9.3	9.3		68.7	68.7		68.7	68.7		0.0
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord		Skip
Queue Length 50th (ft)		111			33			140			110		
Queue Length 95th (ft)		169			49			#698			m434		
Internal Link Dist (ft)		62			82			505			649		
Turn Bay Length (ft)													
Base Capacity (vph)		395			403			1165			1211		
Starvation Cap Reductn		0			0			12			0		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Spillback Cap Reductn		0			0			0			0		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		0.59			0.18			0.72			0.53		

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 76 (84%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 17.3 Intersection LOS: B

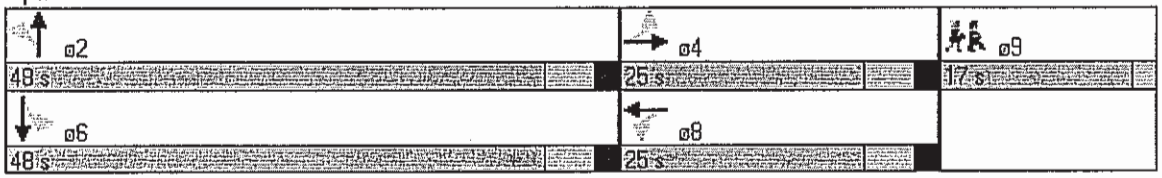
Intersection Capacity Utilization 84.7% ICU Level of Service E

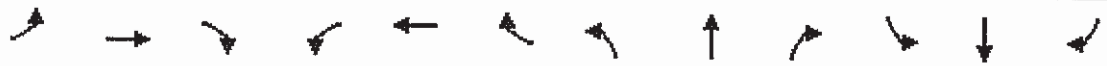
Analysis Period (min) 15

\# 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.

Splits and Phases: 5: East Foster Street & Lebanon Street





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations		↕			↕			↕			↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	12	11	11	11	11	11	12	11	11	12	11	
Storage Length (ft)	0		0	100		0	0		0	0		0	
Storage Lanes	0		0	1		0	0		0	0		0	
Total Lost Time (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	
Leading Detector (ft)	49	49		49	49		49	49		49	49		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
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		0.984			0.960			0.958			0.996		
Flt Protected		0.998		0.950				0.998			0.989		
Satd. Flow (prot)	0	1847	0	1745	1543	0	0	1770	0	0	1595	0	
Flt Permitted		0.974		0.211				0.966			0.558		
Satd. Flow (perm)	0	1803	0	388	1543	0	0	1713	0	0	900	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		6			22			30			2		
Headway Factor	1.04	1.00	1.04	1.04	1.24	1.04	1.04	1.02	1.04	1.04	1.21	1.04	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		459			446			729			638		
Travel Time (s)		10.4			10.1			16.6			14.5		
Volume (vph)	9	195	27	233	280	101	33	455	222	93	324	13	
Peak Hour Factor	0.80	0.80	0.80	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.95	
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0	
Parking (#/hr)					5						5		
Adj. Flow (vph)	11	244	34	253	304	110	35	479	234	98	341	14	
Lane Group Flow (vph)	0	289	0	253	414	0	0	748	0	0	453	0	
Turn Type	Perm			pm+pt			Perm			Perm			
Protected Phases		4		3	8			2			6		9
Permitted Phases	4			8			2			6			
Detector Phases	4	4		3	8		2	2		6	6		
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0		8.0
Minimum Split (s)	14.0	14.0		14.0	14.0		16.0	16.0		16.0	16.0		17.0

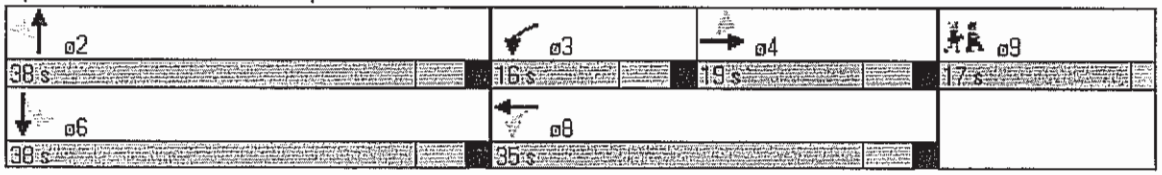
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Total Split (s)	19.0	19.0	0.0	16.0	35.0	0.0	38.0	38.0	0.0	38.0	38.0	0.0	17.0
Total Split (%)	21.1%	21.1%	0.0%	17.8%	38.9%	0.0%	42.2%	42.2%	0.0%	42.2%	42.2%	0.0%	19%
Maximum Green (s)	13.0	13.0		10.0	29.0		32.0	32.0		32.0	32.0		15.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lead/Lag	Lag	Lag		Lead									
Lead-Lag Optimize?													
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0		3.0
Recall Mode	Min	Min		None	Min		C-Max	C-Max		C-Max	C-Max		None
Walk Time (s)													7.0
Flash Dont Walk (s)													8.0
Pedestrian Calls (#/hr)													5
Act Effct Green (s)		16.0		32.0	32.0			48.6			48.6		
Actuated g/C Ratio		0.18		0.36	0.36			0.54			0.54		
v/c Ratio		0.89		0.76	0.74			0.80			0.93		
Control Delay		65.6		38.4	33.2			16.5			45.8		
Queue Delay		0.0		0.0	0.0			0.0			0.0		
Total Delay		65.6		38.4	33.2			16.5			45.8		
LOS		E		D	C			B			D		
Approach Delay		65.6			35.2			16.5			45.8		
Approach LOS		E			D			B			D		
90th %ile Green (s)	13.0	13.0		10.0	29.0		32.0	32.0		32.0	32.0		15.0
90th %ile Term Code	Max	Max		Max	Max		Coord	Coord		Coord	Coord		Ped
70th %ile Green (s)	13.0	13.0		10.0	29.0		49.0	49.0		49.0	49.0		0.0
70th %ile Term Code	Max	Max		Max	Max		Coord	Coord		Coord	Coord		Skip
50th %ile Green (s)	13.0	13.0		10.0	29.0		49.0	49.0		49.0	49.0		0.0
50th %ile Term Code	Max	Max		Max	Hold		Coord	Coord		Coord	Coord		Skip
30th %ile Green (s)	13.0	13.0		10.0	29.0		49.0	49.0		49.0	49.0		0.0
30th %ile Term Code	Max	Max		Max	Hold		Coord	Coord		Coord	Coord		Skip
10th %ile Green (s)	13.0	13.0		10.0	29.0		49.0	49.0		49.0	49.0		0.0
10th %ile Term Code	Max	Max		Max	Hold		Coord	Coord		Coord	Coord		Skip
Queue Length 50th (ft)		159		107	192			164			224		
Queue Length 95th (ft)		#250		#198	#307			#678			#497		
Internal Link Dist (ft)		379			366			649			558		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Turn Bay Length (ft)				100									
Base Capacity (vph)		325		334	563			939			487		
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		0.89		0.76	0.74			0.80			0.93		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 35.0 Intersection LOS: D
Intersection Capacity Utilization 98.9% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 8: Upham Street & Lebanon Street



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Lane Configurations		↕			↕			↕			↕		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	11	12	11	11	12	11	11	12	11	11	12	11	
Total Lost Time (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	
Leading Detector (ft)	49	49		49	49		49	49		49	49		
Trailing Detector (ft)	0	0		0	0		0	0		0	0		
Turning Speed (mph)	15		9	15		9	15		9	15		9	
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		0.962			0.973			0.997			0.989		
Flt Protected		0.995			0.996			0.996			0.998		
Satd. Flow (prot)	0	1819	0	0	1595	0	0	1838	0	0	1827	0	
Flt Permitted		0.961			0.974			0.946			0.968		
Satd. Flow (perm)	0	1757	0	0	1560	0	0	1746	0	0	1772	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)		21			13			2			7		
Headway Factor	1.04	1.00	1.04	1.04	1.19	1.04	1.04	1.02	1.04	1.04	1.02	1.04	
Link Speed (mph)		30			30			30			30		
Link Distance (ft)		378			311			638			756		
Travel Time (s)		8.6			7.1			14.5			17.2		
Volume (vph)	23	137	64	10	95	26	42	509	14	17	356	34	
Peak Hour Factor	0.91	0.91	0.91	0.89	0.89	0.89	0.93	0.93	0.93	0.96	0.96	0.96	
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
Bus Blockages (#/hr)	0	0	0	0	0	0	0	4	0	0	4	0	
Parking (#/hr)					5								
Adj. Flow (vph)	25	151	70	11	107	29	45	547	15	18	371	35	
Lane Group Flow (vph)	0	246	0	0	147	0	0	607	0	0	424	0	
Turn Type	Perm			Perm			Perm			Perm			
Protected Phases		4			8			2			6		9
Permitted Phases	4			8			2			6			
Detector Phases	4	4		8	8		2	2		6	6		
Minimum Initial (s)	7.0	7.0		7.0	7.0		10.0	10.0		10.0	10.0		8.0
Minimum Split (s)	13.0	13.0		13.0	13.0		46.0	46.0		46.0	46.0		17.0
Total Split (s)	26.0	26.0	0.0	26.0	26.0	0.0	47.0	47.0	0.0	47.0	47.0	0.0	17.0
Total Split (%)	28.9%	28.9%	0.0%	28.9%	28.9%	0.0%	52.2%	52.2%	0.0%	52.2%	52.2%	0.0%	19%

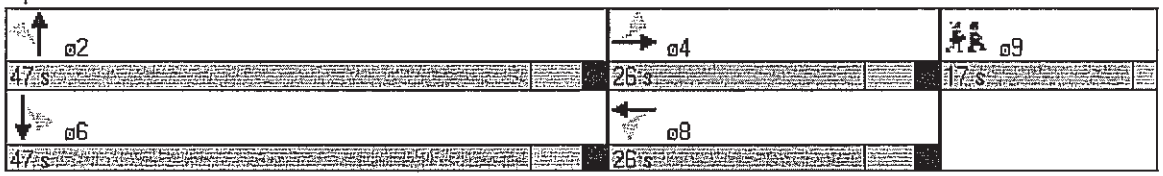
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Maximum Green (s)	20.0	20.0		20.0	20.0		41.0	41.0		41.0	41.0		15.0
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0		2.0
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0		0.0
Lead/Lag													
Lead-Lag Optimize?													
Vehicle Extension (s)	5.0	5.0		5.0	5.0		3.0	3.0		3.0	3.0		3.0
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max		None
Walk Time (s)													7.0
Flash Dont Walk (s)													8.0
Pedestrian Calls (#/hr)													5
Act Effct Green (s)		20.2			20.2			60.4			60.4		
Actuated g/C Ratio		0.22			0.22			0.67			0.67		
v/c Ratio		0.60			0.41			0.52			0.36		
Control Delay		34.5			30.0			5.2			9.2		
Queue Delay		0.0			0.0			0.0			0.0		
Total Delay		34.5			30.0			5.2			9.2		
LOS		C			C			A			A		
Approach Delay		34.5			30.0			5.2			9.2		
Approach LOS		C			C			A			A		
90th %ile Green (s)	20.0	20.0		20.0	20.0		41.0	41.0		41.0	41.0		15.0
90th %ile Term Code	Max	Max		Max	Max		Coord	Coord		Coord	Coord		Ped
70th %ile Green (s)	20.0	20.0		20.0	20.0		58.0	58.0		58.0	58.0		0.0
70th %ile Term Code	Max	Max		Hold	Hold		Coord	Coord		Coord	Coord		Skip
50th %ile Green (s)	18.2	18.2		18.2	18.2		59.8	59.8		59.8	59.8		0.0
50th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord		Skip
30th %ile Green (s)	15.7	15.7		15.7	15.7		62.3	62.3		62.3	62.3		0.0
30th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord		Skip
10th %ile Green (s)	12.0	12.0		12.0	12.0		66.0	66.0		66.0	66.0		0.0
10th %ile Term Code	Gap	Gap		Hold	Hold		Coord	Coord		Coord	Coord		Skip
Queue Length 50th (ft)		113			64			71			80		
Queue Length 95th (ft)		185			115			m120			233		
Internal Link Dist (ft)		298			231			558			676		
Turn Bay Length (ft)													
Base Capacity (vph)		465			408			1173			1192		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	ø9
Starvation Cap Reductn		0			0			0			0		
Spillback Cap Reductn		0			0			0			0		
Storage Cap Reductn		0			0			0			0		
Reduced v/c Ratio		0.53			0.36			0.52			0.36		

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 13 (14%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.60
Intersection Signal Delay: 14.0 Intersection LOS: B
Intersection Capacity Utilization 68.0% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: East Emerson Street & Lebanon Street



Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	ø6	ø9
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Lane Width (ft)	11	11	11	12	11	10	10	12	12	11		
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Leading Detector (ft)				49		49	49	49	49			
Trailing Detector (ft)				0		0	0	0	0			
Turning Speed (mph)	15	9	15		9	15		9	15	9		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Frt				0.994				0.850	0.992			
Flt Protected							0.996		0.955			
Satd. Flow (prot)	0	0	0	1870	0	0	1749	1599	1782	0		
Flt Permitted							0.752		0.955			
Satd. Flow (perm)	0	0	0	1870	0	0	1320	1599	1782	0		
Right Turn on Red		Yes			Yes			Yes				
Satd. Flow (RTOR)				2				495				
Headway Factor	1.04	1.04	1.04	1.00	1.04	1.09	1.09	1.00	1.00	1.04		
Link Speed (mph)	30			30			30		30			
Link Distance (ft)	345			756			195		604			
Travel Time (s)	7.8			17.2			4.4		13.7			
Volume (vph)	0	0	0	535	23	33	397	480	641	41		
Peak Hour Factor	0.95	0.95	0.91	0.91	0.91	0.97	0.97	0.97	0.95	0.95		
Heavy Vehicles (%)	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%		
Adj. Flow (vph)	0	0	0	588	25	34	409	495	675	43		
Lane Group Flow (vph)	0	0	0	613	0	0	443	495	718	0		
Turn Type						custom	custom					
Protected Phases				8		1	1 8	8 6	2		6	9
Permitted Phases						8	6					
Detector Phases				8		1	1 8	8 6	2			
Minimum Initial (s)				8.0		7.0			8.0		8.0	15.0
Minimum Split (s)				19.0		12.0			19.0		14.0	20.0
Total Split (s)	0.0	0.0	0.0	50.0	0.0	12.0	62.0	110.0	48.0	0.0	60.0	20.0
Total Split (%)	0.0%	0.0%	0.0%	38.5%	0.0%	9.2%	47.7%	84.6%	36.9%	0.0%	46%	15%
Maximum Green (s)				44.0		7.0			42.0		54.0	18.0
Yellow Time (s)				4.0		3.0			4.0		4.0	2.0

