

2006 EXISTING CONDITIONS

HCS+: Signalized Intersections Release 5.2

Analyst: JCE Inter.: AM52EX
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: All other areas
 Date: 4/27/2007 Jurisd:
 Period: WEEKDAY PEAK AM HIGHWAY HOUR Year : 2006 EXISTING 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	0	2	0
LGConfig	L			L				T				T	
Volume	640			390				1405				485	
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	0.60	0.33	25.8	C	25.8	C
Westbound								
L	1168	3505	0.36	0.33	22.9	C	22.9	C
Northbound								
T	2010	3618	0.76	0.56	17.1	B	17.1	B
Southbound								
T	2010	3618	0.26	0.56	10.5	B	10.5	B

Intersection Delay = 18.7 (sec/veh) Intersection LOS = B

Phone:
E-Mail:

Fax:

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: AM52EX
 Area Type: All other areas
 Jurisdiction:
 Analysis Year: 2006 EXISTING 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	640			390			1405			485			
% Heavy Veh	0			0			0			0			
PHF	0.92			0.92			0.92			0.92			
PK 15 Vol	174			106			382			132			
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	696			424			1527			527			
%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.: AM53EX
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: All other areas
 Date: 4/27/2007 Jurisd:
 Period: WEEKDAY PEAK AM HIGHWAY HOUR Year : 2006 EXISTING 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	363		48				36	1039		655	218	
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 0.77 0.29 35.6 D 35.6 D

Westbound

Northbound

LT 1203 2005 0.97 0.60 36.5 D 36.5 D

Southbound

T 1140 1900 0.62 0.60 12.6 B 11.6 B
 R 949 1582 0.25 0.60 8.6 A

Intersection Delay = 27.1 (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 AM HIGHWAY HOUR
 Intersection: AM53EX
 Area Type: All other areas
 Jurisdiction:
 Analysis Year: 2006 EXISTING 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	363		48				36	1039			655	218
% Heavy Veh	0		5				5	0			0	0
PHF	0.92		0.92				0.92	0.92			0.92	0.92
PK 15 Vol	99		13				10	282			178	59
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		447						1168			712	237
%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: AM54EX
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2006 EXISTING 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	110	0	50	0	80	130	55	105	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			173		227		173	
% 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			173		227		173	
Left-Turn			119		0		59	
Right-Turn			54		141		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			173		227		173	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial			0.15		0.20		0.15	
hd, final value			4.85		4.28		4.76	
x, final value			0.23		0.27		0.23	
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			173		227		173	
Service Time			2.9		2.3		2.8	
Utilization, x			0.23		0.27		0.23	
Dep. headway, hd			4.85		4.28		4.76	
Capacity			423		477		423	
Delay			9.32		8.86		9.17	
LOS			A		A		A	
Approach:								
Delay			9.32		8.86		9.17	
LOS			A		A		A	
Intersection Delay	9.09							
					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: AM55EX
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2006 EXISTING 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		105	75		15	145	
Peak-Hour Factor, PHF		0.92	0.92		0.92	0.92	
Hourly Flow Rate, HFR		114	81		16	157	
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		85		15			
Peak Hour Factor, PHF		0.92		0.92			
Hourly Flow Rate, HFR		92		16			
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)		16			108			
C(m) (vph)		1360			666			
v/c		0.01			0.16			
95% queue length		0.04			0.58			
Control Delay		7.7			11.4			
LOS		A			B			
Approach Delay					11.4			
Approach LOS					B			

HCS+: Signalized Intersections Release 5.2

Analyst: JCE Inter.: AM56EX
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: CBD or Similar
 Date: 4/30/2007 Jurisd:
 Period: WEEKDAY PEAK AM HIGHWAY HOUR Year : 2006 EXISTING 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	60	95	10	10	140	80	10	55	25	60	40	50
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 583 1312 0.31 0.44 17.4 B 17.4 B

Westbound

LTR 674 1516 0.37 0.44 18.2 B 18.2 B

Northbound

LTR 670 1507 0.15 0.44 15.3 B 15.3 B

Southbound

LTR 582 1309 0.28 0.44 17.0 B 17.0 B

Intersection Delay = 17.3 (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: AM56EX
 Area Type: CBD or Similar
 Jurisdiction:
 Analysis Year: 2006 EXISTING 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	60	95	10	10	140	80	10	55	25	60	40	50
% 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	16	26	3	3	38	22	3	15	7	16	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		179			250			98			162	
%InSharedLn												
Prop LTs		0.363			0.044			0.112			0.401	
Prop RTs		0.061			0.348			0.276			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: AM57EX
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2006 EXISTING 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	75	122	75	25	195	25	66	9	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	294		265		85			
% 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	294		265		85			
Left-Turn	81		27		71			
Right-Turn	81		27		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			

