APPENDIX A
LOS AND QUEUE SUMMARIES

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	116	234	6	22	102	12	10	530	40	6	724	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14	12	12	12	12	12	12
Storage Length (ft)	0		0	50		0	145		0	110		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	1.00		1.00	0.99			1.00		1.00		
Frt		0.996			0.984			0.990			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2025	2123	0	1847	1963	0	1787	3530	0	1787	3546	0
Flt Permitted	0.626			0.321			0.238			0.278		
Satd. Flow (perm)	1302	2123	0	624	1963	0	448	3530	0	521	3546	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			5			9			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		188			370			255			717	
Travel Time (s)		4.3			8.4			5.8			16.3	
Confl. Peds. (#/hr)	27		1	1		27			12	12		
Peak Hour Factor	0.90	0.90	0.90	0.80	0.80	0.80	0.78	0.78	0.78	0.95	0.95	0.95
Adj. Flow (vph)	129	260	7	28	128	15	13	679	51	6	762	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	267	0	28	143	0	13	730	0	6	807	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	1.00	0.96	0.92	0.92	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	15.0	24.0		15.0	24.0		15.0	46.0		15.0	46.0	
Total Split (%)	15.0%	24.0%		15.0%	24.0%		15.0%	46.0%		15.0%	46.0%	
Maximum Green (s)	9.0	18.0		9.0	18.0		9.0	40.0		9.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Act Effct Green (s)	27.0	18.0		27.0	18.0		49.0	40.0		49.0	40.0	
Actuated g/C Ratio	0.27	0.18		0.27	0.18		0.49	0.40		0.49	0.40	
v/c Ratio	0.31	0.70		0.10	0.40		0.04	0.52		0.02	0.57	
Control Delay	26.5	49.2		24.0	38.8		5.3	11.4		10.5	25.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.7	64.0		0.0	0.0		0.0	1.0		0.0	0.0	
Total Delay	27.2	113.2		24.0	38.8		5.3	12.4		10.5	25.0	
LOS	C	F		C	D		A	B		B	C	
Approach Delay		85.2			36.4			12.3			24.9	
Approach LOS		F			D			B			C	
Queue Length 50th (ft)	58	161		12	78		3	80		2	204	
Queue Length 95th (ft)	103	#249		28	120		m4	128		7	264	
Internal Link Dist (ft)		108			290			175			637	
Turn Bay Length (ft)				50			145			110		
Base Capacity (vph)	416	382		278	357		340	1417		369	1422	
Starvation Cap Reductn	114	203		0	0		0	414		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	0.43	1.49		0.10	0.40		0.04	0.73		0.02	0.57	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 22 (22%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 65
Control Type: Pretimed
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 32.6 Intersection LOS: C
Intersection Capacity Utilization 49.7% ICU Level of Service A
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: 1: Main Street & East Amherst Street

ø1	ø2 (R)	ø3	ø4
15 s	46 s	15 s	24 s
ø5	ø6 (R)	ø7	ø8
15 s	46 s	15 s	24 s

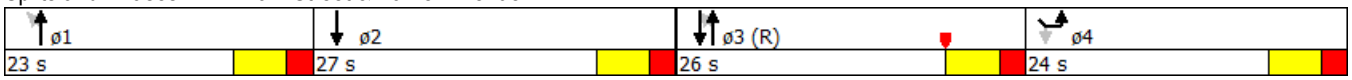
Lane Group	NBL	NBT	SBT	SBR	SEL	SER	ø1	ø2	ø3
Lane Configurations									
Volume (vph)	14	580	752	0	0	377			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Width (ft)	12	12	12	12	13	13			
Storage Length (ft)	0			0	0	75			
Storage Lanes	0			0	1	1			
Taper Length (ft)	25				25				
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	0.95			
Ped Bike Factor		1.00			0.97	0.97			
Frt					0.850	0.850			
Flt Protected		0.999							
Satd. Flow (prot)	0	3571	3574	0	1605	1570			
Flt Permitted		0.710							
Satd. Flow (perm)	0	2537	3574	0	1605	1525			
Right Turn on Red				Yes		No			
Satd. Flow (RTOR)									
Link Speed (mph)		30	30		30				
Link Distance (ft)		153	255		228				
Travel Time (s)		3.5	5.8		5.2				
Confl. Peds. (#/hr)	20			20	10	10			
Peak Hour Factor	0.90	0.90	0.89	0.89	0.90	0.90			
Adj. Flow (vph)	16	644	845	0	0	419			
Shared Lane Traffic (%)						50%			
Lane Group Flow (vph)	0	660	845	0	210	209			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Right	Left	Right			
Median Width(ft)		12	12		13				
Link Offset(ft)		0	0		0				
Crosswalk Width(ft)		16	16		16				
Two way Left Turn Lane									
Headway Factor	1.00	1.00	1.00	1.00	0.96	0.96			
Turning Speed (mph)	15			9	15	9			
Turn Type	Perm	NA	NA		Prot	Perm			
Protected Phases		1 3	2 3		4		1	2	3
Permitted Phases	1 3					4			
Minimum Split (s)					22.0	22.0	22.0	22.0	10.0
Total Split (s)					24.0	24.0	23.0	27.0	26.0
Total Split (%)					24.0%	24.0%	23%	27%	26%
Maximum Green (s)					18.0	18.0	17.0	21.0	20.0
Yellow Time (s)					4.0	4.0	4.0	4.0	4.0
All-Red Time (s)					2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)					0.0	0.0			
Total Lost Time (s)					6.0	6.0			
Lead/Lag					Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Act Effct Green (s)		37.0	47.0		18.0	18.0			
Actuated g/C Ratio		0.37	0.47		0.18	0.18			
v/c Ratio		0.70	0.50		0.73	0.76			
Control Delay		15.5	7.9		54.8	58.3			

Lane Group	NBL	NBT	SBT	SBR	SEL	SER	ø1	ø2	ø3
Queue Delay		4.9	0.1		51.0	50.1			
Total Delay		20.4	8.0		105.9	108.4			
LOS		C	A		F	F			
Approach Delay		20.4	8.0		107.1				
Approach LOS		C	A		F				
Queue Length 50th (ft)		195	52		128	134			
Queue Length 95th (ft)		262	61		#232	#252			
Internal Link Dist (ft)		73	175		148				
Turn Bay Length (ft)						75			
Base Capacity (vph)		938	1679		288	274			
Starvation Cap Reductn		210	179		92	79			
Spillback Cap Reductn		0	27		8	7			
Storage Cap Reductn		0	0		0	0			
Reduced v/c Ratio		0.91	0.56		1.07	1.07			

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 17 (17%), Referenced to phase 3:NBSB, Start of Yellow
Natural Cycle: 80
Control Type: Pretimed
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 33.8 Intersection LOS: C
Intersection Capacity Utilization 47.4% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Main Street & Parker Avenue



Lane Group	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL2	NWL	NWR	ø2
Lane Configurations												
Volume (vph)	0	0	4	520	13	241	884	4	11	8	74	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	10	10	10	11	12	12	13	13	13	
Storage Length (ft)	0	0	70		0	100		0		80	0	
Storage Lanes	0	0	1		0	1		0		1	1	
Taper Length (ft)	25		25			25				25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	
Ped Bike Factor				1.00		1.00				0.98		
Frt				0.996			0.999				0.850	
Flt Protected			0.950			0.950				0.950		
Satd. Flow (prot)	0	0	1668	3320	0	1728	3571	0	0	1847	1652	
Flt Permitted			0.287			0.305				0.950		
Satd. Flow (perm)	0	0	504	3320	0	553	3571	0	0	1819	1652	
Right Turn on Red					Yes			Yes			Yes	
Satd. Flow (RTOR)				2			1				142	
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	94			1221			153			691		
Travel Time (s)	2.1			27.8			3.5			15.7		
Confl. Peds. (#/hr)					7	7			6			
Peak Hour Factor	0.92	0.92	0.90	0.90	0.90	0.89	0.89	0.89	0.78	0.78	0.78	
Adj. Flow (vph)	0	0	4	578	14	271	993	4	14	10	95	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	4	592	0	271	997	0	0	24	95	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(ft)	0			11			11			13		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.09	1.09	1.09	1.04	1.00	1.00	0.96	0.96	0.96	
Turning Speed (mph)	15	9	15		9	15		9	15	15	9	
Turn Type			Perm	NA		D.P+P	NA		Perm	Prot	Perm	
Protected Phases				3		2 4	2 3 4			1		2
Permitted Phases			3			3			1		1	
Minimum Split (s)			10.0	10.0					15.0	15.0	15.0	22.0
Total Split (s)			36.0	36.0					18.0	18.0	18.0	22.0
Total Split (%)			36.0%	36.0%					18.0%	18.0%	18.0%	22%
Maximum Green (s)			30.0	30.0					12.0	12.0	12.0	16.0
Yellow Time (s)			4.0	4.0					4.0	4.0	4.0	4.0
All-Red Time (s)			2.0	2.0					2.0	2.0	2.0	2.0
Lost Time Adjust (s)			0.0	0.0						0.0	0.0	
Total Lost Time (s)			6.0	6.0						6.0	6.0	
Lead/Lag			Lead	Lead					Lead	Lead	Lead	Lag
Lead-Lag Optimize?			Yes	Yes					Yes	Yes	Yes	Yes
Act Effct Green (s)			30.0	30.0		64.0	76.0			12.0	12.0	
Actuated g/C Ratio			0.30	0.30		0.64	0.76			0.12	0.12	
v/c Ratio			0.03	0.59		0.36	0.37			0.11	0.29	
Control Delay			25.5	32.7		3.9	0.3			40.7	4.6	

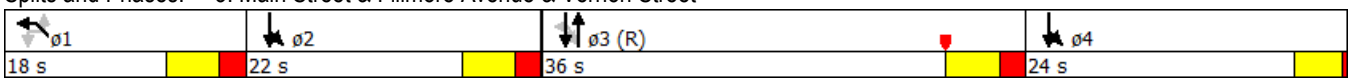
Lane Group	ø4
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Minimum Split (s)	20.0
Total Split (s)	24.0
Total Split (%)	24%
Maximum Green (s)	20.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	

Lane Group	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL2	NWL	NWR	ø2
Queue Delay			0.0	0.8		1.1	0.2			0.0	0.1	
Total Delay			25.5	33.5		5.0	0.6			40.7	4.8	
LOS			C	C		A	A			D	A	
Approach Delay				33.5			1.5			12.0		
Approach LOS				C			A			B		
Queue Length 50th (ft)			2	167		20	0			14	0	
Queue Length 95th (ft)			10	225		m42	0			33	4	
Internal Link Dist (ft)	14			1141			73			611		
Turn Bay Length (ft)			70			100				80		
Base Capacity (vph)			151	997		753	2714			218	323	
Starvation Cap Reductn			0	0		274	853			0	0	
Spillback Cap Reductn			0	171		0	0			0	20	
Storage Cap Reductn			0	0		0	0			0	0	
Reduced v/c Ratio			0.03	0.72		0.57	0.54			0.11	0.31	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 22 (22%), Referenced to phase 3:NBSB, Start of Yellow
Natural Cycle: 75
Control Type: Pretimed
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 11.7 Intersection LOS: B
Intersection Capacity Utilization 46.5% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Main Street & Fillmore Avenue & Vernon Street



Lane Group	ø4
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

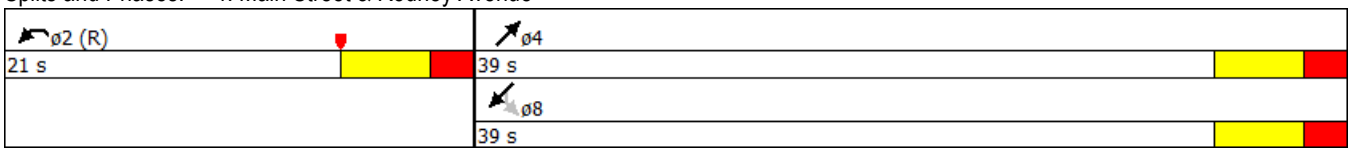
Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	7	18	519	58	79	816
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	11	12	11	12
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	0.98		1.00			1.00
Frt	0.903		0.985			
Flt Protected	0.986					0.996
Satd. Flow (prot)	1809	0	3393	0	0	3560
Flt Permitted	0.986					0.818
Satd. Flow (perm)	1805	0	3393	0	0	2923
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	23		31			
Link Speed (mph)	30		30			30
Link Distance (ft)	206		896			1221
Travel Time (s)	4.7		20.4			27.8
Confl. Peds. (#/hr)	7	11		11	11	
Peak Hour Factor	0.78	0.78	0.85	0.85	0.86	0.86
Adj. Flow (vph)	9	23	611	68	92	949
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	0	679	0	0	1041
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	15		10			10
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.88	0.88	1.04	1.00	1.04	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot		NA		Perm	NA
Protected Phases	2		4			8
Permitted Phases					8	
Minimum Split (s)	22.0		22.0		22.0	22.0
Total Split (s)	21.0		39.0		39.0	39.0
Total Split (%)	35.0%		65.0%		65.0%	65.0%
Maximum Green (s)	15.0		33.0		33.0	33.0
Yellow Time (s)	4.0		4.0		4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	6.0		6.0			6.0
Lead/Lag						
Lead-Lag Optimize?						
Act Effct Green (s)	15.0		33.0			33.0
Actuated g/C Ratio	0.25		0.55			0.55
v/c Ratio	0.07		0.36			0.65
Control Delay	10.3		7.9			11.8
Queue Delay	0.0		0.0			0.0
Total Delay	10.3		7.9			11.8
LOS	B		A			B

Lane Group	NWL	NWR	NET	NER	SWL	SWT
Approach Delay	10.3		7.9			11.8
Approach LOS	B		A			B
Queue Length 50th (ft)	3		61			124
Queue Length 95th (ft)	16		84			167
Internal Link Dist (ft)	126		816			1141
Turn Bay Length (ft)						
Base Capacity (vph)	469		1880			1607
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	0.07		0.36			0.65

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 37 (62%), Referenced to phase 2:NWL and 6:, Start of Yellow
Natural Cycle: 50
Control Type: Pretimed
Maximum v/c Ratio: 0.65
Intersection Signal Delay: 10.3 Intersection LOS: B
Intersection Capacity Utilization 59.5% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 4: Main Street & Rodney Avenue



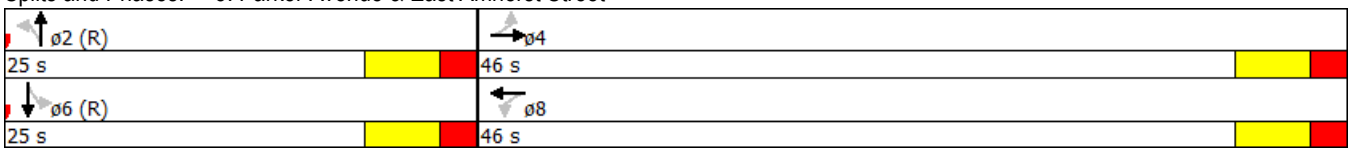
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	333	212	7	137	11	5	3	6	17	158	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	16	12	12	14	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			0.97			0.99	
Frt		0.948			0.990			0.944			0.993	
Flt Protected					0.998			0.982			0.995	
Satd. Flow (prot)	0	1875	0	0	2103	0	0	1814	0	0	2103	0
Flt Permitted		0.999			0.971			0.865			0.973	
Satd. Flow (perm)	0	1873	0	0	2045	0	0	1595	0	0	2048	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		73			9			10			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		807			188			228			355	
Travel Time (s)		18.3			4.3			5.2			8.1	
Confl. Peds. (#/hr)	4		20	20		4	5		43	43		5
Peak Hour Factor	0.83	0.83	0.83	0.93	0.93	0.93	0.58	0.58	0.58	0.68	0.68	0.68
Adj. Flow (vph)	4	401	255	8	147	12	9	5	10	25	232	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	660	0	0	167	0	0	24	0	0	272	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.92	1.00	1.00	0.85	1.00	1.00	0.92	1.00	1.00	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	46.0	46.0		46.0	46.0		25.0	25.0		25.0	25.0	
Total Split (%)	64.8%	64.8%		64.8%	64.8%		35.2%	35.2%		35.2%	35.2%	
Maximum Green (s)	40.0	40.0		40.0	40.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		40.0			40.0			19.0			19.0	
Actuated g/C Ratio		0.56			0.56			0.27			0.27	
v/c Ratio		0.61			0.14			0.06			0.49	
Control Delay		11.9			7.4			14.9			25.3	
Queue Delay		0.0			2.1			0.0			0.0	
Total Delay		11.9			9.5			14.9			25.3	
LOS		B			A			B			C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		11.9			9.5			14.9			25.3	
Approach LOS		B			A			B			C	
Queue Length 50th (ft)		153			30			5			99	
Queue Length 95th (ft)		215			56			12			118	
Internal Link Dist (ft)		727			108			148			275	
Turn Bay Length (ft)												
Base Capacity (vph)		1087			1156			434			550	
Starvation Cap Reductn		0			854			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.61			0.55			0.06			0.49	

Intersection Summary

Area Type: Other
Cycle Length: 71
Actuated Cycle Length: 71
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Pretimed
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 14.9 Intersection LOS: B
Intersection Capacity Utilization 52.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 5: Parker Avenue & East Amherst Street



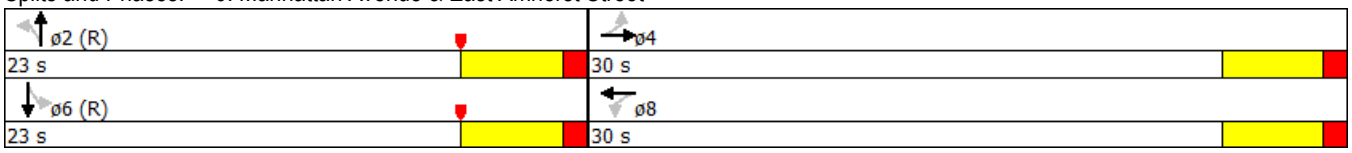
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	234	27	10	117	124	15	211	28	74	63	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	15	12	12	15	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.98			0.99			0.98	
Frt		0.987			0.933			0.985			0.996	
Flt Protected		0.997			0.998			0.997			0.975	
Satd. Flow (prot)	0	2091	0	0	1949	0	0	2011	0	0	2008	0
Flt Permitted		0.960			0.978			0.977			0.672	
Satd. Flow (perm)	0	2013	0	0	1910	0	0	1970	0	0	1354	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			126			13			3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2328			787			595			295	
Travel Time (s)		52.9			17.9			13.5			6.7	
Confl. Peds. (#/hr)	16		12	12		16	7		51	51		7
Peak Hour Factor	0.61	0.61	0.61	0.66	0.66	0.66	0.78	0.78	0.78	0.72	0.72	0.72
Adj. Flow (vph)	31	384	44	15	177	188	19	271	36	103	88	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	459	0	0	380	0	0	326	0	0	197	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.88	1.00	1.00	0.88	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	30.0	30.0		30.0	30.0		23.0	23.0		23.0	23.0	
Total Split (%)	56.6%	56.6%		56.6%	56.6%		43.4%	43.4%		43.4%	43.4%	
Maximum Green (s)	25.0	25.0		25.0	25.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		25.0			25.0			18.0			18.0	
Actuated g/C Ratio		0.47			0.47			0.34			0.34	
v/c Ratio		0.48			0.39			0.48			0.43	
Control Delay		11.4			7.3			16.2			16.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		11.4			7.3			16.2			16.9	
LOS		B			A			B			B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		11.4			7.3			16.2			16.9	
Approach LOS		B			A			B			B	
Queue Length 50th (ft)		87			45			75			46	
Queue Length 95th (ft)		87			54			112			70	
Internal Link Dist (ft)		2248			707			515			215	
Turn Bay Length (ft)												
Base Capacity (vph)		956			967			677			461	
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		0.48			0.39			0.48			0.43	

Intersection Summary

Area Type: Other
Cycle Length: 53
Actuated Cycle Length: 53
Offset: 18 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 45
Control Type: Pretimed
Maximum v/c Ratio: 0.48
Intersection Signal Delay: 12.2 Intersection LOS: B
Intersection Capacity Utilization 55.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 6: Manhattan Avenue & East Amherst Street



Lanes, Volumes, Timings
1: Main Street & East Amherst Street

12/12/2014

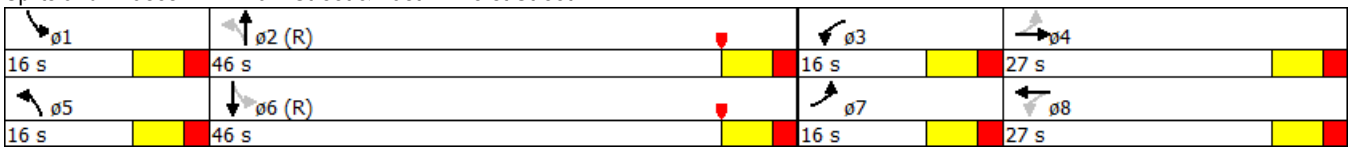
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	189	11	27	127	7	102	851	19	21	508	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14	12	12	12	12	12	12
Storage Length (ft)	0		0	50		0	145		0	110		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.97	1.00		1.00	1.00			1.00		1.00		
Frt		0.991			0.993			0.997			0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2025	2111	0	1847	1986	0	1787	3561	0	1787	3492	0
Flt Permitted	0.585			0.393			0.294			0.132		
Satd. Flow (perm)	1208	2111	0	763	1986	0	553	3561	0	248	3492	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			2			2			22	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		188			370			255			717	
Travel Time (s)		4.3			8.4			5.8			16.3	
Confl. Peds. (#/hr)	40		2	2		40			13	13		
Peak Hour Factor	0.81	0.81	0.81	0.83	0.83	0.83	0.86	0.86	0.86	0.88	0.88	0.88
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	74	233	14	33	153	8	119	990	22	24	577	102
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	247	0	33	161	0	119	1012	0	24	679	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	1.00	0.96	0.92	0.92	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	16.0	27.0		16.0	27.0		16.0	46.0		16.0	46.0	
Total Split (%)	15.2%	25.7%		15.2%	25.7%		15.2%	43.8%		15.2%	43.8%	
Maximum Green (s)	10.0	21.0		10.0	21.0		10.0	40.0		10.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Act Effct Green (s)	31.0	21.0		31.0	21.0		50.0	40.0		50.0	40.0	
Actuated g/C Ratio	0.30	0.20		0.30	0.20		0.48	0.38		0.48	0.38	
v/c Ratio	0.17	0.58		0.10	0.40		0.31	0.75		0.09	0.51	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	24.2	43.9		23.5	39.7		11.5	22.2		12.6	25.6	
Queue Delay	0.4	65.5		0.0	0.0		0.0	20.1		0.0	0.0	
Total Delay	24.6	109.4		23.5	39.7		11.5	42.3		12.6	25.6	
LOS	C	F		C	D		B	D		B	C	
Approach Delay		89.9			36.9			39.1			25.2	
Approach LOS		F			D			D			C	
Queue Length 50th (ft)	33	150		15	94		37	192		7	175	
Queue Length 95th (ft)	58	204		33	143		m39	m204		19	223	
Internal Link Dist (ft)		108			290			175			637	
Turn Bay Length (ft)				50			145			110		
Base Capacity (vph)	434	424		328	398		380	1357		264	1343	
Starvation Cap Reductn	149	246		0	0		0	366		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	0.26	1.39		0.10	0.40		0.31	1.02		0.09	0.51	

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Offset: 13 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 65
Control Type: Pretimed
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 41.7 Intersection LOS: D
Intersection Capacity Utilization 61.4% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Main Street & East Amherst Street



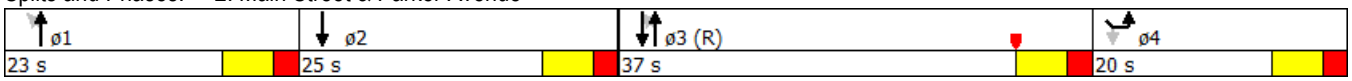
Lane Group	NBL	NBT	SBT	SBR	SEL	SER	ø1	ø2	ø3
Lane Configurations									
Volume (vph)	53	972	546	0	0	131			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Width (ft)	12	12	12	12	13	13			
Storage Length (ft)	0			0	0	75			
Storage Lanes	0			0	1	1			
Taper Length (ft)	25				25				
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	0.95			
Ped Bike Factor		1.00			0.97	0.97			
Frt					0.850	0.850			
Flt Protected		0.997							
Satd. Flow (prot)	0	3564	3574	0	1607	1570			
Flt Permitted		0.701							
Satd. Flow (perm)	0	2505	3574	0	1607	1527			
Right Turn on Red				Yes		No			
Satd. Flow (RTOR)									
Link Speed (mph)		30	30		30				
Link Distance (ft)		153	255		228				
Travel Time (s)		3.5	5.8		5.2				
Confl. Peds. (#/hr)	11			11	7	7			
Peak Hour Factor	0.92	0.92	0.94	0.94	0.90	0.90			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%			
Adj. Flow (vph)	58	1057	581	0	0	146			
Shared Lane Traffic (%)						50%			
Lane Group Flow (vph)	0	1115	581	0	73	73			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Right	Left	Right			
Median Width(ft)		12	12		13				
Link Offset(ft)		0	0		0				
Crosswalk Width(ft)		16	16		16				
Two way Left Turn Lane									
Headway Factor	1.00	1.00	1.00	1.00	0.96	0.96			
Turning Speed (mph)	15			9	15	9			
Turn Type	Perm	NA	NA		Prot	Perm			
Protected Phases		1 3	2 3		4		1	2	3
Permitted Phases	1 3					4			
Minimum Split (s)					22.0	22.0	22.0	22.0	10.0
Total Split (s)					20.0	20.0	23.0	25.0	37.0
Total Split (%)					19.0%	19.0%	22%	24%	35%
Maximum Green (s)					14.0	14.0	17.0	19.0	31.0
Yellow Time (s)					4.0	4.0	4.0	4.0	4.0
All-Red Time (s)					2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)					0.0	0.0			
Total Lost Time (s)					6.0	6.0			
Lead/Lag					Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Act Effct Green (s)		48.0	56.0		14.0	14.0			
Actuated g/C Ratio		0.46	0.53		0.13	0.13			
v/c Ratio		0.97	0.30		0.34	0.36			

Lane Group	NBL	NBT	SBT	SBR	SEL	SER	ø1	ø2	ø3
Control Delay		30.4	4.6		46.3	47.1			
Queue Delay		40.9	0.1		0.0	0.0			
Total Delay		71.3	4.8		46.3	47.1			
LOS		E	A		D	D			
Approach Delay		71.3	4.8		46.7				
Approach LOS		E	A		D				
Queue Length 50th (ft)		381	28		45	47			
Queue Length 95th (ft)		#352	35		91	95			
Internal Link Dist (ft)		73	175		148				
Turn Bay Length (ft)						75			
Base Capacity (vph)		1145	1906		214	203			
Starvation Cap Reductn		186	493		0	0			
Spillback Cap Reductn		68	7		2	1			
Storage Cap Reductn		0	0		0	0			
Reduced v/c Ratio		1.16	0.41		0.34	0.36			

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Offset: 14 (13%), Referenced to phase 3:NBSB, Start of Yellow
Natural Cycle: 130
Control Type: Pretimed
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 48.3 Intersection LOS: D
Intersection Capacity Utilization 61.9% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Main Street & Parker Avenue



