

Appendix F:

Traffic Summary: Level of Service, Calculations and Synchro Reports

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Level Of Service

Morning Study Period

Analysis for Addressing MCDOT Comment 1
Level of Service Summary
Morning Study Period

Intersection	Approach and Movement	Existing		Baseline		Proposed		Proposed with Signal Timing Adjustments	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
100 St. Paul Street & Inner Loop WB	Westbound	L	D	45	D	48	D	56	E (v/c=0.86)
		T	D	42	D	39	D	43	D
		R	C	32	C	32	C	35	C
	Northbound	L	B	16	B	16	B	10	A
		T	A	12	B	12	B	5	A
		R	A	4	A	4	A	2	A
101 St. Paul Street & Inner Loop EB	Southbound	T-TR	C	28	C	32	C	51	D
		R	A	0	A	0	A	0	A
		Overall	C	28	C	31	C	39	D
	Eastbound	L	D	49	D	49	D	30	C
		LT-TR	C	37	D	37	D	26	C
		R	B	48	D	88	F	54	D
102 South Avenue & Main Street	Southbound	LT-T-T	A	2	A	2	A	4	A
		TR	C	22	C	23	C	28	C
		Overall	B	30	C	39	D	26	C
	Eastbound	T (T-TR)	D	26	C	26	C	26	C
		R	C	-	-	-	-	-	-
		T-T (LT-T)	A	14	B	15	B	15	B
103 South Avenue & Broad Street	Southbound	L	A	22	C	22	C	22	C
		T-T-TR	A	24	C	26	C	26	C
		Overall	B	22	C	23	C	23	C
	Eastbound	T	C	33	C	33	C	33	C
		R	C	33	C	35	C	35	C
		L	C	17	B	19	B	19	B
104 South Avenue & Court Street	Westbound	LT-T	B	17	B	18	B	18	B
		L	A	5	A	5	A	5	A
		T-T-T-TR	A	4	A	4	A	4	A
	Southbound	Overall	B	14	B	14	B	14	B
		TR	B	9	A	14	B	14	B
		R	A	8	A	9	A	9	A
105 Clinton Avenue & Woodbury Boulevard	Westbound	L	A	7	A	8	A	8	A
		T	A	9	A	9	A	9	A
		L	B	8	A	10	B	10	B
	Southbound	T-T-T-TR	B	9	A	10	B	10	B
		Overall	B	9	A	10	B	10	B
		LT-T	D	41	D	41	D	41	D
105 Clinton Avenue & Woodbury Boulevard	Westbound	T-TR	C	31	C	32	C	32	C
		LT-T-T-TR	B	17	B	22	C	22	C
		Overall	B	19	B	24	C	24	C

Notes to table:

T (T-TR): Existing (Baseline/Future) Conditions - Modification per Renaissance Square Traffic Assessment on file
Existing Conditions - MCDOT System Synchro Files
Baseline Conditions - Includes 0.5% growth rate, ESL, Midtown Garage Redistribution and Renaissance Square
Proposed - Midtown Redevelopment (High Density Scenario)

Level Of Service

Evening Study Period

Analysis for Addressing MCDOT Comment 1
Level of Service Summary
Evening Study Period

Intersection	Approach and Movement	Existing		Baseline		Proposed		Proposed with Signal Timing Adjustments	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
100 St. Paul Street & Inner Loop WB	Westbound	L	25	C	32	C	C	26	C
		T	47	D	101	F	F	55	D
		R	27	C	34	C	D	29	C
	Northbound	L	28	C	90	F	F	90	F
		T	5	A	12	B	B	12	B
		R	2	A	5	A	A	5	A
	Southbound	T-TR	23	C	21	C	C	21	C
101 St. Paul Street & Inner Loop EB	Eastbound	R	0	A	0	A	A	0	A
		Overall	25	C	46	D	D	32	C
		L	48	D	82	F	F	66	E (v/c=0.81)
	Southbound	LT-TR	41	D	46	D	D	48	D
		R	35	D	36	D	D	40	D
		LT-T-T	2	A	2	A	A	2	A
	Northwestbound	TR	52	D	32	C	C	51	D
102 South Avenue & Main Street	Eastbound	Overall	31	C	31	C	C	34	C
		T (T-TR)	31	C	25	C	C	26	C
		R	19	B	-	-	-	-	-
	Westbound	T-T (LT-T)	10	A	14	B	B	17	B
		L	9	A	13	B	B	13	B
		Southbound	17	B	32	C	C	33	C
	Overall	17	B	27	C	27	C	27	C
103 South Avenue & Broad Street	Eastbound	T	37	D	37	D	D	34	C
		R	75	E	86	F	F	62	E (v/c=0.86)
		L	27	C	25	C	C	30	C
	Westbound	LT-T	18	B	17	B	B	18	B
		L	8	A	8	A	A	8	A
		T-T-TR	10	A	11	B	B	11	B
	Overall	22	C	22	C	23	C	20	C
104 South Avenue & Court Street	Eastbound	TR	39	D	50	D	E	48	D
		R	38	D	53	D	E	51	D
		L	25	C	30	C	C	33	C
	Westbound	T	20	B	20	B	B	19	B
		L	10	A	14	B	B	14	B
		T-T-TR	13	B	20	B	B	22	C
	Overall	19	B	26	C	28	C	28	C

Notes to table:

T (T-TR): Existing (Baseline/Future) Conditions - Modification per Renaissance Square Traffic Assessment on file
Existing Conditions - MCDOT System Synchro Files
Baseline Conditions - Includes 0.5% growth rate, ESL, Midtown Garage Redistribution and Renaissance Square
Proposed - Midtown Redevelopment (High Density Scenario)

Level Of Service

Main & Clinton

Midtown Traffic Assessment
Analysis for Main Street & Clinton Street Intersection - Addressing Comment 12
Level of Service Table

Morning Study Period

Intersection	Approach and Movement	Scenario #1 Base Conditions		Scenario #2 PAETEC Only		Scenario #3 Low Density Build-out with PAETEC		Scenario #4 High Density Build-out with PAETEC	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1 E. Main Street & Clinton Avenue <i>(Movement added by Ren. Sq.)</i>	Eastbound (L) T-T	47	D (v/c = 0.95 dl)	47	D (v/c = 0.95 dl)	48	D (v/c = 0.98 dl)	77	E (v/c = 1.04)
	Westbound T-TR	10	B	10	B	10	B	10	B
	Northbound T-T	32	C (v/c = 0.97)	33	C (v/c = 0.98)	33	C (v/c = 0.98)	33	C (v/c = 0.98)
	Northbound (R)	3	A	3	A	3	A	3	A
	Overall	29	C	30	C	30	C	39	D

Evening Study Period

Intersection	Approach and Movement	Scenario #1 Base Conditions		Scenario #2 PAETEC Only		Scenario #3 Low Density Build-out with PAETEC		Scenario #4 High Density Build-out with PAETEC	
		Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1 E. Main Street & Clinton Avenue <i>(Movement added by Ren. Sq.)</i>	Eastbound (L) T-T	16	B	16	B	16	B	18	B
	Westbound T-TR	4	A	4	A	4	A	6	A
	Northbound T-T	29	C (v/c = 0.92)	38	D (v/c = 0.97)	39	D (v/c = 0.97)	44	D (v/c = 0.99)
	Northbound (R)	3	A	4	5	5	A	5	A
	Overall	20	C	24	C	25	C	28	C

Notes to Table:

Delay - Seconds per vehicle

LOS - Level of Service

v/c - volume to capacity ratio - provided for movements when 0.90 or higher

dl - defacto left turn lane

Scenario 1

AM Baseline

Midtown Traffic Assessment
Addressing Comment 12 - Revised Per MCDOT

1: Main & Clinton
Scenario 1 - AM Baseline

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Volume (vph)	154	452	0	0	515	148	0	1333	27	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	1300	0	0	0	0	0	100	0	0	0	0
Storage Lanes	0	0	0	0	0	0	0	1	0	0	0	0
Taper Length (ft)	25	25	25	25	25	25	25	25	25	25	25	25
Lane Util. Factor	0.95	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor					0.92			0.69				
Ft					0.967			0.850				
Flt Protected		0.987										
Satd. Flow (prot)	0	3110	0	0	2813	0	0	3539	1583	0	0	0
Flt Permitted		0.571										
Satd. Flow (perm)	0	1799	0	0	2813	0	0	3539	1094	0	0	0
Right Turn on Red		Yes				Yes		Yes		Yes		Yes
Satd. Flow (RTOR)					46				12			
Link Speed (mph)		30			30			30		30		
Link Distance (ft)		359			253			759		440		
Travel Time (s)		8.2			5.8			17.3		10.0		
Confl. Peds. (#/hr)		792			344			241		200		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	20	0	0	20	0	0	0	0	0	0	0
Adj. Flow (vph)	171	502	0	0	572	164	0	1481	30	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	673	0	0	736	0	0	1481	30	0	0	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	Right	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	1.05	1.00	1.00	1.05	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	15	9	15	15	9	15	15	9	9
Turn Type	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases	1	1	1	1	1	1	1	2	2	2	2	2
Minimum Split (s)	27.0	27.0	0.0	0.0	27.0	0.0	0.0	29.0	29.0	0.0	0.0	0.0
Total Split (s)	46.0	46.0	0.0	0.0	46.0	0.0	0.0	46.0	46.0	0.0	0.0	0.0
Total Split (%)	46.0%	46.0%	0.0%	0.0%	46.0%	0.0%	0.0%	46.0%	46.0%	0.0%	0.0%	0.0%
Maximum Green (s)	41.0	41.0	0.0	0.0	41.0	0.0	0.0	41.0	41.0	0.0	0.0	0.0
Yellow Time (s)	4.0	4.0	0.0	0.0	4.0	0.0	0.0	4.0	4.0	0.0	0.0	0.0
All-Red Time (s)	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	1.0	0.0	0.0	0.0
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	3.0	3.0	3.0	3.0	2.0	3.0	3.0	4.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0	0.0	0.0	9.0	0.0	0.0	7.0	7.0	0.0	0.0	0.0
Flash Dont Walk (s)	12.0	12.0	0.0	0.0	12.0	0.0	0.0	16.0	16.0	0.0	0.0	0.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0

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Synchro 7 - Report
Page 1

Midtown Traffic Assessment
Addressing Comment 12 - Revised Per MCDOT

1: Main & Clinton
Scenario 1 - AM Baseline

Lane Group	ø4	ø8
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Ped Bike Factor		
Ft		
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 (%)		
Bus Blockages (#/hr)		
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	4	8
Protected Phases		
Minimum Split (s)	4.0	4.0
Total Split (s)	4.0	4.0
Total Split (%)	4%	4%
Maximum Green (s)	2.0	2.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?		
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	0	0

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Synchro 7 - Report
Page 2

Midtown Traffic Assessment
Addressing Comment 12 - Revised Per MCDOT

1: Main & Clinton
Scenario 1 - AM Baseline

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		43.0			43.0			43.0		42.0		
Actuated g/C Ratio		0.43			0.43			0.43		0.42		
v/c Ratio		0.95			0.60			0.97		0.06		
Control Delay		46.9			9.3			31.8		3.1		
Queue Delay		0.0			0.5			0.0		0.0		
Total Delay		46.9			9.8			31.8		3.1		
LOS		D			A			C		A		
Approach Delay		46.9			9.8			31.2				
Approach LOS		D			A			C				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 0 (0%) Referenced to phase 1:EBWB, Start of Green												
Natural Cycle: 90												
Control Type: Pretimed												
Maximum v/c Ratio: 0.97												
Intersection Signal Delay: 29.4	Intersection LOS: C											
Intersection Capacity Utilization 85.3%	ICU Level of Service E											
Analysis Period (min) 15												
dl Defacto Left Lane. Recode with 1 though lane as a left lane.												

Splits and Phases: 1: Main & Clinton

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Synchro 7 - Report
Page 3

Midtown Traffic Assessment
Addressing Comment 12 - Revised Per MCDOT

1: Main & Clinton
Scenario 1 - AM Baseline

Lane Group	ø4	ø8
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

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Synchro 7 - Report
Page 4

Scenario 1

PM Baseline

Midtown Traffic Assessment

Addressing Comment 12 - Revised Per MCDOT

1: Main & Clinton
Scenario 1 - PM Baseline

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Volume (vph)	77	551	0	0	498	78	0	1254	52	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	0	100	0	0	0	0
Storage Lanes	0	0	0	0	0	0	0	1	0	0	0	0
Taper Length (ft)	25	25	25	25	25	25	25	25	25	25	25	25
Lane Util. Factor	0.95	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor				0.94	0.94			0.67	0.850			
Ft				0.980								
Flt Protected		0.994										
Satd. Flow (prot)	0	3518	0	0	3271	0	0	3539	1583	0	0	0
Flt Permitted		0.744										
Satd. Flow (perm)	0	2633	0	0	3271	0	0	3539	1068	0	0	0
Right Turn on Red		Yes			Yes			Yes	Yes		Yes	
Satd. Flow (RTOR)					22				25			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		359			253			759			440	
Travel Time (s)		8.2			5.8			17.3			10.0	
Confl. Peds. (#/hr)		1279			609			306			390	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	86	612	0	0	553	87	0	1393	58	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	698	0	0	640	0	0	1393	58	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Right	Left	Left	Left	Right	Left	Left	Right
Median Width (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Link Offset (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width (ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Turn Type	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases		1		1		1		2		2		
Permitted Phases	1	27.0	27.0	27.0	27.0	29.0	29.0	29.0	29.0	29.0	29.0	29.0
Minimum Split (s)	46.0	46.0	0.0	0.0	46.0	0.0	0.0	46.0	46.0	0.0	0.0	0.0
Total Split (s)	46.0	46.0	0.0	0.0	46.0	0.0	0.0	46.0	46.0	0.0	0.0	0.0
Total Split (%)	46.0%	46.0%	0.0%	0.0%	46.0%	0.0%	0.0%	46.0%	46.0%	0.0%	0.0%	0.0%
Maximum Green (s)	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0
Yellow Time (s)	4.0	4.0	4.0	4.0	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	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	3.0	3.0	3.0	3.0	2.0	3.0	4.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0	9.0	9.0	9.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	12.0	12.0	12.0	12.0	12.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	42.0	43.0	42.0	42.0
Actuated g/C Ratio	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.42	0.43	0.42	0.42

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Synchro 7 - Report
Page 1

Midtown Traffic Assessment

Addressing Comment 12 - Revised Per MCDOT

1: Main & Clinton
Scenario 1 - PM Baseline

Lane Group	ø4	ø8
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Ped Bike Factor		
Ft		
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	4	8
Protected Phases		
Permitted Phases		
Minimum Split (s)	4.0	4.0
Total Split (s)	4.0	4.0
Total Split (%)	4%	4%
Maximum Green (s)	2.0	2.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?		
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	0	0
Act Effct Green (s)		
Actuated g/C Ratio		

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Synchro 7 - Report
Page 2

Midtown Traffic Assessment

Addressing Comment 12 - Revised Per MCDOT

1: Main & Clinton
Scenario 1 - PM Baseline

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group												
v/c Ratio	0.62			0.45			0.92	0.92	0.13			
Control Delay	15.2			3.7			29.2	29.2	3.3			
Queue Delay	0.5			0.6			0.0	0.0	0.0			
Total Delay	15.7			4.3			29.2	29.2	3.3			
LOS	B			A			C	C	A			
Approach Delay	15.7			4.3			28.2					
Approach LOS	B			A			C					
Intersection Summary												
Area Type:	Other											
Cycle Length:	100											
Actuated Cycle Length:	100											
Offset:	18 (18%) Referenced to phase 1:EBWB, Start of Green											
Natural Cycle:	65											
Control Type:	Prelimed											
Maximum v/c Ratio:	0.92											
Intersection Signal Delay:	19.6											
Intersection Capacity Utilization	79.8%											
Analysis Period (min)	15											

Splits and Phases: 1: Main & Clinton



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Synchro 7 - Report
Page 3

Midtown Traffic Assessment

Addressing Comment 12 - Revised Per MCDOT

1: Main & Clinton
Scenario 1 - PM Baseline

	ø4	ø8
Lane Group		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

2/3/2009

Synchro 7 - Report
Page 4

Scenario 2

AM PAETEC ONLY

Midtown Traffic Assessment
Addressing Comment 12 - Revised Per MCDOT

1: Main & Clinton
Scenario 2 - AM PAETEC Only

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Volume (vph)	154	452	0	0	515	148	0	1340	27	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	1300	0	0	0	0	0	100	0	0	0	0
Storage Lanes	0	0	0	0	0	0	0	1	0	0	0	0
Taper Length (ft)	25	25	25	25	25	25	25	25	25	25	25	25
Lane Util. Factor	0.95	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor					0.92			0.69				
Ft					0.967			0.850				
Flt Protected		0.987										
Satd. Flow (prot)	0	3110	0	0	2813	0	0	3539	1583	0	0	0
Flt Permitted		0.571										
Satd. Flow (perm)	0	1799	0	0	2813	0	0	3539	1094	0	0	0
Right Turn on Red		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)					46				12			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		359			253			759			440	
Travel Time (s)		8.2			5.8			17.3			10.0	
Confl. Peds. (#/hr)			792			344			241			200
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	20	0	0	20	0	0	0	0	0	0	0
Adj. Flow (vph)	171	502	0	0	572	164	0	1489	30	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	673	0	0	736	0	0	1489	30	0	0	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	Right	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	1.05	1.00	1.00	1.05	1.00	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	Perm	Perm						Perm				
Protected Phases	1			1				2				
Minimum Split (s)	27.0	27.0		27.0				29.0	29.0			
Total Split (s)	46.0	46.0	0.0	0.0	46.0	0.0	0.0	46.0	46.0	0.0	0.0	0.0
Total Split (%)	46.0%	46.0%	0.0%	0.0%	46.0%	0.0%	0.0%	46.0%	46.0%	0.0%	0.0%	0.0%
Maximum Green (s)	41.0	41.0		41.0				41.0	41.0			
Yellow Time (s)	4.0	4.0		4.0				4.0	4.0			
All-Red Time (s)	1.0	1.0		1.0				1.0	1.0			
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	3.0	3.0	3.0	3.0	2.0	3.0	3.0	4.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lag				Lag	Lag			
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0		9.0				7.0	7.0			
Flash Dont Walk (s)	12.0	12.0		12.0				16.0	16.0			
Pedestrian Calls (#/hr)	0	0		0				0	0			

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Midtown Traffic Assessment
Addressing Comment 12 - Revised Per MCDOT

1: Main & Clinton
Scenario 2 - AM PAETEC Only

Lane Group	ø4	ø8
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Ped Bike Factor		
Ft		
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 (%)		
Bus Blockages (#/hr)		
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	4	8
Protected Phases		
Minimum Split (s)	4.0	4.0
Total Split (s)	4.0	4.0
Total Split (%)	4%	4%
Maximum Green (s)	2.0	2.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?		
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	0	0

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Midtown Traffic Assessment

Addressing Comment 12 - Revised Per MCDOT

1: Main & Clinton
Scenario 2 - AM PAETEC Only

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		43.0			43.0			43.0	42.0			
Actuated g/C Ratio		0.43			0.43			0.43	0.42			
v/c Ratio		0.95d			0.60			0.98	0.06			
Control Delay		46.9			9.3			33.0	3.2			
Queue Delay		0.0			0.5			0.0	0.0			
Total Delay		46.9			9.8			33.0	3.2			
LOS		D			A			C	A			
Approach Delay		46.9			9.8			32.4				
Approach LOS		D			A			C				

Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 0 (0%) Referenced to phase 1:EBWB, Start of Green												
Natural Cycle: 90												
Control Type: Pretimed												
Maximum v/c Ratio: 0.98												
Intersection Signal Delay: 30.1												
Intersection LOS: C												
Intersection Capacity Utilization 85.5%												
ICU Level of Service E												
Analysis Period (min) 15												
d1 Defacto Left Lane Recode with 1 though lane as a left lane.												