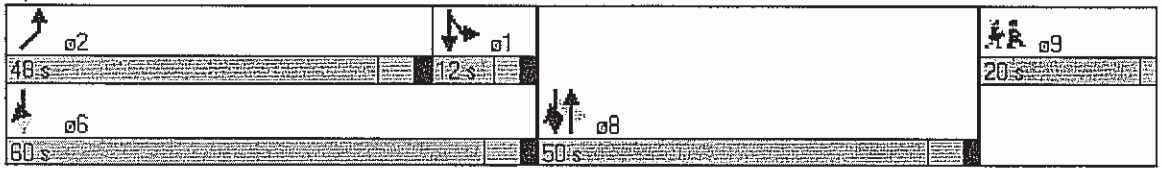
Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	ø6	ø9
All-Red Time (s)				2.0		2.0			2.0		2.0	0.0
Lead/Lag						Lag			Lead			
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0		3.0			3.0		3.0	3.0
Recall Mode				None		None			C-Max		C-Max	None
Walk Time (s)												7.0
Flash Dont Walk (s)												11.0
Pedestrian Calls (#/hr)												5
Act Effct Green (s)				47.0			123.0	125.4	61.0			
Actuated g/C Ratio				0.36			0.95	0.96	0.47			
v/c Ratio				0.91			0.31	0.32	0.86			
Control Delay				57.8			1.4	0.6	43.1			
Queue Delay				16.8			0.6	0.1	0.0			
Total Delay				74.5			2.0	0.7	43.1			
LOS				E			A	A	D			
Approach Delay				74.5			1.3		43.1			
Approach LOS				E			A		D			
90th %ile Green (s)				44.0		7.0			42.0		54.0	18.0
90th %ile Term Code				Max		Max			Coord		Coord	Ped
70th %ile Green (s)				44.0		7.0			62.0		74.0	0.0
70th %ile Term Code				Max		Max			Coord		Coord	Skip
50th %ile Green (s)				44.0		7.0			62.0		74.0	0.0
50th %ile Term Code				Max		Max			Coord		Coord	Skip
30th %ile Green (s)				44.0		7.0			62.0		74.0	0.0
30th %ile Term Code				Max		Max			Coord		Coord	Skip
10th %ile Green (s)				44.0		7.0			62.0		74.0	0.0
10th %ile Term Code				Max		Max			Coord		Coord	Skip
Queue Length 50th (ft)				486			0	0	493			
Queue Length 95th (ft)				#710			85	26	#957			
Internal Link Dist (ft)		265		676			115		524			
Turn Bay Length (ft)												
Base Capacity (vph)				677			1443	1560	836			
Starvation Cap Reductn				0			615	199	0			
Spillback Cap Reductn				72			0	0	0			

Lane Group	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER	ø6	ø9
Storage Cap Reductn				0			0	0	0			
Reduced v/c Ratio				1.01			0.54	0.36	0.86			

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 0 (0%), Referenced to phase 2:NEL and 6:SBT, Start of Yellow, Master Intersection
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 34.3 Intersection LOS: C
Intersection Capacity Utilization 92.8% ICU Level of Service F
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 14: Porter Street & Main Street



Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	ø9
Lane Configurations							
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	12	12	12	12	
Storage Length (ft)		131	0		0	0	
Storage Lanes		1	0		1	0	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Leading Detector (ft)	49	49	49	49	49		
Trailing Detector (ft)	0	0	0	0	0		
Turning Speed (mph)		9	15		15	9	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		0.850					
Flt Protected					0.950		
Satd. Flow (prot)	1881	1599	0	1881	1805	0	
Flt Permitted					0.950		
Satd. Flow (perm)	1881	1599	0	1881	1805	0	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		106					
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Link Speed (mph)	30			30	30		
Link Distance (ft)	184			494	490		
Travel Time (s)	4.2			11.2	11.1		
Volume (vph)	716	441	0	709	207	0	
Peak Hour Factor	0.93	0.93	0.90	0.90	0.93	0.93	
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%	
Adj. Flow (vph)	770	474	0	788	223	0	
Lane Group Flow (vph)	770	474	0	788	223	0	
Turn Type		Free	Perm				
Protected Phases	2			6	8		9
Permitted Phases		Free	6				
Detector Phases	2		6	6	8		
Minimum Initial (s)	10.0		10.0	10.0	7.0		16.0
Minimum Split (s)	16.0		16.0	16.0	13.0		18.0
Total Split (s)	77.0	0.0	77.0	77.0	35.0	0.0	18.0
Total Split (%)	59.2%	0.0%	59.2%	59.2%	26.9%	0.0%	14%

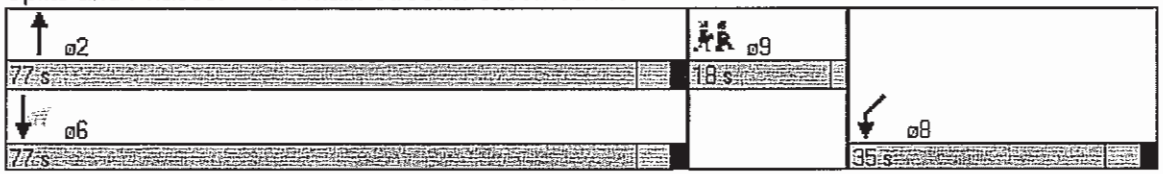
Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	ø9
Maximum Green (s)	71.0		71.0	71.0	29.0		16.0
Yellow Time (s)	4.0		4.0	4.0	4.0		2.0
All-Red Time (s)	2.0		2.0	2.0	2.0		0.0
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0		3.0	3.0	3.0		3.0
Recall Mode	C-Max		C-Max	C-Max	None		None
Walk Time (s)							5.0
Flash Dont Walk (s)							8.0
Pedestrian Calls (#/hr)							5
Act Effct Green (s)	96.7	130.0		96.7	23.7		
Actuated g/C Ratio	0.74	1.00		0.74	0.18		
v/c Ratio	0.55	0.30		0.56	0.68		
Control Delay	6.6	0.2		11.7	59.4		
Queue Delay	3.1	0.0		0.0	0.0		
Total Delay	9.7	0.2		11.7	59.4		
LOS	A	A		B	E		
Approach Delay	6.1			11.7	59.4		
Approach LOS	A			B	E		
90th %ile Green (s)	71.9		71.9	71.9	28.1		16.0
90th %ile Term Code	Coord		Coord	Coord	Gap		Max
70th %ile Green (s)	94.3		94.3	94.3	23.7		0.0
70th %ile Term Code	Coord		Coord	Coord	Gap		Skip
50th %ile Green (s)	97.3		97.3	97.3	20.7		0.0
50th %ile Term Code	Coord		Coord	Coord	Gap		Skip
30th %ile Green (s)	100.3		100.3	100.3	17.7		0.0
30th %ile Term Code	Coord		Coord	Coord	Gap		Skip
10th %ile Green (s)	104.5		104.5	104.5	13.5		0.0
10th %ile Term Code	Coord		Coord	Coord	Gap		Skip
Queue Length 50th (ft)	167	0		224	177		
Queue Length 95th (ft)	m369	m0		625	248		
Internal Link Dist (ft)	104			414	410		
Turn Bay Length (ft)		131					
Base Capacity (vph)	1399	1599		1399	444		

Lane Group	NBT	NBR	SBL	SBT	SWL	SWR	ø9
Starvation Cap Reductn	506	0		0	0		
Spillback Cap Reductn	0	0		0	0		
Storage Cap Reductn	0	0		0	0		
Reduced v/c Ratio	0.86	0.30		0.56	0.50		

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 9 (7%), Referenced to phase 2:NBT and 6:SBTL, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 13.3 Intersection LOS: B
Intersection Capacity Utilization 55.8% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 16: Main Street & Green Street



HCM Level of Service Summary - Existing Conditions (2007)

Intersection	L.O.S.	Delay	V/C	50% Queue	95% Queue
Garfield					
Overall	C (C)	21.8 (22.6)	0.61 (0.65)	--- ---	--- ---
EB L	B (B)	15.9 (19.7)	0.07 (0.20)	5 (7)	19 (27)
EB T	C (C)	22.0 (20.1)	0.63 (0.55)	139 (113)	216 (179)
WB T	B (C)	19.0 (23.3)	0.45 (0.72)	97 (174)	155 (264)
SB LT	C (C)	30.3 (29.3)	0.55 (0.51)	63 (53)	120 (106)
Cross					
Overall	C (C)	25.0 (27.8)	0.66 (0.67)	--- ---	--- ---
EB L	B (B)	16.0 (17.5)	0.05 (0.08)	5 (5)	17 (19)
EB T	C (C)	22.8 (22.1)	0.64 (0.56)	168 (138)	230 (193)
WB L	D (C)	41.2 (26.8)	0.65 (0.44)	35 (27)	m#111 (m69)
WB T	B (C)	17.8 (21.3)	0.30 (0.53)	67 (132)	101 (183)
NB LT	D (E)	42.0 (62.2)	0.66 (0.88)	80 (112)	173 (248)
SB LT	C (C)	25.8 (25.8)	0.02 (0.02)	2 (2)	20 (16)
Franklin					
Overall	C (C)	23.8 (23.8)	0.53 (0.56)	--- ---	--- ---
EB T	C (C)	20.9 (21.3)	0.47 (0.48)	114 (117)	161 (164)
WB T	B (C)	19.5 (22.8)	0.34 (0.57)	73 (135)	108 (189)
NB LT	D (D)	38.6 (35.1)	0.64 (0.54)	94 (78)	174 (143)
Lombardi					
Overall	B (C)	15.7 (20.0)	0.43 (0.55)	--- ---	--- ---
EB LT	B (B)	16.5 (16.7)	0.31 (0.33)	97 (103)	134 (141)
NB LT	C (D)	29.8 (44.9)	0.36 (0.80)	77 (216)	140 (364)
SB LT	C (C)	23.2 (29.8)	0.58 (0.70)	115 (108)	180 (170)
SB R	A (A)	0.9 (1.4)	0.24 (0.39)	0 (0)	0 (0)

\# 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

2007 Existing Conditions (AM)

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Volume (vph)	510	520	235	5	110	235	170	10	115	1045	55	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	12	12	12	12	12	10	12	12	12
Total Lost time (s)	6.5	6.5	6.5		6.5	6.5	6.5		6.5	6.5		
Lane Util. Factor	0.86	0.86	1.00		0.91	0.91	1.00		1.00	0.91		
Frt	1.00	1.00	0.85		1.00	1.00	0.85		1.00	0.99		
Flt Protected	0.95	0.98	1.00		0.95	0.99	1.00		0.95	1.00		
Satd. Flow (prot)	1420	4728	1478		1610	3361	1583		1652	5047		
Flt Permitted	0.95	0.98	1.00		0.31	0.99	1.00		0.40	1.00		
Satd. Flow (perm)	1420	4728	1478		521	3361	1583		702	5047		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	554	565	255	5	120	255	185	11	125	1136	60	16
RTOR Reduction (vph)	0	0	141	0	0	0	69	0	0	5	0	0
Lane Group Flow (vph)	277	842	114	0	72	308	116	0	136	1191	0	0
Turn Type	Split		Perm	Perm	Split		Perm	custom	Prot			custom
Protected Phases	4	4			8	8			5	2		
Permitted Phases			4	8			8	5				1
Actuated Green, G (s)	23.5	23.5	23.5		20.1	20.1	20.1		9.9	40.5		
Effective Green, g (s)	23.5	23.5	23.5		20.1	20.1	20.1		9.9	40.5		
Actuated g/C Ratio	0.20	0.20	0.20		0.17	0.17	0.17		0.08	0.34		
Clearance Time (s)	6.5	6.5	6.5		6.5	6.5	6.5		6.5	6.5		
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	278	926	289		87	563	265		58	1703		
v/s Ratio Prot	c0.20	0.18				0.09				0.24		
v/s Ratio Perm			0.08		c0.14		0.07		c0.19			
v/c Ratio	1.00	0.91	0.40		0.83	0.55	0.44		2.34	0.70		
Uniform Delay, d1	48.2	47.2	42.1		48.3	45.8	44.9		55.0	34.5		
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	52.6	12.5	0.9		44.8	1.1	1.2		655.2	2.4		
Delay (s)	100.9	59.7	43.0		93.1	46.9	46.0		710.2	36.9		
Level of Service	F	E	D		F	D	D		F	D		
Approach Delay (s)		64.9				52.5				105.6		
Approach LOS		E				D				F		

Intersection Summary			
HCM Average Control Delay	143.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR
Lane Configurations		↑↑↱	
Volume (vph)	105	2055	90
Ideal Flow (vphpl)	1900	1900	1900
Lane Width	12	12	12
Total Lost time (s)	6.5	6.5	
Lane Util. Factor	1.00	0.91	
Frt	1.00	0.99	
Flt Protected	0.95	1.00	
Satd. Flow (prot)	1770	5053	
Flt Permitted	0.40	1.00	
Satd. Flow (perm)	753	5053	
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	114	2234	98
RTOR Reduction (vph)	0	4	0
Lane Group Flow (vph)	130	2328	0
Turn Type	Prot		
Protected Phases	1	6	
Permitted Phases			
Actuated Green, G (s)	9.9	40.5	
Effective Green, g (s)	9.9	40.5	
Actuated g/C Ratio	0.08	0.34	
Clearance Time (s)	6.5	6.5	
Vehicle Extension (s)	3.0	3.0	
Lane Grp Cap (vph)	62	1705	
v/s Ratio Prot		c0.46	
v/s Ratio Perm	0.17		
v/c Ratio	2.10	1.37	
Uniform Delay, d1	55.0	39.8	
Progression Factor	1.00	1.00	
Incremental Delay, d2	543.9	168.3	
Delay (s)	599.0	208.0	
Level of Service	F	F	
Approach Delay (s)		228.7	
Approach LOS		F	

