

2012 NO-BUILD CONDITIONS

HCS+: Signalized Intersections Release 5.2

Analyst: JCE Inter.: AM52NB
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: All other areas
 Date: 4/27/2007 Jurisd:
 Period: WEEKDAY PEAK AM HIGHWAY HOUR Year : 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: SAW MILL & CROSS COUNTY RAMPS N/S St: RUMSEY ROAD

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	0	2	0	0	0	2	0	0	2	0
LGConfig	L			L				T			T	
Volume	678			413				1489			514	
Lane Width	12.0			12.0				12.0			12.0	
RTOR Vol												

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left			
Thru					Thru	A		
Right					Right			
Peds					Peds			
WB Left		A			SB Left			
Thru					Thru	A		
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		30.0				50.0		
Yellow		3.0				3.0		
All Red		2.0				2.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	1168	3505	0.63	0.33	26.4	C	26.4	C
Westbound								
L	1168	3505	0.38	0.33	23.2	C	23.2	C
Northbound								
T	2010	3618	0.80	0.56	18.6	B	18.6	B
Southbound								
T	2010	3618	0.28	0.56	10.6	B	10.6	B

Intersection Delay = 19.6 (sec/veh) Intersection LOS = B

Phone: Fax:
 E-Mail:

----- OPERATIONAL ANALYSIS -----

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/27/2007
 Analysis Time Period: WEEKDAY PEAK AM HIGHWAY HOUR
 Intersection: AM52NB
 Area Type: All other areas
 Jurisdiction:
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: SAW MILL & CROSS COUNTY RAMPS N/S St: RUMSEY ROAD

----- VOLUME DATA -----

	Eastbound			Westbound			Northbound			Southbound			
	L	T	R	L	T	R	L	T	R	L	T	R	
Volume	678			413			1489			514			
% Heavy Veh	0			0			0			0			
PHF	0.92			0.92			0.92			0.92			
PK 15 Vol	184			112			405			140			
Hi Ln Vol													
% Grade	0			0			0			0			
Ideal Sat	1900			1900			1900			1900			
ParkExist													
NumPark													
No. Lanes	2	0	0	2	0	0	0	2	0	0	0	2	0
LGConfig	L			L				T				T	
Lane Width	12.0			12.0			12.0			12.0			
RTOR Vol													
Adj Flow	737			449			1618			559			
%InSharedLn													
Prop LTs							0.000			0.000			
Prop RTs							0.000			0.000			
Peds Bikes	0			0			0			0			
Buses	0			0			0			0			
%InProtPhase													
Duration	0.25			Area Type: All other areas									

----- OPERATING PARAMETERS -----

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet	0.0			0.0			0.0			0.0		
Arriv. Type	3			3			3			3		
Unit Ext.	3.0			3.0			3.0			3.0		
I Factor		1.000			1.000			1.000			1.000	
Lost Time	2.0			2.0			2.0			2.0		
Ext of g	2.0			2.0			2.0			2.0		
Ped Min g		3.2			3.2							

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Analyst: JCE Inter.: AM53NB
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: All other areas
 Date: 4/27/2007 Jurisd:
 Period: WEEKDAY PEAK AM HIGHWAY HOUR Year : 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: SPRUCE STREET/TRUESDALE PLACE N/S St: RUMSEY ROAD

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	0	0	0	1	0	0	1	1
LGConfig	LR						LT			T R		
Volume	385		51				38	1101		688	231	
Lane Width	15.0						15.0			12.0	12.0	
RTOR Vol	0									0		

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru					Thru	A		
Right		A			Right			
Peds		X			Peds	X		
WB Left					SB Left			
Thru					Thru	A		
Right					Right	A		
Peds		X			Peds	X		
NB Right					EB Right			
SB Right					WB Right			
Green	26.0				54.0			
Yellow	3.0				3.0			
All Red	2.0				2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

LR 580 2007 0.82 0.29 38.6 D 38.6 D

Westbound

Northbound

LT 1200 2000 1.03 0.60 52.5 D 52.5 D

Southbound

T 1140 1900 0.66 0.60 13.3 B 12.1 B
 R 949 1582 0.26 0.60 8.7 A

Intersection Delay = 35.2 (sec/veh) Intersection LOS = D

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/27/2007
 Analysis Time Period: WEEKDAY PEAK AM HIGHWAY HOUR
 Intersection: AM53NB
 Area Type: All other areas
 Jurisdiction:
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: SPRUCE STREET/TRUESDALE PLACE N/S St: RUMSEY ROAD

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	385		51				38	1101			688	231
% Heavy Veh	0		5				5	0			0	0
PHF	0.92		0.92				0.92	0.92			0.92	0.92
PK 15 Vol	105		14				10	299			187	63
Hi Ln Vol												
% Grade		-6						0			0	
Ideal Sat		1900						1900			1900	1900
ParkExist												
NumPark												
No. Lanes	0	0	0	0	0	0	0	1	0	0	1	1
LGConfig		LR						LT			T	R
Lane Width		15.0						15.0			12.0	12.0
RTOR Vol			0									0
Adj Flow		473						1238			748	251
%InSharedLn												
Prop LTs			0.884						0.033			0.000
Prop RTs		0.116						0.000			0.000	1.000
Peds Bikes	25		0		0						25	0
Buses		0						0			0	0
%InProtPhase												
Duration	0.25			Area Type: All other areas								

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet		0.0						0.0			0.0	0.0
Arriv. Type		3						3			3	3
Unit Ext.		3.0						3.0			3.0	3.0
I Factor		1.000						1.000			1.000	
Lost Time		2.0						2.0			2.0	2.0
Ext of g		2.0						2.0			2.0	2.0
Ped Min g		3.4			3.2						3.4	

Phone: Fax:
 E-Mail:

-----ALL-WAY STOP CONTROL(AWSC) ANALYSIS-----

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/30/2007
 Analysis Time Period: WEEKDAY PEAK AM HIGHWAY HOUR
 Intersection: AM54NB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 East/West Street: SPRUCE STREET
 North/South Street: VAN CORTLANDT PARK AVENUE

-----Worksheet 2 - Volume Adjustments and Site Characteristics-----

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	0	0	0	117	0	53	0	85	138	58	110	0
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration			LR		TR		LT	
PHF			0.92		0.92		0.92	
Flow Rate			184		241		182	
% Heavy Veh			5		5		5	
No. Lanes				1		1		1
Opposing-Lanes				0		1		1
Conflicting-lanes				1		1		1
Geometry group				1		1		1
Duration, T	0.25 hrs.							

