APPENDIX F

Hampton Ridge Center Traffic Impact Study June 2009 Addendum

Technical Memorandum

Bergmann associates
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Re: Hampton Ridge Center Traffic Impact Study Addendum 2 **Date:** June 23, 2009

Introduction

The objective of this addendum to the traffic impact study is to revise and update the January 2008 traffic impact study addendum 1. The January 2008 addendum 1 was initially superseded by a cumulative analysis of Hampton Ridge Center (HRC) and a proposed Southwestern Commons (SWC) to be located opposite HRC on the south side of Route 104. The analysis was performed jointly by Bergmann Associates and FRA. The cumulative analysis was nearly complete when plans for moving SWC forward ceased. The uncertainty of SWC has now brought us back to updating the January 2008 addendum. The site plan accompanies this memorandum.

A site location map is shown in Figure 1 on the next page. The HRC will be located on the north side of Route 104 between Manitou Road and North Greece Road / Elmgrove Road. Cross access will be provided between the HRC and the Shops at Hampton Ridge (SHR). Cross access will allow HRC to benefit from a third driveway access to Route 104. The target year of completion of 2009 has been retained.

The following systematic procedure was used for this addendum:

1. Redistribute the HRC traffic assignment because the proposed west driveway will be controlled by a stop sign a change from Addendum 1.

2. Project traffic without (no build condition) and with (build condition) HRC at these subject intersections:

   Route 104 with Manitou Road
   Route 104 with the proposed west HRC driveway
   Route 104 with the proposed east HRC driveway
   Route 104 with the SHR driveway
   Route 104 with North Greece Road and Elmgrove Road
   Route 104 with Elmridge Plaza driveway
   Elmgrove Road with St. Andrews Drive and Berkshire Drive (> 100 projected weekday peak hour trips)
   Elmgrove Road with Straub Road (> 100 projected weekday peak hour trips)

   The two intersections on Elmgrove Road were added to the analysis because they are expected to draw more than 100 HRC trips during the Friday PM peak hour.

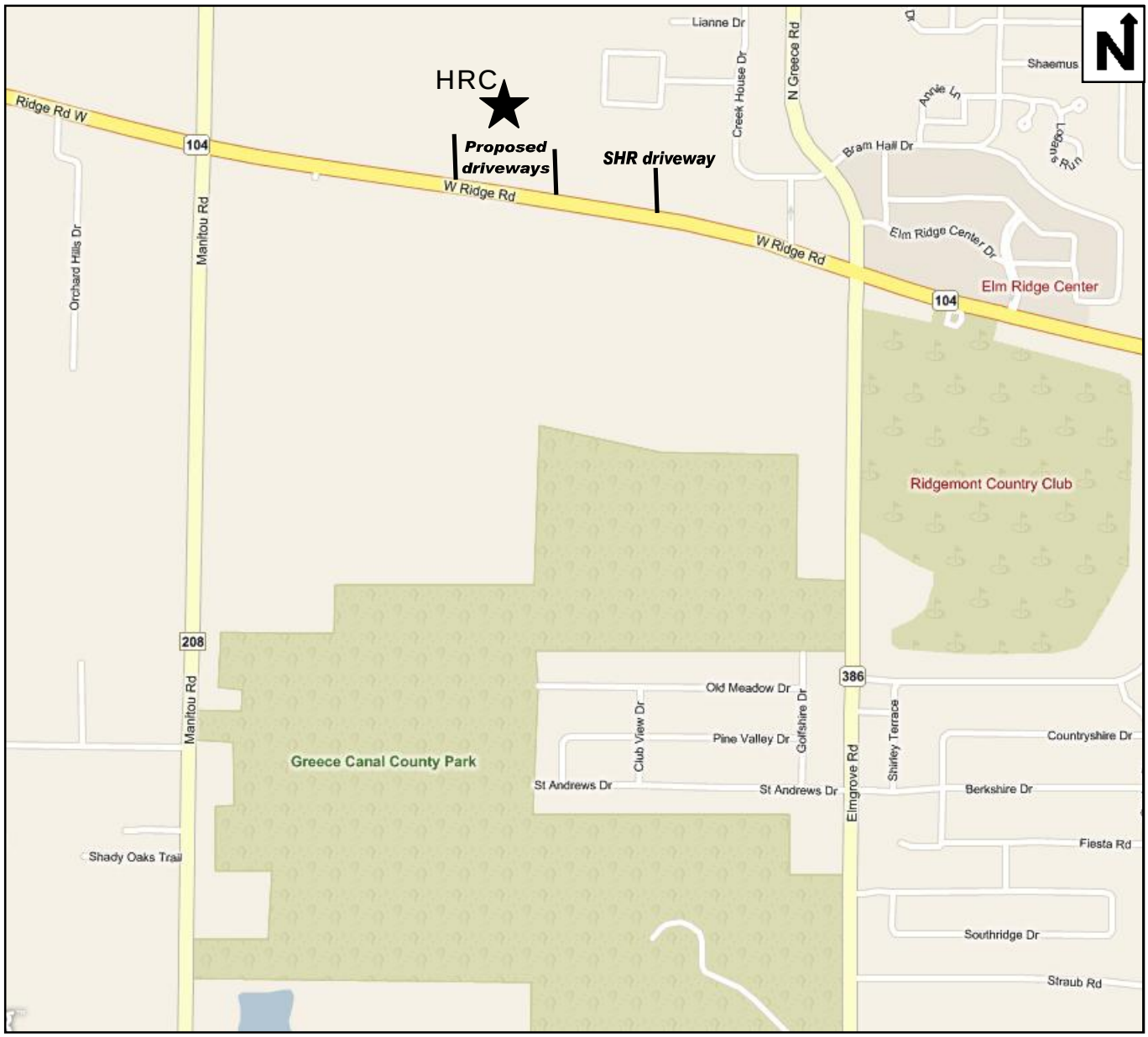
3. Synchro and SimTraffic Version 7.0 was utilized for the analysis because improvements have been made to the traffic analysis software since Version 6.0 was used in addendum 1 of the traffic impact study.

4. Evaluate 2009 traffic operations at the subject intersections under:

   No Build conditions
   No Build conditions with mitigation
   Build conditions (with development traffic)
   Build conditions with signal timing adjustments

The analyses and evaluations in this report have been performed using standard traffic engineering methodologies in accordance with the ITE *Trip Generation Handbook*. Data used in this impact assessment has been collected from field investigations, field visits, developer plans, and the New York State Department of Transportation (NYSDOT), including the NYSDOT Traffic Data Report (TDR) for New York State.

Figure 1 - Site Location Map



Impact of Development

Trip Generation and Assignment

The number of new trips on the roadway system generated by the HRC development is projected to be 986 and 1846 during the Friday PM and Saturday Mid-day peak hours.

The assignment of traffic generated by the HRC development is shown in Appendix A. The percentage of new traffic traveling on North Greece Road is projected to be 10% and 12% during the Friday PM and Saturday Mid-day peak hours respectively because some traffic to/from the north is expected to use Manitou Road in lieu of North Greece Road to avoid intersections on Route 104. The percentage traveling to/from Manitou Road north of Route 104 is projected to be 12% and 11% during the Friday PM and Saturday Mid-day peak hours respectively. South of Route 104 the percentages are projected to be 7% and 6% respectively. Percentages on Elmgrove Road are projected to be 18% and 15% respectively.

On Route 104 to the east of North Greece Road and Elmgrove Road the percentage is projected to be 36% and 37% during the Friday and Saturday peak hours respectively. To the west of Manitou the percentages are projected to be 17% and 19% respectively.

Vehicles exiting HRC to go east are expected to mainly use the east driveway because of the proximity of HRC buildings and the traffic signal proposed for the east driveway will provide better LOS for left turns. Vehicles exiting to go west are expected to mainly use the east driveway because of the proximity of HRC buildings (approximately 70% at the east driveway). The proposed stop sign on the west driveway will provide good LOS for right turns, so more right turns are expected to use the west driveway than left turns. The west driveway is also closer to the destination of exit right turns.

The vehicles entering HRC from the west are expected to mainly use the traffic signal at the east driveway (approximately 70% at the east driveway) because of the proximity to HRC buildings and the left turn green arrow for this movement provided by the proposed traffic signal. Traffic entering from the east is mainly expected to use the east driveway (approximately 70% at the east driveway) because of the proximity of this driveway and good LOS for right turns.

2009 Traffic Volumes

Traffic volumes were counted in April 2009 at the Route 104 intersections with Manitou Road and with Elmgrove Road / North Greece Road to update the analysis and understand recent traffic trends in the area. Appendix B contains the detailed count data and Appendix A contains the peak hour traffic at all the intersection studied.

Appendix A contains the projected No Build and Build traffic volumes in 2009. No Build volumes are those projected to exist without the proposed development. Build volumes are those projected to exist with the proposed HRC in place.

Capacity Analysis

Level of Service (LOS) analysis is a means of determining the ability of an intersection to accommodate traffic volumes. The analysis is based on intersection street geometrics, traffic controls and traffic maneuvers. The analysis produces an indication of the level of service at which an intersection is functioning or is expected to function for future conditions.

The LOS procedures are provided in the Highway Capacity Manual (HCM) published by the Transportation Research Board, 2000. Version 7.0 of Synchro was utilized to determine the LOS and vehicle queues at the subject intersections. Version 7.0 of SimTraffic was also utilized to study traffic flow.

LOS is defined by letter characters that range from A to F, with A representing the best traffic operating conditions that have little or no delay and F characterizing the worst conditions that have significant delay. LOS A through D are usually considered acceptable and LOS E is usually considered representative of conditions where improvements are needed. LOS F operating conditions are typically unacceptable and improvements are needed, in the form of traffic control, geometric changes or a combination of both.

Existing

The 2009 Existing peak hour LOS analysis revealed service levels ranging from A to F at the study intersections according to Synchro. Table 1 shows the summary of Synchro LOS. Detailed Synchro results for the 2009 Existing condition are shown in Appendix C.

The intersection of Route 104 with Manitou Road operates at LOS C and B during the Friday PM and Saturday Mid-day peak hours respectively with the shared left/thru lanes on the north and south approaches operating at LOS D during the Friday PM peak hour. All other lanes operate at LOS C or better.

The unsignalized intersection of Route 104 with the SHR driveway operates okay with LOS B or better for all lanes except the exiting left turn lane which operates at LOS D during the Friday PM peak hour and LOS F (80 seconds of delay / LOS F is reasonable for the SHR exit at this stage of development) during the Saturday Mid-day peak hour. A traffic signal is not yet installed here, but it is approved for installation once the next phase of retail development proceeds for SHR. The no build analysis includes the remaining trips from build-out of SHR with a stop sign controlling the driveway. The no-build with mitigation analysis includes a traffic signal at this intersection.

The Synchro software shows the intersection of Route 104 with North Greece and Elmgrove roads operates at LOS C during the peak hours. All lanes at this intersection operate at LOS D or better except the eastbound left turn lane to North Greece Road during both peak hours and the southbound through movement during the Saturday peak hour which operates at LOS E (a low level E with delay closer to LOS D than LOS F).

The intersection of Route 104 with the Elmridge Plaza driveway operates at LOS B during the peak hours. All lanes operate at LOS D or better during the peak hours except the northbound left turns which operate at LOS E (a low level E with delay closer to LOS D than LOS F).

Table 1 – 2009 Existing Peak Hour Level of Service Results

Intersection	Approach			2009 Existing			
				Fri Peak Hour		Sat Peak Hour	
				LOS	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)
NYS Route 104 at		Eastbound	Left	A	9.9	A	7.2
Manitou Road		Eastbound	TR	C	22.0	C	20.8
	Route 104	Eastbound	Approach	C	20.6	B	19.4
Signalized		Westbound	Left	B	10.1	A	8.0
		Westbound	TR	C	23.9	B	18.6
	Route 104	Westbound	Approach	C	22.3	B	17.0
		Northbound	LT	D	37.1	C	21.7
		Northbound	Right	A	5.0	A	5.9
	Manitou	Northbound	Approach	C	27.2	B	12.7
		Southbound	LT	D	43.1	C	28.5
		Southbound	Right	A	4.9	A	3.0
	Manitou	Southbound	Approach	C	29.6	C	20.7
		Overall		C	23.6	B	17.7
NYS Route 104 at		Eastbound	Left	B	11.9	B	12.0
Shops at Hampton		Eastbound	Through	A	0.0	A	0.0
Ridge driveway	Route 104	Eastbound	Approach	A	1.0	A	1.6
		Westbound	Through	A	0.0	A	0.0
Unsignalized		Westbound	Right	A	0.0	A	0.0
	Route 104	Westbound	Approach	A	0.0	A	0.0
		Southbound	Left	D	34.6	F	80.1
		Southbound	Right	B	13.6	B	12.5
	SHR driveway	Southbound	Approach	D	26.5	F	59.1
		Overall		A	3.2	A	9.1
NYS Route 104 at		Eastbound	Left	E	59.2	E	59.1
Elmgrove Road and		Eastbound	TR	C	32.1	C	33.1
North Greece Road	Route 104	Eastbound	Approach	D	35.8	D	36.4
		Westbound	Left	C	29.7	C	25.0
Signalized		Westbound	Through	B	12.5	A	9.7
		Westbound	Right	A	1.5	A	1.2
	Route 104	Westbound	Approach	B	13.6	B	10.9
		Northbound	Left	D	36.9	C	31.1
		Northbound	Through	D	51.3	D	45.7
		Northbound	Right	A	9.8	B	10.9
	Elmgrove	Northbound	Approach	D	38.4	C	30.5
		Southbound	Left	D	44.7	D	42.2
		Southbound	Through	D	53.5	E	56.4
		Southbound	Right	A	8.5	A	8.4
	North Greece	Southbound	Approach	D	39.5	D	38.1
		Overall		C	29.4	C	27.4

LR: Shared Left and Right TR: Shared Through and Right LT: Shared Left and Through
LTR: Shared Left, Through, and Right UL: Shared U-turn and Left turn

Table 1 Continued – 2009 Existing Peak Hour Level of Service Results

Intersection	Approach			2009 Existing			
				Fri Peak Hour		Sat Peak Hour	
				LOS	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)
NYS Route 104 at		Eastbound	Left	D	43.1	D	39.4
Elmridge Plaza		Eastbound	TR	A	9.1	A	9.0
driveway	Route 104	Eastbound	Approach	B	13.2	B	12.8
		Westbound	UL	E	71.3	E	72.8
Signalized		Westbound	Through	A	7.5	B	12.2
		Westbound	Right	A	0.8	A	1.5
	Route 104	Westbound	Approach	A	8.2	B	10.3
		Northbound	Left	E	58.5	E	63.7
		Northbound	TR	C	31.5	D	43.5
	driveway	Northbound	Approach	D	43.7	D	51.5
		Southbound	Left	D	50.9	D	49.1
		Southbound	LT	D	54.9	D	54.4
		Southbound	Right	A	8.0	A	6.8
	driveway	Southbound	Approach	D	41.5	D	41.5
		Overall		B	16.4	B	17.8
Elmgrove Road at	St. Andrews	Eastbound	LTR	B	13.7	B	11.6
St. Andrews Drive	Berkshire	Westbound	LTR	B	11.7	B	11.8
and Berksire Drive	Elmgrove	Northbound	LTR	B	13.8	A	6.8
	Elmgrove	Southbound	LTR	A	5.5	A	5.9
Signalized		Overall		B	10.9	A	6.7
Elmgrove Road at	Straub	Westbound	LR	D	34.7	D	29.5
Staub Road	Elmgrove	Northbound	TR	A	0.0	A	0.0
Unsignalized	Elmgrove	Southbound	LT	A	2.0	A	1.3

LR: Shared Left and Right TR: Shared Through and Right LT: Shared Left and Through
LTR: Shared Left, Through, and Right UL: Shared U-turn and Left turn

The intersection of Elmgrove Road with St. Andrews Drive and Berkshire Drive operates at LOS B and A during the peak hour Friday PM and Saturday Mid-day peak hours respectively. All lanes at this intersection operate at LOS B or better during the peak hours.