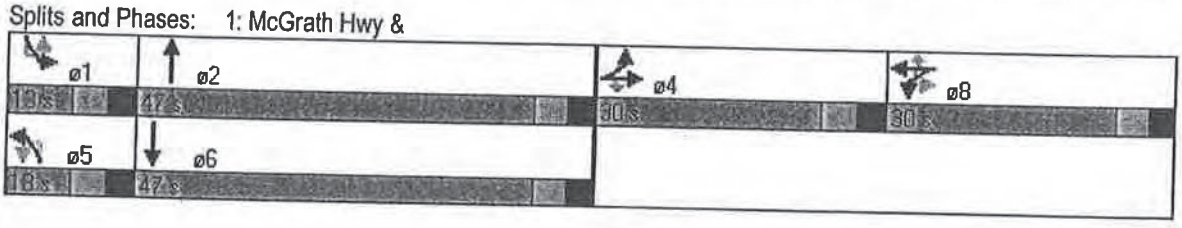
Intersection Summary

Phase Number	1	2	4	5	6	8
Movement	SBL	NBT	EBTL	NBL	SBT	WBTL
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize						Yes
Recall Mode	None	C-Max	None	Min	C-Max	None
Maximum Split (s)	13	47	30	13	47	30
Maximum Split (%)	10.8%	39.2%	25.0%	10.8%	39.2%	25.0%
Minimum Split (s)	10.5	22.5	14.5	11.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	3	3	3	3	3	3
Minimum Initial (s)	4	4	4	1	4	4
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						5
Flash Dont Walk (s)						11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	107	0	47	107	0	77
End Time (s)	0	47	77	0	47	107
Yield/Force Off (s)	113.5	40.5	70.5	113.5	40.5	100.5
Yield/Force Off 170(s)	113.5	40.5	70.5	113.5	40.5	89.5
Local Start Time (s)	107	0	47	107	0	77
Local Yield (s)	113.5	40.5	70.5	113.5	40.5	100.5
Local Yield 170(s)	113.5	40.5	70.5	113.5	40.5	89.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Splits and Phases: 1: McGrath Hwy &



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	15	670	485	30	120	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95	0.95		1.00	
Frpb, ped/bikes	1.00	1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.97	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1770	3230	3508		1739	
Flt Permitted	0.36	1.00	1.00		0.96	
Satd. Flow (perm)	675	3230	3508		1739	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	728	527	33	130	38
RTOR Reduction (vph)	0	0	5	0	14	0
Lane Group Flow (vph)	16	728	555	0	154	0
Confl. Peds. (#/hr)					120	
Parking (#/hr)		15		15		
Turn Type	Perm					
Protected Phases		2	6		4	
Permitted Phases	2					
Actuated Green, G (s)	25.6	25.6	25.6		11.5	
Effective Green, g (s)	25.6	25.6	25.6		11.5	
Actuated g/C Ratio	0.36	0.36	0.36		0.16	
Clearance Time (s)	4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	240	1147	1246		277	
v/s Ratio Prot		c0.23	0.16		c0.09	
v/s Ratio Perm	0.02					
v/c Ratio	0.07	0.63	0.45		0.55	
Uniform Delay, d1	15.4	19.4	17.8		27.9	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.5	2.7	1.2		2.4	
Delay (s)	15.9	22.0	19.0		30.3	
Level of Service	B	C	B		C	
Approach Delay (s)		21.9	19.0		30.3	
Approach LOS		C	B		C	

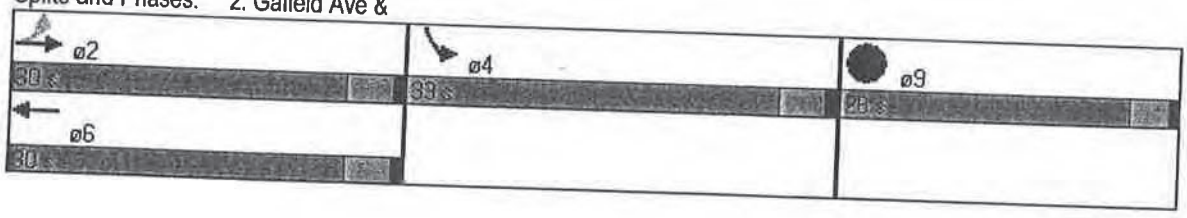
Intersection Summary			
HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	72.1	Sum of lost time (s)	35.0
Intersection Capacity Utilization	34.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	6	9
Movement	EBTL	SBL	WBT	Hold
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	None	Max	Ped
Maximum Split (s)	30	33	30	26
Maximum Split (%)	33.7%	37.1%	33.7%	29.2%
Minimum Split (s)	17	19	17	26
Yellow Time (s)	3.5	3.5	3.5	3
All-Red Time (s)	1	1	1	1
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				7
Flash Dont Walk (s)				15
Dual Entry	Yes	Yes	Yes	No
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	30	0	63
End Time (s)	30	63	30	0
Yield/Force Off (s)	25.5	58.5	25.5	85
Yield/Force Off 170(s)	25.5	58.5	25.5	70
Local Start Time (s)	0	30	0	63
Local Yield (s)	25.5	58.5	25.5	85
Local Yield 170(s)	25.5	58.5	25.5	70

Intersection Summary	
Cycle Length	89
Control Type	Actuated-Uncoordinated
Natural Cycle	65

Splits and Phases: 2: Gafield Ave &



Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	16	728	560	168
v/c Ratio	0.07	0.64	0.45	0.58
Control Delay	18.0	23.1	19.6	33.0
Queue Delay	0.0	0.0	2.0	0.0
Total Delay	18.0	23.1	21.7	33.0
Queue Length 50th (ft)	5	139	97	63
Queue Length 95th (ft)	19	216	155	120
Internal Link Dist (ft)		168	161	380
Turn Bay Length (ft)	120			
Base Capacity (vph)	239	1144	1246	698
Starvation Cap Reductn	0	0	516	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.07	0.64	0.77	0.24

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	635	140	85	380	10	120	5	60	0	5	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			5.0			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.97		1.00	1.00			0.96			0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.97			1.00	
Satd. Flow (prot)	1770	3443		1770	3524			1725			1671	
Flt Permitted	0.49	1.00		0.20	1.00			0.79			1.00	
Satd. Flow (perm)	908	3443		377	3524			1409			1671	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	1.00	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	690	152	92	380	11	130	5	65	0	5	16
RTOR Reduction (vph)	0	23	0	0	3	0	0	22	0	0	13	0
Lane Group Flow (vph)	16	819	0	92	388	0	0	178	0	0	8	0
Parking (#/hr)			15			15						
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	29.5	29.5		29.5	29.5			15.0			15.5	
Effective Green, g (s)	29.5	29.5		29.5	29.5			15.0			15.5	
Actuated g/C Ratio	0.37	0.37		0.37	0.37			0.19			0.20	
Clearance Time (s)	4.5	4.5		4.5	4.5			5.0			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	339	1286		141	1316			268			328	
v/s Ratio Prot		0.24			0.11						0.00	
v/s Ratio Perm	0.02			c0.24				c0.13				
v/c Ratio	0.05	0.64		0.65	0.30			0.66			0.02	
Uniform Delay, d1	15.8	20.3		20.5	17.4			29.7			25.6	
Progression Factor	1.00	1.00		0.98	0.99			1.00			1.00	
Incremental Delay, d2	0.3	2.4		21.1	0.6			12.3			0.1	
Delay (s)	16.0	22.8		41.3	17.8			42.0			25.8	
Level of Service	B	C		D	B			D			C	
Approach Delay (s)		22.6			22.3			42.0			25.8	
Approach LOS		C			C			D			C	

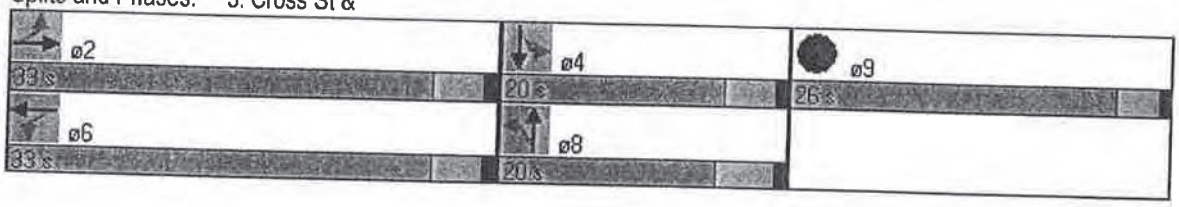
Intersection Summary			
HCM Average Control Delay	25.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	34.5
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	6	8	9
Movement	EBTL	SBTL	WBTL	NBTL	Hold
Lead/Lag					
Lead-Lag Optimize					
Recall Mode	C-Max	Max	C-Max	Max	Ped
Maximum Split (s)	33	20	33	20	26
Maximum Split (%)	41.8%	25.3%	41.8%	25.3%	32.9%
Minimum Split (s)	33	20	33	20	26
Yellow Time (s)	3.5	3.5	3.5	4	3
All-Red Time (s)	1	1	1	1	1
Minimum Initial (s)	4	4	4	4	1
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)					6
Flash Dont Walk (s)					15
Dual Entry	Yes	Yes	Yes	Yes	No
Inhibit Max	Yes	Yes	Yes	Yes	No
Start Time (s)	0	33	0	33	53
End Time (s)	33	53	33	53	0
Yield/Force Off (s)	28.5	48.5	28.5	48	75
Yield/Force Off 170(s)	28.5	48.5	28.5	48	60
Local Start Time (s)	0	33	0	33	53
Local Yield (s)	28.5	48.5	28.5	48	75
Local Yield 170(s)	28.5	48.5	28.5	48	60

Intersection Summary	
Cycle Length	79
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green	

Splits and Phases: 3: Cross St &



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	16	842	92	391	200	21
v/c Ratio	0.05	0.64	0.65	0.30	0.69	0.06
Control Delay	16.4	22.2	45.8	17.8	40.0	15.3
Queue Delay	0.0	50.1	0.0	0.0	0.0	0.0
Total Delay	16.4	72.3	45.8	17.8	40.0	15.3
Queue Length 50th (ft)	5	168	35	67	80	2
Queue Length 95th (ft)	17	230	m#111	101	#173	20
Internal Link Dist (ft)		151		106	541	575
Turn Bay Length (ft)	65		90			
Base Capacity (vph)	339	1309	141	1319	289	341
Starvation Cap Reductn	0	542	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	0.05	1.10	0.65	0.30	0.69	0.06

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	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↰	
Volume (vph)	545	0	0	360	145	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	
Lane Util. Factor	0.95			0.95	1.00	
Frt	1.00			1.00	0.96	
Flt Protected	1.00			1.00	0.97	
Satd. Flow (prot)	3539			3230	1725	
Flt Permitted	1.00			1.00	0.97	
Satd. Flow (perm)	3539			3230	1725	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	592	0	0	391	158	71
RTOR Reduction (vph)	0	0	0	0	20	0
Lane Group Flow (vph)	592	0	0	391	209	0
Parking (#/hr)		15		15		
Turn Type						
Protected Phases	2			6	8	
Permitted Phases						
Actuated Green, G (s)	28.0			28.0	15.0	
Effective Green, g (s)	28.0			28.0	15.0	
Actuated g/C Ratio	0.35			0.35	0.19	
Clearance Time (s)	5.0			5.0	5.0	
Lane Grp Cap (vph)	1254			1145	328	
v/s Ratio Prot	c0.17			0.12	c0.12	
v/s Ratio Perm						
v/c Ratio	0.47			0.34	0.64	
Uniform Delay, d1	19.8			18.7	29.5	
Progression Factor	0.99			1.00	1.00	
Incremental Delay, d2	1.3			0.8	9.1	
Delay (s)	20.9			19.5	38.6	
Level of Service	C			B	D	
Approach Delay (s)	20.9			19.5	38.6	
Approach LOS	C			B	D	

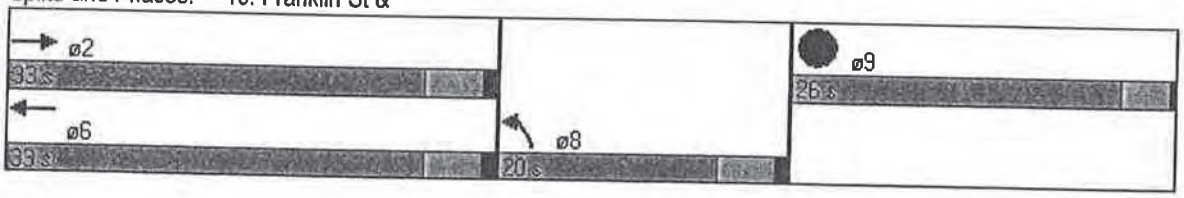
Intersection Summary			
HCM Average Control Delay	23.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	36.0
Intersection Capacity Utilization	35.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	6	8	9
Movement	EBT	WBT	NBL	Hold
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	33	33	20	26
Maximum Split (%)	41.8%	41.8%	25.3%	32.9%
Minimum Split (s)	33	33	20	26
Yellow Time (s)	4	4	4	3.5
All-Red Time (s)	1	1	1	0.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				7
Flash Dont Walk (s)				15
Dual Entry	Yes	Yes	Yes	No
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	0	33	53
End Time (s)	33	33	53	0
Yield/Force Off (s)	28	28	48	75
Yield/Force Off 170(s)	28	28	48	60
Local Start Time (s)	0	0	33	53
Local Yield (s)	28	28	48	75
Local Yield 170(s)	28	28	48	60

Intersection Summary	
Cycle Length	79
Control Type	Pretimed
Natural Cycle	80

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Splits and Phases: 10: Franklin St &



Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	598	658	195
v/c Ratio	0.48	0.57	0.56
Control Delay	21.6	23.1	32.8
Queue Delay	0.0	0.0	0.0
Total Delay	21.6	23.1	32.8
Queue Length 50th (ft)	117	135	78
Queue Length 95th (ft)	164	189	143
Internal Link Dist (ft)	43	92	809
Turn Bay Length (ft)			
Base Capacity (vph)	1254	1145	346
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.48	0.57	0.56

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	115	375	0	0	0	0	55	215	100	260	0	545
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0						4.0		3.0		4.0
Lane Util. Factor		0.95						1.00		1.00		1.00
Frt		1.00						0.96		1.00		0.85
Flt Protected		0.99						0.99		0.95		1.00
Satd. Flow (prot)		3498						1781		1770		1583
Flt Permitted		0.99						0.99		0.29		1.00
Satd. Flow (perm)		3498						1781		534		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	408	0	0	0	0	60	234	109	283	0	592
RTOR Reduction (vph)	0	0	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	0	533	0	0	0	0	0	389	0	283	0	592
Parking (#/hr)			15									
Turn Type	Perm						Perm			custom		custom
Protected Phases		2						8		7		4
Permitted Phases	2						8			4		2 4
Actuated Green, G (s)		44.0						26.0		42.0		86.0
Effective Green, g (s)		44.0						26.0		42.0		86.0
Actuated g/C Ratio		0.46						0.27		0.44		0.91
Clearance Time (s)		5.0						4.0		3.0		4.0
Lane Grp Cap (vph)		1620						487		405		1500
v/s Ratio Prot										c0.10		c0.17
v/s Ratio Perm		0.15						0.22		0.21		0.20
v/c Ratio		0.33						0.80		0.70		0.39
Uniform Delay, d1		16.2						32.1		20.2		0.7
Progression Factor		1.00						1.00		1.00		1.00
Incremental Delay, d2		0.5						12.9		9.6		0.8
Delay (s)		16.7						44.9		29.8		1.4
Level of Service		B						D		C		A
Approach Delay (s)		16.7			0.0			44.9			10.6	
Approach LOS		B			A			D			B	