Splits and Phases: 1: Main & Clinton

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Synchro 7 - Report
Page 3

Midtown Traffic Assessment

Addressing Comment 12 - Revised Per MCDOT

1: Main & Clinton
Scenario 2 - AM PAETEC Only

Lane Group	ø4	ø8
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

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Synchro 7 - Report
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Scenario 2

PM PAETEC ONLY

Midtown Traffic Assessment

Addressing Comment 12 - Revised Per MCDOT

1: Main & Clinton
Scenario 2 - PM PAETEC Only

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Volume (vph)	77	551	0	0	498	78	0	1323	52	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	0	100	0	0	0	0
Storage Lanes	0	0	0	0	0	0	0	1	0	0	0	0
Taper Length (ft)	25	25	25	25	25	25	25	25	25	25	25	25
Lane Util. Factor	0.95	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor				0.94	0.94			0.67	0.850			
Flt				0.980								
Flt Protected		0.994										
Satd. Flow (prot)	0	3518	0	0	3271	0	0	3539	1583	0	0	0
Flt Permitted		0.744										
Satd. Flow (perm)	0	2633	0	0	3271	0	0	3539	1068	0	0	0
Right Turn on Red		Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)					22				23			
Link Speed (mph)	30	30	30	30	30	30	30	30	30	30	30	30
Link Distance (ft)	359	359	253	253	253	759	759	440	440	440	440	440
Travel Time (s)	8.2	1279	5.8	5.8	5.8	609	17.3	306	10.0	10.0	10.0	10.0
Confl. Peds. (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	86	612	0	0	553	87	0	1470	58	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	698	0	0	640	0	0	1470	58	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Right	Left	Left	Right	Left	Left	Right	Right
Median Width (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Link Offset (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Crosswalk Width (ft)	16	16	16	16	16	16	16	16	16	16	16	16
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Turn Type	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases		1		1			2					
Permitted Phases	1	27.0	27.0	27.0	27.0	29.0	29.0	2				
Minimum Split (s)	46.0	46.0	0.0	0.0	46.0	0.0	0.0	46.0	46.0	0.0	0.0	0.0
Total Split (%)	46.0%	46.0%	0.0%	0.0%	46.0%	0.0%	0.0%	46.0%	46.0%	0.0%	0.0%	0.0%
Total Split (%)	46.0%	46.0%	0.0%	0.0%	46.0%	0.0%	0.0%	46.0%	46.0%	0.0%	0.0%	0.0%
Maximum Green (s)	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0	41.0
Yellow Time (s)	4.0	4.0	4.0	4.0	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	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	3.0	3.0	3.0	3.0	2.0	3.0	4.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0	9.0	9.0	9.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)	12.0	12.0	12.0	12.0	12.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0
Pedestrian Calls (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Act Effct Green (s)	43.0	43.0	43.0	43.0	43.0	43.0	43.0	43.0	42.0	42.0	42.0	42.0
Actuated g/C Ratio	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.43	0.42	0.42	0.42	0.42

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Synchro 7 - Report
Page 1

Midtown Traffic Assessment

Addressing Comment 12 - Revised Per MCDOT

1: Main & Clinton
Scenario 2 - PM PAETEC Only

Lane Group	ø4	ø8
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Ped Bike Factor		
Flt		
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	4	8
Protected Phases		
Permitted Phases		
Minimum Split (s)	4.0	4.0
Total Split (%)	4%	4%
Total Split (%)	4%	4%
Maximum Green (s)	2.0	2.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?		
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	0	0
Act Effct Green (s)		
Actuated g/C Ratio		

2/3/2009

Synchro 7 - Report
Page 2

Midtown Traffic Assessment
Addressing Comment 12 - Revised Per MCDOT

1: Main & Clinton
Scenario 2 - PM PAETEC Only

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.62	0.45	0.97	0.13	0.97	0.13	0.13	0.97	0.13	0.13	0.97	0.13
Control Delay	15.2	3.7	37.9	4.9	37.9	4.9	4.9	37.9	4.9	4.9	37.9	4.9
Queue Delay	0.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.7	4.3	37.9	4.9	37.9	4.9	4.9	37.9	4.9	4.9	37.9	4.9
LOS	B	A	D	A	D	A	A	D	A	A	D	A
Approach Delay	15.7	4.3	36.7									
Approach LOS	B	A	D									

Lane Group	ø4	ø8
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	18 (18%) Referenced to phase 1:EBWB, Start of Green
Natural Cycle:	65
Control Type:	Prelimed
Maximum v/c Ratio:	0.97
Intersection Signal Delay:	24.3
Intersection Capacity Utilization:	81.7%
Analysis Period (min):	15

Intersection LOS: C
ICU Level of Service D

Splits and Phases: 1: Main & Clinton



Scenario 3

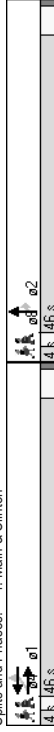
AM Low Density Build-out + PAETEC

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Volume (vph)	154	453	0	0	528	149	0	1340	27	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	1300	0	0	0	0	0	100	0	0	0	0
Storage Lanes	0	0	0	0	0	0	0	1	0	0	0	0
Taper Length (ft)	25	25	25	25	25	25	25	25	25	25	25	25
Lane Util. Factor	0.95	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor				0.92	0.967			0.69	0.850			
Flt Protected	0.988											
Satd. Flow (prot)	0	3113	0	0	2816	0	0	3539	1583	0	0	0
Flt Permitted	0.567											
Satd. Flow (perm)	0	1786	0	0	2816	0	0	3539	1094	0	0	0
Right Turn on Red		Yes			Yes			Yes		Yes		Yes
Satd. Flow (RTOR)					46				12			
Link Speed (mph)	30				30			30				30
Link Distance (ft)	359				253			759				440
Travel Time (s)	8.2				5.8			17.3				10.0
Confl. Peds. (#/hr)			792			344			241			200
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	20	0	0	20	0	0	0	0	0	0	0
Adj. Flow (vph)	171	506	0	0	587	166	0	1489	30	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	677	0	0	753	0	0	1489	30	0	0	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	Right	Right
Median Width(ft)	0			0			0			0		0
Link Offset(ft)	0			0			0			0		0
Crosswalk Width(ft)	16			16			16			16		16
Two way Left Turn Lane												
Headway Factor	1.00	1.05	1.00	1.00	1.05	1.00	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	Perm	Perm					Perm					
Protected Phases	1			1			2					
Permitted Phases	1						2					
Minimum Split (s)	27.0	27.0		27.0			29.0	29.0				
Total Split (s)	46.0	46.0	0.0	0.0	46.0	0.0	0.0	46.0	46.0	0.0	0.0	0.0
Total Split (%)	46.0%	46.0%	0.0%	0.0%	46.0%	0.0%	0.0%	46.0%	46.0%	0.0%	0.0%	0.0%
Maximum Green (s)	41.0	41.0		41.0			41.0	41.0				
Yellow Time (s)	4.0	4.0		4.0			4.0	4.0				
All-Red Time (s)	1.0	1.0		1.0			1.0	1.0				
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	3.0	3.0	3.0	3.0	2.0	3.0	3.0	4.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lag			Lag	Lag				
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0		9.0			7.0	7.0				
Flash Dont Walk (s)	12.0	12.0		12.0			16.0	16.0				
Pedestrian Calls (#/hr)	0	0		0			0	0				

Lane Group	ø4	ø8
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Ped Bike Factor		
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 (%)		
Bus Blockages (#/hr)		
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	4	8
Protected Phases		
Permitted Phases		
Minimum Split (s)	4.0	4.0
Total Split (s)	4.0	4.0
Total Split (%)	4%	4%
Maximum Green (s)	2.0	2.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?		
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	0	0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		43.0			43.0			43.0	42.0			
Actuated g/C Ratio		0.43			0.43			0.43	0.42			
v/c Ratio		0.98d			0.61			0.98	0.06			
Control Delay		48.1			9.7			33.0	3.2			
Queue Delay		0.0			0.5			0.0	0.0			
Total Delay		48.1			10.2			33.0	3.2			
LOS		D			B			C	A			
Approach Delay		48.1			10.2			32.4				
Approach LOS		D			B			C				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 0 (0%) Referenced to phase 1:EBWB, Start of Green												
Natural Cycle: 90												
Control Type: Pretimed												
Maximum v/c Ratio: 0.98												
Intersection Signal Delay: 30.4	Intersection LOS: C											
Intersection Capacity Utilization 85.9%	ICU Level of Service E											
Analysis Period (min) 15												
d1 Defacto Left Lane. Recode with 1 though lane as a left lane.												

Splits and Phases: 1: Main & Clinton

	ø1	ø2
4 s 146 s	4 s 146 s	

Lane Group	ø4	ø8
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

Scenario 3

PM Low Density Build-out + PAETEC

Midtown Traffic Assessment

Addressing Comment 12 - Revised Per MCDOT

Scenario 3 - PM Low Density Build-out + PAETEC

1: Main & Clinton
Addressing Comment 12 - Revised Per MCDOT

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Volume (vph)	77	575	0	0	507	79	0	1327	52	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	0	100	0	0	0	0
Storage Lanes	0	0	0	0	0	0	0	1	0	0	0	0
Taper Length (ft)	25	25	25	25	25	25	25	25	25	25	25	25
Lane Util. Factor	0.95	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor					0.94				0.67			
Ft					0.980				0.850			
Flt Protected		0.994										
Satd. Flow (prot)	0	3518	0	0	3273	0	0	3539	1583	0	0	0
Flt Permitted		0.744										
Satd. Flow (perm)	0	2633	0	0	3273	0	0	3539	1068	0	0	0
Right Turn on Red		Yes			Yes			Yes	Yes		Yes	
Satd. Flow (RTOR)					22				23			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		359			253			759			440	
Travel Time (s)		8.2			5.8			17.3			10.0	
Confl. Peds. (#/hr)		1279			609			306			390	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	86	639	0	0	563	88	0	1474	58	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	725	0	0	651	0	0	1474	58	0	0	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	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Turn Type	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases		1			1			2			2	
Permitted Phases	1	27.0			27.0			29.0			29.0	
Minimum Split (s)	46.0	46.0	0.0	0.0	46.0	0.0	0.0	46.0	46.0	0.0	0.0	0.0
Total Split (%)	46.0%	46.0%	0.0%	0.0%	46.0%	0.0%	0.0%	46.0%	46.0%	0.0%	0.0%	0.0%
Total Split (%)	46.0%	46.0%	0.0%	0.0%	46.0%	0.0%	0.0%	46.0%	46.0%	0.0%	0.0%	0.0%
Maximum Green (s)	41.0	41.0			41.0			41.0			41.0	
Yellow Time (s)	4.0	4.0			4.0			4.0			4.0	
All-Red Time (s)	1.0	1.0			1.0			1.0			1.0	
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	3.0	3.0	3.0	3.0	2.0	3.0	4.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0			9.0			7.0			7.0	
Flash Dont Walk (s)	12.0	12.0			12.0			16.0			16.0	
Pedestrian Calls (#/hr)	0	0			0			0			0	
Act Effct Green (s)	43.0	43.0			43.0			43.0			42.0	
Actuated g/C Ratio	0.43	0.43			0.43			0.43			0.42	

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Synchro 7 - Report
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Lane Group	ø4	ø8
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Ped Bike Factor		
Ft		
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	4	8
Protected Phases		
Permitted Phases		
Minimum Split (s)	4.0	4.0
Total Split (%)	4%	4%
Total Split (%)	4%	4%
Maximum Green (s)	2.0	2.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?		
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	0	0
Act Effct Green (s)		
Actuated g/C Ratio		

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Synchro 7 - Report
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.64			0.46			0.97	0.13				
Control Delay	15.9			3.7			38.5	5.0				
Queue Delay	0.5			0.6			0.0	0.0				
Total Delay	16.4			4.3			38.5	5.0				
LOS	B			A			D	A				
Approach Delay	16.4			4.3			37.2					
Approach LOS	B			A			D					
Intersection Summary												
Area Type:	Other											
Cycle Length:	100											
Actuated Cycle Length:	100											
Offset:	18 (18%) Referenced to phase 1:EBWB, Start of Green											
Natural Cycle:	65											
Control Type:	Prelimed											
Maximum v/c Ratio:	0.97											
Intersection Signal Delay:	24.7											
Intersection Capacity Utilization	82.8%											
Analysis Period (min)	15											

Splits and Phases: 1: Main & Clinton



Lane Group	ø4	ø8
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

Scenario 4

AM High Density Build-out + PAETEC

Midtown Traffic Assessment
Addressing Comment 12 - Revised Per MCDOT

Scenario 4 - AM High Density Build-out+PAETEC

1: Main & Clinton

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Volume (vph)	154	578	0	0	541	149	0	1346	27	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	0	100	0	0	0	0
Storage Lanes	0	0	0	0	0	0	0	1	0	0	0	0
Taper Length (ft)	25	25	25	25	25	25	25	25	25	25	25	25
Lane Util. Factor	0.95	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor				0.93	0.968			0.69	0.850			
Ft												
Flt Protected	0.990											
Satd. Flow (prot)	0	3119	0	0	2823	0	0	3539	1583	0	0	0
Flt Permitted	0.577											
Satd. Flow (perm)	0	1818	0	0	2823	0	0	3539	1094	0	0	0
Right Turn on Red		Yes			Yes			Yes		Yes		Yes
Satd. Flow (RTOR)					44				12			
Link Speed (mph)	30				30			30				30
Link Distance (ft)	359				253			759				440
Travel Time (s)	8.2				5.8			17.3				10.0
Confl. Peds. (#/hr)			792			344			241			200
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	20	0	0	20	0	0	0	0	0	0	0
Adj. Flow (vph)	171	642	0	0	601	166	0	1496	30	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	813	0	0	767	0	0	1496	30	0	0	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	Right	Right
Median Width(ft)	0			0			0			0		0
Link Offset(ft)	0			0			0			0		0
Crosswalk Width(ft)	16			16			16			16		16
Two way Left Turn Lane												
Headway Factor	1.00	1.05	1.00	1.00	1.05	1.00	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	Perm	Perm					Perm					
Protected Phases	1			1			2					
Permitted Phases	1						2					
Minimum Split (s)	27.0	27.0		27.0			29.0	29.0				
Total Split (s)	46.0	46.0	0.0	0.0	46.0	0.0	0.0	46.0	46.0	0.0	0.0	0.0
Total Split (%)	46.0%	46.0%	0.0%	0.0%	46.0%	0.0%	0.0%	46.0%	46.0%	0.0%	0.0%	0.0%
Maximum Green (s)	41.0	41.0		41.0			41.0	41.0				
Yellow Time (s)	4.0	4.0		4.0			4.0	4.0				
All-Red Time (s)	1.0	1.0		1.0			1.0	1.0				
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	3.0	3.0	3.0	3.0	2.0	3.0	3.0	4.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lag			Lag	Lag				
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0		9.0			7.0	7.0				
Flash Dont Walk (s)	12.0	12.0		12.0			16.0	16.0				
Pedestrian Calls (#/hr)	0	0		0			0	0				

Midtown Traffic Assessment
Addressing Comment 12 - Revised Per MCDOT

Scenario 4 - AM High Density Build-out+PAETEC

1: Main & Clinton

Lane Group	ø4	ø8
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Ped Bike Factor		
Ft		
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 (%)		
Bus Blockages (#/hr)		
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	4	8
Protected Phases		
Permitted Phases		
Minimum Split (s)	4.0	4.0
Total Split (s)	4.0	4.0
Total Split (%)	4%	4%
Maximum Green (s)	2.0	2.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?		
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	0	0

Midtown Traffic Assessment
Addressing Comment 12 - Revised Per MCDOT

Scenario 4 - AM High Density Build-out+PAETEC

1: Main & Clinton

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Act Effct Green (s)		43.0			43.0			43.0	42.0			
Actuated g/C Ratio		0.43			0.43			0.43	0.42			
v/c Ratio		1.04			0.62			0.98	0.06			
Control Delay		77.4			9.9			33.1	3.1			
Queue Delay		0.0			0.5			0.0	0.0			
Total Delay		77.4			10.4			33.1	3.1			
LOS		E			B			C	A			
Approach Delay		77.4			10.4			32.6				
Approach LOS		E			B			C				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 0 (0%) Referenced to phase 1:EBWB, Start of Green												
Natural Cycle: 100												
Control Type: Pretimed												
Maximum v/c Ratio: 1.04												
Intersection Signal Delay: 38.8	Intersection LOS: D											
Intersection Capacity Utilization 89.3%	ICU Level of Service E											
Analysis Period (min) 15												

Splits and Phases: 1: Main & Clinton

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
4.1	146 s	0.1	4.1	146 s	0.2	4.1	146 s	0.2	4.1	146 s	0.2

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Midtown Traffic Assessment
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Scenario 4 - AM High Density Build-out+PAETEC

1: Main & Clinton

Lane Group	ø4	ø8
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

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Scenario 4

PM High Density Build-out + PAETEC

Midtown Traffic Assessment
Addressing Comment 12 - Revised Per MCDOT

Scenario 4 - PM High Density Build-out+PAETEC

1: Main & Clinton

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔	↔↔
Volume (vph)	77	598	0	0	574	79	0	1363	52	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	0	100	0	0	0	0
Storage Lanes	0	0	0	0	0	0	0	1	0	0	0	0
Taper Length (ft)	25	25	25	25	25	25	25	25	25	25	25	25
Lane Util. Factor	0.95	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor				0.95	0.95			0.67				
Ft				0.982				0.850				
Flt Protected		0.994										
Satd. Flow (prot)	0	3518	0	0	3300	0	0	3539	1583	0	0	0
Flt Permitted		0.718										
Satd. Flow (perm)	0	2541	0	0	3300	0	0	3539	1068	0	0	0
Right Turn on Red		Yes			Yes			Yes		Yes		Yes
Satd. Flow (RTOR)					19				23			
Link Speed (mph)		30			30			30		30		
Link Distance (ft)		359			253			759		440		
Travel Time (s)		8.2			5.8			17.3		10.0		
Confl. Peds. (#/hr)		1279			609			306		390		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	86	664	0	0	638	88	0	1514	58	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	750	0	0	726	0	0	1514	58	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Right	Left	Left	Left	Right	Left	Left	Right
Median Width (ft)		0		0	0		0	0		0		
Link Offset (ft)		0		0	0		0	0		0		
Crosswalk Width (ft)		16		16	16		16		16		16	
Two way Left Turn Lane												
Headway 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
Turning Speed (mph)	15	9	15	9	15	9	15	9	15	9	15	9
Turn Type	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm	Perm
Protected Phases		1		1		1		2		2		
Permitted Phases	1	27.0		27.0		27.0		29.0		29.0		
Minimum Split (s)	46.0	46.0	0.0	0.0	46.0	0.0	0.0	46.0	0.0	46.0	0.0	0.0
Total Split (%)	46.0%	46.0%	0.0%	0.0%	46.0%	0.0%	0.0%	46.0%	0.0%	46.0%	0.0%	0.0%
Total Split (%)	46.0%	46.0%	0.0%	0.0%	46.0%	0.0%	0.0%	46.0%	0.0%	46.0%	0.0%	0.0%
Maximum Green (s)	41.0	41.0		41.0		41.0		41.0		41.0		
Yellow Time (s)	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		
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.0	3.0	3.0	3.0	3.0	2.0	3.0	4.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?												
Walk Time (s)	9.0	9.0		9.0		9.0		7.0		7.0		
Flash Dont Walk (s)	12.0	12.0		12.0		12.0		16.0		16.0		
Pedestrian Calls (#/hr)	0	0		0		0		0		0		
Act Effct Green (s)	43.0	43.0		43.0		43.0		43.0		42.0		
Actuated g/C Ratio	0.43	0.43		0.43		0.43		0.43		0.42		

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Midtown Traffic Assessment
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Scenario 4 - PM High Density Build-out+PAETEC

1: Main & Clinton

Lane Group	ø4	ø8
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Lane Util. Factor		
Ped Bike Factor		
Ft		
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	4	8
Protected Phases		
Permitted Phases		
Minimum Split (s)	4.0	4.0
Total Split (%)	4%	4%
Total Split (%)	4%	4%
Maximum Green (s)	2.0	2.0
Yellow Time (s)	2.0	2.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?		
Walk Time (s)	0.0	0.0
Flash Dont Walk (s)	0.0	0.0
Pedestrian Calls (#/hr)	0	0
Act Effct Green (s)		
Actuated g/C Ratio		

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Synchro 7 - Report
Page 2

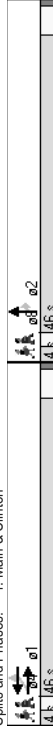
Midtown Traffic Assessment
Addressing Comment 12 - Revised Per MCDOT

Scenario 4 - PM High Density Build-out+PAETEC

1: Main & Clinton

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio		0.69			0.51			0.99	0.13			
Control Delay		17.1			5.0			44.3	5.0			
Queue Delay		0.6			0.6			0.0	0.0			
Total Delay		17.7			5.6			44.3	5.0			
LOS		B			A			D	A			
Approach Delay		17.7			5.6			42.9				
Approach LOS		B			A			D				
Intersection Summary												
Area Type:	Other											
Cycle Length:	100											
Actuated Cycle Length:	100											
Offset:	18 (18%) Referenced to phase 1:EBWB, Start of Green											
Natural Cycle:	75											
Control Type:	Prelimed											
Maximum v/c Ratio:	0.99											
Intersection Signal Delay:	27.8											
Intersection Capacity Utilization	86.1%											
ICU Level of Service	E											
Analysis Period (min)	15											

Splits and Phases: 1: Main & Clinton



2/3/2009

Synchro 7 - Report
Page 3

Midtown Traffic Assessment
Addressing Comment 12 - Revised Per MCDOT

Scenario 4 - PM High Density Build-out+PAETEC

1: Main & Clinton

Lane Group	ø4	ø8
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

2/3/2009

Synchro 7 - Report
Page 4

AM Existing Synchro

									
Lane Group	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	SWR2
Lane Configurations									
Volume (vph)	285	328	129	65	450	20	635	242	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	3394	0	1611
Flt Permitted	0.950			0.950					
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	3394	0	1611
Right Turn on Red								Yes	Yes
Satd. Flow (RTOR)							61		460
Link Speed (mph)		30			30		30		
Link Distance (ft)		657			237		855		
Travel Time (s)		14.9			5.4		19.4		
Peak Hour Factor	0.90	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)									
Lane Group Flow (vph)	317	328	143	72	500	22	975	0	11
Turn Type	Split		Perm	custom		Perm			Free
Protected Phases	3	3		2	1 2		1		
Permitted Phases			3	2		1 2	1		Free
Detector Phase	3	3	3	2	1 2	1 2	1		
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0			7.0		
Minimum Split (s)	18.0	18.0	18.0	15.0			27.0		
Total Split (s)	32.0	32.0	32.0	30.0	68.0	68.0	38.0	0.0	0.0
Total Split (%)	32.0%	32.0%	32.0%	30.0%	68.0%	68.0%	38.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0			4.0		
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0		
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag				Lag			Lead		
Lead-Lag Optimize?									
Recall Mode	None	None	None	None			C-Max		
Act Effct Green (s)	25.0	25.0	25.0	25.7	69.0	69.0	40.3		100.0
Actuated g/C Ratio	0.25	0.25	0.25	0.26	0.69	0.69	0.40		1.00
v/c Ratio	0.72	0.71	0.36	0.16	0.39	0.02	0.69		0.01
Control Delay	44.0	42.9	33.0	12.6	6.0	2.4	27.6		0.0
Queue Delay	0.0	0.0	0.0	0.0	0.7	0.0	0.0		0.0
Total Delay	44.0	42.9	33.0	12.6	6.7	2.4	27.6		0.0
LOS	D	D	C	B	A	A	C		A
Approach Delay		41.6			7.2		27.6		
Approach LOS		D			A		C		
Queue Length 50th (ft)	210	217	94	16	39	0	263		0
Queue Length 95th (ft)	299	306	154	m32	91	m3	355		0
Internal Link Dist (ft)		577			157		775		
Turn Bay Length (ft)									
Base Capacity (vph)	513	540	459	478	1310	1113	1404		1611
Starvation Cap Reductn	0	0	0	0	479	0	0		0
Spillback Cap Reductn	0	0	0	0	0	0	0		0
Storage Cap Reductn	0	0	0	0	0	0	0		0
Reduced v/c Ratio	0.62	0.61	0.31	0.15	0.60	0.02	0.69		0.01

Comment 1
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Synchro 7 - Report
Page 1

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 27 (27%), Referenced to phase 1:NBSB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 27.0