-----Worksheet 3 - Saturation Headway Adjustment Worksheet-----

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane			184		241		182	
Left-Turn			127		0		63	
Right-Turn			57		149		0	
Prop. Left-Turns			0.7		0.0		0.3	
Prop. Right-Turns			0.3		0.6		0.0	
Prop. Heavy Vehicle			0.0		0.0		0.0	
Geometry Group				1		1		1
Adjustments Exhibit 17-33:								
hLT-adj				0.2		0.2		0.2

hRT-adj	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7
hadj, computed	0.0	-0.3	0.2

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate			184		241		182	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial			0.16		0.21		0.16	
hd, final value			4.92		4.33		4.82	
x, final value			0.25		0.29		0.24	
Move-up time, m				2.0		2.0		2.0
Service Time			2.9		2.3		2.8	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate			184		241		182	
Service Time			2.9		2.3		2.8	
Utilization, x			0.25		0.29		0.24	
Dep. headway, hd			4.92		4.33		4.82	
Capacity			434		491		432	
Delay			9.56		9.09		9.37	
LOS			A		A		A	
Approach:								
Delay			9.56		9.09		9.37	
LOS			A		A		A	
Intersection Delay	9.32				Intersection LOS	A		

TWO-WAY STOP CONTROL SUMMARY

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/30/2007
 Analysis Time Period: WEEKDAY PEAK AM HIGHWAY HOUR
 Intersection: AM55NB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 East/West Street: ELM STREET
 North/South Street: VAN CORTLANDT PARK AVENUE
 Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		111	80		16	154	
Peak-Hour Factor, PHF		0.92	0.92		0.92	0.92	
Hourly Flow Rate, HFR		120	86		17	167	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR			LT	
Upstream Signal?		No				No	

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		90		16			
Peak Hour Factor, PHF		0.92		0.92			
Hourly Flow Rate, HFR		97		17			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
			4 LT	7	8 LR	9	10	11
v (vph)		17		114				
C(m) (vph)		1348		649				
v/c		0.01		0.18				
95% queue length		0.04		0.63				
Control Delay		7.7		11.7				
LOS		A		B				
Approach Delay				11.7				
Approach LOS				B				

HCS+: Signalized Intersections Release 5.2

Analyst: JCE Inter.: AM56NB
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: CBD or Similar
 Date: 4/30/2007 Jurisd:
 Period: WEEKDAY PEAK AM HIGHWAY HOUR Year : 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: ELM STREET N/S St: WALNUT STREET

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	0	0	1	0	0	1	0
LGConfig	LTR			LTR			LTR			LTR		
Volume	64	101	11	11	148	85	11	58	27	64	42	53
Lane Width	12.0			12.0			12.0			12.0		
RTOR Vol	0			0			0			0		

Duration 0.25 Area Type: CBD or Similar

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	P				NB Left	P		
Thru	P				Thru	P		
Right	P				Right	P		
Peds	X				Peds	X		
WB Left	P				SB Left	P		
Thru	P				Thru	P		
Right	P				Right	P		
Peds	X				Peds	X		
NB Right					EB Right			
SB Right					WB Right			
Green	40.0				40.0			
Yellow	3.0				3.0			
All Red	2.0				2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

LTR 576 1297 0.33 0.44 17.9 B 17.9 B

Westbound

LTR 673 1515 0.39 0.44 18.6 B 18.6 B

Northbound

LTR 668 1502 0.16 0.44 15.4 B 15.4 B

Southbound

LTR 578 1301 0.30 0.44 17.4 B 17.4 B

Intersection Delay = 17.7 (sec/veh) Intersection LOS = B

Phone:
E-Mail:

Fax:

OPERATIONAL ANALYSIS

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/30/2007
 Analysis Time Period: WEEKDAY PEAK AM HIGHWAY HOUR
 Intersection: AM56NB
 Area Type: CBD or Similar
 Jurisdiction:
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: ELM STREET N/S St: WALNUT STREET

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	64	101	11	11	148	85	11	58	27	64	42	53
% Heavy Veh	5	5	5	5	5	5	5	5	5	5	5	5
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PK 15 Vol	17	27	3	3	40	23	3	16	7	17	11	14
Hi Ln Vol												
% Grade		0			0			0			0	
Ideal Sat		1900			1900			1900			1900	
ParkExist												
NumPark												
No. Lanes	0	1	0	0	1	0	0	1	0	0	1	0
LGConfig		LTR			LTR			LTR			LTR	
Lane Width		12.0			12.0			12.0			12.0	
RTOR Vol			0			0			0			0
Adj Flow		192			265			104			174	
%InSharedLn												
Prop LTs		0.365			0.045			0.115			0.402	
Prop RTs		0.063			0.347			0.279			0.333	
Peds Bikes	25	0		25	0		25	0		25	0	
Buses		0			0			0			0	
%InProtPhase												
Duration	0.25											

Area Type: CBD or Similar

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet		0.0			0.0			0.0			0.0	
Arriv. Type		3			3			3			3	
Unit Ext.		3.0			3.0			3.0			3.0	
I Factor		1.000			1.000			1.000			1.000	
Lost Time		2.0			2.0			2.0			2.0	
Ext of g		2.0			2.0			2.0			2.0	
Ped Min g		3.4			3.4			3.4			3.4	

HCS+: Unsignalized Intersections Release 5.2

Phone: Fax:
E-Mail:

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: JCE
Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
Date Performed: 4/30/2007
Analysis Time Period: WEEKDAY PEAK AM HIGHWAY HOUR
Intersection: AM57NB
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
Project ID: 281
East/West Street: ELM STREET
North/South Street: LINDEN STREET

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	80	129	80	27	207	27	70	10	5	0	0	0
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR			
PHF	0.92		0.92		0.92			
Flow Rate	312		282		91			
% Heavy Veh	5		5		5			
No. Lanes		1		1		1		
Opposing-Lanes		1		1		0		
Conflicting-lanes		1		1		1		
Geometry group		1		1		1		
Duration, T	0.25 hrs.							

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	312		282		91			
Left-Turn	86		29		76			
Right-Turn	86		29		5			
Prop. Left-Turns	0.3		0.1		0.8			
Prop. Right-Turns	0.3		0.1		0.1			
Prop. Heavy Vehicle	0.0		0.0		0.0			
Geometry Group		1		1		1		
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2		0.2			

TWO-WAY STOP CONTROL SUMMARY

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/30/2007
 Analysis Time Period: WEEKDAY PEAK AM HIGHWAY HOUR
 Intersection: AM58NB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 East/West Street: LOCKWOOD AVENUE
 North/South Street: SAW MILL PKWY SB ON/OFF RAMP
 Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		80	228			297	164
Peak-Hour Factor, PHF		0.92	0.92			0.92	0.92
Hourly Flow Rate, HFR		86	247			322	178
Percent Heavy Vehicles		0	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		0	1			1	0
Configuration		LT				TR	
Upstream Signal?		No				No	

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume					85		95
Peak Hour Factor, PHF					0.92		0.92
Hourly Flow Rate, HFR					92		103
Percent Heavy Vehicles					0		0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		No /
Lanes					0		0
Configuration						LR	

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound						
			1	4	7	8	9	10	11	12		
Lane Config	LT											
v (vph)	86								195			
C(m) (vph)	1075								358			
v/c	0.08								0.54			
95% queue length	0.26								3.11			
Control Delay	8.6								26.5			
LOS	A								D			
Approach Delay									26.5			
Approach LOS									D			