Lane Group	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL2	NWL	NWR	ø2
Lane Configurations												
Volume (vph)	0	0	11	887	13	113	554	10	16	16	138	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	10	10	10	11	12	12	13	13	13	
Storage Length (ft)	0	0	70		0	100		0		80	0	
Storage Lanes	0	0	1		0	1		0		1	1	
Taper Length (ft)	25		25			25				25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	
Ped Bike Factor				1.00		1.00				0.97	0.98	
Frt				0.998			0.997				0.850	
Flt Protected			0.950			0.950				0.950		
Satd. Flow (prot)	0	0	1668	3328	0	1728	3564	0	0	1847	1652	
Flt Permitted			0.425			0.153				0.950		
Satd. Flow (perm)	0	0	746	3328	0	278	3564	0	0	1798	1624	
Right Turn on Red					Yes			Yes			Yes	
Satd. Flow (RTOR)				2			5				157	
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	94			1221			153			691		
Travel Time (s)	2.1			27.8			3.5			15.7		
Confl. Peds. (#/hr)					4	4			10		2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.88	0.88	0.88	
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
Adj. Flow (vph)	0	0	12	964	14	120	589	11	18	18	157	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	12	978	0	120	600	0	0	36	157	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(ft)	0			11			11			13		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.09	1.09	1.09	1.04	1.00	1.00	0.96	0.96	0.96	
Turning Speed (mph)	15	9	15		9	15		9	15	15	9	
Turn Type			Perm	NA		D.P+P	NA		Perm	Prot	Perm	
Protected Phases				3		2 4	2 3 4			1		2
Permitted Phases			3			3			1		1	
Minimum Split (s)			10.0	10.0					18.0	18.0	18.0	22.0
Total Split (s)			47.0	47.0					18.0	18.0	18.0	20.0
Total Split (%)			44.8%	44.8%					17.1%	17.1%	17.1%	19%
Maximum Green (s)			41.0	41.0					12.0	12.0	12.0	14.0
Yellow Time (s)			4.0	4.0					4.0	4.0	4.0	4.0
All-Red Time (s)			2.0	2.0					2.0	2.0	2.0	2.0
Lost Time Adjust (s)			0.0	0.0						0.0	0.0	
Total Lost Time (s)			6.0	6.0						6.0	6.0	
Lead/Lag			Lead	Lead					Lead	Lead	Lead	Lag
Lead-Lag Optimize?			Yes	Yes					Yes	Yes	Yes	Yes
Act Effct Green (s)			41.0	41.0		69.0	81.0			12.0	12.0	
Actuated g/C Ratio			0.39	0.39		0.66	0.77			0.11	0.11	
v/c Ratio			0.04	0.75		0.21	0.22			0.18	0.48	

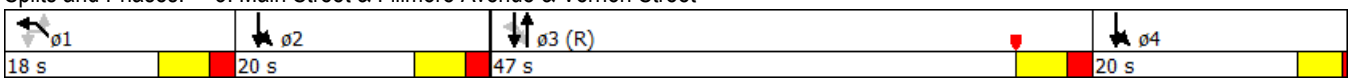
Lane Group	ø4
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	19%
Maximum Green (s)	16.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lane Group	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL2	NWL	NWR	ø2
Control Delay			20.5	32.0		6.9	0.2			44.4	12.5	
Queue Delay			0.0	8.3		1.1	0.3			0.0	0.8	
Total Delay			20.5	40.4		8.0	0.5			44.4	13.3	
LOS			C	D		A	A			D	B	
Approach Delay				40.1			1.8			19.1		
Approach LOS				D			A			B		
Queue Length 50th (ft)			5	292		13	0			22	0	
Queue Length 95th (ft)			18	372		41	0			53	56	
Internal Link Dist (ft)	14			1141			73			611		
Turn Bay Length (ft)			70			100				80		
Base Capacity (vph)			291	1300		569	2750			205	324	
Starvation Cap Reductn			0	0		280	1499			0	0	
Spillback Cap Reductn			0	289		0	0			0	43	
Storage Cap Reductn			0	0		0	0			0	0	
Reduced v/c Ratio			0.04	0.97		0.42	0.48			0.18	0.56	

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Offset: 22 (21%), Referenced to phase 3:NBSB, Start of Yellow
Natural Cycle: 90
Control Type: Pretimed
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 23.5 Intersection LOS: C
Intersection Capacity Utilization 49.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Main Street & Fillmore Avenue & Vernon Street



Lane Group	ø4
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

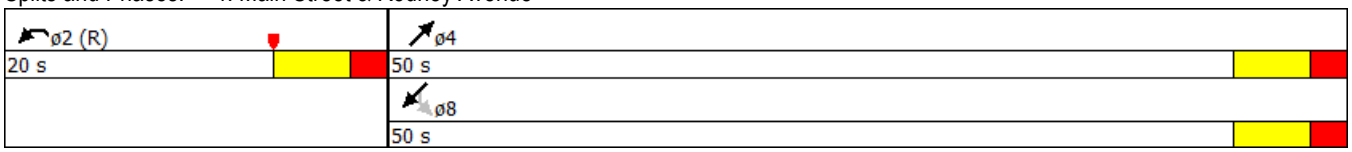
Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	24	85	826	22	18	552
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	11	12	11	12
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	0.98		1.00			1.00
Frt	0.894		0.996			
Flt Protected	0.989					0.998
Satd. Flow (prot)	1798	0	3439	0	0	3567
Flt Permitted	0.989					0.914
Satd. Flow (perm)	1796	0	3439	0	0	3267
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	97		7			
Link Speed (mph)	30		30			30
Link Distance (ft)	206		896			1221
Travel Time (s)	4.7		20.4			27.8
Confl. Peds. (#/hr)	3	7		9	9	
Peak Hour Factor	0.88	0.88	0.90	0.90	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	27	97	918	24	19	581
Shared Lane Traffic (%)						
Lane Group Flow (vph)	124	0	942	0	0	600
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	15		10			10
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.88	0.88	1.04	1.00	1.04	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot		NA		Perm	NA
Protected Phases	2		4			8
Permitted Phases					8	
Minimum Split (s)	22.0		22.0		22.0	22.0
Total Split (s)	20.0		50.0		50.0	50.0
Total Split (%)	28.6%		71.4%		71.4%	71.4%
Maximum Green (s)	14.0		44.0		44.0	44.0
Yellow Time (s)	4.0		4.0		4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	6.0		6.0			6.0
Lead/Lag						
Lead-Lag Optimize?						
Act Effct Green (s)	14.0		44.0			44.0
Actuated g/C Ratio	0.20		0.63			0.63
v/c Ratio	0.28		0.44			0.29
Control Delay	10.2		7.4			6.4
Queue Delay	0.0		0.0			0.0
Total Delay	10.2		7.4			6.4

Lane Group	NWL	NWR	NET	NER	SWL	SWT
LOS	B		A			A
Approach Delay	10.2		7.4			6.4
Approach LOS	B		A			A
Queue Length 50th (ft)	10		94			53
Queue Length 95th (ft)	48		128			77
Internal Link Dist (ft)	126		816			1141
Turn Bay Length (ft)						
Base Capacity (vph)	437		2164			2053
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	0.28		0.44			0.29

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:NWL and 6:, Start of Yellow
Natural Cycle: 45
Control Type: Pretimed
Maximum v/c Ratio: 0.44
Intersection Signal Delay: 7.2 Intersection LOS: A
Intersection Capacity Utilization 45.4% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 4: Main Street & Rodney Avenue



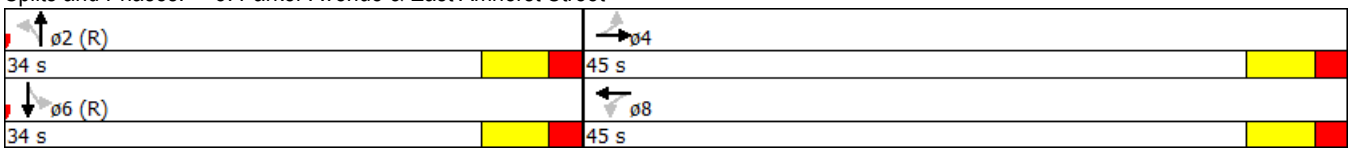
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	240	86	10	273	36	27	17	9	11	35	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	16	12	12	14	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			0.99			1.00	
Frt		0.965			0.985			0.977			0.991	
Flt Protected		0.999			0.998			0.975			0.989	
Satd. Flow (prot)	0	1916	0	0	2090	0	0	1904	0	0	2086	0
Flt Permitted		0.995			0.987			0.863			0.951	
Satd. Flow (perm)	0	1908	0	0	2066	0	0	1678	0	0	2000	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			11			10			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		807			188			228			355	
Travel Time (s)		18.3			4.3			5.2			8.1	
Confl. Peds. (#/hr)	6		17	17		6	6		15	15		6
Peak Hour Factor	0.93	0.93	0.93	0.89	0.89	0.89	0.88	0.88	0.88	0.82	0.82	0.82
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	5	258	92	11	307	40	31	19	10	13	43	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	355	0	0	358	0	0	60	0	0	60	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.92	1.00	1.00	0.85	1.00	1.00	0.92	1.00	1.00	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	45.0	45.0		45.0	45.0		34.0	34.0		34.0	34.0	
Total Split (%)	57.0%	57.0%		57.0%	57.0%		43.0%	43.0%		43.0%	43.0%	
Maximum Green (s)	39.0	39.0		39.0	39.0		28.0	28.0		28.0	28.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		39.0			39.0			28.0			28.0	
Actuated g/C Ratio		0.49			0.49			0.35			0.35	
v/c Ratio		0.37			0.35			0.10			0.08	
Control Delay		12.6			13.0			15.4			16.6	
Queue Delay		0.0			27.2			0.0			0.0	
Total Delay		12.6			40.3			15.4			16.6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		B			D			B			B	
Approach Delay		12.6			40.3			15.4			16.6	
Approach LOS		B			D			B			B	
Queue Length 50th (ft)		92			99			16			18	
Queue Length 95th (ft)		152			154			40			39	
Internal Link Dist (ft)		727			108			148			275	
Turn Bay Length (ft)												
Base Capacity (vph)		957			1025			601			711	
Starvation Cap Reductn		0			669			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.37			1.01			0.10			0.08	

Intersection Summary

Area Type: Other
Cycle Length: 79
Actuated Cycle Length: 79
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 45
Control Type: Pretimed
Maximum v/c Ratio: 0.37
Intersection Signal Delay: 25.0 Intersection LOS: C
Intersection Capacity Utilization 38.5% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 5: Parker Avenue & East Amherst Street



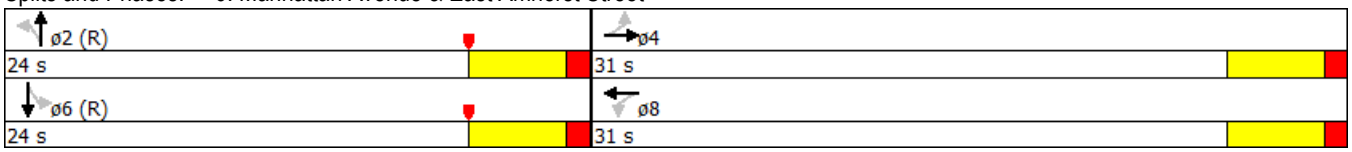
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	188	27	42	131	49	27	154	61	70	51	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	15	12	12	15	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			1.00	
Frt		0.984			0.970			0.966			0.997	
Flt Protected		0.997			0.991			0.994			0.972	
Satd. Flow (prot)	0	2085	0	0	2037	0	0	1975	0	0	2004	0
Flt Permitted		0.978			0.910			0.958			0.755	
Satd. Flow (perm)	0	2044	0	0	1868	0	0	1903	0	0	1555	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			35			34			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2328			787			595			295	
Travel Time (s)		52.9			17.9			13.5			6.7	
Confl. Peds. (#/hr)	8		8	8		8	4		2	2		4
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.93	0.93	0.93	0.86	0.86	0.86
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	15	204	29	49	154	58	29	166	66	81	59	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	248	0	0	261	0	0	261	0	0	143	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.88	1.00	1.00	0.88	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	31.0	31.0		31.0	31.0		24.0	24.0		24.0	24.0	
Total Split (%)	56.4%	56.4%		56.4%	56.4%		43.6%	43.6%		43.6%	43.6%	
Maximum Green (s)	26.0	26.0		26.0	26.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		26.0			26.0			19.0			19.0	
Actuated g/C Ratio		0.47			0.47			0.35			0.35	
v/c Ratio		0.25			0.29			0.38			0.27	
Control Delay		9.0			8.7			13.8			14.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.0			8.7			13.8			14.5	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		A			A			B			B	
Approach Delay		9.0			8.7			13.8			14.5	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)		42			41			54			32	
Queue Length 95th (ft)		79			74			104			64	
Internal Link Dist (ft)		2248			707			515			215	
Turn Bay Length (ft)												
Base Capacity (vph)		974			901			679			538	
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		0.25			0.29			0.38			0.27	

Intersection Summary

Area Type: Other
Cycle Length: 55
Actuated Cycle Length: 55
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 45
Control Type: Pretimed
Maximum v/c Ratio: 0.38
Intersection Signal Delay: 11.1 Intersection LOS: B
Intersection Capacity Utilization 55.9% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 6: Manhattan Avenue & East Amherst Street



Lanes, Volumes, Timings
1: Main Street & East Amherst Street

12/12/2014

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	121	243	6	23	107	12	10	551	42	6	753	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14	12	12	12	12	12	12
Storage Length (ft)	0		0	50		0	145		0	110		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	1.00		1.00	0.99			1.00		1.00		
Frt		0.996			0.985			0.989			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2025	2123	0	1847	1965	0	1787	3526	0	1787	3546	0
Flt Permitted	0.611			0.297			0.222			0.262		
Satd. Flow (perm)	1272	2123	0	577	1965	0	418	3526	0	491	3546	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			5			9			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		188			370			255			717	
Travel Time (s)		4.3			8.4			5.8			16.3	
Confl. Peds. (#/hr)	27		1	1		27			12	12		
Peak Hour Factor	0.90	0.90	0.90	0.80	0.80	0.80	0.78	0.78	0.78	0.95	0.95	0.95
Adj. Flow (vph)	134	270	7	29	134	15	13	706	54	6	793	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	134	277	0	29	149	0	13	760	0	6	840	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	1.00	0.96	0.92	0.92	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	15.0	24.0		15.0	24.0		15.0	46.0		15.0	46.0	
Total Split (%)	15.0%	24.0%		15.0%	24.0%		15.0%	46.0%		15.0%	46.0%	
Maximum Green (s)	9.0	18.0		9.0	18.0		9.0	40.0		9.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Act Effct Green (s)	27.0	18.0		27.0	18.0		49.0	40.0		49.0	40.0	
Actuated g/C Ratio	0.27	0.18		0.27	0.18		0.49	0.40		0.49	0.40	
v/c Ratio	0.33	0.73		0.11	0.42		0.04	0.54		0.02	0.59	
Control Delay	26.7	50.7		24.1	39.2		5.2	12.4		10.5	25.5	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.8	63.5		0.0	0.0		0.0	1.3		0.0	0.0	
Total Delay	27.5	114.2		24.1	39.2		5.2	13.7		10.5	25.5	
LOS	C	F		C	D		A	B		B	C	
Approach Delay		85.9			36.7			13.5			25.4	
Approach LOS		F			D			B			C	
Queue Length 50th (ft)	61	168		13	82		3	95		2	215	
Queue Length 95th (ft)	106	#274		29	124		m4	142		7	277	
Internal Link Dist (ft)		108			290			175			637	
Turn Bay Length (ft)				50			145			110		
Base Capacity (vph)	411	382		270	357		328	1415		357	1422	
Starvation Cap Reductn	109	202		0	0		0	424		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	0.44	1.54		0.11	0.42		0.04	0.77		0.02	0.59	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 22 (22%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 65
Control Type: Pretimed
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 33.4 Intersection LOS: C
Intersection Capacity Utilization 51.4% ICU Level of Service A
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: 1: Main Street & East Amherst Street

ø1	ø2 (R)	ø3	ø4
15 s	46 s	15 s	24 s
ø5	ø6 (R)	ø7	ø8
15 s	46 s	15 s	24 s

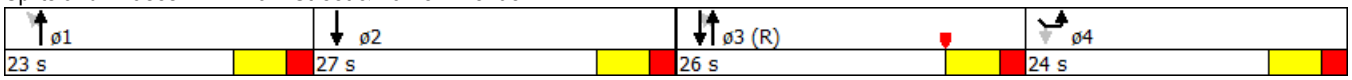
Lane Group	NBL	NBT	SBT	SBR	SEL	SER	ø1	ø2	ø3
Lane Configurations									
Volume (vph)	15	603	782	0	0	392			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Width (ft)	12	12	12	12	13	13			
Storage Length (ft)	0			0	0	75			
Storage Lanes	0			0	1	1			
Taper Length (ft)	25				25				
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	0.95			
Ped Bike Factor		1.00			0.97	0.97			
Frt					0.850	0.850			
Flt Protected		0.999							
Satd. Flow (prot)	0	3571	3574	0	1605	1570			
Flt Permitted		0.692							
Satd. Flow (perm)	0	2473	3574	0	1605	1525			
Right Turn on Red				Yes		No			
Satd. Flow (RTOR)									
Link Speed (mph)		30	30		30				
Link Distance (ft)		153	255		228				
Travel Time (s)		3.5	5.8		5.2				
Confl. Peds. (#/hr)	20			20	10	10			
Peak Hour Factor	0.90	0.90	0.89	0.89	0.90	0.90			
Adj. Flow (vph)	17	670	879	0	0	436			
Shared Lane Traffic (%)						50%			
Lane Group Flow (vph)	0	687	879	0	218	218			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Right	Left	Right			
Median Width(ft)		12	12		13				
Link Offset(ft)		0	0		0				
Crosswalk Width(ft)		16	16		16				
Two way Left Turn Lane									
Headway Factor	1.00	1.00	1.00	1.00	0.96	0.96			
Turning Speed (mph)	15			9	15	9			
Turn Type	Perm	NA	NA		Prot	Perm			
Protected Phases		1 3	2 3		4		1	2	3
Permitted Phases	1 3					4			
Minimum Split (s)					22.0	22.0	22.0	22.0	10.0
Total Split (s)					24.0	24.0	23.0	27.0	26.0
Total Split (%)					24.0%	24.0%	23%	27%	26%
Maximum Green (s)					18.0	18.0	17.0	21.0	20.0
Yellow Time (s)					4.0	4.0	4.0	4.0	4.0
All-Red Time (s)					2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)					0.0	0.0			
Total Lost Time (s)					6.0	6.0			
Lead/Lag					Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Act Effct Green (s)		37.0	47.0		18.0	18.0			
Actuated g/C Ratio		0.37	0.47		0.18	0.18			
v/c Ratio		0.75	0.52		0.76	0.80			
Control Delay		18.0	7.9		57.0	61.4			

Lane Group	NBL	NBT	SBT	SBR	SEL	SER	ø1	ø2	ø3
Queue Delay		9.2	0.2		60.2	58.6			
Total Delay		27.2	8.1		117.2	120.1			
LOS		C	A		F	F			
Approach Delay		27.2	8.1		118.6				
Approach LOS		C	A		F				
Queue Length 50th (ft)		208	53		133	141			
Queue Length 95th (ft)		277	63		#245	#268			
Internal Link Dist (ft)		73	175		148				
Turn Bay Length (ft)						75			
Base Capacity (vph)		915	1679		288	274			
Starvation Cap Reductn		198	179		92	78			
Spillback Cap Reductn		0	32		14	13			
Storage Cap Reductn		0	0		0	0			
Reduced v/c Ratio		0.96	0.59		1.11	1.11			

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 17 (17%), Referenced to phase 3:NBSB, Start of Yellow
Natural Cycle: 80
Control Type: Pretimed
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 38.7 Intersection LOS: D
Intersection Capacity Utilization 48.8% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Main Street & Parker Avenue



Lane Group	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL2	NWL	NWR	ø2
Lane Configurations												
Volume (vph)	0	0	4	541	14	251	919	4	11	8	77	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	10	10	10	11	12	12	13	13	13	
Storage Length (ft)	0	0	70		0	100		0		80	0	
Storage Lanes	0	0	1		0	1		0		1	1	
Taper Length (ft)	25		25			25				25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	
Ped Bike Factor				1.00		1.00				0.98		
Frt				0.996			0.999				0.850	
Flt Protected			0.950			0.950				0.950		
Satd. Flow (prot)	0	0	1668	3320	0	1728	3571	0	0	1847	1652	
Flt Permitted			0.276			0.287				0.950		
Satd. Flow (perm)	0	0	485	3320	0	521	3571	0	0	1819	1652	
Right Turn on Red					Yes			Yes			Yes	
Satd. Flow (RTOR)				3			1				142	
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	94			1221			153			691		
Travel Time (s)	2.1			27.8			3.5			15.7		
Confl. Peds. (#/hr)					7	7			6			
Peak Hour Factor	0.92	0.92	0.90	0.90	0.90	0.89	0.89	0.89	0.78	0.78	0.78	
Adj. Flow (vph)	0	0	4	601	16	282	1033	4	14	10	99	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	4	617	0	282	1037	0	0	24	99	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(ft)	0			11			11			13		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.09	1.09	1.09	1.04	1.00	1.00	0.96	0.96	0.96	
Turning Speed (mph)	15	9	15		9	15		9	15	15	9	
Turn Type			Perm	NA		D.P+P	NA		Perm	Prot	Perm	
Protected Phases				3		2 4	2 3 4			1		2
Permitted Phases			3			3			1		1	
Minimum Split (s)			10.0	10.0					15.0	15.0	15.0	22.0
Total Split (s)			36.0	36.0					18.0	18.0	18.0	22.0
Total Split (%)			36.0%	36.0%					18.0%	18.0%	18.0%	22%
Maximum Green (s)			30.0	30.0					12.0	12.0	12.0	16.0
Yellow Time (s)			4.0	4.0					4.0	4.0	4.0	4.0
All-Red Time (s)			2.0	2.0					2.0	2.0	2.0	2.0
Lost Time Adjust (s)			0.0	0.0						0.0	0.0	
Total Lost Time (s)			6.0	6.0						6.0	6.0	
Lead/Lag			Lead	Lead					Lead	Lead	Lead	Lag
Lead-Lag Optimize?			Yes	Yes					Yes	Yes	Yes	Yes
Act Effct Green (s)			30.0	30.0		64.0	76.0			12.0	12.0	
Actuated g/C Ratio			0.30	0.30		0.64	0.76			0.12	0.12	
v/c Ratio			0.03	0.62		0.38	0.38			0.11	0.31	
Control Delay			25.5	33.2		4.7	0.3			40.7	5.2	

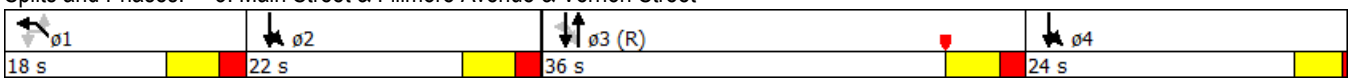
Lane Group	ø4
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Minimum Split (s)	20.0
Total Split (s)	24.0
Total Split (%)	24%
Maximum Green (s)	20.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	

Lane Group	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL2	NWL	NWR	ø2
Queue Delay			0.0	1.9		1.3	0.2			0.0	0.4	
Total Delay			25.5	35.1		5.9	0.6			40.7	5.5	
LOS			C	D		A	A			D	A	
Approach Delay				35.0			1.7			12.4		
Approach LOS				D			A			B		
Queue Length 50th (ft)			2	176		24	0			14	0	
Queue Length 95th (ft)			10	235		m48	0			33	7	
Internal Link Dist (ft)	14			1141			73			611		
Turn Bay Length (ft)			70			100				80		
Base Capacity (vph)			145	998		743	2714			218	323	
Starvation Cap Reductn			0	0		273	853			0	0	
Spillback Cap Reductn			0	231		0	0			0	48	
Storage Cap Reductn			0	0		0	0			0	0	
Reduced v/c Ratio			0.03	0.80		0.60	0.56			0.11	0.36	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 22 (22%), Referenced to phase 3:NBSB, Start of Yellow
Natural Cycle: 75
Control Type: Pretimed
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 12.4 Intersection LOS: B
Intersection Capacity Utilization 47.7% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Main Street & Fillmore Avenue & Vernon Street



Lane Group	ø4
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

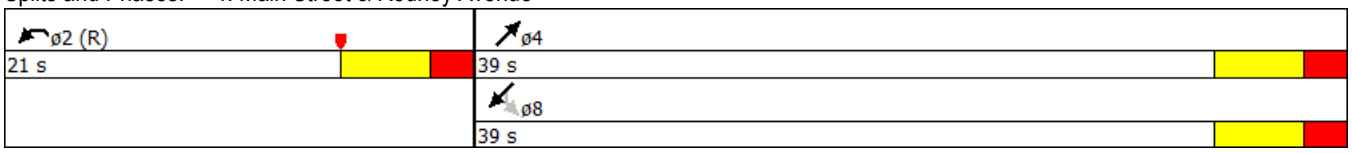
Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	7	19	540	60	82	848
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	11	12	11	12
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	0.98		1.00			1.00
Frt	0.902		0.985			
Flt Protected	0.987					0.996
Satd. Flow (prot)	1809	0	3393	0	0	3560
Flt Permitted	0.987					0.811
Satd. Flow (perm)	1805	0	3393	0	0	2898
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	24		31			
Link Speed (mph)	30		30			30
Link Distance (ft)	206		896			1221
Travel Time (s)	4.7		20.4			27.8
Confl. Peds. (#/hr)	7	11		11	11	
Peak Hour Factor	0.78	0.78	0.85	0.85	0.86	0.86
Adj. Flow (vph)	9	24	635	71	95	986
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	0	706	0	0	1081
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	15		10			10
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.88	0.88	1.04	1.00	1.04	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot		NA		Perm	NA
Protected Phases	2		4			8
Permitted Phases					8	
Minimum Split (s)	22.0		22.0		22.0	22.0
Total Split (s)	21.0		39.0		39.0	39.0
Total Split (%)	35.0%		65.0%		65.0%	65.0%
Maximum Green (s)	15.0		33.0		33.0	33.0
Yellow Time (s)	4.0		4.0		4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	6.0		6.0			6.0
Lead/Lag						
Lead-Lag Optimize?						
Act Effct Green (s)	15.0		33.0			33.0
Actuated g/C Ratio	0.25		0.55			0.55
v/c Ratio	0.07		0.38			0.68
Control Delay	10.1		8.0			12.4
Queue Delay	0.0		0.0			0.0
Total Delay	10.1		8.0			12.4
LOS	B		A			B

Lane Group	NWL	NWR	NET	NER	SWL	SWT
Approach Delay	10.1		8.0			12.4
Approach LOS	B		A			B
Queue Length 50th (ft)	3		64			132
Queue Length 95th (ft)	17		88			178
Internal Link Dist (ft)	126		816			1141
Turn Bay Length (ft)						
Base Capacity (vph)	470		1880			1593
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	0.07		0.38			0.68

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 37 (62%), Referenced to phase 2:NWL and 6:, Start of Yellow
Natural Cycle: 55
Control Type: Pretimed
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 10.7 Intersection LOS: B
Intersection Capacity Utilization 61.1% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 4: Main Street & Rodney Avenue



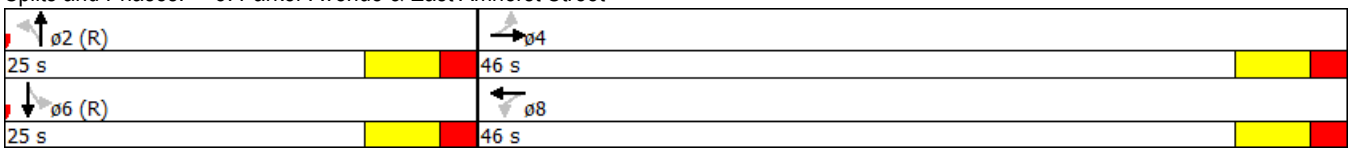
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	346	220	7	144	11	5	3	6	18	163	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	16	12	12	14	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			0.97			0.99	
Frt		0.948			0.991			0.944			0.993	
Flt Protected					0.998			0.982			0.995	
Satd. Flow (prot)	0	1875	0	0	2105	0	0	1814	0	0	2103	0
Flt Permitted		0.999			0.971			0.863			0.973	
Satd. Flow (perm)	0	1873	0	0	2048	0	0	1591	0	0	2048	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		73			9			10			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		807			188			228			355	
Travel Time (s)		18.3			4.3			5.2			8.1	
Confl. Peds. (#/hr)	4		20	20		4	5		43	43		5
Peak Hour Factor	0.83	0.83	0.83	0.93	0.93	0.93	0.58	0.58	0.58	0.68	0.68	0.68
Adj. Flow (vph)	4	417	265	8	155	12	9	5	10	26	240	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	686	0	0	175	0	0	24	0	0	281	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.92	1.00	1.00	0.85	1.00	1.00	0.92	1.00	1.00	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	46.0	46.0		46.0	46.0		25.0	25.0		25.0	25.0	
Total Split (%)	64.8%	64.8%		64.8%	64.8%		35.2%	35.2%		35.2%	35.2%	
Maximum Green (s)	40.0	40.0		40.0	40.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		40.0			40.0			19.0			19.0	
Actuated g/C Ratio		0.56			0.56			0.27			0.27	
v/c Ratio		0.63			0.15			0.06			0.51	
Control Delay		12.5			7.4			14.9			25.6	
Queue Delay		0.0			2.2			0.0			0.0	
Total Delay		12.5			9.7			14.9			25.6	
LOS		B			A			B			C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		12.5			9.7			14.9			25.6	
Approach LOS		B			A			B			C	
Queue Length 50th (ft)		164			31			5			102	
Queue Length 95th (ft)		228			58			12			121	
Internal Link Dist (ft)		727			108			148			275	
Turn Bay Length (ft)												
Base Capacity (vph)		1087			1157			433			550	
Starvation Cap Reductn		0			851			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.63			0.57			0.06			0.51	

