

Appendix F

Traffic Data

Attachment 1

Photos

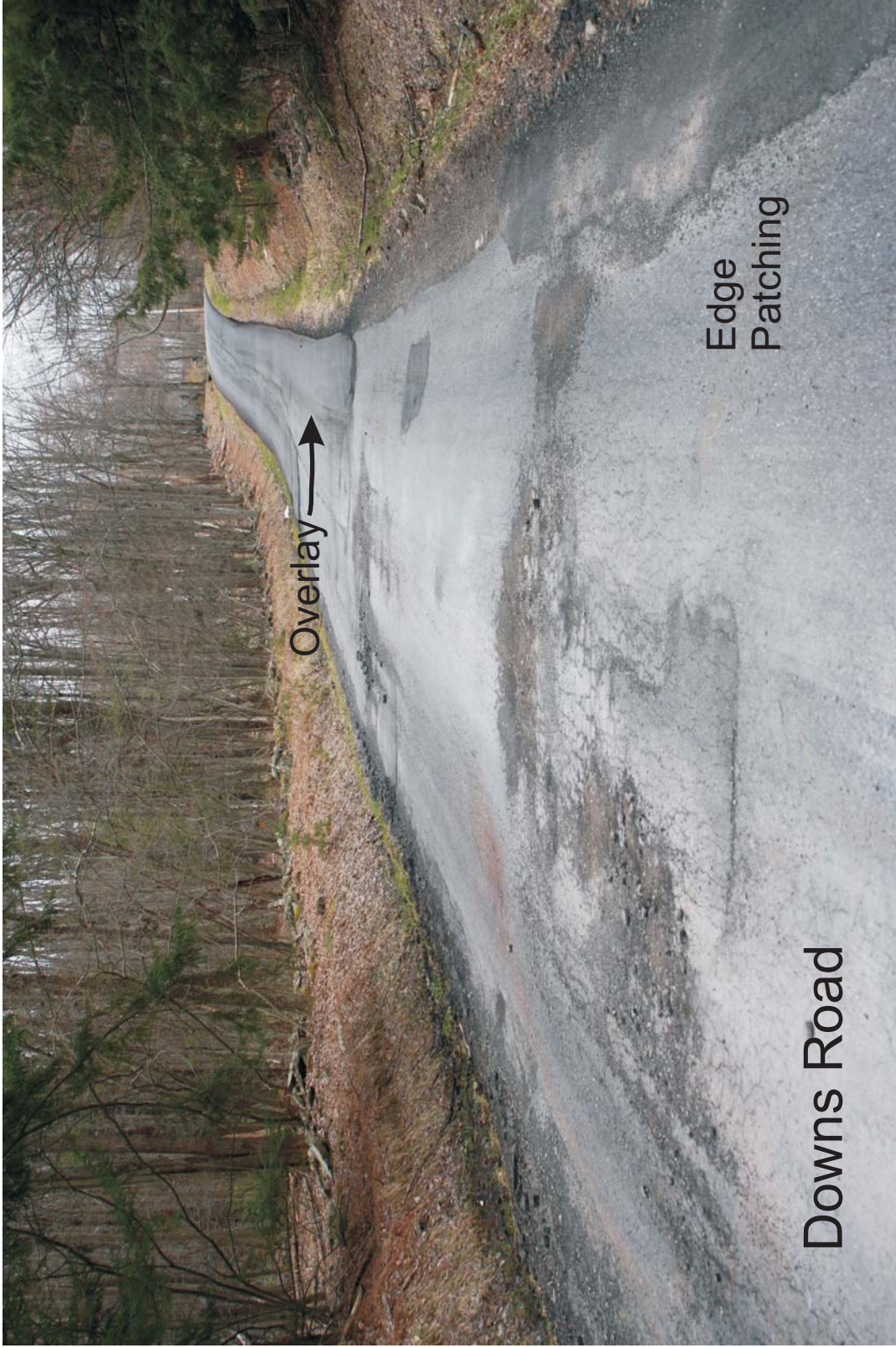


Photo 1: Bicycle Pavement Marking on Kiamesha Lake Road (CR 109) at NYS Route 42
Raleigh and Heiden Properties
Town of Fallsburg
Sullivan County, New York
Source: TMA, 4/22/11



Heiden Road (CR 161)

Photo 2: River Road at Heiden Road (CR 161)
Raleigh and Heiden Properties
Town of Fallsburg
Sullivan County, New York
Source: TMA, 4/22/11



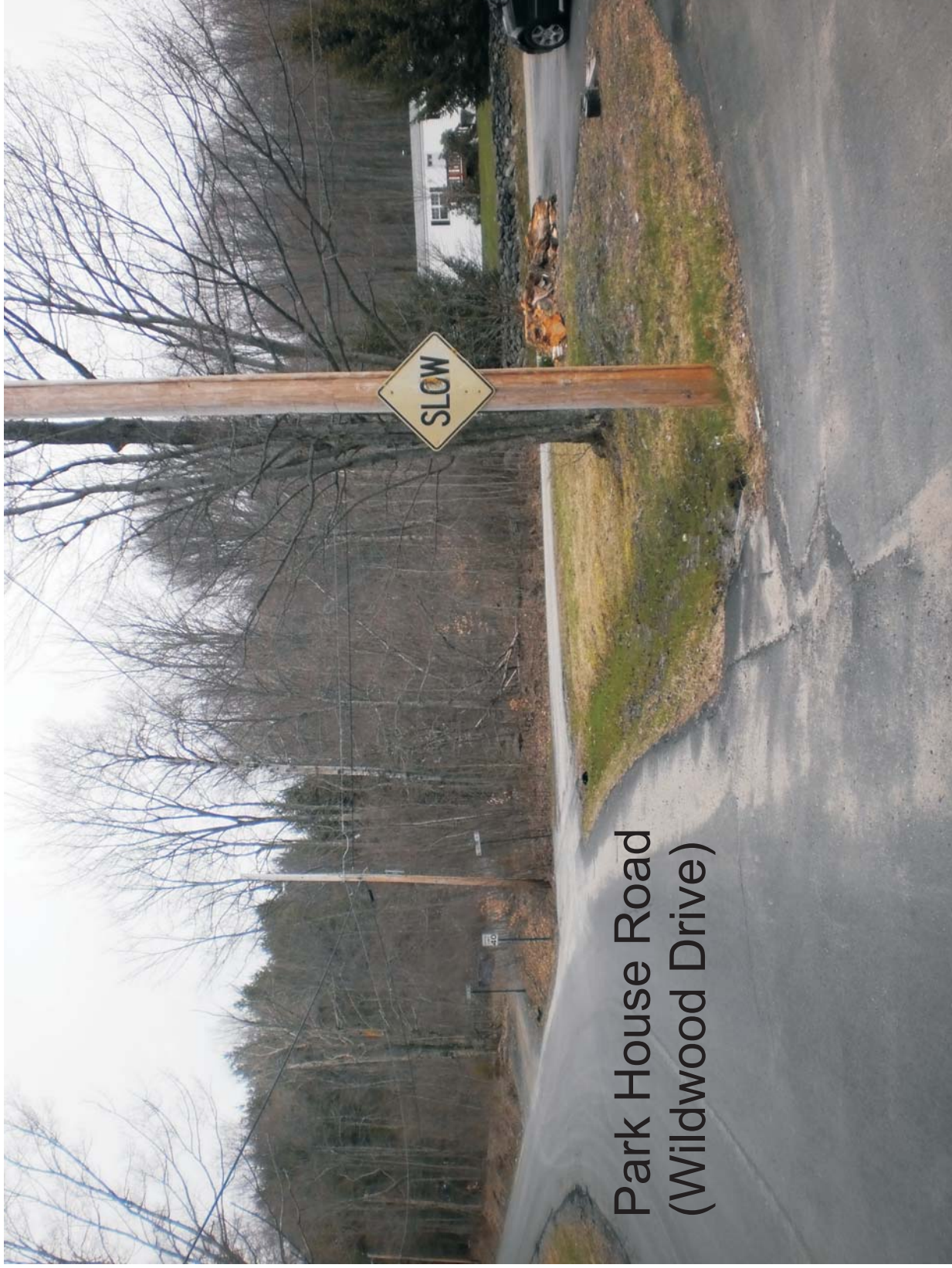
Downs Road

Edge
Patching

Overlay →

Photo 3: Downs Road
Raleigh and Heiden Properties
Town of Fallsburg
Sullivan County, New York
Source: TMA, 4/22/11

Tim Miller Associates, Inc., 10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

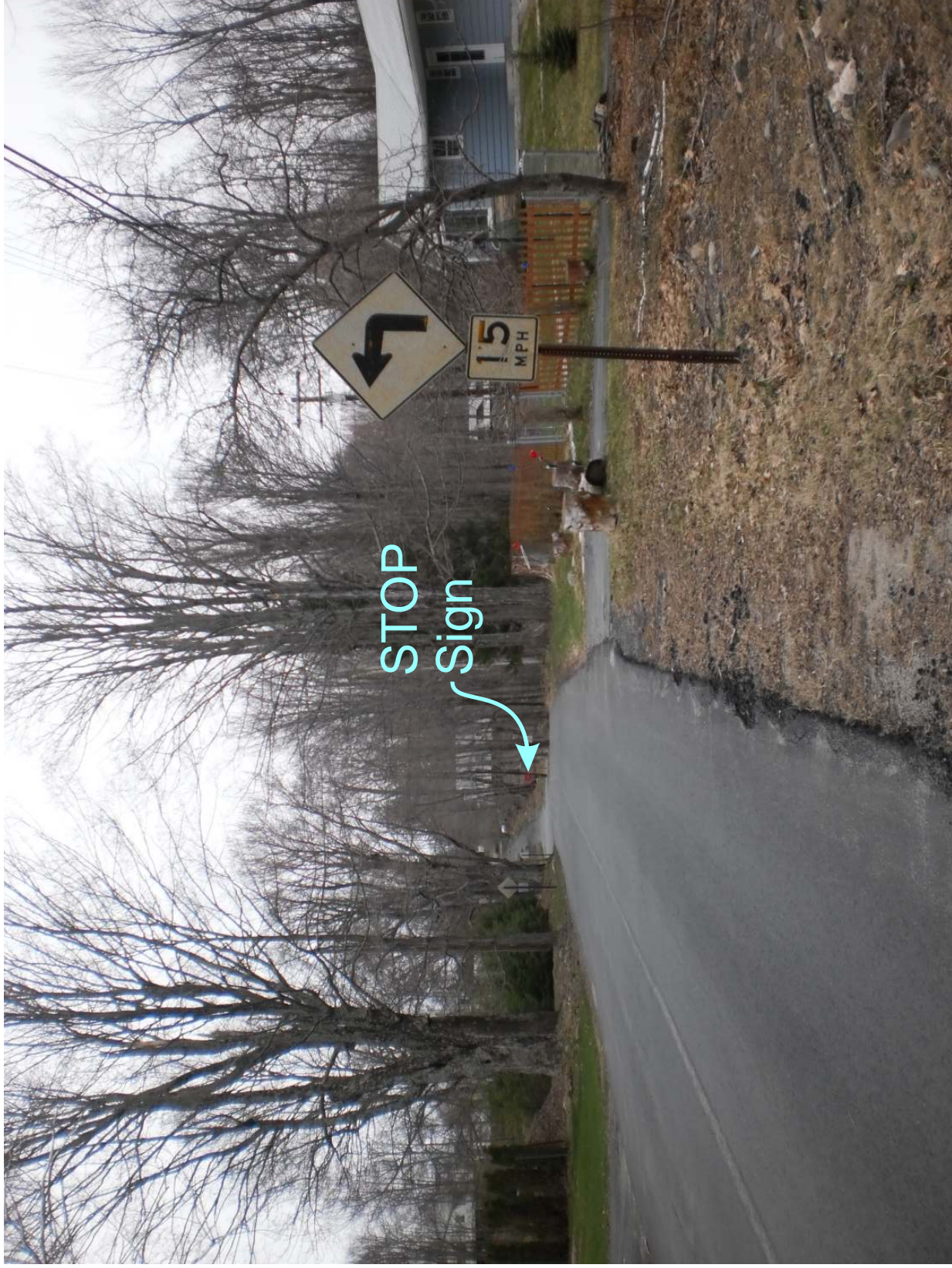


Park House Road
(Wildwood Drive)