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

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	294		265		85			
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.26		0.24		0.08			
hd, final value	4.42		4.51		5.37			
x, final value	0.36		0.33		0.13			
Move-up time, m		2.0		2.0		2.0		
Service Time	2.4		2.5		3.4			

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	294		265		85			
Service Time	2.4		2.5		3.4			
Utilization, x	0.36		0.33		0.13			
Dep. headway, hd	4.42		4.51		5.37			
Capacity	544		515		335			
Delay	9.89		9.74		9.15			
LOS	A		A		A			
Approach:								
Delay		9.89		9.74		9.15		
LOS		A		A		A		
Intersection Delay	9.73							
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: AM58EX
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2006 EXISTING 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		75	215			280	155
Peak-Hour Factor, PHF		0.92	0.92			0.92	0.92
Hourly Flow Rate, HFR		81	233			304	168
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					80		90
Peak Hour Factor, PHF					0.92		0.92
Hourly Flow Rate, HFR					86		97
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)	81								183			
C(m) (vph)	1100								457			
v/c	0.07								0.40			
95% queue length	0.24								1.90			
Control Delay	8.5								18.0			
LOS	A								C			
Approach Delay									18.0			
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: WEEKDAY PEAK AM HIGHWAY HOUR
 Intersection: AM59EX
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2006 EXISTING 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		140	275			435	105	
Peak-Hour Factor, PHF		0.92	0.92			0.92	0.92	
Hourly Flow Rate, HFR		152	298			472	114	
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		335		235				
Peak Hour Factor, PHF		0.92		0.92				
Hourly Flow Rate, HFR		364		255				
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
Lane Config	LT				LR				
v (vph)	152				619				
C(m) (vph)	999				277				
v/c	0.15				2.23				
95% queue length	0.54				47.62				
Control Delay	9.2				596.2				
LOS	A				F				
Approach Delay					596.2				
Approach LOS					F				

Analyst: JCE Inter.: AM6OEX
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: All other areas
 Date: 4/30/2007 Jurisd:
 Period: WEEKDAY PEAK AM HIGHWAY HOUR Year : 2006 EXISTING 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	73	646	173	111	876	39	294	290	145	78	197	41
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	0.37	0.45	21.3	C		
T	1158	3618	0.61	0.32	29.6	C	28.4	C
R	492	1538	0.38	0.32	26.8	C		
Westbound								
L	286	1805	0.42	0.45	19.1	B		
TR	1150	3595	0.86	0.32	39.0	D	36.8	D
Northbound								
L	424	1719	0.75	0.45	33.0	C		
T	543	1810	0.58	0.30	31.2	C	31.2	C
R	485	1615	0.33	0.30	27.5	C		
Southbound								
L	399	1805	0.21	0.45	17.3	B		
TR	529	1762	0.49	0.30	29.4	C	26.4	C

Intersection Delay = 31.8 (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: AM60EX
 Area Type: All other areas
 Jurisdiction:
 Analysis Year: 2006 EXISTING 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	73	646	173	111	876	39	294	290	145	78	197	41
% 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	20	176	47	30	238	11	80	79	39	21	54	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	79	702	188	121	994		320	315	158	85	259	
%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		0.042			0.000	1.000		0.174	
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.: PM52EX
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: All other areas
 Date: 4/27/2007 Jurisd:
 Period: WEEKDAY PEAK PM HIGHWAY HOUR Year : 2006 EXISTING 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	640			665				790			505	
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	0.60	0.33	25.8	C	25.8	C
Westbound								
L	1168	3505	0.62	0.33	26.2	C	26.2	C
Northbound								
T	2010	3618	0.43	0.56	11.8	B	11.8	B
Southbound								
T	2010	3618	0.27	0.56	10.6	B	10.6	B

Intersection Delay = 18.7 (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: WEEKDAY PEAK PM HIGHWAY HOUR
 Intersection: PM52EX
 Area Type: All other areas
 Jurisdiction:
 Analysis Year: 2006 EXISTING 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	640			665			790			505			
% Heavy Veh	0			0			0			0			
PHF	0.92			0.92			0.92			0.92			
PK 15 Vol	174			181			215			137			
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	696			723			859			549			
%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.: PM53EX
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: All other areas
 Date: 4/27/2007 Jurisd:
 Period: WEEKDAY PEAK PM HIGHWAY HOUR Year : 2006 EXISTING 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	133		29				38	653		815	297	
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 0.27 0.33 22.2 C 22.2 C