Intersection LOS: C

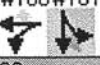
Intersection Capacity Utilization 57.6%

ICU Level of Service B

Analysis Period (min) 15

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

Splits and Phases: 100: IL WB & Central

#100#101  ø1	#100#101  ø2	#100#101  ø3
38 s	30 s	32 s

									
Lane Group	EBL	EBT	EBR	EBR2	SBL2	SBL	SBT	NWR	NWR2
Lane Configurations									
Volume (vph)	530	179	10	452	50	10	506	136	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250			0		0	
Storage Lanes	1		1			0		1	
Taper Length (ft)	25		25			25		25	
Satd. Flow (prot)	1610	3105	1441	0	0	0	5060	1611	0
Flt Permitted	0.950	0.972					0.899		
Satd. Flow (perm)	1610	3105	1441	0	0	0	4572	1611	0
Right Turn on Red				Yes					Yes
Satd. Flow (RTOR)			369					4	
Link Speed (mph)		30					30		
Link Distance (ft)		1691					237		
Travel Time (s)		38.4					5.4		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.90
Shared Lane Traffic (%)	50%		90%						
Lane Group Flow (vph)	294	504	503	0	0	0	629	153	0
Turn Type	Split		Perm		pm+pt	Perm		custom	
Protected Phases	2	2			3		1 3	1	
Permitted Phases			2		1 3	1 3		1	
Detector Phase	2	2	2		3	1 3	1 3	1	
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0		6.0			7.0	
Minimum Split (s)	15.0	15.0	15.0		18.0			27.0	
Total Split (s)	30.0	30.0	30.0	0.0	32.0	70.0	70.0	38.0	0.0
Total Split (%)	30.0%	30.0%	30.0%	0.0%	32.0%	70.0%	70.0%	38.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0		4.0			4.0	
All-Red Time (s)	1.0	1.0	1.0		1.0			1.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag	Lag					Lead	
Lead-Lag Optimize?									
Recall Mode	None	None	None		None			C-Max	
Act Effct Green (s)	25.7	25.7	25.7				68.3	40.3	
Actuated g/C Ratio	0.26	0.26	0.26				0.68	0.40	
v/c Ratio	0.71	0.63	0.78				0.20	0.24	
Control Delay	38.9	32.0	14.4				1.8	22.3	
Queue Delay	0.0	0.0	0.0				0.3	0.0	
Total Delay	38.9	32.0	14.4				2.1	22.3	
LOS	D	C	B				A	C	
Approach Delay		26.7					2.1		
Approach LOS		C					A		
Queue Length 50th (ft)	160	137	28				7	65	
Queue Length 95th (ft)	260	192	132				20	118	
Internal Link Dist (ft)		1611					157		
Turn Bay Length (ft)	250		250						
Base Capacity (vph)	435	838	658				3116	651	
Starvation Cap Reductn	0	0	0				1735	0	
Spillback Cap Reductn	0	0	0				0	0	

Comment 1
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Synchro 7 - Report
Page 3

Lanes, Volumes, Timings
101: IL EB & St Paul

AM Existing
1/29/2009



Lane Group	EBL	EBT	EBR	EBR2	SBL2	SBL	SBT	NWR	NWR2
Storage Cap Reductn	0	0	0				0	0	
Reduced v/c Ratio	0.68	0.60	0.76				0.46	0.24	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 27 (27%), Referenced to phase 1:NBSB, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 19.0

Intersection LOS: B

Intersection Capacity Utilization 46.0%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 101: IL EB & St Paul

#100#101 ø1 38 s	#100#101 ø2 30 s	#100#101 ø3 32 s
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Lanes, Volumes, Timings
102: Main & St Paul

AM Existing
1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↑		↑↑					↑	↑↑	↑
Volume (vph)	0	392	50	3	518	0	0	0	0	0	1122	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	1589	1468	0	3151	0	0	0	0	1863	4936	0
Flt Permitted					0.953							
Satd. Flow (perm)	0	1589	1338	0	3002	0	0	0	0	1863	4936	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			22								13	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		693			335			717			429	
Travel Time (s)		15.8			7.6			16.3			9.8	
Confl. Peds. (#/hr)			65			298			33			191
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	20	0	0	20	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	436	56	0	579	0	0	0	0	0	1349	0
Turn Type		Perm		Perm						Perm		
Protected Phases		1			1						2	
Permitted Phases			1	1						2		
Minimum Split (s)		31.0	31.0	31.0	31.0					29.0	29.0	
Total Split (s)	0.0	40.0	40.0	40.0	40.0	0.0	0.0	0.0	0.0	60.0	60.0	0.0
Total Split (%)	0.0%	40.0%	40.0%	40.0%	40.0%	0.0%	0.0%	0.0%	0.0%	60.0%	60.0%	0.0%
Yellow Time (s)		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	
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	3.0
Lead/Lag		Lead	Lead	Lead	Lead					Lag	Lag	
Lead-Lag Optimize?												
Act Effct Green (s)		37.0	37.0		37.0						57.0	
Actuated g/C Ratio		0.37	0.37		0.37						0.57	
v/c Ratio		0.74	0.11		0.52						0.48	
Control Delay		50.7	27.0		5.0						6.5	
Queue Delay		0.0	0.0		0.5						0.1	
Total Delay		50.7	27.0		5.5						6.6	
LOS		D	C		A						A	
Approach Delay		48.0			5.5						6.6	
Approach LOS		D			A						A	
Queue Length 50th (ft)		292	21		21						70	
Queue Length 95th (ft)		344	58		28						87	
Internal Link Dist (ft)		613			255			637			349	
Turn Bay Length (ft)												
Base Capacity (vph)		588	509		1111						2819	
Starvation Cap Reductn		0	0		196						418	
Spillback Cap Reductn		0	0		0						0	
Storage Cap Reductn		0	0		0						0	

Comment 1
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Synchro 7 - Report
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Lanes, Volumes, Timings
102: Main & St Paul

AM Existing
1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio		0.74	0.11		0.63						0.56	

Intersection Summary	
Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	18 (18%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle:	60
Control Type:	Pretimed
Maximum v/c Ratio:	0.74
Intersection Signal Delay:	14.8
Intersection Capacity Utilization	76.0%
Analysis Period (min)	15
	Intersection LOS: B
	ICU Level of Service D

Splits and Phases: 102: Main & St Paul

					
ø1			ø2		
40 s			60 s		

Lanes, Volumes, Timings
103: Broad & South

AM Existing
1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	221	138	151	538	0	0	0	0	51	703	86
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	1863	1583	1610	3387	0	0	0	0	1770	6270	0
Flt Permitted				0.443	0.948					0.950		
Satd. Flow (perm)	0	1863	1407	751	3214	0	0	0	0	1770	6270	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)											39	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1067			365			393			717	
Travel Time (s)		24.3			8.3			8.9			16.3	
Confl. Peds. (#/hr)			61			35			96			27
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	0	246	153	151	615	0	0	0	0	57	877	0
Turn Type			Perm	custom						Prot		
Protected Phases		3		4	3 4 7					2	2 6	
Permitted Phases			3	3 4								
Minimum Split (s)		23.0	23.0	12.0						26.0		
Total Split (s)	0.0	33.0	33.0	16.0	86.0	0.0	0.0	0.0	0.0	43.0	90.0	0.0
Total Split (%)	0.0%	33.0%	33.0%	16.0%	86.0%	0.0%	0.0%	0.0%	0.0%	43.0%	90.0%	0.0%
Yellow Time (s)		4.0	4.0	4.0						4.0		
All-Red Time (s)		1.0	1.0	1.0						1.5		
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0	-2.5	-2.5	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag		Lag	Lag							Lag		
Lead-Lag Optimize?												
Act Effct Green (s)		30.0	30.0	43.0	47.0					40.0	44.0	
Actuated g/C Ratio		0.30	0.30	0.43	0.47					0.40	0.44	
v/c Ratio		0.44	0.36	0.35	0.40					0.08	0.32	
Control Delay		32.9	32.3	21.0	16.1					8.9	7.2	
Queue Delay		0.0	0.0	0.0	0.1					0.0	0.0	
Total Delay		32.9	32.3	21.0	16.2					8.9	7.2	
LOS		C	C	C	B					A	A	
Approach Delay		32.7			17.2						7.3	
Approach LOS		C			B						A	
Queue Length 50th (ft)		127	77	67	137					6	24	
Queue Length 95th (ft)		198	134	118	187					17	29	
Internal Link Dist (ft)		987			285			313			637	
Turn Bay Length (ft)										100		
Base Capacity (vph)		559	422	435	1533					708	2781	
Starvation Cap Reductn		0	0	0	152					0	0	
Spillback Cap Reductn		0	0	0	0					0	0	
Storage Cap Reductn		0	0	0	0					0	0	
Reduced v/c Ratio		0.44	0.36	0.35	0.45					0.08	0.32	

Comment 1
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Synchro 7 - Report
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Lanes, Volumes, Timings
103: Broad & South

AM Existing
1/29/2009

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 74 (74%), Referenced to phase 2:SBTL and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Pretimed

Maximum v/c Ratio: 0.44

Intersection Signal Delay: 15.7

Intersection LOS: B

Intersection Capacity Utilization 56.7%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 103: Broad & South

  ø2 4 s 43 s	  ø3 4 s 33 s	 ø4 16 s
 ø6 47 s	 ø7 37 s	

Lane Group	ø1	ø5	ø6	ø7
Lane Configurations				
Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
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				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	5	6	7
Permitted Phases				
Minimum Split (s)	4.0	4.0	30.0	27.0
Total Split (s)	4.0	4.0	47.0	37.0
Total Split (%)	4%	4%	47%	37%
Yellow Time (s)	3.0	3.0	4.0	4.0
All-Red Time (s)	0.0	0.0	1.5	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead		
Lead-Lag Optimize?				
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
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				

Comment 1
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Synchro 7 - Report
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Intersection Summary

Lanes, Volumes, Timings
104: Court & South

AM Existing
1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	211	175	6	260	0	0	0	0	82	818	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		0	0		0	100		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	1744	1504	1770	1863	0	0	0	0	1770	6328	0
Flt Permitted				0.531						0.950		
Satd. Flow (perm)	0	1744	1432	989	1863	0	0	0	0	1770	6328	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6	56								18	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1036			463			451			393	
Travel Time (s)		23.5			10.5			10.3			8.9	
Confl. Peds. (#/hr)			27			43			23			20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)			10%									
Lane Group Flow (vph)	0	253	175	7	289	0	0	0	0	91	973	0
Turn Type			Perm	Perm						Split		
Protected Phases		3			3					1	1	
Permitted Phases			3	3								
Minimum Split (s)		29.0	29.0	29.0	29.0					30.0	30.0	
Total Split (s)	0.0	54.0	54.0	54.0	54.0	0.0	0.0	0.0	0.0	46.0	46.0	0.0
Total Split (%)	0.0%	54.0%	54.0%	54.0%	54.0%	0.0%	0.0%	0.0%	0.0%	46.0%	46.0%	0.0%
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)	-1.0	-3.0	-3.0	-3.0	-3.0	-1.0	-1.0	-1.0	-1.0	-3.0	-3.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		51.0	51.0	51.0	51.0					43.0	43.0	
Actuated g/C Ratio		0.51	0.51	0.51	0.51					0.43	0.43	
v/c Ratio		0.28	0.23	0.01	0.30					0.12	0.36	
Control Delay		11.0	6.7	7.2	8.9					12.6	13.4	
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	
Total Delay		11.0	6.7	7.2	8.9					12.6	13.4	
LOS		B	A	A	A					B	B	
Approach Delay		9.2			8.8						13.3	
Approach LOS		A			A						B	
Queue Length 50th (ft)		76	34	1	67					20	60	
Queue Length 95th (ft)		134	75	5	122					38	73	
Internal Link Dist (ft)		956			383			371			313	
Turn Bay Length (ft)			125							100		
Base Capacity (vph)		892	758	504	950					761	2731	
Starvation Cap Reductn		0	0	0	0					0	0	
Spillback Cap Reductn		0	0	0	0					0	0	
Storage Cap Reductn		0	0	0	0					0	0	
Reduced v/c Ratio		0.28	0.23	0.01	0.30					0.12	0.36	

Comment 1
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Synchro 7 - Report
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Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 78 (78%), Referenced to phase 1:SBTL, Start of Green

Natural Cycle: 60

Control Type: Pretimed

Maximum v/c Ratio: 0.36

Intersection Signal Delay: 11.6

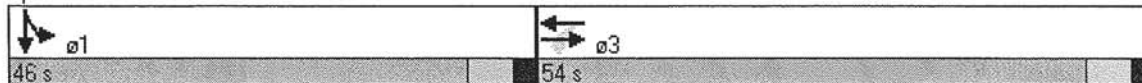
Intersection LOS: B

Intersection Capacity Utilization 52.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 104: Court & South



Lanes, Volumes, Timings
105: Woodbury & Clinton

AM Existing
1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	113	0	0	172	160	372	2643	217	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	3511	0	0	3284	0	0	6249	0	0	0	0
Flt Permitted		0.872						0.994				
Satd. Flow (perm)	0	3086	0	0	3284	0	0	6249	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2			34				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		228			525			662			432	
Travel Time (s)		5.2			11.9			15.0			9.8	
Confl. Peds. (#/hr)			13						103			11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	149	0	0	369	0	0	3591	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		2			2		1	1				
Permitted Phases	2											
Minimum Split (s)	29.0	29.0			29.0		31.0	31.0				
Total Split (s)	29.0	29.0	0.0	0.0	29.0	0.0	71.0	71.0	0.0	0.0	0.0	0.0
Total Split (%)	29.0%	29.0%	0.0%	0.0%	29.0%	0.0%	71.0%	71.0%	0.0%	0.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-1.0	-2.0	-1.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag			Lag		Lead	Lead				
Lead-Lag Optimize?												
Act Effct Green (s)		26.0			26.0			68.0				
Actuated g/C Ratio		0.26			0.26			0.68				
v/c Ratio		0.19			0.43			0.84				
Control Delay		42.9			30.0			15.8				
Queue Delay		0.0			0.0			0.0				
Total Delay		42.9			30.0			15.8				
LOS		D			C			B				
Approach Delay		42.9			30.0			15.8				
Approach LOS		D			C			B				
Queue Length 50th (ft)		45			114			489				
Queue Length 95th (ft)		71			163			541				
Internal Link Dist (ft)		148			445			582			352	
Turn Bay Length (ft)												
Base Capacity (vph)		802			855			4260				
Starvation Cap Reductn		0			0			0				
Spillback Cap Reductn		0			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		0.19			0.43			0.84				

Intersection Summary

Area Type: Other
Cycle Length: 100

Comment 1
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Synchro 7 - Report
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Lanes, Volumes, Timings
105: Woodbury & Clinton

AM Existing
1/29/2009

Actuated Cycle Length: 100

Offset: 95 (95%), Referenced to phase 1:NBTL, Start of Green

Natural Cycle: 75

Control Type: Pretimed

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 18.1

Intersection LOS: B

Intersection Capacity Utilization 75.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 105: Woodbury & Clinton

 Ø1	 Ø2
71 s	29 s

PM Existing Synchro

									
Lane Group	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	SWR2
Lane Configurations									
Volume (vph)	221	593	233	233	497	56	226	393	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	3203	0	1611
Flt Permitted	0.950			0.950					
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	3203	0	1611
Right Turn on Red								Yes	Yes
Satd. Flow (RTOR)							188		367
Link Speed (mph)		30			30		30		
Link Distance (ft)		657			237		855		
Travel Time (s)		14.9			5.4		19.4		
Peak Hour Factor	0.90	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)									
Lane Group Flow (vph)	246	593	259	259	552	62	688	0	11
Turn Type	Split		Perm	custom		Perm			Free
Protected Phases	3	3		2	1 2		1		
Permitted Phases			3	2		1 2	1		Free
Detector Phase	3	3	3	2	1 2	1 2	1		
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0			7.0		
Minimum Split (s)	18.0	18.0	18.0	15.0			27.0		
Total Split (s)	41.0	41.0	41.0	27.0	59.0	59.0	32.0	0.0	0.0
Total Split (%)	41.0%	41.0%	41.0%	27.0%	59.0%	59.0%	32.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0			4.0		
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0		
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag				Lag			Lead		
Lead-Lag Optimize?									
Recall Mode	None	None	None	None			C-Max		
Act Effct Green (s)	36.2	36.2	36.2	22.2	57.8	57.8	32.6		100.0
Actuated g/C Ratio	0.36	0.36	0.36	0.22	0.58	0.58	0.33		1.00
v/c Ratio	0.38	0.88	0.45	0.66	0.51	0.07	0.59		0.01
Control Delay	25.3	46.5	27.2	21.3	4.3	2.3	23.3		0.0
Queue Delay	0.0	0.0	0.0	6.7	0.8	0.0	0.0		0.0
Total Delay	25.3	46.5	27.2	28.0	5.1	2.3	23.3		0.0
LOS	C	D	C	C	A	A	C		A
Approach Delay		37.2			11.7		23.3		
Approach LOS		D			B		C		
Queue Length 50th (ft)	151	390	161	118	21	2	146		0
Queue Length 95th (ft)	229	#542	241	m158	m28	m4	209		0
Internal Link Dist (ft)		577			157		775		
Turn Bay Length (ft)									
Base Capacity (vph)	673	708	602	425	1110	943	1170		1611
Starvation Cap Reductn	0	0	0	119	283	0	0		0
Spillback Cap Reductn	0	0	0	0	0	0	0		0
Storage Cap Reductn	0	0	0	0	0	0	0		0
Reduced v/c Ratio	0.37	0.84	0.43	0.85	0.67	0.07	0.59		0.01

Comment 1
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Synchro 7 - Report
Page 1

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	31 (31%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle:	70
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.88
Intersection Signal Delay:	25.1
Intersection LOS:	C
Intersection Capacity Utilization	73.0%
ICU Level of Service	D
Analysis Period (min)	15
#	95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: IL WB & Central

#100#101 ↑↓ ø1	#100#101 ↔ ø2	#100#101 ↔ ø3
32 s	27 s	41 s



Lane Group	EBL	EBT	EBR	SBL2	SBL	SBT	NWR	NWR2
Lane Configurations								
Volume (vph)	419	113	10	52	10	506	426	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250		0		0	
Storage Lanes	1		1		0		1	
Taper Length (ft)	25		25		25		25	
Satd. Flow (prot)	1610	3105	1441	0	0	5060	1611	0
Flt Permitted	0.950	0.969				0.861		
Satd. Flow (perm)	1610	3105	1441	0	0	4378	1611	0
Right Turn on Red								Yes
Satd. Flow (RTOR)								
Link Speed (mph)		30				30		
Link Distance (ft)		1691				237		
Travel Time (s)		38.4				5.4		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.90
Shared Lane Traffic (%)	50%		10%					
Lane Group Flow (vph)	233	360	10	0	0	631	452	0
Turn Type	Split		Perm	pm+pt	Perm		custom	
Protected Phases	2	2		3		1 3	1	
Permitted Phases			2	1 3	1 3		1	
Detector Phase	2	2	2	3	1 3	1 3	1	
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0			7.0	
Minimum Split (s)	15.0	15.0	15.0	18.0			27.0	
Total Split (s)	27.0	27.0	27.0	41.0	73.0	73.0	32.0	0.0
Total Split (%)	27.0%	27.0%	27.0%	41.0%	73.0%	73.0%	32.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0			4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag	Lag				Lead	
Lead-Lag Optimize?								
Recall Mode	None	None	None	None			C-Max	
Act Effct Green (s)	22.2	22.2	22.2			71.8	32.6	
Actuated g/C Ratio	0.22	0.22	0.22			0.72	0.33	
v/c Ratio	0.65	0.52	0.03			0.20	0.86	
Control Delay	47.7	40.8	35.2			2.1	51.5	
Queue Delay	0.3	0.1	0.0			0.4	0.7	
Total Delay	48.1	40.9	35.2			2.4	52.2	
LOS	D	D	D			A	D	
Approach Delay		43.5				2.4		
Approach LOS		D				A		
Queue Length 50th (ft)	139	111	5			13	284	
Queue Length 95th (ft)	236	169	m13			13	#483	
Internal Link Dist (ft)		1611				157		
Turn Bay Length (ft)	250		250					
Base Capacity (vph)	386	745	346			3126	524	
Starvation Cap Reductn	0	0	0			1832	0	
Spillback Cap Reductn	15	28	0			0	8	

Comment 1
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Synchro 7 - Report
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Lanes, Volumes, Timings
101: IL EB & St Paul

PM Existing
1/29/2009



Lane Group	EBL	EBT	EBR	SBL2	SBL	SBT	NWR	NWR2
Storage Cap Reductn	0	0	0			0	0	
Reduced v/c Ratio	0.63	0.50	0.03			0.49	0.88	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 31 (31%), Referenced to phase 1:NBSB, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 30.5

Intersection LOS: C

Intersection Capacity Utilization 59.3%

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.