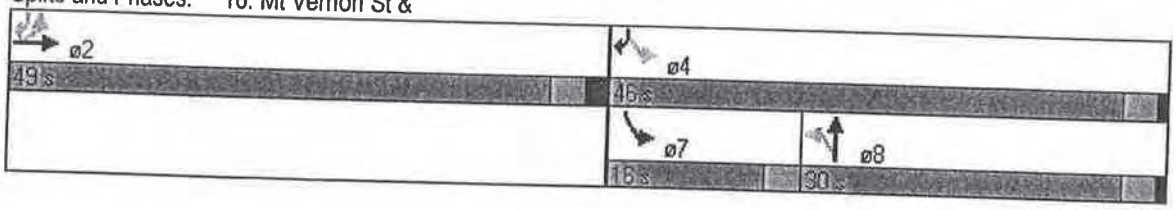
Intersection Summary			
HCM Average Control Delay	20.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	60.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	7	8
Movement	EBTL	SBL	SBL	NBTL
Lead/Lag			Lead	Lag
Lead-Lag Optimize			Yes	Yes
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	49	46	16	30
Maximum Split (%)	51.6%	48.4%	16.8%	31.6%
Minimum Split (s)	21	20	16	20
Yellow Time (s)	3	3	3	3
All-Red Time (s)	2	1	0	1
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				5
Flash Dont Walk (s)				11
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	49	49	65
End Time (s)	49	0	65	0
Yield/Force Off (s)	44	91	62	91
Yield/Force Off 170(s)	44	91	62	80
Local Start Time (s)	0	49	49	65
Local Yield (s)	44	91	62	91
Local Yield 170(s)	44	91	62	80

Intersection Summary	
Cycle Length	95
Control Type	Pretimed
Natural Cycle	60
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:, Start of Green	

Splits and Phases: 16: Mt Vernon St &



Lane Group	EBT	NBT	SBL	SBR
Lane Group Flow (vph)	533	403	283	592
v/c Ratio	0.33	0.80	0.69	0.37
Control Delay	16.9	44.6	26.9	0.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	16.9	44.6	26.9	0.7
Queue Length 50th (ft)	103	216	108	0
Queue Length 95th (ft)	141	#364	170	0
Internal Link Dist (ft)	182	275		
Turn Bay Length (ft)				
Base Capacity (vph)	1620	501	411	1583
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.33	0.80	0.69	0.37

Intersection Summary

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

2007 Existing Conditions (PM)

Movement	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBU
Lane Configurations												
Volume (vph)	465	390	110	10	150	390	260	10	240	2005	100	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	12	12	12	12	12	10	12	12	12
Total Lost time (s)	6.5	6.5	6.5		6.5	6.5	6.5		6.5	6.5		
Lane Util. Factor	0.86	0.86	1.00		0.91	0.91	1.00		1.00	0.91		
Frt	1.00	1.00	0.85		1.00	1.00	0.85		1.00	0.99		
Flt Protected	0.95	0.98	1.00		0.95	1.00	1.00		0.95	1.00		
Satd. Flow (prot)	1420	4718	1478		1610	3374	1583		1652	5049		
Flt Permitted	0.95	0.98	1.00		0.37	1.00	1.00		0.62	1.00		
Satd. Flow (perm)	1420	4718	1478		623	3374	1583		1070	5049		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	505	424	120	11	163	424	283	11	261	2179	109	60
RTOR Reduction (vph)	0	0	83	0	0	0	28	0	0	5	0	0
Lane Group Flow (vph)	252	677	37	0	128	470	255	0	272	2283	0	0
Turn Type	Split		Perm	Perm	Split		Perm	custom	Prot			custom
Protected Phases	4	4			8	8			5	2		
Permitted Phases			4	8			8	5				1
Actuated Green, G (s)	23.1	23.1	23.1		23.9	23.9	23.9		6.5	40.5		
Effective Green, g (s)	23.1	23.1	23.1		23.9	23.9	23.9		6.5	40.5		
Actuated g/C Ratio	0.19	0.19	0.19		0.20	0.20	0.20		0.05	0.34		
Clearance Time (s)	6.5	6.5	6.5		6.5	6.5	6.5		6.5	6.5		
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	273	908	285		124	672	315		58	1704		
v/s Ratio Prot	c0.18	0.14				0.14				c0.45		
v/s Ratio Perm			0.02		c0.21		0.16		c0.25			
v/c Ratio	0.92	0.75	0.13		1.03	0.70	0.81		4.69	1.34		
Uniform Delay, d1	47.6	45.7	40.1		48.0	44.7	45.9		56.8	39.8		
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	34.5	3.4	0.2		89.7	3.2	14.2		1698.9	157.1		
Delay (s)	82.1	49.0	40.3		137.7	47.9	60.0		1755.6	196.8		
Level of Service	F	D	D		F	D	E		F	F		
Approach Delay (s)		56.0				64.9				362.4		
Approach LOS		E				E				F		

Intersection Summary			
HCM Average Control Delay	204.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.39		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	26.0
Intersection Capacity Utilization	100.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBT	SBR
Lane Configurations			
Volume (vph)	100	1260	140
Ideal Flow (vphpl)	1900	1900	1900
Lane Width	12	12	12
Total Lost time (s)	6.5	6.5	
Lane Util. Factor	1.00	0.91	
Frt	1.00	0.99	
Flt Protected	0.95	1.00	
Satd. Flow (prot)	1770	5009	
Flt Permitted	0.62	1.00	
Satd. Flow (perm)	1146	5009	
Peak-hour factor, PHF	0.92	0.92	0.92
Adj. Flow (vph)	109	1370	152
RTOR Reduction (vph)	0	11	0
Lane Group Flow (vph)	169	1511	0
Turn Type	Prot		
Protected Phases	1	6	
Permitted Phases			
Actuated Green, G (s)	6.5	40.5	
Effective Green, g (s)	6.5	40.5	
Actuated g/C Ratio	0.05	0.34	
Clearance Time (s)	6.5	6.5	
Vehicle Extension (s)	3.0	3.0	
Lane Grp Cap (vph)	62	1691	
v/s Ratio Prot		0.30	
v/s Ratio Perm	0.15		
v/c Ratio	2.73	0.89	
Uniform Delay, d1	56.8	37.7	
Progression Factor	1.00	1.00	
Incremental Delay, d2	820.0	7.7	
Delay (s)	876.8	45.4	
Level of Service	F	D	
Approach Delay (s)		128.5	
Approach LOS		F	

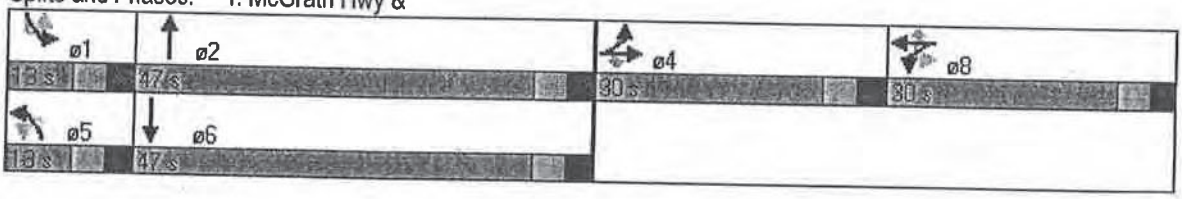
Intersection Summary

Phase Number	1	2	4	5	6	8
Movement	SBL	NBT	EBTL	NBL	SBT	WBTL
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag
Lead-Lag Optimize						Yes
Recall Mode	None	C-Max	None	Min	C-Max	None
Maximum Split (s)	13	47	30	13	47	30
Maximum Split (%)	10.8%	39.2%	25.0%	10.8%	39.2%	25.0%
Minimum Split (s)	10.5	22.5	14.5	11.5	22.5	22.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	3	3	3	3	3	3
Minimum Initial (s)	4	4	4	1	4	4
Vehicle Extension (s)	3	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0	0
Walk Time (s)						5
Flash Dont Walk (s)						11
Dual Entry	Yes	Yes	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes	Yes	Yes
Start Time (s)	107	0	47	107	0	77
End Time (s)	0	47	77	0	47	107
Yield/Force Off (s)	113.5	40.5	70.5	113.5	40.5	100.5
Yield/Force Off 170(s)	113.5	40.5	70.5	113.5	40.5	89.5
Local Start Time (s)	107	0	47	107	0	77
Local Yield (s)	113.5	40.5	70.5	113.5	40.5	100.5
Local Yield 170(s)	113.5	40.5	70.5	113.5	40.5	89.5

Intersection Summary	
Cycle Length	120
Control Type	Actuated-Coordinated
Natural Cycle	90

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Splits and Phases: 1: McGrath Hwy &



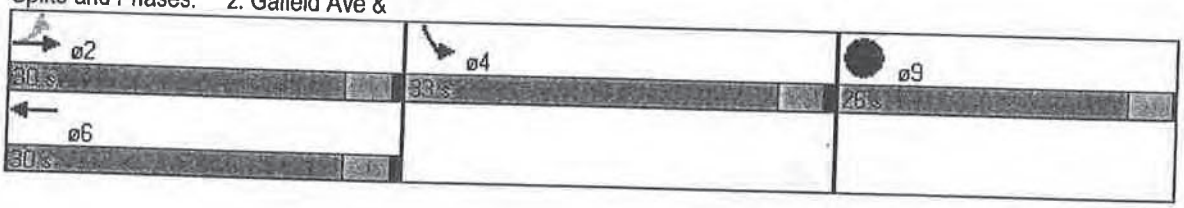
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	20	580	770	60	100	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95	0.95		1.00	
Frpb, ped/bikes	1.00	1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.96	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1770	3230	3501		1730	
Flt Permitted	0.17	1.00	1.00		0.97	
Satd. Flow (perm)	314	3230	3501		1730	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	630	837	65	109	43
RTOR Reduction (vph)	0	0	6	0	20	0
Lane Group Flow (vph)	22	630	896	0	132	0
Confl. Peds. (#/hr)					120	
Parking (#/hr)		15		15		
Turn Type	Perm					
Protectcd Phases		2	6		4	
Permitted Phases	2					
Actuated Green, G (s)	25.5	25.5	25.5		10.8	
Effective Green, g (s)	25.5	25.5	25.5		10.8	
Actuated g/C Ratio	0.36	0.36	0.36		0.15	
Clearance Time (s)	4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	112	1155	1252		262	
v/s Ratio Prot		0.20	c0.26		c0.08	
v/s Ratio Perm	0.07					
v/c Ratio	0.20	0.55	0.72		0.51	
Uniform Delay, d1	15.8	18.3	19.8		27.8	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	3.9	1.9	3.5		1.5	
Delay (s)	19.7	20.1	23.3		29.3	
Level of Service	B	C	C		C	
Approach Delay (s)		20.1	23.3		29.3	
Approach LOS		C	C		C	

Intersection Summary			
HCM Average Control Delay	22.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	71.3	Sum of lost time (s)	35.0
Intersection Capacity Utilization	38.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	9
Movement	EBTL	SBL	WBT	Hold
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	None	Max	Ped
Maximum Split (s)	30	33	30	26
Maximum Split (%)	33.7%	37.1%	33.7%	29.2%
Minimum Split (s)	20	15	20	26
Yellow Time (s)	3.5	3.5	3.5	3.5
All-Red Time (s)	1	1	1	0.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				7
Flash Dont Walk (s)				15
Dual Entry	Yes	No	Yes	No
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	30	0	63
End Time (s)	30	63	30	0
Yield/Force Off (s)	25.5	58.5	25.5	85
Yield/Force Off 170(s)	25.5	58.5	25.5	70
Local Start Time (s)	0	30	0	63
Local Yield (s)	25.5	58.5	25.5	85
Local Yield 170(s)	25.5	58.5	25.5	70

Intersection Summary	
Cycle Length	89
Control Type	Actuated-Uncoordinated
Natural Cycle	65

Splits and Phases: 2: Gafield Ave &



Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	22	630	902	152
v/c Ratio	0.20	0.54	0.72	0.54
Control Delay	22.8	21.0	24.0	30.9
Queue Delay	0.0	0.0	60.6	0.0
Total Delay	22.8	21.0	84.6	30.9
Queue Length 50th (ft)	7	113	174	53
Queue Length 95th (ft)	27	179	264	106
Internal Link Dist (ft)		178	161	389
Turn Bay Length (ft)	120			
Base Capacity (vph)	112	1156	1258	705
Starvation Cap Reductn	0	0	456	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.20	0.54	1.12	0.22

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	535	130	70	665	10	160	5	70	5	1	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			5.0			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.97		1.00	1.00			0.96			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.98	
Satd. Flow (prot)	1770	3436		1770	3531			1729			1710	
Flt Permitted	0.28	1.00		0.26	1.00			0.79			0.91	
Satd. Flow (perm)	530	3436		479	3531			1411			1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	1.00	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	582	141	76	665	11	174	5	76	5	1	5
RTOR Reduction (vph)	0	27	0	0	1	0	0	19	0	0	4	0
Lane Group Flow (vph)	16	696	0	76	675	0	0	236	0	0	7	0
Parking (#/hr)			15			15						
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	28.5	28.5		28.5	28.5			15.0			15.5	
Effective Green, g (s)	28.5	28.5		28.5	28.5			15.0			15.5	
Actuated g/C Ratio	0.36	0.36		0.36	0.36			0.19			0.20	
Clearance Time (s)	4.5	4.5		4.5	4.5			5.0			4.5	
Lane Grp Cap (vph)	191	1240		173	1274			268			311	
v/s Ratio Prot		c0.20			0.19							
v/s Ratio Perm	0.03			0.16				c0.17			0.00	
v/c Ratio	0.08	0.56		0.44	0.53			0.88			0.02	
Uniform Delay, d1	16.6	20.2		19.2	20.0			31.1			25.6	
Progression Factor	1.00	1.00		0.99	0.99			1.00			1.00	
Incremental Delay, d2	0.9	1.8		7.9	1.6			31.1			0.1	
Delay (s)	17.5	22.1		26.8	21.3			62.2			25.8	
Level of Service	B	C		C	C			E			C	
Approach Delay (s)		22.0			21.9			62.2			25.8	
Approach LOS		C			C			E			C	