Westbound

Northbound

LT 1030 1854 0.73 0.56 17.6 B 17.6 B

Southbound

T 1056 1900 0.84 0.56 22.8 C 19.8 B
 R 877 1579 0.37 0.56 11.4 B

Intersection Delay = 19.2 (sec/veh) Intersection LOS = B

Phone:
E-Mail:

Fax:

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: PM53EX
 Area Type: All other areas
 Jurisdiction:
 Analysis Year: 2006 EXISTING 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	133		29				38	653			815	297
% Heavy Veh	0		5				5	0			0	0
PHF	0.92		0.92				0.92	0.92			0.92	0.92
PK 15 Vol	36		8				10	177			221	81
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		177						751			886	323
%InSharedLn												
Prop LTs			0.819						0.055			0.000
Prop RTs		0.181						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: PM54EX
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2006 EXISTING 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	195	0	55	0	70	125	55	80	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			270		211		145	
% 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			270		211		145	
Left-Turn			211		0		59	
Right-Turn			59		135		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			270		211		145	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial			0.24		0.19		0.13	
hd, final value			4.88		4.52		5.05	
x, final value			0.37		0.26		0.20	
Move-up time, m				2.0		2.0		2.0
Service Time			2.9		2.5		3.0	

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate			270		211		145	
Service Time			2.9		2.5		3.0	
Utilization, x			0.37		0.26		0.20	
Dep. headway, hd			4.88		4.52		5.05	
Capacity			520		461		395	
Delay			10.66		9.14		9.33	
LOS			B		A		A	
Approach:								
Delay			10.66		9.14		9.33	
LOS			B		A		A	
Intersection Delay	9.84				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 PM HIGHWAY HOUR
 Intersection: PM55EX
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2006 EXISTING 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		110	105		25	135	
Peak-Hour Factor, PHF		0.92	0.92		0.92	0.92	
Hourly Flow Rate, HFR		119	114		27	146	
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		110		20			
Peak Hour Factor, PHF		0.92		0.92			
Hourly Flow Rate, HFR		119		21			
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)		27			140			
C(m) (vph)		1317			634			
v/c		0.02			0.22			
95% queue length		0.06			0.84			
Control Delay		7.8			12.3			
LOS		A			B			
Approach Delay					12.3			
Approach LOS					B			

Analyst: JCE Inter.: PM56EX
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: CBD or Similar
 Date: 4/30/2007 Jurisd:
 Period: WEEKDAY PEAK PM HIGHWAY HOUR Year : 2006 EXISTING 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	50	120	25	30	160	55	15	80	35	60	90	115
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 611 1375 0.35 0.44 18.0 B 18.0 B

Westbound

LTR 658 1481 0.41 0.44 18.8 B 18.8 B

Northbound

LTR 660 1484 0.21 0.44 16.1 B 16.1 B

Southbound

LTR 605 1361 0.48 0.44 20.3 C 20.3 C

Intersection Delay = 18.7 (sec/veh) Intersection LOS = B

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: PM56EX
 Area Type: CBD or Similar
 Jurisdiction:
 Analysis Year: 2006 EXISTING 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	50	120	25	30	160	55	15	80	35	60	90	115
% 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	33	7	8	43	15	4	22	10	16	24	31
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		211			267			141			288	
%InSharedLn												
Prop LTs		0.256			0.124			0.113			0.226	
Prop RTs		0.128			0.225			0.270			0.434	
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 PM HIGHWAY HOUR
Intersection: PM57EX
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006 EXISTING 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	57	162	99	34	173	28	64	14	23	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	344		254		108			
% 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	344		254		108			
Left-Turn	61		36		69			
Right-Turn	107		30		24			
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			

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: PM59EX
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2006 EXISTING 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	125	250			275	130
Peak-Hour Factor, PHF	0.92	0.92			0.92	0.92
Hourly Flow Rate, HFR	135	271			298	141
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	290		165			
Peak Hour Factor, PHF	0.92		0.92			
Hourly Flow Rate, HFR	315		179			
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)	135			494				
C(m) (vph)	1132			354				
v/c	0.12			1.40				
95% queue length	0.40			24.93				
Control Delay	8.6			223.8				
LOS	A			F				
Approach Delay				223.8				
Approach LOS				F				