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

Splits and Phases: 101: IL EB & St Paul

#100#101 ↑↑ ↓↑ ø1 32 s	#100#101 ↑↑ ↑↑ ø2 27 s	#100#101 ↑↑ ↓↑ ø3 41 s
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Lanes, Volumes, Timings
102: Main & St Paul

PM Existing
1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↑		↑↑					↑	↑↑↑	
Volume (vph)	0	469	81	0	551	0	0	0	0	81	1235	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	1863	1583	0	3539	0	0	0	0	1770	4847	0
Flt Permitted										0.950		
Satd. Flow (perm)	0	1863	1283	0	3539	0	0	0	0	1770	4847	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			8								17	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		693			335			717			429	
Travel Time (s)		15.8			7.6			16.3			9.8	
Confl. Peds. (#/hr)			151			392			46			145
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	521	90	0	612	0	0	0	0	90	1594	0
Turn Type		Perm								Perm		
Protected Phases		1			1						2	
Permitted Phases			1								2	
Minimum Split (s)		31.0	31.0		31.0					29.0	29.0	
Total Split (s)	0.0	50.0	50.0	0.0	50.0	0.0	0.0	0.0	0.0	50.0	50.0	0.0
Total Split (%)	0.0%	50.0%	50.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%
Yellow Time (s)		4.0	4.0		4.0					4.0	4.0	
All-Red Time (s)		1.0	1.0		1.0					1.0	1.0	
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-1.0	-2.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	3.0
Lead/Lag		Lead	Lead		Lead					Lag	Lag	
Lead-Lag Optimize?												
Act Effct Green (s)		47.0	47.0		47.0					46.0	47.0	
Actuated g/C Ratio		0.47	0.47		0.47					0.46	0.47	
v/c Ratio		0.59	0.15		0.37					0.11	0.70	
Control Delay		30.5	18.9		9.5					8.8	16.2	
Queue Delay		0.0	0.0		0.4					0.0	0.3	
Total Delay		30.5	18.9		9.8					8.8	16.5	
LOS		C	B		A					A	B	
Approach Delay		28.8			9.8						16.1	
Approach LOS		C			A						B	
Queue Length 50th (ft)		321	46		57					20	312	
Queue Length 95th (ft)		402	84		74					m32	m278	
Internal Link Dist (ft)		613			255			637			349	
Turn Bay Length (ft)										100		
Base Capacity (vph)		876	607		1663					814	2287	
Starvation Cap Reductn		0	0		536					0	191	
Spillback Cap Reductn		0	0		0					0	0	
Storage Cap Reductn		0	0		0					0	0	
Reduced v/c Ratio		0.59	0.15		0.54					0.11	0.76	

Comment 1
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Synchro 7 - Report
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Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 20 (20%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 60

Control Type: Pretimed

Maximum v/c Ratio: 0.70

Intersection Signal Delay: 17.4

Intersection LOS: B

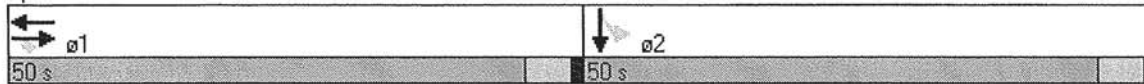
Intersection Capacity Utilization 60.6%

ICU Level of Service B

Analysis Period (min) 15

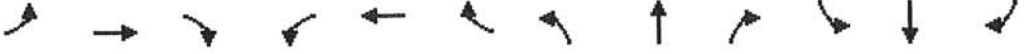
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 102: Main & St Paul



Lanes, Volumes, Timings
103: Broad & South

PM Existing
1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↑	↑	↑↑					↑	↑↑↑	
Volume (vph)	0	143	315	393	599	0	0	0	0	95	1204	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	1863	1583	1610	3366	0	0	0	0	1770	6339	0
Flt Permitted				0.557	0.849					0.950		
Satd. Flow (perm)	0	1863	1259	944	2878	0	0	0	0	1770	6339	0
Right Turn on Red			No			Yes				Yes		Yes
Satd. Flow (RTOR)											10	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1067			365			393			717	
Travel Time (s)		24.3			8.3			8.9			16.3	
Confl. Peds. (#/hr)			118			39			118			48
Peak Hour Factor	0.90	0.90	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)				23%								
Lane Group Flow (vph)	0	159	315	336	767	0	0	0	0	106	1401	0
Turn Type			Perm	custom						Prot		
Protected Phases		3		4	3 4 7					2	2 6	
Permitted Phases			3	3 4								
Minimum Split (s)		23.0	23.0	12.0						26.0		
Total Split (s)	0.0	30.0	30.0	28.0	92.0	0.0	0.0	0.0	0.0	34.0	72.0	0.0
Total Split (%)	0.0%	30.0%	30.0%	28.0%	92.0%	0.0%	0.0%	0.0%	0.0%	34.0%	72.0%	0.0%
Yellow Time (s)		4.0	4.0	4.0						4.0		
All-Red Time (s)		1.0	1.0	1.0						1.5		
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0	-2.5	-2.5	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag		Lag	Lag							Lag		
Lead-Lag Optimize?												
Act Effct Green (s)		27.0	27.0	52.0	56.0					31.0	35.0	
Actuated g/C Ratio		0.27	0.27	0.52	0.56					0.31	0.35	
v/c Ratio		0.32	0.93	0.51	0.44					0.19	0.63	
Control Delay		36.9	75.1	27.2	18.1					8.4	9.6	
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	
Total Delay		36.9	75.1	27.2	18.2					8.4	9.6	
LOS		D	E	C	B					A	A	
Approach Delay		62.3			20.9						9.5	
Approach LOS		E			C						A	
Queue Length 50th (ft)		89	211	182	202					25	122	
Queue Length 95th (ft)		143	#374	272	266					m34	120	
Internal Link Dist (ft)		987			285			313			637	
Turn Bay Length (ft)										100		
Base Capacity (vph)		503	340	657	1734					549	2225	
Starvation Cap Reductn		0	0	6	83					0	0	
Spillback Cap Reductn		0	0	0	0					0	0	
Storage Cap Reductn		0	0	0	0					0	0	
Reduced v/c Ratio		0.32	0.93	0.52	0.46					0.19	0.63	

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Synchro 7 - Report
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Lanes, Volumes, Timings

103: Broad & South

PM Existing
1/29/2009

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	99 (99%), Referenced to phase 2:SBTL and 6:SBT, Start of Green
Natural Cycle:	70
Control Type:	Pretimed
Maximum v/c Ratio:	0.93
Intersection Signal Delay:	21.7
Intersection Capacity Utilization	73.2%
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: 103: Broad & South

  ø2	  ø3	 ø4
4 s 34 s	4 s 30 s	28 s
 ø6	 ø7	
38 s	34 s	

Lane Group	ø1	ø5	ø6	ø7
Lane Configurations				
Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
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				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	5	6	7
Permitted Phases				
Minimum Split (s)	4.0	4.0	30.0	27.0
Total Split (s)	4.0	4.0	38.0	34.0
Total Split (%)	4%	4%	38%	34%
Yellow Time (s)	3.0	3.0	4.0	4.0
All-Red Time (s)	0.0	0.0	1.5	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead		
Lead-Lag Optimize?				
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
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				

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Synchro 7 - Report
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Intersection Summary

Lanes, Volumes, Timings
104: Court & South

PM Existing
1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	161	407	168	235	0	0	0	0	101	1717	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		0	0		0	100		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	1585	1504	1770	1863	0	0	0	0	1770	5596	0
Flt Permitted				0.212						0.950		
Satd. Flow (perm)	0	1585	1376	395	1863	0	0	0	0	1770	5596	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		40	58								14	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1036			463			451			393	
Travel Time (s)		23.5			10.5			10.3			8.9	
Confl. Peds. (#/hr)			55			59			38			49
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)			33%									
Lane Group Flow (vph)	0	328	303	187	261	0	0	0	0	112	2012	0
Turn Type			Perm	pm+pt						Split		
Protected Phases		3		2	2 3					1	1	
Permitted Phases			3	2 3								
Minimum Split (s)		28.0	28.0	15.0						30.0	30.0	
Total Split (s)	0.0	28.0	28.0	16.0	44.0	0.0	0.0	0.0	0.0	56.0	56.0	0.0
Total Split (%)	0.0%	28.0%	28.0%	16.0%	44.0%	0.0%	0.0%	0.0%	0.0%	56.0%	56.0%	0.0%
Yellow Time (s)		4.0	4.0	4.0						4.0	4.0	
All-Red Time (s)		2.0	2.0	1.0						2.0	2.0	
Lost Time Adjust (s)	-1.0	-3.0	-3.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0	-3.0	-3.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag				Lag						Lead	Lead	
Lead-Lag Optimize?												
Act Effct Green (s)		25.0	25.0	38.0	41.0					53.0	53.0	
Actuated g/C Ratio		0.25	0.25	0.38	0.41					0.53	0.53	
v/c Ratio		0.77	0.78	0.57	0.34					0.12	0.68	
Control Delay		38.5	38.1	24.8	19.5					9.7	13.2	
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.1	
Total Delay		38.5	38.1	24.8	19.5					9.7	13.3	
LOS		D	D	C	B					A	B	
Approach Delay		38.3			21.7						13.1	
Approach LOS		D			C						B	
Queue Length 50th (ft)		177	152	72	103					26	204	
Queue Length 95th (ft)		#318	#296	118	161					m49	m254	
Internal Link Dist (ft)		956			383			371			313	
Turn Bay Length (ft)			125							100		
Base Capacity (vph)		426	388	329	764					938	2972	
Starvation Cap Reductn		0	0	0	0					0	166	
Spillback Cap Reductn		0	0	0	0					0	0	
Storage Cap Reductn		0	0	0	0					0	0	
Reduced v/c Ratio		0.77	0.78	0.57	0.34					0.12	0.72	

Comment 1
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Synchro 7 - Report
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Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 70 (70%), Referenced to phase 1:SBTL, Start of Green

Natural Cycle: 75

Control Type: Pretimed

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 19.3

Intersection LOS: B

Intersection Capacity Utilization 67.0%

ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 104: Court & South

 ø1	 ø2	 ø3
56 s	16 s	28 s

AM Baseline Synchro

									
Lane Group	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	SWR2
Lane Configurations									
Volume (vph)	314	344	135	69	481	21	662	254	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	3391	0	1611
Flt Permitted	0.950			0.950					
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	3391	0	1611
Right Turn on Red								Yes	Yes
Satd. Flow (RTOR)							62		441
Link Speed (mph)		30			30		30		
Link Distance (ft)		657			237		855		
Travel Time (s)		14.9			5.4		19.4		
Peak Hour Factor	0.90	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)									
Lane Group Flow (vph)	349	344	150	77	534	23	1018	0	12
Turn Type	Split		Perm	custom		Perm			Free
Protected Phases	3	3		2	1 2		1		
Permitted Phases			3	2		1 2	1		Free
Detector Phase	3	3	3	2	1 2	1 2	1		
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0			7.0		
Minimum Split (s)	18.0	18.0	18.0	15.0			27.0		
Total Split (s)	34.0	34.0	34.0	27.0	66.0	66.0	39.0	0.0	0.0
Total Split (%)	34.0%	34.0%	34.0%	27.0%	66.0%	66.0%	39.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0			4.0		
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0		
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag				Lag			Lead		
Lead-Lag Optimize?									
Recall Mode	None	None	None	None			C-Max		
Act Effct Green (s)	26.7	26.7	26.7	24.0	67.3	67.3	40.3		100.0
Actuated g/C Ratio	0.27	0.27	0.27	0.24	0.67	0.67	0.40		1.00
v/c Ratio	0.74	0.69	0.35	0.18	0.43	0.02	0.73		0.01
Control Delay	44.5	41.7	32.1	15.7	10.3	3.9	28.2		0.0
Queue Delay	0.0	0.0	0.0	0.0	1.3	0.0	0.0		0.0
Total Delay	44.5	41.7	32.1	15.7	11.6	3.9	28.2		0.0
LOS	D	D	C	B	B	A	C		A
Approach Delay		41.1			11.8		28.2		
Approach LOS		D			B		C		
Queue Length 50th (ft)	232	229	98	17	64	1	275		0
Queue Length 95th (ft)	322	317	159	m35	m146	m4	371		0
Internal Link Dist (ft)		577			157		775		
Turn Bay Length (ft)									
Base Capacity (vph)	549	578	491	425	1253	1065	1402		1611
Starvation Cap Reductn	0	0	0	0	491	0	0		0
Spillback Cap Reductn	0	0	0	0	0	0	0		0
Storage Cap Reductn	0	0	0	0	0	0	0		0
Reduced v/c Ratio	0.64	0.60	0.31	0.18	0.70	0.02	0.73		0.01

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Synchro 7 - Report
Page 1

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	27 (27%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.99
Intersection Signal Delay:	28.3
Intersection LOS:	C
Intersection Capacity Utilization	59.5%
ICU Level of Service	B
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 100: IL WB & Central

#100#101 ↓↑ ↓↑ ø1 39 s	#100#101 ↖↑ ↗↑ ø2 27 s	#100#101 ↖↑ ↗↑ ø3 34 s
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Lanes, Volumes, Timings
101: IL EB & St Paul

AM Baseline

1/29/2009

									
Lane Group	EBL	EBT	EBR	EBR2	SBL2	SBL	SBT	NWR	NWR2
Lane Configurations									
Volume (vph)	557	188	11	543	54	11	557	143	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250			0		0	
Storage Lanes	1		1			0		1	
Taper Length (ft)	25		25			25		25	
Satd. Flow (prot)	1610	3105	1441	0	0	0	5060	1611	0
Flt Permitted	0.950	0.972					0.897		
Satd. Flow (perm)	1610	3105	1441	0	0	0	4562	1611	0
Right Turn on Red				Yes					Yes
Satd. Flow (RTOR)			347					4	
Link Speed (mph)		30					30		
Link Distance (ft)		1691					237		
Travel Time (s)		38.4					5.4		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.90
Shared Lane Traffic (%)	50%		90%						
Lane Group Flow (vph)	309	530	604	0	0	0	691	161	0
Turn Type	Split		Perm		pm+pt	Perm		custom	
Protected Phases	2	2			3		1 3	1	
Permitted Phases			2		1 3	1 3		1	
Detector Phase	2	2	2		3	1 3	1 3	1	
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0		6.0			7.0	
Minimum Split (s)	15.0	15.0	15.0		18.0			27.0	
Total Split (s)	27.0	27.0	27.0	0.0	34.0	73.0	73.0	39.0	0.0
Total Split (%)	27.0%	27.0%	27.0%	0.0%	34.0%	73.0%	73.0%	39.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0		4.0			4.0	
All-Red Time (s)	1.0	1.0	1.0		1.0			1.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag	Lag					Lead	
Lead-Lag Optimize?									
Recall Mode	None	None	None		None			C-Max	
Act Effct Green (s)	24.0	24.0	24.0				70.0	40.3	
Actuated g/C Ratio	0.24	0.24	0.24				0.70	0.40	
v/c Ratio	0.80	0.71	0.99				0.22	0.25	
Control Delay	48.6	36.8	47.9				1.7	22.0	
Queue Delay	0.2	0.0	0.0				0.3	0.0	
Total Delay	48.7	36.8	47.9				2.0	22.0	
LOS	D	D	D				A	C	
Approach Delay		44.0					2.0		
Approach LOS		D					A		
Queue Length 50th (ft)	189	162	163				7	67	
Queue Length 95th (ft)	#347	226	#463				21	121	
Internal Link Dist (ft)		1611					157		
Turn Bay Length (ft)	250		250						
Base Capacity (vph)	386	745	610				3189	651	
Starvation Cap Reductn	0	0	0				1805	0	
Spillback Cap Reductn	2	4	0				0	11	

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Synchro 7 - Report
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Lanes, Volumes, Timings
101: IL EB & St Paul

AM Baseline
1/29/2009



Lane Group	EBL	EBT	EBR	EBR2	SBL2	SBL	SBT	NWR	NWR2
Storage Cap Reductn	0	0	0				0	0	
Reduced v/c Ratio	0.80	0.72	0.99				0.50	0.25	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 27 (27%), Referenced to phase 1:NBSB, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 29.8

Intersection LOS: C

Intersection Capacity Utilization 52.7%

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.

Splits and Phases: 101: IL EB & St Paul

#100#101 ↓↑ ↓↑ ø1 39 s	#100#101 ↖↑ ↗↑ ø2 27 s	#100#101 ↖↑ ↗↑ ø3 34 s
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Lanes, Volumes, Timings
102: Main & St Paul

AM Baseline

1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑					↖	↑↑↑	
Volume (vph)	0	510	58	97	493	0	0	0	0	33	1152	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	0		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	3075	0	0	3125	0	0	0	0	1770	4873	0
Flt Permitted					0.710					0.950		
Satd. Flow (perm)	0	3075	0	0	2237	0	0	0	0	1770	4873	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17									24	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		693			335			717			429	
Travel Time (s)		15.8			7.6			16.3			9.8	
Confl. Peds. (#/hr)			65			298			33			191
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	20	0	0	20	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	631	0	0	656	0	0	0	0	37	1433	0
Turn Type				Perm						Perm		
Protected Phases		1			1						2	
Permitted Phases				1						2		
Minimum Split (s)		31.0		31.0	31.0					29.0	29.0	
Total Split (s)	0.0	51.0	0.0	51.0	51.0	0.0	0.0	0.0	0.0	41.0	41.0	0.0
Total Split (%)	0.0%	51.0%	0.0%	51.0%	51.0%	0.0%	0.0%	0.0%	0.0%	41.0%	41.0%	0.0%
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	3.0
Lead/Lag		Lag		Lag	Lag					Lag	Lag	
Lead-Lag Optimize?												
Act Effct Green (s)		48.0			48.0					37.0	38.0	
Actuated g/C Ratio		0.48			0.48					0.37	0.38	
v/c Ratio		0.42			0.61					0.06	0.77	
Control Delay		25.6			13.2					22.3	23.2	
Queue Delay		0.0			0.4					0.0	0.5	
Total Delay		25.6			13.6					22.3	23.6	
LOS		C			B					C	C	
Approach Delay		25.6			13.6						23.6	
Approach LOS		C			B						C	
Queue Length 50th (ft)		176			60					11	151	
Queue Length 95th (ft)		269			77					m22	209	
Internal Link Dist (ft)		613			255			637			349	
Turn Bay Length (ft)										100		
Base Capacity (vph)		1485			1074					655	1867	
Starvation Cap Reductn		0			105					0	125	
Spillback Cap Reductn		52			0					0	0	
Storage Cap Reductn		0			0					0	0	

Comment 1

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Synchro 7 - Report

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Lane Group	ø4	ø8
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
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 (%)		
Bus Blockages (#/hr)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	4	8
Permitted Phases		
Minimum Split (s)	4.0	4.0
Total Split (s)	4.0	4.0
Total Split (%)	4%	4%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
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		

Comment 1
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Synchro 7 - Report
Page 6

Lanes, Volumes, Timings
102: Main & St Paul

AM Baseline
1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio		0.44			0.68					0.06	0.82	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 70

Control Type: Pretimed

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 21.7

Intersection LOS: C

Intersection Capacity Utilization 77.8%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 102: Main & St Paul

					
ø1			ø2		
4 s	51 s		4 s	41 s	

Lane Group	ø4	ø8
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
103: Broad & South

AM Baseline
1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	232	144	65	568	0	0	0	0	55	825	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	1863	1583	1610	3387	0	0	0	0	1770	6279	0
Flt Permitted				0.425	0.954					0.950		
Satd. Flow (perm)	0	1863	1407	720	3234	0	0	0	0	1770	6279	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)											34	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1067			365			393			717	
Travel Time (s)		24.3			8.3			8.9			16.3	
Confl. Peds. (#/hr)			61			35			96			27
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	0	258	160	65	638	0	0	0	0	61	1019	0
Turn Type			Perm	custom						Prot		
Protected Phases		3		4	3 4 7					2	2 6	
Permitted Phases			3	3 4								
Minimum Split (s)		23.0	23.0	12.0						26.0		
Total Split (s)	0.0	33.0	33.0	16.0	86.0	0.0	0.0	0.0	0.0	43.0	90.0	0.0
Total Split (%)	0.0%	33.0%	33.0%	16.0%	86.0%	0.0%	0.0%	0.0%	0.0%	43.0%	90.0%	0.0%
Yellow Time (s)		4.0	4.0	4.0						4.0		
All-Red Time (s)		1.0	1.0	1.0						1.5		
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0	-2.5	-2.5	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag		Lag	Lag							Lag		
Lead-Lag Optimize?												
Act Effct Green (s)		30.0	30.0	43.0	47.0					40.0	44.0	
Actuated g/C Ratio		0.30	0.30	0.43	0.47					0.40	0.44	
v/c Ratio		0.46	0.38	0.15	0.41					0.09	0.37	
Control Delay		33.3	32.6	16.9	16.4					5.0	4.1	
Queue Delay		0.0	0.0	0.0	0.1					0.0	0.0	
Total Delay		33.3	32.6	16.9	16.5					5.0	4.1	
LOS		C	C	B	B					A	A	
Approach Delay		33.0			16.5						4.2	
Approach LOS		C			B						A	
Queue Length 50th (ft)		134	81	28	143					5	21	
Queue Length 95th (ft)		209	140	62	193					m7	25	
Internal Link Dist (ft)		987			285			313			637	
Turn Bay Length (ft)										100		
Base Capacity (vph)		559	422	425	1540					708	2782	
Starvation Cap Reductn		0	0	0	149					0	0	
Spillback Cap Reductn		0	0	0	0					0	0	
Storage Cap Reductn		0	0	0	0					0	0	
Reduced v/c Ratio		0.46	0.38	0.15	0.46					0.09	0.37	

Comment 1
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Synchro 7 - Report
Page 9

Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 74 (74%), Referenced to phase 2:SBTL and 6:SBT, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed
 Maximum v/c Ratio: 0.46
 Intersection Signal Delay: 13.6
 Intersection Capacity Utilization 57.4%
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 103: Broad & South

  ø2	  ø3	 ø4
4 s 43 s	4 s 33 s	16 s
 ø6	 ø7	
47 s	37 s	

Lane Group	ø1	ø5	ø6	ø7
Lane Configurations				
Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
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				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	5	6	7
Permitted Phases				
Minimum Split (s)	4.0	4.0	30.0	27.0
Total Split (s)	4.0	4.0	47.0	37.0
Total Split (%)	4%	4%	47%	37%
Yellow Time (s)	3.0	3.0	4.0	4.0
All-Red Time (s)	0.0	0.0	1.5	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead		
Lead-Lag Optimize?				
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
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				

Comment 1
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Synchro 7 - Report
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Intersection Summary

Lanes, Volumes, Timings
104: Court & South

AM Baseline
1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	147	212	6	273	0	0	0	0	45	890	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		0	0		0	100		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	1688	1504	1770	1863	0	0	0	0	1770	6328	0
Flt Permitted				0.570						0.950		
Satd. Flow (perm)	0	1688	1432	1062	1863	0	0	0	0	1770	6328	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23	43								18	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1036			463			451			393	
Travel Time (s)		23.5			10.5			10.3			8.9	
Confl. Peds. (#/hr)			27			43			23			20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)			21%									
Lane Group Flow (vph)	0	213	186	7	303	0	0	0	0	50	1058	0
Turn Type			Perm	Perm						Split		
Protected Phases		3			3					1	1	
Permitted Phases			3	3								
Minimum Split (s)		29.0	29.0	29.0	29.0					30.0	30.0	
Total Split (s)	0.0	54.0	54.0	54.0	54.0	0.0	0.0	0.0	0.0	46.0	46.0	0.0
Total Split (%)	0.0%	54.0%	54.0%	54.0%	54.0%	0.0%	0.0%	0.0%	0.0%	46.0%	46.0%	0.0%
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)	-1.0	-3.0	-3.0	-3.0	-3.0	-1.0	-1.0	-1.0	-1.0	-3.0	-3.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		51.0	51.0	51.0	51.0					43.0	43.0	
Actuated g/C Ratio		0.51	0.51	0.51	0.51					0.43	0.43	
v/c Ratio		0.24	0.25	0.01	0.32					0.07	0.39	
Control Delay		9.3	7.8	7.2	9.0					8.2	9.0	
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	
Total Delay		9.3	7.8	7.2	9.0					8.2	9.0	
LOS		A	A	A	A					A	A	
Approach Delay		8.6			9.0						9.0	
Approach LOS		A			A						A	
Queue Length 50th (ft)		57	42	1	72					7	43	
Queue Length 95th (ft)		105	86	5	131					16	50	
Internal Link Dist (ft)		956			383			371			313	
Turn Bay Length (ft)			125							100		
Base Capacity (vph)		872	751	542	950					761	2731	
Starvation Cap Reductn		0	0	0	0					0	0	
Spillback Cap Reductn		0	0	0	0					0	0	
Storage Cap Reductn		0	0	0	0					0	0	
Reduced v/c Ratio		0.24	0.25	0.01	0.32					0.07	0.39	