The intersection of Elmgrove Road with Straub Road operates at acceptable LOS. The Straub Road approaches operate at LOS A with free flow conditions with little delay caused by southbound left turns to Straub Road. The Straub Road approach operates at LOS D during the peak hours according to Synchro.

No Build

The 2009 No Build peak hour LOS analysis revealed service levels ranging from A to F for individual movements at the study intersections according to Synchro. Table 2 shows the summary of Synchro LOS. Detailed Synchro results for the 2009 No Build condition are shown in Appendix D.

Table 2 – 2009 No Build Peak Hour Level of Service Results

Intersection	Approach			2009 No Build			
				Fri Peak Hour		Sat Peak Hour	
				LOS	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)
NYS Route 104 at		Eastbound	Left	B	13.0	B	11.8
Manitou Road		Eastbound	TR	C	23.6	C	28.1
	Route 104	Eastbound	Approach	C	22.1	C	26.3
Signalized		Westbound	Left	B	11.5	B	13.8
		Westbound	TR	C	33.2	C	29.9
	Route 104	Westbound	Approach	C	30.6	C	27.4
		Northbound	LT	E	69.3	C	22.7
		Northbound	Right	A	6.4	A	8.0
	Manitou	Northbound	Approach	D	51.9	B	15.1
		Southbound	LT	F	403.8	D	44.0
		Southbound	Right	A	6.6	A	4.5
	Manitou	Southbound	Approach	F	286.9	C	34.6
		Overall		E	64.7	C	26.6
NYS Route 104 at		Eastbound	Left	B	13.9	C	19.4
Shops at Hampton		Eastbound	Through	A	0.0	A	0.0
Ridge driveway	Route 104	Eastbound	Approach	A	1.6	A	4.4
		Westbound	Through	A	0.0	A	0.0
Unsignalized		Westbound	Right	A	0.0	A	0.0
	Route 104	Westbound	Approach	A	0.0	A	0.0
		Southbound	Left	F	121.5	F	>300
		Southbound	Right	C	15.6	B	14.9
	SHR driveway	Southbound	Approach	F	80.6	F	>300
		Overall		B	11.8	F	>300
NYS Route 104 at		Eastbound	Left	E	59.6	E	60.1
Elmgrove Road and		Eastbound	TR	D	35.4	D	37.7
North Greece Road	Route 104	Eastbound	Approach	D	39.4	D	41.4
		Westbound	Left	C	29.3	C	24.3
Signalized		Westbound	Through	B	15.6	B	12.6
		Westbound	Right	A	1.9	A	1.8
	Route 104	Westbound	Approach	B	15.4	B	12.5
		Northbound	Left	D	41.6	C	32.9
		Northbound	Through	D	48.8	D	44.1
		Northbound	Right	B	10.9	B	11.4
	Elmgrove	Northbound	Approach	D	38.9	C	30.8
		Southbound	Left	E	60.5	D	46.7
		Southbound	Through	D	54.6	E	55.4
		Southbound	Right	A	7.5	A	8.0
	North Greece	Southbound	Approach	D	43.8	D	36.7
		Overall		C	32.2	C	29.9

LR: Shared Left and Right TR: Shared Through and Right LT: Shared Left and Through
LTR: Shared Left, Through, and Right UL: Shared U-turn and Left turn

Table 2 Continued – 2009 No Build Peak Hour Level of Service Results

Intersection	Approach			2009 No Build			
				Fri Peak Hour		Sat Peak Hour	
				LOS	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)
NYS Route 104 at		Eastbound	Left	D	41.7	D	37.3
Elmridge Plaza		Eastbound	TR	A	8.8	A	8.3
driveway	Route 104	Eastbound	Approach	B	12.6	B	11.7
		Westbound	UL	E	71.3	E	72.8
Signalized		Westbound	Through	A	7.7	B	13.0
		Westbound	Right	A	0.8	A	1.7
	Route 104	Westbound	Approach	A	8.3	B	11.2
		Northbound	Left	E	58.5	E	63.7
		Northbound	TR	C	31.5	D	43.5
	driveway	Northbound	Approach	D	43.7	D	51.5
		Southbound	Left	D	50.9	D	49.1
		Southbound	LT	D	54.9	D	54.4
		Southbound	Right	A	7.9	A	6.7
	driveway	Southbound	Approach	D	40.9	D	41.1
		Overall		B	15.9	B	17.2
Elmgrove Road at	St. Andrews	Eastbound	LTR	B	14.2	B	12.3
St. Andrews Drive	Berkshire	Westbound	LTR	B	10.9	B	11.4
and Berksire Drive	Elmgrove	Northbound	LTR	B	15.8	A	8.0
	Elmgrove	Southbound	LTR	A	6.2	A	6.6
Signalized		Overall		B	12.2	A	7.6
Elmgrove Road at	Straub	Westbound	LR	E	41.6	E	36.5
Staub Road	Elmgrove	Northbound	TR	A	0.0	A	0.0
Unsignalized	Elmgrove	Southbound	LT	A	2.5	A	1.6

LR: Shared Left and Right TR: Shared Through and Right LT: Shared Left and Through
LTR: Shared Left, Through, and Right UL: Shared U-turn and Left turn

No Build traffic volumes represent 2009 background conditions without the proposed Hampton Ridge Center. The background conditions include traffic from developments that are planned for the near future: Bramhall Office Park, Creek House Commons, Fairfield Place and the last phase of the Shops at Hampton Ridge (SHR).

The intersection of Route 104 with Manitou Road is projected to operate at LOS E and C during the Friday PM and Saturday Mid-day peak hours respectively. The shared left/thru lanes on the north and south approaches operating at LOS F and E respectively during the Friday PM peak hour. All other lanes are projected to operate at LOS D or better. Southbound left turning vehicles wait several cycles for an adequate gap in northbound traffic.

The Synchro software shows the unsignalized intersection of Route 104 with the SHR driveway is projected to operate okay with LOS C or better for all lanes except the exiting left turn lane which is projected to operate at very poor LOS F during the peak hours (greater than 5 minutes of delay per

vehicle during the Saturday peak hour). A traffic signal is recommended for the next phase of the SHR. This no build analysis includes the remaining trips from build-out of SHR with a stop sign controlling the driveway. The no-build with mitigation analysis in the next section of this report includes a traffic signal at the SHR driveway.

The intersection of Route 104 with North Greece and Elmgrove roads is projected to operate at LOS C during the peak hours. All lanes at this intersection are projected to operate at LOS D or better except the eastbound left turn lane to North Greece Road during both peak hours, the southbound left turn lane during the Friday peak hour and the southbound through movement during the Saturday peak hour which are projected to operate at LOS E (a low level E with delay closer to LOS D than LOS F).

The intersection of Route 104 with the Elmridge Plaza driveway is projected to operate at LOS B during the peak hours. All lanes are projected to operate at LOS D or better during the peak hours except the northbound left turn lane and shared westbound left turn/U turn lane which are projected to operate at LOS E.

The intersection of Elmgrove Road with St. Andrews Drive and Berkshire Drive is projected to operate at the same service levels as the existing condition. All lanes at this intersection are projected to operate at LOS B or better during the peak hours.

The intersection of Elmgrove Road with Straub Road is projected to operate at acceptable LOS. The Straub Road approaches are projected to operate at LOS A with free flow conditions with little delay caused by southbound left turns to Straub Road. The Straub Road approach is projected to operate at LOS E during the peak hours according to Synchro.

Mitigation of No Build Conditions

The NYSDOT previously recognized that certain turning movements at the Manitou/Ridge intersection were difficult under existing conditions. The NYSDOT asked what could be done to improve operations. The first attempt at mitigation was to adjust signal timings and phasing, including split phasing of the north and south bound approaches, without any other physical changes to the intersection. It was determined that no combination of signal timing and phasing alone will eliminate the poor LOS for the southbound shared left/through movements. Neither optimum signal timing for the overall intersection nor balanced signal timing for each individual movement provide a volume to capacity less than 95% for the southbound shared left/through movements. Therefore this movement has reached capacity given current intersection geometry.

Next, improvements to geometry that would improve the existing failing conditions were evaluated. The optimal lane configuration on the Manitou Road approaches that can provide a more desirable LOS includes: one left turn lane, one through lane and one right turn lane on the northbound approach; and one left turn lane and one shared through/right lane on the southbound approach. Also included as mitigation are protected left turn phases for northbound and southbound left turning traffic that precede the permissive phase for these movements.

Table 3 below contains the Synchro results for the intersection of Route 104 and Manitou Road with mitigation of 2009 background conditions in place. The intersection is projected to operate at LOS C during the peak hours with all lanes operating at LOS D or better. Although this mitigation will improve the intersection operation, the existing right-of-way is constrained by a cemetery on the west and a car

dealership on the east. Based on the queuing results in Synchro 7.0 the length of the turn lanes on the northbound approach extend south beyond existing residential homes that appear to be within the desired right-of-way configuration. Re-purchasing property previously sold by the State to the car dealership located on the northeast corner alone will not accomplish the full mitigation.

Table 3 – 2009 No Build LOS with Mitigation

Intersection	Approach			2009 No Build w/ Mitigation			
				Fri Peak Hour		Sat Peak Hour	
				LOS	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)
NYS Route 104 at		Eastbound	Left	B	18.1	B	13.7
Manitou Road		Eastbound	TR	C	23.5	C	25.3
	Route 104	Eastbound	Approach	C	22.7	C	24.1
Signalized		Westbound	Left	B	14.9	B	17.7
		Westbound	TR	C	29.2	C	25.3
	Route 104	Westbound	Approach	C	27.5	C	24.1
		Northbound	Left	B	17.8	B	15.3
		Northbound	Through	D	48.7	C	32.5
		Northbound	Right	A	8.3	B	12.0
	Manitou	Northbound	Approach	C	33.5	C	20.1
		Southbound	Left	C	27.8	B	18.4
		Southbound	TR	C	20.8	C	25.5
	Manitou	Southbound	Approach	C	23.9	C	22.4
		Overall		C	27.2	C	23.2
NYS Route 104 at		Eastbound	Left	A	6.7	B	19.2
Shops at Hampton		Eastbound	Through	A	7.5	B	16.4
Ridge driveway	Route 104	Eastbound	Approach	A	7.4	B	17.0
		Westbound	Through	A	5.3	B	18.2
Signalized		Westbound	Right	A	0.4	A	7.9
	Route 104	Westbound	Approach	A	4.5	B	14.7
		Southbound	Left	D	53.2	D	45.8
		Southbound	Right	B	18.3	B	14.9
	SHR driveway	Southbound	Approach	D	39.7	D	36.2
		Overall		B	10.5	C	20.2

Build

The 2009 Build peak hour LOS analysis revealed service levels ranging from A to F at the study intersections according to Synchro with no change to traffic signal timings. Table 4 shows the summary of Synchro LOS. Detailed Synchro results for the 2009 Build condition are shown in Appendix E. 2009 Build volumes are those projected to exist with full build out of the proposed Hampton Ridge Center. The Build volumes include the following background development: Bramhall Office Park, Creek House Commons, Fairfield Place and the last phase of the Shops at Hampton Ridge (SHR).

Table 4 – 2009 Build Peak Hour Level of Service Results

Intersection	Approach			2009 Build			
				Fri Peak Hour		Sat Peak Hour	
				LOS	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)
NYS Route 104 at **Manitou Road**		Eastbound	Left	C	20.1	B	15.1
		Eastbound	TR	C	23.9	C	27.5
	Route 104	Eastbound	Approach	C	23.4	C	26.4
Signalized		Westbound	Left	B	17.5	D	42.1
90 second cycle		Westbound	TR	C	34.6	C	28.5
Actuated	Route 104	Westbound	Approach	C	32.5	C	30.6
Uncoordinated		Northbound	Left	B	18.4	B	16.7
		Northbound	Through	D	52.5	C	34.6
		Northbound	Right	B	14.2	C	23.7
	Manitou	Northbound	Approach	D	35.9	C	26.6
		Southbound	Left	D	46.7	C	30.5
		Southbound	TR	C	21.4	C	27.5
	Manitou	Southbound	Approach	C	34.3	C	29.1
		Overall		C	31.1	C	28.5
NYS Route 104 at **Hampton Ridge Center West driveway**		Eastbound	Left	B	14.1	C	15.9
		Eastbound	Through	A	0.0	A	0.0
	Route 104	Eastbound	Approach	A	1.1	A	1.7
		Westbound	Through	A	0.0	A	0.0
		Westbound	Right	A	0.0	A	0.0
Signalized	Route 104	Westbound	Approach	A	0.0	A	0.0
		Southbound	Left	C	24.0	D	34.4
		Southbound	Right	B	10.2	B	10.8
	HRC driveway	Southbound	Approach	B	12.6	B	14.2
		Overall		A	1.0	A	1.5
NYS Route 104 at **Hampton Ridge Center East driveway**		Eastbound	Left	C	21.9	D	53.2
		Eastbound	Through	A	9.4	B	11.7
	Route 104	Eastbound	Approach	B	11.8	C	23.5
		Westbound	Through	B	11.9	C	22.0
		Westbound	Right	A	1.1	A	3.8
Signalized	Route 104	Westbound	Approach	A	9.5	B	15.9
		Southbound	Left	D	41.9	D	53.6
		Southbound	Right	C	26.3	B	18.2
	HRC driveway	Southbound	Approach	D	36.2	D	43.4
		Overall		B	15.3	C	25.4
NYS Route 104 at **Shops at Hampton Ridge driveway**		Eastbound	Left	B	11.5	E	66.9
		Eastbound	Through	A	5.7	B	11.4
	Route 104	Eastbound	Approach	A	6.2	B	19.8
		Westbound	Through	B	10.7	C	24.5
Signalized		Westbound	Right	A	0.2	A	3.0
	Route 104	Westbound	Approach	A	9.3	B	19.6
		Southbound	Left	D	53.2	E	63.5
		Southbound	Right	C	27.9	C	22.3
	SHR driveway	Southbound	Approach	D	43.4	D	50.7
		Overall		B	11.9	C	24.5