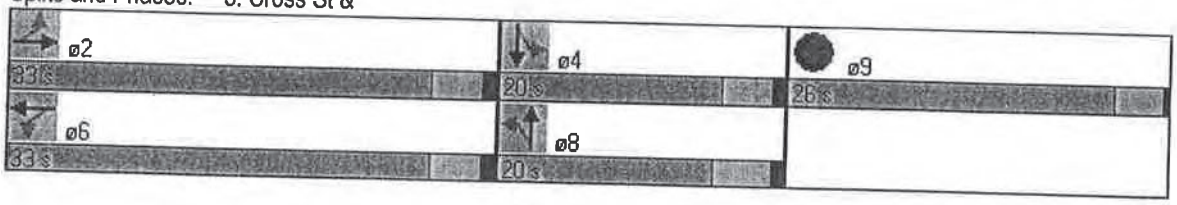
Intersection Summary			
HCM Average Control Delay	27.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	35.5
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	6	8	9
Movement	EBTL	SBTL	WBTL	NBTL	Hold
Lead/Lag					
Lead-Lag Optimize					
Recall Mode	Max	Max	Max	Max	Max
Maximum Split (s)	33	20	33	20	26
Maximum Split (%)	41.8%	25.3%	41.8%	25.3%	32.9%
Minimum Split (s)	33	20	33	20	26
Yellow Time (s)	3.5	3.5	3.5	4	3.5
All-Red Time (s)	1	1	1	1	0.5
Minimum Initial (s)	4	4	4	4	4
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)					7
Flash Dont Walk (s)					15
Dual Entry	Yes	Yes	Yes	Yes	No
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	33	0	33	53
End Time (s)	33	53	33	53	0
Yield/Force Off (s)	28.5	48.5	28.5	48	75
Yield/Force Off 170(s)	28.5	48.5	28.5	48	60
Local Start Time (s)	0	33	0	33	53
Local Yield (s)	28.5	48.5	28.5	48	75
Local Yield 170(s)	28.5	48.5	28.5	48	60

Intersection Summary	
Cycle Length	79
Control Type	Pretimed
Natural Cycle	80

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Splits and Phases: 3: Cross St &



Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	16	723	76	676	255	11
v/c Ratio	0.08	0.57	0.44	0.53	0.89	0.03
Control Delay	18.3	21.2	28.8	21.5	62.0	20.9
Queue Delay	0.0	13.9	0.0	0.0	0.0	0.0
Total Delay	18.3	35.1	28.8	21.5	62.0	20.9
Queue Length 50th (ft)	5	138	27	132	112	2
Queue Length 95th (ft)	19	193	m69	183	#248	16
Internal Link Dist (ft)		161		106	523	584
Turn Bay Length (ft)	65		90			
Base Capacity (vph)	192	1267	173	1275	287	315
Starvation Cap Reductn	0	531	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	0.08	0.98	0.44	0.53	0.89	0.03

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	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑	↰	
Volume (vph)	550	0	0	605	130	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0			5.0	5.0	
Lane Util. Factor	0.95			0.95	1.00	
Frt	1.00			1.00	0.96	
Flt Protected	1.00			1.00	0.97	
Satd. Flow (prot)	3539			3230	1731	
Flt Permitted	1.00			1.00	0.97	
Satd. Flow (perm)	3539			3230	1731	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	598	0	0	658	141	54
RTOR Reduction (vph)	0	0	0	0	18	0
Lane Group Flow (vph)	598	0	0	658	177	0
Parking (#/hr)		15		15		
Turn Type						
Protected Phases	2			6	8	
Permitted Phases						
Actuated Green, G (s)	28.0			28.0	15.0	
Effective Green, g (s)	28.0			28.0	15.0	
Actuated g/C Ratio	0.35			0.35	0.19	
Clearance Time (s)	5.0			5.0	5.0	
Lane Grp Cap (vph)	1254			1145	329	
v/s Ratio Prot	0.17			c0.20	c0.10	
v/s Ratio Perm						
v/c Ratio	0.48			0.57	0.54	
Uniform Delay, d1	19.8			20.7	28.9	
Progression Factor	1.01			1.00	1.00	
Incremental Delay, d2	1.3			2.1	6.2	
Delay (s)	21.3			22.8	35.1	
Level of Service	C			C	D	
Approach Delay (s)	21.3			22.8	35.1	
Approach LOS	C			C	D	

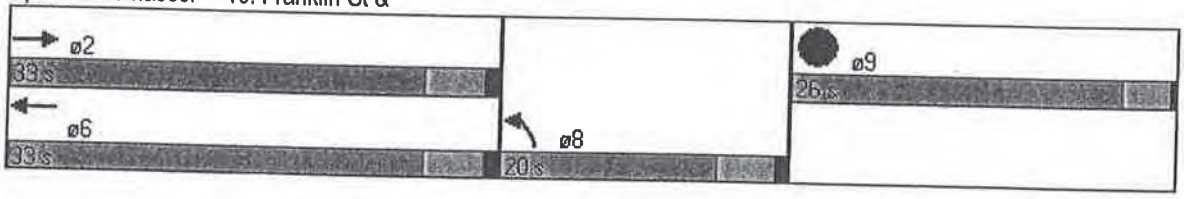
Intersection Summary			
HCM Average Control Delay	23.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	36.0
Intersection Capacity Utilization	35.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	6	8	9
Movement	EBT	WBT	NBL	Hold
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	33	33	20	26
Maximum Split (%)	41.8%	41.8%	25.3%	32.9%
Minimum Split (s)	33	33	20	26
Yellow Time (s)	4	4	4	3.5
All-Red Time (s)	1	1	1	0.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				7
Flash Dont Walk (s)				15
Dual Entry	Yes	Yes	Yes	No
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	0	33	53
End Time (s)	33	33	53	0
Yield/Force Off (s)	28	28	48	75
Yield/Force Off 170(s)	28	28	48	60
Local Start Time (s)	0	0	33	53
Local Yield (s)	28	28	48	75
Local Yield 170(s)	28	28	48	60

Intersection Summary	
Cycle Length	79
Control Type	Pretimed
Natural Cycle	80

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Splits and Phases: 10: Franklin St &



Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	592	391	229
v/c Ratio	0.47	0.34	0.66
Control Delay	21.2	19.8	36.6
Queue Delay	0.0	0.0	0.0
Total Delay	21.2	19.8	36.6
Queue Length 50th (ft)	114	73	94
Queue Length 95th (ft)	161	108	#174
Internal Link Dist (ft)	43	92	809
Turn Bay Length (ft)			
Base Capacity (vph)	1254	1145	348
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.47	0.34	0.66

Intersection Summary

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

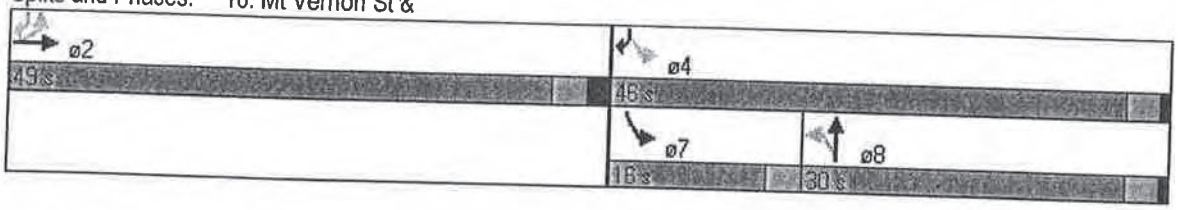
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	400	0	0	0	0	30	75	75	275	0	335
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0						4.0		3.0		4.0
Lane Util. Factor		0.95						1.00		1.00		1.00
Frt		1.00						0.94		1.00		0.85
Flt Protected		0.99						0.99		0.95		1.00
Satd. Flow (prot)		3515						1743		1770		1583
Flt Permitted		0.99						0.99		0.49		1.00
Satd. Flow (perm)		3515						1743		907		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	435	0	0	0	0	33	82	82	299	0	364
RTOR Reduction (vph)	0	0	0	0	0	0	0	27	0	0	0	0
Lane Group Flow (vph)	0	506	0	0	0	0	0	170	0	299	0	364
Parking (#/hr)			15									
Turn Type	Perm						Perm			custom		custom
Protected Phases		2						8		7		4
Permitted Phases	2						8			4		2 4
Actuated Green, G (s)		44.0						26.0		42.0		86.0
Effective Green, g (s)		44.0						26.0		42.0		86.0
Actuated g/C Ratio		0.46						0.27		0.44		0.91
Clearance Time (s)		5.0						4.0		3.0		4.0
Lane Grp Cap (vph)		1628						477		519		1500
v/s Ratio Prot										c0.08		0.11
v/s Ratio Perm		0.14						0.10		c0.18		0.12
v/c Ratio		0.31						0.36		0.68		0.24
Uniform Delay, d1		16.0						27.8		18.6		0.5
Progression Factor		1.00						1.00		1.00		1.00
Incremental Delay, d2		0.5						2.1		4.6		0.4
Delay (s)		16.5						29.8		23.2		0.9
Level of Service		B						C		C		A
Approach Delay (s)		16.5			0.0			29.8			11.0	
Approach LOS		B			A			C			B	

Intersection Summary			
HCM Average Control Delay	15.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	49.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Phase Number	2	4	7	8
Movement	EBTL	SBL	SBL	NBTL
Lead/Lag			Lead	Lag
Lead-Lag Optimize			Yes	Yes
Recall Mode	Max	Max	Max	Max
Maximum Split (s)	49	46	16	30
Maximum Split (%)	51.6%	48.4%	16.8%	31.6%
Minimum Split (s)	21	20	14	20
Yellow Time (s)	3	3	3	3
All-Red Time (s)	2	1	0	1
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				
Flash Dont Walk (s)				
Dual Entry	Yes	Yes	Yes	Yes
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	49	49	65
End Time (s)	49	0	65	0
Yield/Force Off (s)	44	91	62	91
Yield/Force Off 170(s)	44	91	62	91
Local Start Time (s)	0	49	49	65
Local Yield (s)	44	91	62	91
Local Yield 170(s)	44	91	62	91

Intersection Summary	
Cycle Length	95
Control Type	Pretimed
Natural Cycle	55
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:, Start of Green	

Splits and Phases: 16: Mt Vernon St &



Lane Group	EBT	NBT	SBL	SBR
Lane Group Flow (vph)	506	197	299	364
v/c Ratio	0.31	0.39	0.57	0.23
Control Delay	16.7	25.3	22.0	0.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	16.7	25.3	22.0	0.3
Queue Length 50th (ft)	97	77	115	0
Queue Length 95th (ft)	134	140	180	0
Internal Link Dist (ft)	182	275		
Turn Bay Length (ft)				
Base Capacity (vph)	1628	504	529	1583
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.31	0.39	0.57	0.23

Intersection Summary

HCM Level of Service Summary - 4 Lane Option (2018)

Intersection	L.O.S.	Delay	V/C	50% Queue	95% Queue
Garfield					
Overall	B (C)	18.3 (20.5)	0.61 (0.64)	--- ---	--- ---
EB L	B (C)	15.7 (28.0)	0.06 (0.27)	5 (9)	20 (32)
EB T	C (C)	23.2 (27.2)	0.66 (0.67)	112 (192)	314 (257)
WB T	A (B)	7.2 (14.5)	0.42 (0.86)	56 (84)	77 (#111)
SB LT	C (C)	33.9 (27.9)	0.48 (0.31)	77 (61)	130 (114)
Cross					
Overall	B (C)	16.3 (20.9)	0.75 (0.69)	--- ---	--- ---
EB L	A (A)	4.9 (5.9)	0.05 (0.13)	1 (1)	m3 (m3)
EB T	A (A)	6.7 (6.7)	0.68 (0.68)	48 (39)	84 (51)
WB L	E (D)	58.3 (47.9)	0.77 (0.64)	42 (35)	m#146 (m#108)
WB T	B (C)	17.4 (26.9)	0.30 (0.67)	84 (208)	134 (275)
NB LT	D (D)	43.3 (41.7)	0.71 (0.69)	94 (122)	157 (#227)
SB LT	C (C)	30.0 (25.4)	0.03 (0.02)	2 (3)	20 (16)
Franklin					
Overall	B (B)	17.3 (14.7)	0.49 (0.50)	--- ---	--- ---
EB T	B (B)	13.3 (10.8)	0.42 (0.36)	157 (132)	223 (191)
WB T	B (B)	10.8 (12.0)	0.26 (0.46)	81 (166)	123 (m223)
NB LT	D (D)	43.4 (41.2)	0.77 (0.66)	111 (95)	182 (156)
Lombardi					
Overall	C (C)	21.8 (25.4)	0.79 (0.85)	--- ---	--- ---
EB L	B (C)	15.1 (23.6)	0.16 (0.30)	23 (55)	90 (146)
EB T	C (D)	29.6 (46.4)	0.81 (0.89)	169 (212)	#557 (#562)
NB LT	C (D)	31.0 (36.0)	0.65 (0.81)	74 (190)	#200 (#507)
SB LT	C (C)	27.6 (30.9)	0.81 (0.85)	84 (94)	#294 (#361)
SB R	A (A)	2.4 (2.8)	0.24 (0.46)	0 (0)	26 (31)

\# 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.