TWO-WAY STOP CONTROL SUMMARY

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/30/2007
 Analysis Time Period: WEEKDAY PEAK AM HIGHWAY HOUR
 Intersection: AM59NB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 East/West Street: PALMER ROAD
 North/South Street: SAW MILL PKWY NB ON/OFF RAMP
 Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		148	292		461	111	
Peak-Hour Factor, PHF		0.92	0.92		0.92	0.92	
Hourly Flow Rate, HFR		160	317		501	120	
Percent Heavy Vehicles		0	--	--	--	--	
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		0	1		1	0	
Configuration		LT				TR	
Upstream Signal?		No				No	

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		355		249			
Peak Hour Factor, PHF		0.92		0.92			
Hourly Flow Rate, HFR		385		270			
Percent Heavy Vehicles		0		0			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
			1 LT	4 	7 	8 LR	9 	10
v (vph)	160				655			
C(m) (vph)	969				252			
v/c	0.17				2.60			
95% queue length	0.59				54.85			
Control Delay	9.4				761.4			
LOS	A				F			
Approach Delay					761.4			
Approach LOS					F			

HCS+: Signalized Intersections Release 5.2

Analyst: JCE Inter.: AM6ONB
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: All other areas
 Date: 4/30/2007 Jurisd:
 Period: WEEKDAY PEAK AM HIGHWAY HOUR Year : 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: EXECUTIVE BOULEVARD N/S St: NEPPERHAN AVENUE

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	0	1	1	1	1	1	0
LGConfig	L	T	R	L	TR		L	T	R	L	TR	
Volume	77	685	183	118	929	41	312	307	154	83	209	44
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A	A		NB Left	A	A	
Thru			A		Thru		A	
Right			A		Right		A	
Peds		X	X		Peds	X	X	
WB Left		A	A		SB Left	A	A	
Thru			A		Thru		A	
Right			A		Right		A	
Peds		X	X		Peds	X	X	
NB Right					EB Right			
SB Right					WB Right			
Green		8.0	32.0			10.0	30.0	
Yellow		3.0	3.0			3.0	3.0	
All Red		2.0	2.0			2.0	2.0	

Cycle Length: 100.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	211	1719	0.40	0.45	22.1	C		
T	1158	3618	0.64	0.32	30.3	C	29.0	C
R	492	1538	0.40	0.32	27.1	C		
Westbound								
L	271	1805	0.47	0.45	19.8	B		
TR	1150	3594	0.92	0.32	44.3	D	41.6	D
Northbound								
L	411	1719	0.82	0.45	40.2	D		
T	543	1810	0.62	0.30	32.1	C	34.5	C
R	485	1615	0.34	0.30	27.8	C		
Southbound								
L	384	1805	0.23	0.45	17.6	B		
TR	529	1762	0.52	0.30	29.9	C	26.9	C

Intersection Delay = 34.5 (sec/veh) Intersection LOS = C

Phone: Fax:
 E-Mail:

----- OPERATIONAL ANALYSIS -----

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/30/2007
 Analysis Time Period: WEEKDAY PEAK AM HIGHWAY HOUR
 Intersection: AM60NB
 Area Type: All other areas
 Jurisdiction:
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: EXECUTIVE BOULEVARD N/S St: NEPPERHAN AVENUE

----- VOLUME DATA -----

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	77	685	183	118	929	41	312	307	154	83	209	44
% Heavy Veh	5	0	5	0	0	0	5	5	0	0	5	5
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PK 15 Vol	21	186	50	32	252	11	85	83	42	23	57	12
Hi Ln Vol												
% Grade		0			0			0			0	
Ideal Sat	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	
ParkExist												
NumPark												
No. Lanes	1	2	1	1	2	0	1	1	1	1	1	0
LGConfig	L	T	R	L	TR		L	T	R	L	TR	
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	
RTOR Vol			0			0			0			0
Adj Flow	84	745	199	128	1055		339	334	167	90	275	
%InSharedLn												
Prop LTs	1.000	0.000		1.000	0.000		1.000	0.000		1.000	0.000	
Prop RTs		0.000	1.000		0.043			0.000	1.000		0.175	
Peds Bikes	0	0	0	0	0	0	0	0	0	0	0	0
Buses	0	0	0	0	0		0	0	0	0	0	
%InProtPhase	0.0			0.0			0.0			0.0		
Duration	0.25											

Area Type: All other areas

----- OPERATING PARAMETERS -----

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Arriv. Type	3	3	3	3	3		3	3	3	3	3	
Unit Ext.	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
I Factor		1.000			1.000			1.000			1.000	
Lost Time	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Ext of g	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Ped Min g		3.2			3.2			3.2			3.2	

HCS+: Signalized Intersections Release 5.2

Analyst: JCE Inter.: PM52NB
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: All other areas
 Date: 4/27/2007 Jurisd:
 Period: WEEKDAY PEAK PM HIGHWAY HOUR Year : 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: SAW MILL & CROSS COUNTY RAMPS N/S St: RUMSEY ROAD

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	0	2	0	0	0	2	0	0	2	0
LGConfig	L			L				T			T	
Volume	678			705				837			535	
Lane Width	12.0			12.0				12.0			12.0	
RTOR Vol												

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left			
Thru					Thru	A		
Right					Right			
Peds					Peds			
WB Left		A			SB Left			
Thru					Thru	A		
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		30.0				50.0		
Yellow		3.0				3.0		
All Red		2.0				2.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	1168	3505	0.63	0.33	26.4	C	26.4	C
Westbound								
L	1168	3505	0.66	0.33	26.9	C	26.9	C
Northbound								
T	2010	3618	0.45	0.56	12.0	B	12.0	B
Southbound								
T	2010	3618	0.29	0.56	10.7	B	10.7	B

Intersection Delay = 19.1 (sec/veh) Intersection LOS = B

Phone: Fax:
 E-Mail:

----- OPERATIONAL ANALYSIS -----

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/27/2007
 Analysis Time Period: WEEKDAY PEAK PM HIGHWAY HOUR
 Intersection: PM52NB
 Area Type: All other areas
 Jurisdiction:
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: SAW MILL & CROSS COUNTY RAMPS N/S St: RUMSEY ROAD

----- VOLUME DATA -----

	Eastbound			Westbound			Northbound			Southbound			
	L	T	R	L	T	R	L	T	R	L	T	R	
Volume	678			705			837			535			
% Heavy Veh	0			0			0			0			
PHF	0.92			0.92			0.92			0.92			
PK 15 Vol	184			192			227			145			
Hi Ln Vol													
% Grade	0			0			0			0			
Ideal Sat	1900			1900			1900			1900			
ParkExist													
NumPark													
No. Lanes	2	0	0	2	0	0	0	2	0	0	0	2	0
LGConfig	L			L				T				T	
Lane Width	12.0			12.0			12.0			12.0			
RTOR Vol													
Adj Flow	737			766			910			582			
%InSharedLn													
Prop LTs							0.000			0.000			
Prop RTs							0.000			0.000			
Peds Bikes	0			0			0			0			
Buses	0			0			0			0			
%InProtPhase													
Duration	0.25			Area Type: All other areas									