LR: Shared Left and Right TR: Shared Through and Right LT: Shared Left and Through LTR: Shared Left, Through, and Right

Table 4 Continued – 2009 Build Peak Hour Level of Service Results

Intersection	Approach			2009 Build			
				Fri Peak Hour		Sat Peak Hour	
				LOS	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)
NYS Route 104 at		Eastbound	Left	E	59.0	D	42.2
Elmgrove Road and		Eastbound	TR	D	41.5	D	36.2
North Greece Road	Route 104	Eastbound	Approach	D	44.4	D	37.2
		Westbound	Left	C	28.0	C	29.2
Signalized		Westbound	Through	C	20.3	B	18.5
		Westbound	Right	A	2.6	A	2.5
	Route 104	Westbound	Approach	B	18.8	B	17.5
		Northbound	Left	F	80.8	F	91.1
		Northbound	Through	D	50.7	D	48.0
		Northbound	Right	B	10.4	B	17.5
	Elmgrove	Northbound	Approach	D	53.1	D	54.7
		Southbound	Left	D	45.4	D	51.2
		Southbound	Through	D	52.3	D	53.6
		Southbound	Right	A	7.4	A	8.4
	North Greece	Southbound	Approach	D	35.3	C	33.7
		Overall		D	36.6	C	33.1
NYS Route 104 at		Eastbound	Left	D	37.2	C	33.2
Elmridge Plaza		Eastbound	TR	A	7.7	A	9.9
driveway	Route 104	Eastbound	Approach	B	10.7	B	12.1
		Westbound	UL	E	71.3	E	72.8
Signalized		Westbound	Through	A	8.3	B	17.9
		Westbound	Right	A	1.0	A	2.3
	Route 104	Westbound	Approach	A	8.7	B	15.6
		Northbound	Left	E	58.5	E	63.7
		Northbound	TR	C	31.5	D	43.5
	driveway	Northbound	Approach	D	43.7	D	51.5
		Southbound	Left	D	50.9	D	49.1
		Southbound	LT	D	54.9	D	54.4
		Southbound	Right	A	7.9	A	6.7
	driveway	Southbound	Approach	D	40.9	D	41.1
		Overall		B	14.8	B	18.3
Elmgrove Road at	St. Andrews	Eastbound	LTR	B	15.0	B	13.9
St. Andrews Drive	Berkshire	Westbound	LTR	A	9.7	B	10.1
and Berksire Drive	Elmgrove	Northbound	LTR	C	21.3	B	11.1
	Elmgrove	Southbound	LTR	A	7.3	B	10.8
Signalized		Overall		B	15.8	B	11.1
Elmgrove Road at	Straub	Westbound	LR	F	59.7	F	63.3
Staub Road	Elmgrove	Northbound	TR	A	0.0	A	0.0
Unsignalized	Elmgrove	Southbound	LT	A	3.3	A	2.0

LR: Shared Left and Right TR: Shared Through and Right LT: Shared Left and Through
LTR: Shared Left, Through, and Right UL: Shared U-turn and Left turn

The intersection of Route 104 with Manitou Road is projected to operate at LOS C during the peak hours with the mitigation of no build conditions in place. All other lanes are projected to operate at LOS D or better. The Manitou Road intersection is not included in the coordinated signal system located to the east. The Build with mitigation condition includes this intersection in the coordinated system tied back to the Elmgrove/North Greece intersection with a 120 sec cycle length.

The unsignalized intersection of Route 104 with the proposed west driveway is projected to operate at LOS A for the Route 104 approaches and LOS B for the driveway exit. The left turn movements are projected to experience the most delay with LOS B and C for vehicles entering the site from the west during the Friday PM and Saturday Mid-day peak hours. The exiting (southbound) left turn vehicles are projected to operate at LOS C and D during the peak hours.

The signalized intersection of Route 104 with the proposed east driveway is projected to operate at LOS B and LOS C during the peak hours. Entering left turn vehicles and exiting left turn vehicles are expected to operate at LOS D and all other movements are projected to operate at LOS C or better.

The signalized intersection of Route 104 with the SHR driveway is projected to operate at LOS B and LOS C during the Friday and Saturday peak hours respectively. The southbound left turn lane and eastbound left turn lane are projected to operate at LOS E during the peak hour (more specifically a low to mid level E). All other lanes are projected to operate at LOS C or better.

The intersection of Route 104 with North Greece and Elmgrove roads is projected to operate at LOS D and C during the peak hours without signal timing adjustments. All lanes at this intersection are projected to operate at LOS D or better except the eastbound and northbound left turn lanes.

The intersection of Route 104 with the Elmridge Plaza driveway is projected to continue to operate at LOS B during the peak hours. All lanes are projected to operate at LOS D or better during the peak hours except the northbound left turn lane and shared westbound left turn/U turn lane which are projected to operate at LOS E.

The intersection of Elmgrove Road with St. Andrews Drive and Berkshire Drive is projected to operate at LOS B. All lanes at this intersection are projected to operate at LOS C or better during the peak hours.

The intersection of Elmgrove Road with Straub Road is projected to operate at acceptable LOS. The Straub Road approaches are projected to operate at LOS A with free flow conditions with little delay caused by southbound left turns to Straub Road. The Straub Road approach is projected to operate at low LOS F during the peak hours according to Synchro with peak hour delay near 60 seconds.

Build with Timing Adjustments

Table 5 shows the summary of Synchro LOS with timing adjustments at the Manitou intersection and the North Greece Road / Elmgrove Road intersection. Detailed Synchro results for the 2009 Build condition with timing adjustments are shown in Appendix E.

The intersection of Route 104 with Manitou Road is projected to operate at LOS C during the peak hours with a 120 second cycle length, coordination with the Route 104 traffic signal system and optimization of network offsets. All lanes at this intersection are projected to operate at LOS D or better.

The intersection of Route 104 with North Greece and Elmgrove roads is projected to operate at LOS C and D during the peak hours with signal timing adjustments, retention of the 120 second cycle length, continued coordination with the Route 104 traffic signal system and optimization of network offsets. All lanes at this intersection are projected to operate at LOS D or better.

Table 5 Continued – 2009 Build with Timing Adjustments LOS Results

Intersection	Approach			2009 Build w/ Timing Adjustments			
				Fri Peak Hour		Sat Peak Hour	
				LOS	Control Delay (sec/veh)	LOS	Control Delay (sec/veh)
NYS Route 104 at		Eastbound	Left	C	29.9	B	19.8
Manitou Road		Eastbound	TR	C	33.8	D	37.0
	Route 104	Eastbound	Approach	C	33.3	D	35.5
Signalized		Westbound	Left	B	16.9	D	49.6
120 second cycle		Westbound	TR	C	34.2	B	17.8
Actuated coordinated	Route 104	Westbound	Approach	C	32.1	C	22.8
		Northbound	Left	C	20.1	C	24.6
		Northbound	Through	D	54.7	E	62.5
		Northbound	Right	B	15.9	C	29.3
	Manitou	Northbound	Approach	D	37.9	D	39.4
		Southbound	Left	D	35.2	C	34.6
		Southbound	TR	C	26.0	C	33.0
	Manitou	Southbound	Approach	C	30.7	C	33.9
		Overall		C	33.5	C	31.1
NYS Route 104 at		Eastbound	Left	D	54.8	D	48.9
Elmgrove Road and		Eastbound	TR	D	35.6	D	45.6
North Greece Road	Route 104	Eastbound	Approach	D	38.8	D	46.2
		Westbound	Left	D	44.6	D	46.3
Signalized		Westbound	Through	C	25.2	C	30.8
		Westbound	Right	A	3.7	A	3.9
	Route 104	Westbound	Approach	C	24.7	C	28.8
		Northbound	Left	D	43.1	D	41.8
		Northbound	Through	D	48.6	D	43.5
		Northbound	Right	A	7.2	B	13.0
	Elmgrove	Northbound	Approach	D	38.9	C	34.5
		Southbound	Left	C	32.1	D	35.9
		Southbound	Through	D	55.0	D	54.6
		Southbound	Right	A	7.7	A	8.6
	North Greece	Southbound	Approach	C	31.8	C	29.3
		Overall		C	33.2	D	36.3

LR: Shared Left and Right TR: Shared Through and Right LT: Shared Left and Through
LTR: Shared Left, Through, and Right UL: Shared U-turn and Left turn

Improvement of progression by optimizing signal offsets is projected to improve eastbound left turn delays during the Friday PM peak hour at the North Greece Road / Elmgrove Road intersection based on Synchro results.

Traffic Signal Warrant

A Traffic signal is warranted on Route 104 at the proposed east HRC driveway because the projected traffic volumes meet the National Manual of Uniform Traffic Control Devices (National MUTCD) and the New York State Supplement for the following warrants:

- Warrant 1, Eight-Hour Vehicular Volume
- Warrant 2, Four-Hour Vehicular Volume
- Warrant 3, Peak Hour

Because the 85 percentile speed on NYS Route 104 is above 40 miles per hour, reduced warrants 1, 2 and 3 are used here and described below. Also, the right turning vehicles turning out of the HRC are reduced by 60% to account for vehicles that would turn right on red for the signalized condition. Hourly traffic volumes projected to exit the proposed development in 2009 were determined using the projected peak hour volume and hourly variations in exiting retail type traffic published in Table 2 on page 1449 of ITE *Trip Generation* 7th edition. A detailed breakdown of traffic volumes by hour and warrant thresholds is shown in Appendix F.

Reduced warrant 1 is met for 8 hours on a weekday and is met for the Saturday peak hour. Reduced warrant 1 is the Eight-Hour Vehicular Volume warrant. Condition B, Interruption of Continuous Traffic, applies for this case because the traffic volume on the major street is so heavy that traffic on both driveways is projected to suffer excessive delay in entering the major street. For any one hour to satisfy this reduced (70%) warrant the volume of traffic on the artery must exceed 630 vehicles and the volume of traffic on the side road approach must exceed 70 vehicles.

For each hour during the weekday time period between 11:00 and 7:00 p.m. the volume of left turns alone from the driveway is projected to be greater than 100 vehicles. This exceeds the threshold value of 70 vehicles. The volume of traffic on Route 104 according to the 2005 hourly traffic count report from the NYS Traffic Data Viewer is greater than the threshold value of 630 vehicles for each hour during the time period between 11:00 and 7:00 p.m. Saturday peak hour volumes are projected to also exceed the threshold values.

Warrant 2, the Four-Hour Vehicular Volume warrant is also met. The lower (70% Factor) threshold of 80 vehicles per hour (vph) on the driveways applies here because the operating speeds are greater than 40 mph on Route 104 and the traffic volume exceeds 900 vph. Because the projected left turn volume alone is 100 vph or greater during the 11:00 and 7:00 p.m. weekday time period, warrant 2 is met for more than the minimum four hours.

Warrant 3, the Peak Hour warrant is met. The lower (70% Factor) threshold of 100 vehicles per hour (vph) on the driveways applies here because the operating speeds are greater than 40 mph on Route 104 and the traffic volume exceeds 1200 vph. Because the projected left turn volume alone is 100 vph or greater during the 11:00 and 7:00 p.m. weekday time period warrant 3 is met for more than the minimum one hour.

Table 6 contains the results for each of the three warrants for the intersection of NYS Route 104 with the east HRC driveway.

Table 6 – 2009 Build Traffic Signal Warrant Results - Route 104 at the east HRC Driveway

National MUTCD Warrant	Hours Required	Warrant Met?
Warrant 1 - Eight-Hour Vehicular Volume	8	Yes
Warrant 2 - Four-Hour Vehicular Volume	4	Yes
Warrant 3 - Peak Hour	1	Yes

Installation of a traffic signal is recommended at the intersection of NYS Route 104 with the east HRC driveway because warrants 1, 2 and 3 are satisfied under projected 2009 Build conditions. A traffic signal is recommended because excessive vehicle delay projected for the unsignalized scenario. Unsafe driver behavior could result from delays on the driveway with stop sign control.

Arterial/Access Management

Arterial/Access Management is enhancing and/or preserving roadway functions to accommodate access to abutting properties and provide for safe and efficient through traffic.

The proposed access plan will preserve the arterial/business function of Route 104 by providing cross access between the HRC and the SHR on the north side of Route 104 while continuing to eliminate another four existing driveways to residential uses.

The proposed driveway traffic signal optimization and coordination was performed using Synchro and SimTraffic. Coordination with the signals on Route 104 will help preserve good traffic flow and provide safe travel for traffic entering and exiting the HRC and the SHR. The traffic lights will be timed to allow groups of through traffic (platoons) to pass through both intersections without stopping for a red light.

Summary and Conclusions

The number of new trips on the roadway system generated by the HRC is projected to be 986 and 1846 during the Friday PM and Saturday Mid-day peak hours respectively. Two driveways are proposed to provide access to the HRC.

At the Manitou Road intersection: Geometric improvements are required at the intersection to mitigate existing and projected 2009 background conditions (without the HRC). Signal timing adjustments and phasing adjustment did not adequately mitigate LOS E on the southbound approach with a volume to capacity ratio above 95%. Geometric improvements are desired and would require purchasing land from the cemetery and/or auto dealership on the northeast corner and possibly residential homes south of Ridge Road. Existing right of way is not adequate. Poor No Build LOS at this intersection is caused by existing/background traffic and inadequate existing geometry.

At the proposed east driveway intersection: MUTCD traffic signal warrants are met. Synchro shows LOS F for entering and exiting traffic during the peak hours under stop control conditions. A traffic signal will not be required at the west driveway if a traffic signal controls the intersection at the east driveway.

Impact of HRC traffic at the Manitou Road intersection with Route 104 is small with an increase to overall delay of less than 4 seconds during the Friday PM peak hour and slightly more than 5 seconds during the Saturday Mid-day peak hour. This change is much less than a whole LOS letter grade,

where LOS C range is 15 seconds (20 seconds to 35 seconds). Overall LOS is projected to continue to be C with addition of HRC traffic.

Impact of HRC traffic at the North Greece and Elmgrove roads intersection with Route 104 is small with an increase to overall delay of 4.4 seconds during the Friday PM peak hour and 4.1 seconds during the Saturday Mid-day peak hour. Again, this change is much less than a whole letter grade.

Recommendations

- Construct the west HRC driveway with two exit lanes controlled by a stop sign and one entrance lane; one exit lane for left turns and one exit lane for right turns. Exclusive turn lanes would be constructed on Route 104 for vehicles entering the HRC west driveway; traffic from the east to use a new right turn lane and traffic from the west to use a new left turn lane.

- Construct the east HRC driveway with three exit lanes controlled by a traffic signal and two entrance lanes; two exit lanes for left turns and one exit lane for right turns. Exclusive turn lanes are recommended on Route 104 at east driveway for traffic entering from the east and the west.