Intersection Summary

Area Type: Other
Cycle Length: 71
Actuated Cycle Length: 71
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Pretimed
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 15.3 Intersection LOS: B
Intersection Capacity Utilization 54.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 5: Parker Avenue & East Amherst Street



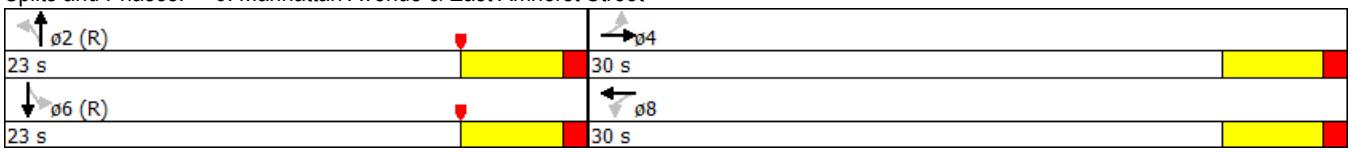
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	243	28	10	122	129	16	219	29	77	66	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	15	12	12	15	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.98			0.99			0.98	
Frt		0.987			0.933			0.985			0.996	
Flt Protected		0.997			0.998			0.997			0.975	
Satd. Flow (prot)	0	2091	0	0	1949	0	0	2011	0	0	2008	0
Flt Permitted		0.957			0.978			0.974			0.654	
Satd. Flow (perm)	0	2006	0	0	1910	0	0	1964	0	0	1319	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			125			13			3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2328			787			595			295	
Travel Time (s)		52.9			17.9			13.5			6.7	
Confl. Peds. (#/hr)	16		12	12		16	7		51	51		7
Peak Hour Factor	0.61	0.61	0.61	0.66	0.66	0.66	0.78	0.78	0.78	0.72	0.72	0.72
Adj. Flow (vph)	33	398	46	15	185	195	21	281	37	107	92	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	477	0	0	395	0	0	339	0	0	205	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.88	1.00	1.00	0.88	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	30.0	30.0		30.0	30.0		23.0	23.0		23.0	23.0	
Total Split (%)	56.6%	56.6%		56.6%	56.6%		43.4%	43.4%		43.4%	43.4%	
Maximum Green (s)	25.0	25.0		25.0	25.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		25.0			25.0			18.0			18.0	
Actuated g/C Ratio		0.47			0.47			0.34			0.34	
v/c Ratio		0.50			0.41			0.50			0.46	
Control Delay		11.6			7.6			16.5			17.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		11.6			7.6			16.5			17.5	
LOS		B			A			B			B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		11.6			7.6			16.5			17.5	
Approach LOS		B			A			B			B	
Queue Length 50th (ft)		92			48			79			48	
Queue Length 95th (ft)		91			57			117			73	
Internal Link Dist (ft)		2248			707			515			215	
Turn Bay Length (ft)												
Base Capacity (vph)		953			966			675			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		0.50			0.41			0.50			0.46	

Intersection Summary

Area Type: Other
Cycle Length: 53
Actuated Cycle Length: 53
Offset: 18 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 45
Control Type: Pretimed
Maximum v/c Ratio: 0.50
Intersection Signal Delay: 12.5 Intersection LOS: B
Intersection Capacity Utilization 57.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 6: Manhattan Avenue & East Amherst Street



Lanes, Volumes, Timings
1: Main Street & East Amherst Street

12/12/2014

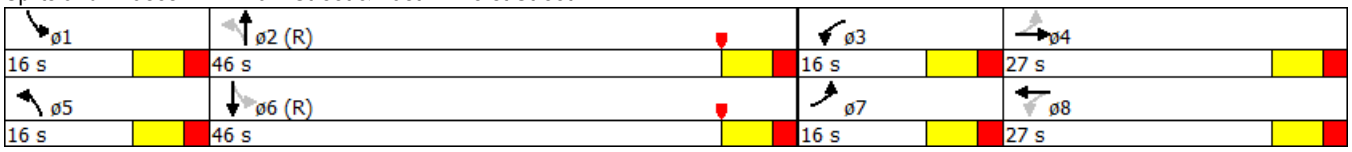
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	197	11	28	132	7	106	885	20	22	528	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14	12	12	12	12	12	12
Storage Length (ft)	0		0	50		0	145		0	110		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.97	1.00		1.00	1.00			1.00		1.00		
Frt		0.992			0.993			0.997			0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2025	2113	0	1847	1986	0	1787	3561	0	1787	3492	0
Flt Permitted	0.571			0.372			0.278			0.116		
Satd. Flow (perm)	1180	2113	0	722	1986	0	523	3561	0	218	3492	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			2			2			22	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		188			370			255			717	
Travel Time (s)		4.3			8.4			5.8			16.3	
Confl. Peds. (#/hr)	40		2	2		40			13	13		
Peak Hour Factor	0.81	0.81	0.81	0.83	0.83	0.83	0.86	0.86	0.86	0.88	0.88	0.88
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	77	243	14	34	159	8	123	1029	23	25	600	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	77	257	0	34	167	0	123	1052	0	25	707	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	1.00	0.96	0.92	0.92	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	16.0	27.0		16.0	27.0		16.0	46.0		16.0	46.0	
Total Split (%)	15.2%	25.7%		15.2%	25.7%		15.2%	43.8%		15.2%	43.8%	
Maximum Green (s)	10.0	21.0		10.0	21.0		10.0	40.0		10.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Act Effct Green (s)	31.0	21.0		31.0	21.0		50.0	40.0		50.0	40.0	
Actuated g/C Ratio	0.30	0.20		0.30	0.20		0.48	0.38		0.48	0.38	
v/c Ratio	0.18	0.61		0.11	0.42		0.33	0.78		0.10	0.53	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	24.3	44.8		23.5	40.0		11.3	22.5		12.7	26.0	
Queue Delay	0.4	65.3		0.0	0.0		0.0	36.3		0.0	0.0	
Total Delay	24.7	110.1		23.5	40.0		11.3	58.8		12.7	26.0	
LOS	C	F		C	D		B	E		B	C	
Approach Delay		90.4			37.2			53.8			25.6	
Approach LOS		F			D			D			C	
Queue Length 50th (ft)	34	157		15	98		38	205		8	184	
Queue Length 95th (ft)	60	213		34	148		m38	m201		20	234	
Internal Link Dist (ft)		108			290			175			637	
Turn Bay Length (ft)				50			145			110		
Base Capacity (vph)	428	424		320	398		369	1357		253	1343	
Starvation Cap Reductn	143	245		0	0		0	372		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	0.27	1.44		0.11	0.42		0.33	1.07		0.10	0.53	

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Offset: 13 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 70
Control Type: Pretimed
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 49.0 Intersection LOS: D
Intersection Capacity Utilization 62.8% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Main Street & East Amherst Street



Lane Group	NBL	NBT	SBT	SBR	SEL	SER	ø1	ø2	ø3
Lane Configurations									
Volume (vph)	55	1011	567	0	0	136			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Width (ft)	12	12	12	12	13	13			
Storage Length (ft)	0			0	0	75			
Storage Lanes	0			0	1	1			
Taper Length (ft)	25				25				
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	0.95			
Ped Bike Factor		1.00			0.97	0.97			
Frt					0.850	0.850			
Flt Protected		0.997							
Satd. Flow (prot)	0	3564	3574	0	1607	1570			
Flt Permitted		0.691							
Satd. Flow (perm)	0	2469	3574	0	1607	1527			
Right Turn on Red				Yes		No			
Satd. Flow (RTOR)									
Link Speed (mph)		30	30		30				
Link Distance (ft)		153	255		228				
Travel Time (s)		3.5	5.8		5.2				
Confl. Peds. (#/hr)	11			11	7	7			
Peak Hour Factor	0.92	0.92	0.94	0.94	0.90	0.90			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%			
Adj. Flow (vph)	60	1099	603	0	0	151			
Shared Lane Traffic (%)						50%			
Lane Group Flow (vph)	0	1159	603	0	76	75			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Right	Left	Right			
Median Width(ft)		12	12		13				
Link Offset(ft)		0	0		0				
Crosswalk Width(ft)		16	16		16				
Two way Left Turn Lane									
Headway Factor	1.00	1.00	1.00	1.00	0.96	0.96			
Turning Speed (mph)	15			9	15	9			
Turn Type	Perm	NA	NA		Prot	Perm			
Protected Phases		1 3	2 3		4		1	2	3
Permitted Phases	1 3					4			
Minimum Split (s)					22.0	22.0	22.0	22.0	10.0
Total Split (s)					20.0	20.0	23.0	25.0	37.0
Total Split (%)					19.0%	19.0%	22%	24%	35%
Maximum Green (s)					14.0	14.0	17.0	19.0	31.0
Yellow Time (s)					4.0	4.0	4.0	4.0	4.0
All-Red Time (s)					2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)					0.0	0.0			
Total Lost Time (s)					6.0	6.0			
Lead/Lag					Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Act Effct Green (s)		48.0	56.0		14.0	14.0			
Actuated g/C Ratio		0.46	0.53		0.13	0.13			
v/c Ratio		1.03	0.32		0.36	0.37			

Lane Group	NBL	NBT	SBT	SBR	SEL	SER	ø1	ø2	ø3
Control Delay		44.1	4.6		46.7	47.4			
Queue Delay		28.3	0.2		1.0	0.8			
Total Delay		72.4	4.7		47.6	48.1			
LOS		E	A		D	D			
Approach Delay		72.4	4.7		47.9				
Approach LOS		E	A		D				
Queue Length 50th (ft)		~437	28		47	49			
Queue Length 95th (ft)		#395	35		93	96			
Internal Link Dist (ft)		73	175		148				
Turn Bay Length (ft)						75			
Base Capacity (vph)		1128	1906		214	203			
Starvation Cap Reductn		177	495		39	29			
Spillback Cap Reductn		77	28		5	5			
Storage Cap Reductn		0	0		0	0			
Reduced v/c Ratio		1.22	0.43		0.43	0.43			

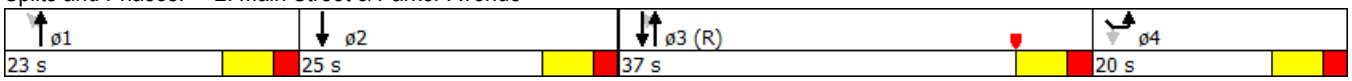
Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Offset: 14 (13%), Referenced to phase 3:NBSB, Start of Yellow
Natural Cycle: 140
Control Type: Pretimed
Maximum v/c Ratio: 1.03
Intersection Signal Delay: 49.1 Intersection LOS: D
Intersection Capacity Utilization 63.8% ICU Level of Service B
Analysis Period (min) 15

~ 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: 2: Main Street & Parker Avenue



Lane Group	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL2	NWL	NWR	ø2
Lane Configurations												
Volume (vph)	0	0	11	922	14	118	575	10	17	17	144	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	10	10	10	11	12	12	13	13	13	
Storage Length (ft)	0	0	70		0	100		0		80	0	
Storage Lanes	0	0	1		0	1		0		1	1	
Taper Length (ft)	25		25			25				25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	
Ped Bike Factor				1.00		1.00				0.97	0.98	
Frt				0.998			0.997				0.850	
Flt Protected			0.950			0.950				0.950		
Satd. Flow (prot)	0	0	1668	3328	0	1728	3564	0	0	1847	1652	
Flt Permitted			0.416			0.137				0.950		
Satd. Flow (perm)	0	0	730	3328	0	249	3564	0	0	1798	1624	
Right Turn on Red					Yes			Yes			Yes	
Satd. Flow (RTOR)				2			5				164	
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	94			1221			153			691		
Travel Time (s)	2.1			27.8			3.5			15.7		
Confl. Peds. (#/hr)					4	4			10		2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.88	0.88	0.88	
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
Adj. Flow (vph)	0	0	12	1002	15	126	612	11	19	19	164	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	12	1017	0	126	623	0	0	38	164	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(ft)	0			11			11			13		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.09	1.09	1.09	1.04	1.00	1.00	0.96	0.96	0.96	
Turning Speed (mph)	15	9	15		9	15		9	15	15	9	
Turn Type			Perm	NA		D.P+P	NA		Perm	Prot	Perm	
Protected Phases				3		2 4	2 3 4			1		2
Permitted Phases			3			3			1		1	
Minimum Split (s)			10.0	10.0					18.0	18.0	18.0	22.0
Total Split (s)			47.0	47.0					18.0	18.0	18.0	20.0
Total Split (%)			44.8%	44.8%					17.1%	17.1%	17.1%	19%
Maximum Green (s)			41.0	41.0					12.0	12.0	12.0	14.0
Yellow Time (s)			4.0	4.0					4.0	4.0	4.0	4.0
All-Red Time (s)			2.0	2.0					2.0	2.0	2.0	2.0
Lost Time Adjust (s)			0.0	0.0						0.0	0.0	
Total Lost Time (s)			6.0	6.0						6.0	6.0	
Lead/Lag			Lead	Lead					Lead	Lead	Lead	Lag
Lead-Lag Optimize?			Yes	Yes					Yes	Yes	Yes	Yes
Act Effct Green (s)			41.0	41.0		69.0	81.0			12.0	12.0	
Actuated g/C Ratio			0.39	0.39		0.66	0.77			0.11	0.11	
v/c Ratio			0.04	0.78		0.23	0.23			0.19	0.50	

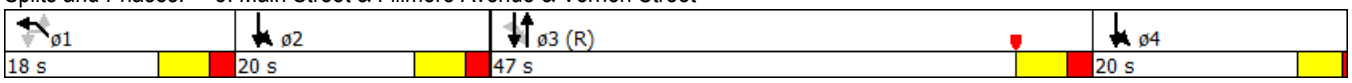
Lane Group	ø4
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	19%
Maximum Green (s)	16.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lane Group	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL2	NWL	NWR	ø2
Control Delay			20.5	33.2		8.8	0.2			44.6	12.4	
Queue Delay			0.0	16.3		1.3	0.3			0.0	0.9	
Total Delay			20.5	49.5		10.0	0.5			44.6	13.4	
LOS			C	D		B	A			D	B	
Approach Delay				49.1			2.1			19.2		
Approach LOS				D			A			B		
Queue Length 50th (ft)			5	310		17	0			24	0	
Queue Length 95th (ft)			17	393		50	0			54	57	
Internal Link Dist (ft)	14			1141			73			611		
Turn Bay Length (ft)			70			100				80		
Base Capacity (vph)			285	1300		558	2750			205	330	
Starvation Cap Reductn			0	0		276	1456			0	0	
Spillback Cap Reductn			0	292		0	0			0	45	
Storage Cap Reductn			0	0		0	0			0	0	
Reduced v/c Ratio			0.04	1.01		0.45	0.48			0.19	0.58	

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Offset: 22 (21%), Referenced to phase 3:NBSB, Start of Yellow
Natural Cycle: 90
Control Type: Pretimed
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 28.3 Intersection LOS: C
Intersection Capacity Utilization 50.8% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Main Street & Fillmore Avenue & Vernon Street



Lane Group	ø4
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

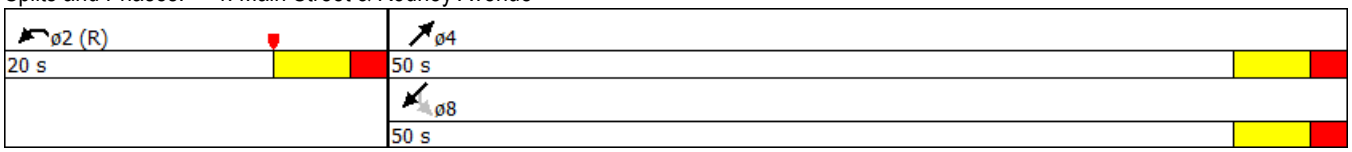
Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	25	88	859	23	19	573
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	11	12	11	12
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	0.98		1.00			1.00
Frt	0.895		0.996			
Flt Protected	0.989					0.998
Satd. Flow (prot)	1800	0	3439	0	0	3567
Flt Permitted	0.989					0.911
Satd. Flow (perm)	1798	0	3439	0	0	3256
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	100		7			
Link Speed (mph)	30		30			30
Link Distance (ft)	206		896			1221
Travel Time (s)	4.7		20.4			27.8
Confl. Peds. (#/hr)	3	7		9	9	
Peak Hour Factor	0.88	0.88	0.90	0.90	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	28	100	954	26	20	603
Shared Lane Traffic (%)						
Lane Group Flow (vph)	128	0	980	0	0	623
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	15		10			10
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.88	0.88	1.04	1.00	1.04	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot		NA		Perm	NA
Protected Phases	2		4			8
Permitted Phases					8	
Minimum Split (s)	22.0		22.0		22.0	22.0
Total Split (s)	20.0		50.0		50.0	50.0
Total Split (%)	28.6%		71.4%		71.4%	71.4%
Maximum Green (s)	14.0		44.0		44.0	44.0
Yellow Time (s)	4.0		4.0		4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	6.0		6.0			6.0
Lead/Lag						
Lead-Lag Optimize?						
Act Effct Green (s)	14.0		44.0			44.0
Actuated g/C Ratio	0.20		0.63			0.63
v/c Ratio	0.29		0.45			0.30
Control Delay	10.3		7.5			6.5
Queue Delay	0.0		0.0			0.0
Total Delay	10.3		7.5			6.5

Lane Group	NWL	NWR	NET	NER	SWL	SWT
LOS	B		A			A
Approach Delay	10.3		7.5			6.5
Approach LOS	B		A			A
Queue Length 50th (ft)	10		99			56
Queue Length 95th (ft)	49		136			81
Internal Link Dist (ft)	126		816			1141
Turn Bay Length (ft)						
Base Capacity (vph)	440		2164			2046
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	0.29		0.45			0.30

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:NWL and 6:, Start of Yellow
Natural Cycle: 45
Control Type: Pretimed
Maximum v/c Ratio: 0.45
Intersection Signal Delay: 7.3 Intersection LOS: A
Intersection Capacity Utilization 47.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 4: Main Street & Rodney Avenue



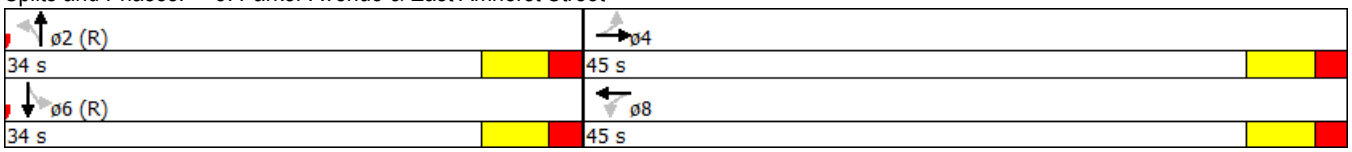
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	250	90	10	285	37	28	18	9	11	36	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	16	12	12	14	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			0.99			1.00	
Frt		0.965			0.985			0.978			0.991	
Flt Protected		0.999			0.999			0.975			0.989	
Satd. Flow (prot)	0	1916	0	0	2092	0	0	1906	0	0	2086	0
Flt Permitted		0.995			0.987			0.862			0.951	
Satd. Flow (perm)	0	1908	0	0	2066	0	0	1678	0	0	2001	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32			11			10			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		807			188			228			355	
Travel Time (s)		18.3			4.3			5.2			8.1	
Confl. Peds. (#/hr)	6		17	17		6	6		15	15		6
Peak Hour Factor	0.93	0.93	0.93	0.89	0.89	0.89	0.88	0.88	0.88	0.82	0.82	0.82
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	5	269	97	11	320	42	32	20	10	13	44	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	371	0	0	373	0	0	62	0	0	61	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.92	1.00	1.00	0.85	1.00	1.00	0.92	1.00	1.00	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	45.0	45.0		45.0	45.0		34.0	34.0		34.0	34.0	
Total Split (%)	57.0%	57.0%		57.0%	57.0%		43.0%	43.0%		43.0%	43.0%	
Maximum Green (s)	39.0	39.0		39.0	39.0		28.0	28.0		28.0	28.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		39.0			39.0			28.0			28.0	
Actuated g/C Ratio		0.49			0.49			0.35			0.35	
v/c Ratio		0.39			0.36			0.10			0.09	
Control Delay		12.8			13.2			15.5			16.6	
Queue Delay		0.0			33.7			0.0			0.0	
Total Delay		12.8			46.9			15.5			16.6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		B			D			B			B	
Approach Delay		12.8			46.9			15.5			16.6	
Approach LOS		B			D			B			B	
Queue Length 50th (ft)		98			104			17			18	
Queue Length 95th (ft)		160			161			41			39	
Internal Link Dist (ft)		727			108			148			275	
Turn Bay Length (ft)												
Base Capacity (vph)		958			1025			601			711	
Starvation Cap Reductn		0			663			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.39			1.03			0.10			0.09	

Intersection Summary

Area Type: Other
Cycle Length: 79
Actuated Cycle Length: 79
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 45
Control Type: Pretimed
Maximum v/c Ratio: 0.39
Intersection Signal Delay: 28.0 Intersection LOS: C
Intersection Capacity Utilization 39.6% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 5: Parker Avenue & East Amherst Street



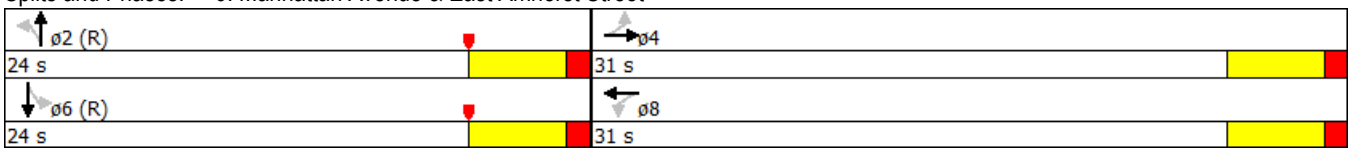
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	196	28	44	136	51	28	160	63	73	53	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	15	12	12	15	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			1.00	
Frt		0.984			0.970			0.966			0.997	
Flt Protected		0.997			0.991			0.994			0.972	
Satd. Flow (prot)	0	2085	0	0	2037	0	0	1976	0	0	2004	0
Flt Permitted		0.976			0.904			0.957			0.742	
Satd. Flow (perm)	0	2040	0	0	1856	0	0	1901	0	0	1529	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			35			34			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2328			787			595			295	
Travel Time (s)		52.9			17.9			13.5			6.7	
Confl. Peds. (#/hr)	8		8	8		8	4		2	2		4
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.93	0.93	0.93	0.86	0.86	0.86
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	16	213	30	52	160	60	30	172	68	85	62	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	259	0	0	272	0	0	270	0	0	150	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.88	1.00	1.00	0.88	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	31.0	31.0		31.0	31.0		24.0	24.0		24.0	24.0	
Total Split (%)	56.4%	56.4%		56.4%	56.4%		43.6%	43.6%		43.6%	43.6%	
Maximum Green (s)	26.0	26.0		26.0	26.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		26.0			26.0			19.0			19.0	
Actuated g/C Ratio		0.47			0.47			0.35			0.35	
v/c Ratio		0.27			0.30			0.40			0.28	
Control Delay		9.1			8.8			14.0			14.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.1			8.8			14.0			14.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		A			A			B			B	
Approach Delay		9.1			8.8			14.0			14.7	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)		44			43			56			34	
Queue Length 95th (ft)		82			77			108			67	
Internal Link Dist (ft)		2248			707			515			215	
Turn Bay Length (ft)												
Base Capacity (vph)		972			895			678			529	
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		0.27			0.30			0.40			0.28	

Intersection Summary

Area Type: Other
Cycle Length: 55
Actuated Cycle Length: 55
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 45
Control Type: Pretimed
Maximum v/c Ratio: 0.40
Intersection Signal Delay: 11.3 Intersection LOS: B
Intersection Capacity Utilization 57.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 6: Manhattan Avenue & East Amherst Street



Lanes, Volumes, Timings
1: Main Street & East Amherst Street

12/12/2014

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	121	245	6	23	117	12	10	571	42	6	758	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14	12	12	12	12	12	12
Storage Length (ft)	0		0	50		0	145		0	110		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	1.00		1.00	0.99			1.00		1.00		
Frt		0.996			0.986			0.990			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2025	2123	0	1847	1968	0	1787	3530	0	1787	3546	0
Flt Permitted	0.580			0.293			0.220			0.249		
Satd. Flow (perm)	1208	2123	0	569	1968	0	414	3530	0	467	3546	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			5			9			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		188			370			255			717	
Travel Time (s)		4.3			8.4			5.8			16.3	
Confl. Peds. (#/hr)	27		1	1		27			12	12		
Peak Hour Factor	0.90	0.90	0.90	0.80	0.80	0.80	0.78	0.78	0.78	0.95	0.95	0.95
Adj. Flow (vph)	134	272	7	29	146	15	13	732	54	6	798	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	134	279	0	29	161	0	13	786	0	6	845	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	1.00	0.96	0.92	0.92	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	15.0	24.0		15.0	24.0		15.0	46.0		15.0	46.0	
Total Split (%)	15.0%	24.0%		15.0%	24.0%		15.0%	46.0%		15.0%	46.0%	
Maximum Green (s)	9.0	18.0		9.0	18.0		9.0	40.0		9.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Act Effct Green (s)	27.0	18.0		27.0	18.0		49.0	40.0		49.0	40.0	
Actuated g/C Ratio	0.27	0.18		0.27	0.18		0.49	0.40		0.49	0.40	
v/c Ratio	0.34	0.73		0.11	0.45		0.04	0.55		0.02	0.59	
Control Delay	26.9	51.0		24.1	40.0		5.2	12.9		10.5	25.5	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.8	63.3		0.0	0.0		0.0	1.5		0.0	0.0	
Total Delay	27.6	114.3		24.1	40.0		5.2	14.4		10.5	25.5	
LOS	C	F		C	D		A	B		B	C	
Approach Delay		86.2			37.6			14.3			25.4	
Approach LOS		F			D			B			C	
Queue Length 50th (ft)	61	169		13	90		3	104		2	216	
Queue Length 95th (ft)	106	#278		29	134		m4	151		7	280	
Internal Link Dist (ft)		108			290			175			637	
Turn Bay Length (ft)				50			145			110		
Base Capacity (vph)	399	382		268	358		326	1417		347	1422	
Starvation Cap Reductn	99	201		0	0		0	424		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	0.45	1.54		0.11	0.45		0.04	0.79		0.02	0.59	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 22 (22%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 65
Control Type: Pretimed
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 33.6 Intersection LOS: C
Intersection Capacity Utilization 54.0% ICU Level of Service A
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: 1: Main Street & East Amherst Street

ø1	ø2 (R)	ø3	ø4
15 s	46 s	15 s	24 s
ø5	ø6 (R)	ø7	ø8
15 s	46 s	15 s	24 s

Lane Group	NBL	NBT	SBT	SBR	SEL	SER	ø1	ø2	ø3
Lane Configurations									
Volume (vph)	15	623	787	0	0	392			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Width (ft)	12	12	12	12	13	13			
Storage Length (ft)	0			0	0	75			
Storage Lanes	0			0	1	1			
Taper Length (ft)	25				25				
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	0.95			
Ped Bike Factor		1.00			0.97	0.97			
Frt					0.850	0.850			
Flt Protected		0.999							
Satd. Flow (prot)	0	3571	3574	0	1605	1570			
Flt Permitted		0.690							
Satd. Flow (perm)	0	2466	3574	0	1605	1525			
Right Turn on Red				Yes		No			
Satd. Flow (RTOR)									
Link Speed (mph)		30	30		30				
Link Distance (ft)		153	255		228				
Travel Time (s)		3.5	5.8		5.2				
Confl. Peds. (#/hr)	20			20	10	10			
Peak Hour Factor	0.90	0.90	0.89	0.89	0.90	0.90			
Adj. Flow (vph)	17	692	884	0	0	436			
Shared Lane Traffic (%)						50%			
Lane Group Flow (vph)	0	709	884	0	218	218			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Right	Left	Right			
Median Width(ft)		12	12		13				
Link Offset(ft)		0	0		0				
Crosswalk Width(ft)		16	16		16				
Two way Left Turn Lane									
Headway Factor	1.00	1.00	1.00	1.00	0.96	0.96			
Turning Speed (mph)	15			9	15	9			
Turn Type	Perm	NA	NA		Prot	Perm			
Protected Phases		1 3	2 3		4		1	2	3
Permitted Phases	1 3					4			
Minimum Split (s)					22.0	22.0	22.0	22.0	10.0
Total Split (s)					24.0	24.0	23.0	27.0	26.0
Total Split (%)					24.0%	24.0%	23%	27%	26%
Maximum Green (s)					18.0	18.0	17.0	21.0	20.0
Yellow Time (s)					4.0	4.0	4.0	4.0	4.0
All-Red Time (s)					2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)					0.0	0.0			
Total Lost Time (s)					6.0	6.0			
Lead/Lag					Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Act Effct Green (s)		37.0	47.0		18.0	18.0			
Actuated g/C Ratio		0.37	0.47		0.18	0.18			
v/c Ratio		0.78	0.53		0.76	0.80			
Control Delay		19.1	7.9		57.0	61.4			