----- OPERATING PARAMETERS -----

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet	0.0			0.0			0.0			0.0		
Arriv. Type	3			3			3			3		
Unit Ext.	3.0			3.0			3.0			3.0		
I Factor		1.000			1.000			1.000			1.000	
Lost Time	2.0			2.0			2.0			2.0		
Ext of g	2.0			2.0			2.0			2.0		
Ped Min g		3.2			3.2							

HCS+: Signalized Intersections Release 5.2

Analyst: JCE Inter.: PM53NB
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: All other areas
 Date: 4/27/2007 Jurisd:
 Period: WEEKDAY PEAK PM HIGHWAY HOUR Year : 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: SPRUCE STREET/TRUESDALE PLACE N/S St: RUMSEY ROAD

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	0	0	0	1	0	0	1	1
LGConfig	LR						LT			T R		
Volume	141		31				40	692		864	315	
Lane Width	15.0						15.0			12.0	12.0	
RTOR Vol	0									0		

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru					Thru	A		
Right		A			Right			
Peds		X			Peds	X		
WB Left					SB Left			
Thru					Thru	A		
Right					Right	A		
Peds		X			Peds	X		
NB Right					EB Right			
SB Right					WB Right			
Green	30.0				50.0			
Yellow	3.0				3.0			
All Red	2.0				2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

LR 662 1986 0.28 0.33 22.3 C 22.3 C

Westbound

Northbound

LT 990 1782 0.80 0.56 20.9 C 20.9 C

Southbound

T 1056 1900 0.89 0.56 27.1 C 23.0 C
 R 877 1579 0.39 0.56 11.6 B

Intersection Delay = 22.2 (sec/veh) Intersection LOS = C

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/27/2007
 Analysis Time Period: WEEKDAY PEAK PM HIGHWAY HOUR
 Intersection: PM53NB
 Area Type: All other areas
 Jurisdiction:
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: SPRUCE STREET/TRUESDALE PLACE N/S St: RUMSEY ROAD

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	141		31				40	692			864	315
% Heavy Veh	0		5				5	0			0	0
PHF	0.92		0.92				0.92	0.92			0.92	0.92
PK 15 Vol	38		8				11	188			235	86
Hi Ln Vol												
% Grade		-6						0			0	
Ideal Sat		1900						1900			1900	1900
ParkExist												
NumPark												
No. Lanes	0	0	0	0	0	0	0	1	0	0	1	1
LGConfig		LR						LT			T	R
Lane Width		15.0						15.0			12.0	12.0
RTOR Vol			0									0
Adj Flow		187						795			939	342
%InSharedLn												
Prop LTs		0.818						0.054			0.000	
Prop RTs		0.182						0.000			0.000	1.000
Peds Bikes	25		0	0						25		0
Buses		0						0			0	0
%InProtPhase												
Duration	0.25			Area Type: All other areas								

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet		0.0						0.0			0.0	0.0
Arriv. Type		3						3			3	3
Unit Ext.		3.0						3.0			3.0	3.0
I Factor		1.000						1.000			1.000	
Lost Time		2.0						2.0			2.0	2.0
Ext of g		2.0						2.0			2.0	2.0
Ped Min g		3.4			3.2						3.4	

Phone: Fax:
 E-Mail:

-----ALL-WAY STOP CONTROL(AWSC) ANALYSIS-----

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/30/2007
 Analysis Time Period: WEEKDAY PEAK PM HIGHWAY HOUR
 Intersection: PM54NB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 East/West Street: SPRUCE STREET
 North/South Street: VAN CORTLANDT PARK AVENUE

-----Worksheet 2 - Volume Adjustments and Site Characteristics-----

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	0	0	0	211	0	58	0	74	132	58	85	0
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration			LR		TR		LT	
PHF			0.92		0.92		0.92	
Flow Rate			292		223		155	
% Heavy Veh			5		5		5	
No. Lanes				1		1		1
Opposing-Lanes				0		1		1
Conflicting-lanes				1		1		1
Geometry group				1		1		1
Duration, T	0.25 hrs.							

-----Worksheet 3 - Saturation Headway Adjustment Worksheet-----

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane			292		223		155	
Left-Turn			229		0		63	
Right-Turn			63		143		0	
Prop. Left-Turns			0.8		0.0		0.4	
Prop. Right-Turns			0.2		0.6		0.0	
Prop. Heavy Vehicle			0.0		0.0		0.0	
Geometry Group				1		1		1
Adjustments Exhibit 17-33:								
hLT-adj				0.2		0.2		0.2

hRT-adj	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7
hadj, computed	0.1	-0.3	0.2

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate			292		223		155	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial			0.26		0.20		0.14	
hd, final value			4.95		4.61		5.14	
x, final value			0.40		0.29		0.22	
Move-up time, m				2.0		2.0		2.0
Service Time			2.9		2.6		3.1	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate			292		223		155	
Service Time			2.9		2.6		3.1	
Utilization, x			0.40		0.29		0.22	
Dep. headway, hd			4.95		4.61		5.14	
Capacity			542		473		405	
Delay			11.22		9.44		9.60	
LOS			B		A		A	
Approach:								
Delay			11.22		9.44		9.60	
LOS			B		A		A	
Intersection Delay	10.25							
			Intersection LOS		B			

TWO-WAY STOP CONTROL SUMMARY

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/30/2007
 Analysis Time Period: WEEKDAY PEAK PM HIGHWAY HOUR
 Intersection: PM55NB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 East/West Street: ELM STREET
 North/South Street: VAN CORTLANDT PARK AVENUE
 Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		117	111		27	143	
Peak-Hour Factor, PHF		0.92	0.92		0.92	0.92	
Hourly Flow Rate, HFR		127	120		29	155	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR			LT	
Upstream Signal?		No				No	

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		117		21			
Peak Hour Factor, PHF		0.92		0.92			
Hourly Flow Rate, HFR		127		22			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
			4 LT	7	8 LR	9	10	11
v (vph)		29			149			
C(m) (vph)		1302			615			
v/c		0.02			0.24			
95% queue length		0.07			0.94			
Control Delay		7.8			12.7			
LOS		A			B			
Approach Delay					12.7			
Approach LOS					B			

Analyst: JCE Inter.: PM56NB
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: CBD or Similar
 Date: 4/30/2007 Jurisd:
 Period: WEEKDAY PEAK PM HIGHWAY HOUR Year : 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: ELM STREET N/S St: WALNUT STREET

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	0	0	1	0	0	1	0
LGConfig	LTR			LTR			LTR			LTR		
Volume	53	127	27	32	170	58	16	85	37	64	95	122
Lane Width	12.0			12.0			12.0			12.0		
RTOR Vol	0			0			0			0		

Duration 0.25 Area Type: CBD or Similar

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	P				NB Left	P		
Thru	P				Thru	P		
Right	P				Right	P		
Peds	X				Peds	X		
WB Left	P				SB Left	P		
Thru	P				Thru	P		
Right	P				Right	P		
Peds	X				Peds	X		
NB Right					EB Right			
SB Right					WB Right			
Green	40.0				40.0			
Yellow	3.0				3.0			
All Red	2.0				2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