2028 Build 2-Lane Condition (AM)

Lane Group	EBL	EBT	WBT	SBL	ø8	ø9
Protected Phases		2	6	4	8	9
Permitted Phases	2					
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	33.0	33.0	33.0	20.0	20.0	26.0
Total Split (s)	37.0	37.0	37.0	27.0	27.0	26.0
Total Split (%)	41.1%	41.1%	41.1%	30.0%	30%	29%
Maximum Green (s)	32.5	32.5	32.5	22.5	22.0	22.0
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	0.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	None	None	Ped
Walk Time (s)						12.0
Flash Dont Walk (s)						10.0
Pedestrian Calls (#/hr)						20
90th %ile Green (s)	32.5	32.5	32.5	22.5	22.0	22.0
90th %ile Term Code	Coord	Coord	Coord	Hold	Max	Ped
70th %ile Green (s)	34.2	34.2	34.2	20.8	20.3	22.0
70th %ile Term Code	Coord	Coord	Coord	Hold	Gap	Ped
50th %ile Green (s)	37.2	37.2	37.2	17.8	17.3	22.0
50th %ile Term Code	Coord	Coord	Coord	Hold	Gap	Ped
30th %ile Green (s)	40.3	40.3	40.3	14.7	14.2	22.0
30th %ile Term Code	Coord	Coord	Coord	Hold	Gap	Ped
10th %ile Green (s)	44.7	44.7	44.7	10.3	9.8	22.0
10th %ile Term Code	Coord	Coord	Coord	Hold	Gap	Ped

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Control Type: Actuated-Coordinated

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	17	953	656	177
v/c Ratio	0.07	0.70	0.44	0.51
Control Delay	19.1	26.1	7.8	33.9
Queue Delay	0.0	0.2	0.3	0.0
Total Delay	19.1	26.3	8.1	33.9
Queue Length 50th (ft)	6	231	60	82
Queue Length 95th (ft)	21	334	81	136
Internal Link Dist (ft)		178	129	389
Turn Bay Length (ft)	120			
Base Capacity (vph)	249	1356	1478	447
Starvation Cap Reductn	0	64	325	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.07	0.74	0.57	0.40

Intersection Summary

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	15	835	545	30	120	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95	0.95		1.00	
Frt	1.00	1.00	0.99		0.97	
Flt Protected	0.95	1.00	1.00		0.96	
Satd. Flow (prot)	1770	3230	3512		1739	
Flt Permitted	0.32	1.00	1.00		0.96	
Satd. Flow (perm)	593	3230	3512		1739	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	17	953	622	34	137	40
RTOR Reduction (vph)	0	0	4	0	13	0
Lane Group Flow (vph)	17	953	652	0	164	0
Parking (#/hr)		15		15		
Turn Type	Perm					
Protected Phases		2	6		4	
Permitted Phases	2					
Actuated Green, G (s)	37.8	37.8	37.8		17.2	
Effective Green, g (s)	37.8	37.8	37.8		17.2	
Actuated g/C Ratio	0.42	0.42	0.42		0.19	
Clearance Time (s)	4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	249	1357	1475		332	
v/s Ratio Prot		c0.30	0.19		c0.09	
v/s Ratio Perm	0.03					
v/c Ratio	0.07	0.70	0.44		0.49	
Uniform Delay, d1	15.6	21.5	18.6		32.5	
Progression Factor	1.00	1.00	0.35		1.00	
Incremental Delay, d2	0.5	3.1	0.9		1.2	
Delay (s)	16.1	24.5	7.5		33.7	
Level of Service	B	C	A		C	
Approach Delay (s)		24.4	7.5		33.7	
Approach LOS		C	A		C	

Intersection Summary			
HCM Average Control Delay	19.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	35.0
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		

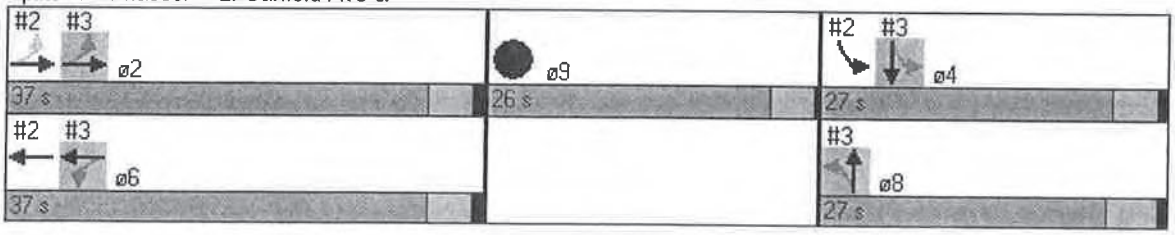
c Critical Lane Group

Phase Number	2	4	6	8	9
Node Number	2	2	2	3	0
Movement	EBTL	SBL	WBT	NBTL	Hold
Lead/Lag					
Lead-Lag Optimize					
Recall Mode	C-Max	None	C-Max	None	Ped
Maximum Split (s)	37	27	37	27	26
Maximum Split (%)	41.1%	30.0%	41.1%	30.0%	28.9%
Minimum Split (s)	33	20	33	20	26
Yellow Time (s)	3.5	3.5	3.5	4	3.5
All-Red Time (s)	1	1	1	1	0.5
Minimum Initial (s)	4	4	4	4	4
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)					12
Flash Dont Walk (s)					10
Dual Entry	Yes	Yes	Yes	Yes	No
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	63	0	63	37
End Time (s)	37	0	37	0	63
Yield/Force Off (s)	32.5	85.5	32.5	85	59
Yield/Force Off 170(s)	32.5	85.5	32.5	85	49
Local Start Time (s)	0	63	0	63	37
Local Yield (s)	32.5	85.5	32.5	85	59
Local Yield 170(s)	32.5	85.5	32.5	85	49

Intersection Summary	
Cycle Length	90
Control Type	Actuated-Coordinated
Natural Cycle	90

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Splits and Phases: 2: Garfield Ave &



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	ø9
Protected Phases		2		6		8	4	9
Permitted Phases	2		6		8			
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	33.0	33.0	33.0	33.0	20.0	20.0	20.0	26.0
Total Split (s)	37.0	37.0	37.0	37.0	27.0	27.0	27.0	26.0
Total Split (%)	41.1%	41.1%	41.1%	41.1%	30.0%	30.0%	30.0%	29%
Maximum Green (s)	32.5	32.5	32.5	32.5	22.0	22.0	22.5	22.0
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	4.0	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Lead/Lag								
Lead-Lag Optimize?								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	None	None	None	Ped
Walk Time (s)								12.0
Flash Dont Walk (s)								10.0
Pedestrian Calls (#/hr)								20
90th %ile Green (s)	32.5	32.5	32.5	32.5	22.0	22.0	22.5	22.0
90th %ile Term Code	Coord	Coord	Coord	Coord	Max	Max	Hold	Ped
70th %ile Green (s)	34.2	34.2	34.2	34.2	20.3	20.3	20.8	22.0
70th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Hold	Ped
50th %ile Green (s)	37.2	37.2	37.2	37.2	17.3	17.3	17.8	22.0
50th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Hold	Ped
30th %ile Green (s)	40.3	40.3	40.3	40.3	14.2	14.2	14.7	22.0
30th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Hold	Ped
10th %ile Green (s)	44.7	44.7	44.7	44.7	9.8	9.8	10.3	22.0
10th %ile Term Code	Coord	Coord	Coord	Coord	Gap	Gap	Hold	Ped

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Control Type: Actuated-Coordinated

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	17	1073	97	473	211	23
v/c Ratio	0.05	0.73	0.96	0.32	0.75	0.07
Control Delay	6.1	8.2	112.3	19.0	46.3	15.2
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0
Total Delay	6.1	8.5	112.3	19.0	46.3	15.2
Queue Length 50th (ft)	2	51	52	90	100	3
Queue Length 95th (ft)	m4	#94	m#163	141	167	22
Internal Link Dist (ft)		129		127	538	584
Turn Bay Length (ft)	65		90			
Base Capacity (vph)	338	1468	101	1483	363	432
Starvation Cap Reductn	0	83	0	0	0	0
Spillback Cap Reductn	0	0	0	49	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.77	0.96	0.33	0.58	0.05

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												
Volume (vph)	15	800	140	85	440	10	120	5	60	0	5	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			5.0			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.98		1.00	1.00			0.96			0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.97			1.00	
Satd. Flow (prot)	1770	3460		1770	3527			1726			1677	
Flt Permitted	0.43	1.00		0.13	1.00			0.79			1.00	
Satd. Flow (perm)	804	3460		242	3527			1407			1677	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	1.00	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	17	913	160	97	462	11	137	6	68	0	6	17
RTOR Reduction (vph)	0	15	0	0	2	0	0	20	0	0	14	0
Lane Group Flow (vph)	17	1059	0	97	471	0	0	191	0	0	9	0
Parking (#/hr)			15			15						
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	37.8	37.8		37.8	37.8			16.7			17.2	
Effective Green, g (s)	37.8	37.8		37.8	37.8			16.7			17.2	
Actuated g/C Ratio	0.42	0.42		0.42	0.42			0.19			0.19	
Clearance Time (s)	4.5	4.5		4.5	4.5			5.0			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	338	1453		102	1481			261			320	
v/s Ratio Prot		0.31			0.13						0.01	
v/s Ratio Perm	0.02			c0.40				c0.14				
v/c Ratio	0.05	0.73		0.95	0.32			0.73			0.03	
Uniform Delay, d1	15.5	21.8		25.2	17.5			34.5			29.6	
Progression Factor	0.32	0.22		0.99	0.99			1.00			1.00	
Incremental Delay, d2	0.2	2.4		76.6	0.6			10.0			0.0	
Delay (s)	5.2	7.3		101.5	17.9			44.6			29.6	
Level of Service	A	A		F	B			D			C	
Approach Delay (s)		7.2			32.1			44.6			29.6	
Approach LOS		A			C			D			C	

Intersection Summary			
HCM Average Control Delay	19.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	35.5
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	NBL	ø9
Protected Phases	2	6	8	9
Permitted Phases				
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	33.0	33.0	20.0	20.0
Total Split (s)	46.0	46.0	24.0	20.0
Total Split (%)	51.1%	51.1%	26.7%	22%
Maximum Green (s)	41.5	41.5	19.0	16.0
Yellow Time (s)	3.5	3.5	4.0	3.5
All-Red Time (s)	1.0	1.0	1.0	0.5
Lead/Lag				
Lead-Lag Optimize?				
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	None	None
Walk Time (s)				6.0
Flash Dont Walk (s)				10.0
Pedestrian Calls (#/hr)				30
90th %ile Green (s)	41.5	41.5	19.0	16.0
90th %ile Term Code	Coord	Coord	Max	Ped
70th %ile Green (s)	41.5	41.5	19.0	16.0
70th %ile Term Code	Coord	Coord	Max	Ped
50th %ile Green (s)	44.0	44.0	16.5	16.0
50th %ile Term Code	Coord	Coord	Gap	Ped
30th %ile Green (s)	66.6	66.6	13.9	0.0
30th %ile Term Code	Coord	Coord	Gap	Skip
10th %ile Green (s)	70.4	70.4	10.1	0.0
10th %ile Term Code	Coord	Coord	Gap	Skip

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Control Type: Actuated-Coordinated

Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	810	474	239
v/c Ratio	0.74	0.43	0.75
Control Delay	23.5	15.2	46.0
Queue Delay	0.0	0.0	0.0
Total Delay	23.5	15.2	46.0
Queue Length 50th (ft)	392	177	116
Queue Length 95th (ft)	#681	282	191
Internal Link Dist (ft)	41	87	809
Turn Bay Length (ft)			
Base Capacity (vph)	1093	1093	383
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.74	0.43	0.62

Intersection Summary

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	710	0	0	415	145	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	5.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	1.00			1.00	0.96	
Flt Protected	1.00			1.00	0.97	
Satd. Flow (prot)	1863			1863	1725	
Flt Permitted	1.00			1.00	0.97	
Satd. Flow (perm)	1863			1863	1725	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	810	0	0	474	165	74
RTOR Reduction (vph)	0	0	0	0	19	0
Lane Group Flow (vph)	810	0	0	474	220	0
Turn Type						
Protected Phases	2			6	8	
Permitted Phases						
Actuated Green, G (s)	51.2			51.2	15.7	
Effective Green, g (s)	51.2			51.2	15.7	
Actuated g/C Ratio	0.57			0.57	0.17	
Clearance Time (s)	4.5			4.5	5.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	1060			1060	301	
v/s Ratio Prot	c0.43			0.25	c0.13	
v/s Ratio Perm						
v/c Ratio	0.76			0.45	0.73	
Uniform Delay, d1	14.8			11.2	35.2	
Progression Factor	0.99			1.00	1.00	
Incremental Delay, d2	5.2			1.4	8.8	
Delay (s)	19.9			12.6	44.0	
Level of Service	B			B	D	
Approach Delay (s)	19.9			12.6	44.0	
Approach LOS	B			B	D	

Intersection Summary			
HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	23.1
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

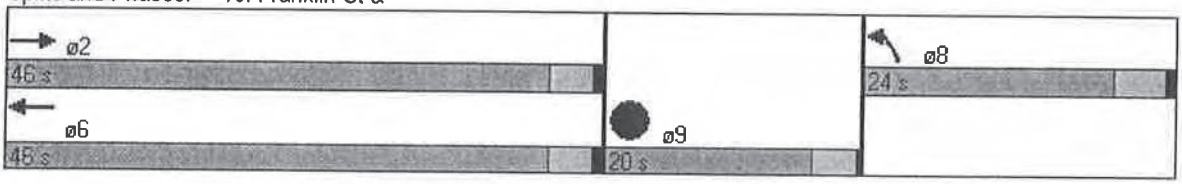
c Critical Lane Group

Phase Number	2	6	8	9
Movement	EBT	WBT	NBL	Hold
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	C-Max	None	None
Maximum Split (s)	46	46	24	20
Maximum Split (%)	51.1%	51.1%	26.7%	22.2%
Minimum Split (s)	33	33	20	20
Yellow Time (s)	3.5	3.5	4	3.5
All-Red Time (s)	1	1	1	0.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				6
Flash Dont Walk (s)				10
Dual Entry	Yes	Yes	Yes	No
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	0	66	46
End Time (s)	46	46	0	66
Yield/Force Off (s)	41.5	41.5	85	62
Yield/Force Off 170(s)	41.5	41.5	85	52
Local Start Time (s)	0	0	66	46
Local Yield (s)	41.5	41.5	85	62
Local Yield 170(s)	41.5	41.5	85	52

Intersection Summary	
Cycle Length	90
Control Type	Actuated-Coordinated
Natural Cycle	80

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Splits and Phases: 10: Franklin St &