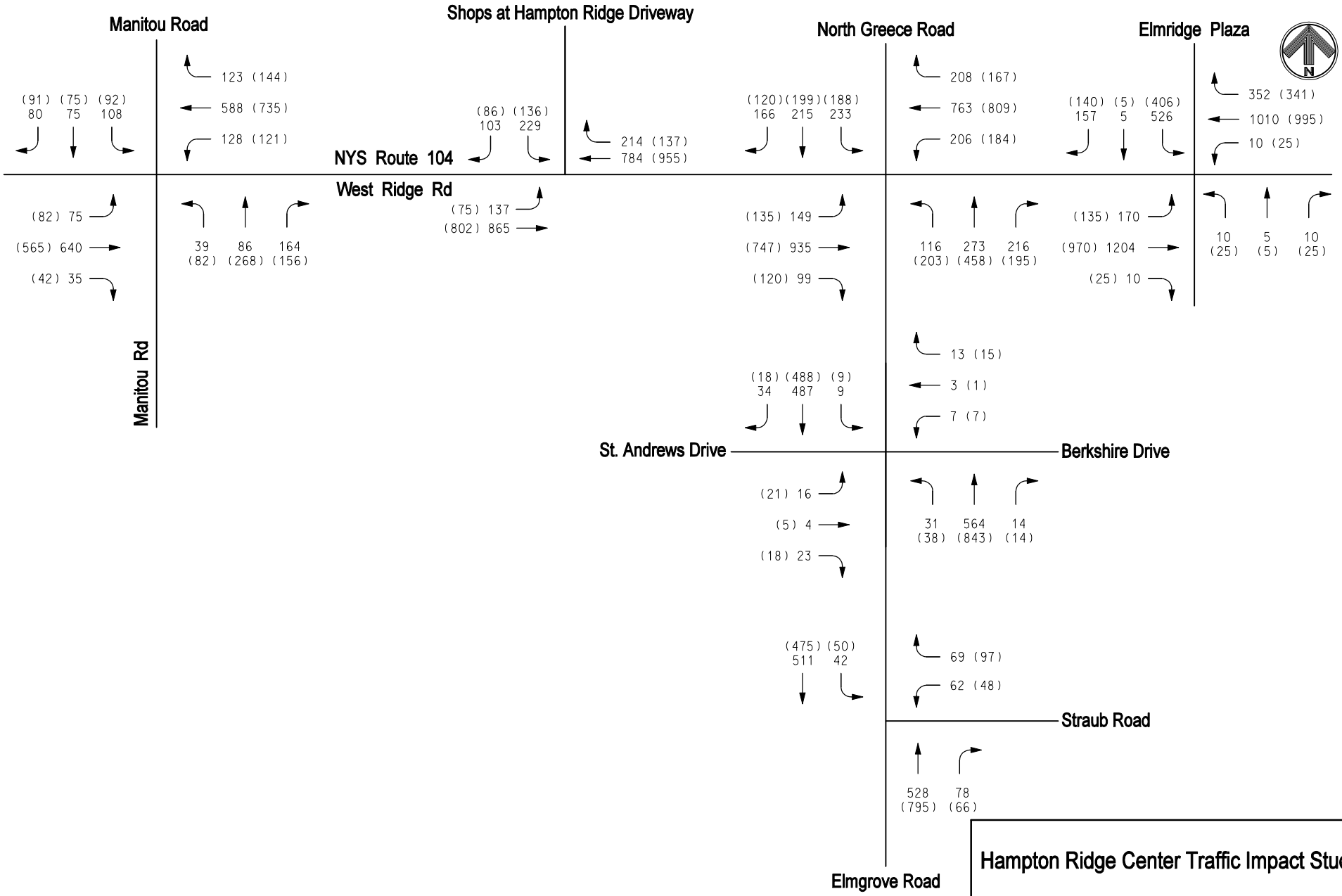
- Construct internal cross access drive aisles between HRC and SHR.

- Assume the installation of the traffic signal is completed for the SHR driveway. Construct a new signal at the east HRC driveway. Include facilities for pedestrians. Coordinate the Manitou Road traffic signal, the HRC signal and the SHR signal into the existing coordinated system along Route 104.

Appendix A

Revised Turning Movement Diagrams

Bergmann associates



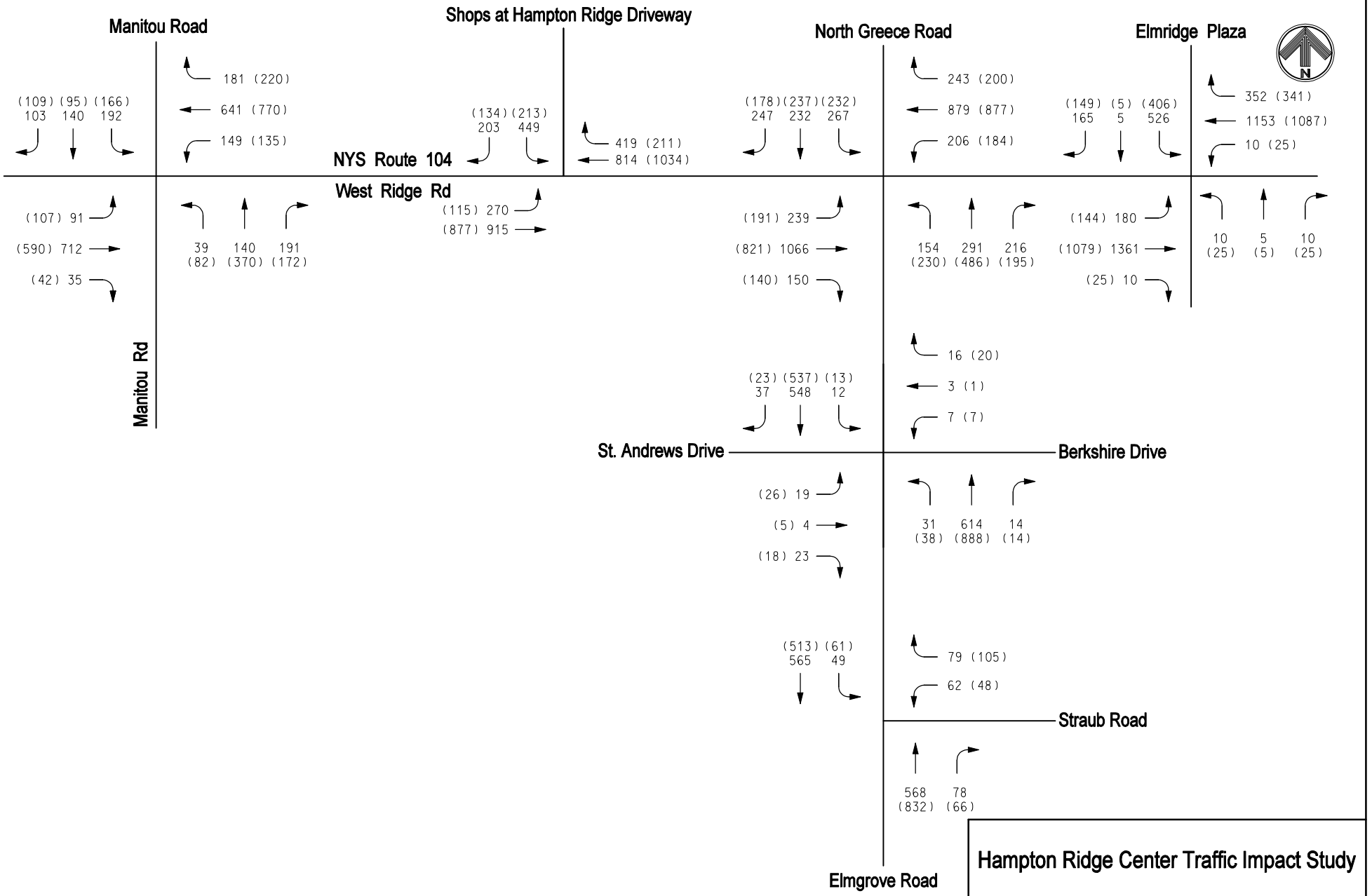
LEGEND:

XXX – Saturday Mid-Day
(XXX) – Weekday PM

Hampton Ridge Center Traffic Impact Study

Existing (2009) Peak Hour Turning Movement Volumes

FIGURE NO.	SCALE	DATE	
3	No Scale	6 / 09	Bergmann associates



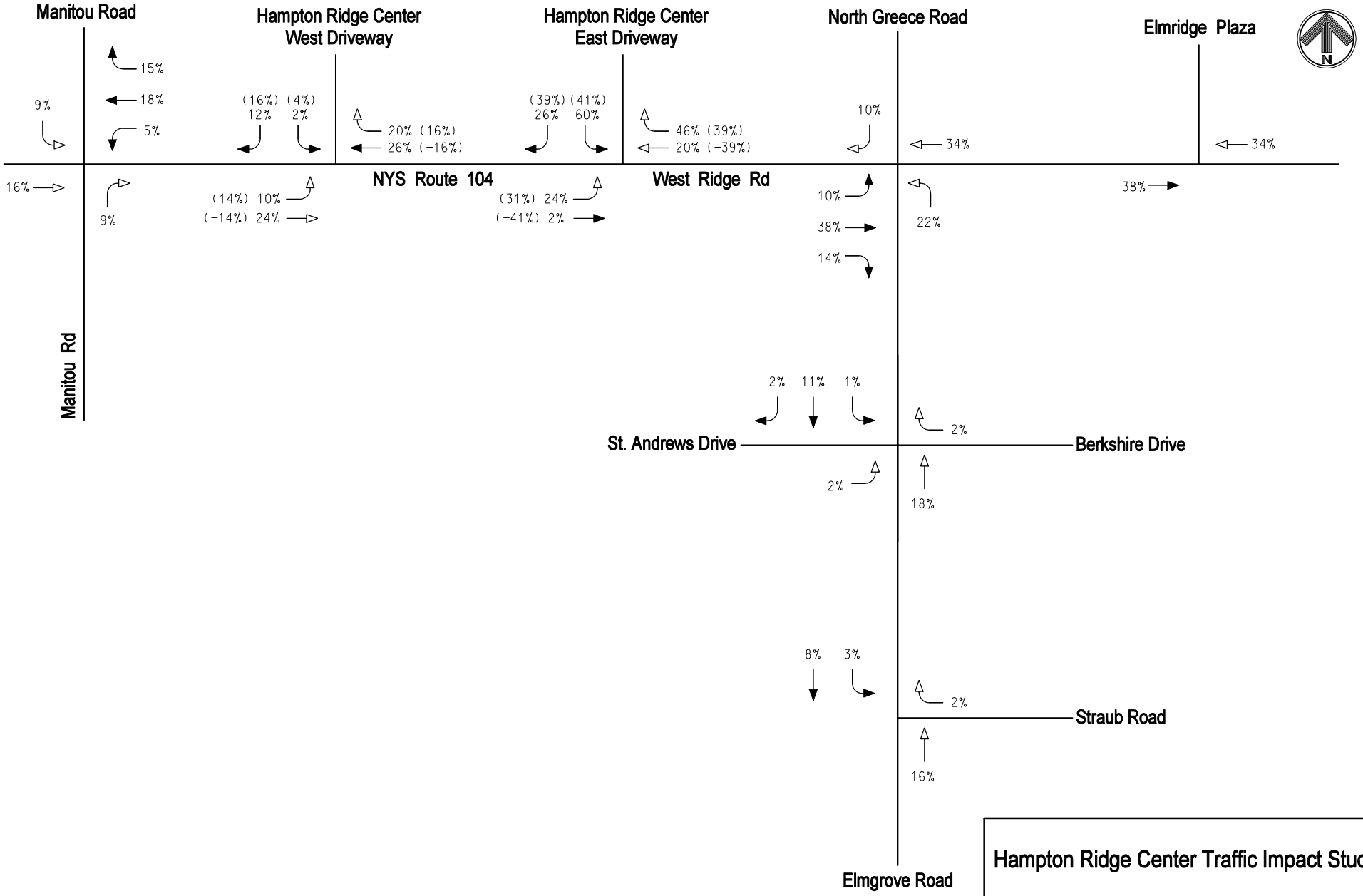
LEGEND:

XXX – Saturday Mid-Day
(XXX) – Weekday PM

Hampton Ridge Center Traffic Impact Study

2009 No Build Traffic
Peak Hour Turning Movement Volumes

FIGURE NO.	SCALE	DATE	
4	No Scale	6 / 09	Bergmann associates



LEGEND

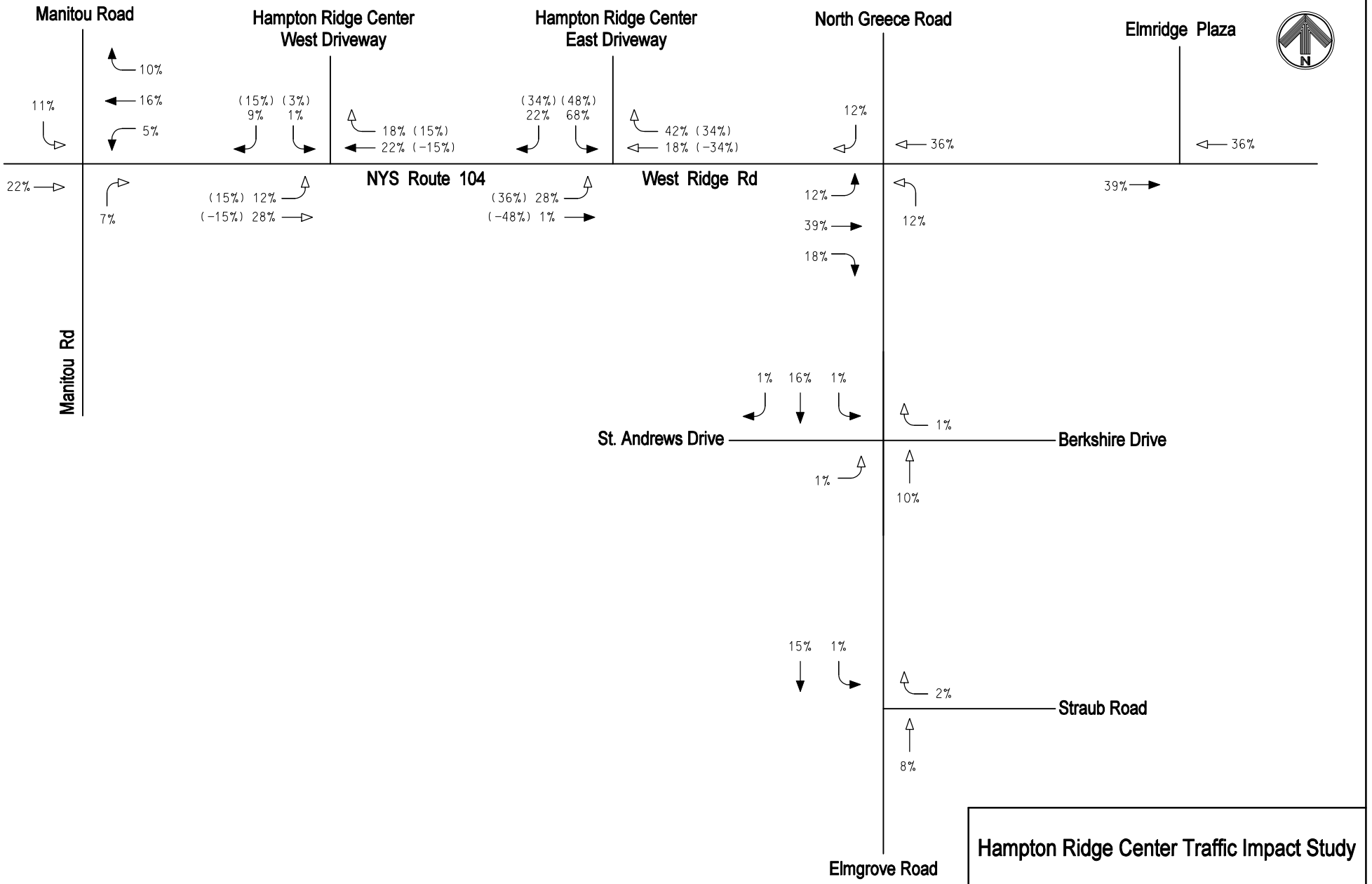
XX% – Primary ⟵ Entering Traffic

(XX%) – Pass-by ⟵ Exiting Traffic

Hampton Ridge Center Traffic Impact Study

Evening Peak Hour Hampton Ridge Primary and Pass-By Trip Distribution

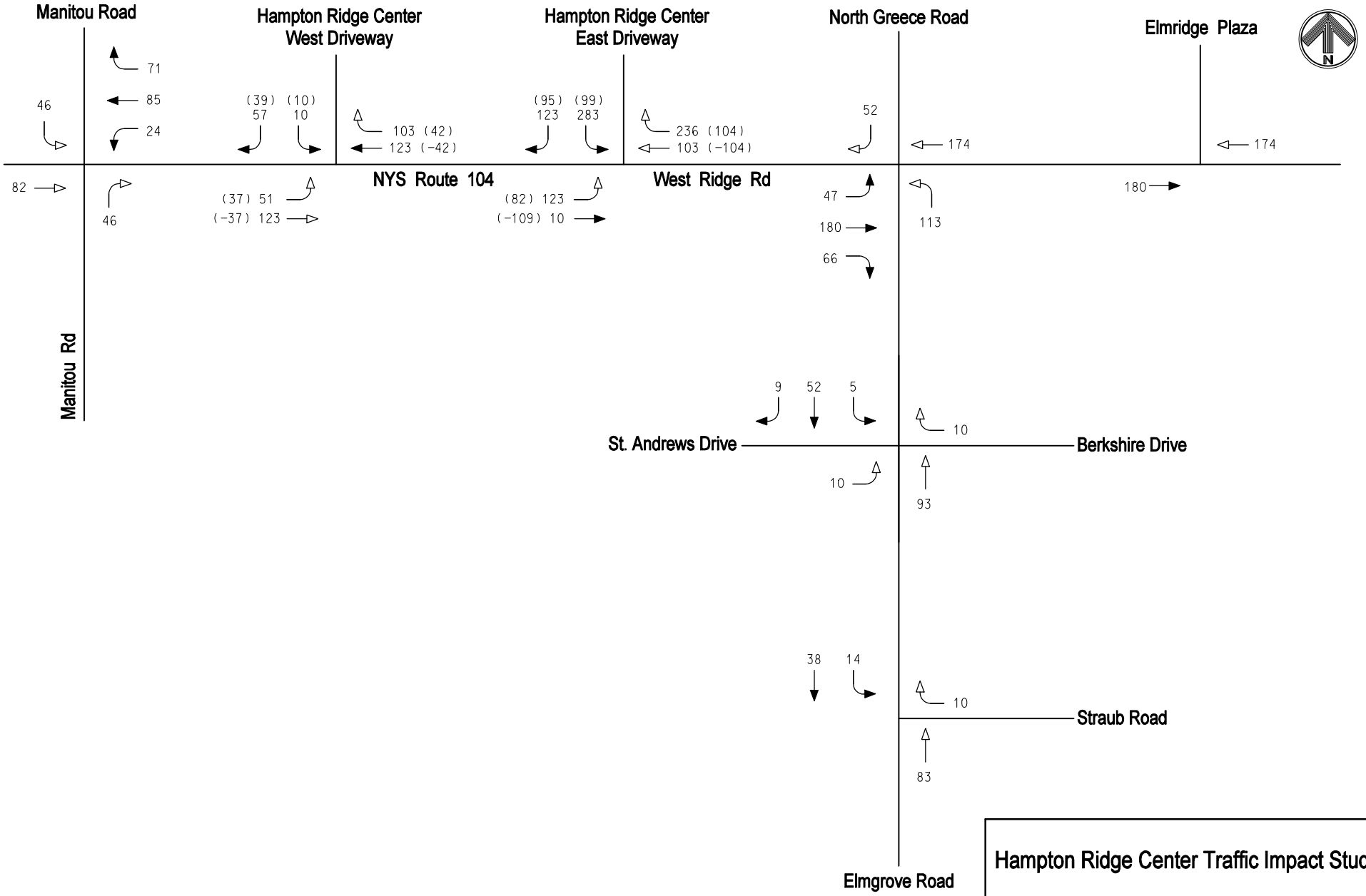
FIGURE NO.	SCALE	DATE	
5	No Scale	6 / 09	Bergmann associates



Hampton Ridge Center Traffic Impact Study

Saturday Mid-Day Peak Hour Hampton Primary and Pass-By Trip Distribution

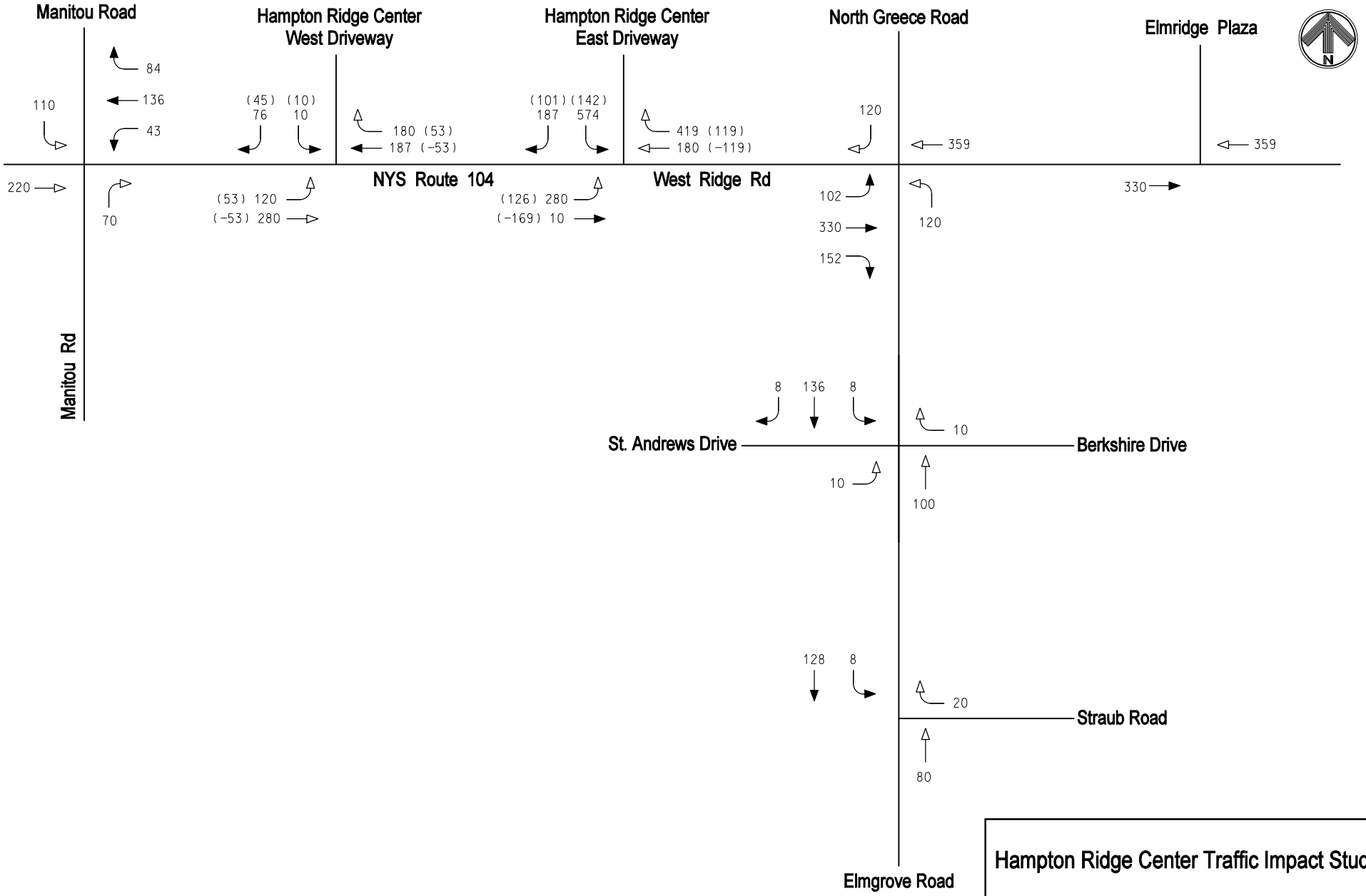
FIGURE NO.	SCALE	DATE	
6	No Scale	6 / 09	Bergmann associates



Hampton Ridge Center Traffic Impact Study

Evening Peak Hour Net Hampton Ridge Primary and Pass-By Trips

FIGURE NO.	SCALE	DATE	
7	No Scale	6 / 09	Bergmann associates



LEGEND

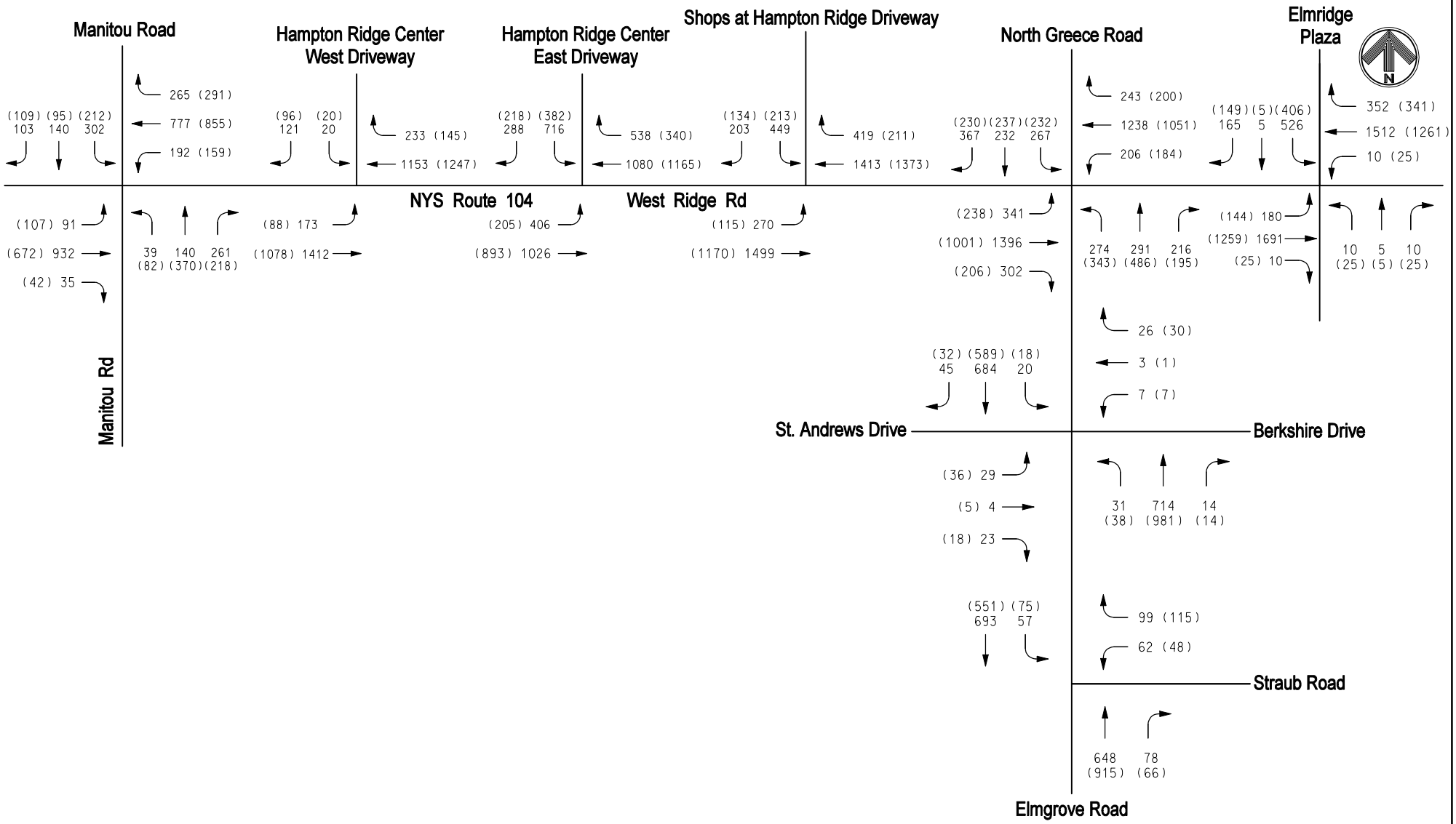
XX% – Primary ⟵ Entering Traffic

(XX%) – Pass-by ⟵ Exiting Traffic

Hampton Ridge Center Traffic Impact Study

Saturday Mid-Day Peak Hour Net Hampton Ridge Primary and Pass-By Trips

FIGURE NO.	SCALE	DATE	
8	No Scale	6 / 09	Bergmann associates



LEGEND:

XXX – Saturday Mid-Day
(XXX) – Weekday PM

Hampton Ridge Center Traffic Impact Study

2009 Build
Peak Hour Turning Movement Volumes

FIGURE NO.	SCALE	DATE	
9	No Scale	6 / 09	Bergmann associates

Hampton Ridge Center
Friday PM Peak Hour
4:30-5:30

			background developments					Sum Total Backgrnd	2009	HRC		2009
Route 104 & Manitou Road		year 2009	SHR 4110 WRR Primary	SHR 4110 WRR Pass-by	Bramhall Office Park	Creek House Commons	Fairfield Place	Dvlpmnts traffic	no build traffic	Pass-by trips	Primary trips	Build Traffic
	Left	82	0	0	0	0	25	25	107	0	0	107
EB	Thru	565	12	0	2	11	0	25	590	0	82	672
	Right	42	0	0	0	0	0	0	42	0	0	42
	Left	121	4	0	2	8	0	14	135	0	24	159
WB	Thru	735	15	0	8	12	0	35	770	0	85	855
	Right	144	6	0	1	5	64	76	220	0	71	291
	Left	82	0	0	0	0	0	0	82	0	0	82
NB	Thru	268	0	0	0	0	102	102	370	0	0	370
	Right	156	7	0	1	8	0	16	172	0	46	218
	Left	92	4	0	0	5	65	74	166	0	46	212
SB	Thru	75	0	0	0	0	20	20	95	0	0	95
	Right	91	0	0	0	0	18	18	109	0	0	109