Analyst: JCE Inter.: PM6OEX
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: All other areas
 Date: 4/30/2007 Jurisd:
 Period: WEEKDAY PEAK PM HIGHWAY HOUR Year : 2006 EXISTING 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	27	872	227	266	456	26	173	110	135	91	176	38
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	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	443	1719	0.07	0.50	13.6	B		
T	1085	3618	0.87	0.30	41.3	D	38.4	D
R	461	1538	0.54	0.30	30.4	C		
Westbound								
L	347	1805	0.83	0.50	41.0	D		
TR	1077	3589	0.49	0.30	29.0	C	33.3	C
Northbound								
L	374	1719	0.50	0.40	22.0	C		
T	489	1810	0.25	0.27	28.8	C	26.3	C
R	436	1615	0.34	0.27	29.8	C		
Southbound								
L	490	1805	0.20	0.40	19.4	B		
TR	476	1762	0.49	0.27	31.5	C	27.9	C

Intersection Delay = 33.8 (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 PM HIGHWAY HOUR
 Intersection: PM60EX
 Area Type: All other areas
 Jurisdiction:
 Analysis Year: 2006 EXISTING 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	27	872	227	266	456	26	173	110	135	91	176	38
% 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	7	237	62	72	124	7	47	30	37	25	48	10
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	29	948	247	289	524		188	120	147	99	232	
%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		0.053			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	

HCS+: Signalized Intersections Release 5.2

Analyst: JCE Inter.: SAT52EX
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: All other areas
 Date: 4/27/2007 Jurisd:
 Period: SATURDAY PEAK HOUR Year : 2006 EXISTING 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	512			532			632			404		
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	0.48	0.33	24.1	C	24.1	C
Westbound								
L	1168	3505	0.49	0.33	24.3	C	24.3	C
Northbound								
T	2010	3618	0.34	0.56	11.1	B	11.1	B
Southbound								
T	2010	3618	0.22	0.56	10.2	B	10.2	B

Intersection Delay = 17.5 (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: SAT52EX
 Area Type: All other areas
 Jurisdiction:
 Analysis Year: 2006 EXISTING 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	512			532			632			404		
% Heavy Veh	0			0			0			0		
PHF	0.92			0.92			0.92			0.92		
PK 15 Vol	139			145			172			110		
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	2	0
LGConfig	L			L			T			T		
Lane Width	12.0			12.0			12.0			12.0		
RTOR Vol												
Adj Flow	557			578			687			439		
%InSharedLn												
Prop LTs							0.000			0.000		
Prop RTs							0.000			0.000		
Peds Bikes	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.: SAT53EX
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: All other areas
 Date: 4/27/2007 Jurisd:
 Period: SATURDAY PEAK HOUR Year : 2006 EXISTING 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	106		23				30	522		652	238	
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 1987 0.21 0.33 21.7 C 21.7 C

Westbound

Northbound

LT 1091 1963 0.55 0.56 13.4 B 13.4 B

Southbound

T 1056 1900 0.67 0.56 15.9 B 14.5 B
 R 877 1579 0.30 0.56 10.8 B

Intersection Delay = 14.7 (sec/veh) Intersection LOS = B

Phone:
E-Mail:

Fax:

OPERATIONAL ANALYSIS

Analyst: JCE
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/27/2007
 Analysis Time Period: SATURDAY PEAK HOUR
 Intersection: SAT53EX
 Area Type: All other areas
 Jurisdiction:
 Analysis Year: 2006 EXISTING 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	106		23				30	522			652	238
% Heavy Veh	0		5				5	0			0	0
PHF	0.92		0.92				0.92	0.92			0.92	0.92
PK 15 Vol	29		6				8	142			177	65
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		140						600			709	259
%InSharedLn												
Prop LTs		0.821						0.055			0.000	
Prop RTs	0.179						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: SAT54EX
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2006 EXISTING 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	156	0	44	0	56	100	44	64	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			216		168		116	
% 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			216		168		116	
Left-Turn			169		0		47	
Right-Turn			47		108		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			216		168		116	
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial			0.19		0.15		0.10	
hd, final value			4.67		4.29		4.81	
x, final value			0.28		0.20		0.15	
Move-up time, m				2.0		2.0		2.0
Service Time			2.7		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			216		168		116	
Service Time			2.7		2.3		2.8	
Utilization, x			0.28		0.20		0.15	
Dep. headway, hd			4.67		4.29		4.81	
Capacity			466		418		366	
Delay			9.49		8.37		8.69	
LOS			A		A		A	
Approach:								
Delay			9.49		8.37		8.69	
LOS			A		A		A	
Intersection Delay	8.92				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: SAT55EX
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2006 EXISTING 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		88	84		20	108	
Peak-Hour Factor, PHF		0.92	0.92		0.92	0.92	
Hourly Flow Rate, HFR		95	91		21	117	
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		88		16			
Peak Hour Factor, PHF		0.92		0.92			
Hourly Flow Rate, HFR		95		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)	21				112			
C(m) (vph)	1371				702			
v/c	0.02				0.16			
95% queue length	0.05				0.57			
Control Delay	7.7				11.1			
LOS	A				B			
Approach Delay					11.1			
Approach LOS					B			