Lane Group	NBL	NBT	SBT	SBR	SEL	SER	ø1	ø2	ø3
Queue Delay		9.4	0.2		60.2	58.6			
Total Delay		28.5	8.1		117.2	120.1			
LOS		C	A		F	F			
Approach Delay		28.5	8.1		118.6				
Approach LOS		C	A		F				
Queue Length 50th (ft)		214	54		133	141			
Queue Length 95th (ft)		276	63		#245	#268			
Internal Link Dist (ft)		73	175		148				
Turn Bay Length (ft)						75			
Base Capacity (vph)		912	1679		288	274			
Starvation Cap Reductn		176	178		92	78			
Spillback Cap Reductn		0	34		14	14			
Storage Cap Reductn		0	0		0	0			
Reduced v/c Ratio		0.96	0.59		1.11	1.11			

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 17 (17%), Referenced to phase 3:NBSB, Start of Yellow
Natural Cycle: 80
Control Type: Pretimed
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 39.0 Intersection LOS: D
Intersection Capacity Utilization 49.0% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Main Street & Parker Avenue

ø1	ø2	ø3 (R)	ø4
23 s	27 s	26 s	24 s

Lane Group	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL2	NWL	NWR	ø2
Lane Configurations												
Volume (vph)	0	0	4	541	14	256	919	4	11	8	97	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	10	10	10	11	12	12	13	13	13	
Storage Length (ft)	0	0	70		0	100		0		80	0	
Storage Lanes	0	0	1		0	1		0		1	1	
Taper Length (ft)	25		25			25				25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	
Ped Bike Factor				1.00		1.00				0.98		
Frt				0.996			0.999				0.850	
Flt Protected			0.950			0.950				0.950		
Satd. Flow (prot)	0	0	1668	3320	0	1728	3571	0	0	1847	1652	
Flt Permitted			0.276			0.287				0.950		
Satd. Flow (perm)	0	0	485	3320	0	521	3571	0	0	1819	1652	
Right Turn on Red					Yes			Yes			Yes	
Satd. Flow (RTOR)				3			1				142	
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	94			1221			153			691		
Travel Time (s)	2.1			27.8			3.5			15.7		
Confl. Peds. (#/hr)					7	7			6			
Peak Hour Factor	0.92	0.92	0.90	0.90	0.90	0.89	0.89	0.89	0.78	0.78	0.78	
Adj. Flow (vph)	0	0	4	601	16	288	1033	4	14	10	124	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	4	617	0	288	1037	0	0	24	124	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(ft)	0			11			11			13		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.09	1.09	1.09	1.04	1.00	1.00	0.96	0.96	0.96	
Turning Speed (mph)	15	9	15		9	15		9	15	15	9	
Turn Type			Perm	NA		D.P+P	NA		Perm	Prot	Perm	
Protected Phases				3		2 4	2 3 4			1		2
Permitted Phases			3			3			1		1	
Minimum Split (s)			10.0	10.0					15.0	15.0	15.0	22.0
Total Split (s)			36.0	36.0					18.0	18.0	18.0	22.0
Total Split (%)			36.0%	36.0%					18.0%	18.0%	18.0%	22%
Maximum Green (s)			30.0	30.0					12.0	12.0	12.0	16.0
Yellow Time (s)			4.0	4.0					4.0	4.0	4.0	4.0
All-Red Time (s)			2.0	2.0					2.0	2.0	2.0	2.0
Lost Time Adjust (s)			0.0	0.0						0.0	0.0	
Total Lost Time (s)			6.0	6.0						6.0	6.0	
Lead/Lag			Lead	Lead					Lead	Lead	Lead	Lag
Lead-Lag Optimize?			Yes	Yes					Yes	Yes	Yes	Yes
Act Effct Green (s)			30.0	30.0		64.0	76.0			12.0	12.0	
Actuated g/C Ratio			0.30	0.30		0.64	0.76			0.12	0.12	
v/c Ratio			0.03	0.62		0.39	0.38			0.11	0.38	
Control Delay			25.5	33.2		4.9	0.3			40.7	8.9	

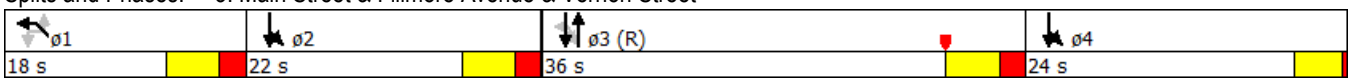
Lane Group	ø4
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Minimum Split (s)	20.0
Total Split (s)	24.0
Total Split (%)	24%
Maximum Green (s)	20.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	

Lane Group	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL2	NWL	NWR	ø2
Queue Delay			0.0	2.5		1.3	0.2			0.0	0.6	
Total Delay			25.5	35.6		6.2	0.6			40.7	9.5	
LOS			C	D		A	A			D	A	
Approach Delay				35.6			1.8			14.6		
Approach LOS				D			A			B		
Queue Length 50th (ft)			2	176		26	0			14	0	
Queue Length 95th (ft)			10	235		m51	0			33	24	
Internal Link Dist (ft)	14			1141			73			611		
Turn Bay Length (ft)			70			100				80		
Base Capacity (vph)			145	998		743	2714			218	323	
Starvation Cap Reductn			0	0		270	861			0	0	
Spillback Cap Reductn			0	253		0	0			0	49	
Storage Cap Reductn			0	0		0	0			0	0	
Reduced v/c Ratio			0.03	0.83		0.61	0.56			0.11	0.45	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 22 (22%), Referenced to phase 3:NBSB, Start of Yellow
Natural Cycle: 75
Control Type: Pretimed
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 12.7 Intersection LOS: B
Intersection Capacity Utilization 47.9% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Main Street & Fillmore Avenue & Vernon Street



Lane Group	ø4
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

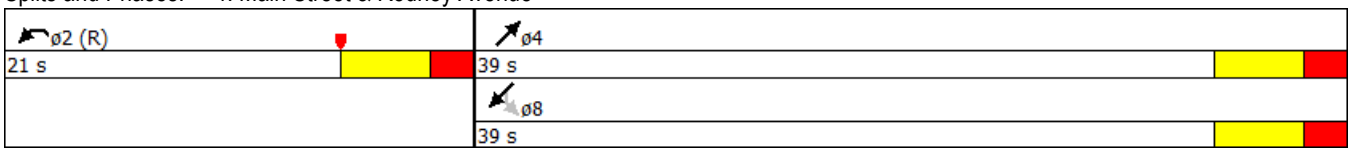
Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	47	19	540	70	82	848
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	11	12	11	12
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99		1.00			1.00
Frt	0.961		0.983			
Flt Protected	0.966					0.996
Satd. Flow (prot)	1907	0	3385	0	0	3560
Flt Permitted	0.966					0.809
Satd. Flow (perm)	1896	0	3385	0	0	2891
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	24		37			
Link Speed (mph)	30		30			30
Link Distance (ft)	206		896			1221
Travel Time (s)	4.7		20.4			27.8
Confl. Peds. (#/hr)	7	11		11	11	
Peak Hour Factor	0.78	0.78	0.85	0.85	0.86	0.86
Adj. Flow (vph)	60	24	635	82	95	986
Shared Lane Traffic (%)						
Lane Group Flow (vph)	84	0	717	0	0	1081
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	15		10			10
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.88	0.88	1.04	1.00	1.04	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot		NA		Perm	NA
Protected Phases	2		4			8
Permitted Phases					8	
Minimum Split (s)	22.0		22.0		22.0	22.0
Total Split (s)	21.0		39.0		39.0	39.0
Total Split (%)	35.0%		65.0%		65.0%	65.0%
Maximum Green (s)	15.0		33.0		33.0	33.0
Yellow Time (s)	4.0		4.0		4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	6.0		6.0			6.0
Lead/Lag						
Lead-Lag Optimize?						
Act Effct Green (s)	15.0		33.0			33.0
Actuated g/C Ratio	0.25		0.55			0.55
v/c Ratio	0.17		0.38			0.68
Control Delay	14.6		8.0			12.5
Queue Delay	0.0		0.0			0.0
Total Delay	14.6		8.0			12.5
LOS	B		A			B

Lane Group	NWL	NWR	NET	NER	SWL	SWT
Approach Delay	14.6		8.0			12.5
Approach LOS	B		A			B
Queue Length 50th (ft)	17		65			133
Queue Length 95th (ft)	39		88			178
Internal Link Dist (ft)	126		816			1141
Turn Bay Length (ft)						
Base Capacity (vph)	494		1878			1590
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	0.17		0.38			0.68

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 37 (62%), Referenced to phase 2:NWL and 6:, Start of Yellow
Natural Cycle: 55
Control Type: Pretimed
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 10.8 Intersection LOS: B
Intersection Capacity Utilization 62.2% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 4: Main Street & Rodney Avenue



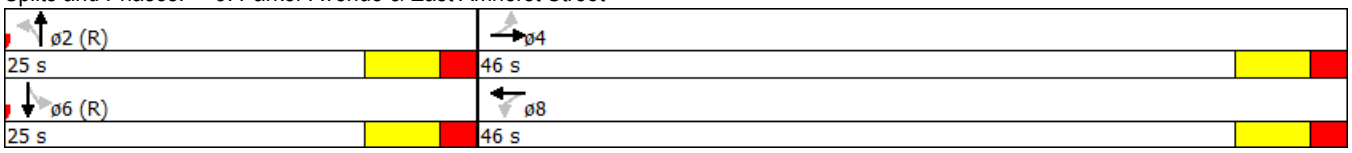
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	348	220	7	154	11	5	3	6	18	163	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	16	12	12	14	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			0.97			0.99	
Frt		0.948			0.991			0.944			0.993	
Flt Protected					0.998			0.982			0.995	
Satd. Flow (prot)	0	1875	0	0	2105	0	0	1814	0	0	2103	0
Flt Permitted		0.999			0.973			0.863			0.973	
Satd. Flow (perm)	0	1873	0	0	2052	0	0	1591	0	0	2048	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		73			8			10			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		807			188			228			355	
Travel Time (s)		18.3			4.3			5.2			8.1	
Confl. Peds. (#/hr)	4		20	20		4	5		43	43		5
Peak Hour Factor	0.83	0.83	0.83	0.93	0.93	0.93	0.58	0.58	0.58	0.68	0.68	0.68
Adj. Flow (vph)	4	419	265	8	166	12	9	5	10	26	240	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	688	0	0	186	0	0	24	0	0	281	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.92	1.00	1.00	0.85	1.00	1.00	0.92	1.00	1.00	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	46.0	46.0		46.0	46.0		25.0	25.0		25.0	25.0	
Total Split (%)	64.8%	64.8%		64.8%	64.8%		35.2%	35.2%		35.2%	35.2%	
Maximum Green (s)	40.0	40.0		40.0	40.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		40.0			40.0			19.0			19.0	
Actuated g/C Ratio		0.56			0.56			0.27			0.27	
v/c Ratio		0.63			0.16			0.06			0.51	
Control Delay		12.5			7.5			14.9			25.6	
Queue Delay		0.0			2.5			0.0			0.0	
Total Delay		12.5			10.0			14.9			25.6	
LOS		B			B			B			C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		12.5			10.0			14.9			25.6	
Approach LOS		B			B			B			C	
Queue Length 50th (ft)		164			34			5			102	
Queue Length 95th (ft)		228			62			12			121	
Internal Link Dist (ft)		727			108			148			275	
Turn Bay Length (ft)												
Base Capacity (vph)		1087			1159			433			550	
Starvation Cap Reductn		0			848			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.63			0.60			0.06			0.51	

Intersection Summary

Area Type: Other
Cycle Length: 71
Actuated Cycle Length: 71
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Pretimed
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 15.3 Intersection LOS: B
Intersection Capacity Utilization 54.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 5: Parker Avenue & East Amherst Street



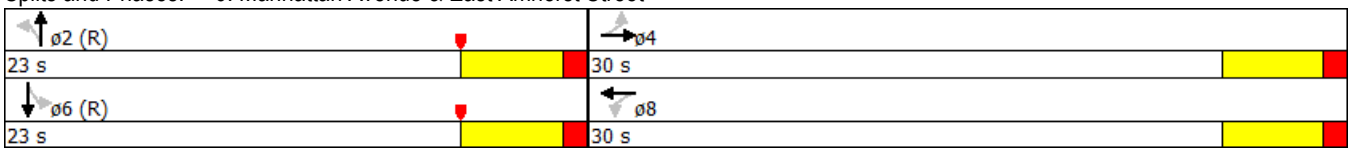
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	263	28	15	127	129	16	219	49	77	66	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	15	12	12	15	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.98			0.98			0.98	
Frt		0.988			0.936			0.977			0.996	
Flt Protected		0.997			0.997			0.997			0.975	
Satd. Flow (prot)	0	2094	0	0	1955	0	0	1983	0	0	2008	0
Flt Permitted		0.959			0.962			0.976			0.628	
Satd. Flow (perm)	0	2013	0	0	1886	0	0	1941	0	0	1268	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			117			21			3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2328			787			595			295	
Travel Time (s)		52.9			17.9			13.5			6.7	
Confl. Peds. (#/hr)	16		12	12		16	7		51	51		7
Peak Hour Factor	0.61	0.61	0.61	0.66	0.66	0.66	0.78	0.78	0.78	0.72	0.72	0.72
Adj. Flow (vph)	33	431	46	23	192	195	21	281	63	107	92	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	510	0	0	410	0	0	365	0	0	205	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.88	1.00	1.00	0.88	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	30.0	30.0		30.0	30.0		23.0	23.0		23.0	23.0	
Total Split (%)	56.6%	56.6%		56.6%	56.6%		43.4%	43.4%		43.4%	43.4%	
Maximum Green (s)	25.0	25.0		25.0	25.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		25.0			25.0			18.0			18.0	
Actuated g/C Ratio		0.47			0.47			0.34			0.34	
v/c Ratio		0.53			0.43			0.54			0.47	
Control Delay		12.2			8.1			17.0			18.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		12.2			8.1			17.0			18.1	
LOS		B			A			B			B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		12.2			8.1			17.0			18.1	
Approach LOS		B			A			B			B	
Queue Length 50th (ft)		101			53			84			48	
Queue Length 95th (ft)		98			62			124			74	
Internal Link Dist (ft)		2248			707			515			215	
Turn Bay Length (ft)												
Base Capacity (vph)		956			951			673			432	
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			0.43			0.54			0.47	

Intersection Summary

Area Type: Other
Cycle Length: 53
Actuated Cycle Length: 53
Offset: 18 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 45
Control Type: Pretimed
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 13.0 Intersection LOS: B
Intersection Capacity Utilization 58.8% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 6: Manhattan Avenue & East Amherst Street



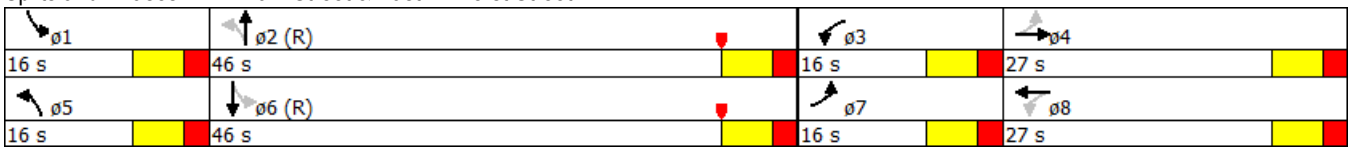
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	207	11	28	137	7	106	885	20	22	548	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14	12	12	12	12	12	12
Storage Length (ft)	0		0	50		0	145		0	110		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.97	1.00		1.00	1.00			1.00		1.00		
Frt		0.992			0.993			0.997			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2025	2113	0	1847	1986	0	1787	3561	0	1787	3496	0
Flt Permitted	0.557			0.344			0.265			0.116		
Satd. Flow (perm)	1151	2113	0	668	1986	0	499	3561	0	218	3496	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			2			2			21	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		188			370			255			717	
Travel Time (s)		4.3			8.4			5.8			16.3	
Confl. Peds. (#/hr)	40		2	2		40			13	13		
Peak Hour Factor	0.81	0.81	0.81	0.83	0.83	0.83	0.86	0.86	0.86	0.88	0.88	0.88
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	77	256	14	34	165	8	123	1029	23	25	623	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	77	270	0	34	173	0	123	1052	0	25	730	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	1.00	0.96	0.92	0.92	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	16.0	27.0		16.0	27.0		16.0	46.0		16.0	46.0	
Total Split (%)	15.2%	25.7%		15.2%	25.7%		15.2%	43.8%		15.2%	43.8%	
Maximum Green (s)	10.0	21.0		10.0	21.0		10.0	40.0		10.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Act Effct Green (s)	31.0	21.0		31.0	21.0		50.0	40.0		50.0	40.0	
Actuated g/C Ratio	0.30	0.20		0.30	0.20		0.48	0.38		0.48	0.38	
v/c Ratio	0.18	0.64		0.11	0.43		0.34	0.78		0.10	0.54	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	24.3	45.9		23.6	40.3		11.2	22.3		12.7	26.4	
Queue Delay	0.4	64.8		0.0	0.0		0.0	38.8		0.0	0.0	
Total Delay	24.7	110.8		23.6	40.3		11.2	61.1		12.7	26.4	
LOS	C	F		C	D		B	E		B	C	
Approach Delay		91.7			37.6			55.9			26.0	
Approach LOS		F			D			E			C	
Queue Length 50th (ft)	34	166		15	101		38	204		8	192	
Queue Length 95th (ft)	60	224		34	153		m37	m197		20	243	
Internal Link Dist (ft)		108			290			175			637	
Turn Bay Length (ft)				50			145			110		
Base Capacity (vph)	423	424		309	398		360	1357		253	1344	
Starvation Cap Reductn	138	243		0	0		0	378		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	0.27	1.49		0.11	0.43		0.34	1.07		0.10	0.54	

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Offset: 13 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 70
Control Type: Pretimed
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 50.3 Intersection LOS: D
Intersection Capacity Utilization 63.4% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Main Street & East Amherst Street



Lane Group	NBL	NBT	SBT	SBR	SEL	SER	ø1	ø2	ø3
Lane Configurations									
Volume (vph)	55	1021	587	0	0	136			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Width (ft)	12	12	12	12	13	13			
Storage Length (ft)	0			0	0	75			
Storage Lanes	0			0	1	1			
Taper Length (ft)	25				25				
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	0.95			
Ped Bike Factor		1.00			0.97	0.97			
Frt					0.850	0.850			
Flt Protected		0.997							
Satd. Flow (prot)	0	3564	3574	0	1607	1570			
Flt Permitted		0.686							
Satd. Flow (perm)	0	2451	3574	0	1607	1527			
Right Turn on Red				Yes		No			
Satd. Flow (RTOR)									
Link Speed (mph)		30	30		30				
Link Distance (ft)		153	255		228				
Travel Time (s)		3.5	5.8		5.2				
Confl. Peds. (#/hr)	11			11	7	7			
Peak Hour Factor	0.92	0.92	0.94	0.94	0.90	0.90			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%			
Adj. Flow (vph)	60	1110	624	0	0	151			
Shared Lane Traffic (%)						50%			
Lane Group Flow (vph)	0	1170	624	0	76	75			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Right	Left	Right			
Median Width(ft)		12	12		13				
Link Offset(ft)		0	0		0				
Crosswalk Width(ft)		16	16		16				
Two way Left Turn Lane									
Headway Factor	1.00	1.00	1.00	1.00	0.96	0.96			
Turning Speed (mph)	15			9	15	9			
Turn Type	Perm	NA	NA		Prot	Perm			
Protected Phases		1 3	2 3		4		1	2	3
Permitted Phases	1 3					4			
Minimum Split (s)					22.0	22.0	22.0	22.0	10.0
Total Split (s)					20.0	20.0	23.0	25.0	37.0
Total Split (%)					19.0%	19.0%	22%	24%	35%
Maximum Green (s)					14.0	14.0	17.0	19.0	31.0
Yellow Time (s)					4.0	4.0	4.0	4.0	4.0
All-Red Time (s)					2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)					0.0	0.0			
Total Lost Time (s)					6.0	6.0			
Lead/Lag					Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Act Effct Green (s)		48.0	56.0		14.0	14.0			
Actuated g/C Ratio		0.46	0.53		0.13	0.13			
v/c Ratio		1.04	0.33		0.36	0.37			

Lane Group	NBL	NBT	SBT	SBR	SEL	SER	ø1	ø2	ø3
Control Delay		49.9	4.5		46.7	47.4			
Queue Delay		22.4	0.2		1.0	0.8			
Total Delay		72.4	4.7		47.6	48.1			
LOS		E	A		D	D			
Approach Delay		72.4	4.7		47.9				
Approach LOS		E	A		D				
Queue Length 50th (ft)		~449	29		47	49			
Queue Length 95th (ft)		#408	36		93	96			
Internal Link Dist (ft)		73	175		148				
Turn Bay Length (ft)						75			
Base Capacity (vph)		1120	1906		214	203			
Starvation Cap Reductn		172	489		39	29			
Spillback Cap Reductn		76	44		8	8			
Storage Cap Reductn		0	0		0	0			
Reduced v/c Ratio		1.23	0.44		0.43	0.43			

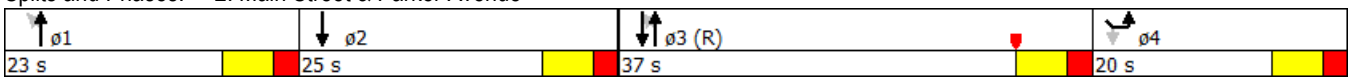
Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Offset: 14 (13%), Referenced to phase 3:NBSB, Start of Yellow
Natural Cycle: 150
Control Type: Pretimed
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 48.8 Intersection LOS: D
Intersection Capacity Utilization 64.6% ICU Level of Service C
Analysis Period (min) 15

~ 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: 2: Main Street & Parker Avenue



Lane Group	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL2	NWL	NWR	ø2
Lane Configurations												
Volume (vph)	0	0	11	922	14	138	575	10	17	17	154	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	10	10	10	11	12	12	13	13	13	
Storage Length (ft)	0	0	70		0	100		0		80	0	
Storage Lanes	0	0	1		0	1		0		1	1	
Taper Length (ft)	25		25			25				25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	
Ped Bike Factor				1.00		1.00				0.97	0.98	
Frt				0.998			0.997				0.850	
Flt Protected			0.950			0.950				0.950		
Satd. Flow (prot)	0	0	1668	3328	0	1728	3564	0	0	1847	1652	
Flt Permitted			0.416			0.137				0.950		
Satd. Flow (perm)	0	0	730	3328	0	249	3564	0	0	1798	1624	
Right Turn on Red					Yes			Yes			Yes	
Satd. Flow (RTOR)				2			5				175	
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	94			1221			153			691		
Travel Time (s)	2.1			27.8			3.5			15.7		
Confl. Peds. (#/hr)					4	4			10		2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.88	0.88	0.88	
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
Adj. Flow (vph)	0	0	12	1002	15	147	612	11	19	19	175	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	12	1017	0	147	623	0	0	38	175	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(ft)	0			11			11			13		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.09	1.09	1.09	1.04	1.00	1.00	0.96	0.96	0.96	
Turning Speed (mph)	15	9	15		9	15		9	15	15	9	
Turn Type			Perm	NA		D.P+P	NA		Perm	Prot	Perm	
Protected Phases				3		2 4	2 3 4			1		2
Permitted Phases			3			3			1		1	
Minimum Split (s)			10.0	10.0					18.0	18.0	18.0	22.0
Total Split (s)			47.0	47.0					18.0	18.0	18.0	20.0
Total Split (%)			44.8%	44.8%					17.1%	17.1%	17.1%	19%
Maximum Green (s)			41.0	41.0					12.0	12.0	12.0	14.0
Yellow Time (s)			4.0	4.0					4.0	4.0	4.0	4.0
All-Red Time (s)			2.0	2.0					2.0	2.0	2.0	2.0
Lost Time Adjust (s)			0.0	0.0						0.0	0.0	
Total Lost Time (s)			6.0	6.0						6.0	6.0	
Lead/Lag			Lead	Lead					Lead	Lead	Lead	Lag
Lead-Lag Optimize?			Yes	Yes					Yes	Yes	Yes	Yes
Act Effct Green (s)			41.0	41.0		69.0	81.0			12.0	12.0	
Actuated g/C Ratio			0.39	0.39		0.66	0.77			0.11	0.11	
v/c Ratio			0.04	0.78		0.26	0.23			0.19	0.51	

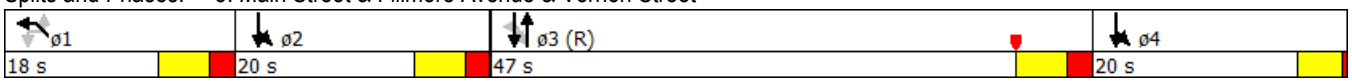
Lane Group	ø4
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	19%
Maximum Green (s)	16.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lane Group	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL2	NWL	NWR	ø2
Control Delay			20.5	33.2		10.8	0.2			44.6	12.5	
Queue Delay			0.0	20.1		1.5	0.3			0.0	1.1	
Total Delay			20.5	53.3		12.4	0.5			44.6	13.6	
LOS			C	D		B	A			D	B	
Approach Delay				52.9			2.8			19.1		
Approach LOS				D			A			B		
Queue Length 50th (ft)			5	310		25	0			24	0	
Queue Length 95th (ft)			17	393		66	0			54	58	
Internal Link Dist (ft)	14			1141			73			611		
Turn Bay Length (ft)			70			100				80		
Base Capacity (vph)			285	1300		558	2750			205	340	
Starvation Cap Reductn			0	0		267	1455			0	0	
Spillback Cap Reductn			0	305		0	0			0	49	
Storage Cap Reductn			0	0		0	0			0	0	
Reduced v/c Ratio			0.04	1.02		0.51	0.48			0.19	0.60	

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Offset: 22 (21%), Referenced to phase 3:NBSB, Start of Yellow
Natural Cycle: 90
Control Type: Pretimed
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 30.1 Intersection LOS: C
Intersection Capacity Utilization 51.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Main Street & Fillmore Avenue & Vernon Street



Lane Group	ø4
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

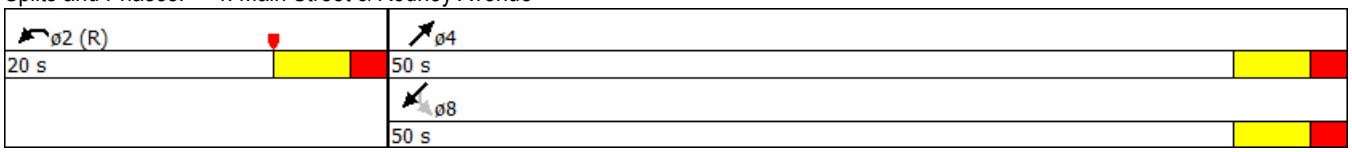
Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	46	88	859	62	19	573
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	11	12	11	12
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	0.98		1.00			1.00
Frt	0.911		0.990			
Flt Protected	0.983					0.998
Satd. Flow (prot)	1826	0	3414	0	0	3567
Flt Permitted	0.983					0.908
Satd. Flow (perm)	1823	0	3414	0	0	3245
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	100		20			
Link Speed (mph)	30		30			30
Link Distance (ft)	206		896			1221
Travel Time (s)	4.7		20.4			27.8
Confl. Peds. (#/hr)	3	7		9	9	
Peak Hour Factor	0.88	0.88	0.90	0.90	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	52	100	954	69	20	603
Shared Lane Traffic (%)						
Lane Group Flow (vph)	152	0	1023	0	0	623
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	15		10			10
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.88	0.88	1.04	1.00	1.04	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot		NA		Perm	NA
Protected Phases	2		4			8
Permitted Phases					8	
Minimum Split (s)	22.0		22.0		22.0	22.0
Total Split (s)	20.0		50.0		50.0	50.0
Total Split (%)	28.6%		71.4%		71.4%	71.4%
Maximum Green (s)	14.0		44.0		44.0	44.0
Yellow Time (s)	4.0		4.0		4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	6.0		6.0			6.0
Lead/Lag						
Lead-Lag Optimize?						
Act Effct Green (s)	14.0		44.0			44.0
Actuated g/C Ratio	0.20		0.63			0.63
v/c Ratio	0.34		0.48			0.31
Control Delay	12.3		7.6			6.5
Queue Delay	0.0		0.0			0.0
Total Delay	12.3		7.6			6.5