LTR 606 1363 0.37 0.44 18.4 B 18.4 B

Westbound

LTR 657 1478 0.43 0.44 19.2 B 19.2 B

Northbound

LTR 658 1480 0.23 0.44 16.2 B 16.2 B

Southbound

LTR 601 1353 0.51 0.44 21.0 C 21.0 C

Intersection Delay = 19.1 (sec/veh) Intersection LOS = B

Phone:
E-Mail:

Fax:

OPERATIONAL ANALYSIS

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/30/2007
 Analysis Time Period: WEEKDAY PEAK PM HIGHWAY HOUR
 Intersection: PM56NB
 Area Type: CBD or Similar
 Jurisdiction:
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: ELM STREET N/S St: WALNUT STREET

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	53	127	27	32	170	58	16	85	37	64	95	122
% Heavy Veh	5	5	5	5	5	5	5	5	5	5	5	5
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PK 15 Vol	14	35	7	9	46	16	4	23	10	17	26	33
Hi Ln Vol												
% Grade		0			0			0			0	
Ideal Sat		1900			1900			1900			1900	
ParkExist												
NumPark												
No. Lanes	0	1	0	0	1	0	0	1	0	0	1	0
LGConfig		LTR			LTR			LTR			LTR	
Lane Width		12.0			12.0			12.0			12.0	
RTOR Vol			0			0			0			0
Adj Flow		225			283			149			306	
%InSharedLn												
Prop LTs		0.258			0.124			0.114			0.229	
Prop RTs		0.129			0.223			0.268			0.435	
Peds Bikes	25		0	25		0	25		0	25		0
Buses		0			0			0			0	
%InProtPhase												
Duration	0.25	Area Type: CBD or Similar										

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet		0.0			0.0			0.0			0.0	
Arriv. Type		3			3			3			3	
Unit Ext.		3.0			3.0			3.0			3.0	
I Factor		1.000			1.000			1.000			1.000	
Lost Time		2.0			2.0			2.0			2.0	
Ext of g		2.0			2.0			2.0			2.0	
Ped Min g		3.4			3.4			3.4			3.4	

Phone: _____ Fax: _____
 E-Mail: _____

-----ALL-WAY STOP CONTROL(AWSC) ANALYSIS-----

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/30/2007
 Analysis Time Period: WEEKDAY PEAK PM HIGHWAY HOUR
 Intersection: PM57NB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 East/West Street: ELM STREET
 North/South Street: LINDEN STREET

-----Worksheet 2 - Volume Adjustments and Site Characteristics-----

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	60	172	105	36	183	30	68	15	24	0	0	0
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR			
PHF	0.92		0.92		0.92			
Flow Rate	365		269		115			
% Heavy Veh	5		5		5			
No. Lanes		1		1		1		
Opposing-Lanes		1		1		0		
Conflicting-lanes		1		1		1		
Geometry group		1		1		1		
Duration, T	0.25 hrs.							

-----Worksheet 3 - Saturation Headway Adjustment Worksheet-----

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	365		269		115			
Left-Turn	65		39		73			
Right-Turn	114		32		26			
Prop. Left-Turns	0.2		0.1		0.6			
Prop. Right-Turns	0.3		0.1		0.2			
Prop. Heavy Vehicle	0.0		0.0		0.0			
Geometry Group	1		1		1			
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2		0.2			

hRT-adj	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7
hadj, computed	-0.1	0.0	0.1

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	365		269		115			
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.32		0.24		0.10			
hd, final value	4.49		4.69		5.43			
x, final value	0.46		0.35		0.17			
Move-up time, m		2.0		2.0		2.0		
Service Time	2.5		2.7		3.4			

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	365		269		115			
Service Time	2.5		2.7		3.4			
Utilization, x	0.46		0.35		0.17			
Dep. headway, hd	4.49		4.69		5.43			
Capacity	615		519		365			
Delay	11.18		10.21		9.56			
LOS	B		B		A			
Approach:								
Delay		11.18		10.21		9.56		
LOS		B		B		A		
Intersection Delay	10.58							
Intersection LOS					B			

TWO-WAY STOP CONTROL SUMMARY

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/30/2007
 Analysis Time Period: WEEKDAY PEAK PM HIGHWAY HOUR
 Intersection: PM59NB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 East/West Street: PALMER ROAD
 North/South Street: SAW MILL PKWY NB ON/OFF RAMP
 Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		132	265			292	138
Peak-Hour Factor, PHF		0.92	0.92			0.92	0.92
Hourly Flow Rate, HFR		143	288			317	149
Percent Heavy Vehicles		0	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		0	1			1	0
Configuration		LT				TR	
Upstream Signal?		No				No	

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		307			175		
Peak Hour Factor, PHF		0.92			0.92		
Hourly Flow Rate, HFR		333			190		
Percent Heavy Vehicles		0			0		
Percent Grade (%)		0			0		
Flared Approach: Exists?/Storage		0			No	/	/
Lanes		0			0		
Configuration		LR					

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
			1 LT	4 	7 	8 LR	9 	10
v (vph)	143					523		
C(m) (vph)	1106					328		
v/c	0.13					1.59		
95% queue length	0.44					30.75		
Control Delay	8.7					310.3		
LOS	A					F		
Approach Delay						310.3		
Approach LOS						F		

Analyst: JCE Inter.: PM6ONB
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: All other areas
 Date: 4/30/2007 Jurisd:
 Period: WEEKDAY PEAK PM HIGHWAY HOUR Year : 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: EXECUTIVE BOULEVARD N/S St: NEPPERHAN AVENUE

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	0	1	1	1	1	1	0
LGConfig	L	T	R	L	TR		L	T	R	L	TR	
Volume	29	924	241	282	483	28	183	117	143	96	187	40
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru			A		Thru		A	
Right				A	Right			A
Peds		X		X	Peds	X		X
WB Left		A			SB Left	A		
Thru				A	Thru		A	
Right					Right			A
Peds		X		X	Peds	X		X
NB Right					EB Right			
SB Right					WB Right			
Green		15.0		30.0		8.0		27.0
Yellow		3.0		3.0		3.0		3.0
All Red		2.0		2.0		2.0		2.0

Cycle Length: 100.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	431	1719	0.07	0.50	13.8	B		
T	1085	3618	0.93	0.30	47.0	D	43.0	D
R	461	1538	0.57	0.30	31.2	C		
Westbound								
L	347	1805	0.88	0.50	49.4	D		
TR	1076	3588	0.52	0.30	29.4	C	36.6	D
Northbound								
L	362	1719	0.55	0.40	23.0	C		
T	489	1810	0.26	0.27	28.9	C	26.8	C
R	436	1615	0.36	0.27	30.0	C		
Southbound								
L	484	1805	0.21	0.40	19.5	B		
TR	476	1762	0.52	0.27	32.0	C	28.3	C

Intersection Delay = 36.8 (sec/veh) Intersection LOS = D

Phone: Fax:
 E-Mail:

OPERATIONAL ANALYSIS

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/30/2007
 Analysis Time Period: WEEKDAY PEAK PM HIGHWAY HOUR
 Intersection: PM60NB
 Area Type: All other areas
 Jurisdiction:
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: EXECUTIVE BOULEVARD N/S St: NEPPERHAN AVENUE

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	29	924	241	282	483	28	183	117	143	96	187	40
% Heavy Veh	5	0	5	0	0	0	5	5	0	0	5	5
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PK 15 Vol	8	251	65	77	131	8	50	32	39	26	51	11
Hi Ln Vol												
% Grade		0			0			0			0	
Ideal Sat	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	
ParkExist												
NumPark												
No. Lanes	1	2	1	1	2	0	1	1	1	1	1	0
LGConfig	L	T	R	L	TR		L	T	R	L	TR	
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	
RTOR Vol			0			0			0			0
Adj Flow	32	1004	262	307	555		199	127	155	104	246	
%InSharedLn												
Prop LTs	1.000	0.000		1.000	0.000		1.000	0.000		1.000	0.000	
Prop RTs		0.000	1.000		0.054			0.000	1.000		0.175	
Peds Bikes	0	0	0	0	0	0	0	0	0	0	0	0
Buses	0	0	0	0	0		0	0	0	0	0	
%InProtPhase	0.0			0.0			0.0			0.0		
Duration	0.25											
Area Type: All other areas												

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Arriv. Type	3	3	3	3	3		3	3	3	3	3	
Unit Ext.	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
I Factor		1.000			1.000			1.000			1.000	
Lost Time	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Ext of g	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Ped Min g		3.2			3.2			3.2			3.2	

HCS+: Signalized Intersections Release 5.2

Analyst: JCE Inter.: SAT52NB
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: All other areas
 Date: 4/27/2007 Jurisd:
 Period: SATURDAY PEAK HOUR Year : 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: SAW MILL & CROSS COUNTY RAMPS N/S St: RUMSEY ROAD

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	0	2	0	0	0	2	0	0	2	0
LGConfig	L			L				T			T	
Volume	543			564				670			428	
Lane Width	12.0			12.0				12.0			12.0	
RTOR Vol												

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A						
Thru					A			
Right								
Peds								
WB Left		A						
Thru					A			
Right								
Peds								
NB Right								
SB Right								
Green		30.0			50.0			
Yellow		3.0			3.0			
All Red		2.0			2.0			
Cycle Length: 90.0								secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	1168	3505	0.51	0.33	24.4	C	24.4	C
Westbound								
L	1168	3505	0.52	0.33	24.7	C	24.7	C
Northbound								
T	2010	3618	0.36	0.56	11.2	B	11.2	B
Southbound								
T	2010	3618	0.23	0.56	10.3	B	10.3	B

Intersection Delay = 17.7 (sec/veh) Intersection LOS = B

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/27/2007
 Analysis Time Period: SATURDAY PEAK HOUR
 Intersection: SAT52NB
 Area Type: All other areas
 Jurisdiction:
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: SAW MILL & CROSS COUNTY RAMPS N/S St: RUMSEY ROAD

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound			
	L	T	R	L	T	R	L	T	R	L	T	R	
Volume	543			564			670			428			
% Heavy Veh	0			0			0			0			
PHF	0.92			0.92			0.92			0.92			
PK 15 Vol	148			153			182			116			
Hi Ln Vol													
% Grade	0			0			0			0			
Ideal Sat	1900			1900			1900			1900			
ParkExist													
NumPark													
No. Lanes	2	0	0	2	0	0	0	2	0	0	0	2	0
LGConfig	L			L				T				T	
Lane Width	12.0			12.0			12.0			12.0			
RTOR Vol													
Adj Flow	590			613			728			465			
%InSharedLn													
Prop LTs							0.000			0.000			
Prop RTs							0.000			0.000			
Peds Bikes	0			0			0			0			
Buses	0			0			0			0			
%InProtPhase													
Duration	0.25			Area Type: All other areas									

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet	0.0			0.0			0.0			0.0		
Arriv. Type	3			3			3			3		
Unit Ext.	3.0			3.0			3.0			3.0		
I Factor		1.000			1.000			1.000			1.000	
Lost Time	2.0			2.0			2.0			2.0		
Ext of g	2.0			2.0			2.0			2.0		
Ped Min g		3.2			3.2							

HCS+: Signalized Intersections Release 5.2

Analyst: JCE Inter.: SAT53NB
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: All other areas
 Date: 4/27/2007 Jurisd:
 Period: SATURDAY PEAK HOUR Year : 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: SPRUCE STREET/TRUESDALE PLACE N/S St: RUMSEY ROAD

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	0	0	0	1	0	0	1	1
LGConfig	LR						LT			T R		
Volume	112		24				32	553		691	252	
Lane Width	15.0						15.0			12.0	12.0	
RTOR Vol	0									0		

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru					Thru	A		
Right		A			Right			
Peds		X			Peds	X		
WB Left					SB Left			
Thru					Thru	A		
Right					Right	A		
Peds		X			Peds	X		
NB Right					EB Right			
SB Right					WB Right			
Green	30.0				50.0			
Yellow	3.0				3.0			
All Red	2.0				2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

LR 663 1988 0.22 0.33 21.8 C 21.8 C

Westbound

Northbound

LT 1085 1953 0.59 0.56 14.0 B 14.0 B

Southbound

T 1056 1900 0.71 0.56 17.0 B 15.4 B

R 877 1579 0.31 0.56 11.0 B

Intersection Delay = 15.4 (sec/veh) Intersection LOS = B

Phone: Fax:
E-Mail:

OPERATIONAL ANALYSIS

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/27/2007
 Analysis Time Period: SATURDAY PEAK HOUR
 Intersection: SAT53NB
 Area Type: All other areas
 Jurisdiction:
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: SPRUCE STREET/TRUESDALE PLACE N/S St: RUMSEY ROAD

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	112		24				32	553			691	252
% Heavy Veh	0		5				5	0			0	0
PHF	0.92		0.92				0.92	0.92			0.92	0.92
PK 15 Vol	30		7				9	150			188	68
Hi Ln Vol												
% Grade		-6						0			0	
Ideal Sat		1900						1900			1900	1900
ParkExist												
NumPark												
No. Lanes	0	0	0	0	0	0	0	1	0	0	1	1
LGConfig		LR						LT			T	R
Lane Width		15.0						15.0			12.0	12.0
RTOR Vol			0									0
Adj Flow		148						636			751	274
%InSharedLn												
Prop LTs		0.824						0.055			0.000	
Prop RTs		0.176						0.000			0.000	1.000
Peds Bikes	25	0		0						25	0	
Buses	0							0		0	0	
%InProtPhase												
Duration	0.25			Area Type: All other areas								

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet		0.0						0.0			0.0	0.0
Arriv. Type		3						3			3	3
Unit Ext.		3.0						3.0			3.0	3.0
I Factor		1.000						1.000			1.000	
Lost Time		2.0						2.0			2.0	2.0
Ext of g		2.0						2.0			2.0	2.0
Ped Min g		3.4			3.2						3.4	

Phone:
E-Mail:

Fax:

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/30/2007
 Analysis Time Period: SATURDAY PEAK HOUR
 Intersection: SAT54NB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 East/West Street: SPRUCE STREET
 North/South Street: VAN CORTLANDT PARK AVENUE

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	0	0	0	165	0	47	0	59	106	47	68	0
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration			LR		TR		LT	
PHF			0.92		0.92		0.92	
Flow Rate			230		179		124	
% Heavy Veh			5		5		5	
No. Lanes				1		1		1
Opposing-Lanes				0		1		1
Conflicting-lanes				1		1		1
Geometry group				1		1		1
Duration, T	0.25 hrs.							