Analyst: Inter.: SAT56EX
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: CBD or Similar
 Date: 4/30/2007 Jurisd:
 Period: SATURDAY PEAK HOUR Year : 2006 EXISTING 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	40	96	20	24	128	44	12	64	28	48	72	92
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 626 1409 0.27 0.44 16.8 B 16.8 B

Westbound

LTR 665 1496 0.32 0.44 17.5 B 17.5 B

Northbound

LTR 665 1497 0.17 0.44 15.6 B 15.6 B

Southbound

LTR 613 1379 0.38 0.44 18.4 B 18.4 B

Intersection Delay = 17.3 (sec/veh) Intersection LOS = B

Phone: Fax:
 E-Mail:

OPERATIONAL ANALYSIS

Analyst:
 Agency/Co.: JOHN COLLINS ENGINEERS, P.C.
 Date Performed: 4/30/2007
 Analysis Time Period: SATURDAY PEAK HOUR
 Intersection: SAT56EX
 Area Type: CBD or Similar
 Jurisdiction:
 Analysis Year: 2006 EXISTING 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	40	96	20	24	128	44	12	64	28	48	72	92
% 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	26	5	7	35	12	3	17	8	13	20	25
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		169			213			113			230	
%InSharedLn												
Prop LTs		0.254			0.122			0.115			0.226	
Prop RTs		0.130			0.225			0.265			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	

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: SATURDAY PEAK HOUR
Intersection: SAT57EX
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2006 EXISTING 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	46	130	79	27	138	22	51	11	18	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	275		201		85			
% 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	275		201		85			
Left-Turn	49		29		55			
Right-Turn	85		23		19			
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	275		201		85			
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.24		0.18		0.08			
hd, final value	4.29		4.47		5.04			
x, final value	0.33		0.25		0.12			
Move-up time, m		2.0		2.0		2.0		
Service Time	2.3		2.5		3.0			

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	275		201		85			
Service Time	2.3		2.5		3.0			
Utilization, x	0.33		0.25		0.12			
Dep. headway, hd	4.29		4.47		5.04			
Capacity	525		451		335			
Delay	9.36		8.94		8.72			
LOS	A		A		A			
Approach:								
Delay		9.36		8.94		8.72		
LOS		A		A		A		
Intersection Delay	9.11							
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: SAT59EX
 Jurisdiction:
 Units: U. S. Customary
 Analysis Year: 2006 EXISTING 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		100	200			220	104	
Peak-Hour Factor, PHF		0.92	0.92			0.92	0.92	
Hourly Flow Rate, HFR		108	217			239	113	
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		232				132		
Peak Hour Factor, PHF		0.92				0.92		
Hourly Flow Rate, HFR		252				143		
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)	108						395		
C(m) (vph)	1218						451		
v/c	0.09						0.88		
95% queue length	0.29						9.16		
Control Delay	8.2						47.7		
LOS	A						E		
Approach Delay							47.7		
Approach LOS							E		

Analyst: JCE Inter.: SAT6OEX
 Agency: JOHN COLLINS ENGINEERS, P.C. Area Type: All other areas
 Date: 4/30/2007 Jurisd:
 Period: SATURDAY PEAK HOUR Year : 2006 EXISTING 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	22	698	182	213	365	21	138	88	108	73	141	30
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				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	437	1719	0.05	0.47	14.8	B		
T	1085	3618	0.70	0.30	33.0	C	31.7	C
R	461	1538	0.43	0.30	28.8	C		
Westbound								
L	321	1805	0.72	0.47	26.9	C		
TR	1076	3588	0.39	0.30	28.0	C	27.6	C
Northbound								
L	450	1719	0.33	0.43	18.6	B		
T	543	1810	0.18	0.30	26.0	C	23.2	C
R	485	1615	0.24	0.30	26.7	C		
Southbound								
L	554	1805	0.14	0.43	17.2	B		
TR	528	1761	0.35	0.30	27.8	C	24.6	C

Intersection Delay = 28.3 (sec/veh) Intersection LOS = C

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: SAT6OEX
 Area Type: All other areas
 Jurisdiction:
 Analysis Year: 2006 EXISTING 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	22	698	182	213	365	21	138	88	108	73	141	30
% 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	190	49	58	99	6	37	24	29	20	38	8
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	24	759	198	232	420		150	96	117	79	186	
%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		0.055			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	