Lane Group	NWL	NWR	NET	NER	SWL	SWT
LOS	B		A			A
Approach Delay	12.3		7.6			6.5
Approach LOS	B		A			A
Queue Length 50th (ft)	19		104			56
Queue Length 95th (ft)	61		143			81
Internal Link Dist (ft)	126		816			1141
Turn Bay Length (ft)						
Base Capacity (vph)	445		2153			2039
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	0.34		0.48			0.31

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:NWL and 6:, Start of Yellow
Natural Cycle: 45
Control Type: Pretimed
Maximum v/c Ratio: 0.48
Intersection Signal Delay: 7.6 Intersection LOS: A
Intersection Capacity Utilization 48.1% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 4: Main Street & Rodney Avenue



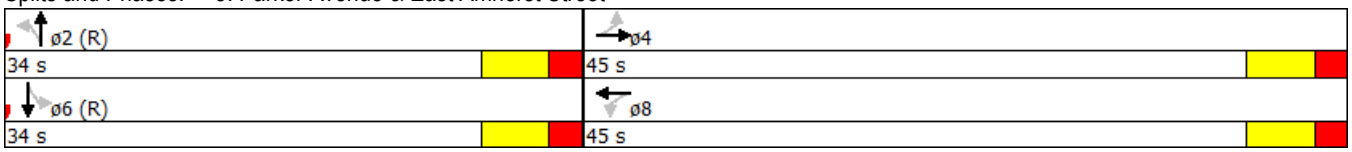
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	260	90	10	290	37	28	18	9	11	36	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	16	12	12	14	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			0.99			1.00	
Frt		0.966			0.985			0.978			0.991	
Flt Protected		0.999			0.999			0.975			0.989	
Satd. Flow (prot)	0	1918	0	0	2092	0	0	1906	0	0	2086	0
Flt Permitted		0.995			0.987			0.862			0.951	
Satd. Flow (perm)	0	1911	0	0	2066	0	0	1678	0	0	2001	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			11			10			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		807			188			228			355	
Travel Time (s)		18.3			4.3			5.2			8.1	
Confl. Peds. (#/hr)	6		17	17		6	6		15	15		6
Peak Hour Factor	0.93	0.93	0.93	0.89	0.89	0.89	0.88	0.88	0.88	0.82	0.82	0.82
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	5	280	97	11	326	42	32	20	10	13	44	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	382	0	0	379	0	0	62	0	0	61	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.92	1.00	1.00	0.85	1.00	1.00	0.92	1.00	1.00	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	45.0	45.0		45.0	45.0		34.0	34.0		34.0	34.0	
Total Split (%)	57.0%	57.0%		57.0%	57.0%		43.0%	43.0%		43.0%	43.0%	
Maximum Green (s)	39.0	39.0		39.0	39.0		28.0	28.0		28.0	28.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		39.0			39.0			28.0			28.0	
Actuated g/C Ratio		0.49			0.49			0.35			0.35	
v/c Ratio		0.40			0.37			0.10			0.09	
Control Delay		13.0			13.3			15.5			16.6	
Queue Delay		0.0			36.0			0.0			0.0	
Total Delay		13.0			49.3			15.5			16.6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		B			D			B			B	
Approach Delay		13.0			49.3			15.5			16.6	
Approach LOS		B			D			B			B	
Queue Length 50th (ft)		102			106			17			18	
Queue Length 95th (ft)		166			164			41			39	
Internal Link Dist (ft)		727			108			148			275	
Turn Bay Length (ft)												
Base Capacity (vph)		959			1025			601			711	
Starvation Cap Reductn		0			660			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.40			1.04			0.10			0.09	

Intersection Summary

Area Type: Other
Cycle Length: 79
Actuated Cycle Length: 79
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 45
Control Type: Pretimed
Maximum v/c Ratio: 0.40
Intersection Signal Delay: 29.0 Intersection LOS: C
Intersection Capacity Utilization 39.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 5: Parker Avenue & East Amherst Street



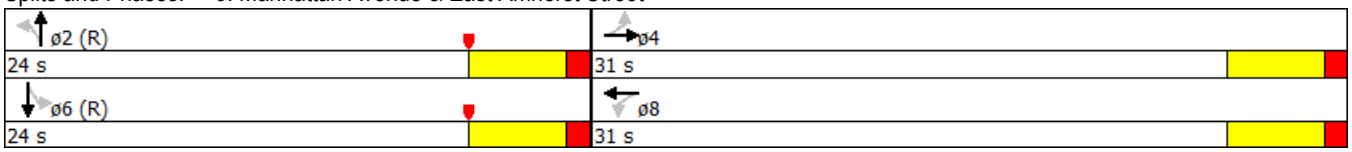
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	206	28	64	156	51	28	160	73	73	53	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	15	12	12	15	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			1.00	
Frt		0.985			0.975			0.962			0.997	
Flt Protected		0.997			0.988			0.995			0.972	
Satd. Flow (prot)	0	2087	0	0	2043	0	0	1968	0	0	2004	0
Flt Permitted		0.975			0.870			0.959			0.734	
Satd. Flow (perm)	0	2040	0	0	1797	0	0	1896	0	0	1512	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			29			39			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2328			787			595			295	
Travel Time (s)		52.9			17.9			13.5			6.7	
Confl. Peds. (#/hr)	8		8	8		8	4		2	2		4
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.93	0.93	0.93	0.86	0.86	0.86
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	16	224	30	75	184	60	30	172	78	85	62	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	270	0	0	319	0	0	280	0	0	150	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.88	1.00	1.00	0.88	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	31.0	31.0		31.0	31.0		24.0	24.0		24.0	24.0	
Total Split (%)	56.4%	56.4%		56.4%	56.4%		43.6%	43.6%		43.6%	43.6%	
Maximum Green (s)	26.0	26.0		26.0	26.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		26.0			26.0			19.0			19.0	
Actuated g/C Ratio		0.47			0.47			0.35			0.35	
v/c Ratio		0.28			0.37			0.41			0.29	
Control Delay		9.2			9.9			14.0			14.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.2			9.9			14.0			14.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		A			A			B			B	
Approach Delay		9.2			9.9			14.0			14.8	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)		46			55			58			34	
Queue Length 95th (ft)		86			95			111			68	
Internal Link Dist (ft)		2248			707			515			215	
Turn Bay Length (ft)												
Base Capacity (vph)		972			864			680			523	
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			0.37			0.41			0.29	

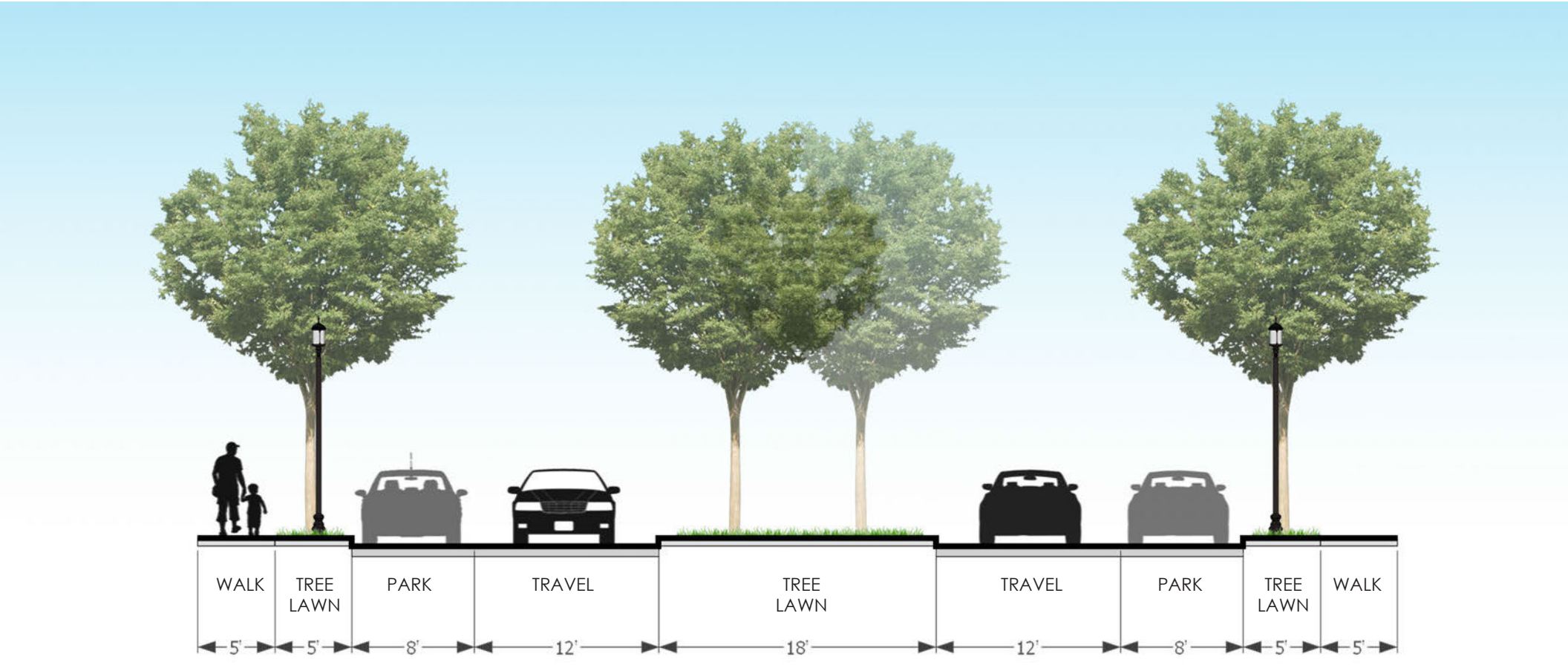
Intersection Summary

Area Type: Other
Cycle Length: 55
Actuated Cycle Length: 55
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 45
Control Type: Pretimed
Maximum v/c Ratio: 0.41
Intersection Signal Delay: 11.5 Intersection LOS: B
Intersection Capacity Utilization 65.3% ICU Level of Service C
Analysis Period (min) 15

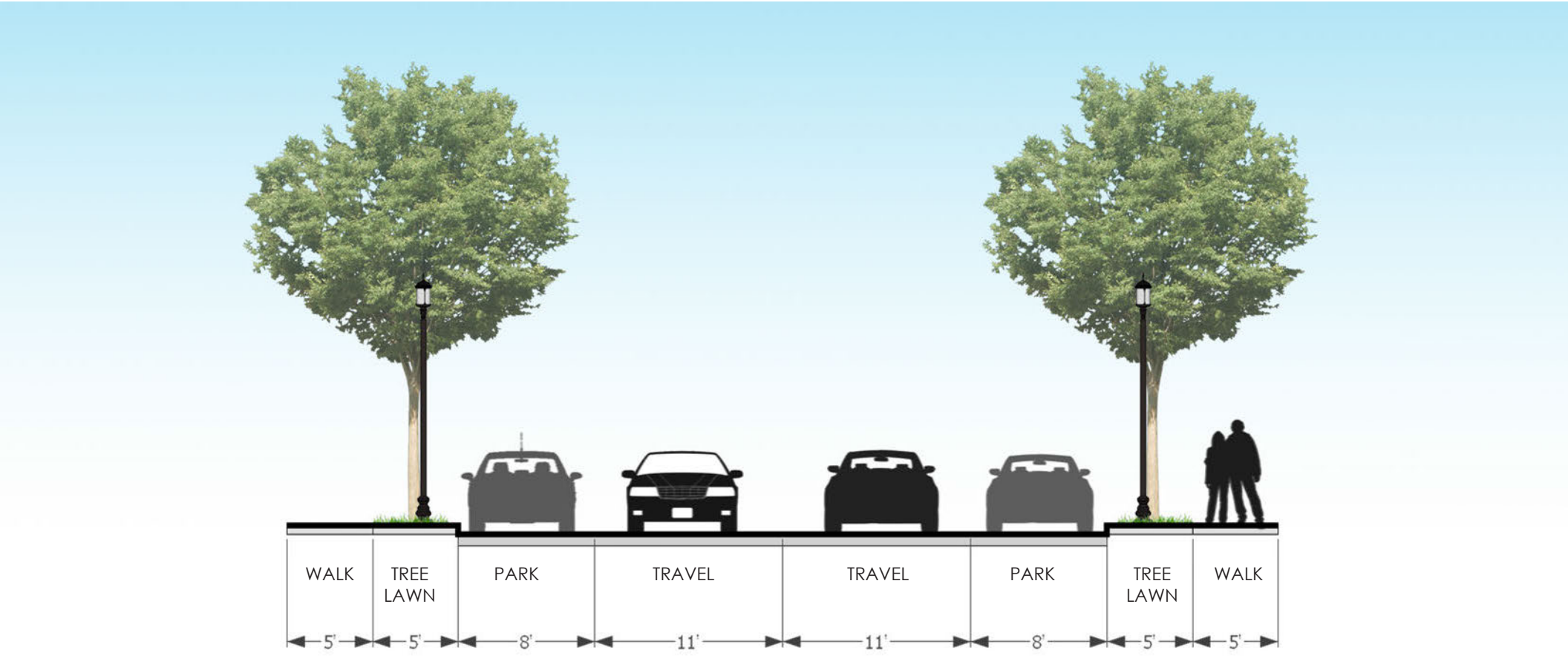
Splits and Phases: 6: Manhattan Avenue & East Amherst Street



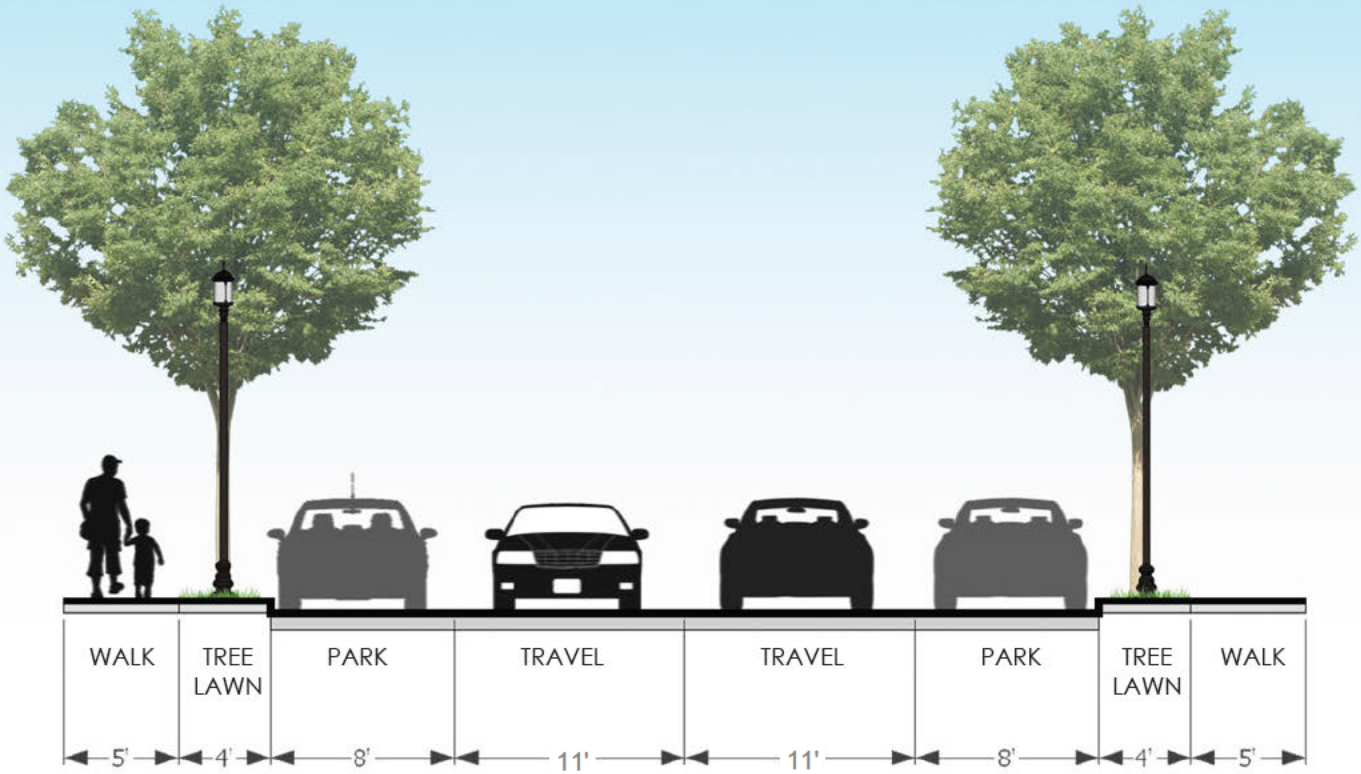
APPENDIX B
STREET DEVELOPMENT



SECTION A
CHALMERS AVE.



SECTION B
HILL ST.



SECTION C
WADE ST.

SECTION D
HOLDEN ST.

Intersection Level of Service Summary - Proposed Highland Park Village
Morning Peak Hour

Intersection	2014 Existing	Background	Build	Build 10% Increase
Main Street @ East Amherst Street	**C(33)**	**C(33)**	**C(34)**	**C(34)**
EB Left	C(27)	C(28)	C(28)	C(28)
EB Through/Right	F(113)	F(114)	F(114)	F(115)
WB Left	C(24)	C(24)	C(24)	C(24)
WB Through/Right	D(39)	D(39)	D(40)	D(40)
NB Left	A(5)	A(5)	A(5)	A(5)
NB Through/Right	B(12)	B(14)	B(14)	B(15)
SB Left	B(11)	B(11)	B(11)	B(11)
SB Through/Right	C(25)	C(26)	C(26)	C(26)
Main Street @ Parker Avenue	**C(34)**	**D(39)**	**D(39)**	**D(39)**
NB Left/Through	C(21)	C(27)	C(29)	C(29)
SB Through/Right	A(8)	A(8)	A(8)	A(8)
SEB Left/Right	F(106)	F(117)	F(117)	F(117)
SEB Right	F(108)	F(120)	F(120)	F(120)
Main Street @ Fillmore Avenue/Vernon Street	**B(12)**	**B(12)**	**B(13)**	**B(13)**
NB Left	C(26)	C(26)	C(26)	C(26)
NB Through/Right	C(34)	D(35)	D(36)	D(36)
SB Left	A(5)	A(6)	A(6)	A(6)
SB Through/Right	A(1)	A(1)	A(1)	A(1)
NWB Left	D(41)	D(41)	D(41)	D(41)
NWB Right	A(5)	A(6)	A(10)	B(11)
Main Street @ Rodney Avenue	**B(11)**	**B(11)**	**B(11)**	**B(11)**
NWB Left/Right	B(11)	B(11)	B(15)	B(15)
NB Through/Right	A(8)	A(8)	A(8)	A(8)
SB Left/Right	B(12)	B(12)	B(13)	B(13)
East Amherst Street @ Parker Avenue	**B(15)**	**B(15)**	**B(15)**	**B(15)**
EB Left/Through/Right	B(12)	B(13)	B(13)	B(13)
WB Left/Through/Right	A(10)	A(10)	B(10)	B(11)
NB Left/Through/Right	B(15)	B(15)	B(15)	B(15)
SB Left/Through/Right	C(25)	C(26)	C(26)	C(26)
East Amherst Street @ Manhattan Avenue	**B(12)**	**B(13)**	**B(13)**	**B(13)**
EB Left/Through/Right	B(11)	B(12)	B(12)	B(12)
WB Left/Through/Right	A(7)	A(8)	A(8)	A(8)
NB Left/Through/Right	B(16)	B(17)	B(17)	B(17)
SB Left/Through/Right	B(17)	B(18)	B(18)	B(18)

B(16) – Signalized Level of Service (Average Delay per Vehicle in Seconds)

Intersection Level of Service Summary - Proposed Highland Park Village
Evening Peak Hour

Intersection	2014 Existing	Background	Build	Build 10% Increase
Main Street @ East Amherst Street	**D(42)**	**D(49)**	**D(50)**	**D(52)**
EB Left	C(25)	C(25)	C(25)	C(25)
EB Through/Right	F(110)	F(110)	F(111)	F(111)
WB Left	C(24)	C(24)	C(24)	C(24)
WB Through/Right	D(40)	D(40)	D(40)	D(40)
NB Left	B(12)	B(11)	B(11)	B(11)
NB Through/Right	D(42)	E(59)	E(61)	E(65)
SB Left	B(13)	B(13)	B(13)	B(13)
SB Through/Right	C(26)	C(26)	C(26)	C(26)
Main Street @ Parker Avenue	**D(48)**	**D(49)**	**D(49)**	**D(49)**
NB Left/Through	E(71)	E(72)	E(72)	E(72)
SB Through/Right	A(5)	A(5)	A(5)	A(5)
SEB Left/Right	D(46)	D(48)	D(48)	D(48)
SEB Right	D(47)	D(48)	D(48)	D(48)
Main Street @ Fillmore Avenue/Vernon Street	**C(24)**	**C(28)**	**C(30)**	**C(30)**
NB Left	C(21)	C(21)	C(21)	C(21)
NB Through/Right	D(40)	D(50)	D(53)	D(53)
SB Left	A(8)	B(11)	B(12)	B(13)
SB Through/Right	A(1)	A(1)	A(1)	A(1)
NWB Left	D(44)	D(45)	D(45)	D(45)
NWB Right	B(13)	B(13)	B(14)	B(14)
Main Street @ Rodney Avenue	**A(7)**	**A(7)**	**A(8)**	**A(8)**
NWB Left/Right	B(11)	B(11)	B(12)	B(13)
NB Through/Right	A(7)	A(8)	A(8)	A(8)
SB Left/Right	A(6)	A(7)	A(7)	A(7)
East Amherst Street @ Parker Avenue	**C(25)**	**C(28)**	**C(29)**	**C(29)**
EB Left/Through/Right	B(13)	B(13)	B(13)	B(13)
WB Left/Through/Right	D(40)	D(47)	D(49)	D(50)
NB Left/Through/Right	B(15)	B(16)	B(16)	B(16)
SB Left/Through/Right	B(17)	B(17)	B(17)	B(17)
East Amherst Street @ Manhattan Avenue	**B(11)**	**B(11)**	**B(12)**	**B(12)**
EB Left/Through/Right	A(9)	A(9)	A(9)	A(9)
WB Left/Through/Right	A(9)	A(9)	A(10)	A(10)
NB Left/Through/Right	B(14)	B(14)	B(14)	B(14)
SB Left/Through/Right	B(15)	B(15)	B(15)	B(15)

B(16) – Signalized Level of Service (Average Delay per Vehicle in Seconds)

Maximum Queue Summary - Proposed Highland Park Village
Morning Peak Hour

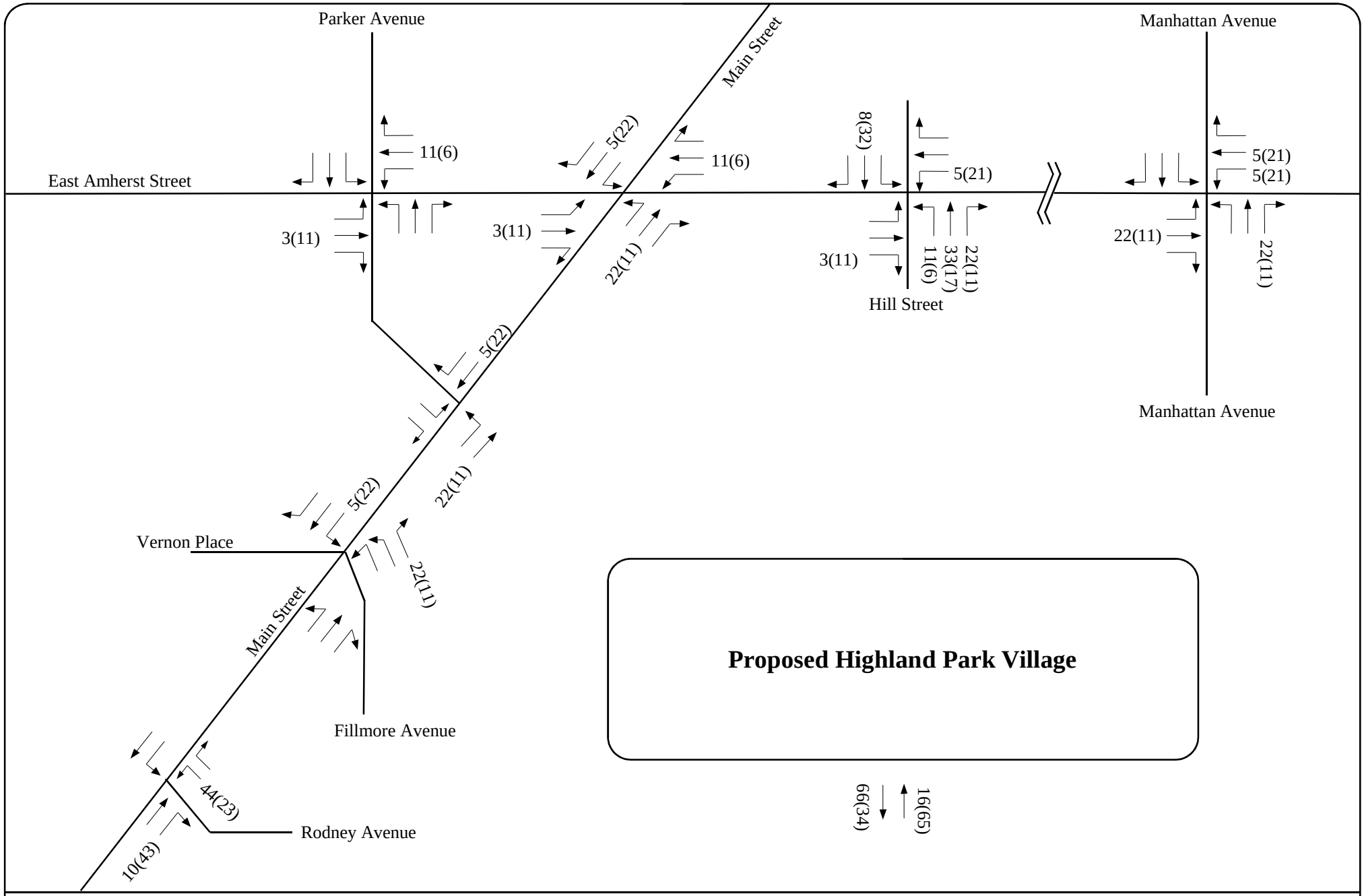
Intersection	Available Storage	2014 Existing	Background	Build	Build 10% Increase
Main Street @ East Amherst Street					
EB Left	160	103	106	106	106
EB Through/Right	160	249	274	278	279
WB Left	50	28	29	29	29
WB Through/Right	-	120	124	134	136
NB Left	145	4	4	4	4
NB Through/Right	180	128	142	151	151
SB Left	110	7	7	7	7
SB Through/Right	-	264	277	280	280
Main Street @ Parker Avenue					
NB Left/Through	100	262	277	276	276
SB Through/Right	180	61	63	63	63
SEB Left/Right	150	232	245	245	245
SEB Right	75	252	268	268	268
Main Street @ Fillmore Avenue/Vernon Street					
NB Left	70	10	10	10	10
NB Through/Right	-	225	235	235	235
SB Left	100	42	48	51	51
SB Through/Right	100	0	0	0	0
NWB Left	80	33	33	33	33
NWB Right	-	4	7	24	26
Main Street @ Rodney Avenue					
NWB Left/Right	-	16	17	39	41
NB Through/Right	-	84	88	88	88
SB Left/Right	-	167	178	178	178
East Amherst Street @ Parker Avenue					
EB Left/Through/Right	-	215	228	228	229
WB Left/Through/Right	160	56	58	62	62
NB Left/Through/Right	150	12	12	12	12
SB Left/Through/Right	-	118	121	121	121
East Amherst Street @ Manhattan Avenue					
EB Left/Through/Right	-	87	91	98	98
WB Left/Through/Right	-	54	57	62	62
NB Left/Through/Right	-	112	117	124	125
SB Left/Through/Right	-	70	73	74	74