Photo 4: Park House Road (Wildwood Drive) SLOW Sign
Raleigh and Heiden Properties
Town of Fallsburg
Sullivan County, New York
Source: TMA, 4/22/11

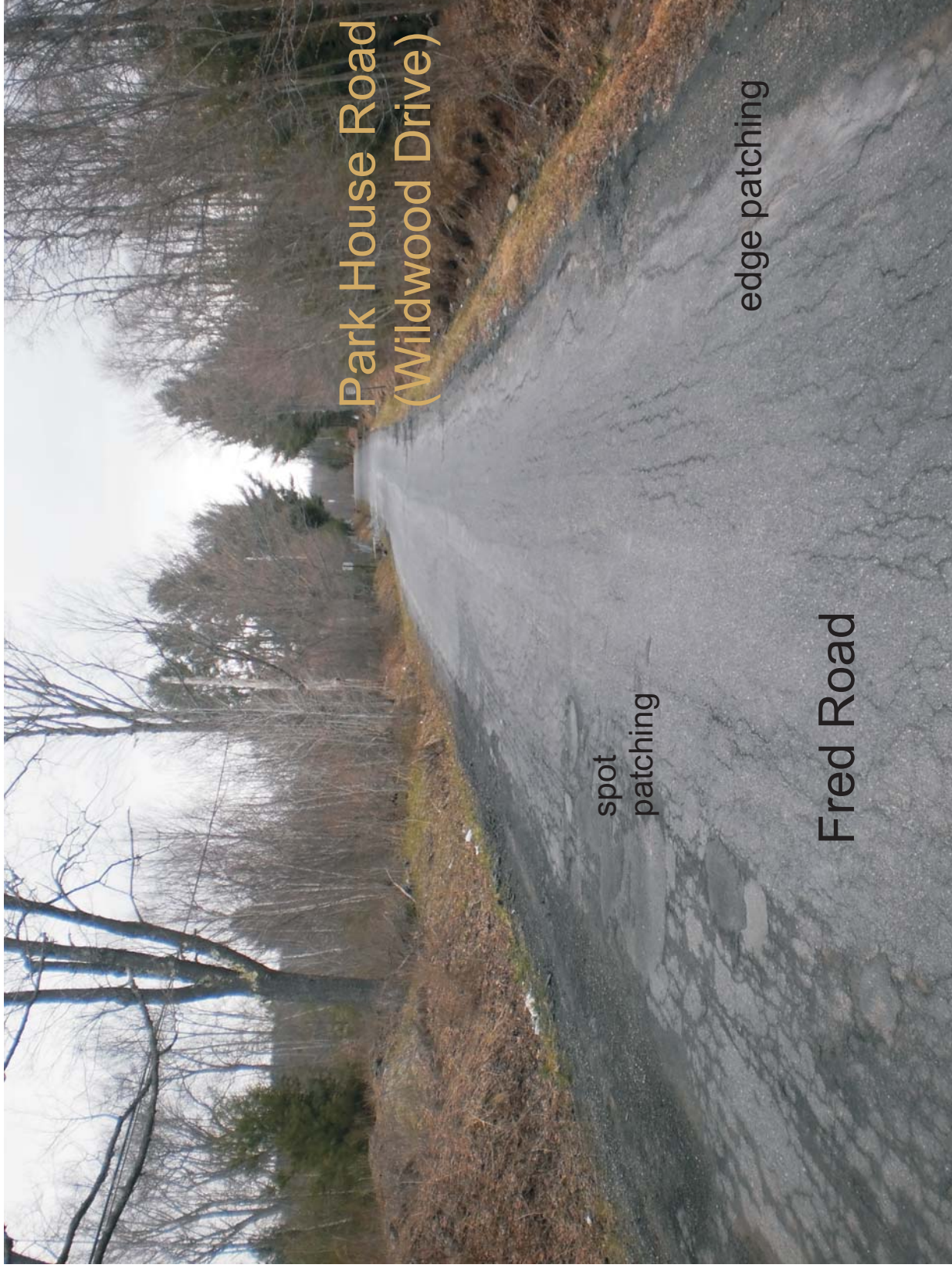


Photo 5: Park House Road (Wildwood Drive) Curve Warning Sign and Advisory 30 MPH Plaque
Raleigh and Heiden Properties
Town of Fallsburg
Sullivan County, New York
Source: TMA, 4/22/11



STOP
Sign

Photo 6: Park House Road (Wildwood Drive) Curve Warning Sign and Advisory 15 MPH Plaque
Raleigh and Heiden Properties
Town of Fallsburg
Sullivan County, New York
Source: TMA, 4/22/11



Park House Road
(Wildwood Drive)

spot
patching

edge patching

Fred Road

Photo 7: Fred Road to Park House Road (Wildwood Drive)
Raleigh and Heiden Properties
Town of Fallsburg
Sullivan County, New York
Source: TMA, 4/22/11



**Photo 8: Ranch Road W-Beam
Raleigh and Heiden Properties**
Town of Fallsburg
Sullivan County, New York
Source: TMA, 4/22/11



Photo 9: Ranch Road Cracking
Raleigh and Heiden Properties
Town of Fallsburg
Sullivan County, New York
Source: TMA, 4/22/11



**Photo 10: Ranch Road Advisory Speed Plaque Without Warning Sign
Raleigh and Heiden Properties**
Town of Fallsburg
Sullivan County, New York
Source: TMA, 4/22/11



Photo 11: County Sign Dating
Raleigh and Heiden Properties
Town of Fallsburg
Sullivan County, New York
Source: TMA, 4/22/11



Heiden Road (CR 161)

Photo 12: Heiden Road (CR 161) Northbound at Kiamesha Lake Road (CR 109)
Town of Fallsburg
Raleigh and Heiden Properties
Sullivan County, New York
Source: TMA, 4/22/11



Fraser Road

NYS Route 42

Photo 13: Looking Left from NYS Route 42 to Fraser Road
Raleigh and Heiden Properties
Town of Fallsburg
Sullivan County, New York
Source: TMA, 4/22/11

La Vista Drive

NY 5 Route 42



Photo 14: Heiden Road (CR 161) looking toward La Vista Drive
Raleigh and Heiden Properties
Town of Fallsburg
Sullivan County, New York
Source: TMA, 4/22/11



Thompson Road

Heiden Road (CR 161)

NO PARKING
Sign
See Photo 16

Photo 15: Looking North from Thompson Road along Heiden Road (CR 161)
Raleigh and Heiden Properties
Town of Fallsburg
Sullivan County, New York
Source: TMA, 4/22/11



Photo 16: Heiden Road (CR 161) No Parking Sign
Town of Fallsburg
Raleigh and Heiden Properties
Sullivan County, New York
Source: TMA, 4/22/11



Photo 17: Heiden Road (CR 161) Southbound Warning Sign Approaching River Road and Thompson Road
Raleigh and Heiden Properties
Town of Fallsburg
Sullivan County, New York
Source: TMA, 4/22/11



Missing Guardrail

Photo 18: Looking West across the River Road Bridge
Raleigh and Heiden Properties
Town of Fallsburg
Sullivan County, New York
Source: TMA, 4/22/11



Photo 19: Old and New Grey Road Bridge
Raleigh and Heiden Properties
Town of Fallsburg
Sullivan County, New York
Source: TMA, 4/22/11

Attachment 2

Sight Distance

**Table F-1
Projected Sight Distance Summary**

		Intersection Sight Distance (in feet)				Stopping Sight Distance (In Feet)	
		Right turn from minor street ¹	Left turn from Minor Street		Left Turn from Mainline	Northbound or Eastbound	Southbound or Westbound
Intersection			Looking Left ¹	Looking Right ¹			
NYS Route 42 and La Vista Drive *	Available	400±	---±	400±	--- ±	---±	400±
	Recommended ²	390 (45 mph)	450 (45 mph)	550 (55 mph)	445 (55 mph)	450 (55 mph)	325 (45 mph)
NYS Route 42 and Heiden Road (CR 161)*	Available	700+	700+	**	700+	700+	**
	Recommended ²	585 (55 mph)	675 (55 mph)	675 (55 mph)	445 (55 mph)	545 (55 mph)	545(55 mph)
Heiden Road (CR 161) and Kiameshia Lake Road (CR 109)	Available	700±	700±	450±	600±**	450±	700±
	Recommended ²	430 (45 mph)	500 (45 mph)	500 (45 mph)	365 (45 mph)	365 (45 mph)	360 (45 mph)
Heiden Road (CR 161) and River Road and Thompson Road	Available	300±	300±	625±	300±	625±	300±
	Recommended ²	430 (45 mph)	500 (45 mph)	500 (45 mph)	365 (45 mph)	360 (45 mph)	360 (45 mph)

All intersections at or near 90 degrees with no skew adjustment.

Stopping sight distance for a 2 foot object and 3.5 foot driver height

Speeds shown at speed limit.

Based on approach grades of +3 to -3 percent except as noted.

¹ Intersection sight distance as measured from 14.5 feet from travel way and 3.5 foot eye and object height.

²American Association of State Highway and Transportation Officials, A Policy on Geometric Design of Highways and Streets, Washington, D.C., 2004.

* Sight distance adjusted for grade.

** Highly variable.

Attachment 3

Traffic Measures of Effectiveness

Traffic: Measures of Effectiveness

Introduction

The Highway Capacity Manual¹ and the *Highway Capacity Software*² procedures document the methodology used for modeling levels of service and average vehicle delay at both signalized and unsignalized intersections. Level of service is a measure of the operational quality of an intersection; level of service A is the highest, most efficient level, and level of service F is the lowest level. The operational quality of an intersection is based on the average amount of time a vehicle is delayed. Levels of service are examined by 'lane group', the set of lanes allowing common movement(s) on an approach. Approaches to intersections are assigned primary directions for clarity as depicted on the traffic volume figures.

Use of the *Highway Capacity Software* is consistent with the New York State Department of Transportation policy requiring use of capacity analysis software consistent with the most recent version of the Highway Capacity Manual.

The *Highway Capacity Software* modeled results are applied to peak hour periods only. During off peak periods, which is the majority of the time, drivers typically will find operations better than the modeled peak hour results. During peak periods the experience of individual drivers can vary, because the model calculates average delay.

The volume to capacity ratios and delays are theoretical and therefore as with very high delays or very high volume to capacity ratios may result in other changes to driving patterns such as spreading traffic more within the peak hour, outside the peak hour, geographically, and operationally. For example, the analyses are done based on peak hour factors or a ratios of 15 minute flow to the hourly flows. These ratios are assumed to be constant when in fact these ratios change especially as volumes, delays and volume to capacity ratios increase. The result is actual average delay and volume to capacity ratio are low than modeled. While the time shift of traffic can be inconvenient, the geographical and operational shifts can be more problematic. Thus the volume to capacity ratios in excess of 1.2 and delays in excess of 120 seconds should not be considered the actual expected delays but an indication of other issues.

¹Highway Capacity Manual, National Academy of Sciences, Transportation Research Board, National Research Council, Washington, DC, 2000.

²Highway Capacity Software, Computer software, Version 5.4, Mctrans, Gainesville, Florida, 2008.

Level of Service Criteria Signalized Intersections

When analyzing activity at signalized intersections, an understanding of the definition of level of service is essential:

Level of service for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption and increased travel time.³

These levels of service are:

Level of Service A describes operations with low control delay, up to 10 *seconds per vehicle*. The level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.

Level of Service B describes operations with control delay greater than 10 and up to 20 *seconds per vehicle*. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with *Level of Service A*, causing higher levels of delay.