Comment 1
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Synchro 7 - Report
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Lanes, Volumes, Timings
104: Court & South

AM Baseline
1/29/2009

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 78 (78%), Referenced to phase 1:SBTL, Start of Green

Natural Cycle: 60

Control Type: Pretimed

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 8.9

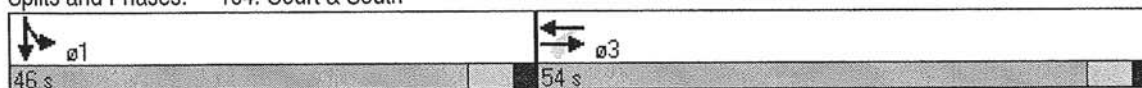
Intersection LOS: A

Intersection Capacity Utilization 52.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 104: Court & South



Lanes, Volumes, Timings
105: Woodbury & Clinton

AM Baseline
1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	147	0	0	186	176	391	2712	238	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	3518	0	0	3281	0	0	6240	0	0	0	0
Flt Permitted		0.877						0.994				
Satd. Flow (perm)	0	3104	0	0	3281	0	0	6240	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					2			36				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		228			525			662			432	
Travel Time (s)		5.2			11.9			15.0			9.8	
Confl. Peds. (#/hr)			13						103			11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	187	0	0	403	0	0	3711	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		2			2		1	1				
Permitted Phases	2											
Minimum Split (s)	29.0	29.0			29.0		31.0	31.0				
Total Split (s)	29.0	29.0	0.0	0.0	29.0	0.0	71.0	71.0	0.0	0.0	0.0	0.0
Total Split (%)	29.0%	29.0%	0.0%	0.0%	29.0%	0.0%	71.0%	71.0%	0.0%	0.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-1.0	-2.0	-1.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag			Lag		Lead	Lead				
Lead-Lag Optimize?												
Act Effct Green (s)		26.0			26.0			68.0				
Actuated g/C Ratio		0.26			0.26			0.68				
v/c Ratio		0.23			0.47			0.87				
Control Delay		40.0			30.9			17.0				
Queue Delay		1.0			0.0			0.0				
Total Delay		40.9			30.9			17.0				
LOS		D			C			B				
Approach Delay		40.9			30.9			17.0				
Approach LOS		D			C			B				
Queue Length 50th (ft)		55			125			525				
Queue Length 95th (ft)		83			175			580				
Internal Link Dist (ft)		148			445			582			352	
Turn Bay Length (ft)												
Base Capacity (vph)		807			855			4255				
Starvation Cap Reductn		405			0			0				
Spillback Cap Reductn		0			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		0.47			0.47			0.87				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												

Comment 1
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Synchro 7 - Report
Page 1

Lanes, Volumes, Timings
105: Woodbury & Clinton

AM Baseline
1/29/2009

Actuated Cycle Length: 100

Offset: 95 (95%), Referenced to phase 1:NBTL, Start of Green

Natural Cycle: 80

Control Type: Pretimed

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 19.3

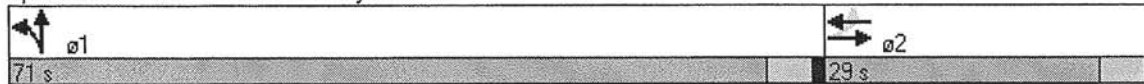
Intersection LOS: B

Intersection Capacity Utilization 79.1%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 105: Woodbury & Clinton



PM Baseline Synchro

									
Lane Group	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	SWR2
Lane Configurations									
Volume (vph)	238	674	244	245	528	59	216	413	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	3192	0	1611
Flt Permitted	0.950			0.950					
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	3192	0	1611
Right Turn on Red								Yes	Yes
Satd. Flow (RTOR)							91		336
Link Speed (mph)		30			30		30		
Link Distance (ft)		657			237		855		
Travel Time (s)		14.9			5.4		19.4		
Peak Hour Factor	0.90	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)									
Lane Group Flow (vph)	264	674	271	272	587	66	699	0	12
Turn Type	Split		Perm	custom		Perm			Free
Protected Phases	3	3		2	1 2		1		
Permitted Phases			3	2		1 2	1		Free
Detector Phase	3	3	3	2	1 2	1 2	1		
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0			7.0		
Minimum Split (s)	18.0	18.0	18.0	15.0			27.0		
Total Split (s)	36.0	36.0	36.0	20.0	64.0	64.0	44.0	0.0	0.0
Total Split (%)	36.0%	36.0%	36.0%	20.0%	64.0%	64.0%	44.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0			4.0		
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0		
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag				Lag			Lead		
Lead-Lag Optimize?									
Recall Mode	None	None	None	None			C-Max		
Act Effct Green (s)	33.0	33.0	33.0	17.0	61.0	61.0	41.0		100.0
Actuated g/C Ratio	0.33	0.33	0.33	0.17	0.61	0.61	0.41		1.00
v/c Ratio	0.45	1.10	0.52	0.90	0.52	0.07	0.51		0.01
Control Delay	31.8	100.8	34.0	50.8	9.7	5.2	20.5		0.0
Queue Delay	0.0	0.0	0.0	38.7	2.3	0.0	0.0		0.0
Total Delay	31.8	100.8	34.0	89.5	12.0	5.2	20.5		0.0
LOS	C	F	C	F	B	A	C		A
Approach Delay		70.7			34.3		20.5		
Approach LOS		E			C		C		
Queue Length 50th (ft)	164	~498	170	130	77	5	147		0
Queue Length 95th (ft)	246	#724	254	m#274	m128	m11	202		0
Internal Link Dist (ft)		577			157		775		
Turn Bay Length (ft)									
Base Capacity (vph)	584	615	522	301	1136	966	1362		1611
Starvation Cap Reductn	0	0	0	47	399	0	0		0
Spillback Cap Reductn	0	0	0	0	0	0	0		0
Storage Cap Reductn	0	0	0	0	0	0	0		0
Reduced v/c Ratio	0.45	1.10	0.52	1.07	0.80	0.07	0.51		0.01

Comment 1
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Synchro 7 - Report
Page 1

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	31 (31%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle:	70
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.10
Intersection Signal Delay:	46.3
Intersection Capacity Utilization	78.3%
Intersection LOS:	D
ICU Level of Service	D
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.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: IL WB & Central

#100#101  ø1	#100#101  ø2	#100#101  ø3
44 s	20 s	36 s

Lanes, Volumes, Timings
101: IL EB & St Paul

PM Baseline
1/29/2009

								
Lane Group	EBL	EBT	EBR	SBL2	SBL	SBT	NWR	NWR2
Lane Configurations								
Volume (vph)	440	119	22	54	10	511	447	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250		0		0	
Storage Lanes	1		1		0		1	
Taper Length (ft)	25		25		25		25	
Satd. Flow (prot)	1610	3101	1441	0	0	5055	1611	0
Flt Permitted	0.950	0.969				0.856		
Satd. Flow (perm)	1610	3101	1441	0	0	4353	1611	0
Right Turn on Red								Yes
Satd. Flow (RTOR)							1	
Link Speed (mph)		30				30		
Link Distance (ft)		1691				237		
Travel Time (s)		38.4				5.4		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.90
Shared Lane Traffic (%)	50%		10%					
Lane Group Flow (vph)	244	379	22	0	0	639	475	0
Turn Type	Split		Perm	pm+pt	Perm		custom	
Protected Phases	2	2		3		1 3	1	
Permitted Phases			2	1 3	1 3		1	
Detector Phase	2	2	2	3	1 3	1 3	1	
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0			7.0	
Minimum Split (s)	15.0	15.0	15.0	18.0			27.0	
Total Split (s)	20.0	20.0	20.0	36.0	80.0	80.0	44.0	0.0
Total Split (%)	20.0%	20.0%	20.0%	36.0%	80.0%	80.0%	44.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0			4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag	Lag				Lead	
Lead-Lag Optimize?								
Recall Mode	None	None	None	None			C-Max	
Act Effct Green (s)	17.0	17.0	17.0			77.0	41.0	
Actuated g/C Ratio	0.17	0.17	0.17			0.77	0.41	
v/c Ratio	0.89	0.89dl	0.09			0.19	0.72	
Control Delay	69.6	44.7	35.6			1.3	32.1	
Queue Delay	12.3	1.3	0.0			0.4	0.2	
Total Delay	81.9	46.0	35.6			1.6	32.3	
LOS	F	D	D			A	C	
Approach Delay		59.2				1.6		
Approach LOS		E				A		
Queue Length 50th (ft)	145	116	10			9	248	
Queue Length 95th (ft)	#314	171	m27			9	372	
Internal Link Dist (ft)		1611				157		
Turn Bay Length (ft)	250		250					
Base Capacity (vph)	274	527	245			3352	661	
Starvation Cap Reductn	0	0	0			2040	0	
Spillback Cap Reductn	23	43	0			0	11	

Comment 1
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Synchro 7 - Report
Page 3



Lane Group	EBL	EBT	EBR	SBL2	SBL	SBT	NWR	NWR2
Storage Cap Reductn	0	0	0			0	0	
Reduced v/c Ratio	0.97	0.78	0.09			0.49	0.73	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 31 (31%), Referenced to phase 1:NBSB, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 31.0

Intersection LOS: C

Intersection Capacity Utilization 61.3%

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.

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

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 101: IL EB & St Paul

#100#101 ↑↓ ↑↓ ø1 44 s	#100#101 ↖↑ ↗↑ ø2 20 s	#100#101 ↖↓ ↗↓ ø3 36 s
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Lanes, Volumes, Timings
102: Main & St Paul

PM Baseline
1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑					↖	↑↑↑	
Volume (vph)	0	472	86	72	550	0	0	0	0	129	1472	309
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	0		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	3356	0	0	3518	0	0	0	0	1770	4790	0
Flt Permitted					0.768					0.950		
Satd. Flow (perm)	0	3356	0	0	2718	0	0	0	0	1770	4790	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26									57	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		693			335			717			429	
Travel Time (s)		15.8			7.6			16.3			9.8	
Confl. Peds. (#/hr)			151			392			46			145
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	620	0	0	691	0	0	0	0	143	1979	0
Turn Type				Perm						Perm		
Protected Phases		1			1						2	
Permitted Phases				1						2		
Minimum Split (s)		31.0		31.0	31.0					29.0	29.0	
Total Split (s)	0.0	46.0	0.0	46.0	46.0	0.0	0.0	0.0	0.0	46.0	46.0	0.0
Total Split (%)	0.0%	46.0%	0.0%	46.0%	46.0%	0.0%	0.0%	0.0%	0.0%	46.0%	46.0%	0.0%
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-1.0	-2.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	2.0	4.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	3.0
Lead/Lag		Lag		Lag	Lag					Lag	Lag	
Lead-Lag Optimize?												
Act Effct Green (s)		43.0			43.0					42.0	43.0	
Actuated g/C Ratio		0.43			0.43					0.42	0.43	
v/c Ratio		0.43			0.59					0.19	0.95	
Control Delay		25.3			13.7					12.8	30.0	
Queue Delay		0.0			0.6					0.0	2.1	
Total Delay		25.3			14.3					12.8	32.1	
LOS		C			B					B	C	
Approach Delay		25.3			14.3						30.8	
Approach LOS		C			B						C	
Queue Length 50th (ft)		186			77					35	469	
Queue Length 95th (ft)		260			98					m56	#557	
Internal Link Dist (ft)		613			255			637			349	
Turn Bay Length (ft)										100		
Base Capacity (vph)		1458			1169					743	2092	
Starvation Cap Reductn		0			179					0	52	
Spillback Cap Reductn		0			0					0	0	
Storage Cap Reductn		0			0					0	0	
Reduced v/c Ratio		0.43			0.70					0.19	0.97	

Comment 1
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Synchro 7 - Report
Page 5

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 20 (20%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 70

Control Type: Pretimed

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 26.5

Intersection LOS: C

Intersection Capacity Utilization 88.2%

ICU Level of Service E

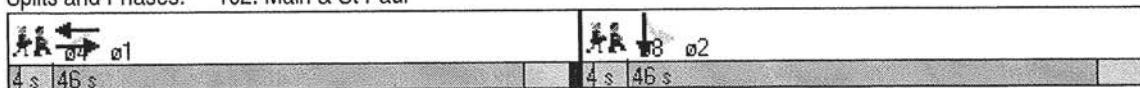
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 102: Main & St Paul



Lane Group	ø4	ø8
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
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		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	4	8
Permitted Phases		
Minimum Split (s)	4.0	4.0
Total Split (s)	4.0	4.0
Total Split (%)	4%	4%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
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		

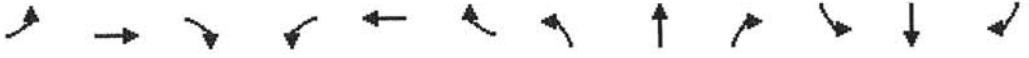
Comment 1
%user_name%

Synchro 7 - Report
Page 7

Intersection Summary

Lanes, Volumes, Timings
103: Broad & South

PM Baseline
1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↗	↖	↕					↖	↑↑↑	
Volume (vph)	0	150	333	309	525	0	0	0	0	99	1496	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0			100		0
Storage Lanes	0		1	1		0	0			1		0
Taper Length (ft)	25		25	25		25	25			25		25
Satd. Flow (prot)	0	1863	1583	1610	3373	0	0	0	0	1770	6338	0
Flt Permitted				0.544	0.918					0.950		
Satd. Flow (perm)	0	1863	1259	922	3112	0	0	0	0	1770	6338	0
Right Turn on Red			No			Yes				Yes		Yes
Satd. Flow (RTOR)											11	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1067			365			393			717	
Travel Time (s)		24.3			8.3			8.9			16.3	
Confl. Peds. (#/hr)			118			39			118			48
Peak Hour Factor	0.90	0.90	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)				18%								
Lane Group Flow (vph)	0	167	333	281	645	0	0	0	0	110	1745	0
Turn Type			Perm	custom						Prot		
Protected Phases		3		4	3 4 7					2	2 6	
Permitted Phases			3	3 4								
Minimum Split (s)		23.0	23.0	12.0						26.0		
Total Split (s)	0.0	30.0	30.0	28.0	92.0	0.0	0.0	0.0	0.0	34.0	72.0	0.0
Total Split (%)	0.0%	30.0%	30.0%	28.0%	92.0%	0.0%	0.0%	0.0%	0.0%	34.0%	72.0%	0.0%
Yellow Time (s)		4.0	4.0	4.0						4.0		
All-Red Time (s)		1.0	1.0	1.0						1.5		
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0	-2.5	-2.5	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag		Lag	Lag							Lag		
Lead-Lag Optimize?												
Act Effct Green (s)		27.0	27.0	52.0	56.0					31.0	35.0	
Actuated g/C Ratio		0.27	0.27	0.52	0.56					0.31	0.35	
v/c Ratio		0.33	0.98	0.43	0.36					0.20	0.78	
Control Delay		37.1	86.3	25.2	16.6					8.5	10.7	
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	
Total Delay		37.1	86.3	25.2	16.7					8.5	10.7	
LOS		D	F	C	B					A	B	
Approach Delay		69.9			19.3						10.6	
Approach LOS		E			B						B	
Queue Length 50th (ft)		94	227	152	171					24	153	
Queue Length 95th (ft)		150	#402	236	230					m26	m162	
Internal Link Dist (ft)		987			285			313			637	
Turn Bay Length (ft)										100		
Base Capacity (vph)		503	340	651	1808					549	2225	
Starvation Cap Reductn		0	0	6	131					0	0	
Spillback Cap Reductn		0	0	0	0					0	0	
Storage Cap Reductn		0	0	0	0					0	0	
Reduced v/c Ratio		0.33	0.98	0.44	0.38					0.20	0.78	

Comment 1
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Synchro 7 - Report
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Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 99 (99%), Referenced to phase 2:SBTL and 6:SBT, Start of Green

Natural Cycle: 70

Control Type: Pretimed

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 22.1

Intersection LOS: C

Intersection Capacity Utilization 75.8%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 103: Broad & South

  ø2	  ø3	 ø4
4 s 34 s	4 s 30 s	28 s
 ø6	 ø7	
38 s	34 s	

Lane Group	ø1	ø5	ø6	ø7
Lane Configurations				
Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
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				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	5	6	7
Permitted Phases				
Minimum Split (s)	4.0	4.0	30.0	27.0
Total Split (s)	4.0	4.0	38.0	34.0
Total Split (%)	4%	4%	38%	34%
Yellow Time (s)	3.0	3.0	4.0	4.0
All-Red Time (s)	0.0	0.0	1.5	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead		
Lead-Lag Optimize?				
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
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				

Comment 1
%user_name%

Intersection Summary

Lanes, Volumes, Timings
104: Court & South

PM Baseline
1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	209	429	176	247	0	0	0	0	106	1934	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		0	0		0	100		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	1617	1504	1770	1863	0	0	0	0	1770	5602	0
Flt Permitted				0.167						0.950		
Satd. Flow (perm)	0	1617	1376	311	1863	0	0	0	0	1770	5602	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29	48								13	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1036			463			451			393	
Travel Time (s)		23.5			10.5			10.3			8.9	
Confl. Peds. (#/hr)			55			59			38			49
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)			29%									
Lane Group Flow (vph)	0	370	339	196	274	0	0	0	0	118	2260	0
Turn Type			Perm	pm+pt						Split		
Protected Phases		3		2	2 3					1	1	
Permitted Phases			3	2 3								
Minimum Split (s)		28.0	28.0	15.0						30.0	30.0	
Total Split (s)	0.0	28.0	28.0	16.0	44.0	0.0	0.0	0.0	0.0	56.0	56.0	0.0
Total Split (%)	0.0%	28.0%	28.0%	16.0%	44.0%	0.0%	0.0%	0.0%	0.0%	56.0%	56.0%	0.0%
Yellow Time (s)		4.0	4.0	4.0						4.0	4.0	
All-Red Time (s)		2.0	2.0	1.0						2.0	2.0	
Lost Time Adjust (s)	-1.0	-3.0	-3.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0	-3.0	-3.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag				Lag						Lead	Lead	
Lead-Lag Optimize?												
Act Effct Green (s)		25.0	25.0	38.0	41.0					53.0	53.0	
Actuated g/C Ratio		0.25	0.25	0.38	0.41					0.53	0.53	
v/c Ratio		0.87	0.89	0.64	0.36					0.13	0.76	
Control Delay		50.0	53.1	30.1	19.9					13.9	19.4	
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.2	
Total Delay		50.0	53.1	30.1	19.9					13.9	19.6	
LOS		D	D	C	B					B	B	
Approach Delay		51.5			24.1						19.3	
Approach LOS		D			C						B	
Queue Length 50th (ft)		214	185	76	109					36	264	
Queue Length 95th (ft)		#393	#366	142	169					m53	m321	
Internal Link Dist (ft)		956			383			371			313	
Turn Bay Length (ft)			125							100		
Base Capacity (vph)		426	380	308	764					938	2975	
Starvation Cap Reductn		0	0	0	0					0	171	
Spillback Cap Reductn		0	0	0	0					0	0	
Storage Cap Reductn		0	0	0	0					0	0	
Reduced v/c Ratio		0.87	0.89	0.64	0.36					0.13	0.81	

Comment 1
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Synchro 7 - Report
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Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 70 (70%), Referenced to phase 1:SBTL, Start of Green

Natural Cycle: 80

Control Type: Pretimed

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 26.3

Intersection LOS: C

Intersection Capacity Utilization 71.6%

ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 104: Court & South

 ø1	 ø2	 ø3
56 s	16 s	28 s

AM Proposed Synchro

									
Lane Group	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	SWR2
Lane Configurations									
Volume (vph)	366	344	143	69	481	21	717	254	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	3401	0	1611
Flt Permitted	0.950			0.950					
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	3401	0	1611
Right Turn on Red								Yes	Yes
Satd. Flow (RTOR)							55		433
Link Speed (mph)		30			30		30		
Link Distance (ft)		657			237		855		
Travel Time (s)		14.9			5.4		19.4		
Peak Hour Factor	0.90	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)									
Lane Group Flow (vph)	407	344	159	77	534	23	1079	0	12
Turn Type	Split		Perm	custom		Perm			Free
Protected Phases	3	3		2	1 2		1		
Permitted Phases			3	2		1 2	1		Free
Detector Phase	3	3	3	2	1 2	1 2	1		
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0			7.0		
Minimum Split (s)	18.0	18.0	18.0	15.0			27.0		
Total Split (s)	34.0	34.0	34.0	27.0	66.0	66.0	39.0	0.0	0.0
Total Split (%)	34.0%	34.0%	34.0%	27.0%	66.0%	66.0%	39.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0			4.0		
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0		
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag				Lag			Lead		
Lead-Lag Optimize?									
Recall Mode	None	None	None	None			C-Max		
Act Effct Green (s)	28.6	28.6	28.6	24.0	65.4	65.4	38.4		100.0
Actuated g/C Ratio	0.29	0.29	0.29	0.24	0.65	0.65	0.38		1.00
v/c Ratio	0.80	0.65	0.35	0.18	0.44	0.02	0.80		0.01
Control Delay	48.3	39.3	31.6	15.5	10.5	3.9	32.4		0.0
Queue Delay	0.0	0.0	0.0	0.0	1.3	0.0	0.0		0.0
Total Delay	48.3	39.3	31.6	15.5	11.8	3.9	32.4		0.0
LOS	D	D	C	B	B	A	C		A
Approach Delay		42.0			12.0		32.4		
Approach LOS		D			B		C		
Queue Length 50th (ft)	267	224	102	17	64	1	316		0
Queue Length 95th (ft)	368	315	165	m35	m146	m4	#407		0
Internal Link Dist (ft)		577			157		775		
Turn Bay Length (ft)									
Base Capacity (vph)	549	578	491	425	1219	1036	1341		1611
Starvation Cap Reductn	0	0	0	0	461	0	0		0
Spillback Cap Reductn	0	0	0	0	0	0	0		0
Storage Cap Reductn	0	0	0	0	0	0	0		0
Reduced v/c Ratio	0.74	0.60	0.32	0.18	0.70	0.02	0.80		0.01

Comment 1
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Synchro 7 - Report
Page 1