Lane Group	EBL	EBT	NBT	SBL	SBR	ø9
Protected Phases		2	8	7	4	9
Permitted Phases	2			4	2 4	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	20.0	8.0	20.0	29.0
Total Split (s)	30.0	30.0	20.0	15.0	35.0	25.0
Total Split (%)	33.3%	33.3%	22.2%	16.7%	38.9%	28%
Maximum Green (s)	25.0	25.0	16.0	12.0	31.0	21.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	1.0	0.0	1.0	1.0
Lead/Lag			Lag	Lead		
Lead-Lag Optimize?			Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	Max	Max	None	None	None	None
Walk Time (s)	0.0	0.0	0.0		0.0	11.0
Flash Dont Walk (s)	0.0	0.0	0.0		0.0	10.0
Pedestrian Calls (#/hr)	0	0	0		0	10
90th %ile Green (s)	25.0	25.0	16.0	12.0	31.0	21.0
90th %ile Term Code	MaxR	MaxR	Max	Max	Hold	Ped
70th %ile Green (s)	25.0	25.0	14.7	12.0	29.7	0.0
70th %ile Term Code	MaxR	MaxR	Gap	Max	Hold	Skip
50th %ile Green (s)	25.0	25.0	12.8	12.0	27.8	0.0
50th %ile Term Code	MaxR	MaxR	Gap	Max	Hold	Skip
30th %ile Green (s)	25.0	25.0	11.0	12.0	26.0	0.0
30th %ile Term Code	MaxR	MaxR	Gap	Max	Hold	Skip
10th %ile Green (s)	25.0	25.0	8.6	12.0	23.6	0.0
10th %ile Term Code	MaxR	MaxR	Gap	Max	Hold	Skip

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 66.6
Control Type: Actuated-Uncoordinated
90th %ile Actuated Cycle: 90
70th %ile Actuated Cycle: 63.7
50th %ile Actuated Cycle: 61.8
30th %ile Actuated Cycle: 60
10th %ile Actuated Cycle: 57.6

Lane Group	EBL	EBT	NBT	SBL	SBR
Lane Group Flow (vph)	108	588	257	377	434
v/c Ratio	0.16	0.82	0.66	0.80	0.29
Control Delay	17.8	32.8	32.9	31.5	0.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	17.8	32.8	32.9	31.5	0.9
Queue Length 50th (ft)	25	184	78	90	0
Queue Length 95th (ft)	89	#594	#224	#324	27
Internal Link Dist (ft)		182	275		
Turn Bay Length (ft)	210				
Base Capacity (vph)	682	718	497	472	1496
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	0.16	0.82	0.52	0.80	0.29

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)	95	515	0	0	0	0	35	110	80	330	0	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	15	12	12	12	12
Total Lost time (s)	5.0	5.0						4.0		3.0		4.0
Lane Util. Factor	1.00	1.00						1.00		1.00		1.00
Frt	1.00	1.00						0.95		1.00		0.85
Flt Protected	0.95	1.00						0.99		0.95		1.00
Satd. Flow (prot)	1770	1863						1936		1770		1583
Flt Permitted	0.95	1.00						0.99		0.31		1.00
Satd. Flow (perm)	1770	1863						1936		577		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	108	588	0	0	0	0	40	126	91	377	0	434
RTOR Reduction (vph)	0	0	0	0	0	0	0	22	0	0	0	100
Lane Group Flow (vph)	108	588	0	0	0	0	0	235	0	377	0	334
Parking (#/hr)			15									
Turn Type	Perm						Perm			custom		custom
Protected Phases		2						8		7		4
Permitted Phases	2						8			4		2 4
Actuated Green, G (s)	25.7	25.7						12.7		28.0		53.7
Effective Green, g (s)	25.7	25.7						12.7		28.0		53.7
Actuated g/C Ratio	0.37	0.37						0.18		0.40		0.77
Clearance Time (s)	5.0	5.0						4.0		3.0		4.0
Vehicle Extension (s)	3.0	3.0						3.0		3.0		3.0
Lane Grp Cap (vph)	652	686						352		442		1309
v/s Ratio Prot		c0.32								c0.15		0.10
v/s Ratio Perm	0.06							0.12		c0.19		0.11
v/c Ratio	0.17	0.86						0.67		0.85		0.26
Uniform Delay, d1	14.8	20.4						26.6		17.1		2.3
Progression Factor	1.00	1.00						1.00		1.00		1.00
Incremental Delay, d2	0.5	13.1						4.7		14.7		0.1
Delay (s)	15.4	33.4						31.3		31.8		2.4
Level of Service	B	C						C		C		A
Approach Delay (s)		30.6			0.0			31.3			16.1	
Approach LOS		C			A			C			B	

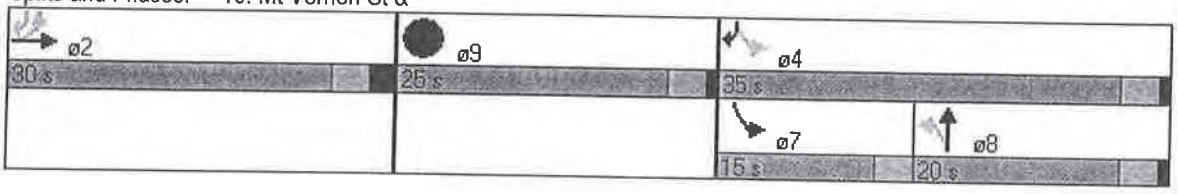
Intersection Summary			
HCM Average Control Delay	24.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	15.1
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Phase Number	2	4	7	8	9
Movement	EBTL	SBL	SBL	NBTL	Hold
Lead/Lag			Lead	Lag	
Lead-Lag Optimize			Yes	Yes	
Recall Mode	Max	None	None	None	None
Maximum Split (s)	30	35	15	20	25
Maximum Split (%)	33.3%	38.9%	16.7%	22.2%	27.8%
Minimum Split (s)	21	20	8	20	29
Yellow Time (s)	3	3	3	3	3
All-Red Time (s)	2	1	0	1	1
Minimum Initial (s)	4	4	4	4	4
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)	0	0		0	11
Flash Dont Walk (s)	0	0		0	10
Dual Entry	Yes	Yes	Yes	No	No
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	55	55	70	30
End Time (s)	30	0	70	0	55
Yield/Force Off (s)	25	86	67	86	51
Yield/Force Off 170(s)	25	86	67	86	41
Local Start Time (s)	0	55	55	70	30
Local Yield (s)	25	86	67	86	51
Local Yield 170(s)	25	86	67	86	41

Intersection Summary	
Cycle Length	90
Control Type	Actuated-Uncoordinated
Natural Cycle	100

Splits and Phases: 16: Mt Vernon St &



2028 Build 2-Lane Condition (PM)

Lane Group	EBL	EBT	WBT	SBL	ø8	ø9
Protected Phases		2	6	4	8	9
Permitted Phases	2					
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	17.0	17.0	17.0	19.0	20.0	26.0
Total Split (s)	37.0	37.0	37.0	27.0	27.0	26.0
Total Split (%)	41.1%	41.1%	41.1%	30.0%	30%	29%
Maximum Green (s)	32.5	32.5	32.5	22.5	22.0	22.0
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	0.5
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	None	Max	Ped
Walk Time (s)						12.0
Flash Dont Walk (s)						10.0
Pedestrian Calls (#/hr)						20
90th %ile Green (s)	32.5	32.5	32.5	22.5	22.0	22.0
90th %ile Term Code	Coord	Coord	Coord	Hold	MaxR	Ped
70th %ile Green (s)	32.5	32.5	32.5	22.5	22.0	22.0
70th %ile Term Code	Coord	Coord	Coord	Hold	MaxR	Ped
50th %ile Green (s)	32.5	32.5	32.5	22.5	22.0	22.0
50th %ile Term Code	Coord	Coord	Coord	Hold	MaxR	Ped
30th %ile Green (s)	32.5	32.5	32.5	22.5	22.0	22.0
30th %ile Term Code	Coord	Coord	Coord	Hold	MaxR	Ped
10th %ile Green (s)	32.5	32.5	32.5	22.5	22.0	22.0
10th %ile Term Code	Coord	Coord	Coord	Hold	MaxR	Ped

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Control Type: Actuated-Coordinated

Queues
2: Garfield Ave &

Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	23	816	1152	160
v/c Ratio	0.28	0.70	0.91	0.36
Control Delay	31.2	28.5	18.1	26.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	31.2	28.5	18.1	26.5
Queue Length 50th (ft)	9	205	88	64
Queue Length 95th (ft)	33	273	#431	120
Internal Link Dist (ft)		178	129	389
Turn Bay Length (ft)	120			
Base Capacity (vph)	83	1166	1272	449
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.28	0.70	0.91	0.36

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
2: Garfield Ave &

2-LANE PM BUILD

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	20	715	950	60	100	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95	0.95		1.00	
Frpb, ped/bikes	1.00	1.00	1.00		1.00	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.96	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1770	3230	3508		1729	
Flt Permitted	0.12	1.00	1.00		0.97	
Satd. Flow (perm)	229	3230	3508		1729	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	23	816	1084	68	114	46
RTOR Reduction (vph)	0	0	5	0	17	0
Lane Group Flow (vph)	23	816	1147	0	144	0
Confl. Peds. (#/hr)					120	
Parking (#/hr)		15		15		
Turn Type	Perm					
Protected Phases		2	6		4	
Permitted Phases	2					
Actuated Green, G (s)	32.5	32.5	32.5		22.5	
Effective Green, g (s)	32.5	32.5	32.5		22.5	
Actuated g/C Ratio	0.36	0.36	0.36		0.25	
Clearance Time (s)	4.5	4.5	4.5		4.5	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	83	1166	1267		432	
v/s Ratio Prot		0.25	c0.33		c0.08	
v/s Ratio Perm	0.10					
v/c Ratio	0.28	0.70	0.91		0.33	
Uniform Delay, d1	20.4	24.6	27.3		27.6	
Progression Factor	1.00	1.00	0.31		1.00	
Incremental Delay, d2	8.1	3.5	8.4		0.5	
Delay (s)	28.5	28.1	16.8		28.1	
Level of Service	C	C	B		C	
Approach Delay (s)		28.1	16.8		28.1	
Approach LOS		C	B		C	

Intersection Summary			
HCM Average Control Delay	22.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	35.0
Intersection Capacity Utilization	45.5%	ICU Level of Service	A
Analysis Period (min)	15		

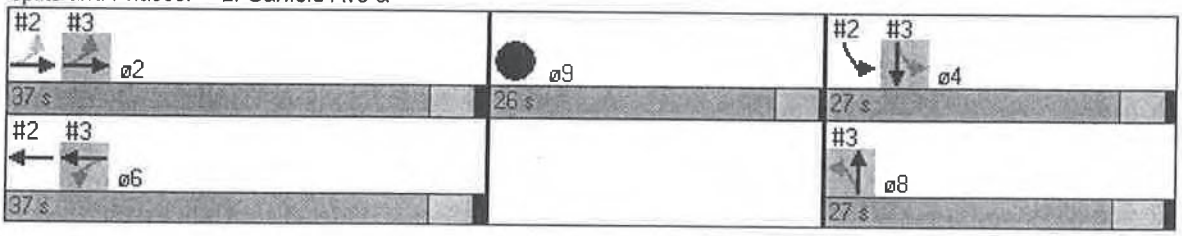
c Critical Lane Group

Phase Number	2	4	6	8	9
Node Number	2	2	2	3	0
Movement	EBTL	SBL	WBT	NBTL	Hold
Lead/Lag					
Lead-Lag Optimize					
Recall Mode	C-Max	None	C-Max	Max	Ped
Maximum Split (s)	37	27	37	27	26
Maximum Split (%)	41.1%	30.0%	41.1%	30.0%	28.9%
Minimum Split (s)	17	19	17	20	26
Yellow Time (s)	3.5	3.5	3.5	4	3.5
All-Red Time (s)	1	1	1	1	0.5
Minimum Initial (s)	4	4	4	4	4
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)					12
Flash Dont Walk (s)					10
Dual Entry	Yes	Yes	Yes	Yes	No
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	63	0	63	37
End Time (s)	37	0	37	0	63
Yield/Force Off (s)	32.5	85.5	32.5	85	59
Yield/Force Off 170(s)	32.5	85.5	32.5	85	49
Local Start Time (s)	0	63	0	63	37
Local Yield (s)	32.5	85.5	32.5	85	59
Local Yield 170(s)	32.5	85.5	32.5	85	49

Intersection Summary	
Cycle Length	90
Control Type	Actuated-Coordinated
Natural Cycle	80

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green

Splits and Phases: 2: Garfield Ave &



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	ø9
Protected Phases		2		6		8		4	9
Permitted Phases	2		6		8		4		
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	17.0	17.0	17.0	17.0	20.0	20.0	19.0	19.0	26.0
Total Split (s)	37.0	37.0	37.0	37.0	27.0	27.0	27.0	27.0	26.0
Total Split (%)	41.1%	41.1%	41.1%	41.1%	30.0%	30.0%	30.0%	30.0%	29%
Maximum Green (s)	32.5	32.5	32.5	32.5	22.0	22.0	22.5	22.5	22.0
Yellow Time (s)	3.5	3.5	3.5	3.5	4.0	4.0	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	0.5
Lead/Lag									
Lead-Lag Optimize?									
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	C-Max	C-Max	Max	Max	None	None	Ped
Walk Time (s)									12.0
Flash Dont Walk (s)									10.0
Pedestrian Calls (#/hr)									20
90th %ile Green (s)	32.5	32.5	32.5	32.5	22.0	22.0	22.5	22.5	22.0
90th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	Hold	Hold	Ped
70th %ile Green (s)	32.5	32.5	32.5	32.5	22.0	22.0	22.5	22.5	22.0
70th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	Hold	Hold	Ped
50th %ile Green (s)	32.5	32.5	32.5	32.5	22.0	22.0	22.5	22.5	22.0
50th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	Hold	Hold	Ped
30th %ile Green (s)	32.5	32.5	32.5	32.5	22.0	22.0	22.5	22.5	22.0
30th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	Hold	Hold	Ped
10th %ile Green (s)	32.5	32.5	32.5	32.5	22.0	22.0	22.5	22.5	22.0
10th %ile Term Code	Coord	Coord	Coord	Coord	MaxR	MaxR	Hold	Hold	Ped

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
Control Type: Actuated-Coordinated

Lane Group	EBL	EBT	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	17	913	80	898	269	13
v/c Ratio	0.16	0.72	0.77	0.70	0.75	0.03
Control Delay	6.9	7.0	72.6	28.1	43.2	19.9
Queue Delay	0.0	0.3	0.0	0.3	0.0	0.0
Total Delay	6.9	7.4	72.6	28.5	43.2	19.9
Queue Length 50th (ft)	2	42	39	223	130	3
Queue Length 95th (ft)	m3	53	m#124	293	#248	18
Internal Link Dist (ft)		161		106	538	584
Turn Bay Length (ft)	65		100			
Base Capacity (vph)	108	1265	104	1276	361	390
Starvation Cap Reductn	0	69	0	0	0	0
Spillback Cap Reductn	0	0	0	78	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.76	0.77	0.75	0.75	0.03