Level of Service C describes operations with control delay greater than 20 and up to 35 *seconds per vehicle*. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve [all its] queued vehicles, and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

Level of Service D describes operations with control delay greater than 35 and up to 55 *seconds per vehicle*. At *level of service D*, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, and high *volume to capacity* ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

Level of Service E describes operations with control delay greater than 55 and up to 80 *seconds per vehicle*. These high delay values generally indicate poor progression, long cycle lengths, and high *volume to capacity* ratios. Individual cycle failures are frequent.

Level of Service F describes operations with control delay in excess of 80 *seconds per vehicle*. This level, considered unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of lane groups. It may also occur at high *volume to capacity* ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.⁴ (Underlines added for emphasis, italic words unabbreviated for clarity, bracketed words added for clarity)

³Highway Capacity Manual, National Academy of Sciences, Transportation Research Board, National Research Council, Washington, DC, 2000, page 10-15.

⁴Ibid, page 10-16.

The table below summarizes the levels of service criteria for signalized intersections.

Signalized Intersections Level of Service Criteria	
Level of Service	Average Control Delay (Seconds Per Vehicle)
A	less than or equal to 10
B	greater than 10 and less than or equal to 20
C	greater than 20 and less than or equal to 35
D	greater than 35 and less than or equal to 55
E	greater than 55 and less than or equal to 80
F	greater than 80

Source: Highway Capacity Manual, National Academy of Sciences, Transportation Research Board, National Research Council, Washington, DC, 2000.

The New York State Department of Transportation (NYS DOT) generally seeks a minimum level of service D (delay of 55 seconds or less for a signalized intersection) for all lane groups however,

In some cases, it may be necessary to accept level of service E or F on individual lane groups due to unreasonable costs or impacts associated with improving the level of service.⁵

⁵NYS DOT, Highway Design Manual, (page 5-92).

Level of Service Criteria Unsignalized Intersections

The table below presents the levels of service criteria for unsignalized intersections. Average control delays are different from signalized intersections. Major street lane groups that do not include left turning movements are considered free flowing (effectively operating at a level of service A) and are not analyzed.

Unsignalized Intersections Level of Service Criteria	
Level of Service	Average Control Delay (Seconds Per Vehicle)
A	less than or equal to 10
B	greater than 10 and less than or equal to 15
C	greater than 15 and less than or equal to 25
D	greater than 25 and less than or equal to 35
E	greater than 35 and less than or equal to 50
F	greater than 50

Source: Highway Capacity Manual, National Academy of Sciences, Transportation Research Board, National Research Council, Washington, DC, 2000.

Volume to Capacity Ratio

The volume to capacity ratio is an indication of the unused capacity or the ability a lane group to process more traffic. It is possible to have a movement with a level of service A, B, C, or D and be at capacity for the movement. It is also possible to have a movement with a level of service E or F with additional capacity available on the movement. The ability of an entire intersection to handle more traffic is a complex issue, as traffic can be added to under capacity movements without impacting over capacity movements. Capacity is an estimated value based on standard vehicle operation. A volume to capacity of one indicates the volume equals the capacity. Volume to capacity ratios greater than one are possible.

Attachment 4

Traffic Level of Service Calculations

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JAG			Intersection	CR 161 and Thompson			
Agency/Co.	TMA			Jurisdiction	Town of Thompson			
Date Performed	3/27/2011			Analysis Year	Existing Condition			
Analysis Time Period	Friday Peak Hour							
Project Description								
East/West Street: Thompson and River Road				North/South Street: CR 161 Heiden Road				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	15	388	2	0	144	40		
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.94	0.94	0.94		
Hourly Flow Rate, HFR (veh/h)	16	431	2	0	153	42		
Percent Heavy Vehicles	1	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	29	0	3	1	0	0		
Peak-Hour Factor, PHF	0.57	0.57	0.57	0.25	0.25	0.25		
Hourly Flow Rate, HFR (veh/h)	50	0	5	4	0	0		
Percent Heavy Vehicles	1	0	1	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR	LTR			LTR		
v (veh/h)	16	0	4			55		
C (m) (veh/h)	1384	1137	384			407		
v/c	0.01	0.00	0.01			0.14		
95% queue length	0.04	0.00	0.03			0.46		
Control Delay (s/veh)	7.6	8.2	14.5			15.2		
LOS	A	A	B			C		
Approach Delay (s/veh)	--	--	14.5			15.2		
Approach LOS	--	--	B			C		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JAG			Intersection	CR 109 and CR 161			
Agency/Co.	TMA			Jurisdiction	Town of Fallsburg			
Date Performed	3/27/2011			Analysis Year	Existing Condition			
Analysis Time Period	Friday Peak Hour							
Project Description								
East/West Street: CR 109 Kiamesha Lake Road				North/South Street: Heiden Road CR 161				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	33	276			177	16		
Peak-Hour Factor, PHF	0.87	0.87	1.00	1.00	0.89	0.89		
Hourly Flow Rate, HFR (veh/h)	37	317	0	0	198	17		
Percent Heavy Vehicles	1	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT			TR				
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	19		48					
Peak-Hour Factor, PHF	0.84	1.00	0.84	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	22	0	57	0	0	0		
Percent Heavy Vehicles	1	0	1	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	37						79	
C (m) (veh/h)	1361						678	
v/c	0.03						0.12	
95% queue length	0.08						0.39	
Control Delay (s/veh)	7.7						11.0	
LOS	A						B	
Approach Delay (s/veh)	--	--					11.0	
Approach LOS	--	--					B	

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst JAG	Intersection Rt 42, Fraser, and CR 109
Agency or Co. TMA	Area Type All other areas
Date Performed 3/27/2011	Jurisdiction Town of Thompson
Time Period Friday Peak Hour	Analysis Year Existing Condition
	Project ID

Volume and Timing Input													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of Lanes, N ₁	0	1	0	0	1	0	0	1	0	0	1	0	
Lane Group		LTR			LTR			LTR			LTR		
Volume, V (vph)	24	464	22	18	463	43	20	27	24	67	40	20	
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2	
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.86	0.86	0.86	0.55	0.55	0.55	0.85	0.85	0.85	
Pretimed (P) or Actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A	
Start-up Lost Time, I ₁		2.0			2.0			2.0			2.0		
Extension of Effective Green, e		2.0			2.0			2.0			2.0		
Arrival Type, AT		3			3			3			3		
Unit Extension, UE		3.0			3.0			3.0			3.0		
Filtering/Metering, I		1.000			1.000			1.000			1.000		
Initial Unmet Demand, Q _b		0.0			0.0			0.0			0.0		
Ped / Bike / RTOR Volumes	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Width		12.0			12.0			12.0			13.0		
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N	
Parking Maneuvers, N _m													
Buses Stopping, N _b		0			0			0			0		
Min. Time for Pedestrians, G _p		3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08					
Timing	G = 36.0	G =	G =	G =	G = 14.0	G =	G =	G =					
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =					
Duration of Analysis, T = 0.25							Cycle Length, C = 60.0						

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		600			609			129			150	
Lane Group Capacity, c		1070			1078			365			349	
v/c Ratio, X		0.56			0.56			0.35			0.43	
Total Green Ratio, g/C		0.60			0.60			0.23			0.23	
Uniform Delay, d ₁		7.2			7.3			19.2			19.6	
Progression Factor, PF		1.000			1.000			1.000			1.000	
Delay Calibration, k		0.16			0.16			0.11			0.11	
Incremental Delay, d ₂		0.7			0.7			0.6			0.9	
Initial Queue Delay, d ₃		0.0			0.0			0.0			0.0	
Control Delay		7.9			8.0			19.8			20.5	
Lane Group LOS		A			A			B			C	
Approach Delay	7.9			8.0			19.8			20.5		
Approach LOS	A			A			B			C		
Intersection Delay	10.2			X _C = 0.53			Intersection LOS			B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JAG			Intersection	CR 161 & Route 42			
Agency/Co.	TMA			Jurisdiction	Town of Fallsburg			
Date Performed	3/23/2011			Analysis Year	Existing Condition			
Analysis Time Period	Friday Peak Hour							
Project Description								
East/West Street: Heiden Road CR 161				North/South Street: NYS Route 42				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		515	18	208	466			
Peak-Hour Factor, PHF	1.00	0.95	0.95	0.91	0.91	1.00		
Hourly Flow Rate, HFR (veh/h)	0	542	18	228	512	0		
Percent Heavy Vehicles	0	--	--	1	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	1	1	0		
Configuration			TR	L	T			
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	44		376					
Peak-Hour Factor, PHF	0.83	1.00	0.83	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	53	0	453	0	0	0		
Percent Heavy Vehicles	1	0	1	0	0	0		
Percent Grade (%)		5			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (veh/h)		228		506				
C (m) (veh/h)		1016		297				
v/c		0.22		1.70				
95% queue length		0.86		32.05				
Control Delay (s/veh)		9.6		360.8				
LOS		A		F				
Approach Delay (s/veh)	--	--	360.8					
Approach LOS	--	--	F					

TWO-WAY STOP CONTROL SUMMARY								
General Information			Site Information					
Analyst	JAG		Intersection	Route 42 and La Vista				
Agency/Co.	TMA		Jurisdiction	Toen of Fallsburg				
Date Performed	3/27/2011		Analysis Year	Existing Condition				
Analysis Time Period	Friday Peak Hour							
Project Description								
East/West Street: NYS Route 42			North/South Street: La Vista Drive					
Intersection Orientation: East-West			Study Period (hrs): 0.25					
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	124	767			602	143		
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.93	0.93		
Hourly Flow Rate, HFR (veh/h)	137	852	0	0	647	153		
Percent Heavy Vehicles	1	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				17		72		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.67	1.00	0.67		
Hourly Flow Rate, HFR (veh/h)	0	0	0	25	0	107		
Percent Heavy Vehicles	0	0	0	1	0	1		
Percent Grade (%)		0			-6			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	137						132	
C (m) (veh/h)	827						315	
v/c	0.17						0.42	
95% queue length	0.59						1.99	
Control Delay (s/veh)	10.2						24.4	
LOS	B						C	
Approach Delay (s/veh)	--	--					24.4	
Approach LOS	--	--					C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JAG			Intersection	CR 161 and Thompson			
Agency/Co.	TMA			Jurisdiction	Town of Thompson			
Date Performed	3/27/2011			Analysis Year	Existing Condition			
Analysis Time Period	Sunday Peak Hour							
Project Description								
East/West Street: Thompson and River Road				North/South Street: CR 161 Heiden Road				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	1	157	0	1	270	23		
Peak-Hour Factor, PHF	0.72	0.72	0.72	0.86	0.86	0.86		
Hourly Flow Rate, HFR (veh/h)	1	218	0	1	313	26		
Percent Heavy Vehicles	1	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	24	1	2	0	0	2		
Peak-Hour Factor, PHF	0.68	0.68	0.68	0.50	0.50	0.50		
Hourly Flow Rate, HFR (veh/h)	35	1	2	0	0	4		
Percent Heavy Vehicles	1	1	1	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR	LTR			LTR		
v (veh/h)	1	1	4			38		
C (m) (veh/h)	1226	1364	827			453		
v/c	0.00	0.00	0.00			0.08		
95% queue length	0.00	0.00	0.01			0.27		
Control Delay (s/veh)	7.9	7.6	9.4			13.7		
LOS	A	A	A			B		
Approach Delay (s/veh)	--	--	9.4			13.7		
Approach LOS	--	--	A			B		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	JAG			Intersection	CR 109 and CR 161		
Agency/Co.	TMA			Jurisdiction	Town of Fallsburg		
Date Performed	3/27/2011			Analysis Year	Existing Condition		
Analysis Time Period	Sunday Peak Hour						
Project Description							
East/West Street: CR 109 Kiamesha Lake Road				North/South Street: Heiden Road CR 161			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	75	227			228	15	
Peak-Hour Factor, PHF	0.81	0.81	1.00	1.00	0.80	0.80	
Hourly Flow Rate, HFR (veh/h)	92	280	0	0	284	18	
Percent Heavy Vehicles	1	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0			0	
Lanes	0	1	0	0	1	0	
Configuration	LT					TR	
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	22		63				
Peak-Hour Factor, PHF	0.89	1.00	0.89	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	24	0	70	0	0	0	
Percent Heavy Vehicles	1	0	1	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11
Lane Configuration	LT						LR
v (veh/h)	92						94
C (m) (veh/h)	1265						580
v/c	0.07						0.16
95% queue length	0.23						0.57
Control Delay (s/veh)	8.1						12.4
LOS	A						B
Approach Delay (s/veh)	--	--					12.4
Approach LOS	--	--					B