Route 104 & Elmgrove Road & N		year 2009	SHR 4110 WRR Primary	SHR 4110 WRR Pass-by	Bramhall Office Park	Creek House Commons	Fairfield Place	Backgrnd Dvlpmnts	no build traffic	Pass-by trips	Primary trips	Build Traffic
	Left	135	15	0	3	29	9	56	191	0	47	238
EB	Thru	747	31	0	0	-5	48	74	821	0	180	1001
	Right	120	12	0	0	0	8	20	140	0	66	206
	Left	184	0	0	0	0	0	0	184	0	0	184
WB	Thru	809	26	0	0	-5	47	68	877	0	174	1051
	Right	167	0	0	3	30	0	33	200	0	0	200
	Left	203	16	0	0	0	11	27	230	0	113	343
NB	Thru	458	0	0	9	19	0	28	486	0	0	486
	Right	195	0	0	0	0	0	0	195	0	0	195
	Left	188	0	0	13	31	0	44	232	0	0	232
SB	Thru	199	0	0	18	20	0	38	237	0	0	237
	Right	120	11	0	11	30	6	58	178	0	52	230

Route 104 & Elmridge Plaza		est. 2004	year 2009	SHR 4110 WRR Primary	SHR 4110 WRR Pass-by	Bramhall Office Park	Creek House Commons	Fairfield Place	Backgrnd Dvlpmnts	no build traffic	Pass-by trips	Primary trips	Build Traffic
	Left	135	135	0	0	0	3	6	9	144	0	0	144
EB	Thru	1046	970	31	0	13	23	42	109	1079	0	180	1259
	Right	25	25	0	0	0	0	0	0	25	0	0	25
	Left	25	25	0	0	0	0	0	0	25	0	0	25
WB	Thru	1042	995	26	0	3	22	41	92	1087	0	174	1261
	Right	341	341	0	0	0	0	0	0	341	0	0	341
	Left	25	25	0	0	0	0	0	0	25	0	0	25
NB	Thru	5	5	0	0	0	0	0	0	5	0	0	5
	Right	25	25	0	0	0	0	0	0	25	0	0	25
	Left	406	406	0	0	0	0	0	0	406	0	0	406
SB	Thru	5	5	0	0	0	0	0	0	5	0	0	5
	Right	140	140	0	0	0	3	6	9	149	0	0	149

Elmgrove Road & St. Andrews & Berkshire		year 2007	year 2009	SHR 4110 WRR Primary	SHR 4110 WRR Pass-by	Bramhall Office Park	Creek House Commons	Fairfield Place	Backgrnd Dvlpmnts	no build traffic	Pass-by trips	Primary trips	Build Traffic
	Left	21	21	1	0	1	2	1	5	26	0	10	36
EB	Thru	5	5	0	0	0	0	0	0	5	0	0	5
	Right	18	18	0	0	0	0	0	0	18	0	0	18
	Left	7	7	0	0	0	0	0	0	7	0	0	7
WB	Thru	1	1	0	0	0	0	0	0	1	0	0	1
	Right	15	15	1	0	1	2	1	5	20	0	10	30
	Left	38	38	0	0	0	0	0	0	38	0	0	38
NB	Thru	903	843	14	0	7	15	9	45	888	0	93	981
	Right	14	14	0	0	0	0	0	0	14	0	0	14
	Left	9	9	1	0	1	2	0	4	13	0	5	18
SB	Thru	488	488	10	0	16	16	7	49	537	0	52	589
	Right	18	18	1	0	1	2	1	5	23	0	9	32

Hampton Ridge Center
Friday PM Peak Hour
4:30-5:30

				background developments					Sum Total Backgrnd	2009	HRC		2009
Elmgrove Road & Straub Road		year 2007	year 2009	SHR 4110 WRR Primary	SHR 4110 WRR Pass-by	Bramhall Office Park	Creek House Commons	Fairfield Place	Backgrnd Dvlpmnts	no build traffic	Pass-by trips	Primary trips	Build Traffic
	Left	0	0	0	0	0	0	0	0	0	0	0	0
EB	Thru	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	0	0	0	0	0	0	0	0	0	0	0
	Left	48	48	0	0	0	0	0	0	48	0	0	48
WB	Thru	0	0	0	0	0	0	0	0	0	0	0	0
	Right	97	97	2	0	1	3	2	8	105	0	10	115
	Left	0	0	0	0	0	0	0	0	0	0	0	0
NB	Thru	855	795	12	0	6	12	7	37	832	0	83	915
	Right	66	66	0	0	0	0	0	0	66	0	0	66
	Left	50	50	2	0	4	4	1	11	61	0	14	75
SB	Thru	475	475	8	0	12	12	6	38	513	0	38	551
	Right	0	0	0	0	0	0	0	0	0	0	0	0

Route 104 & HRC west driveway			year 2009	SHR 4110 WRR Primary	SHR 4110 WRR Pass-by	Bramhall Office Park	Creek House Commons	Fairfield Place	Backgrnd Dvlpmnts	no build traffic	Pass-by trips	Primary trips	Build Traffic
	Left			0	0	0	0	0	0	0	37	51	88
EB	Thru		877	23	0	3	24	65	115	992	-37	123	1078
	Right			0	0	0	0	0	0	0	0	0	0
	Left			0	0	0	0	0	0	0	0	0	0
WB	Thru		1041	25	0	11	25	64	125	1166	-42	123	1247
	Right			0	0	0	0	0	0	0	42	103	145
	Left			0	0	0	0	0	0	0	0	0	0
NB	Thru			0	0	0	0	0	0	0	0	0	0
	Right			0	0	0	0	0	0	0	0	0	0
	Left			0	0	0	0	0	0	0	10	10	20
SB	Thru			0	0	0	0	0	0	0	0	0	0
	Right			0	0	0	0	0	0	0	39	57	96

Route 104 & HRC east driveway			year 2009	SHR 4110 WRR Primary	SHR 4110 WRR Pass-by	Bramhall Office Park	Creek House Commons	Fairfield Place	Backgrnd Dvlpmnts	no build traffic	Pass-by trips	Primary trips	Build Traffic
	Left			0	0	0	0	0	0	0	82	123	205
EB	Thru		877	23	0	3	24	65	115	992	-109	10	893
	Right			0	0	0	0	0	0	0	0	0	0
	Left			0	0	0	0	0	0	0	0	0	0
WB	Thru		1041	25	0	11	25	64	125	1166	-104	103	1165
	Right			0	0	0	0	0	0	0	104	236	340
	Left			0	0	0	0	0	0	0	0	0	0
NB	Thru			0	0	0	0	0	0	0	0	0	0
	Right			0	0	0	0	0	0	0	0	0	0
	Left			0	0	0	0	0	0	0	99	283	382
SB	Thru			0	0	0	0	0	0	0	0	0	0
	Right			0	0	0	0	0	0	0	95	123	218

Route 104 & SHR driveway			year 2009	SHR 4110 WRR Primary	SHR 4110 WRR Pass-by	Bramhall Office Park	Creek House Commons	Fairfield Place	Backgrnd Dvlpmnts	no build traffic	Pass-by trips	Primary trips	Build Traffic
	Left		75	23	17	0	0	0	40	115	0	0	115
EB	Thru		802	0	-17	3	24	65	75	877	0	293	1170
	Right			0	0	0	0	0	0	0	0	0	0
	Left			0	0	0	0	0	0	0	0	0	0
WB	Thru		955	0	-21	11	25	64	79	1034	0	339	1373
	Right		137	53	21	0	0	0	74	211	0	0	211
	Left			0	0	0	0	0	0	0	0	0	0
NB	Thru			0	0	0	0	0	0	0	0	0	0
	Right			0	0	0	0	0	0	0	0	0	0
	Left		136	58	19	0	0	0	77	213	0	0	213
SB	Thru			0	0	0	0	0	0	0	0	0	0
	Right		86	25	23	0	0	0	48	134	0	0	134

Hampton Ridge Center
Saturday Mid-Day Peak Hour
12:00-1:00

Route 104 & Manitou Road		year 2009	background developments: SHR 4110 WRR Primary	SHR 4110 WRR Pass-by	Bramhall Office Park	Creek House Commons	Fairfield Place	Sum Total Backgrnd Dvlpmnts	2009 no build traffic	HRC Pass-by trips	HRC Primary trips	2009 Build Traffic
	Left	75	0	0	0	0	16	16	91	0	0	91
EB	Thru	640	55	0	0	17	0	72	712	0	220	932
	Right	35	0	0	0	0	0	0	35	0	0	35
	Left	128	12	0	0	9	0	21	149	0	43	192
WB	Thru	588	38	0	0	15	0	53	641	0	136	777
	Right	123	9	0	0	5	44	58	181	0	84	265
	Left	39	0	0	0	0	0	0	39	0	0	39
NB	Thru	86	0	0	0	0	54	54	140	0	0	140
	Right	164	18	0	0	9	0	27	191	0	70	261
	Left	108	15	0	0	5	64	84	192	0	110	302
SB	Thru	75	0	0	0	0	65	65	140	0	0	140
	Right	80	0	0	0	0	23	23	103	0	0	103

Route 104 & Elmgrove Road & N		year 2009	SHR 4110 WRR Primary	SHR 4110 WRR Pass-by	Bramhall Office Park	Creek House Commons	Fairfield Place	Backgrnd Dvlpmnts	no build traffic	Pass-by trips	Primary trips	Build Traffic
	Left	149	43	0	0	38	9	90	239	0	102	341
EB	Thru	935	91	0	0	-7	47	131	1066	0	330	1396
	Right	99	43	0	0	0	8	51	150	0	152	302
	Left	206	0	0	0	0	0	0	206	0	0	206
WB	Thru	763	90	0	0	-6	32	116	879	0	359	1238
	Right	208	0	0	0	35	0	35	243	0	0	243
	Left	116	30	0	0	0	8	38	154	0	120	274
NB	Thru	273	0	0	0	18	0	18	291	0	0	291
	Right	216	0	0	0	0	0	0	216	0	0	216
	Left	233	0	0	0	34	0	34	267	0	0	267
SB	Thru	215	0	0	0	17	0	17	232	0	0	232
	Right	166	42	0	0	35	4	81	247	0	120	367

Route 104 & Elmridge Plaza		est. 2004	year 2009	SHR 4110 WRR Primary	SHR 4110 WRR Pass-by	Bramhall Office Park	Creek House Commons	Fairfield Place	Backgrnd Dvlpmnts	no build traffic	Pass-by trips	Primary trips	Build Traffic
	Left	170	170	0	0	0	4	6	10	180	0	0	180
EB	Thru	1059	1204	92	0	0	24	41	157	1361	0	330	1691
	Right	10	10	0	0	0	0	0	0	10	0	0	10
	Left	10	10	0	0	0	0	0	0	10	0	0	10
WB	Thru	908	1010	90	0	0	25	28	143	1153	0	359	1512
	Right	352	352	0	0	0	0	0	0	352	0	0	352
	Left	10	10	0	0	0	0	0	0	10	0	0	10
NB	Thru	5	5	0	0	0	0	0	0	5	0	0	5
	Right	10	10	0	0	0	0	0	0	10	0	0	10
	Left	526	526	0	0	0	0	0	0	526	0	0	526
SB	Thru	5	5	0	0	0	0	0	0	5	0	0	5
	Right	157	157	0	0	0	4	4	8	165	0	0	165

Elmgrove Road & St. Andrews & Berkshire		year 2007	year 2009	SHR 4110 WRR Primary	SHR 4110 WRR Pass-by	Bramhall Office Park	Creek House Commons	Fairfield Place	Backgrnd Dvlpmnts	no build traffic	Pass-by trips	Primary trips	Build Traffic
	Left	16	16	2	0	0	1	0	3	19	0	10	29
EB	Thru	4	4	0	0	0	0	0	0	4	0	0	4
	Right	23	23	0	0	0	0	0	0	23	0	0	23
	Left	7	7	0	0	0	0	0	0	7	0	0	7
WB	Thru	3	3	0	0	0	0	0	0	3	0	0	3
	Right	13	13	2	0	0	1	0	3	16	0	10	26
	Left	31	31	0	0	0	0	0	0	31	0	0	31
NB	Thru	484	564	26	0	0	16	8	50	614	0	100	714
	Right	14	14	0	0	0	0	0	0	14	0	0	14
	Left	9	9	2	0	0	1	0	3	12	0	8	20
SB	Thru	487	487	38	0	0	15	8	61	548	0	136	684
	Right	34	34	2	0	0	1	0	3	37	0	8	45

Hampton Ridge Center
Saturday Mid-Day Peak Hour
12:00-1:00

Elmgrove Road & Straub Road		year 2007	year 2009	background developments: SHR 4110 WRR Primary	SHR 4110 WRR Pass-by	Bramhall Office Park	Creek House Commons	Fairfield Place	Sum Total Backgrnd Dvlpmnts	2009 no build traffic	HRC Pass-by trips	HRC Primary trips	2009 Build Traffic
	Left	0	0	0	0	0	0	0	0	0	0	0	0
EB	Thru	0	0	0	0	0	0	0	0	0	0	0	0
	Right	0	0	0	0	0	0	0	0	0	0	0	0
	Left	62	62	0	0	0	0	0	0	62	0	0	62
WB	Thru	0	0	0	0	0	0	0	0	0	0	0	0
	Right	69	69	5	0	0	4	1	10	79	0	20	99
	Left	0	0	0	0	0	0	0	0	0	0	0	0
NB	Thru	528	528	21	0	0	12	7	40	568	0	80	648
	Right	78	78	0	0	0	0	0	0	78	0	0	78
	Left	42	42	3	0	0	3	1	7	49	0	8	57
SB	Thru	571	511	35	0	0	12	7	54	565	0	128	693
	Right	0	0	0	0	0	0	0	0	0	0	0	0

Route 104 & HRC west driveway			year 2009	SHR 4110 WRR Primary	SHR 4110 WRR Pass-by	Bramhall Office Park	Creek House Commons	Fairfield Place	Backgrnd Dvlpmnts	no build traffic	Pass-by trips	Primary trips	Build Traffic
	Left			0	0	0	0	0	0	0	53	120	173
EB	Thru		1002	88	0	0	31	64	183	1185	-53	280	1412
	Right			0	0	0	0	0	0	0	0	0	0
	Left			0	0	0	0	0	0	0	0	0	0
WB	Thru		887	59	0	0	29	44	132	1019	-53	187	1153
	Right			0	0	0	0	0	0	0	53	180	233
	Left			0	0	0	0	0	0	0	0	0	0
NB	Thru			0	0	0	0	0	0	0	0	0	0
	Right			0	0	0	0	0	0	0	0	0	0
	Left			0	0	0	0	0	0	0	10	10	20
SB	Thru			0	0	0	0	0	0	0	0	0	0
	Right			0	0	0	0	0	0	0	45	76	121

Route 104 & HRC east driveway			year 2009	SHR 4110 WRR Primary	SHR 4110 WRR Pass-by	Bramhall Office Park	Creek House Commons	Fairfield Place	Backgrnd Dvlpmnts	no build traffic	Pass-by trips	Primary trips	Build Traffic
	Left			0	0	0	0	0	0	0	126	280	406
EB	Thru		1002	88	0	0	31	64	183	1185	-169	10	1026
	Right			0	0	0	0	0	0	0	0	0	0
	Left			0	0	0	0	0	0	0	0	0	0
WB	Thru		887	59	0	0	29	44	132	1019	-119	180	1080
	Right			0	0	0	0	0	0	0	119	419	538
	Left			0	0	0	0	0	0	0	0	0	0
NB	Thru			0	0	0	0	0	0	0	0	0	0
	Right			0	0	0	0	0	0	0	0	0	0
	Left			0	0	0	0	0	0	0	142	574	716
SB	Thru			0	0	0	0	0	0	0	0	0	0
	Right			0	0	0	0	0	0	0	101	187	288

Route 104 & SHR driveway			year 2009	SHR 4110 WRR Primary	SHR 4110 WRR Pass-by	Bramhall Office Park	Creek House Commons	Fairfield Place	Backgrnd Dvlpmnts	no build traffic	Pass-by trips	Primary trips	Build Traffic
	Left		137	88	45	0	0	0	133	270	0	0	270
EB	Thru		865	0	-45	0	31	64	50	915	0	584	1499
	Right			0	0	0	0	0	0	0	0	0	0
	Left			0	0	0	0	0	0	0	0	0	0
WB	Thru		784	0	-43	0	29	44	30	814	0	599	1413
	Right		214	162	43	0	0	0	205	419	0	0	419
	Left			0	0	0	0	0	0	0	0	0	0
NB	Thru			0	0	0	0	0	0	0	0	0	0
	Right			0	0	0	0	0	0	0	0	0	0
	Left		229	177	43	0	0	0	220	449	0	0	449
SB	Thru			0	0	0	0	0	0	0	0	0	0
	Right		103	59	41	0	0	0	100	203	0	0	203

Appendix B

Detailed Count Data

Bergmann associates

Route 104 at Manitou Road

Bergmann associates

Hampton Ridge Center Traffic Impact Stud
West Ridge Road (Rt 104) with Manitou Rd
Friday April 3, 2009
4-6 p.m.