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												
Volume (vph)	15	670	130	70	845	10	160	5	70	5	1	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			5.0			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frt	1.00	0.98		1.00	1.00			0.96			0.94	
Flt Protected	0.95	1.00		0.95	1.00			0.97			0.98	
Satd. Flow (prot)	1770	3453		1770	3533			1729			1707	
Flt Permitted	0.16	1.00		0.15	1.00			0.79			0.88	
Satd. Flow (perm)	300	3453		288	3533			1410			1540	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	1.00	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	17	765	148	80	887	11	183	6	80	6	1	6
RTOR Reduction (vph)	0	18	0	0	1	0	0	17	0	0	5	0
Lane Group Flow (vph)	17	895	0	80	897	0	0	252	0	0	9	0
Parking (#/hr)			15			15						
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Actuated Green, G (s)	32.5	32.5		32.5	32.5			22.0			22.5	
Effective Green, g (s)	32.5	32.5		32.5	32.5			22.0			22.5	
Actuated g/C Ratio	0.36	0.36		0.36	0.36			0.24			0.25	
Clearance Time (s)	4.5	4.5		4.5	4.5			5.0			4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	108	1247		104	1276			345			385	
v/s Ratio Prot		0.26			0.25							
v/s Ratio Perm	0.06			c0.28				c0.18			0.01	
v/c Ratio	0.16	0.72		0.77	0.70			0.73			0.02	
Uniform Delay, d1	19.5	24.8		25.4	24.6			31.3			25.5	
Progression Factor	0.22	0.18		1.00	1.00			1.00			1.00	
Incremental Delay, d2	2.3	2.7		41.3	3.3			12.8			0.0	
Delay (s)	6.6	7.1		66.6	27.8			44.1			25.5	
Level of Service	A	A		E	C			D			C	
Approach Delay (s)		7.1			30.9			44.1			25.5	
Approach LOS		A			C			D			C	

Intersection Summary			
HCM Average Control Delay	22.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	35.5
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	NBL	ø9
Protected Phases	2	6	8	9
Permitted Phases				
Minimum Initial (s)	4.0	4.0	4.0	4.0
Minimum Split (s)	33.0	33.0	20.0	20.0
Total Split (s)	46.0	46.0	24.0	20.0
Total Split (%)	51.1%	51.1%	26.7%	22%
Maximum Green (s)	41.5	41.5	19.0	16.0
Yellow Time (s)	3.5	3.5	4.0	3.5
All-Red Time (s)	1.0	1.0	1.0	0.5
Lead/Lag				
Lead-Lag Optimize?				
Vehicle Extension (s)	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0
Recall Mode	C-Max	C-Max	None	Ped
Walk Time (s)				6.0
Flash Dont Walk (s)				10.0
Pedestrian Calls (#/hr)				30
90th %ile Green (s)	41.5	41.5	19.0	16.0
90th %ile Term Code	Coord	Coord	Max	Ped
70th %ile Green (s)	43.1	43.1	17.4	16.0
70th %ile Term Code	Coord	Coord	Gap	Ped
50th %ile Green (s)	45.5	45.5	15.0	16.0
50th %ile Term Code	Coord	Coord	Gap	Ped
30th %ile Green (s)	48.0	48.0	12.5	16.0
30th %ile Term Code	Coord	Coord	Gap	Ped
10th %ile Green (s)	51.5	51.5	9.0	16.0
10th %ile Term Code	Coord	Coord	Gap	Ped

Intersection Summary

Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Control Type: Actuated-Coordinated

Lane Group	EBT	WBT	NBL
Lane Group Flow (vph)	770	885	205
v/c Ratio	0.81	0.93	0.69
Control Delay	28.1	40.0	43.8
Queue Delay	0.0	0.0	0.0
Total Delay	28.1	40.0	43.8
Queue Length 50th (ft)	346	451	100
Queue Length 95th (ft)	m#623	#773	165
Internal Link Dist (ft)	33	101	809
Turn Bay Length (ft)			
Base Capacity (vph)	951	951	381
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.81	0.93	0.54

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	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑	↑	
Volume (vph)	675	0	0	775	130	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	5.0	
Lane Util. Factor	1.00			1.00	1.00	
Frt	1.00			1.00	0.96	
Flt Protected	1.00			1.00	0.97	
Satd. Flow (prot)	1863			1863	1730	
Flt Permitted	1.00			1.00	0.97	
Satd. Flow (perm)	1863			1863	1730	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	770	0	0	885	148	57
RTOR Reduction (vph)	0	0	0	0	17	0
Lane Group Flow (vph)	770	0	0	885	188	0
Turn Type						
Protected Phases	2			6	8	
Permitted Phases						
Actuated Green, G (s)	45.9			45.9	14.6	
Effective Green, g (s)	45.9			45.9	14.6	
Actuated g/C Ratio	0.51			0.51	0.16	
Clearance Time (s)	4.5			4.5	5.0	
Vehicle Extension (s)	3.0			3.0	3.0	
Lane Grp Cap (vph)	950			950	281	
v/s Ratio Prot	0.41			c0.48	c0.11	
v/s Ratio Perm						
v/c Ratio	0.81			0.93	0.67	
Uniform Delay, d1	18.4			20.6	35.4	
Progression Factor	1.00			1.00	1.00	
Incremental Delay, d2	7.5			16.7	5.9	
Delay (s)	25.8			37.3	41.4	
Level of Service	C			D	D	
Approach Delay (s)	25.8			37.3	41.4	
Approach LOS	C			D	D	

Intersection Summary			
HCM Average Control Delay	33.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	29.5
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		

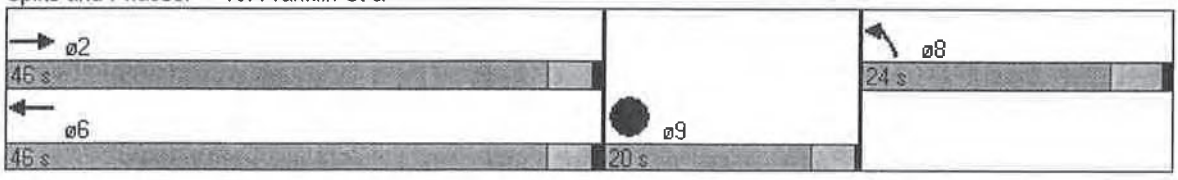
c Critical Lane Group

Phase Number	2	6	8	9
Movement	EBT	WBT	NBL	Hold
Lead/Lag				
Lead-Lag Optimize				
Recall Mode	C-Max	C-Max	None	Ped
Maximum Split (s)	46	46	24	20
Maximum Split (%)	51.1%	51.1%	26.7%	22.2%
Minimum Split (s)	33	33	20	20
Yellow Time (s)	3.5	3.5	4	3.5
All-Red Time (s)	1	1	1	0.5
Minimum Initial (s)	4	4	4	4
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)				6
Flash Dont Walk (s)				10
Dual Entry	Yes	Yes	Yes	No
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	0	66	46
End Time (s)	46	46	0	66
Yield/Force Off (s)	41.5	41.5	85	62
Yield/Force Off 170(s)	41.5	41.5	85	52
Local Start Time (s)	0	0	66	46
Local Yield (s)	41.5	41.5	85	62
Local Yield 170(s)	41.5	41.5	85	52

Intersection Summary	
Cycle Length	90
Control Type	Actuated-Coordinated
Natural Cycle	90

Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Green

Splits and Phases: 10: Franklin St &



Lane Group	EBL	EBT	NBT	SBL	SBR	ø9
Protected Phases		2	8	7	4	9
Permitted Phases	2			4	2 4	
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	20.0	8.0	20.0	25.0
Total Split (s)	30.0	30.0	28.0	17.0	45.0	25.0
Total Split (%)	30.0%	30.0%	28.0%	17.0%	45.0%	25%
Maximum Green (s)	25.0	25.0	24.0	14.0	41.0	21.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.5
All-Red Time (s)	2.0	2.0	1.0	0.0	1.0	0.5
Lead/Lag			Lag	Lead		
Lead-Lag Optimize?			Yes	Yes		
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Gap (s)	3.0	3.0	3.0	3.0	3.0	3.0
Time Before Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Time To Reduce (s)	0.0	0.0	0.0	0.0	0.0	0.0
Recall Mode	Max	Max	None	None	None	None
Walk Time (s)						11.0
Flash Dont Walk (s)						10.0
Pedestrian Calls (#/hr)						10
90th %ile Green (s)	25.0	25.0	24.0	14.0	41.0	21.0
90th %ile Term Code	MaxR	MaxR	Max	Max	Hold	Ped
70th %ile Green (s)	25.0	25.0	24.0	14.0	41.0	0.0
70th %ile Term Code	MaxR	MaxR	Max	Max	Hold	Skip
50th %ile Green (s)	25.0	25.0	24.0	14.0	41.0	0.0
50th %ile Term Code	MaxR	MaxR	Max	Max	Hold	Skip
30th %ile Green (s)	25.0	25.0	24.0	14.0	41.0	0.0
30th %ile Term Code	MaxR	MaxR	Max	Max	Hold	Skip
10th %ile Green (s)	25.0	25.0	24.0	14.0	41.0	0.0
10th %ile Term Code	MaxR	MaxR	Max	Max	Hold	Skip

Intersection Summary
Cycle Length: 100
Actuated Cycle Length: 80
Control Type: Actuated-Uncoordinated
90th %ile Actuated Cycle: 100
70th %ile Actuated Cycle: 75
50th %ile Actuated Cycle: 75
30th %ile Actuated Cycle: 75
10th %ile Actuated Cycle: 75

Lane Group	EBL	EBT	NBT	SBL	SBR
Lane Group Flow (vph)	171	531	502	411	816
v/c Ratio	0.30	0.90	0.82	0.87	0.53
Control Delay	24.6	48.2	39.8	35.9	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	24.6	48.2	39.8	35.9	1.6
Queue Length 50th (ft)	58	227	203	100	0
Queue Length 95th (ft)	153	#599	#542	#402	31
Internal Link Dist (ft)		182	224		
Turn Bay Length (ft)	210				
Base Capacity (vph)	561	590	609	473	1539
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	0.30	0.90	0.82	0.87	0.53

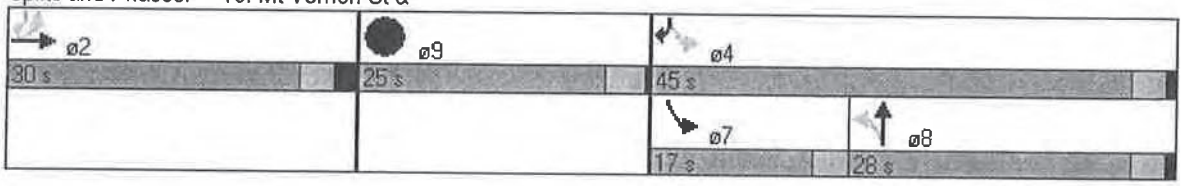
Intersection Summary

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

Phase Number	2	4	7	8	9
Movement	EBTL	SBL	SBL	NBTL	Hold
Lead/Lag			Lead	Lag	
Lead-Lag Optimize			Yes	Yes	
Recall Mode	Max	None	None	None	None
Maximum Split (s)	30	45	17	28	25
Maximum Split (%)	30.0%	45.0%	17.0%	28.0%	25.0%
Minimum Split (s)	21	20	8	20	25
Yellow Time (s)	3	3	3	3	3.5
All-Red Time (s)	2	1	0	1	0.5
Minimum Initial (s)	4	4	4	4	4
Vehicle Extension (s)	3	3	3	3	3
Minimum Gap (s)	3	3	3	3	3
Time Before Reduce (s)	0	0	0	0	0
Time To Reduce (s)	0	0	0	0	0
Walk Time (s)					11
Flash Dont Walk (s)					10
Dual Entry	Yes	Yes	No	Yes	No
Inhibit Max	Yes	Yes	Yes	Yes	Yes
Start Time (s)	0	55	55	72	30
End Time (s)	30	0	72	0	55
Yield/Force Off (s)	25	96	69	96	51
Yield/Force Off 170(s)	25	96	69	96	41
Local Start Time (s)	0	55	55	72	30
Local Yield (s)	25	96	69	96	51
Local Yield 170(s)	25	96	69	96	41

Intersection Summary	
Cycle Length	100
Control Type	Actuated-Uncoordinated
Natural Cycle	130

Splits and Phases: 16: Mt Vernon St &



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	465	0	0	0	0	60	270	110	360	0	715
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	15	12	12	12	12
Total Lost time (s)	5.0	5.0						4.0		3.0		4.0
Lane Util. Factor	1.00	1.00						1.00		1.00		1.00
Frt	1.00	1.00						0.97		1.00		0.85
Flt Protected	0.95	1.00						0.99		0.95		1.00
Satd. Flow (prot)	1770	1863						1966		1770		1583
Flt Permitted	0.95	1.00						0.99		0.24		1.00
Satd. Flow (perm)	1770	1863						1966		449		1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor (vph)	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%	105%
Adj. Flow (vph)	171	531	0	0	0	0	68	308	126	411	0	816
RTOR Reduction (vph)	0	0	0	0	0	0	0	11	0	0	0	161
Lane Group Flow (vph)	171	531	0	0	0	0	0	491	0	411	0	655
Parking (#/hr)			15									
Turn Type	Perm						Perm			custom		custom
Protected Phases		2						8		7		4
Permitted Phases	2						8			4		2 4
Actuated Green, G (s)	25.3	25.3						24.3		41.5		66.8
Effective Green, g (s)	25.3	25.3						24.3		41.5		66.8
Actuated g/C Ratio	0.30	0.30						0.29		0.50		0.80
Clearance Time (s)	5.0	5.0						4.0		3.0		4.0
Vehicle Extension (s)	3.0	3.0						3.0		3.0		3.0
Lane Grp Cap (vph)	538	567						574		449		1347
v/s Ratio Prot		c0.29								c0.16		0.24
v/s Ratio Perm	0.10							0.25		c0.30		0.17
v/c Ratio	0.32	0.94						0.85		0.92		0.49
Uniform Delay, d1	22.3	28.2						27.8		17.0		2.7
Progression Factor	1.00	1.00						1.00		1.00		1.00
Incremental Delay, d2	1.6	25.0						11.9		23.1		0.3
Delay (s)	23.9	53.2						39.7		40.1		2.9
Level of Service	C	D						D		D		A
Approach Delay (s)		46.0			0.0			39.7			15.4	
Approach LOS		D			A			D			B	

Intersection Summary			
HCM Average Control Delay	29.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	83.2	Sum of lost time (s)	15.4
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group