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst <i>JAG</i>	Intersection <i>Rt 42, Fraser, and CR109</i>
Agency or Co. <i>TMA</i>	Area Type <i>All other areas</i>
Date Performed <i>3/27/2011</i>	Jurisdiction <i>Town of Thompson</i>
Time Period <i>Sunday Peak Hour</i>	Analysis Year <i>Existing Condition</i>
	Project ID

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N ₁	0	1	0	0	1	0	0	1	0	0	1	0
Lane Group		<i>LTR</i>			<i>LTR</i>			<i>LTR</i>			<i>LTR</i>	
Volume, V (vph)	13	651	24	14	568	41	19	10	17	85	25	41
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-Hour Factor, PHF	0.83	0.83	0.83	0.88	0.88	0.88	0.68	0.68	0.68	0.71	0.71	0.71
Pretimed (P) or Actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up Lost Time, I ₁		2.0			2.0			2.0			2.0	
Extension of Effective Green, e		2.0			2.0			2.0			2.0	
Arrival Type, AT		3			3			3			3	
Unit Extension, UE		3.0			3.0			3.0			3.0	
Filtering/Metering, I		1.000			1.000			1.000			1.000	
Initial Unmet Demand, Q _b		0.0			0.0			0.0			0.0	
Ped / Bike / RTOR Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0			12.0			12.0			13.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N _m												
Buses Stopping, N _b		0			0			0			0	
Min. Time for Pedestrians, G _p		3.2			3.2			3.2			3.2	
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 36.0	G =	G =	G =	G = 14.0	G =	G =	G =				
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =				
Duration of Analysis, T = 0.25							Cycle Length, C = 60.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		829			708			68			213	
Lane Group Capacity, c		1096			1084			351			341	
v/c Ratio, X		0.76			0.65			0.19			0.62	
Total Green Ratio, g/C		0.60			0.60			0.23			0.23	
Uniform Delay, d ₁		8.8			7.9			18.5			20.6	
Progression Factor, PF		1.000			1.000			1.000			1.000	
Delay Calibration, k		0.31			0.23			0.11			0.21	
Incremental Delay, d ₂		3.1			1.4			0.3			3.6	
Initial Queue Delay, d ₃		0.0			0.0			0.0			0.0	
Control Delay		11.9			9.3			18.7			24.2	
Lane Group LOS		B			A			B			C	
Approach Delay	11.9			9.3			18.7			24.2		
Approach LOS	B			A			B			C		
Intersection Delay	12.6			X _C = 0.72			Intersection LOS			B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JAG			Intersection	CR 161 & Route 42			
Agency/Co.	TMA			Jurisdiction	Town of Fallsburg			
Date Performed	3/23/2011			Analysis Year	Existing Condition			
Analysis Time Period	Sunday Peak Hour							
Project Description								
East/West Street: Heiden Road CR 161				North/South Street: NYS Route 42				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street		Eastbound			Westbound			
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		450	16	252	422			
Peak-Hour Factor, PHF	1.00	0.95	0.95	0.90	0.90	1.00		
Hourly Flow Rate, HFR (veh/h)	0	473	16	280	468	0		
Percent Heavy Vehicles	0	--	--	1	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	1	1	0		
Configuration			TR	L	T			
Upstream Signal		0			0			
Minor Street		Northbound			Southbound			
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	20		221					
Peak-Hour Factor, PHF	0.83	1.00	0.83	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	24	0	266	0	0	0		
Percent Heavy Vehicles	1	0	1	0	0	0		
Percent Grade (%)		5			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L	LR					
v (veh/h)		280	290					
C (m) (veh/h)		1079	340					
v/c		0.26	0.85					
95% queue length		1.04	7.76					
Control Delay (s/veh)		9.5	54.3					
LOS		A	F					
Approach Delay (s/veh)	--	--	54.3					
Approach LOS	--	--	F					

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JAG			Intersection	Route 42 and La Vista			
Agency/Co.	TMA			Jurisdiction	Toen of Fallsburg			
Date Performed	3/27/2011			Analysis Year	Existing Condition			
Analysis Time Period	Sunday Peak Hour							
Project Description								
East/West Street: NYS Route 42				North/South Street: La Vista Drive				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	104	567			608	22		
Peak-Hour Factor, PHF	0.94	0.94	1.00	1.00	0.93	0.93		
Hourly Flow Rate, HFR (veh/h)	110	603	0	0	653	23		
Percent Heavy Vehicles	1	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				13		66		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.62	1.00	0.62		
Hourly Flow Rate, HFR (veh/h)	0	0	0	20	0	106		
Percent Heavy Vehicles	0	0	0	1	0	1		
Percent Grade (%)		0			-6			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	110						126	
C (m) (veh/h)	920						412	
v/c	0.12						0.31	
95% queue length	0.41						1.28	
Control Delay (s/veh)	9.4						17.5	
LOS	A						C	
Approach Delay (s/veh)	--	--					17.5	
Approach LOS	--	--					C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JAG			Intersection	CR 161 and Thompson			
Agency/Co.	TMA			Jurisdiction	Town of Thompson			
Date Performed	3/27/2011			Analysis Year	No Build Condition			
Analysis Time Period	Friday Peak Hour							
Project Description								
East/West Street: Thompson and River Road				North/South Street: CR 161 Heiden Road				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	16	500	2	0	195	46		
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.94	0.94	0.94		
Hourly Flow Rate, HFR (veh/h)	17	555	2	0	207	48		
Percent Heavy Vehicles	1	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	35	0	3	1	0	0		
Peak-Hour Factor, PHF	0.57	0.57	0.57	0.25	0.25	0.25		
Hourly Flow Rate, HFR (veh/h)	61	0	5	4	0	0		
Percent Heavy Vehicles	1	0	1	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR		LTR			LTR	
v (veh/h)	17	0		4			66	
C (m) (veh/h)	1316	1024		288			306	
v/c	0.01	0.00		0.01			0.22	
95% queue length	0.04	0.00		0.04			0.80	
Control Delay (s/veh)	7.8	8.5		17.7			20.0	
LOS	A	A		C			C	
Approach Delay (s/veh)	--	--		17.7			20.0	
Approach LOS	--	--		C			C	

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	JAG			Intersection	CR 109 and CR 161		
Agency/Co.	TMA			Jurisdiction	Town of Fallsburg		
Date Performed	3/27/2011			Analysis Year	No Build Condition		
Analysis Time Period	Friday Peak Hour						
Project Description							
East/West Street: CR 109 Kiamesha Lake Road				North/South Street: Heiden Road CR 161			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	41	469			208	38	
Peak-Hour Factor, PHF	0.87	0.87	1.00	1.00	0.89	0.89	
Hourly Flow Rate, HFR (veh/h)	47	539	0	0	233	42	
Percent Heavy Vehicles	1	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	1	0	0	1	0	
Configuration	LT						TR
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	34		60				
Peak-Hour Factor, PHF	0.84	1.00	0.84	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	40	0	71	0	0	0	
Percent Heavy Vehicles	1	0	1	0	0	0	
Percent Grade (%)	0			0			
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0			0	
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11 12
Lane Configuration	LT						LR
v (veh/h)	47						111
C (m) (veh/h)	1294						501
v/c	0.04						0.22
95% queue length	0.11						0.84
Control Delay (s/veh)	7.9						14.2
LOS	A						B
Approach Delay (s/veh)	--	--					14.2
Approach LOS	--	--					B

HCS+™ DETAILED REPORT

General Information				Site Information			
Analyst	JAG			Intersection	Rt 42, Fraser, and CR 109		
Agency or Co.	TMA			Area Type	All other areas		
Date Performed	3/27/2011			Jurisdiction	Town of Thompson		
Time Period	Friday Peak Hour			Analysis Year	No Build Condition		
				Project ID			

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N ₁	0	1	0	0	1	0	0	1	0	0	1	0
Lane Group		LTR			LTR			LTR			LTR	
Volume, V (vph)	26	543	28	19	543	49	25	29	30	73	43	22
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.86	0.86	0.86	0.55	0.55	0.55	0.85	0.85	0.85
Pretimed (P) or Actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up Lost Time, I ₁		2.0			2.0			2.0			2.0	
Extension of Effective Green, e		2.0			2.0			2.0			2.0	
Arrival Type, AT		3			3			3			3	
Unit Extension, UE		3.0			3.0			3.0			3.0	
Filtering/Metering, I		1.000			1.000			1.000			1.000	
Initial Unmet Demand, Q _b		0.0			0.0			0.0			0.0	
Ped / Bike / RTOR Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0			12.0			12.0			13.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N _m												
Buses Stopping, N _b		0			0			0			0	
Min. Time for Pedestrians, G _p		3.2			3.2			3.2			3.2	
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 36.0	G =	G =	G =	G = 14.0	G =	G =	G =				
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =				
Duration of Analysis, T = 0.25							Cycle Length, C = 60.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		703			710			153			163	
Lane Group Capacity, c		1063			1076			362			342	
v/c Ratio, X		0.66			0.66			0.42			0.48	
Total Green Ratio, g/C		0.60			0.60			0.23			0.23	
Uniform Delay, d ₁		8.0			7.9			19.6			19.8	
Progression Factor, PF		1.000			1.000			1.000			1.000	
Delay Calibration, k		0.24			0.23			0.11			0.11	
Incremental Delay, d ₂		1.5			1.5			0.8			1.0	
Initial Queue Delay, d ₃		0.0			0.0			0.0			0.0	
Control Delay		9.5			9.5			20.4			20.9	
Lane Group LOS		A			A			C			C	
Approach Delay	9.5			9.5			20.4			20.9		
Approach LOS	A			A			C			C		
Intersection Delay	11.5			X _c = 0.61			Intersection LOS			B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JAG			Intersection	CR 161 & Route 42			
Agency/Co.	TMA			Jurisdiction	Town of Fallsburg			
Date Performed	3/23/2011			Analysis Year	No Build Condition			
Analysis Time Period	Friday Peak Hour							
Project Description								
East/West Street: Heiden Road CR 161				North/South Street: NYS Route 42				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		597	19	252	546			
Peak-Hour Factor, PHF	1.00	0.95	0.95	0.91	0.91	1.00		
Hourly Flow Rate, HFR (veh/h)	0	628	20	276	599	0		
Percent Heavy Vehicles	0	--	--	1	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	1	1	0		
Configuration			TR	L	T			
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	48		452					
Peak-Hour Factor, PHF	0.83	1.00	0.83	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	57	0	544	0	0	0		
Percent Heavy Vehicles	1	0	1	0	0	0		
Percent Grade (%)		5			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L	LR					
v (veh/h)		276	601					
C (m) (veh/h)		943	222					
v/c		0.29	2.71					
95% queue length		1.22	51.73					
Control Delay (s/veh)		10.4	814.4					
LOS		B	F					
Approach Delay (s/veh)	--	--	814.4					
Approach LOS	--	--	F					