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	27 (27%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.10
Intersection Signal Delay:	30.7
Intersection Capacity Utilization	63.2%
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: 100: IL WB & Central

#100#101 ↑↓ ø1	#100#101 ↔ ø2	#100#101 ↔ ø3
39 s	27 s	34 s

									
Lane Group	EBL	EBT	EBR	EBR2	SBL2	SBL	SBT	NWR	NWR2
Lane Configurations									
Volume (vph)	557	188	11	552	54	11	664	143	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250			0		0	
Storage Lanes	1		1			0		1	
Taper Length (ft)	25		25			25		25	
Satd. Flow (prot)	1610	3105	1441	0	0	0	5065	1611	0
Flt Permitted	0.950	0.972					0.903		
Satd. Flow (perm)	1610	3105	1441	0	0	0	4592	1611	0
Right Turn on Red				Yes					Yes
Satd. Flow (RTOR)			277					4	
Link Speed (mph)		30					30		
Link Distance (ft)		1691					237		
Travel Time (s)		38.4					5.4		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.90
Shared Lane Traffic (%)	50%		90%						
Lane Group Flow (vph)	309	530	614	0	0	0	810	161	0
Turn Type	Split		Perm		pm+pt	Perm		custom	
Protected Phases	2	2			3		1 3	1	
Permitted Phases			2		1 3	1 3		1	
Detector Phase	2	2	2		3	1 3	1 3	1	
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0		6.0			7.0	
Minimum Split (s)	15.0	15.0	15.0		18.0			27.0	
Total Split (s)	27.0	27.0	27.0	0.0	34.0	73.0	73.0	39.0	0.0
Total Split (%)	27.0%	27.0%	27.0%	0.0%	34.0%	73.0%	73.0%	39.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0		4.0			4.0	
All-Red Time (s)	1.0	1.0	1.0		1.0			1.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag	Lag					Lead	
Lead-Lag Optimize?									
Recall Mode	None	None	None		None			C-Max	
Act Effct Green (s)	24.0	24.0	24.0				70.0	38.4	
Actuated g/C Ratio	0.24	0.24	0.24				0.70	0.38	
v/c Ratio	0.80	0.71	1.10				0.25	0.26	
Control Delay	48.6	36.8	88.3				1.8	22.9	
Queue Delay	0.2	0.0	0.0				0.4	0.0	
Total Delay	48.8	36.8	88.3				2.2	22.9	
LOS	D	D	F				A	C	
Approach Delay		61.1					2.2		
Approach LOS		E					A		
Queue Length 50th (ft)	189	161	~337				8	70	
Queue Length 95th (ft)	#349	226	#559				24	121	
Internal Link Dist (ft)		1611					157		
Turn Bay Length (ft)	250		250						
Base Capacity (vph)	386	745	556				3212	622	
Starvation Cap Reductn	0	0	0				1778	0	
Spillback Cap Reductn	2	4	0				0	11	

Comment 1
%user_name%

Synchro 7 - Report
Page 3

Lanes, Volumes, Timings
101: IL EB & St Paul

AM Proposed
1/29/2009



Lane Group	EBL	EBT	EBR	EBR2	SBL2	SBL	SBT	NWR	NWR2
Storage Cap Reductn	0	0	0				0	0	
Reduced v/c Ratio	0.80	0.72	1.10				0.56	0.26	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 27 (27%), Referenced to phase 1:NBSB, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 38.9

Intersection LOS: D

Intersection Capacity Utilization 55.3%

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: 101: IL EB & St Paul

#100#101 ↓↑ ↓↑ ø1 39 s	#100#101 ↓↑ ↓↑ ø2 27 s	#100#101 ↓↑ ↓↑ ø3 34 s
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Lanes, Volumes, Timings
102: Main & St Paul

AM Proposed

1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	567	58	97	519	0	0	0	0	102	1224	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	0		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	3081	0	0	3125	0	0	0	0	1770	4884	0
Flt Permitted					0.692					0.950		
Satd. Flow (perm)	0	3081	0	0	2180	0	0	0	0	1770	4884	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15									22	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		693			335			717			429	
Travel Time (s)		15.8			7.6			16.3			9.8	
Confl. Peds. (#/hr)			65			298			33			191
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	20	0	0	20	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	694	0	0	685	0	0	0	0	113	1513	0
Turn Type				Perm						Perm		
Protected Phases		1			1						2	
Permitted Phases				1						2		
Minimum Split (s)		31.0		31.0	31.0					29.0	29.0	
Total Split (s)	0.0	51.0	0.0	51.0	51.0	0.0	0.0	0.0	0.0	41.0	41.0	0.0
Total Split (%)	0.0%	51.0%	0.0%	51.0%	51.0%	0.0%	0.0%	0.0%	0.0%	41.0%	41.0%	0.0%
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	3.0
Lead/Lag		Lag		Lag	Lag					Lag	Lag	
Lead-Lag Optimize?												
Act Effect Green (s)		48.0			48.0					37.0	38.0	
Actuated g/C Ratio		0.48			0.48					0.37	0.38	
v/c Ratio		0.47			0.65					0.17	0.81	
Control Delay		25.8			14.5					22.1	24.9	
Queue Delay		0.0			0.4					0.0	0.8	
Total Delay		25.8			15.0					22.1	25.6	
LOS		C			B					C	C	
Approach Delay		25.8			15.0						25.4	
Approach LOS		C			B						C	
Queue Length 50th (ft)		193			66					35	170	
Queue Length 95th (ft)		288			84					m66	230	
Internal Link Dist (ft)		613			255			637			349	
Turn Bay Length (ft)										100		
Base Capacity (vph)		1487			1046					655	1870	
Starvation Cap Reductn		0			87					0	129	
Spillback Cap Reductn		40			0					0	0	
Storage Cap Reductn		0			0					0	0	

Comment 1
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Synchro 7 - Report
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Lane Group	ø4	ø8
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
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 (%)		
Bus Blockages (#/hr)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	4	8
Permitted Phases		
Minimum Split (s)	4.0	4.0
Total Split (s)	4.0	4.0
Total Split (%)	4%	4%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
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		

Lanes, Volumes, Timings 102: Main & St Paul

AM Proposed
1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio		0.48			0.71					0.17	0.87	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 70

Control Type: Pretimed

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 23.1

Intersection LOS: C

Intersection Capacity Utilization 79.2%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 102: Main & St Paul

			ø1				ø2
4 s	51 s			4 s	41 s		

Lane Group	ø4	ø8
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
103: Broad & South

AM Proposed
1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	232	184	88	603	0	0	0	0	55	897	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	1863	1583	1610	3387	0	0	0	0	1770	6288	0
Flt Permitted				0.425	0.953					0.950		
Satd. Flow (perm)	0	1863	1407	720	3231	0	0	0	0	1770	6288	0
Right Turn on Red			No			Yes				Yes		Yes
Satd. Flow (RTOR)											30	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1067			365			393			717	
Travel Time (s)		24.3			8.3			8.9			16.3	
Confl. Peds. (#/hr)			61			35			96			27
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	0	258	204	88	680	0	0	0	0	61	1099	0
Turn Type			Perm	custom						Prot		
Protected Phases		3		4	3 4 7					2	2 6	
Permitted Phases			3	3 4								
Minimum Split (s)		23.0	23.0	12.0						26.0		
Total Split (s)	0.0	33.0	33.0	16.0	86.0	0.0	0.0	0.0	0.0	43.0	90.0	0.0
Total Split (%)	0.0%	33.0%	33.0%	16.0%	86.0%	0.0%	0.0%	0.0%	0.0%	43.0%	90.0%	0.0%
Yellow Time (s)		4.0	4.0	4.0						4.0		
All-Red Time (s)		1.0	1.0	1.0						1.5		
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0	-2.5	-2.5	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag		Lag	Lag							Lag		
Lead-Lag Optimize?												
Act Effct Green (s)		30.0	30.0	43.0	47.0					40.0	44.0	
Actuated g/C Ratio		0.30	0.30	0.43	0.47					0.40	0.44	
v/c Ratio		0.46	0.48	0.21	0.44					0.09	0.39	
Control Delay		33.1	34.8	18.6	17.6					4.7	3.9	
Queue Delay		0.0	0.0	0.0	0.1					0.0	0.0	
Total Delay		33.1	34.8	18.6	17.7					4.7	3.9	
LOS		C	C	B	B					A	A	
Approach Delay		33.8			17.8						4.0	
Approach LOS		C			B						A	
Queue Length 50th (ft)		134	106	40	160					5	22	
Queue Length 95th (ft)		209	179	78	206					m7	25	
Internal Link Dist (ft)		987			285			313			637	
Turn Bay Length (ft)										100		
Base Capacity (vph)		559	422	425	1539					708	2784	
Starvation Cap Reductn		0	0	0	140					0	0	
Spillback Cap Reductn		0	0	0	0					0	0	
Storage Cap Reductn		0	0	0	0					0	0	
Reduced v/c Ratio		0.46	0.48	0.21	0.49					0.09	0.39	

Comment 1
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Synchro 7 - Report
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Intersection Summary

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 74 (74%), Referenced to phase 2:SBTL and 6:SBT, Start of Green
 Natural Cycle: 70
 Control Type: Pretimed
 Maximum v/c Ratio: 0.48
 Intersection Signal Delay: 14.2
 Intersection LOS: B
 Intersection Capacity Utilization 59.3%
 ICU Level of Service B
 Analysis Period (min) 15
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 103: Broad & South

  ø2 4 s 43 s	  ø3 4 s 33 s	 ø4 16 s
 ø6 47 s	 ø7 37 s	

Lane Group	ø1	ø5	ø6	ø7
Lane Configurations				
Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
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				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	5	6	7
Permitted Phases				
Minimum Split (s)	4.0	4.0	30.0	27.0
Total Split (s)	4.0	4.0	47.0	37.0
Total Split (%)	4%	4%	47%	37%
Yellow Time (s)	3.0	3.0	4.0	4.0
All-Red Time (s)	0.0	0.0	1.5	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead		
Lead-Lag Optimize?				
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
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

Lanes, Volumes, Timings
104: Court & South

AM Proposed
1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	339	212	6	273	0	0	0	0	157	913	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		0	0		0	100		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	1749	1504	1770	1863	0	0	0	0	1770	6329	0
Flt Permitted				0.394						0.950		
Satd. Flow (perm)	0	1749	1432	734	1863	0	0	0	0	1770	6329	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5	40								18	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1036			463			451			393	
Travel Time (s)		23.5			10.5			10.3			8.9	
Confl. Peds. (#/hr)			27			43			23			20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)			10%									
Lane Group Flow (vph)	0	401	212	7	303	0	0	0	0	174	1083	0
Turn Type			Perm	Perm						Split		
Protected Phases		3			3					1	1	
Permitted Phases			3	3								
Minimum Split (s)		29.0	29.0	29.0	29.0					30.0	30.0	
Total Split (s)	0.0	54.0	54.0	54.0	54.0	0.0	0.0	0.0	0.0	46.0	46.0	0.0
Total Split (%)	0.0%	54.0%	54.0%	54.0%	54.0%	0.0%	0.0%	0.0%	0.0%	46.0%	46.0%	0.0%
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)	-1.0	-3.0	-3.0	-3.0	-3.0	-1.0	-1.0	-1.0	-1.0	-3.0	-3.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		51.0	51.0	51.0	51.0					43.0	43.0	
Actuated g/C Ratio		0.51	0.51	0.51	0.51					0.43	0.43	
v/c Ratio		0.45	0.28	0.02	0.32					0.23	0.40	
Control Delay		13.5	8.9	7.5	9.3					10.0	10.0	
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	
Total Delay		13.5	8.9	7.5	9.3					10.0	10.0	
LOS		B	A	A	A					B	B	
Approach Delay		11.9			9.3						10.0	
Approach LOS		B			A						B	
Queue Length 50th (ft)		141	51	1	71					29	50	
Queue Length 95th (ft)		225	103	6	136					45	59	
Internal Link Dist (ft)		956			383			371			313	
Turn Bay Length (ft)			125							100		
Base Capacity (vph)		894	750	374	950					761	2732	
Starvation Cap Reductn		0	0	0	0					0	0	
Spillback Cap Reductn		0	0	0	0					0	0	
Storage Cap Reductn		0	0	0	0					0	0	
Reduced v/c Ratio		0.45	0.28	0.02	0.32					0.23	0.40	

Comment 1
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Synchro 7 - Report
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Lanes, Volumes, Timings
104: Court & South

AM Proposed
1/29/2009

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 78 (78%), Referenced to phase 1:SBTL, Start of Green

Natural Cycle: 60

Control Type: Pretimed

Maximum v/c Ratio: 0.45

Intersection Signal Delay: 10.4

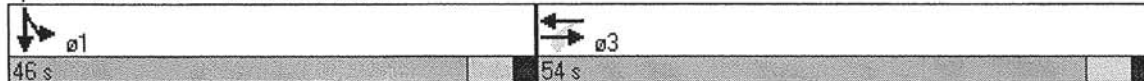
Intersection LOS: B

Intersection Capacity Utilization 52.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 104: Court & South



Lanes, Volumes, Timings
105: Woodbury & Clinton

AM Proposed
1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	147	0	0	204	176	391	3009	238	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	3518	0	0	3291	0	0	6257	0	0	0	0
Flt Permitted		0.875						0.995				
Satd. Flow (perm)	0	3097	0	0	3291	0	0	6257	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					1			33				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		228			525			662			432	
Travel Time (s)		5.2			11.9			15.0			9.8	
Confl. Peds. (#/hr)			13						103			11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	187	0	0	423	0	0	4041	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		2			2		1	1				
Permitted Phases	2											
Minimum Split (s)	29.0	29.0			29.0		31.0	31.0				
Total Split (s)	29.0	29.0	0.0	0.0	29.0	0.0	71.0	71.0	0.0	0.0	0.0	0.0
Total Split (%)	29.0%	29.0%	0.0%	0.0%	29.0%	0.0%	71.0%	71.0%	0.0%	0.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-1.0	-2.0	-1.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag			Lag		Lead	Lead				
Lead-Lag Optimize?												
Act Effect Green (s)		26.0			26.0			68.0				
Actuated g/C Ratio		0.26			0.26			0.68				
v/c Ratio		0.23			0.49			0.95				
Control Delay		39.9			31.6			22.3				
Queue Delay		1.0			0.0			0.0				
Total Delay		40.9			31.6			22.3				
LOS		D			C			C				
Approach Delay		40.9			31.6			22.3				
Approach LOS		D			C			C				
Queue Length 50th (ft)		54			132			635				
Queue Length 95th (ft)		82			183			701				
Internal Link Dist (ft)		148			445			582			352	
Turn Bay Length (ft)												
Base Capacity (vph)		805			856			4265				
Starvation Cap Reductn		404			0			0				
Spillback Cap Reductn		0			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		0.47			0.49			0.95				
Intersection Summary												
Area Type:	Other											
Cycle Length:	100											

Comment 1
%user_name%

Synchro 7 - Report
Page 1

Actuated Cycle Length: 100	
Offset: 95 (95%), Referenced to phase 1:NBTL, Start of Green	
Natural Cycle: 90	
Control Type: Pretimed	
Maximum v/c Ratio: 0.95	
Intersection Signal Delay: 23.9	Intersection LOS: C
Intersection Capacity Utilization 83.4%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 105: Woodbury & Clinton

 ø1	 ø2
71 s	29 s

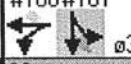
PM Proposed Synchro

									
Lane Group	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	SWR2
Lane Configurations									
Volume (vph)	242	674	283	245	528	59	223	413	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	3196	0	1611
Flt Permitted	0.950			0.950					
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	3196	0	1611
Right Turn on Red								Yes	Yes
Satd. Flow (RTOR)							91		314
Link Speed (mph)		30			30		30		
Link Distance (ft)		657			237		855		
Travel Time (s)		14.9			5.4		19.4		
Peak Hour Factor	0.90	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)									
Lane Group Flow (vph)	269	674	314	272	587	66	707	0	12
Turn Type	Split		Perm	custom		Perm			Free
Protected Phases	3	3		2	1 2		1		
Permitted Phases			3	2		1 2	1		Free
Detector Phase	3	3	3	2	1 2	1 2	1		
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0			7.0		
Minimum Split (s)	18.0	18.0	18.0	15.0			27.0		
Total Split (s)	36.0	36.0	36.0	20.0	64.0	64.0	44.0	0.0	0.0
Total Split (%)	36.0%	36.0%	36.0%	20.0%	64.0%	64.0%	44.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0			4.0		
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0		
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag				Lag			Lead		
Lead-Lag Optimize?									
Recall Mode	None	None	None	None			C-Max		
Act Effct Green (s)	33.0	33.0	33.0	17.0	61.0	61.0	41.0		100.0
Actuated g/C Ratio	0.33	0.33	0.33	0.17	0.61	0.61	0.41		1.00
v/c Ratio	0.46	1.10	0.60	0.90	0.52	0.07	0.52		0.01
Control Delay	32.0	100.7	36.5	50.8	9.7	5.2	20.6		0.0
Queue Delay	0.0	0.0	0.0	38.7	2.3	0.0	0.0		0.0
Total Delay	32.0	100.7	36.5	89.5	12.0	5.2	20.6		0.0
LOS	C	F	D	F	B	A	C		A
Approach Delay		70.0			34.3		20.6		
Approach LOS		E			C		C		
Queue Length 50th (ft)	166	~498	198	130	77	5	151		0
Queue Length 95th (ft)	249	#723	290	m#274	m128	m11	205		0
Internal Link Dist (ft)		577			157		775		
Turn Bay Length (ft)									
Base Capacity (vph)	584	615	522	301	1136	966	1364		1611
Starvation Cap Reductn	0	0	0	47	399	0	0		0
Spillback Cap Reductn	0	0	0	0	0	0	0		0
Storage Cap Reductn	0	0	0	0	0	0	0		0
Reduced v/c Ratio	0.46	1.10	0.60	1.07	0.80	0.07	0.52		0.01

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	31 (31%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle:	70
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.10
Intersection Signal Delay:	46.3
Intersection Capacity Utilization	78.5%
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.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 100: IL WB & Central

#100#101  ø1 44 s	#100#101  ø2 20 s	#100#101  ø3 36 s
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Lanes, Volumes, Timings
101: IL EB & St Paul

PM Proposed
1/29/2009

								
Lane Group	EBL	EBT	EBR	SBL2	SBL	SBT	NWR	NWR2
Lane Configurations								
Volume (vph)	440	119	22	54	10	522	447	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250		0		0	
Storage Lanes	1		1		0		1	
Taper Length (ft)	25		25		25		25	
Satd. Flow (prot)	1610	3101	1441	0	0	5060	1611	0
Flt Permitted	0.950	0.969				0.857		
Satd. Flow (perm)	1610	3101	1441	0	0	4358	1611	0
Right Turn on Red								Yes
Satd. Flow (RTOR)							1	
Link Speed (mph)		30				30		
Link Distance (ft)		1691				237		
Travel Time (s)		38.4				5.4		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.90
Shared Lane Traffic (%)	50%		10%					
Lane Group Flow (vph)	244	379	22	0	0	651	475	0
Turn Type	Split		Perm	pm+pt	Perm		custom	
Protected Phases	2	2		3		1 3	1	
Permitted Phases			2	1 3	1 3		1	
Detector Phase	2	2	2	3	1 3	1 3	1	
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0			7.0	
Minimum Split (s)	15.0	15.0	15.0	18.0			27.0	
Total Split (s)	20.0	20.0	20.0	36.0	80.0	80.0	44.0	0.0
Total Split (%)	20.0%	20.0%	20.0%	36.0%	80.0%	80.0%	44.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0			4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag	Lag				Lead	
Lead-Lag Optimize?								
Recall Mode	None	None	None	None			C-Max	
Act Effct Green (s)	17.0	17.0	17.0			77.0	41.0	
Actuated g/C Ratio	0.17	0.17	0.17			0.77	0.41	
v/c Ratio	0.89	0.89dl	0.09			0.19	0.72	
Control Delay	69.6	44.7	35.6			1.3	32.1	
Queue Delay	12.3	1.3	0.0			0.3	0.2	
Total Delay	81.9	46.0	35.6			1.6	32.3	
LOS	F	D	D			A	C	
Approach Delay		59.2				1.6		
Approach LOS		E				A		
Queue Length 50th (ft)	145	116	10			9	248	
Queue Length 95th (ft)	#314	171	m27			9	372	
Internal Link Dist (ft)		1611				157		
Turn Bay Length (ft)	250		250					
Base Capacity (vph)	274	527	245			3356	661	
Starvation Cap Reductn	0	0	0			2024	0	
Spillback Cap Reductn	23	43	0			0	11	

Comment 1
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Synchro 7 - Report
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Lane Group	EBL	EBT	EBR	SBL2	SBL	SBT	NWR	NWR2
Storage Cap Reductn	0	0	0			0	0	
Reduced v/c Ratio	0.97	0.78	0.09			0.49	0.73	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 31 (31%), Referenced to phase 1:NBSB, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 30.8

Intersection LOS: C

Intersection Capacity Utilization 61.5%

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.