All Measurements in Feet
Maximum Queue = 95th Percentile Queue

Maximum Queue Summary - Proposed Highland Park Village
Evening Peak Hour

Intersection	Available Storage	2014 Existing	Background	Build	Build 10% Increase
Main Street @ East Amherst Street					
EB Left	160	58	60	60	60
EB Through/Right	160	204	213	224	224
WB Left	50	33	34	34	34
WB Through/Right	-	143	148	153	154
NB Left	145	39	38	37	38
NB Through/Right	180	204	201	197	201
SB Left	110	19	20	20	20
SB Through/Right	-	223	234	243	244
Main Street @ Parker Avenue					
NB Left/Through	100	352	395	408	410
SB Through/Right	180	35	35	36	36
SEB Left/Right	150	91	93	93	93
SEB Right	75	95	96	96	96
Main Street @ Fillmore Avenue/Vernon Street					
NB Left	70	18	17	17	17
NB Through/Right	-	372	393	393	393
SB Left	100	41	50	66	67
SB Through/Right	100	0	0	0	0
NWB Left	80	53	54	54	54
NWB Right	-	56	57	58	59
Main Street @ Rodney Avenue					
NWB Left/Right	-	48	49	61	64
NB Through/Right	-	128	136	143	143
SB Left/Right	-	77	81	81	81
East Amherst Street @ Parker Avenue					
EB Left/Through/Right	-	152	160	166	166
WB Left/Through/Right	160	154	161	164	164
NB Left/Through/Right	150	40	41	41	41
SB Left/Through/Right	-	39	39	39	39
East Amherst Street @ Manhattan Avenue					
EB Left/Through/Right	-	79	82	86	86
WB Left/Through/Right	-	74	77	95	96
NB Left/Through/Right	-	104	108	111	112
SB Left/Through/Right	-	64	67	68	68

All Measurements in Feet
Maximum Queue = 95th Percentile Queue

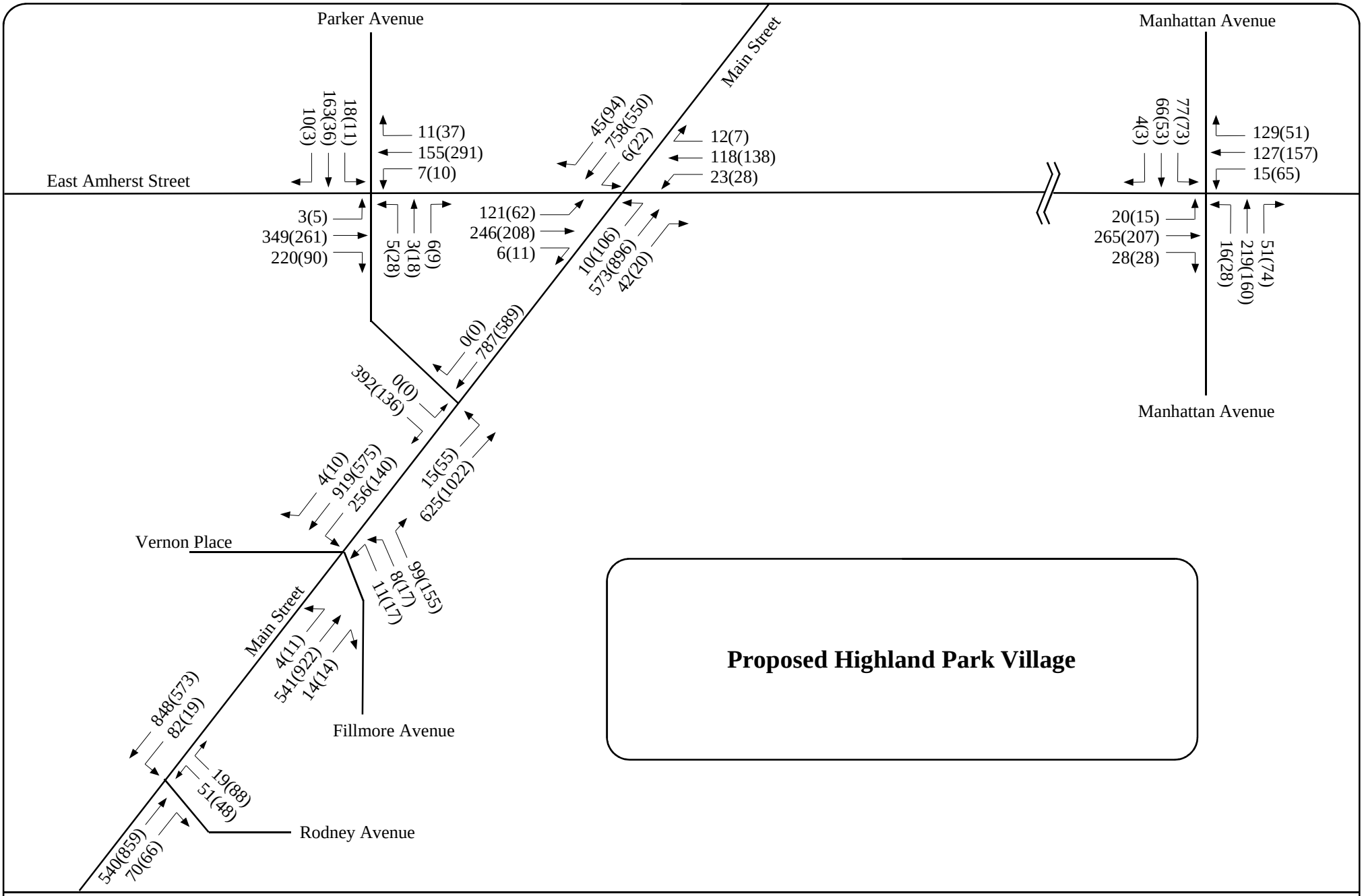


Proposed Highland Park Village - City of Buffalo, NY

New Trips Generated - 10% Increase in Number of Units

Morning (Evening) Peak Hour

N
W E
S



Proposed Highland Park Village - City of Buffalo, NY

2022 Full Build Traffic Volumes - 10% Increase in Number of Units

Morning (Evening) Peak Hour

N
W E
S

Proposed Highland Park Village
Buffalo, NY

Trip Generation Estimate - 10% Increase in Number of Units

Proposed Development — 592 Apartments (348 Multi-Story and 244 Walk-Up Flats)
197 Townhouses (48 3-Bedroom and 149 2-Bedroom)

ITE Trip Generation - 9th Edition

Land Use 220 - Apartment

AM Peak Hour	0.51 Trips/unit	20% Enter	80% Exit
PM Peak Hour	0.62 Trips/unit	65% Enter	35% Exit

Land Use 230 - Residential Condominium/Townhouse

AM Peak Hour	0.44 Trips/unit	17% Enter	83% Exit
PM Peak Hour	0.52 Trips/unit	67% Enter	33% Exit

Assumed that 30% of residents will use public transportation

Trip Generation Summary - 10% Increase in Number of Units

		Morning Peak Hour			Evening Peak Hour		
Development	**Size**	**Total Trips**	**Entering**	**Exiting**	**Total Trips**	**Entering**	**Exiting**
Apartments	592 Units	302	60	242	367	239	128
Townhouses	197 Units	87	15	72	102	68	34
Total Trips Generated		**389**	**75**	**314**	**469**	**307**	**162**
Transit Credit - 30%		*-117*	*-23*	*-94*	*-141*	*-92*	*-49*
Total Vehicle Trips Generated		**272**	**52**	**220**	**328**	**215**	**113**

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	121	246	6	23	118	12	10	573	42	6	758	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14	12	12	12	12	12	12
Storage Length (ft)	0		0	50		0	145		0	110		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.98	1.00		1.00	0.99			1.00		1.00		
Frt		0.996			0.986			0.990			0.992	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2025	2123	0	1847	1968	0	1787	3530	0	1787	3546	0
Flt Permitted	0.575			0.290			0.220			0.247		
Satd. Flow (perm)	1198	2123	0	563	1968	0	414	3530	0	463	3546	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			4			9			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		188			370			255			717	
Travel Time (s)		4.3			8.4			5.8			16.3	
Confl. Peds. (#/hr)	27		1	1		27			12	12		
Peak Hour Factor	0.90	0.90	0.90	0.80	0.80	0.80	0.78	0.78	0.78	0.95	0.95	0.95
Adj. Flow (vph)	134	273	7	29	148	15	13	735	54	6	798	47
Shared Lane Traffic (%)												
Lane Group Flow (vph)	134	280	0	29	163	0	13	789	0	6	845	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	1.00	0.96	0.92	0.92	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	15.0	24.0		15.0	24.0		15.0	46.0		15.0	46.0	
Total Split (%)	15.0%	24.0%		15.0%	24.0%		15.0%	46.0%		15.0%	46.0%	
Maximum Green (s)	9.0	18.0		9.0	18.0		9.0	40.0		9.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Act Effct Green (s)	27.0	18.0		27.0	18.0		49.0	40.0		49.0	40.0	
Actuated g/C Ratio	0.27	0.18		0.27	0.18		0.49	0.40		0.49	0.40	
v/c Ratio	0.34	0.73		0.11	0.46		0.04	0.56		0.02	0.59	
Control Delay	26.9	51.2		24.1	40.4		5.2	12.9		10.5	25.5	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.8	63.3		0.0	0.0		0.0	1.6		0.0	0.0	
Total Delay	27.6	114.5		24.1	40.4		5.2	14.5		10.5	25.5	
LOS	C	F		C	D		A	B		B	C	
Approach Delay		86.4			38.0			14.4			25.4	
Approach LOS		F			D			B			C	
Queue Length 50th (ft)	61	170		13	91		3	105		2	216	
Queue Length 95th (ft)	106	#279		29	136		m4	151		7	280	
Internal Link Dist (ft)		108			290			175			637	
Turn Bay Length (ft)				50			145			110		
Base Capacity (vph)	397	382		267	357		326	1417		346	1422	
Starvation Cap Reductn	97	201		0	0		0	424		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	0.45	1.55		0.11	0.46		0.04	0.79		0.02	0.59	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 22 (22%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 65
Control Type: Pretimed
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 33.7 Intersection LOS: C
Intersection Capacity Utilization 54.0% ICU Level of Service A
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: 1: Main Street & East Amherst Street

ø1	ø2 (R)	ø3	ø4
15 s	46 s	15 s	24 s
ø5	ø6 (R)	ø7	ø8
15 s	46 s	15 s	24 s

Lane Group	NBL	NBT	SBT	SBR	SEL	SER	ø1	ø2	ø3
Lane Configurations									
Volume (vph)	15	625	787	0	0	392			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Width (ft)	12	12	12	12	13	13			
Storage Length (ft)	0			0	0	75			
Storage Lanes	0			0	1	1			
Taper Length (ft)	25				25				
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	0.95			
Ped Bike Factor		1.00			0.97	0.97			
Frt					0.850	0.850			
Flt Protected		0.999							
Satd. Flow (prot)	0	3571	3574	0	1605	1570			
Flt Permitted		0.690							
Satd. Flow (perm)	0	2466	3574	0	1605	1525			
Right Turn on Red				Yes		No			
Satd. Flow (RTOR)									
Link Speed (mph)		30	30		30				
Link Distance (ft)		153	255		228				
Travel Time (s)		3.5	5.8		5.2				
Confl. Peds. (#/hr)	20			20	10	10			
Peak Hour Factor	0.90	0.90	0.89	0.89	0.90	0.90			
Adj. Flow (vph)	17	694	884	0	0	436			
Shared Lane Traffic (%)						50%			
Lane Group Flow (vph)	0	711	884	0	218	218			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Right	Left	Right			
Median Width(ft)		12	12		13				
Link Offset(ft)		0	0		0				
Crosswalk Width(ft)		16	16		16				
Two way Left Turn Lane									
Headway Factor	1.00	1.00	1.00	1.00	0.96	0.96			
Turning Speed (mph)	15			9	15	9			
Turn Type	Perm	NA	NA		Prot	Perm			
Protected Phases		1 3	2 3		4		1	2	3
Permitted Phases	1 3					4			
Minimum Split (s)					22.0	22.0	22.0	22.0	10.0
Total Split (s)					24.0	24.0	23.0	27.0	26.0
Total Split (%)					24.0%	24.0%	23%	27%	26%
Maximum Green (s)					18.0	18.0	17.0	21.0	20.0
Yellow Time (s)					4.0	4.0	4.0	4.0	4.0
All-Red Time (s)					2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)					0.0	0.0			
Total Lost Time (s)					6.0	6.0			
Lead/Lag					Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Act Effct Green (s)		37.0	47.0		18.0	18.0			
Actuated g/C Ratio		0.37	0.47		0.18	0.18			
v/c Ratio		0.78	0.53		0.76	0.80			
Control Delay		19.2	7.9		57.0	61.4			

Lane Group	NBL	NBT	SBT	SBR	SEL	SER	ø1	ø2	ø3
Queue Delay		9.1	0.2		60.2	58.6			
Total Delay		28.3	8.1		117.2	120.1			
LOS		C	A		F	F			
Approach Delay		28.3	8.1		118.6				
Approach LOS		C	A		F				
Queue Length 50th (ft)		214	54		133	141			
Queue Length 95th (ft)		276	63		#245	#268			
Internal Link Dist (ft)		73	175		148				
Turn Bay Length (ft)						75			
Base Capacity (vph)		912	1679		288	274			
Starvation Cap Reductn		173	178		92	78			
Spillback Cap Reductn		0	34		14	14			
Storage Cap Reductn		0	0		0	0			
Reduced v/c Ratio		0.96	0.59		1.11	1.11			

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 17 (17%), Referenced to phase 3:NBSB, Start of Yellow
Natural Cycle: 80
Control Type: Pretimed
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 38.9 Intersection LOS: D
Intersection Capacity Utilization 49.0% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Main Street & Parker Avenue

ø1	ø2	ø3 (R)	ø4
23 s	27 s	26 s	24 s

Lane Group	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL2	NWL	NWR	ø2
Lane Configurations												
Volume (vph)	0	0	4	541	14	256	919	4	11	8	99	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	10	10	10	11	12	12	13	13	13	
Storage Length (ft)	0	0	70		0	100		0		80	0	
Storage Lanes	0	0	1		0	1		0		1	1	
Taper Length (ft)	25		25			25				25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	
Ped Bike Factor				1.00		1.00				0.98		
Frt				0.996			0.999				0.850	
Flt Protected			0.950			0.950				0.950		
Satd. Flow (prot)	0	0	1668	3320	0	1728	3571	0	0	1847	1652	
Flt Permitted			0.276			0.287				0.950		
Satd. Flow (perm)	0	0	485	3320	0	521	3571	0	0	1819	1652	
Right Turn on Red					Yes			Yes			Yes	
Satd. Flow (RTOR)				3			1				142	
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	94			1221			153			691		
Travel Time (s)	2.1			27.8			3.5			15.7		
Confl. Peds. (#/hr)					7	7			6			
Peak Hour Factor	0.92	0.92	0.90	0.90	0.90	0.89	0.89	0.89	0.78	0.78	0.78	
Adj. Flow (vph)	0	0	4	601	16	288	1033	4	14	10	127	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	4	617	0	288	1037	0	0	24	127	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(ft)	0			11			11			13		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.09	1.09	1.09	1.04	1.00	1.00	0.96	0.96	0.96	
Turning Speed (mph)	15	9	15		9	15		9	15	15	9	
Turn Type			Perm	NA		D.P+P	NA		Perm	Prot	Perm	
Protected Phases				3		2 4	2 3 4			1		2
Permitted Phases			3			3			1		1	
Minimum Split (s)			10.0	10.0					15.0	15.0	15.0	22.0
Total Split (s)			36.0	36.0					18.0	18.0	18.0	22.0
Total Split (%)			36.0%	36.0%					18.0%	18.0%	18.0%	22%
Maximum Green (s)			30.0	30.0					12.0	12.0	12.0	16.0
Yellow Time (s)			4.0	4.0					4.0	4.0	4.0	4.0
All-Red Time (s)			2.0	2.0					2.0	2.0	2.0	2.0
Lost Time Adjust (s)			0.0	0.0						0.0	0.0	
Total Lost Time (s)			6.0	6.0						6.0	6.0	
Lead/Lag			Lead	Lead					Lead	Lead	Lead	Lag
Lead-Lag Optimize?			Yes	Yes					Yes	Yes	Yes	Yes
Act Effct Green (s)			30.0	30.0		64.0	76.0			12.0	12.0	
Actuated g/C Ratio			0.30	0.30		0.64	0.76			0.12	0.12	
v/c Ratio			0.03	0.62		0.39	0.38			0.11	0.39	
Control Delay			25.5	33.2		4.9	0.3			40.7	9.4	

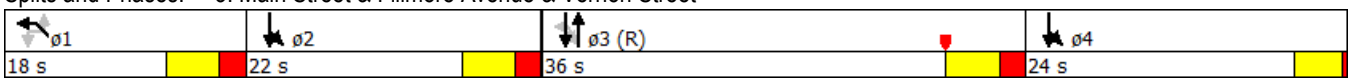
Lane Group	ø4
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Minimum Split (s)	20.0
Total Split (s)	24.0
Total Split (%)	24%
Maximum Green (s)	20.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	

Lane Group	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL2	NWL	NWR	ø2
Queue Delay			0.0	2.5		1.3	0.2			0.0	0.6	
Total Delay			25.5	35.6		6.2	0.6			40.7	10.0	
LOS			C	D		A	A			D	B	
Approach Delay				35.6			1.8			14.9		
Approach LOS				D			A			B		
Queue Length 50th (ft)			2	176		26	0			14	0	
Queue Length 95th (ft)			10	235		m51	0			33	26	
Internal Link Dist (ft)	14			1141			73			611		
Turn Bay Length (ft)			70			100				80		
Base Capacity (vph)			145	998		743	2714			218	323	
Starvation Cap Reductn			0	0		270	861			0	0	
Spillback Cap Reductn			0	253		0	0			0	49	
Storage Cap Reductn			0	0		0	0			0	0	
Reduced v/c Ratio			0.03	0.83		0.61	0.56			0.11	0.46	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 22 (22%), Referenced to phase 3:NBSB, Start of Yellow
Natural Cycle: 75
Control Type: Pretimed
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 12.8 Intersection LOS: B
Intersection Capacity Utilization 47.9% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Main Street & Fillmore Avenue & Vernon Street



Lane Group	ø4
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

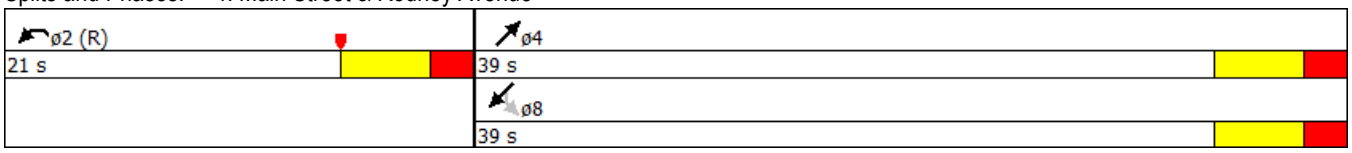
Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	51	19	540	70	82	848
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	11	12	11	12
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99		1.00			1.00
Frt	0.964		0.983			
Flt Protected	0.965					0.996
Satd. Flow (prot)	1912	0	3385	0	0	3560
Flt Permitted	0.965					0.809
Satd. Flow (perm)	1900	0	3385	0	0	2891
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	24		37			
Link Speed (mph)	30		30			30
Link Distance (ft)	206		896			1221
Travel Time (s)	4.7		20.4			27.8
Confl. Peds. (#/hr)	7	11		11	11	
Peak Hour Factor	0.78	0.78	0.85	0.85	0.86	0.86
Adj. Flow (vph)	65	24	635	82	95	986
Shared Lane Traffic (%)						
Lane Group Flow (vph)	89	0	717	0	0	1081
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	15		10			10
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.88	0.88	1.04	1.00	1.04	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot		NA		Perm	NA
Protected Phases	2		4			8
Permitted Phases					8	
Minimum Split (s)	22.0		22.0		22.0	22.0
Total Split (s)	21.0		39.0		39.0	39.0
Total Split (%)	35.0%		65.0%		65.0%	65.0%
Maximum Green (s)	15.0		33.0		33.0	33.0
Yellow Time (s)	4.0		4.0		4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	6.0		6.0			6.0
Lead/Lag						
Lead-Lag Optimize?						
Act Effct Green (s)	15.0		33.0			33.0
Actuated g/C Ratio	0.25		0.55			0.55
v/c Ratio	0.18		0.38			0.68
Control Delay	14.9		8.0			12.5
Queue Delay	0.0		0.0			0.0
Total Delay	14.9		8.0			12.5
LOS	B		A			B

Lane Group	NWL	NWR	NET	NER	SWL	SWT
Approach Delay	14.9		8.0			12.5
Approach LOS	B		A			B
Queue Length 50th (ft)	18		65			133
Queue Length 95th (ft)	41		88			178
Internal Link Dist (ft)	126		816			1141
Turn Bay Length (ft)						
Base Capacity (vph)	496		1878			1590
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	0.18		0.38			0.68

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 37 (62%), Referenced to phase 2:NWL and 6:, Start of Yellow
Natural Cycle: 55
Control Type: Pretimed
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 10.9 Intersection LOS: B
Intersection Capacity Utilization 62.4% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 4: Main Street & Rodney Avenue



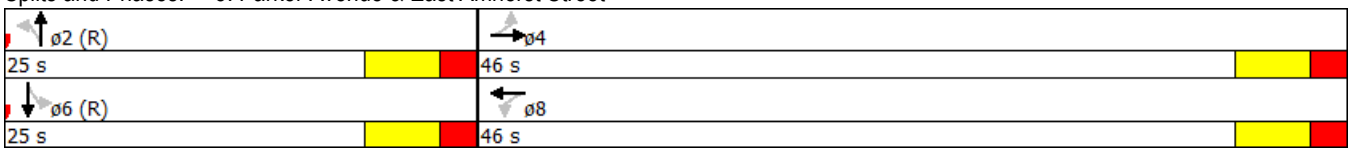
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	349	220	7	155	11	5	3	6	18	163	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	16	12	12	14	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			0.97			0.99	
Frt		0.948			0.991			0.944			0.993	
Flt Protected					0.998			0.982			0.995	
Satd. Flow (prot)	0	1875	0	0	2105	0	0	1814	0	0	2103	0
Flt Permitted		0.999			0.973			0.863			0.973	
Satd. Flow (perm)	0	1873	0	0	2052	0	0	1591	0	0	2048	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		73			8			10			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		807			188			228			355	
Travel Time (s)		18.3			4.3			5.2			8.1	
Confl. Peds. (#/hr)	4		20	20		4	5		43	43		5
Peak Hour Factor	0.83	0.83	0.83	0.93	0.93	0.93	0.58	0.58	0.58	0.68	0.68	0.68
Adj. Flow (vph)	4	420	265	8	167	12	9	5	10	26	240	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	689	0	0	187	0	0	24	0	0	281	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.92	1.00	1.00	0.85	1.00	1.00	0.92	1.00	1.00	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	46.0	46.0		46.0	46.0		25.0	25.0		25.0	25.0	
Total Split (%)	64.8%	64.8%		64.8%	64.8%		35.2%	35.2%		35.2%	35.2%	
Maximum Green (s)	40.0	40.0		40.0	40.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		40.0			40.0			19.0			19.0	
Actuated g/C Ratio		0.56			0.56			0.27			0.27	
v/c Ratio		0.63			0.16			0.06			0.51	
Control Delay		12.5			7.6			14.9			25.6	
Queue Delay		0.0			2.5			0.0			0.0	
Total Delay		12.5			10.0			14.9			25.6	
LOS		B			B			B			C	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		12.5			10.0			14.9			25.6	
Approach LOS		B			B			B			C	
Queue Length 50th (ft)		165			34			5			102	
Queue Length 95th (ft)		229			62			12			121	
Internal Link Dist (ft)		727			108			148			275	
Turn Bay Length (ft)												
Base Capacity (vph)		1087			1159			433			550	
Starvation Cap Reductn		0			847			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.63			0.60			0.06			0.51	

Intersection Summary

Area Type: Other
Cycle Length: 71
Actuated Cycle Length: 71
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 55
Control Type: Pretimed
Maximum v/c Ratio: 0.63
Intersection Signal Delay: 15.3 Intersection LOS: B
Intersection Capacity Utilization 54.3% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 5: Parker Avenue & East Amherst Street



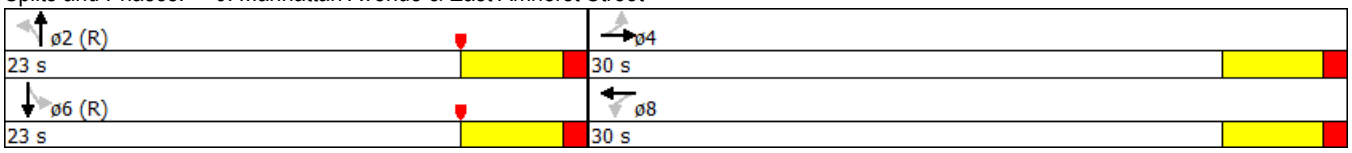
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	265	28	15	127	129	16	219	51	77	66	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	15	12	12	15	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.98			0.98			0.98	
Frt		0.988			0.936			0.976			0.996	
Flt Protected		0.997			0.997			0.997			0.975	
Satd. Flow (prot)	0	2094	0	0	1955	0	0	1980	0	0	2008	0
Flt Permitted		0.959			0.962			0.976			0.627	
Satd. Flow (perm)	0	2013	0	0	1886	0	0	1938	0	0	1266	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			117			22			3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2328			787			595			295	
Travel Time (s)		52.9			17.9			13.5			6.7	
Confl. Peds. (#/hr)	16		12	12		16	7		51	51		7
Peak Hour Factor	0.61	0.61	0.61	0.66	0.66	0.66	0.78	0.78	0.78	0.72	0.72	0.72
Adj. Flow (vph)	33	434	46	23	192	195	21	281	65	107	92	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	513	0	0	410	0	0	367	0	0	205	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.88	1.00	1.00	0.88	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	30.0	30.0		30.0	30.0		23.0	23.0		23.0	23.0	
Total Split (%)	56.6%	56.6%		56.6%	56.6%		43.4%	43.4%		43.4%	43.4%	
Maximum Green (s)	25.0	25.0		25.0	25.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		25.0			25.0			18.0			18.0	
Actuated g/C Ratio		0.47			0.47			0.34			0.34	
v/c Ratio		0.54			0.43			0.55			0.48	
Control Delay		12.2			8.1			17.0			18.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		12.2			8.1			17.0			18.1	
LOS		B			A			B			B	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		12.2			8.1			17.0			18.1	
Approach LOS		B			A			B			B	
Queue Length 50th (ft)		102			53			85			48	
Queue Length 95th (ft)		98			62			125			74	
Internal Link Dist (ft)		2248			707			515			215	
Turn Bay Length (ft)												
Base Capacity (vph)		956			951			672			431	
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		0.54			0.43			0.55			0.48	

Intersection Summary

Area Type: Other
Cycle Length: 53
Actuated Cycle Length: 53
Offset: 18 (34%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 45
Control Type: Pretimed
Maximum v/c Ratio: 0.55
Intersection Signal Delay: 13.1 Intersection LOS: B
Intersection Capacity Utilization 59.0% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 6: Manhattan Avenue & East Amherst Street