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JAG			Intersection	Route 42 and La Vista			
Agency/Co.	TMA			Jurisdiction	Toen of Fallsburg			
Date Performed	3/27/2011			Analysis Year	No Build Condition			
Analysis Time Period	Friday Peak Hour							
Project Description								
East/West Street: NYS Route 42				North/South Street: La Vista Drive				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	135	914			718	155		
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.93	0.93		
Hourly Flow Rate, HFR (veh/h)	150	1015	0	0	772	166		
Percent Heavy Vehicles	1	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				18		80		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.67	1.00	0.67		
Hourly Flow Rate, HFR (veh/h)	0	0	0	26	0	119		
Percent Heavy Vehicles	0	0	0	1	0	1		
Percent Grade (%)	0			-6				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	150						145	
C (m) (veh/h)	735						244	
v/c	0.20						0.59	
95% queue length	0.76						3.44	
Control Delay (s/veh)	11.1						39.3	
LOS	B						E	
Approach Delay (s/veh)	--	--					39.3	
Approach LOS	--	--					E	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JAG			Intersection	CR 161 and Thompson			
Agency/Co.	TMA			Jurisdiction	Town of Thompson			
Date Performed	3/27/2011			Analysis Year	No Build Condition			
Analysis Time Period	Sunday Peak Hour							
Project Description								
East/West Street: Thompson and River Road				North/South Street: CR 161 Heiden Road				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	1	226	0	1	349	28		
Peak-Hour Factor, PHF	0.72	0.72	0.72	0.86	0.86	0.86		
Hourly Flow Rate, HFR (veh/h)	1	313	0	1	405	32		
Percent Heavy Vehicles	1	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	29	1	2	0	0	2		
Peak-Hour Factor, PHF	0.68	0.68	0.68	0.50	0.50	0.50		
Hourly Flow Rate, HFR (veh/h)	42	1	2	0	0	4		
Percent Heavy Vehicles	1	1	1	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR	LTR			LTR		
v (veh/h)	1	1	4			45		
C (m) (veh/h)	1128	1259	732			340		
v/c	0.00	0.00	0.01			0.13		
95% queue length	0.00	0.00	0.02			0.45		
Control Delay (s/veh)	8.2	7.9	9.9			17.2		
LOS	A	A	A			C		
Approach Delay (s/veh)	--	--	9.9			17.2		
Approach LOS	--	--	A			C		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JAG			Intersection	CR 109 and CR 161			
Agency/Co.	TMA			Jurisdiction	Town of Fallsburg			
Date Performed	3/27/2011			Analysis Year	No Build Condition			
Analysis Time Period	Sunday Peak Hour							
Project Description								
East/West Street: CR 109 Kiamesha Lake Road				North/South Street: Heiden Road CR 161				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street		Northbound			Southbound			
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	87	288			266	51		
Peak-Hour Factor, PHF	0.81	0.81	1.00	1.00	0.80	0.80		
Hourly Flow Rate, HFR (veh/h)	107	355	0	0	332	63		
Percent Heavy Vehicles	1	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street		Eastbound			Westbound			
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	32		75					
Peak-Hour Factor, PHF	0.89	1.00	0.89	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	35	0	84	0	0	0		
Percent Heavy Vehicles	1	0	1	0	0	0		
Percent Grade (%)		0			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	107						119	
C (m) (veh/h)	1169						471	
v/c	0.09						0.25	
95% queue length	0.30						0.99	
Control Delay (s/veh)	8.4						15.2	
LOS	A						C	
Approach Delay (s/veh)	--	--					15.2	
Approach LOS	--	--					C	

HCS+™ DETAILED REPORT

General Information	Site Information
Analyst JAG	Intersection Rt 42, Fraser, and CR109
Agency or Co. TMA	Area Type All other areas
Date Performed 3/27/2011	Jurisdiction Town of Thompson
Time Period Sunday Peak Hour	Analysis Year No Build Condition
	Project ID

Volume and Timing Input													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of Lanes, N ₁	0	1	0	0	1	0	0	1	0	0	1	0	
Lane Group		LTR			LTR			LTR			LTR		
Volume, V (vph)	14	749	29	15	668	47	24	11	21	92	27	44	
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2	
Peak-Hour Factor, PHF	0.83	0.83	0.83	0.88	0.88	0.88	0.68	0.68	0.68	0.71	0.71	0.71	
Pretimed (P) or Actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A	
Start-up Lost Time, I ₁		2.0			2.0			2.0			2.0		
Extension of Effective Green, e		2.0			2.0			2.0			2.0		
Arrival Type, AT		3			3			3			3		
Unit Extension, UE		3.0			3.0			3.0			3.0		
Filtering/Metering, I		1.000			1.000			1.000			1.000		
Initial Unmet Demand, Q _b		0.0			0.0			0.0			0.0		
Ped / Bike / RTOR Volumes	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Width		12.0			12.0			12.0			13.0		
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N	
Parking Maneuvers, N _m													
Buses Stopping, N _b		0			0			0			0		
Min. Time for Pedestrians, G _p		3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08					
Timing	G = 36.0	G =	G =	G =	G = 14.0	G =	G =	G =					
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =					
Duration of Analysis, T = 0.25							Cycle Length, C = 60.0						

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		954			829			82			230	
Lane Group Capacity, c		1093			1082			344			337	
v/c Ratio, X		0.87			0.77			0.24			0.68	
Total Green Ratio, g/C		0.60			0.60			0.23			0.23	
Uniform Delay, d ₁		10.1			8.9			18.7			21.0	
Progression Factor, PF		1.000			1.000			1.000			1.000	
Delay Calibration, k		0.40			0.32			0.11			0.25	
Incremental Delay, d ₂		8.0			3.4			0.4			5.6	
Initial Queue Delay, d ₃		0.0			0.0			0.0			0.0	
Control Delay		18.0			12.2			19.0			26.6	
Lane Group LOS		B			B			B			C	
Approach Delay	18.0			12.2			19.0			26.6		
Approach LOS	B			B			B			C		
Intersection Delay	16.7			X _c = 0.82			Intersection LOS			B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JAG			Intersection	CR 161 & Route 42			
Agency/Co.	TMA			Jurisdiction	Town of Fallsburg			
Date Performed	3/23/2011			Analysis Year	No Build Condition			
Analysis Time Period	Sunday Peak Hour							
Project Description								
East/West Street: Heiden Road CR 161				North/South Street: NYS Route 42				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street		Eastbound			Westbound			
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		530	17	307	508			
Peak-Hour Factor, PHF	1.00	0.95	0.95	0.90	0.90	1.00		
Hourly Flow Rate, HFR (veh/h)	0	557	17	341	564	0		
Percent Heavy Vehicles	0	--	--	1	--	--		
Median Type	Undivided							
RT Channelized			0					0
Lanes	0	1	0	1	1	0		
Configuration			TR	L	T			
Upstream Signal		0			0			
Minor Street		Northbound			Southbound			
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	22		274					
Peak-Hour Factor, PHF	0.83	1.00	0.83	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	26	0	330	0	0	0		
Percent Heavy Vehicles	1	0	1	0	0	0		
Percent Grade (%)		5			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0					0
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L		LR				
v (veh/h)		341		356				
C (m) (veh/h)		1004		247				
v/c		0.34		1.44				
95% queue length		1.52		20.23				
Control Delay (s/veh)		10.4		257.8				
LOS		B		F				
Approach Delay (s/veh)	--	--	257.8					
Approach LOS	--	--	F					

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JAG			Intersection	Route 42 and La Vista			
Agency/Co.	TMA			Jurisdiction	Toen of Fallsburg			
Date Performed	3/27/2011			Analysis Year	No Build Condition			
Analysis Time Period	Sunday Peak Hour							
Project Description								
East/West Street: NYS Route 42				North/South Street: La Vista Drive				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	115	690			742	24		
Peak-Hour Factor, PHF	0.94	0.94	1.00	1.00	0.93	0.93		
Hourly Flow Rate, HFR (veh/h)	122	734	0	0	797	25		
Percent Heavy Vehicles	1	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				14		72		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.62	1.00	0.62		
Hourly Flow Rate, HFR (veh/h)	0	0	0	22	0	116		
Percent Heavy Vehicles	0	0	0	1	0	1		
Percent Grade (%)	0			-6				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	122						138	
C (m) (veh/h)	812						326	
v/c	0.15						0.42	
95% queue length	0.53						2.03	
Control Delay (s/veh)	10.2						23.9	
LOS	B						C	
Approach Delay (s/veh)	--	--					23.9	
Approach LOS	--	--					C	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JAG			Intersection	CR 161 and Thompson			
Agency/Co.	TMA			Jurisdiction	Town of Thompson			
Date Performed	3/27/2011			Analysis Year	Build Condition			
Analysis Time Period	Friday Peak Hour							
Project Description								
East/West Street: Thompson and River Road				North/South Street: CR 161 Heiden Road				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	16	544	2	0	222	48		
Peak-Hour Factor, PHF	0.90	0.90	0.90	0.94	0.94	0.94		
Hourly Flow Rate, HFR (veh/h)	17	604	2	0	236	51		
Percent Heavy Vehicles	1	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	39	0	3	1	0	0		
Peak-Hour Factor, PHF	0.57	0.57	0.57	0.25	0.25	0.25		
Hourly Flow Rate, HFR (veh/h)	68	0	5	4	0	0		
Percent Heavy Vehicles	1	0	1	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR	LTR			LTR		
v (veh/h)	17	0	4			73		
C (m) (veh/h)	1281	982	254			268		
v/c	0.01	0.00	0.02			0.27		
95% queue length	0.04	0.00	0.05			1.08		
Control Delay (s/veh)	7.8	8.7	19.4			23.4		
LOS	A	A	C			C		
Approach Delay (s/veh)	--	--	19.4			23.4		
Approach LOS	--	--	C			C		

TWO-WAY STOP CONTROL SUMMARY							
General Information				Site Information			
Analyst	JAG			Intersection	CR 109 and CR 161		
Agency/Co.	TMA			Jurisdiction	Town of Fallsburg		
Date Performed	3/27/2011			Analysis Year	Build Condition		
Analysis Time Period	Friday Peak Hour						
Project Description							
East/West Street: CR 109 Kiamesha Lake Road				North/South Street: Heiden Road CR 161			
Intersection Orientation: North-South				Study Period (hrs): 0.25			
Vehicle Volumes and Adjustments							
Major Street	Northbound			Southbound			
Movement	1	2	3	4	5	6	
	L	T	R	L	T	R	
Volume (veh/h)	74	488			218	50	
Peak-Hour Factor, PHF	0.87	0.87	1.00	1.00	0.89	0.89	
Hourly Flow Rate, HFR (veh/h)	85	560	0	0	244	56	
Percent Heavy Vehicles	1	--	--	0	--	--	
Median Type	Undivided						
RT Channelized			0				0
Lanes	0	1	0	0	1	0	
Configuration	LT						TR
Upstream Signal		0			0		
Minor Street	Eastbound			Westbound			
Movement	7	8	9	10	11	12	
	L	T	R	L	T	R	
Volume (veh/h)	72		97				
Peak-Hour Factor, PHF	0.84	1.00	0.84	1.00	1.00	1.00	
Hourly Flow Rate, HFR (veh/h)	85	0	115	0	0	0	
Percent Heavy Vehicles	1	0	1	0	0	0	
Percent Grade (%)		0			0		
Flared Approach		N			N		
Storage		0			0		
RT Channelized			0				0
Lanes	0	0	0	0	0	0	
Configuration		LR					
Delay, Queue Length, and Level of Service							
Approach	Northbound	Southbound	Westbound			Eastbound	
Movement	1	4	7	8	9	10	11 12
Lane Configuration	LT						LR
v (veh/h)	85						200
C (m) (veh/h)	1267						411
v/c	0.07						0.49
95% queue length	0.22						2.59
Control Delay (s/veh)	8.0						21.8
LOS	A						C
Approach Delay (s/veh)	--	--					21.8
Approach LOS	--	--					C

HCS+™ DETAILED REPORT

General Information				Site Information			
Analyst	JAG			Intersection	Rt 42, Fraser, and CR 109		
Agency or Co.	TMA			Area Type	All other areas		
Date Performed	3/27/2011			Jurisdiction	Town of Thompson		
Time Period	Friday Peak Hour			Analysis Year	Build Condition		
				Project ID			