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

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

Splits and Phases: 101: IL EB & St Paul

#100#101 ↓↑ ↓↑ ø1 44 s	#100#101 ←↑ →↑ ø2 20 s	#100#101 ←↓ →↓ ø3 36 s
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Lanes, Volumes, Timings
102: Main & St Paul

PM Proposed

1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑					↑	↑↑↑	
Volume (vph)	0	501	86	72	626	0	0	0	0	147	1476	309
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	0		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	3365	0	0	3522	0	0	0	0	1770	4791	0
Flt Permitted					0.765					0.950		
Satd. Flow (perm)	0	3365	0	0	2707	0	0	0	0	1770	4791	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24									57	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		693			335			717			429	
Travel Time (s)		15.8			7.6			16.3			9.8	
Confl. Peds. (#/hr)			151			392			46			145
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	653	0	0	776	0	0	0	0	163	1983	0
Turn Type				Perm						Perm		
Protected Phases		1			1						2	
Permitted Phases				1							2	
Minimum Split (s)		31.0		31.0	31.0					29.0	29.0	
Total Split (s)	0.0	46.0	0.0	46.0	46.0	0.0	0.0	0.0	0.0	46.0	46.0	0.0
Total Split (%)	0.0%	46.0%	0.0%	46.0%	46.0%	0.0%	0.0%	0.0%	0.0%	46.0%	46.0%	0.0%
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-1.0	-2.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	2.0	4.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	3.0
Lead/Lag		Lag		Lag	Lag					Lag	Lag	
Lead-Lag Optimize?												
Act Effct Green (s)		43.0			43.0					42.0	43.0	
Actuated g/C Ratio		0.43			0.43					0.42	0.43	
v/c Ratio		0.45			0.67					0.22	0.95	
Control Delay		25.6			15.8					13.0	30.3	
Queue Delay		0.0			0.9					0.0	2.1	
Total Delay		25.6			16.7					13.0	32.5	
LOS		C			B					B	C	
Approach Delay		25.6			16.7						31.0	
Approach LOS		C			B						C	
Queue Length 50th (ft)		196			96					40	469	
Queue Length 95th (ft)		270			122					m65	#559	
Internal Link Dist (ft)		613			255			637			349	
Turn Bay Length (ft)										100		
Base Capacity (vph)		1461			1164					743	2093	
Starvation Cap Reductn		0			162					0	52	
Spillback Cap Reductn		0			0					0	0	
Storage Cap Reductn		0			0					0	0	
Reduced v/c Ratio		0.45			0.77					0.22	0.97	

Comment 1
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Synchro 7 - Report
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Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	20 (20%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle:	70
Control Type:	Pretimed
Maximum v/c Ratio:	0.95
Intersection Signal Delay:	26.9
Intersection Capacity Utilization	88.3%
Intersection LOS:	C
ICU Level of Service	E
Analysis Period (min)	15
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 102: Main & St Paul

  Ø1	  Ø2
4 s 46 s	4 s 46 s

Lane Group	ø4	ø8
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
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		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	4	8
Permitted Phases		
Minimum Split (s)	4.0	4.0
Total Split (s)	4.0	4.0
Total Split (%)	4%	4%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
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		

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Synchro 7 - Report
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Intersection Summary

Lanes, Volumes, Timings
103: Broad & South

PM Proposed
1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	150	337	425	707	0	0	0	0	99	1500	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	1863	1583	1610	3373	0	0	0	0	1770	6338	0
Flt Permitted				0.544	0.876					0.950		
Satd. Flow (perm)	0	1863	1259	922	2970	0	0	0	0	1770	6338	0
Right Turn on Red			No			Yes				Yes		Yes
Satd. Flow (RTOR)											11	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1067			365			393			717	
Travel Time (s)		24.3			8.3			8.9			16.3	
Confl. Peds. (#/hr)			118			39			118			48
Peak Hour Factor	0.90	0.90	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)				19%								
Lane Group Flow (vph)	0	167	337	382	876	0	0	0	0	110	1750	0
Turn Type			Perm	custom							Prot	
Protected Phases		3		4	3 4 7					2	2 6	
Permitted Phases			3	3 4								
Minimum Split (s)		23.0	23.0	12.0						26.0		
Total Split (s)	0.0	30.0	30.0	28.0	92.0	0.0	0.0	0.0	0.0	34.0	72.0	0.0
Total Split (%)	0.0%	30.0%	30.0%	28.0%	92.0%	0.0%	0.0%	0.0%	0.0%	34.0%	72.0%	0.0%
Yellow Time (s)		4.0	4.0	4.0						4.0		
All-Red Time (s)		1.0	1.0	1.0						1.5		
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0	-2.5	-2.5	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag		Lag	Lag							Lag		
Lead-Lag Optimize?												
Act Effct Green (s)		27.0	27.0	52.0	56.0					31.0	35.0	
Actuated g/C Ratio		0.27	0.27	0.52	0.56					0.31	0.35	
v/c Ratio		0.33	0.99	0.59	0.50					0.20	0.79	
Control Delay		37.0	89.2	29.4	18.4					8.4	10.7	
Queue Delay		0.0	0.0	0.0	0.1					0.0	0.0	
Total Delay		37.0	89.2	29.4	18.5					8.4	10.7	
LOS		D	F	C	B					A	B	
Approach Delay		71.9			21.8						10.6	
Approach LOS		E			C						B	
Queue Length 50th (ft)		93	230	204	228					24	153	
Queue Length 95th (ft)		149	#409	298	293					m26	m163	
Internal Link Dist (ft)		987			285			313			637	
Turn Bay Length (ft)										100		
Base Capacity (vph)		503	340	651	1764					549	2225	
Starvation Cap Reductn		0	0	5	89					0	0	
Spillback Cap Reductn		0	0	0	0					0	0	
Storage Cap Reductn		0	0	0	0					0	0	
Reduced v/c Ratio		0.33	0.99	0.59	0.52					0.20	0.79	

Comment 1
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Synchro 7 - Report
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Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	99 (99%), Referenced to phase 2:SBTL and 6:SBT, Start of Green
Natural Cycle:	70
Control Type:	Pretimed
Maximum v/c Ratio:	0.99
Intersection Signal Delay:	23.0
Intersection LOS:	C
Intersection Capacity Utilization	81.7%
ICU Level of Service	D
Analysis Period (min)	15
#	95th percentile volume exceeds capacity, queue may be longer.
	Queue shown is maximum after two cycles.
m	Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 103: Broad & South

  ø2	  ø3	 ø4
4 s 34 s	4 s 30 s	28 s
 ø6	 ø7	
38 s	34 s	

Lane Group	ø1	ø5	ø6	ø7
Lane Configurations				
Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
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				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	5	6	7
Permitted Phases				
Minimum Split (s)	4.0	4.0	30.0	27.0
Total Split (s)	4.0	4.0	38.0	34.0
Total Split (%)	4%	4%	38%	34%
Yellow Time (s)	3.0	3.0	4.0	4.0
All-Red Time (s)	0.0	0.0	1.5	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead		
Lead-Lag Optimize?				
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
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				

Comment 1
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Synchro 7 - Report
Page 11

Intersection Summary

Lanes, Volumes, Timings
104: Court & South

PM Proposed
1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	245	429	176	247	0	0	0	0	114	2033	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		0	0		0	100		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	1641	1504	1770	1863	0	0	0	0	1770	5595	0
Flt Permitted				0.167						0.950		
Satd. Flow (perm)	0	1641	1376	311	1863	0	0	0	0	1770	5595	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22	47								15	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1036			463			451			393	
Travel Time (s)		23.5			10.5			10.3			8.9	
Confl. Peds. (#/hr)			55			59			38			49
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)			26%									
Lane Group Flow (vph)	0	396	353	196	274	0	0	0	0	127	2389	0
Turn Type			Perm	pm+pt						Split		
Protected Phases		3		2	2 3					1	1	
Permitted Phases			3	2 3								
Minimum Split (s)		28.0	28.0	15.0						30.0	30.0	
Total Split (s)	0.0	28.0	28.0	16.0	44.0	0.0	0.0	0.0	0.0	56.0	56.0	0.0
Total Split (%)	0.0%	28.0%	28.0%	16.0%	44.0%	0.0%	0.0%	0.0%	0.0%	56.0%	56.0%	0.0%
Yellow Time (s)		4.0	4.0	4.0						4.0	4.0	
All-Red Time (s)		2.0	2.0	1.0						2.0	2.0	
Lost Time Adjust (s)	-1.0	-3.0	-3.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0	-3.0	-3.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag				Lag						Lead	Lead	
Lead-Lag Optimize?												
Act Effct Green (s)		25.0	25.0	38.0	41.0					53.0	53.0	
Actuated g/C Ratio		0.25	0.25	0.38	0.41					0.53	0.53	
v/c Ratio		0.93	0.93	0.64	0.36					0.14	0.80	
Control Delay		60.0	60.3	30.1	19.9					13.4	19.6	
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.3	
Total Delay		60.0	60.3	30.1	19.9					13.4	20.0	
LOS		E	E	C	B					B	B	
Approach Delay		60.1			24.1						19.7	
Approach LOS		E			C						B	
Queue Length 50th (ft)		237	195	76	109					37	292	
Queue Length 95th (ft)		#438	#389	142	169					m56	m347	
Internal Link Dist (ft)		956			383			371			313	
Turn Bay Length (ft)			125							100		
Base Capacity (vph)		427	379	308	764					938	2972	
Starvation Cap Reductn		0	0	0	0					0	167	
Spillback Cap Reductn		0	0	0	0					0	0	
Storage Cap Reductn		0	0	0	0					0	0	
Reduced v/c Ratio		0.93	0.93	0.64	0.36					0.14	0.85	

Comment 1
%user_name%

Synchro 7 - Report
Page 1

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 70 (70%), Referenced to phase 1:SBTL, Start of Green

Natural Cycle: 80

Control Type: Pretimed

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 28.3

Intersection LOS: C

Intersection Capacity Utilization 74.6%

ICU Level of Service D

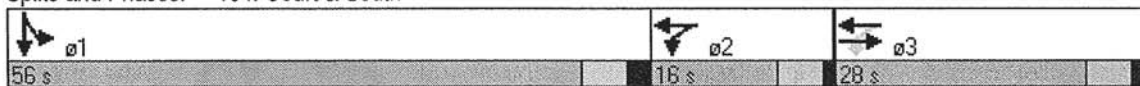
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 104: Court & South



AM Proposed Synchro
With timing adjustments

Lanes, Volumes, Timings
100: IL WB & Central

AM Proposed with Signal Timing Adjustments

1/29/2009

									
Lane Group	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	SWR2
Lane Configurations									
Volume (vph)	366	344	143	69	481	21	717	254	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	3401	0	1611
Flt Permitted	0.950			0.950					
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	3401	0	1611
Right Turn on Red								Yes	Yes
Satd. Flow (RTOR)							51		427
Link Speed (mph)		30			30		30		
Link Distance (ft)		657			237		855		
Travel Time (s)		14.9			5.4		19.4		
Peak Hour Factor	0.90	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)									
Lane Group Flow (vph)	407	344	159	77	534	23	1079	0	12
Turn Type	Split		Perm	custom		Perm			Free
Protected Phases	3	3		2	1 2		1		
Permitted Phases			3	2		1 2	1		Free
Detector Phase	3	3	3	2	1 2	1 2	1		
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0			7.0		
Minimum Split (s)	18.0	18.0	18.0	15.0			27.0		
Total Split (s)	31.0	31.0	31.0	35.0	69.0	69.0	34.0	0.0	0.0
Total Split (%)	31.0%	31.0%	31.0%	35.0%	69.0%	69.0%	34.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0			4.0		
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0		
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag				Lag			Lead		
Lead-Lag Optimize?									
Recall Mode	None	None	None	None			C-Max		
Act Effect Green (s)	26.9	26.9	26.9	32.0	67.1	67.1	32.1		100.0
Actuated g/C Ratio	0.27	0.27	0.27	0.32	0.67	0.67	0.32		1.00
v/c Ratio	0.86	0.69	0.37	0.14	0.43	0.02	0.96		0.01
Control Delay	55.7	43.3	34.5	9.9	4.5	1.5	51.2		0.0
Queue Delay	0.0	0.0	0.0	0.0	0.6	0.0	0.0		0.0
Total Delay	55.7	43.3	34.5	9.9	5.2	1.5	51.2		0.0
LOS	E	D	C	A	A	A	D		A
Approach Delay		47.3			5.6		51.2		
Approach LOS		D			A		D		
Queue Length 50th (ft)	269	225	102	17	38	1	345		0
Queue Length 95th (ft)	#408	318	167	m33	46	m2	#494		0
Internal Link Dist (ft)		577			157		775		
Turn Bay Length (ft)									
Base Capacity (vph)	496	522	443	566	1251	1063	1127		1611
Starvation Cap Reductn	0	0	0	0	371	0	0		0
Spillback Cap Reductn	0	0	0	0	0	0	0		0
Storage Cap Reductn	0	0	0	0	0	0	0		0
Reduced v/c Ratio	0.82	0.66	0.36	0.14	0.61	0.02	0.96		0.01

Comment 1
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Synchro 7 - Report
Page 1

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	27 (27%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.99
Intersection Signal Delay:	38.7
Intersection Capacity Utilization	63.2%
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: 100: IL WB & Central

#100#101 ↓↑ ↓↑ ø1 34 s	#100#101 ↖↑ ↗↑ ø2 35 s	#100#101 ↙↓ ↘↓ ø3 31 s
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Lanes, Volumes, Timings
101: IL EB & St Paul

AM Proposed with Signal Timing Adjustments

1/29/2009

									
Lane Group	EBL	EBT	EBR	EBR2	SBL2	SBL	SBT	NWR	NWR2
Lane Configurations									
Volume (vph)	557	188	11	552	54	11	664	143	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250			0		0	
Storage Lanes	1		1			0		1	
Taper Length (ft)	25		25			25		25	
Satd. Flow (prot)	1610	3105	1441	0	0	0	5065	1611	0
Flt Permitted	0.950	0.972					0.903		
Satd. Flow (perm)	1610	3105	1441	0	0	0	4592	1611	0
Right Turn on Red				Yes					Yes
Satd. Flow (RTOR)			231					3	
Link Speed (mph)		30					30		
Link Distance (ft)		1691					237		
Travel Time (s)		38.4					5.4		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.90
Shared Lane Traffic (%)	50%		90%						
Lane Group Flow (vph)	309	530	614	0	0	0	810	161	0
Turn Type	Split		Perm		pm+pt	Perm		custom	
Protected Phases	2	2			3		13	1	
Permitted Phases			2		13	13		1	
Detector Phase	2	2	2		3	13	13	1	
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0		6.0			7.0	
Minimum Split (s)	15.0	15.0	15.0		18.0			27.0	
Total Split (s)	35.0	35.0	35.0	0.0	31.0	65.0	65.0	34.0	0.0
Total Split (%)	35.0%	35.0%	35.0%	0.0%	31.0%	65.0%	65.0%	34.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0		4.0			4.0	
All-Red Time (s)	1.0	1.0	1.0		1.0			1.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-1.0	-2.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag	Lag					Lead	
Lead-Lag Optimize?									
Recall Mode	None	None	None		None			C-Max	
Act Effct Green (s)	32.0	32.0	32.0				62.0	32.1	
Actuated g/C Ratio	0.32	0.32	0.32				0.62	0.32	
v/c Ratio	0.60	0.53	0.99				0.28	0.31	
Control Delay	30.2	26.3	53.6				3.4	27.7	
Queue Delay	0.0	0.0	0.0				0.6	0.0	
Total Delay	30.2	26.3	53.6				4.0	27.7	
LOS	C	C	D				A	C	
Approach Delay		38.7					4.0		
Approach LOS		D					A		
Queue Length 50th (ft)	151	135	310				23	77	
Queue Length 95th (ft)	241	178	#553				m26	132	
Internal Link Dist (ft)		1611					157		
Turn Bay Length (ft)	250		250						
Base Capacity (vph)	515	994	618				2847	519	
Starvation Cap Reductn	0	0	0				1533	0	
Spillback Cap Reductn	2	4	0				0	0	

Comment 1
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Synchro 7 - Report
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Lanes, Volumes, Timings
101: IL EB & St Paul

AM Proposed with Signal Timing Adjustments

1/29/2009



Lane Group	EBL	EBT	EBR	EBR2	SBL2	SBL	SBT	NWR	NWR2
Storage Cap Reductn	0	0	0				0	0	
Reduced v/c Ratio	0.60	0.54	0.99				0.62	0.31	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 27 (27%), Referenced to phase 1:NBSB, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 26.3

Intersection LOS: C

Intersection Capacity Utilization 55.3%

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.

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

Splits and Phases: 101: IL EB & St Paul

#100#101 ↓ ↓ ↓ ρ1 34 s	#100#101 ← → ← ρ2 35 s	#100#101 ← → ← ρ3 31 s
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Lanes, Volumes, Timings
102: Main & St Paul

AM Proposed with Signal Timing Adjustments

1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑					↖	↑↑↑	
Volume (vph)	0	567	58	97	519	0	0	0	0	102	1224	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	0		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	3081	0	0	3125	0	0	0	0	1770	4884	0
Flt Permitted					0.692					0.950		
Satd. Flow (perm)	0	3081	0	0	2180	0	0	0	0	1770	4884	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15									22	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		693			335			717			429	
Travel Time (s)		15.8			7.6			16.3			9.8	
Confl. Peds. (#/hr)			65			298			33			191
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	20	0	0	20	0	0	0	0	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	694	0	0	685	0	0	0	0	113	1513	0
Turn Type				Perm						Perm		
Protected Phases		1			1						2	
Permitted Phases				1						2		
Minimum Split (s)		31.0		31.0	31.0					29.0	29.0	
Total Split (s)	0.0	51.0	0.0	51.0	51.0	0.0	0.0	0.0	0.0	41.0	41.0	0.0
Total Split (%)	0.0%	51.0%	0.0%	51.0%	51.0%	0.0%	0.0%	0.0%	0.0%	41.0%	41.0%	0.0%
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	2.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	3.0
Lead/Lag		Lag		Lag	Lag					Lag	Lag	
Lead-Lag Optimize?												
Act Effect Green (s)		48.0			48.0					37.0	38.0	
Actuated g/C Ratio		0.48			0.48					0.37	0.38	
v/c Ratio		0.47			0.65					0.17	0.81	
Control Delay		25.8			14.5					22.2	24.9	
Queue Delay		0.0			0.4					0.0	0.8	
Total Delay		25.8			15.0					22.2	25.7	
LOS		C			B					C	C	
Approach Delay		25.8			15.0						25.5	
Approach LOS		C			B						C	
Queue Length 50th (ft)		193			66					36	171	
Queue Length 95th (ft)		288			84					m66	230	
Internal Link Dist (ft)		613			255			637			349	
Turn Bay Length (ft)										100		
Base Capacity (vph)		1487			1046					655	1870	
Starvation Cap Reductn		0			87					0	129	
Spillback Cap Reductn		40			0					0	0	
Storage Cap Reductn		0			0					0	0	

Comment 1
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Synchro 7 - Report
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Lane Group	ø4	ø8
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
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 (%)		
Bus Blockages (#/hr)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	4	8
Permitted Phases		
Minimum Split (s)	4.0	4.0
Total Split (s)	4.0	4.0
Total Split (%)	4%	4%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
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		

Comment 1
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Synchro 7 - Report
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Lanes, Volumes, Timings
102: Main & St Paul

AM Proposed with Signal Timing Adjustments

1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio		0.48			0.71					0.17	0.87	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 70

Control Type: Pretimed

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 23.2

Intersection LOS: C

Intersection Capacity Utilization 79.2%

ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 102: Main & St Paul

					
4 s	51 s	ø1	4 s	41 s	ø2

Lane Group	ø4	ø8
Reduced v/c Ratio		
Intersection Summary		

Lanes, Volumes, Timings
103: Broad & South

AM Proposed with Signal Timing Adjustments

1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	232	184	88	603	0	0	0	0	55	897	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	1863	1583	1610	3387	0	0	0	0	1770	6288	0
Flt Permitted				0.425	0.953					0.950		
Satd. Flow (perm)	0	1863	1407	720	3231	0	0	0	0	1770	6288	0
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)											30	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1067			365			393			717	
Travel Time (s)		24.3			8.3			8.9			16.3	
Confl. Peds. (#/hr)			61			35			96			27
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)				10%								
Lane Group Flow (vph)	0	258	204	88	680	0	0	0	0	61	1099	0
Turn Type			Perm	custom						Prot		
Protected Phases		3		4	3 4 7					2	2 6	
Permitted Phases			3	3 4								
Minimum Split (s)		23.0	23.0	12.0						26.0		
Total Split (s)	0.0	33.0	33.0	16.0	86.0	0.0	0.0	0.0	0.0	43.0	90.0	0.0
Total Split (%)	0.0%	33.0%	33.0%	16.0%	86.0%	0.0%	0.0%	0.0%	0.0%	43.0%	90.0%	0.0%
Yellow Time (s)		4.0	4.0	4.0						4.0		
All-Red Time (s)		1.0	1.0	1.0						1.5		
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0	-2.5	-2.5	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag		Lag	Lag							Lag		
Lead-Lag Optimize?												
Act Effct Green (s)		30.0	30.0	43.0	47.0					40.0	44.0	
Actuated g/C Ratio		0.30	0.30	0.43	0.47					0.40	0.44	
v/c Ratio		0.46	0.48	0.21	0.44					0.09	0.39	
Control Delay		33.1	34.8	18.6	17.6					4.7	3.9	
Queue Delay		0.0	0.0	0.0	0.1					0.0	0.0	
Total Delay		33.1	34.8	18.6	17.7					4.7	3.9	
LOS		C	C	B	B					A	A	
Approach Delay		33.8			17.8						4.0	
Approach LOS		C			B						A	
Queue Length 50th (ft)		134	106	40	160					5	22	
Queue Length 95th (ft)		209	179	78	206					m7	25	
Internal Link Dist (ft)		987			285			313			637	
Turn Bay Length (ft)										100		
Base Capacity (vph)		559	422	425	1539					708	2784	
Starvation Cap Reductn		0	0	0	140					0	0	
Spillback Cap Reductn		0	0	0	0					0	0	
Storage Cap Reductn		0	0	0	0					0	0	
Reduced v/c Ratio		0.46	0.48	0.21	0.49					0.09	0.39	

Comment 1

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Synchro 7 - Report

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Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	74 (74%), Referenced to phase 2:SBTL and 6:SBT, Start of Green
Natural Cycle:	70
Control Type:	Pretimed
Maximum v/c Ratio:	0.48
Intersection Signal Delay:	14.2
Intersection LOS:	B
Intersection Capacity Utilization	59.3%
ICU Level of Service	B
Analysis Period (min)	15
m Volume for 95th percentile queue is metered by upstream signal.	