Lanes, Volumes, Timings
1: Main Street & East Amherst Street

1/13/2015

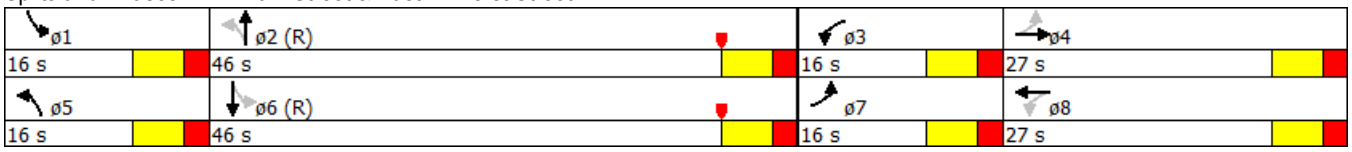
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	208	11	28	138	7	106	896	20	22	550	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	16	16	12	13	14	14	12	12	12	12	12	12
Storage Length (ft)	0		0	50		0	145		0	110		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Ped Bike Factor	0.97	1.00		1.00	1.00			1.00		1.00		
Frt		0.992			0.993			0.997			0.978	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2025	2113	0	1847	1986	0	1787	3561	0	1787	3496	0
Flt Permitted	0.555			0.342			0.264			0.112		
Satd. Flow (perm)	1147	2113	0	664	1986	0	497	3561	0	210	3496	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			2			2			21	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		188			370			255			717	
Travel Time (s)		4.3			8.4			5.8			16.3	
Confl. Peds. (#/hr)	40		2	2		40			13	13		
Peak Hour Factor	0.81	0.81	0.81	0.83	0.83	0.83	0.86	0.86	0.86	0.88	0.88	0.88
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	77	257	14	34	166	8	123	1042	23	25	625	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	77	271	0	34	174	0	123	1065	0	25	732	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		16			16			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	0.85	0.85	1.00	0.96	0.92	0.92	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	10.0	22.0		10.0	22.0		10.0	22.0		10.0	22.0	
Total Split (s)	16.0	27.0		16.0	27.0		16.0	46.0		16.0	46.0	
Total Split (%)	15.2%	25.7%		15.2%	25.7%		15.2%	43.8%		15.2%	43.8%	
Maximum Green (s)	10.0	21.0		10.0	21.0		10.0	40.0		10.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Act Effct Green (s)	31.0	21.0		31.0	21.0		50.0	40.0		50.0	40.0	
Actuated g/C Ratio	0.30	0.20		0.30	0.20		0.48	0.38		0.48	0.38	
v/c Ratio	0.18	0.64		0.11	0.44		0.34	0.78		0.10	0.54	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	24.3	46.0		23.6	40.4		11.3	22.6		12.7	26.4	
Queue Delay	0.4	64.8		0.0	0.0		0.0	42.7		0.0	0.0	
Total Delay	24.7	110.8		23.6	40.4		11.3	65.3		12.7	26.4	
LOS	C	F		C	D		B	E		B	C	
Approach Delay		91.8			37.7			59.7			26.0	
Approach LOS		F			D			E			C	
Queue Length 50th (ft)	34	167		15	102		38	207		8	193	
Queue Length 95th (ft)	60	224		34	154		m38	m201		20	244	
Internal Link Dist (ft)		108			290			175			637	
Turn Bay Length (ft)				50			145			110		
Base Capacity (vph)	422	424		308	398		359	1357		250	1344	
Starvation Cap Reductn	136	243		0	0		0	375		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	0.27	1.50		0.11	0.44		0.34	1.08		0.10	0.54	

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Offset: 13 (12%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 70
Control Type: Pretimed
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 52.1 Intersection LOS: D
Intersection Capacity Utilization 63.7% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: Main Street & East Amherst Street



Lane Group	NBL	NBT	SBT	SBR	SEL	SER	ø1	ø2	ø3
Lane Configurations									
Volume (vph)	55	1022	589	0	0	136			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Width (ft)	12	12	12	12	13	13			
Storage Length (ft)	0			0	0	75			
Storage Lanes	0			0	1	1			
Taper Length (ft)	25				25				
Lane Util. Factor	0.95	0.95	0.95	0.95	1.00	0.95			
Ped Bike Factor		1.00			0.97	0.97			
Frt					0.850	0.850			
Flt Protected		0.997							
Satd. Flow (prot)	0	3564	3574	0	1607	1570			
Flt Permitted		0.685							
Satd. Flow (perm)	0	2448	3574	0	1607	1527			
Right Turn on Red				Yes		No			
Satd. Flow (RTOR)									
Link Speed (mph)		30	30		30				
Link Distance (ft)		153	255		228				
Travel Time (s)		3.5	5.8		5.2				
Confl. Peds. (#/hr)	11			11	7	7			
Peak Hour Factor	0.92	0.92	0.94	0.94	0.90	0.90			
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%			
Adj. Flow (vph)	60	1111	627	0	0	151			
Shared Lane Traffic (%)						50%			
Lane Group Flow (vph)	0	1171	627	0	76	75			
Enter Blocked Intersection	No	No	No	No	No	No			
Lane Alignment	Left	Left	Left	Right	Left	Right			
Median Width(ft)		12	12		13				
Link Offset(ft)		0	0		0				
Crosswalk Width(ft)		16	16		16				
Two way Left Turn Lane									
Headway Factor	1.00	1.00	1.00	1.00	0.96	0.96			
Turning Speed (mph)	15			9	15	9			
Turn Type	Perm	NA	NA		Prot	Perm			
Protected Phases		1 3	2 3		4		1	2	3
Permitted Phases	1 3					4			
Minimum Split (s)					22.0	22.0	22.0	22.0	10.0
Total Split (s)					20.0	20.0	23.0	25.0	37.0
Total Split (%)					19.0%	19.0%	22%	24%	35%
Maximum Green (s)					14.0	14.0	17.0	19.0	31.0
Yellow Time (s)					4.0	4.0	4.0	4.0	4.0
All-Red Time (s)					2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)					0.0	0.0			
Total Lost Time (s)					6.0	6.0			
Lead/Lag					Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes
Act Effct Green (s)		48.0	56.0		14.0	14.0			
Actuated g/C Ratio		0.46	0.53		0.13	0.13			
v/c Ratio		1.05	0.33		0.36	0.37			

Lane Group	NBL	NBT	SBT	SBR	SEL	SER	ø1	ø2	ø3
Control Delay		50.6	4.5		46.7	47.4			
Queue Delay		21.8	0.2		1.0	0.8			
Total Delay		72.4	4.7		47.6	48.1			
LOS		E	A		D	D			
Approach Delay		72.4	4.7		47.9				
Approach LOS		E	A		D				
Queue Length 50th (ft)		~451	29		47	49			
Queue Length 95th (ft)		#410	36		93	96			
Internal Link Dist (ft)		73	175		148				
Turn Bay Length (ft)						75			
Base Capacity (vph)		1119	1906		214	203			
Starvation Cap Reductn		171	487		39	29			
Spillback Cap Reductn		82	46		9	8			
Storage Cap Reductn		0	0		0	0			
Reduced v/c Ratio		1.24	0.44		0.43	0.43			

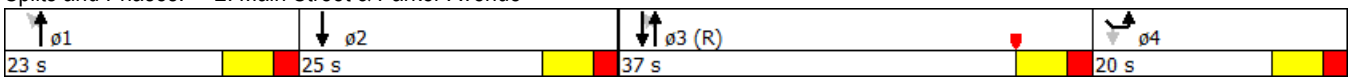
Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Offset: 14 (13%), Referenced to phase 3:NBSB, Start of Yellow
Natural Cycle: 150
Control Type: Pretimed
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 48.7 Intersection LOS: D
Intersection Capacity Utilization 64.7% ICU Level of Service C
Analysis Period (min) 15

~ 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: 2: Main Street & Parker Avenue



Lane Group	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL2	NWL	NWR	ø2
Lane Configurations												
Volume (vph)	0	0	11	922	14	140	575	10	17	17	155	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	12	12	10	10	10	11	12	12	13	13	13	
Storage Length (ft)	0	0	70		0	100		0		80	0	
Storage Lanes	0	0	1		0	1		0		1	1	
Taper Length (ft)	25		25			25				25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	
Ped Bike Factor				1.00		1.00				0.97	0.98	
Frt				0.998			0.997				0.850	
Flt Protected			0.950			0.950				0.950		
Satd. Flow (prot)	0	0	1668	3328	0	1728	3564	0	0	1847	1652	
Flt Permitted			0.416			0.137				0.950		
Satd. Flow (perm)	0	0	730	3328	0	249	3564	0	0	1798	1624	
Right Turn on Red					Yes			Yes			Yes	
Satd. Flow (RTOR)				2			5				176	
Link Speed (mph)	30			30			30			30		
Link Distance (ft)	94			1221			153			691		
Travel Time (s)	2.1			27.8			3.5			15.7		
Confl. Peds. (#/hr)					4	4			10		2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.88	0.88	0.88	
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	
Adj. Flow (vph)	0	0	12	1002	15	149	612	11	19	19	176	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	12	1017	0	149	623	0	0	38	176	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right	
Median Width(ft)	0			11			11			13		
Link Offset(ft)	0			0			0			0		
Crosswalk Width(ft)	16			16			16			16		
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.09	1.09	1.09	1.04	1.00	1.00	0.96	0.96	0.96	
Turning Speed (mph)	15	9	15		9	15		9	15	15	9	
Turn Type			Perm	NA		D.P+P	NA		Perm	Prot	Perm	
Protected Phases				3		2 4	2 3 4			1		2
Permitted Phases			3			3			1		1	
Minimum Split (s)			10.0	10.0					18.0	18.0	18.0	22.0
Total Split (s)			47.0	47.0					18.0	18.0	18.0	20.0
Total Split (%)			44.8%	44.8%					17.1%	17.1%	17.1%	19%
Maximum Green (s)			41.0	41.0					12.0	12.0	12.0	14.0
Yellow Time (s)			4.0	4.0					4.0	4.0	4.0	4.0
All-Red Time (s)			2.0	2.0					2.0	2.0	2.0	2.0
Lost Time Adjust (s)			0.0	0.0						0.0	0.0	
Total Lost Time (s)			6.0	6.0						6.0	6.0	
Lead/Lag			Lead	Lead					Lead	Lead	Lead	Lag
Lead-Lag Optimize?			Yes	Yes					Yes	Yes	Yes	Yes
Act Effct Green (s)			41.0	41.0		69.0	81.0			12.0	12.0	
Actuated g/C Ratio			0.39	0.39		0.66	0.77			0.11	0.11	
v/c Ratio			0.04	0.78		0.27	0.23			0.19	0.52	

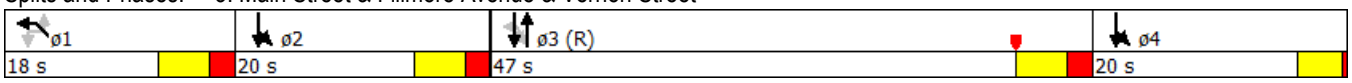
Lane Group	ø4
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Lane Util. Factor	
Ped Bike Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Peds. (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Enter Blocked Intersection	
Lane Alignment	
Median Width(ft)	
Link Offset(ft)	
Crosswalk Width(ft)	
Two way Left Turn Lane	
Headway Factor	
Turning Speed (mph)	
Turn Type	
Protected Phases	4
Permitted Phases	
Minimum Split (s)	20.0
Total Split (s)	20.0
Total Split (%)	19%
Maximum Green (s)	16.0
Yellow Time (s)	3.5
All-Red Time (s)	0.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	Yes
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	

Lane Group	EBL	EBR	NBL	NBT	NBR	SBL	SBT	SBR	NWL2	NWL	NWR	ø2
Control Delay			20.5	33.2		11.1	0.2			44.6	12.5	
Queue Delay			0.0	20.1		1.6	0.3			0.0	1.1	
Total Delay			20.5	53.3		12.7	0.5			44.6	13.6	
LOS			C	D		B	A			D	B	
Approach Delay				52.9			2.9			19.1		
Approach LOS				D			A			B		
Queue Length 50th (ft)			5	310		25	0			24	0	
Queue Length 95th (ft)			17	393		67	0			54	59	
Internal Link Dist (ft)	14			1141			73			611		
Turn Bay Length (ft)			70			100				80		
Base Capacity (vph)			285	1300		558	2750			205	341	
Starvation Cap Reductn			0	0		267	1455			0	0	
Spillback Cap Reductn			0	305		0	0			0	49	
Storage Cap Reductn			0	0		0	0			0	0	
Reduced v/c Ratio			0.04	1.02		0.51	0.48			0.19	0.60	

Intersection Summary

Area Type: Other
Cycle Length: 105
Actuated Cycle Length: 105
Offset: 22 (21%), Referenced to phase 3:NBSB, Start of Yellow
Natural Cycle: 90
Control Type: Pretimed
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 30.1 Intersection LOS: C
Intersection Capacity Utilization 52.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 3: Main Street & Fillmore Avenue & Vernon Street



Lane Group	ø4
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

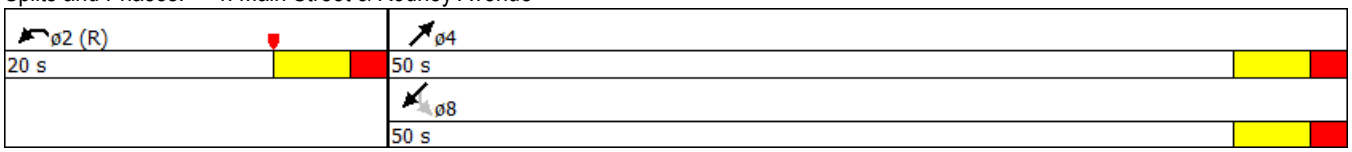
Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Volume (vph)	48	88	859	66	19	573
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	15	15	11	12	11	12
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	0.98		1.00			1.00
Frt	0.913		0.989			
Flt Protected	0.983					0.998
Satd. Flow (prot)	1830	0	3411	0	0	3567
Flt Permitted	0.983					0.908
Satd. Flow (perm)	1828	0	3411	0	0	3245
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	100		22			
Link Speed (mph)	30		30			30
Link Distance (ft)	206		896			1221
Travel Time (s)	4.7		20.4			27.8
Confl. Peds. (#/hr)	3	7		9	9	
Peak Hour Factor	0.88	0.88	0.90	0.90	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	55	100	954	73	20	603
Shared Lane Traffic (%)						
Lane Group Flow (vph)	155	0	1027	0	0	623
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	15		10			10
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	0.88	0.88	1.04	1.00	1.04	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot		NA		Perm	NA
Protected Phases	2		4			8
Permitted Phases					8	
Minimum Split (s)	22.0		22.0		22.0	22.0
Total Split (s)	20.0		50.0		50.0	50.0
Total Split (%)	28.6%		71.4%		71.4%	71.4%
Maximum Green (s)	14.0		44.0		44.0	44.0
Yellow Time (s)	4.0		4.0		4.0	4.0
All-Red Time (s)	2.0		2.0		2.0	2.0
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	6.0		6.0			6.0
Lead/Lag						
Lead-Lag Optimize?						
Act Effct Green (s)	14.0		44.0			44.0
Actuated g/C Ratio	0.20		0.63			0.63
v/c Ratio	0.35		0.48			0.31
Control Delay	12.6		7.6			6.5
Queue Delay	0.0		0.0			0.0
Total Delay	12.6		7.6			6.5

Lane Group	NWL	NWR	NET	NER	SWL	SWT
LOS	B		A			A
Approach Delay	12.6		7.6			6.5
Approach LOS	B		A			A
Queue Length 50th (ft)	20		104			56
Queue Length 95th (ft)	64		143			81
Internal Link Dist (ft)	126		816			1141
Turn Bay Length (ft)						
Base Capacity (vph)	446		2152			2039
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	0.35		0.48			0.31

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:NWL and 6:, Start of Yellow
Natural Cycle: 45
Control Type: Pretimed
Maximum v/c Ratio: 0.48
Intersection Signal Delay: 7.6 Intersection LOS: A
Intersection Capacity Utilization 48.2% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 4: Main Street & Rodney Avenue



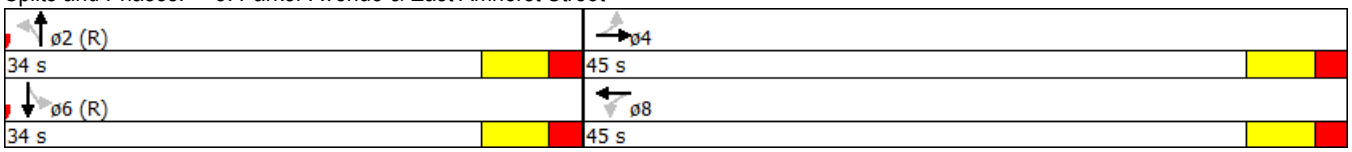
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	261	90	10	291	37	28	18	9	11	36	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	16	12	12	14	12	12	16	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		0.99			1.00			0.99			1.00	
Frt		0.966			0.985			0.978			0.991	
Flt Protected		0.999			0.999			0.975			0.989	
Satd. Flow (prot)	0	1918	0	0	2092	0	0	1906	0	0	2086	0
Flt Permitted		0.995			0.987			0.862			0.951	
Satd. Flow (perm)	0	1911	0	0	2066	0	0	1678	0	0	2001	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31			11			10			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		807			188			228			355	
Travel Time (s)		18.3			4.3			5.2			8.1	
Confl. Peds. (#/hr)	6		17	17		6	6		15	15		6
Peak Hour Factor	0.93	0.93	0.93	0.89	0.89	0.89	0.88	0.88	0.88	0.82	0.82	0.82
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	5	281	97	11	327	42	32	20	10	13	44	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	383	0	0	380	0	0	62	0	0	61	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.92	1.00	1.00	0.85	1.00	1.00	0.92	1.00	1.00	0.85	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	22.0	22.0		22.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	45.0	45.0		45.0	45.0		34.0	34.0		34.0	34.0	
Total Split (%)	57.0%	57.0%		57.0%	57.0%		43.0%	43.0%		43.0%	43.0%	
Maximum Green (s)	39.0	39.0		39.0	39.0		28.0	28.0		28.0	28.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		39.0			39.0			28.0			28.0	
Actuated g/C Ratio		0.49			0.49			0.35			0.35	
v/c Ratio		0.40			0.37			0.10			0.09	
Control Delay		13.0			13.3			15.5			16.6	
Queue Delay		0.0			36.8			0.0			0.0	
Total Delay		13.0			50.2			15.5			16.6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		B			D			B			B	
Approach Delay		13.0			50.2			15.5			16.6	
Approach LOS		B			D			B			B	
Queue Length 50th (ft)		102			106			17			18	
Queue Length 95th (ft)		166			164			41			39	
Internal Link Dist (ft)		727			108			148			275	
Turn Bay Length (ft)												
Base Capacity (vph)		959			1025			601			711	
Starvation Cap Reductn		0			660			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.40			1.04			0.10			0.09	

Intersection Summary

Area Type: Other
Cycle Length: 79
Actuated Cycle Length: 79
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 45
Control Type: Pretimed
Maximum v/c Ratio: 0.40
Intersection Signal Delay: 29.4 Intersection LOS: C
Intersection Capacity Utilization 39.9% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 5: Parker Avenue & East Amherst Street



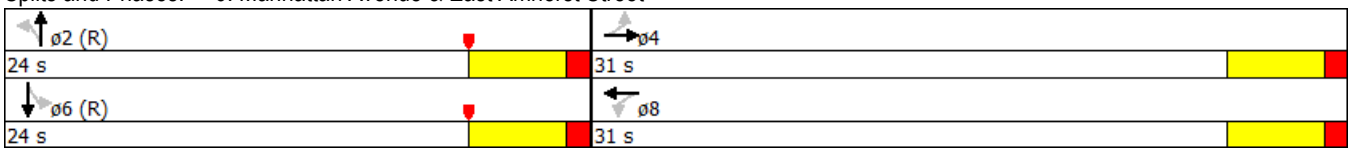
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	207	28	65	157	51	28	160	74	73	53	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	16	12	12	16	12	12	15	12	12	15	12
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00			0.99			0.99			1.00	
Frt		0.985			0.975			0.962			0.997	
Flt Protected		0.997			0.988			0.995			0.972	
Satd. Flow (prot)	0	2087	0	0	2043	0	0	1968	0	0	2004	0
Flt Permitted		0.975			0.868			0.959			0.732	
Satd. Flow (perm)	0	2041	0	0	1792	0	0	1896	0	0	1508	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			29			40			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		2328			787			595			295	
Travel Time (s)		52.9			17.9			13.5			6.7	
Confl. Peds. (#/hr)	8		8	8		8	4		2	2		4
Peak Hour Factor	0.92	0.92	0.92	0.85	0.85	0.85	0.93	0.93	0.93	0.86	0.86	0.86
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	16	225	30	76	185	60	30	172	80	85	62	3
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	271	0	0	321	0	0	282	0	0	150	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.88	1.00	1.00	0.88	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	31.0	31.0		31.0	31.0		24.0	24.0		24.0	24.0	
Total Split (%)	56.4%	56.4%		56.4%	56.4%		43.6%	43.6%		43.6%	43.6%	
Maximum Green (s)	26.0	26.0		26.0	26.0		19.0	19.0		19.0	19.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		26.0			26.0			19.0			19.0	
Actuated g/C Ratio		0.47			0.47			0.35			0.35	
v/c Ratio		0.28			0.37			0.41			0.29	
Control Delay		9.3			9.9			14.0			14.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		9.3			9.9			14.0			14.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS		A			A			B			B	
Approach Delay		9.3			9.9			14.0			14.8	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)		47			56			58			34	
Queue Length 95th (ft)		86			96			112			68	
Internal Link Dist (ft)		2248			707			515			215	
Turn Bay Length (ft)												
Base Capacity (vph)		972			862			681			522	
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			0.37			0.41			0.29	

Intersection Summary

Area Type: Other
Cycle Length: 55
Actuated Cycle Length: 55
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Yellow
Natural Cycle: 45
Control Type: Pretimed
Maximum v/c Ratio: 0.41
Intersection Signal Delay: 11.6 Intersection LOS: B
Intersection Capacity Utilization 65.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 6: Manhattan Avenue & East Amherst Street



Appendix I

Fillmore – Leroy and Highland Park Report

FILLMORE-LEROY AND HIGHLAND PARK:
A PLACE THAT MATTERS FOR BUFFALO'S FUTURE

A New Era of Opportunity

New opportunity is rising in Buffalo and its Fillmore-Leroy neighborhood in ways not seen in generations. The growing employment base in Buffalo's Main Street corridor contains twice as many jobs as housing units within walking distance to the NFTA Metro. In an era in which young workers and people of all ages are rediscovering the advantages of walkable urban neighborhoods, Fillmore-Leroy can offer the qualities that will retain and attract the workforce who will drive Buffalo's future.

While the neighborhood has suffered from decades of disinvestment, it retains the essential urban qualities that have defined Buffalo's great neighborhoods: good housing stock complemented by a mix of employment, shopping and institutions; walkable tree-lined streets; rail and bus transit within convenient walking distance. Moreover, imminent reinvestment on two distinct types of opportunity sites will create enough new housing to put Fillmore-Leroy squarely on the map for households seeking new options. The 27-acre former Central Park Plaza shopping center will transform into 500 or more new housing units offering choices like lofts and senior housing not currently available nearby, plus child care and senior care facilities, along streets and blocks that fill gaps in the neighborhood street network. Simultaneously on established neighborhood blocks, the targeted rehabilitation of vacant houses and new house construction on vacant lots will restore value and dignity to hundreds of homes, and the community as a whole.

Fillmore-Leroy has an engaged community of residents and institutions who are eager to embrace reinvestment in their community for the new opportunities it will bring them. While new housing alone will not solve the community's challenges, this major reinvestment initiative is inspiring a strong working partnership among service providers who will be able to coordinate and expand existing programs due to the visibility, new facilities, improved access and additional households coming along with new housing. This partnership among private investors, service organizations and community residents opens unprecedented opportunity not only to stabilize and improve housing values and safety, but also to open new, affordable choices for living, learning and working for the Fillmore-Leroy community and Buffalo as a whole.

Walkable streets and a mix of housing choices will be a hallmark of Fillmore-Leroy and Highland Park (above). The effort has been guided by a year long, community-based planning process comprised of public meetings and workshops (left).

Why This Plan is Needed

Put underutilized land back into productive use, leveraging community and infrastructure assets

Former Central Park Plaza site

Retain and attract workforce serving Buffalo's growing core employers

Stabilize and grow the human and physical resources of Fillmore-Leroy

Vacant homes and empty parcels

Reinforce a community hub of retail, service, transportation and housing choices...drawing together communities east and west of Main

THE NEED

While Fillmore-Leroy has important assets, only the comprehensive, large-scale approach of this plan will successfully leverage them. FLARE and other community-based organizations have rehabilitated dozens of vacant homes and offer a wide array of services from child care and teen activities to job training and health care, but in the context of home values and college attainment rates that are half the Erie County average, and poverty and unemployment rates that are double the county average, these efforts make only modest improvements. A broader, more visible and concerted effort is necessary to break traditions of disinvestment and establish self-sustaining economic and community growth. This will benefit not only current residents, but also area employers like Erie County Medical Center, University of Buffalo and Buffalo Niagara Medical Center with increasing needs for stable, locally-based workforce offering a variety of skills and skill levels.

Fillmore-Leroy Matter to People with Deep Roots Here...

A COMMUNITY-BASED PLANNING PROCESS

Effective plans depend on the endorsement and active support of community members. The Fillmore-Leroy planning process thus began in 2013 with conversations with neighborhood block groups and other stakeholders like churches and business owners to identify community concerns and priorities. These conversations expanded to include the full community at public meetings held at Fillmore-Leroy's Public School 61 in November 2013 and February 2014. These events enabled the neighborhood to confirm the community goals listed at right, map places where change should be encouraged and prevented, and show preferences among different options for new homes and parks. This community conversation inspired the vision and shaped the action steps put forth in this neighborhood plan. Meanwhile, ongoing conversations with stakeholders like Elim Christian Fellowship and FLARE are helping them expand their capacity to provide neighborhood services, to fulfill plan goals.

Since August 2013, the planning team has met with a variety of neighborhood stakeholders including:

- Residents
- Block club leaders
- Churches
- Main/Amherst area businesses
- ...and employees
- Elected city & county leaders
- Buffalo Promise Neighborhood initiative
- FLARE
- Health care providers
- Police
- NFTA

Block club leaders, Aug. 2013

Community meeting, Nov. 2013

Community meeting, Feb. 2014

COMMUNITY GOALS

- **A safe, supportive community** for kids to grow up in...and come back to
- **Mixed-income housing** – no concentration of poverty
- **New jobs** in redevelopment efforts and area businesses
- **Training for jobs,** homeownership, parenting
- **Stronger schools**
- **Stores** we can walk to
- **Safer walking and biking** connections
- **Community/youth center**
- **Results!**

Fillmore-Leroy Matters to a Developer with a Commitment to the Neighborhood…

THE INITIATIVE

Effective plans also depend on the commitment, capacity and leadership of inspired stakeholders. LPCiminelli, a major Buffalo-based construction firm, and its partner Ciminelli Real Estate Corporation are fulfilling this crucial role through sponsorship of this planning process and the acquisition and intended redevelopment of the former Central Park Plaza shopping center with mixed-income workforce housing.

- Funding and personally leading a community planning effort
- Developing mixed-income workforce housing
- Committed to long-term ownership/management

The Ciminelli family's longtime connections to the neighborhood and Buffalo as a whole, and its understanding of the economic trends and strategies shaping Buffalo's future prosperity, led it to select the Fillmore-Leroy neighborhood as a strategic place to invest in the City's future. The planning process has been fully inclusive of community members and City planning staff to ensure that the plan is genuinely owned by the community and City leadership.

To date, LPCiminelli has invested more than $5 million in the acquisition of Central Park Plaza and its environmental remediation. Long an abrupt interruption amidst Buffalo's neighborhood fabric as quarry, landfill, and then shopping center – once thriving, but eventually obsolete – the site is now ready to become a place that connects fragmented neighborhoods into a greater whole and is distinguished by well-designed housing options, public streets and parks. LPCiminelli and Ciminelli Real Estate Corporation offer the construction, development and property management capacity to produce and maintain high-quality development as a long-term asset for Buffalo. They also have developed active working partnerships with neighborhood organizations and service providers to ensure that residents have the access they need to education, child care, shopping, transportation and other services vital to growing neighborhood prosperity.

The Central Park Plaza shopping center in its 1960s heyday.

Media coverage from The Buffalo News of LPCiminelli's investment in the Fillmore-Leroy Neighborhood and Highland Park.

John Ciminelli speaking with a citywide assembly of block club leaders.