File Name : fri apr3 104@manitou
Site Code : 00000004
Start Date : 4/3/2009
Page No : 1

Groups Printed- Autos and Peds - Trucks and RTOR - Buses

	West Ridge Road (Rt 104) Eastbound					West Ridge Road (Rt 104) Westbound					Manitou Road Northbound					Manitou Road Southbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	35	111	9	0	155	40	168	30	0	238	20	64	44	18	128	16	31	18	2	65	20	586	606
04:15 PM	22	147	13	0	182	31	198	35	0	264	15	45	39	16	99	28	29	18	5	75	21	620	641
04:30 PM	25	137	9	0	171	30	171	37	0	238	19	56	34	10	109	25	18	22	10	65	20	583	603
04:45 PM	18	157	12	0	187	41	181	40	0	262	16	70	40	16	126	24	20	20	0	64	16	639	655
Total	100	552	43	0	695	142	718	142	0	1002	70	235	157	60	462	93	98	78	17	269	77	2428	2505
05:00 PM	18	132	13	2	163	22	200	37	0	259	29	78	40	11	147	21	18	24	0	63	13	632	645
05:15 PM	21	139	8	0	168	28	183	30	0	241	18	64	42	17	124	22	19	25	0	66	17	599	616
05:30 PM	21	143	14	1	178	29	166	26	0	221	18	53	35	9	106	21	24	23	0	68	10	573	583
05:45 PM	17	115	9	2	141	0	0	0	0	0	18	49	32	7	99	0	0	0	0	0	9	240	249
Total	77	529	44	5	650	79	549	93	0	721	83	244	149	44	476	64	61	72	0	197	49	2044	2093
06:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Grand Total	177	1082	87	5	1346	221	1267	235	0	1723	153	479	306	104	938	157	159	150	17	466	126	4473	4599
Apprch %	13.2	80.4	6.5			12.8	73.5	13.6			16.3	51.1	32.6			33.7	34.1	32.2					
Total %	4	24.2	1.9		30.1	4.9	28.3	5.3		38.5	3.4	10.7	6.8		21	3.5	3.6	3.4		10.4	2.7	97.3	
Autos and Peds	175	1063	82		1322	220	1259	233		1712	150	474	305		952	155	157	125		448	0	0	4434
% Autos and Peds	98.9	98.2	94.3	40	97.9	99.5	99.4	99.1	0	99.4	98	99	99.7	22.1	91.4	98.7	98.7	83.3	64.7	92.8	0	0	96.4
Trucks and RTOR	2	16	4		25	0	5	2		7	3	4	1		89	2	1	25		34	0	0	155
% Trucks and RTOR	1.1	1.5	4.6	60	1.9	0	0.4	0.9	0	0.4	2	0.8	0.3	77.9	8.5	1.3	0.6	16.7	35.3	7	0	0	3.4
Buses	0	3	1		4	1	3	0		4	0	1	0		1	0	1	0		1	0	0	10
% Buses	0	0.3	1.1	0	0.3	0.5	0.2	0	0	0.2	0	0.2	0	0	0.1	0	0.6	0	0	0.2	0	0	0.2

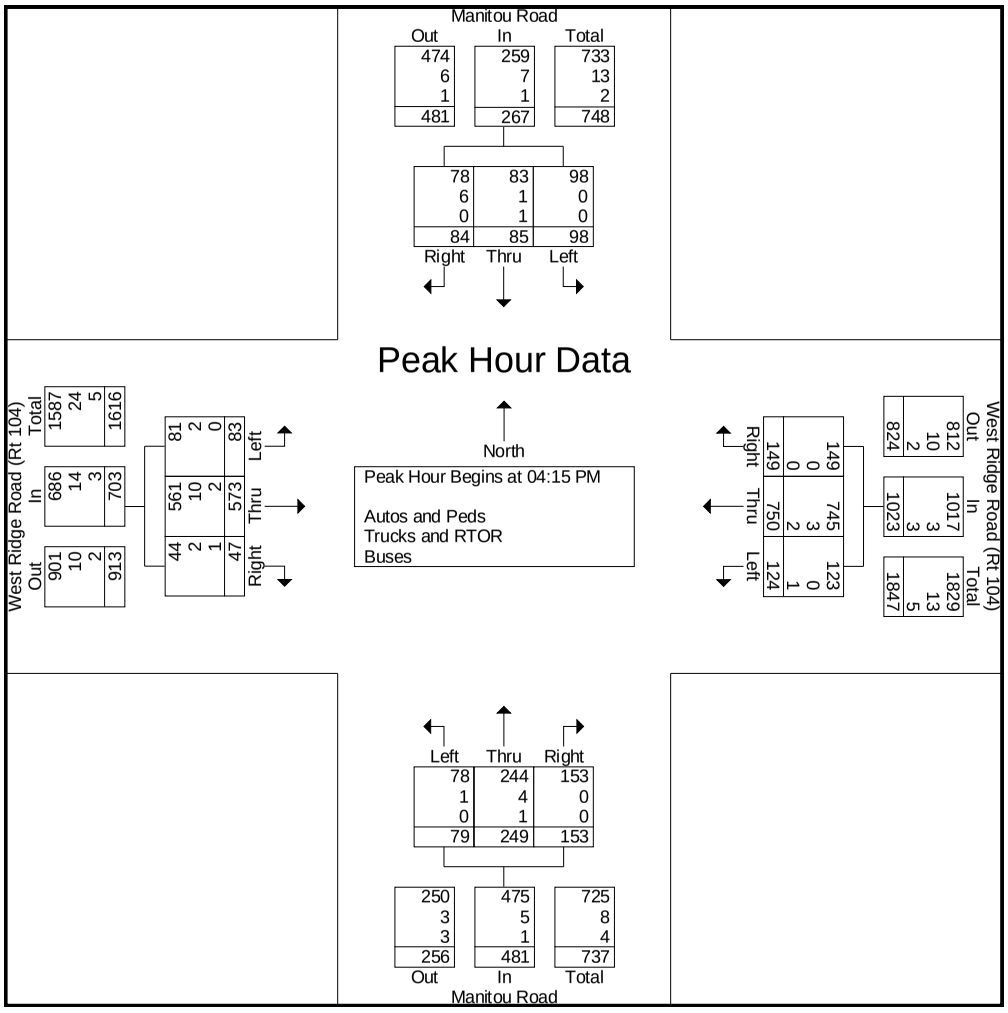
Hampton Ridge Center Traffic Impact Stud
West Ridge Road (Rt 104) with Manitou Rd
Friday April 3, 2009
4-6 p.m.

File Name : fri apr3 104@manitou
Site Code : 00000004
Start Date : 4/3/2009
Page No : 3

	West Ridge Road (Rt 104) Eastbound				West Ridge Road (Rt 104) Westbound				Manitou Road Northbound				Manitou Road Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	22	147	**13**	182	31	198	35	**264**	15	45	39	99	**28**	**29**	18	**75**	620
04:30 PM	**25**	137	9	171	30	171	37	238	19	56	34	109	25	18	22	65	583
04:45 PM	18	**157**	12	**187**	**41**	181	**40**	262	16	70	**40**	126	24	20	20	64	**639**
05:00 PM	18	132	13	163	22	**200**	37	259	**29**	**78**	40	**147**	21	18	**24**	63	632
Total Volume	83	573	47	703	124	750	149	1023	79	249	153	481	98	85	84	267	2474
% App. Total	11.8	81.5	6.7		12.1	73.3	14.6		16.4	51.8	31.8		36.7	31.8	31.5		
PHF	.830	.912	.904	.940	.756	.938	.931	.969	.681	.798	.956	.818	.875	.733	.875	.890	.968
Autos and Peds	81	561	44	686	123	745	149	1017	78	244	153	475	98	83	78	259	2437
% Autos and Peds	97.6	97.9	93.6	97.6	99.2	99.3	100	99.4	98.7	98.0	100	98.8	100	97.6	92.9	97.0	98.5
Trucks and RTOR	2	10	2	14	0	3	0	3	1	4	0	5	0	1	6	7	29
% Trucks and RTOR	2.4	1.7	4.3	2.0	0	0.4	0	0.3	1.3	1.6	0	1.0	0	1.2	7.1	2.6	1.2
Buses	0	2	1	3	1	2	0	3	0	1	0	1	0	1	0	1	8
% Buses	0	0.3	2.1	0.4	0.8	0.3	0	0.3	0	0.4	0	0.2	0	1.2	0	0.4	0.3

Hampton Ridge Center Traffic Impact Stud
West Ridge Road (Rt 104) with Manitou Rd
Friday April 3, 2009
4-6 p.m.

File Name : fri apr3 104@manitou
Site Code : 00000004
Start Date : 4/3/2009
Page No : 4



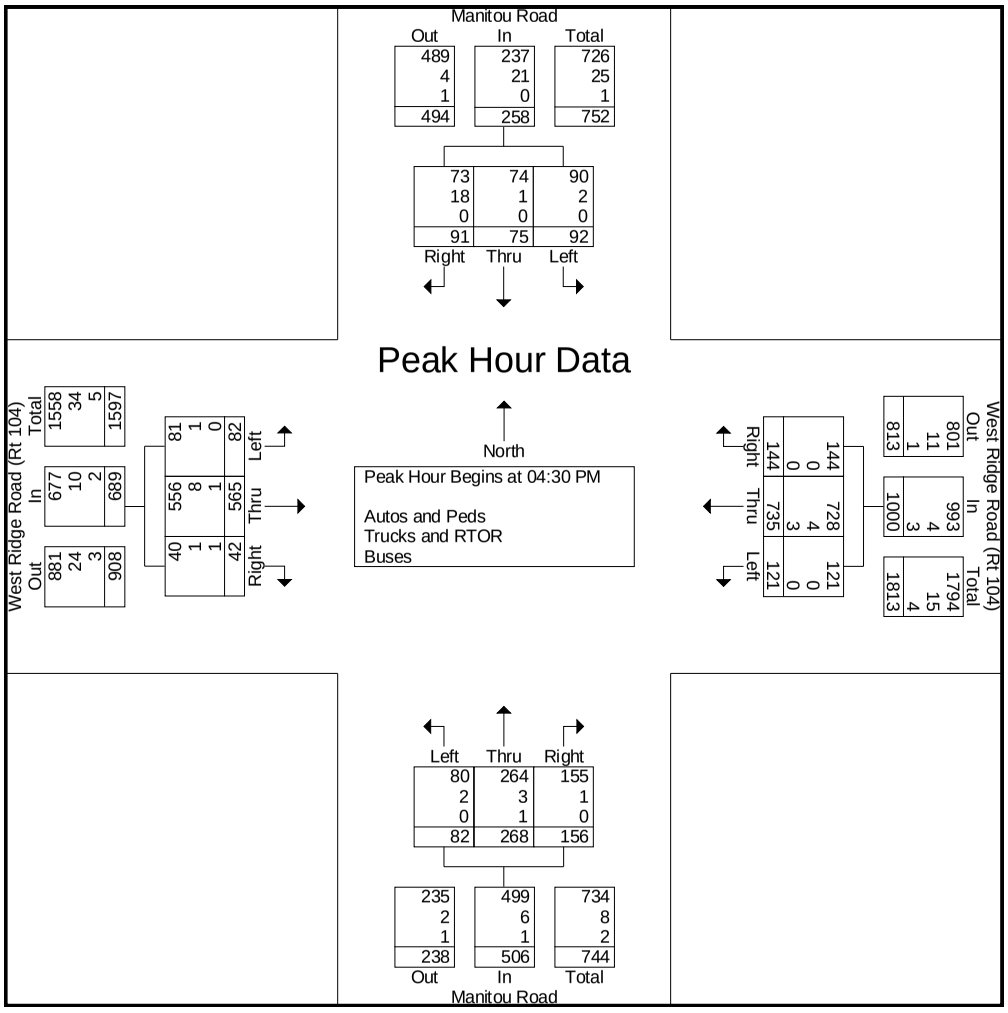
Hampton Ridge Center Traffic Impact Stud
West Ridge Road (Rt 104) with Manitou Rd
Friday April 3, 2009
4-6 p.m.