Volume and Timing Input													
	EB			WB			NB			SB			
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	
Number of Lanes, N ₁	0	1	0	0	1	0	0	1	0	0	1	0	
Lane Group		LTR			LTR			LTR			LTR		
Volume, V (vph)	26	543	63	19	543	49	46	29	30	73	43	22	
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2	
Peak-Hour Factor, PHF	0.85	0.85	0.85	0.86	0.86	0.86	0.55	0.55	0.55	0.85	0.85	0.85	
Pretimed (P) or Actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A	
Start-up Lost Time, I ₁		2.0			2.0			2.0			2.0		
Extension of Effective Green, e		2.0			2.0			2.0			2.0		
Arrival Type, AT		3			3			3			3		
Unit Extension, UE		3.0			3.0			3.0			3.0		
Filtering/Metering, I		1.000			1.000			1.000			1.000		
Initial Unmet Demand, Q _b		0.0			0.0			0.0			0.0		
Ped / Bike / RTOR Volumes	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Width		12.0			12.0			12.0			13.0		
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N	
Parking Maneuvers, N _m													
Buses Stopping, N _b		0			0			0			0		
Min. Time for Pedestrians, G _p		3.2			3.2			3.2			3.2		
Phasing	EW Perm	02	03	04	NS Perm	06	07	08					
Timing	G = 36.0	G =	G =	G =	G = 14.0	G =	G =	G =					
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =					
Duration of Analysis, T = 0.25							Cycle Length, C = 60.0						

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		744			710			192			163	
Lane Group Capacity, c		1058			1074			337			327	
v/c Ratio, X		0.70			0.66			0.57			0.50	
Total Green Ratio, g/C		0.60			0.60			0.23			0.23	
Uniform Delay, d ₁		8.3			8.0			20.3			20.0	
Progression Factor, PF		1.000			1.000			1.000			1.000	
Delay Calibration, k		0.27			0.24			0.16			0.11	
Incremental Delay, d ₂		2.1			1.5			2.3			1.2	
Initial Queue Delay, d ₃		0.0			0.0			0.0			0.0	
Control Delay		10.4			9.5			22.6			21.2	
Lane Group LOS		B			A			C			C	
Approach Delay	10.4			9.5			22.6			21.2		
Approach LOS	B			A			C			C		
Intersection Delay	12.3			X _c = 0.67			Intersection LOS			B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JAG			Intersection	CR 161 & Route 42			
Agency/Co.	TMA			Jurisdiction	Town of Fallsburg			
Date Performed	3/23/2011			Analysis Year	Build Condition			
Analysis Time Period	Friday Peak Hour							
Project Description								
East/West Street: Heiden Road CR 161				North/South Street: NYS Route 42				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street		Eastbound			Westbound			
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		597	19	263	546			
Peak-Hour Factor, PHF	1.00	0.95	0.95	0.91	0.91	1.00		
Hourly Flow Rate, HFR (veh/h)	0	628	20	289	599	0		
Percent Heavy Vehicles	0	--	--	1	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	1	1	0		
Configuration			TR	L	T			
Upstream Signal		0			0			
Minor Street		Northbound			Southbound			
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	48		459					
Peak-Hour Factor, PHF	0.83	1.00	0.83	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	57	0	553	0	0	0		
Percent Heavy Vehicles	1	0	1	0	0	0		
Percent Grade (%)		5			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L	LR					
v (veh/h)		289	610					
C (m) (veh/h)		943	214					
v/c		0.31	2.85					
95% queue length		1.30	53.76					
Control Delay (s/veh)		10.5	879.7					
LOS		B	F					
Approach Delay (s/veh)	--	--	879.7					
Approach LOS	--	--	F					

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JAG			Intersection	Route 42 and La Vista			
Agency/Co.	TMA			Jurisdiction	Toen of Fallsburg			
Date Performed	3/27/2011			Analysis Year	Build Condition			
Analysis Time Period	Friday Peak Hour							
Project Description								
East/West Street: NYS Route 42				North/South Street: La Vista Drive				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	135	914			729	155		
Peak-Hour Factor, PHF	0.90	0.90	1.00	1.00	0.93	0.93		
Hourly Flow Rate, HFR (veh/h)	150	1015	0	0	783	166		
Percent Heavy Vehicles	1	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				18		80		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.67	1.00	0.67		
Hourly Flow Rate, HFR (veh/h)	0	0	0	26	0	119		
Percent Heavy Vehicles	0	0	0	1	0	1		
Percent Grade (%)	0			-6				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	150						145	
C (m) (veh/h)	728						240	
v/c	0.21						0.60	
95% queue length	0.77						3.53	
Control Delay (s/veh)	11.2						40.5	
LOS	B						E	
Approach Delay (s/veh)	--	--					40.5	
Approach LOS	--	--					E	

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JAG			Intersection	CR 161 and Thompson			
Agency/Co.	TMA			Jurisdiction	Town of Thompson			
Date Performed	3/27/2011			Analysis Year	Build Condition			
Analysis Time Period	Sunday Peak Hour							
Project Description								
East/West Street: Thompson and River Road				North/South Street: CR 161 Heiden Road				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	1	261	0	1	382	31		
Peak-Hour Factor, PHF	0.72	0.72	0.72	0.86	0.86	0.86		
Hourly Flow Rate, HFR (veh/h)	1	362	0	1	444	36		
Percent Heavy Vehicles	1	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LTR			LTR				
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	32	1	2	0	0	2		
Peak-Hour Factor, PHF	0.68	0.68	0.68	0.50	0.50	0.50		
Hourly Flow Rate, HFR (veh/h)	47	1	2	0	0	4		
Percent Heavy Vehicles	1	1	1	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration		LTR			LTR			
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LTR	LTR	LTR			LTR		
v (veh/h)	1	1	4			50		
C (m) (veh/h)	1088	1208	687			295		
v/c	0.00	0.00	0.01			0.17		
95% queue length	0.00	0.00	0.02			0.60		
Control Delay (s/veh)	8.3	8.0	10.3			19.7		
LOS	A	A	B			C		
Approach Delay (s/veh)	--	--	10.3			19.7		
Approach LOS	--	--	B			C		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JAG			Intersection	CR 109 and CR 161			
Agency/Co.	TMA			Jurisdiction	Town of Fallsburg			
Date Performed	3/27/2011			Analysis Year	Build Condition			
Analysis Time Period	Sunday Peak Hour							
Project Description								
East/West Street: CR 109 Kiamesha Lake Road				North/South Street: Heiden Road CR 161				
Intersection Orientation: North-South				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Northbound			Southbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	128	303			277	67		
Peak-Hour Factor, PHF	0.81	0.81	1.00	1.00	0.80	0.80		
Hourly Flow Rate, HFR (veh/h)	158	374	0	0	346	83		
Percent Heavy Vehicles	1	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0				0	
Lanes	0	1	0	0	1	0		
Configuration	LT						TR	
Upstream Signal		0			0			
Minor Street	Eastbound			Westbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	62		105					
Peak-Hour Factor, PHF	0.89	1.00	0.89	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	69	0	117	0	0	0		
Percent Heavy Vehicles	1	0	1	0	0	0		
Percent Grade (%)	0			0				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0				0	
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT					LR		
v (veh/h)	158						186	
C (m) (veh/h)	1136						367	
v/c	0.14						0.51	
95% queue length	0.48						2.75	
Control Delay (s/veh)	8.7						24.5	
LOS	A					C		
Approach Delay (s/veh)	--	--				24.5		
Approach LOS	--					C		

HCS+™ DETAILED REPORT

General Information				Site Information			
Analyst	JAG			Intersection	Rt 42, Fraser, and CR109		
Agency or Co.	TMA			Area Type	All other areas		
Date Performed	3/27/2011			Jurisdiction	Town of Thompson		
Time Period	Sunday Peak Hour			Analysis Year	Build Condition		
				Project ID			

Volume and Timing Input												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Number of Lanes, N ₁	0	1	0	0	1	0	0	1	0	0	1	0
Lane Group		LTR			LTR			LTR			LTR	
Volume, V (vph)	14	749	57	15	668	47	51	11	21	92	27	44
% Heavy Vehicles, %HV	2	2	2	2	2	2	2	2	2	2	2	2
Peak-Hour Factor, PHF	0.83	0.83	0.83	0.88	0.88	0.88	0.68	0.68	0.68	0.71	0.71	0.71
Pretimed (P) or Actuated (A)	A	A	A	A	A	A	A	A	A	A	A	A
Start-up Lost Time, I ₁		2.0			2.0			2.0			2.0	
Extension of Effective Green, e		2.0			2.0			2.0			2.0	
Arrival Type, AT		3			3			3			3	
Unit Extension, UE		3.0			3.0			3.0			3.0	
Filtering/Metering, I		1.000			1.000			1.000			1.000	
Initial Unmet Demand, Q _b		0.0			0.0			0.0			0.0	
Ped / Bike / RTOR Volumes	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width		12.0			12.0			12.0			13.0	
Parking / Grade / Parking	N	0	N	N	0	N	N	0	N	N	0	N
Parking Maneuvers, N _m												
Buses Stopping, N _b		0			0			0			0	
Min. Time for Pedestrians, G _p		3.2			3.2			3.2			3.2	
Phasing	EW Perm	02	03	04	NS Perm	06	07	08				
Timing	G = 36.0	G =	G =	G =	G = 14.0	G =	G =	G =				
	Y = 5	Y =	Y =	Y =	Y = 5	Y =	Y =	Y =				
Duration of Analysis, T = 0.25							Cycle Length, C = 60.0					

Lane Group Capacity, Control Delay, and LOS Determination												
	EB			WB			NB			SB		
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT
Adjusted Flow Rate, v		988			829			122			230	
Lane Group Capacity, c		1089			1081			298			338	
v/c Ratio, X		0.91			0.77			0.41			0.68	
Total Green Ratio, g/C		0.60			0.60			0.23			0.23	
Uniform Delay, d ₁		10.5			8.9			19.5			21.0	
Progression Factor, PF		1.000			1.000			1.000			1.000	
Delay Calibration, k		0.43			0.32			0.11			0.25	
Incremental Delay, d ₂		11.0			3.4			0.9			5.5	
Initial Queue Delay, d ₃		0.0			0.0			0.0			0.0	
Control Delay		21.5			12.3			20.4			26.4	
Lane Group LOS		C			B			C			C	
Approach Delay	21.5			12.3			20.4			26.4		
Approach LOS	C			B			C			C		
Intersection Delay	18.4			X _C = 0.84			Intersection LOS			B		

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JAG			Intersection	CR 161 & Route 42			
Agency/Co.	TMA			Jurisdiction	Town of Fallsburg			
Date Performed	3/23/2011			Analysis Year	Build Condition			
Analysis Time Period	Sunday Peak Hour							
Project Description								
East/West Street: Heiden Road CR 161				North/South Street: NYS Route 42				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street		Eastbound			Westbound			
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)		530	17	315	508			
Peak-Hour Factor, PHF	1.00	0.95	0.95	0.90	0.90	1.00		
Hourly Flow Rate, HFR (veh/h)	0	557	17	350	564	0		
Percent Heavy Vehicles	0	--	--	1	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	1	1	0		
Configuration			TR	L	T			
Upstream Signal		0			0			
Minor Street		Northbound			Southbound			
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)	22		282					
Peak-Hour Factor, PHF	0.83	1.00	0.83	1.00	1.00	1.00		
Hourly Flow Rate, HFR (veh/h)	26	0	339	0	0	0		
Percent Heavy Vehicles	1	0	1	0	0	0		
Percent Grade (%)		5			0			
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration		LR						
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		L	LR					
v (veh/h)		350	365					
C (m) (veh/h)		1004	246					
v/c		0.35	1.48					
95% queue length		1.58	21.30					
Control Delay (s/veh)		10.5	275.5					
LOS		B	F					
Approach Delay (s/veh)	--	--	275.5					
Approach LOS	--	--	F					