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane			230		179		124	
Left-Turn			179		0		51	
Right-Turn			51		115		0	
Prop. Left-Turns			0.8		0.0		0.4	
Prop. Right-Turns			0.2		0.6		0.0	
Prop. Heavy Vehicle			0.0		0.0		0.0	
Geometry Group				1		1		1
Adjustments Exhibit 17-33:								
hLT-adj				0.2		0.2		0.2

hRT-adj	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7
hadj, computed	0.1	-0.3	0.2

-----Worksheet 4 - Departure Headway and Service Time-----

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate			230		179		124	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial			0.20		0.16		0.11	
hd, final value			4.72		4.35		4.87	
x, final value			0.30		0.22		0.17	
Move-up time, m				2.0		2.0		2.0
Service Time			2.7		2.4		2.9	

-----Worksheet 5 - Capacity and Level of Service-----

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate			230		179		124	
Service Time			2.7		2.4		2.9	
Utilization, x			0.30		0.22		0.17	
Dep. headway, hd			4.72		4.35		4.87	
Capacity			480		429		374	
Delay			9.75		8.55		8.85	
LOS			A		A		A	
Approach:								
Delay			9.75		8.55		8.85	
LOS			A		A		A	
Intersection Delay	9.14				Intersection LOS	A		

TWO-WAY STOP CONTROL SUMMARY

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/30/2007
 Analysis Time Period: SATURDAY PEAK HOUR
 Intersection: SAT55NB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 East/West Street: ELM STREET
 North/South Street: VAN CORTLANDT PARK AVENUE
 Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		93	89		21	115	
Peak-Hour Factor, PHF		0.92	0.92		0.92	0.92	
Hourly Flow Rate, HFR		101	96		22	124	
Percent Heavy Vehicles		--	--		5	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		1	0		0	1	
Configuration			TR			LT	
Upstream Signal?		No				No	

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		93		17			
Peak Hour Factor, PHF		0.92		0.92			
Hourly Flow Rate, HFR		101		18			
Percent Heavy Vehicles		5		5			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0		0			
Configuration			LR				

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
			4 LT	7	8 LR	9	10	11
v (vph)	22				119			
C(m) (vph)	1358				686			
v/c	0.02				0.17			
95% queue length	0.05				0.62			
Control Delay	7.7				11.3			
LOS	A				B			
Approach Delay					11.3			
Approach LOS					B			

Analyst: JCE Inter.: SAT56NB
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: CBD or Similar
 Date: 4/30/2007 Jurisd:
 Period: SATURDAY PEAK HOUR Year : 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: ELM STREET N/S St: WALNUT STREET

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	0	0	1	0	0	1	0
LGConfig	LTR			LTR			LTR			LTR		
Volume	42	102	21	25	136	47	13	68	30	51	76	98
Lane Width	12.0			12.0			12.0			12.0		
RTOR Vol	0			0			0			0		

Duration 0.25 Area Type: CBD or Similar

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	P				NB Left	P		
Thru	P				Thru	P		
Right	P				Right	P		
Peds	X				Peds	X		
WB Left	P				SB Left	P		
Thru	P				Thru	P		
Right	P				Right	P		
Peds	X				Peds	X		
NB Right					EB Right			
SB Right					WB Right			
Green	40.0				40.0			
Yellow	3.0				3.0			
All Red	2.0				2.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

LTR 623 1401 0.29 0.44 17.1 B 17.1 B

Westbound

LTR 664 1494 0.34 0.44 17.8 B 17.8 B

Northbound

LTR 663 1491 0.18 0.44 15.7 B 15.7 B

Southbound

LTR 611 1375 0.40 0.44 18.9 B 18.9 B

Intersection Delay = 17.6 (sec/veh) Intersection LOS = B

Phone:
E-Mail:

Fax:

OPERATIONAL ANALYSIS

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/30/2007
 Analysis Time Period: SATURDAY PEAK HOUR
 Intersection: SAT56NB
 Area Type: CBD or Similar
 Jurisdiction:
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: ELM STREET N/S St: WALNUT STREET

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	42	102	21	25	136	47	13	68	30	51	76	98
% Heavy Veh	5	5	5	5	5	5	5	5	5	5	5	5
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PK 15 Vol	11	28	6	7	37	13	4	18	8	14	21	27
Hi Ln Vol												
% Grade		0			0			0			0	
Ideal Sat		1900			1900			1900			1900	
ParkExist												
NumPark												
No. Lanes	0	1	0	0	1	0	0	1	0	0	1	0
LGConfig		LTR			LTR			LTR			LTR	
Lane Width		12.0			12.0			12.0			12.0	
RTOR Vol			0			0			0			0
Adj Flow		180			226			121			245	
%InSharedLn												
Prop LTs		0.256			0.119			0.116			0.224	
Prop RTs		0.128			0.226			0.273			0.437	
Peds Bikes	25		0	25		0	25		0	25		0
Buses		0			0			0			0	
%InProtPhase												
Duration	0.25											

Area Type: CBD or Similar

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet		0.0			0.0			0.0			0.0	
Arriv. Type		3			3			3			3	
Unit Ext.		3.0			3.0			3.0			3.0	
I Factor		1.000			1.000			1.000			1.000	
Lost Time		2.0			2.0			2.0			2.0	
Ext of g		2.0			2.0			2.0			2.0	
Ped Min g		3.4			3.4			3.4			3.4	

HCS+: Unsignalized Intersections Release 5.2

Phone:
E-Mail:

Fax:

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/30/2007
 Analysis Time Period: SATURDAY PEAK HOUR
 Intersection: SAT57NB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 East/West Street: ELM STREET
 North/South Street: LINDEN STREET

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	49	138	84	29	146	23	54	12	19	0	0	0
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR			
PHF	0.92		0.92		0.92			
Flow Rate	293		213		91			
% Heavy Veh	5		5		5			
No. Lanes		1		1		1		
Opposing-Lanes		1		1		0		
Conflicting-lanes		1		1		1		
Geometry group		1		1		1		
Duration, T	0.25 hrs.							