….and Fillmore-Leroy Matters to Buffalo

THE NEIGHBORHOOD IS POSITIONED TO PROVIDE THE GROWING AND DIVERSE WORKFORCE BUFFALO NEEDS TO HELP ITS MOST IMPORTANT ECONOMIC CORRIDOR THRIVE

THE BUFFALO NEWS CITY & REGION SUBSCRIBE

City & Region Sports Business Opinion Life & Arts Gusto Deaths SEARCH

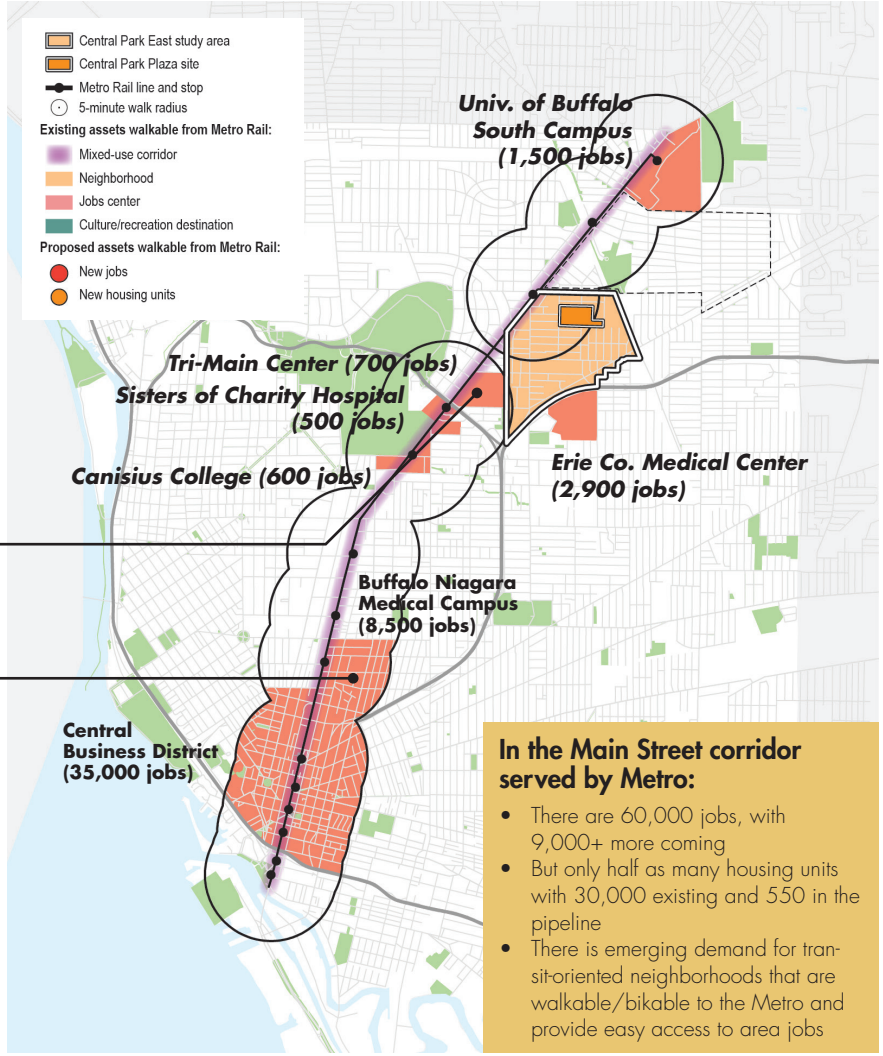
City & Region

Development soars along Metro Rail

The Buffalo Niagara Medical Campus is spawning a housing boom along the Metro Rail line, as developers look to provide lofts and apartments for some of the 17,500 workers expected to be employed there.

Tri-Main Center: 150 added jobs

Buffalo Niagara Medical Campus: 9,000+ added jobs, minimal new parking



In the Main Street corridor served by Metro:

- There are 60,000 jobs, with 9,000+ more coming
- But only half as many housing units with 30,000 existing and 550 in the pipeline
- There is emerging demand for transit-oriented neighborhoods that are walkable/bikable to the Metro and provide easy access to area jobs

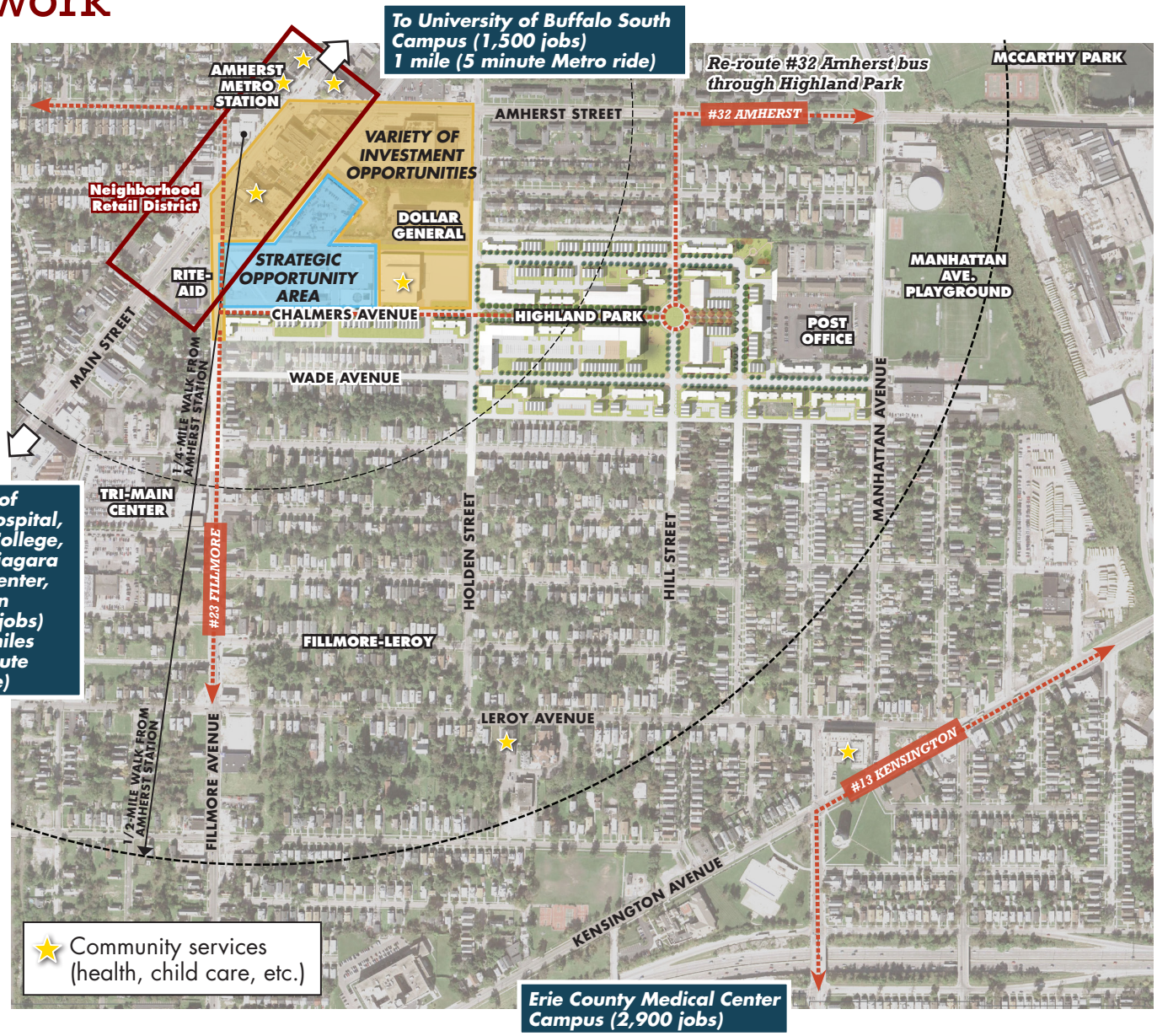
This plan builds synergies and boosts impacts among organizations already creating positive change

The neighborhood's own CDC, teamed with a high-capacity regional partner, can help properties gain value again.

This plan leverages recent and ongoing plans

A New Framework

- **Expand choices and improve quality of life** for current and future residents
- **Create and restore housing choices** serving Buffalo's workforce needs today and moving forward
- **Reinforce the neighborhood center around Amherst Station** with good retail and transportation options, easily and safely accessible on foot
- Restore the neighborhood as a **safe, connected, growing community with access to new opportunities**
- **Create a ripple effect of improvements** in the Fillmore-Leroy neighborhood area

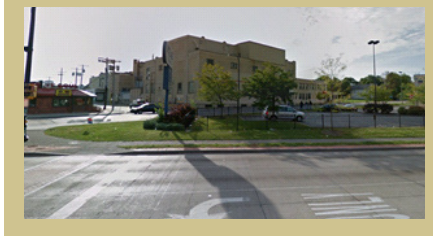


...Catalyzing Investment that responds to Neighborhood Needs

Connecting Fillmore-Leroy and Highland Park to the Amherst Metro and neighborhood retail on Main Street through walkable streets

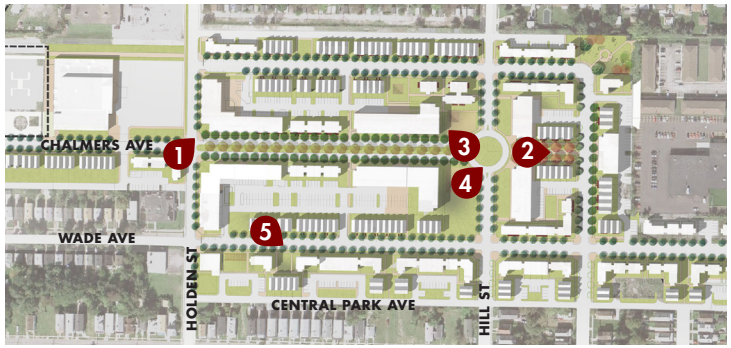
Connecting the street grid to integrate the broader Fillmore-Leroy Neighborhood

Providing new public space opportunities for the community – made safe and active by a variety of new housing choices



Creating a new gateway with a mix of housing, retail, and improved public gathering spaces

A Unique Sense of Place



Gateway at Chalmers and Holden

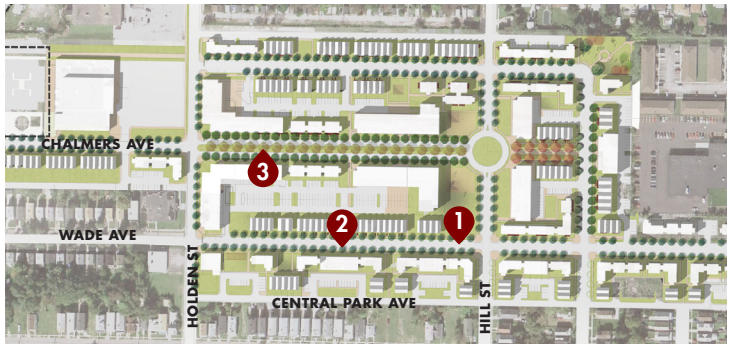
Commons at new Richlawn Avenue

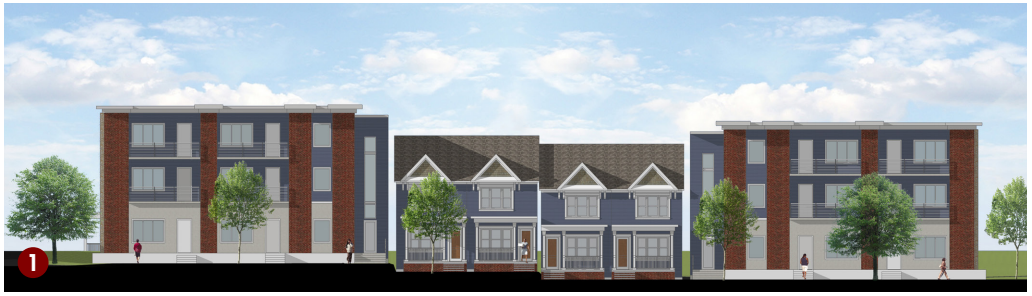
Public space and homes near new Hill and Chalmers intersection

Roundabout and homes at new Hill and Chalmers

Neighborhood space and homes on extended Wade Ave.

A Unique Sense of Architectural Character





Wade Street

Wade Street

Chalmer's Avenue

A Diverse Mix of People and a Range of Housing Choices

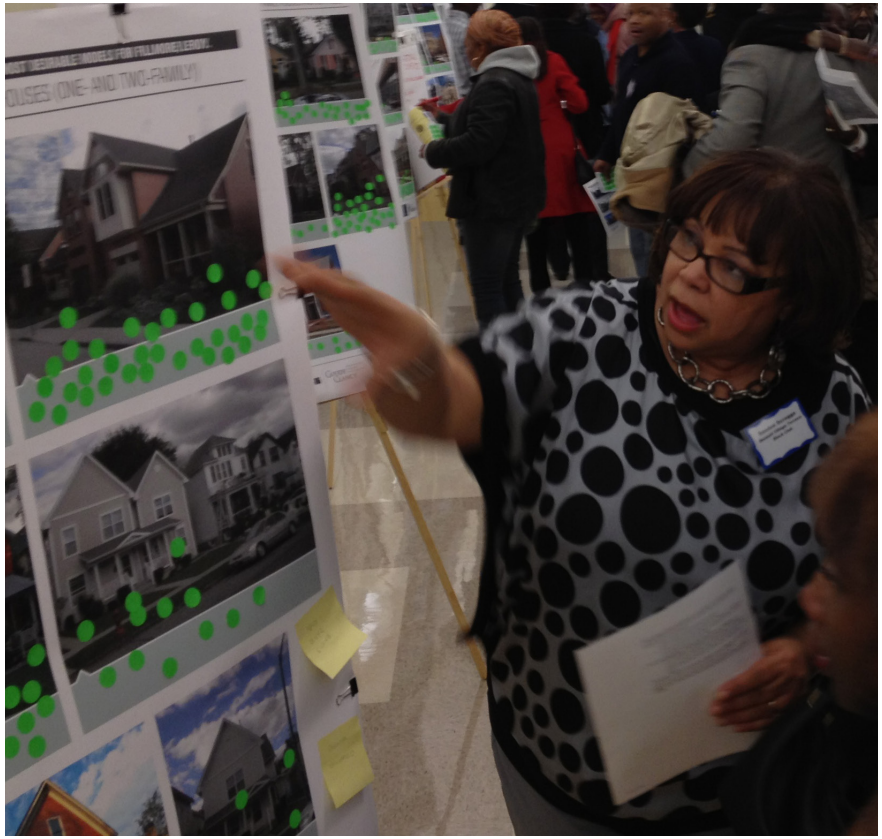
TARGET PROGRAM

DEMOGRAPHIC OVERVIEW

- **Younger/older singles and couples:** 30 to 40% of future households
- **Families:** 25 to 40% of future households
- **Seniors/retirees:** 30 to 35% of future households

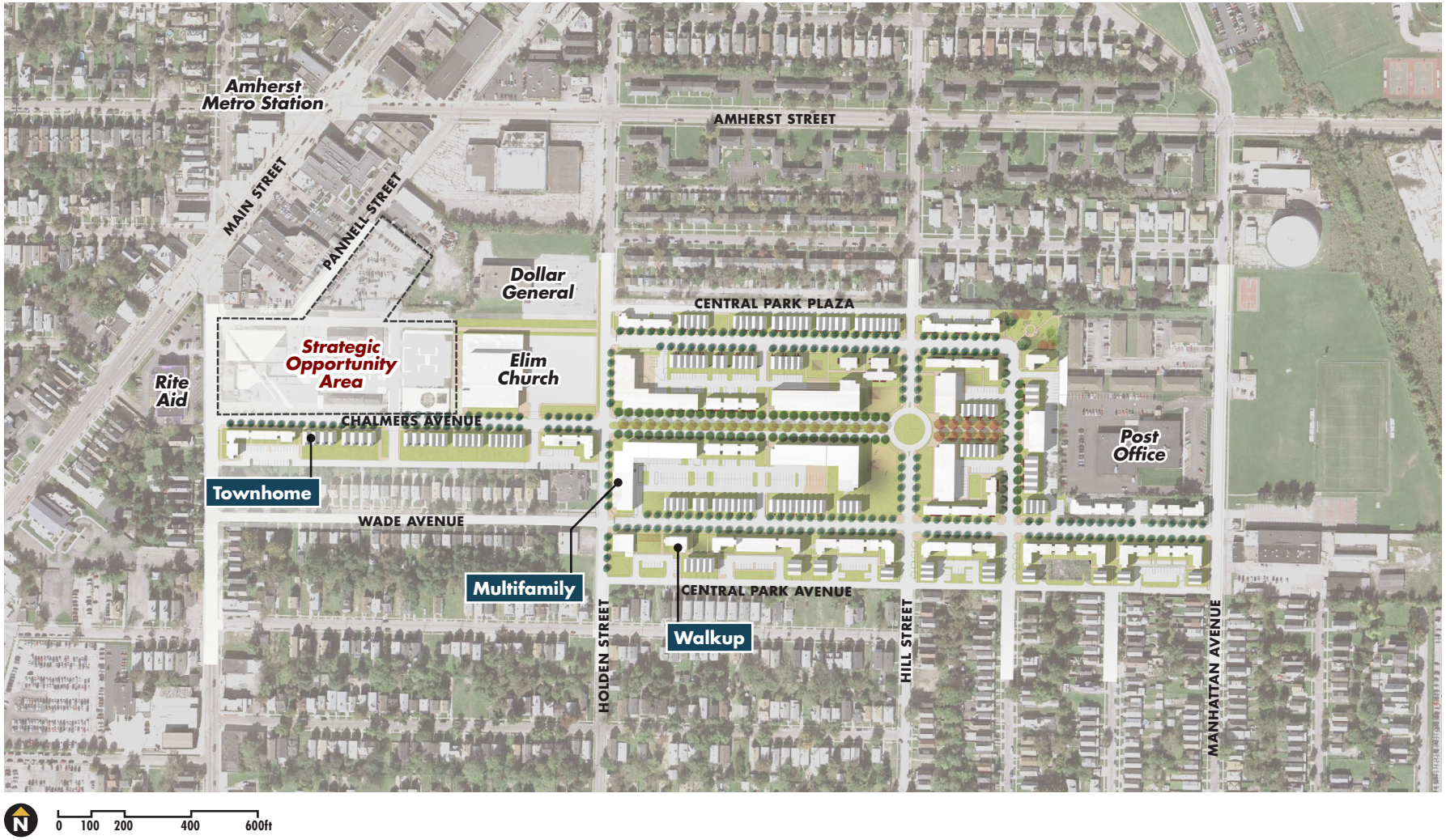
DEVELOPMENT OVERVIEW

- **Infill in the Fillmore-Leroy Neighborhood:** 75 to 125 units (rehab + new)
- **Housing at Highland Park Plaza:** 500 to 600 units (mix of housing types)
- **Housing on Chalmers west of Holden:** 100 to 200 units (townhomes)
- **Community Service Space at Highland Park:** Approximately 4,500 sf (day care, elder care)
- **Additional community serving retail:** Between Fillmore Ave. and Main Street

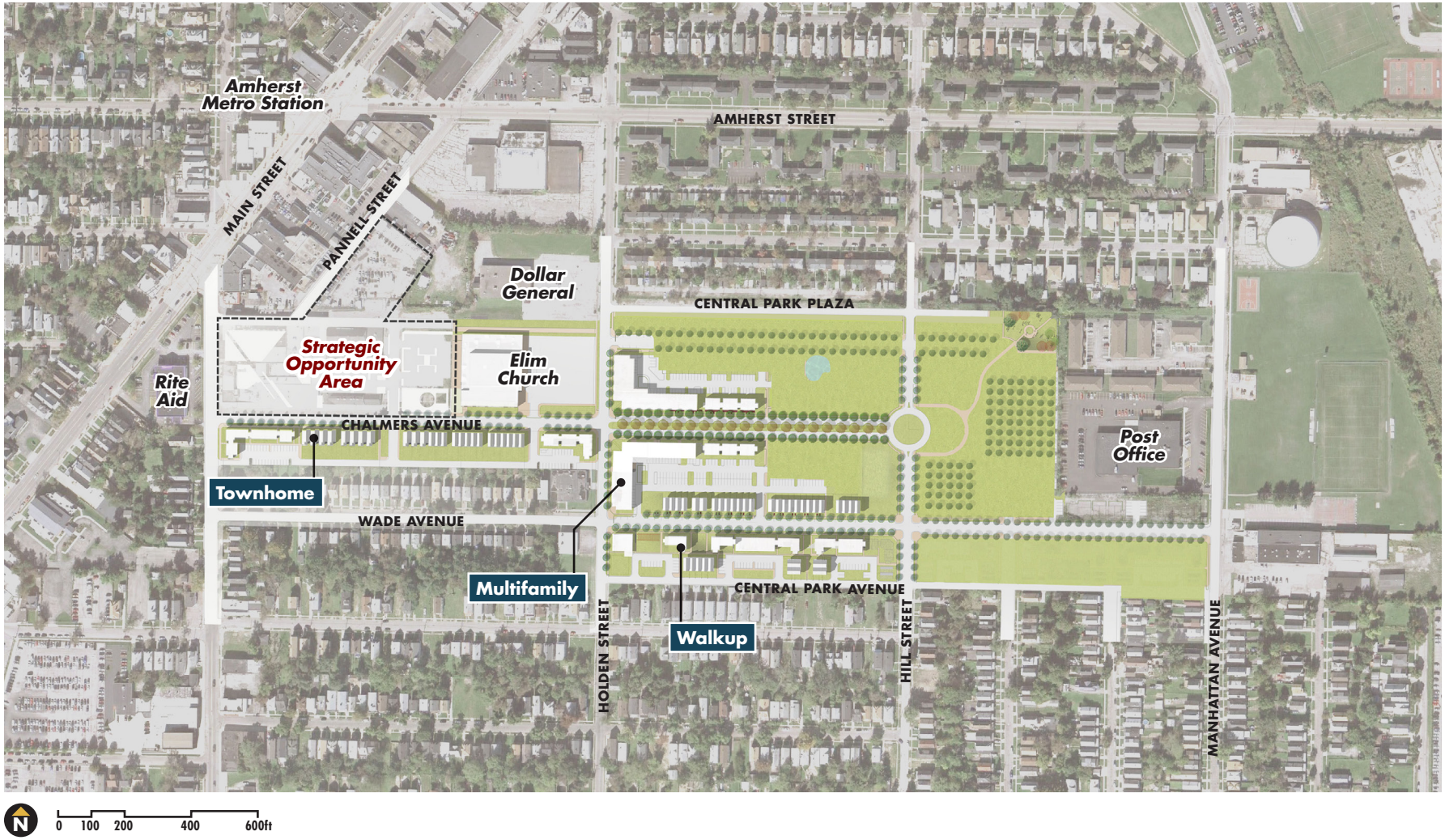


This photograph – from a community meeting in early 2014 – shows attendees discussing a range of housing preference types. Attendees were asked to put a green dot on desirable development images.

Final Concept – Highland Park



Phase 1 Concept – Highland Park



Actions and Next Steps

- Continued community interaction
- LPCiminelli completion of $5 million dollar "shovel-ready" investment
- LPCiminelli advancement of Highland Park design development for entitlements
- City investment in Phase One infrastructure
- LPCiminelli advancement of Phase 1 construction (target 2015 start)

The Fillmore-Leroy Neighborhood Matters Now and in the Future

Neighborhood reinvestment at Highland Park and targeted locations throughout Fillmore-Leroy could bring new and rehabilitated homes, more walkable streets, and improved green spaces to places like the block of Holden Street near Leroy Avenue shown here.

FILLMORE-LEROY AND HIGHLAND PARK

2011 Leroy Neighborhood Action Plan (LNAP) Items and How They Are Advanced

ITEM NO.*	CATEGORY	LNAP ACTION ITEM	HOW THE NEW PLAN ADVANCES THE ACTION ITEM
1.0	Housing	Housing rehabilitation should precede all other methods of addressing housing issues, such as demos and new construction.	Encourages and facilitates interaction between neighborhood CDCs and regional housing partners. Note: The 2011 plan intent was to prioritize rehab over incremental new construction on vacant single family lots. Large scale new construction such as proposed at Highland Park is justified as a near-term action for its transformative impact of stabilizing neighborhood-wide housing values.
2.0	Housing	Efforts should focus on a block by block basis, starting in the northwest section of the neighborhood and extending out from there.	Engages with CDC to confirm focus areas that promote high return on investment (key intersections, primary corridors, etc.).
3.0	Housing	Rehabs must occur in a concentrated manner - multiple houses on one block at a time - to avoid diminshed results due to not addressing adjacent vacant housing.	Engages with CDC to confirm focus areas that promote high return on investment (key intersections, primary corridors, etc.).
4.0	Housing	Demolition should be a last resort and occur only when the condition of a house or structure is deteriorated to the point where it is no longer feasible to restore.	Encourages and facilitates interaction between neighborhood CDCs and regional housing partners to enable more rehabilitation wherever possible.
5.0	Housing	New housing construction should be minimized in the short-term to maximize limited resources until vacant houses and structures are significantly reduced.	Encourages and facilitates interaction between neighborhood CDCs and regional housing partners.
6.0	Infrastructure	Investments in public infrastructure must be comprehensive and simultaneous, targeting each street at a time and must include the following: upgrade to complete streets with better sidewalks and curbs, bury utility poles, better street lighting, better signage, and tree plantings.	Identifies specific Phase 1 infrastructure investments and recommends subsequent phases. Take a comprehensive approach to each phase.
7.0	Infrastructure	Prioritization begins with Fillmore Avenue, the neighborhood spine.	Updates prioritization to focus on Highland Park site and Chalmers, Hill, Holden, and Wade Streets as initial focus to catalyze further reinvestment.
8.0	Infrastructure	Followed by one block segments of Leroy, Brewster, Jewett, and Phelps between Halbert and Fillmore.	Engages in discussions with CDC to confirm understanding of priority infrastructure areas.

FILLMORE-LEROY AND HIGHLAND PARK

2011 Leroy Neighborhood Action Plan (LNAP) Items and How They Are Advanced

ITEM NO.*	CATEGORY	LNAP ACTION ITEM	HOW THE NEW PLAN ADVANCES THE ACTION ITEM
9.0	Infrastructure	The third order of priority is Wade, Rodney, Victoria, Wakefield, Jewett, and Leroy between Fillmore and Holden.	Engages in discussions with CDC to confirm understanding of priority infrastructure areas.
10.0	Vacant lots	Homesteading vacant lots back into an adjacent homeowner's hands should be the first priority.	Plan encourages City/CDC application of these policies.
11.0	Vacant lots	At a minimum, all vacant lots need to be seeded and leveled to grade immediately after a demolition occurs.	Plan encourages City/CDC application of these policies.
12.0	Vacant lots	"Lots of Potential" program - simple fencing around vacant lots; planting trees and shrubs; large rocks to define space and prevent access; planting of ground cover.	Plan encourages City/CDC application of these policies.
13.0	Central Park Plaza	Resources must be identified to acquire and raze the vacant CPP due to the adverse affects on surrounding property values, public safety, and quality of life.	**Completed.** LPC has acquired the CPP property and razed the vacant shopping center buildings and remediated contaminated soils.
14.0	Central Park Plaza	A re-use capable of bringing a diverse array of businesses and jobs should be pursued. CPP should be re-purposed from a retail shopping center to an economically productive district that will bring businesses, jobs, and investment into the neighborhood.	**Underway.** Through public community meetings and interaction with the City, LPC is developing a plan that will indirectly support a diverse array of local businesses and jobs through creation of a significant amount of new housing, and will support new community spaces serving workforce readiness.
15.0	Central Park Plaza	The city should avoid looking for a master developer and instead initiate a long-term vision for the plaza, target infrastructure upgrades, and parcel out the land for purchase and development accordingly.	**Underway.** LPC is developing a plan and vision that will gain support from both the neighborhood and the City and lead to critical infrastructure upgrades in both Fillmore-Leroy and Central Park Plaza. LPC has expert development management capacity, implemented through community-based processes.
16.0	Central Park Plaza	An environmental study will need to be conducted in order to identify likely contamination on the property.	**Completed.** LPC has undertaken an environmental study and is currently completing a $5 million dollar investment to remediate the site and make it "shovel-ready".
17.0	Central Park Plaza	A market study should follow in order to determine the appropriate mixture of commercial uses.	A commercial market study would be included in the following steps.

FILLMORE-LEROY AND HIGHLAND PARK

2011 Leroy Neighborhood Action Plan (LNAP) Items and How They Are Advanced

ITEM NO.*	CATEGORY	LNAP ACTION ITEM	HOW THE NEW PLAN ADVANCES THE ACTION ITEM
18.0	Central Park Plaza	Residential development should be discouraged, considering the high rate of vacant housing and parcels adjacent to the site.	While this may be counterintuitive, there is a strong market demand for housing near transit to support increased employment opportunities up and down Main Street. Highland Park and Fillmore-Leroy are both in a position to capitalize on this demand, both short term and long term.
19.0	Central Park Plaza	Civic uses, such as recreational parks and green space, should not occupy the majority of the site, but supplement the development that does occur.	Green space is sensitively sized and integrated into the Highland Park plan so that it supplements development and encourages activity and communal gathering at all ages and income levels. These spaces will be highly usable and maintainable over time.

** Note: Item numbers have been added for clarity but were not included in the 2011 LNAP.*