TWO-WAY STOP CONTROL SUMMARY								
General Information				Site Information				
Analyst	JAG			Intersection	Route 42 and La Vista			
Agency/Co.	TMA			Jurisdiction	Toen of Fallsburg			
Date Performed	3/27/2011			Analysis Year	Build Condition			
Analysis Time Period	Sunday Peak Hour							
Project Description								
East/West Street: NYS Route 42				North/South Street: La Vista Drive				
Intersection Orientation: East-West				Study Period (hrs): 0.25				
Vehicle Volumes and Adjustments								
Major Street	Eastbound			Westbound				
Movement	1	2	3	4	5	6		
	L	T	R	L	T	R		
Volume (veh/h)	115	698			750	24		
Peak-Hour Factor, PHF	0.94	0.94	1.00	1.00	0.93	0.93		
Hourly Flow Rate, HFR (veh/h)	122	742	0	0	806	25		
Percent Heavy Vehicles	1	--	--	0	--	--		
Median Type	Undivided							
RT Channelized			0			0		
Lanes	0	1	0	0	1	0		
Configuration	LT					TR		
Upstream Signal		0			0			
Minor Street	Northbound			Southbound				
Movement	7	8	9	10	11	12		
	L	T	R	L	T	R		
Volume (veh/h)				14		72		
Peak-Hour Factor, PHF	1.00	1.00	1.00	0.62	1.00	0.62		
Hourly Flow Rate, HFR (veh/h)	0	0	0	22	0	116		
Percent Heavy Vehicles	0	0	0	1	0	1		
Percent Grade (%)	0			-6				
Flared Approach		N			N			
Storage		0			0			
RT Channelized			0			0		
Lanes	0	0	0	0	0	0		
Configuration					LR			
Delay, Queue Length, and Level of Service								
Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	LT						LR	
v (veh/h)	122						138	
C (m) (veh/h)	806						321	
v/c	0.15						0.43	
95% queue length	0.53						2.07	
Control Delay (s/veh)	10.3						24.4	
LOS	B						C	
Approach Delay (s/veh)	--	--					24.4	
Approach LOS	--	--					C	

Attachment 5
Traffic Growth Validation

APPENDIX F ATTACHMENT 5 Validation of Traffic Counts

County Road 53 is a key east west route in the Town of Fallsburg. It is one of only a few roads in the Town of Fallsburg with a bridge over the Neversink River. The New York State Department of Transportation maintains a continuous count station on CR 53 east of the Neversink River. Continuous count stations provide volume data for every hour of the year. However this validation review concentrates on July and August only. Figure 1 shows 2007 data to correspond to year of actual counts. The latest available continuous count data (2010) is also shown. Finally an early year 2005 is indicated as further background into area growth.

Figure 1 indicates the general road use over the summer weeks. On Monday through Thursday traffic starts very low and climbs during standard morning commuter times (6 a.m. to 9 a.m.). As more stores open overall traffic continues to grow starting at 9 a.m. and into the afternoon peak commuter time. Traffic begins declining at about 5 p.m.

On Fridays the early morning hours mirror the rest of the weekdays. Starting at about 9 a.m. however traffic grows at a steeper rate. This reflects the arrival of weekenders and high use for shopping and other uses prior to Saturday. The highest traffic of the week occurs in the 1 p.m. to 6 p.m. period. After 6 p.m. traffic drops fast in anticipation of the coming sunset reaching the lowest point for any day between 8 p.m. and 12 p.m. Saturday traffic remains comparably low throughout the day and only begins to rise after sunset, generally sometime after 9 p.m. From 10 p.m. to midnight Saturday traffic is higher than any other day for those hours, leading into Sunday when traffic is higher from midnight to 5 a.m. than other days of the week for these hours. Sunday does not show a standard weekday commuter peak. After 9 a.m. the volumes begin to climb and from 10 a.m. to 9 p.m. remains higher than Monday to Thursday volumes. After 9 p.m. the Sunday traffic begins to reflect the weekday traffic.

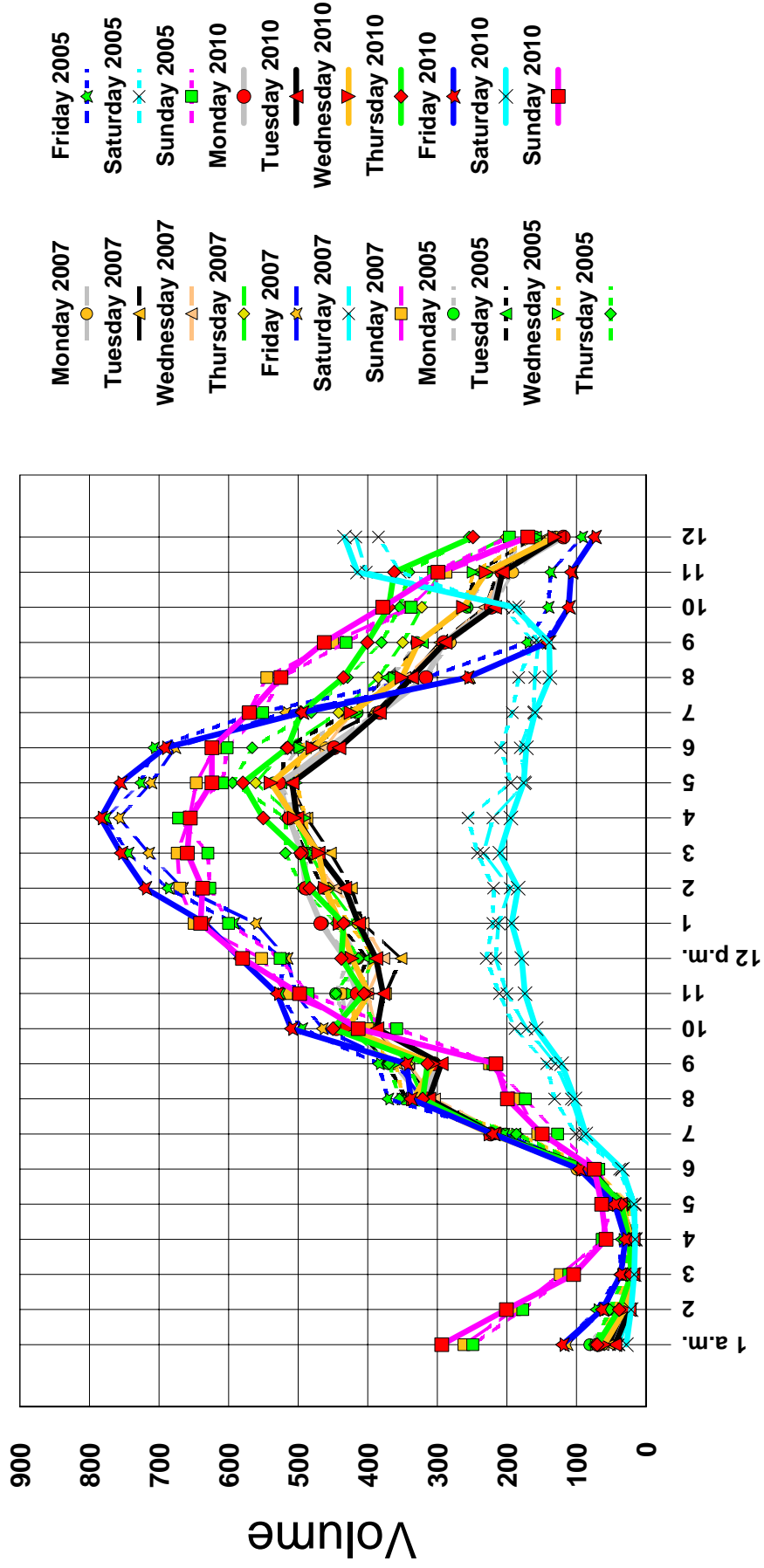
Figure 2 shows only the Friday to Sunday traffic for 2005, 2007, and 2010. The data indicates several trends:

- 1) A slight decline in traffic from 2005 through 2010 in traffic from sunset Friday to sunset on Saturday.
- 2) The Sunday peak traffic remains relatively constant.
- 3) The Sunday peak traffic is generally lower than the Friday peak traffic.
- 4) The highest 2007 Friday peak hour traffic increased by one percent per year for three years is a close indicator of the highest Friday volume in 2010.

The traffic study used a one percent growth for projecting future volumes from 2007. Based on the continuous count data the one percent growth is be a reasonable estimate of growth through 2010.

A traffic count was taken on Friday August 26, 2011 at the intersection of CR 161 and CR 109. The total entering volume of 722 is eight percent higher than the 2007 total entering volume (669) for Friday at the intersection. Effectively this is approximately an two and a half percent per year growth. This growth represents a single comparison and thus a variation could be expected to be greater than at the continuous count station reflecting nine summer volumes in each year for each hour. This variation further underscores the need to understand the accuracy of the volume to capacity ratios and delay are not absolute but intended to provide an accurate representation of projected typical level of service experienced by drivers. No further adjust has been made to 2015 volumes regarding expected growth.