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	293		213		91			
Left-Turn	53		31		58			
Right-Turn	91		24		20			
Prop. Left-Turns	0.2		0.1		0.6			
Prop. Right-Turns	0.3		0.1		0.2			
Prop. Heavy Vehicle	0.0		0.0		0.0			
Geometry Group	1		1		1			
Adjustments Exhibit 17-33:								
hLT-adj	0.2		0.2		0.2			

hRT-adj	-0.6	-0.6	-0.6
hHV-adj	1.7	1.7	1.7
hadj, computed	-0.1	0.0	0.1

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	293		213		91			
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.26		0.19		0.08			
hd, final value	4.32		4.51		5.11			
x, final value	0.35		0.27		0.13			
Move-up time, m		2.0		2.0		2.0		
Service Time	2.3		2.5		3.1			

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	293		213		91			
Service Time	2.3		2.5		3.1			
Utilization, x	0.35		0.27		0.13			
Dep. headway, hd	4.32		4.51		5.11			
Capacity	543		463		341			
Delay	9.65		9.14		8.87			
LOS	A		A		A			
Approach:								
Delay		9.65		9.14		8.87		
LOS		A		A		A		
Intersection Delay	9.35							
Intersection LOS					A			

TWO-WAY STOP CONTROL SUMMARY

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/30/2007
 Analysis Time Period: SATURDAY PEAK HOUR
 Intersection: SAT58NB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 East/West Street: LOCKWOOD AVENUE
 North/South Street: SAW MILL PKWY SB ON/OFF RAMP
 Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		59	174			263	85
Peak-Hour Factor, PHF		0.92	0.92			0.92	0.92
Hourly Flow Rate, HFR		64	189			285	92
Percent Heavy Vehicles		0	--	--		--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		0	1			1	0
Configuration		LT				TR	
Upstream Signal?		No				No	

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume					72		115
Peak Hour Factor, PHF					0.92		0.92
Hourly Flow Rate, HFR					78		124
Percent Heavy Vehicles					0		0
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage					/		No /
Lanes					0		0
Configuration						LR	

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound						
			1	4	7	8	9	10	11	12		
Lane Config	LT											
v (vph)	64								202			
C(m) (vph)	1193								486			
v/c	0.05								0.42			
95% queue length	0.17								2.02			
Control Delay	8.2								17.6			
LOS	A								C			
Approach Delay									17.6			
Approach LOS									C			

TWO-WAY STOP CONTROL SUMMARY

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/30/2007
 Analysis Time Period: SATURDAY PEAK HOUR
 Intersection: SAT59NB
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 East/West Street: PALMER ROAD
 North/South Street: SAW MILL PKWY NB ON/OFF RAMP
 Intersection Orientation: EW Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R

Volume	106	212			233	110
Peak-Hour Factor, PHF	0.92	0.92			0.92	0.92
Hourly Flow Rate, HFR	115	230			253	119
Percent Heavy Vehicles	0	--	--		--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	1			1	0
Configuration		LT				TR
Upstream Signal?		No			No	

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R

Volume	246		140			
Peak Hour Factor, PHF	0.92		0.92			
Hourly Flow Rate, HFR	267		152			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
Lanes	0		0			
Configuration			LR			

Delay, Queue Length, and Level of Service

Approach Movement	EB 1 LT	WB 4	Northbound			Southbound		
			7	8	9	10	11	12

Lane Config				LR				
v (vph)	115			419				
C(m) (vph)	1198			426				
v/c	0.10			0.98				
95% queue length	0.32			12.11				
Control Delay	8.3			71.0				
LOS	A			F				
Approach Delay				71.0				
Approach LOS				F				

Analyst: JCE Inter.: SAT60NB
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: All other areas
 Date: 4/30/2007 Jurisd:
 Period: SATURDAY PEAK HOUR Year : 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: EXECUTIVE BOULEVARD N/S St: NEPPERHAN AVENUE

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	0	1	1	1	1	1	0
LGConfig	L	T	R	L	TR		L	T	R	L	TR	
Volume	23	740	193	226	387	22	146	95	115	77	150	32
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	
RTOR Vol			0			0			0			0

Duration 0.25 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A	A		NB Left	A	A	
Thru			A		Thru		A	
Right			A		Right		A	
Peds		X	X		Peds	X	X	
WB Left		A	A		SB Left	A	A	
Thru			A		Thru		A	
Right			A		Right		A	
Peds		X	X		Peds	X	X	
NB Right					EB Right			
SB Right					WB Right			
Green		12.0	30.0			8.0	30.0	
Yellow		3.0	3.0			3.0	3.0	
All Red		2.0	2.0			2.0	2.0	

Cycle Length: 100.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	426	1719	0.06	0.47	14.9	B		
T	1085	3618	0.74	0.30	34.3	C	32.8	C
R	461	1538	0.46	0.30	29.1	C		
Westbound								
L	307	1805	0.80	0.47	34.0	C		
TR	1076	3588	0.41	0.30	28.2	C	30.3	C
Northbound								
L	440	1719	0.36	0.43	18.8	B		
T	543	1810	0.19	0.30	26.1	C	23.4	C
R	485	1615	0.26	0.30	26.8	C		
Southbound								
L	548	1805	0.15	0.43	17.3	B		
TR	529	1762	0.37	0.30	28.0	C	24.8	C

Intersection Delay = 29.6 (sec/veh) Intersection LOS = C

Phone: Fax:
 E-Mail:

OPERATIONAL ANALYSIS

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/30/2007
 Analysis Time Period: SATURDAY PEAK HOUR
 Intersection: SAT6ONB
 Area Type: All other areas
 Jurisdiction:
 Analysis Year: 2012 NO-BUILD TRAFFIC VOLUMES
 Project ID: 281
 E/W St: EXECUTIVE BOULEVARD N/S St: NEPPERHAN AVENUE

VOLUME DATA

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	23	740	193	226	387	22	146	95	115	77	150	32
% Heavy Veh	5	0	5	0	0	0	5	5	0	0	5	5
PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
PK 15 Vol	6	201	52	61	105	6	40	26	31	21	41	9
Hi Ln Vol												
% Grade		0			0			0			0	
Ideal Sat	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	
ParkExist												
NumPark												
No. Lanes	1	2	1	1	2	0	1	1	1	1	1	0
LGConfig	L	T	R	L	TR		L	T	R	L	TR	
Lane Width	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	
RTOR Vol			0			0			0			0
Adj Flow	25	804	210	246	445		159	103	125	84	198	
%InSharedLn												
Prop LTs	1.000	0.000		1.000	0.000		1.000	0.000		1.000	0.000	
Prop RTs		0.000	1.000		0.054			0.000	1.000		0.177	
Peds Bikes	0	0	0	0	0	0	0	0	0	0	0	0
Buses	0	0	0	0	0		0	0	0	0	0	
%InProtPhase	0.0			0.0			0.0			0.0		
Duration	0.25											
				Area Type: All other areas								

OPERATING PARAMETERS

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Init Unmet	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Arriv. Type	3	3	3	3	3		3	3	3	3	3	
Unit Ext.	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
I Factor		1.000			1.000			1.000			1.000	
Lost Time	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Ext of g	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Ped Min g		3.2			3.2			3.2			3.2	