Splits and Phases: 103: Broad & South

  ø2	  ø3	 ø4
4 s 43 s	4 s 33 s	16 s
 ø6	 ø7	
47 s	37 s	

Lane Group	ø1	ø5	ø6	ø7
Lane Configurations				
Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
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				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	5	6	7
Permitted Phases				
Minimum Split (s)	4.0	4.0	30.0	27.0
Total Split (s)	4.0	4.0	47.0	37.0
Total Split (%)	4%	4%	47%	37%
Yellow Time (s)	3.0	3.0	4.0	4.0
All-Red Time (s)	0.0	0.0	1.5	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead		
Lead-Lag Optimize?				
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
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				

Comment 1
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Synchro 7 - Report
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Intersection Summary

Lanes, Volumes, Timings
104: Court & South

AM Proposed with Signal Timing Adjustments

1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	339	212	6	273	0	0	0	0	157	913	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		0	0			100		0
Storage Lanes	0		1	1		0	0			1		0
Taper Length (ft)	25		25	25		25	25			25		25
Satd. Flow (prot)	0	1749	1504	1770	1863	0	0	0	0	1770	6329	0
Flt Permitted				0.394						0.950		
Satd. Flow (perm)	0	1749	1432	734	1863	0	0	0	0	1770	6329	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5	40								18	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1036			463			451			393	
Travel Time (s)		23.5			10.5			10.3			8.9	
Confl. Peds. (#/hr)			27			43			23			20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)			10%									
Lane Group Flow (vph)	0	401	212	7	303	0	0	0	0	174	1083	0
Turn Type			Perm	Perm						Split		
Protected Phases		3			3					1	1	
Permitted Phases			3	3								
Minimum Split (s)		29.0	29.0	29.0	29.0					30.0	30.0	
Total Split (s)	0.0	54.0	54.0	54.0	54.0	0.0	0.0	0.0	0.0	46.0	46.0	0.0
Total Split (%)	0.0%	54.0%	54.0%	54.0%	54.0%	0.0%	0.0%	0.0%	0.0%	46.0%	46.0%	0.0%
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)	-1.0	-3.0	-3.0	-3.0	-3.0	-1.0	-1.0	-1.0	-1.0	-3.0	-3.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag												
Lead-Lag Optimize?												
Act Effct Green (s)		51.0	51.0	51.0	51.0					43.0	43.0	
Actuated g/C Ratio		0.51	0.51	0.51	0.51					0.43	0.43	
v/c Ratio		0.45	0.28	0.02	0.32					0.23	0.40	
Control Delay		13.5	8.9	7.5	9.3					10.0	10.0	
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.0	
Total Delay		13.5	8.9	7.5	9.3					10.0	10.0	
LOS		B	A	A	A					B	B	
Approach Delay		11.9			9.3						10.0	
Approach LOS		B			A						B	
Queue Length 50th (ft)		141	51	1	71					29	50	
Queue Length 95th (ft)		225	103	6	136					45	59	
Internal Link Dist (ft)		956			383			371			313	
Turn Bay Length (ft)			125							100		
Base Capacity (vph)		894	750	374	950					761	2732	
Starvation Cap Reductn		0	0	0	0					0	0	
Spillback Cap Reductn		0	0	0	0					0	0	
Storage Cap Reductn		0	0	0	0					0	0	
Reduced v/c Ratio		0.45	0.28	0.02	0.32					0.23	0.40	

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Synchro 7 - Report
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Lanes, Volumes, Timings
104: Court & South

AM Proposed with Signal Timing Adjustments
1/29/2009

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 78 (78%), Referenced to phase 1:SBTL, Start of Green

Natural Cycle: 60

Control Type: Pretimed

Maximum v/c Ratio: 0.45

Intersection Signal Delay: 10.4

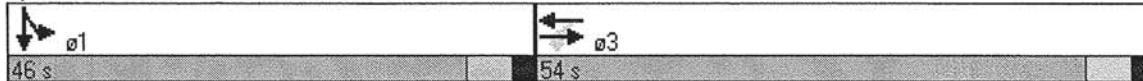
Intersection LOS: B

Intersection Capacity Utilization 52.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 104: Court & South



Lanes, Volumes, Timings
105: Woodbury & Clinton

AM Proposed with Signal Timing Adjustments

1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	147	0	0	204	176	391	3009	238	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	0	3518	0	0	3291	0	0	6257	0	0	0	0
Flt Permitted		0.875						0.995				
Satd. Flow (perm)	0	3097	0	0	3291	0	0	6257	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					1			33				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		228			525			662			432	
Travel Time (s)		5.2			11.9			15.0			9.8	
Confl. Peds. (#/hr)			13						103			11
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	187	0	0	423	0	0	4041	0	0	0	0
Turn Type	Perm						Split					
Protected Phases		2			2		1	1				
Permitted Phases	2											
Minimum Split (s)	29.0	29.0			29.0		31.0	31.0				
Total Split (s)	29.0	29.0	0.0	0.0	29.0	0.0	71.0	71.0	0.0	0.0	0.0	0.0
Total Split (%)	29.0%	29.0%	0.0%	0.0%	29.0%	0.0%	71.0%	71.0%	0.0%	0.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	-2.0	-2.0	-1.0	-1.0	-2.0	-1.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag			Lag		Lead	Lead				
Lead-Lag Optimize?												
Act Effct Green (s)		26.0			26.0			68.0				
Actuated g/C Ratio		0.26			0.26			0.68				
v/c Ratio		0.23			0.49			0.95				
Control Delay		39.9			31.6			22.3				
Queue Delay		1.0			0.0			0.0				
Total Delay		40.9			31.6			22.3				
LOS		D			C			C				
Approach Delay		40.9			31.6			22.3				
Approach LOS		D			C			C				
Queue Length 50th (ft)		54			132			635				
Queue Length 95th (ft)		82			183			701				
Internal Link Dist (ft)		148			445			582			352	
Turn Bay Length (ft)												
Base Capacity (vph)		805			856			4265				
Starvation Cap Reductn		404			0			0				
Spillback Cap Reductn		0			0			0				
Storage Cap Reductn		0			0			0				
Reduced v/c Ratio		0.47			0.49			0.95				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												

Comment 1
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Synchro 7 - Report
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Lanes, Volumes, Timings
105: Woodbury & Clinton

AM Proposed with Signal Timing Adjustments

1/29/2009

Actuated Cycle Length: 100

Offset: 95 (95%), Referenced to phase 1:NBTL, Start of Green

Natural Cycle: 90

Control Type: Pretimed

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 23.9

Intersection LOS: C

Intersection Capacity Utilization 83.4%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 105: Woodbury & Clinton

 ø1	 ø2
71 s	29 s

PM Proposed Synchro

With timing adjustments

Lanes, Volumes, Timings
100: IL WB & Central

PM Proposed with Signal Timing Adjustments

1/29/2009

									
Lane Group	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR	SWR2
Lane Configurations									
Volume (vph)	242	674	283	245	528	59	223	413	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	3196	0	1611
Flt Permitted	0.950			0.950					
Satd. Flow (perm)	1770	1863	1583	1770	1863	1583	3196	0	1611
Right Turn on Red								Yes	Yes
Satd. Flow (RTOR)							128		321
Link Speed (mph)		30			30		30		
Link Distance (ft)		657			237		855		
Travel Time (s)		14.9			5.4		19.4		
Peak Hour Factor	0.90	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)									
Lane Group Flow (vph)	269	674	314	272	587	66	707	0	12
Turn Type	Split		Perm	custom		Perm			Free
Protected Phases	3	3		2	1 2		1		
Permitted Phases			3	2		1 2	1		Free
Detector Phase	3	3	3	2	1 2	1 2	1		
Switch Phase									
Minimum Initial (s)	6.0	6.0	6.0	6.0			7.0		
Minimum Split (s)	18.0	18.0	18.0	15.0			27.0		
Total Split (s)	42.0	42.0	42.0	22.0	58.0	58.0	36.0	0.0	0.0
Total Split (%)	42.0%	42.0%	42.0%	22.0%	58.0%	58.0%	36.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0			4.0		
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0		
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag				Lag			Lead		
Lead-Lag Optimize?									
Recall Mode	None	None	None	None			C-Max		
Act Effect Green (s)	38.5	38.5	38.5	18.8	55.5	55.5	33.7		100.0
Actuated g/C Ratio	0.38	0.38	0.38	0.19	0.56	0.56	0.34		1.00
v/c Ratio	0.40	0.94	0.52	0.82	0.57	0.08	0.61		0.01
Control Delay	25.7	54.9	29.1	32.0	8.8	4.1	25.1		0.0
Queue Delay	0.0	0.0	0.0	26.5	2.6	0.0	0.0		0.0
Total Delay	25.7	54.9	29.1	58.5	11.4	4.1	25.1		0.0
LOS	C	D	C	E	B	A	C		A
Approach Delay		42.2			24.7		25.1		
Approach LOS		D			C		C		
Queue Length 50th (ft)	159	444	192	123	51	2	162		0
Queue Length 95th (ft)	240	#645	282	m180	m98	m8	224		0
Internal Link Dist (ft)		577			157		775		
Turn Bay Length (ft)									
Base Capacity (vph)	690	727	617	336	1037	881	1160		1611
Starvation Cap Reductn	0	0	0	67	321	0	0		0
Spillback Cap Reductn	0	0	0	0	0	0	0		0
Storage Cap Reductn	0	0	0	0	0	0	0		0
Reduced v/c Ratio	0.39	0.93	0.51	1.01	0.82	0.07	0.61		0.01

Comment 1
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Synchro 7 - Report
Page 1

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	31 (31%), Referenced to phase 1:NBSB, Start of Green
Natural Cycle:	70
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.94
Intersection Signal Delay:	32.3
Intersection Capacity Utilization	78.5%
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: 100: IL WB & Central

#100#101 ↑↓ ø1	#100#101 ↔ ø2	#100#101 ↔ ø3
36 s	22 s	42 s

Lanes, Volumes, Timings
101: IL EB & St Paul

PM Proposed with Signal Timing Adjustments

1/29/2009

								
Lane Group	EBL	EBT	EBR	SBL2	SBL	SBT	NWR	NWR2
Lane Configurations								
Volume (vph)	440	119	22	54	10	522	447	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250		0		0	
Storage Lanes	1		1		0		1	
Taper Length (ft)	25		25		25		25	
Satd. Flow (prot)	1610	3101	1441	0	0	5060	1611	0
Flt Permitted	0.950	0.969				0.857		
Satd. Flow (perm)	1610	3101	1441	0	0	4358	1611	0
Right Turn on Red								Yes
Satd. Flow (RTOR)								
Link Speed (mph)		30				30		
Link Distance (ft)		1691				237		
Travel Time (s)		38.4				5.4		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.90
Shared Lane Traffic (%)	50%		10%					
Lane Group Flow (vph)	244	379	22	0	0	651	475	0
Turn Type	Split		Perm	pm+pt	Perm		custom	
Protected Phases	2	2		3		1 3	1	
Permitted Phases			2	1 3	1 3		1	
Detector Phase	2	2	2	3	1 3	1 3	1	
Switch Phase								
Minimum Initial (s)	6.0	6.0	6.0	6.0			7.0	
Minimum Split (s)	15.0	15.0	15.0	18.0			27.0	
Total Split (s)	22.0	22.0	22.0	42.0	78.0	78.0	36.0	0.0
Total Split (%)	22.0%	22.0%	22.0%	42.0%	78.0%	78.0%	36.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0			4.0	
All-Red Time (s)	1.0	1.0	1.0	1.0			1.0	
Lost Time Adjust (s)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag	Lag				Lead	
Lead-Lag Optimize?								
Recall Mode	None	None	None	None			C-Max	
Act Effct Green (s)	18.8	18.8	18.8			75.2	33.7	
Actuated g/C Ratio	0.19	0.19	0.19			0.75	0.34	
v/c Ratio	0.81	0.65	0.08			0.20	0.87	
Control Delay	62.6	47.5	40.3			1.5	50.6	
Queue Delay	2.9	0.5	0.0			0.4	0.7	
Total Delay	65.5	48.0	40.3			1.9	51.2	
LOS	E	D	D			A	D	
Approach Delay		54.4				1.9		
Approach LOS		D				A		
Queue Length 50th (ft)	160	127	13			10	286	
Queue Length 95th (ft)	#296	188	m29			10	#474	
Internal Link Dist (ft)		1611				157		
Turn Bay Length (ft)	250		250					
Base Capacity (vph)	306	589	274			3272	543	
Starvation Cap Reductn	0	0	0			1975	0	
Spillback Cap Reductn	19	36	0			0	7	

Comment 1
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Synchro 7 - Report
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Lanes, Volumes, Timings
101: IL EB & St Paul

PM Proposed with Signal Timing Adjustments

1/29/2009



Lane Group	EBL	EBT	EBR	SBL2	SBL	SBT	NWR	NWR2
Storage Cap Reductn	0	0	0			0	0	
Reduced v/c Ratio	0.85	0.69	0.08			0.50	0.89	

Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 31 (31%), Referenced to phase 1:NBSB, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay: 34.2

Intersection LOS: C

Intersection Capacity Utilization 61.5%

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.

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

Splits and Phases: 101: IL EB & St Paul

#100#101 ↓↑ ↓↑ ↯ ø1 36 s	#100#101 ↯ ↯ ↯ ø2 22 s	#100#101 ↯ ↯ ↯ ø3 42 s
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Lanes, Volumes, Timings
102: Main & St Paul

PM Proposed with Signal Timing Adjustments

1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑					↘	↑↑↑	
Volume (vph)	0	501	86	72	626	0	0	0	0	147	1476	309
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	0		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	3365	0	0	3522	0	0	0	0	1770	4791	0
Flt Permitted					0.765					0.950		
Satd. Flow (perm)	0	3365	0	0	2707	0	0	0	0	1770	4791	0
Right Turn on Red			Yes			Yes				Yes		Yes
Satd. Flow (RTOR)		24									57	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		693			335			717			429	
Travel Time (s)		15.8			7.6			16.3			9.8	
Confl. Peds. (#/hr)			151			392			46			145
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	653	0	0	776	0	0	0	0	163	1983	0
Turn Type				Perm						Perm		
Protected Phases		1			1						2	
Permitted Phases				1						2		
Minimum Split (s)		31.0		31.0	31.0					29.0	29.0	
Total Split (s)	0.0	46.0	0.0	46.0	46.0	0.0	0.0	0.0	0.0	46.0	46.0	0.0
Total Split (%)	0.0%	46.0%	0.0%	46.0%	46.0%	0.0%	0.0%	0.0%	0.0%	46.0%	46.0%	0.0%
Yellow Time (s)		4.0		4.0	4.0					4.0	4.0	
All-Red Time (s)		1.0		1.0	1.0					1.0	1.0	
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-1.0	-2.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-1.0
Total Lost Time (s)	3.0	3.0	2.0	4.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	3.0
Lead/Lag		Lag		Lag	Lag					Lag	Lag	
Lead-Lag Optimize?												
Act Effect Green (s)		43.0			43.0					42.0	43.0	
Actuated g/C Ratio		0.43			0.43					0.42	0.43	
v/c Ratio		0.45			0.67					0.22	0.95	
Control Delay		25.6			15.8					13.0	30.4	
Queue Delay		0.0			0.9					0.0	2.1	
Total Delay		25.6			16.7					13.0	32.6	
LOS		C			B					B	C	
Approach Delay		25.6			16.7						31.1	
Approach LOS		C			B						C	
Queue Length 50th (ft)		196			97					40	478	
Queue Length 95th (ft)		270			122					m65	#561	
Internal Link Dist (ft)		613			255			637			349	
Turn Bay Length (ft)										100		
Base Capacity (vph)		1461			1164					743	2093	
Starvation Cap Reductn		0			162					0	52	
Spillback Cap Reductn		0			0					0	0	
Storage Cap Reductn		0			0					0	0	
Reduced v/c Ratio		0.45			0.77					0.22	0.97	

Comment 1
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Synchro 7 - Report
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Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	20 (20%), Referenced to phase 1:EBWB, Start of Green
Natural Cycle:	70
Control Type:	Pretimed
Maximum v/c Ratio:	0.95
Intersection Signal Delay:	27.0
Intersection Capacity Utilization	88.3%
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: 102: Main & St Paul

  ø1	  ø2
4 s 46 s	4 s 46 s

Lane Group	ø4	ø8
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
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		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	4	8
Permitted Phases		
Minimum Split (s)	4.0	4.0
Total Split (s)	4.0	4.0
Total Split (%)	4%	4%
Yellow Time (s)	3.0	3.0
All-Red Time (s)	0.0	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lead	Lead
Lead-Lag Optimize?		
Act Effect Green (s)		
Actuated g/C Ratio		
v/c Ratio		
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

Lanes, Volumes, Timings
103: Broad & South

PM Proposed with Signal Timing Adjustments

1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	150	337	425	707	0	0	0	0	99	1500	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	1863	1583	1610	3373	0	0	0	0	1770	6338	0
Flt Permitted				0.566	0.882					0.950		
Satd. Flow (perm)	0	1863	1259	959	2990	0	0	0	0	1770	6338	0
Right Turn on Red			No			Yes				Yes		Yes
Satd. Flow (RTOR)											11	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1067			365			393			717	
Travel Time (s)		24.3			8.3			8.9			16.3	
Confl. Peds. (#/hr)			118			39			118			48
Peak Hour Factor	0.90	0.90	1.00	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)				19%								
Lane Group Flow (vph)	0	167	337	382	876	0	0	0	0	110	1750	0
Turn Type			Perm	custom						Prot		
Protected Phases		3		4	3 4 7					2	2 6	
Permitted Phases			3	3 4								
Minimum Split (s)		23.0	23.0	12.0						26.0		
Total Split (s)	0.0	34.0	34.0	24.0	96.0	0.0	0.0	0.0	0.0	34.0	72.0	0.0
Total Split (%)	0.0%	34.0%	34.0%	24.0%	96.0%	0.0%	0.0%	0.0%	0.0%	34.0%	72.0%	0.0%
Yellow Time (s)		4.0	4.0	4.0						4.0		
All-Red Time (s)		1.0	1.0	1.0						1.5		
Lost Time Adjust (s)	-1.0	-2.0	-2.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0	-2.5	-2.5	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag		Lag	Lag							Lag		
Lead-Lag Optimize?												
Act Effct Green (s)		31.0	31.0	52.0	56.0					31.0	35.0	
Actuated g/C Ratio		0.31	0.31	0.52	0.56					0.31	0.35	
v/c Ratio		0.29	0.86	0.60	0.50					0.20	0.79	
Control Delay		34.2	61.6	29.3	18.4					8.4	10.7	
Queue Delay		0.0	0.0	0.3	0.1					0.0	0.0	
Total Delay		34.2	61.6	29.7	18.4					8.4	10.7	
LOS		C	E	C	B					A	B	
Approach Delay		52.5			21.8						10.6	
Approach LOS		D			C						B	
Queue Length 50th (ft)		90	222	204	228					24	153	
Queue Length 95th (ft)		144	#369	298	293					m26	m163	
Internal Link Dist (ft)		987			285			313			637	
Turn Bay Length (ft)										100		
Base Capacity (vph)		578	390	635	1755					549	2225	
Starvation Cap Reductn		0	0	0	87					0	0	
Spillback Cap Reductn		0	0	38	40					0	0	
Storage Cap Reductn		0	0	0	0					0	0	
Reduced v/c Ratio		0.29	0.86	0.64	0.53					0.20	0.79	

Comment 1
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Synchro 7 - Report
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Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	99 (99%), Referenced to phase 2:SBTL and 6:SBT, Start of Green
Natural Cycle:	70
Control Type:	Pretimed
Maximum v/c Ratio:	0.86
Intersection Signal Delay:	20.3
Intersection Capacity Utilization	81.7%
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: 103: Broad & South

  ø2	  ø3	 ø4
4 s 34 s	4 s 34 s	24 s
 ø6	 ø7	
38 s	38 s	

Lane Group	ø1	ø5	ø6	ø7
Lane Configurations				
Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
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				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	1	5	6	7
Permitted Phases				
Minimum Split (s)	4.0	4.0	30.0	27.0
Total Split (s)	4.0	4.0	38.0	38.0
Total Split (%)	4%	4%	38%	38%
Yellow Time (s)	3.0	3.0	4.0	4.0
All-Red Time (s)	0.0	0.0	1.5	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lead	Lead		
Lead-Lag Optimize?				
Act Effct Green (s)				
Actuated g/C Ratio				
v/c Ratio				
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				

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Intersection Summary

Lanes, Volumes, Timings
104: Court & South

PM Proposed with Signal Timing Adjustments

1/29/2009

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	245	429	176	247	0	0	0	0	114	2033	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		0	0		0	100		0
Storage Lanes	0		1	1		0	0		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Satd. Flow (prot)	0	1641	1504	1770	1863	0	0	0	0	1770	5595	0
Flt Permitted				0.154						0.950		
Satd. Flow (perm)	0	1641	1376	287	1863	0	0	0	0	1770	5595	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22	40								15	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1036			463			451			393	
Travel Time (s)		23.5			10.5			10.3			8.9	
Confl. Peds. (#/hr)			55			59			38			49
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Shared Lane Traffic (%)			26%									
Lane Group Flow (vph)	0	396	353	196	274	0	0	0	0	127	2389	0
Turn Type			Perm	pm+pt						Split		
Protected Phases		3		2	2 3					1	1	
Permitted Phases			3	2 3								
Minimum Split (s)		28.0	28.0	15.0						30.0	30.0	
Total Split (s)	0.0	30.0	30.0	15.0	45.0	0.0	0.0	0.0	0.0	55.0	55.0	0.0
Total Split (%)	0.0%	30.0%	30.0%	15.0%	45.0%	0.0%	0.0%	0.0%	0.0%	55.0%	55.0%	0.0%
Yellow Time (s)		4.0	4.0	4.0						4.0	4.0	
All-Red Time (s)		2.0	2.0	1.0						2.0	2.0	
Lost Time Adjust (s)	-1.0	-3.0	-3.0	-2.0	-2.0	-1.0	-1.0	-1.0	-1.0	-3.0	-3.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag				Lag						Lead	Lead	
Lead-Lag Optimize?												
Act Effect Green (s)		27.0	27.0	39.0	42.0					52.0	52.0	
Actuated g/C Ratio		0.27	0.27	0.39	0.42					0.52	0.52	
v/c Ratio		0.86	0.88	0.68	0.35					0.14	0.82	
Control Delay		48.2	50.8	32.7	19.2					14.4	21.5	
Queue Delay		0.0	0.0	0.0	0.0					0.0	0.4	
Total Delay		48.2	50.8	32.7	19.2					14.4	21.9	
LOS		D	D	C	B					B	C	
Approach Delay		49.5			24.8						21.5	
Approach LOS		D			C						C	
Queue Length 50th (ft)		234	197	74	107					40	305	
Queue Length 95th (ft)		#414	#378	#156	166					m58	363	
Internal Link Dist (ft)		956			383			371			313	
Turn Bay Length (ft)			125							100		
Base Capacity (vph)		459	401	290	782					920	2917	
Starvation Cap Reductn		0	0	0	0					0	166	
Spillback Cap Reductn		0	0	0	0					0	0	
Storage Cap Reductn		0	0	0	0					0	0	
Reduced v/c Ratio		0.86	0.88	0.68	0.35					0.14	0.87	

Comment 1
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Synchro 7 - Report
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Intersection Summary

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 70 (70%), Referenced to phase 1:SBTL, Start of Green

Natural Cycle: 80

Control Type: Pretimed

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 27.6

Intersection LOS: C

Intersection Capacity Utilization 74.6%

ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

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

Splits and Phases: 104: Court & South