Figure 1 Summer County Road 53 Hourly Traffic



Hour Ending

Figure 2

County Road 53 Hourly Traffic

Summer Friday to Sunday

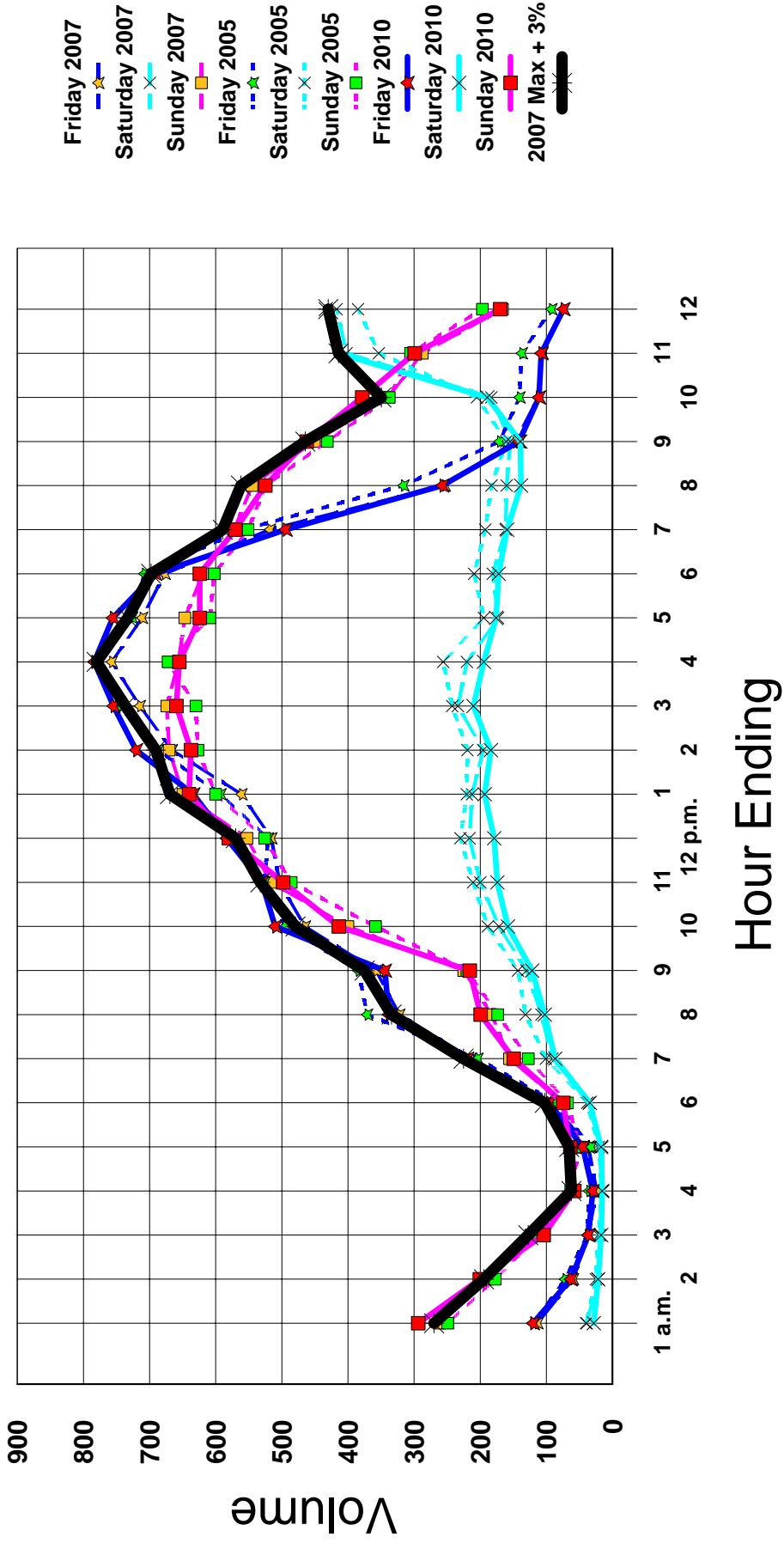
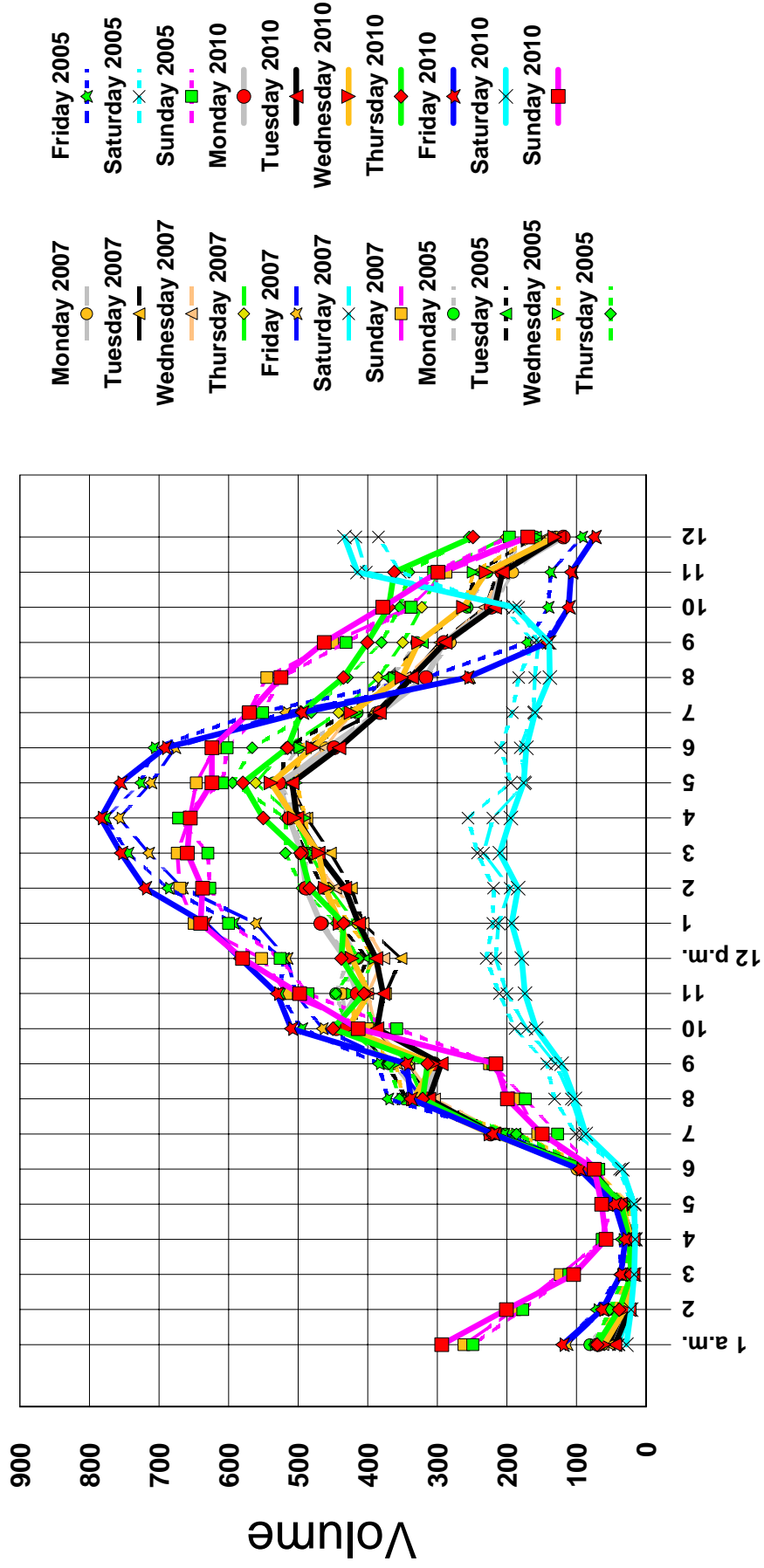


Figure 1 Summer County Road 53 Hourly Traffic

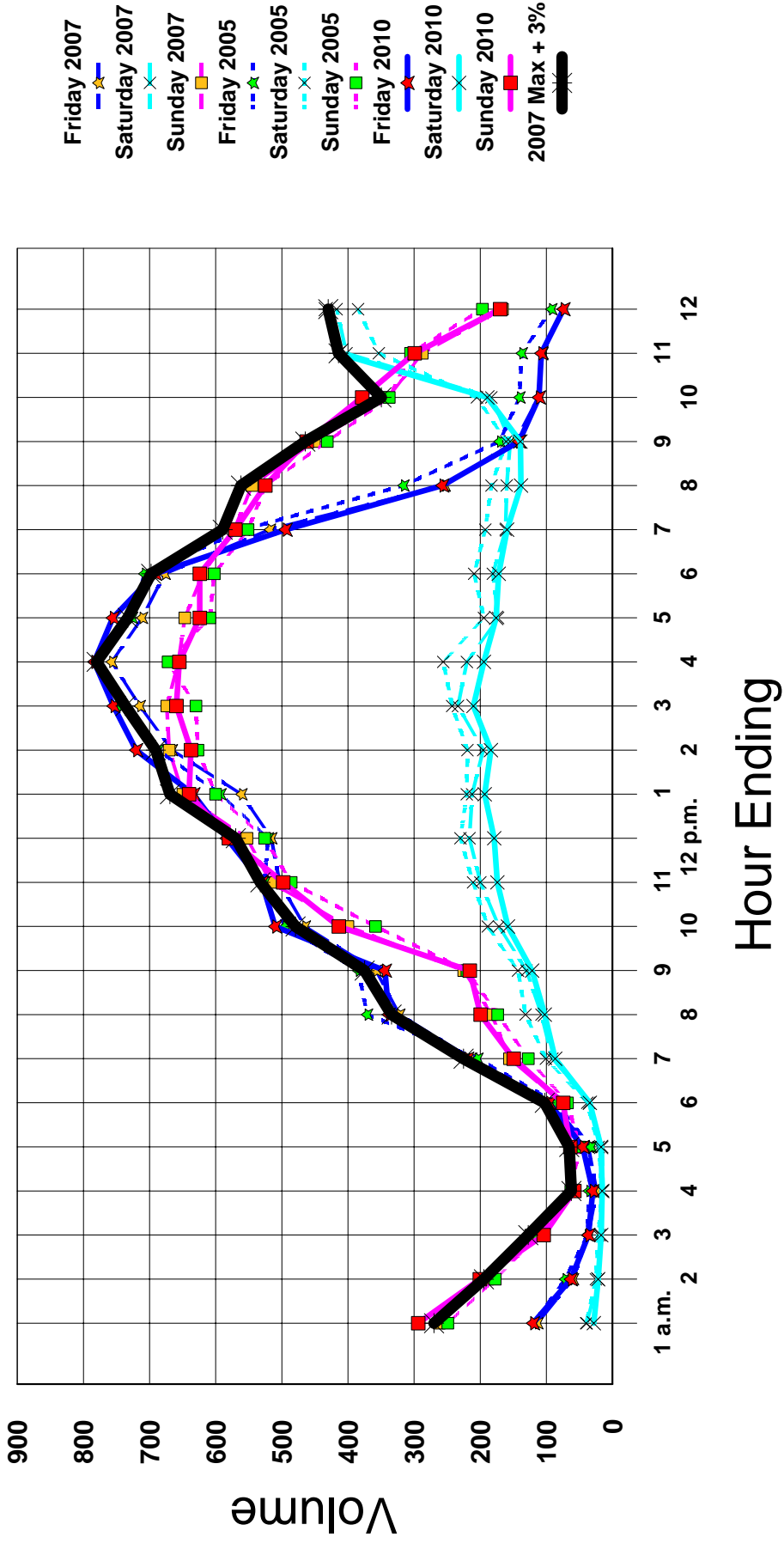


Hour Ending

Figure 2

County Road 53 Hourly Traffic

Summer Friday to Sunday



Attachment 6
Sign and Parking Tables

**Attachment 6 Table 1
Preliminary Sign Review**

Photo Number ⁵	Sign	Sign Issue ^{1, 2}	Probable Action (Town of Fallsburg or other)
2	DEAD END	Legibility	Replace in kind (Town of Thompson).
4	SLOW	legibility, nonconforming, determination of need, posted on telephone pole	Remove sign, review what if any new conforming sign is needed, and if re-posted place on a standard sign post.
4	Wildwood Drive street sign	Street name does not conform to Official County Map ³	In order to permit fast emergency response time street names should correspond to official maps. The street sign or official maps should be brought into correspondence.
5	30 MPH Advisory speed Plaque	Legibility	Replace in kind.
6	Road turning left warning sign and 15 MPH advisory speed plaque	Legibility, the sign indicates vehicles can continue through the curve at 15 miles per hour when the location is STOP sign controlled	Remove sign and advisory speed plaque.
10	35 MPH Advisory speed plaque	Advisory speed plaques are to be used with warning signs	Add appropriate warning sign.
13	NO RIGHT-ON -RED	Sight distance to left from NYS Route 42 northbound	Add regulatory sign. (NYS DOT)
14	55 and 45 mile per hour speed limit signs	For safety the speed limit should be 45 miles per hour through the CR 161 and NYS Route 42 intersection ⁴	Move speed signs southwest of CR 161 and NYS Route 42 intersection (NYS DOT).
16, 17	NO PARKING sign	Legibility and missing signs intersections	Review no parking areas. No parking areas should be reviewed regarding prohibiting standing and stopping and new signs located. Recommend laws be rewritten to identify distances from intersections (Town of Thompson).

¹ United States Department of Transportation Federal Highway Administration, Manual on Uniform Traffic Controls for Streets and Highways, Washington, D.C., 2009 edition.

² State of New York, 17 NYCRR Chapter V, New York Supplement (to the Manual on Uniform Traffic Controls for Streets and Highways), 2010 Edition, effective March 16, 2011.

³ Sullivan County Department of Public Works, "Official Highway Map Town of Fallsburg, County of Sullivan, New York", Monticello, NY, December 9, 2010.

⁴ See discussion of Network Issues section 3.8.6.

⁵ Appendix F Attachment 1 Photos.

**Attachment 6 Table 2
Parking Regulations (Town of Thompson)**

Road	Side	Location
County Road No. 161 (Heiden Road)	Both	From the New York State Electric and Gas Corporation Pole No. 74 and New York Telephone Company Pole No. 2 at Jack's Corners, running in a northerly direction to the New York State Electric and Gas Corporation Pole No. 63-100 and New York Telephone Company Pole No. 5R
Ranch Road	Both	From the east end of the Old Mill Bridge in an easterly direction to the New York State Electric and Gas Corporation Pole No. 4-100 and New York Telephone Company Pole No. 5R
County Road No. 109 (Kiamesha Lake Road)	South	From the intersection of New York State Highway No. 42, running in an easterly direction to the Town line of the Town of Thompson
Fraser Road	Both	From New York Telephone Company Pole No. 1 at the intersection of Concord Road and New York State Highway Route 42 in a westerly direction to New York Telephone Company Pole No. 3.

Source: Town Board of the Town of Thompson, Town Code, Chapter 235 Part 2 Article V section 235-46 Schedule K No Parking at any time.