File Name : fri apr3 104@manitou
Site Code : 00000004
Start Date : 4/3/2009
Page No : 3

	West Ridge Road (Rt 104) Eastbound				West Ridge Road (Rt 104) Westbound				Manitou Road Northbound				Manitou Road Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 05:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**25**	137	9	171	30	171	37	238	19	56	34	109	**25**	18	22	65	583
04:45 PM	18	**157**	12	**187**	**41**	181	**40**	**262**	16	70	40	126	24	**20**	20	64	**639**
05:00 PM	18	132	**13**	163	22	**200**	37	259	**29**	**78**	40	**147**	21	18	24	63	632
05:15 PM	21	139	8	168	28	183	30	241	18	64	**42**	124	22	19	**25**	**66**	599
Total Volume	82	565	42	689	121	735	144	1000	82	268	156	506	92	75	91	258	2453
% App. Total	11.9	82	6.1		12.1	73.5	14.4		16.2	53	30.8		35.7	29.1	35.3		
PHF	.820	.900	.808	.921	.738	.919	.900	.954	.707	.859	.929	.861	.920	.938	.910	.977	.960
Autos and Peds	81	556	40	677	121	728	144	993	80	264	155	499	90	74	73	237	2406
% Autos and Peds	98.8	98.4	95.2	98.3	100	99.0	100	99.3	97.6	98.5	99.4	98.6	97.8	98.7	80.2	91.9	98.1
Trucks and RTOR	1	8	1	10	0	4	0	4	2	3	1	6	2	1	18	21	41
% Trucks and RTOR	1.2	1.4	2.4	1.5	0	0.5	0	0.4	2.4	1.1	0.6	1.2	2.2	1.3	19.8	8.1	1.7
Buses	0	1	1	2	0	3	0	3	0	1	0	1	0	0	0	0	6
% Buses	0	0.2	2.4	0.3	0	0.4	0	0.3	0	0.4	0	0.2	0	0	0	0	0.2

Hampton Ridge Center Traffic Impact Stud
West Ridge Road (Rt 104) with Manitou Rd
Friday April 3, 2009
4-6 p.m.

File Name : fri apr3 104@manitou
Site Code : 00000004
Start Date : 4/3/2009
Page No : 4



Hampton Ridge Center Traffic Impact Stud
West Ridge Road (Rt 104) with Manitou Rd
Saturday April 4, 2009
11 a.m. to 2 p.m.

File Name : sat apr4 104@manitou
Site Code : 00000004
Start Date : 4/4/2009
Page No : 1

Groups Printed- Autos and Peds - Trucks and RTOR - Buses

	West Ridge Road (Rt 104) Eastbound					West Ridge Road (Rt 104) Westbound					Manitou Road Northbound					Manitou Road Southbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
11:00 AM	13	147	6	0	166	23	100	15	1	138	9	25	40	13	74	33	25	18	8	76	22	454	476
11:15 AM	13	138	8	1	159	28	104	27	0	159	10	14	30	9	54	22	28	26	11	76	21	448	469
11:30 AM	30	183	7	1	220	28	128	22	0	178	5	23	38	6	66	36	21	26	10	83	17	547	564
11:45 AM	13	163	13	0	189	33	139	29	0	201	8	15	37	10	60	37	21	16	5	74	15	524	539
Total	69	631	34	2	734	112	471	93	1	676	32	77	145	38	254	128	95	86	34	309	75	1973	2048
12:00 PM	14	153	6	0	173	29	132	33	0	194	10	12	48	13	70	29	19	21	3	69	16	506	522
12:15 PM	17	160	12	0	189	37	159	29	0	225	7	24	39	14	70	24	16	19	6	59	20	543	563
12:30 PM	24	154	8	0	186	35	159	28	0	222	15	29	39	9	83	35	21	23	10	79	19	570	589
12:45 PM	20	173	9	0	202	27	138	33	0	198	7	21	38	17	66	20	19	17	4	56	21	522	543
Total	75	640	35	0	750	128	588	123	0	839	39	86	164	53	289	108	75	80	23	263	76	2141	2217
01:00 PM	20	149	11	1	180	44	156	26	0	226	9	28	35	8	72	28	17	18	9	63	18	541	559
01:15 PM	16	143	8	0	167	46	162	31	0	239	8	31	35	6	74	28	20	29	10	77	16	557	573
01:30 PM	21	151	11	0	183	39	188	24	0	251	6	23	38	12	67	26	8	24	10	58	22	559	581
01:45 PM	19	152	12	1	183	38	159	24	0	221	12	21	35	8	68	31	17	28	8	76	17	548	565
Total	76	595	42	2	713	167	665	105	0	937	35	103	143	34	281	113	62	99	37	274	73	2205	2278
Grand Total	220	1866	111	4	2197	407	1724	321	1	2452	106	266	452	125	824	349	232	265	94	846	224	6319	6543
Apprch %	10	84.9	5.1			16.6	70.3	13.1			12.9	32.3	54.9			41.3	27.4	31.3					
Total %	3.5	29.5	1.8		34.8	6.4	27.3	5.1		38.8	1.7	4.2	7.2		13	5.5	3.7	4.2		13.4	3.4	96.6	
Autos and Peds	215	1853	109		2178	407	1715	319		2441	104	264	450		832	346	229	263		889	0	0	6340
% Autos and Peds	97.7	99.3	98.2	25	99	100	99.5	99.4	0	99.5	98.1	99.2	99.6	11.2	87.7	99.1	98.7	99.2	54.3	94.6	0	0	96.9
Trucks and RTOR	5	12	2		22	0	8	1		10	1	2	2		116	2	3	2		50	0	0	198
% Trucks and RTOR	2.3	0.6	1.8	75	1	0	0.5	0.3	100	0.4	0.9	0.8	0.4	88.8	12.2	0.6	1.3	0.8	45.7	5.3	0	0	3
Buses	0	1	0		1	0	1	1		2	1	0	0		1	1	0	0		1	0	0	5
% Buses	0	0.1	0	0	0	0	0.1	0.3	0	0.1	0.9	0	0	0	0.1	0.3	0	0	0	0.1	0	0	0.1

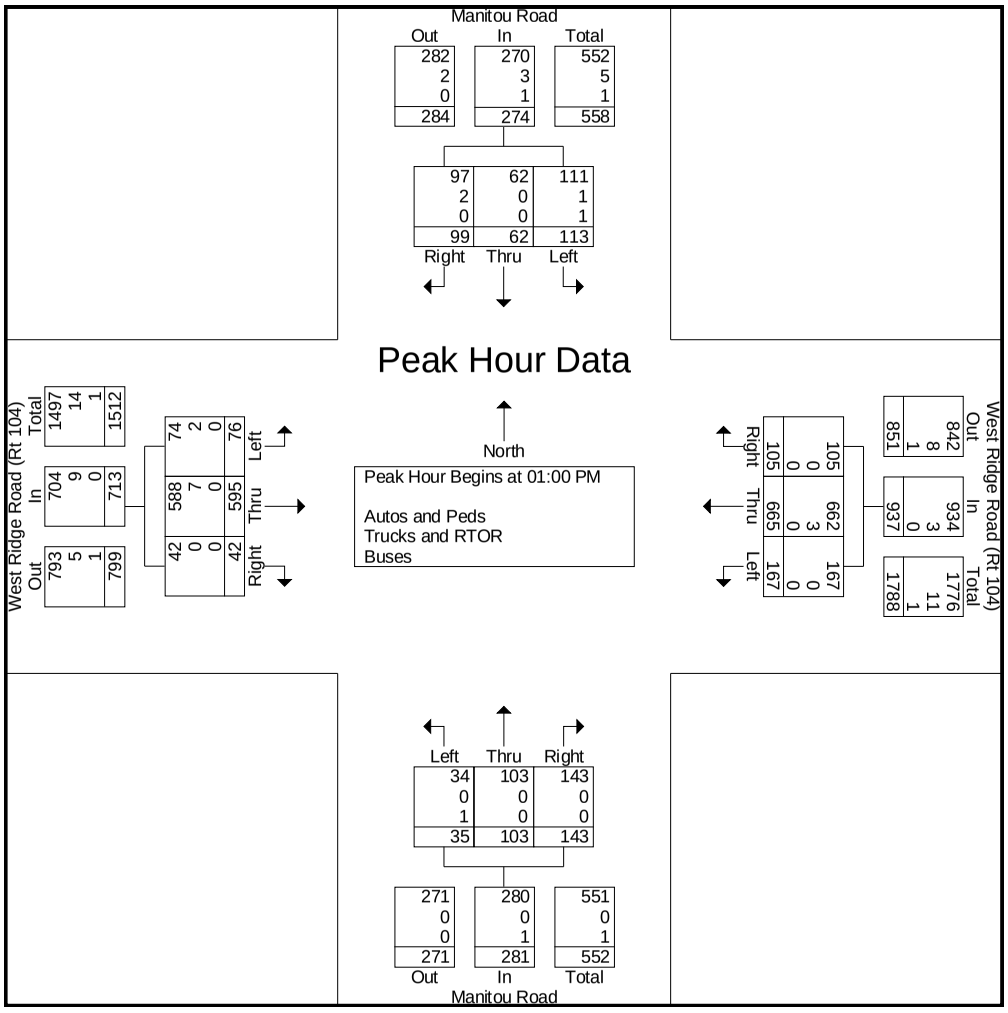
Hampton Ridge Center Traffic Impact Stud
West Ridge Road (Rt 104) with Manitou Rd
Saturday April 4, 2009
11 a.m. to 2 p.m.

File Name : sat apr4 104@manitou
Site Code : 00000004
Start Date : 4/4/2009
Page No : 3

	West Ridge Road (Rt 104) Eastbound				West Ridge Road (Rt 104) Westbound				Manitou Road Northbound				Manitou Road Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 01:00 PM																	
01:00 PM	20	149	11	180	44	156	26	226	9	28	35	72	28	17	18	63	541
01:15 PM	16	143	8	167	**46**	162	**31**	239	8	**31**	35	**74**	28	**20**	**29**	**77**	557
01:30 PM	**21**	151	11	**183**	39	**188**	24	**251**	6	23	**38**	67	26	8	24	58	**559**
01:45 PM	19	**152**	**12**	183	38	159	24	221	**12**	21	35	68	**31**	17	28	76	548
Total Volume	76	595	42	713	167	665	105	937	35	103	143	281	113	62	99	274	2205
% App. Total	10.7	83.5	5.9		17.8	71	11.2		12.5	36.7	50.9		41.2	22.6	36.1		
PHF	.905	.979	.875	.974	.908	.884	.847	.933	.729	.831	.941	.949	.911	.775	.853	.890	.986
Autos and Peds	74	588	42	704	167	662	105	934	34	103	143	280	111	62	97	270	2188
% Autos and Peds	97.4	98.8	100	98.7	100	99.5	100	99.7	97.1	100	100	99.6	98.2	100	98.0	98.5	99.2
Trucks and RTOR	2	7	0	9	0	3	0	3	0	0	0	0	1	0	2	3	15
% Trucks and RTOR	2.6	1.2	0	1.3	0	0.5	0	0.3	0	0	0	0	0.9	0	2.0	1.1	0.7
Buses	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	2
% Buses	0	0	0	0	0	0	0	0	2.9	0	0	0.4	0.9	0	0	0.4	0.1

Hampton Ridge Center Traffic Impact Stud
West Ridge Road (Rt 104) with Manitou Rd
Saturday April 4, 2009
11 a.m. to 2 p.m.

File Name : sat apr4 104@manitou
Site Code : 00000004
Start Date : 4/4/2009
Page No : 4



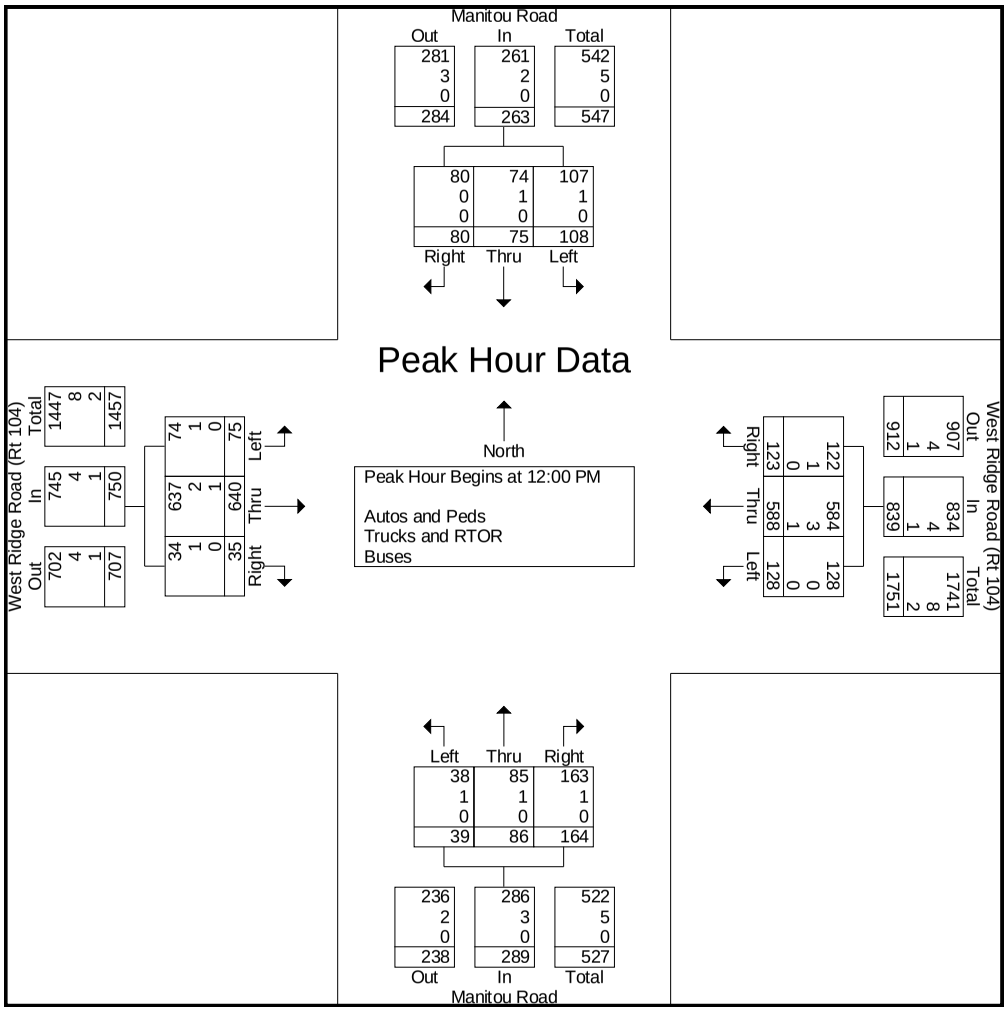
Hampton Ridge Center Traffic Impact Stud
West Ridge Road (Rt 104) with Manitou Rd
Saturday April 4, 2009
11 a.m. to 2 p.m.

File Name : sat apr4 104@manitou
Site Code : 00000004
Start Date : 4/4/2009
Page No : 3

	West Ridge Road (Rt 104) Eastbound				West Ridge Road (Rt 104) Westbound				Manitou Road Northbound				Manitou Road Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 12:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	14	153	6	173	29	132	**33**	194	10	12	**48**	70	29	19	21	69	506
12:15 PM	17	160	**12**	189	**37**	**159**	29	**225**	7	24	39	70	24	16	19	59	543
12:30 PM	**24**	154	8	186	35	159	28	222	**15**	**29**	39	**83**	**35**	**21**	**23**	**79**	**570**
12:45 PM	20	**173**	9	**202**	27	138	33	198	7	21	38	66	20	19	17	56	522
Total Volume	75	640	35	750	128	588	123	839	39	86	164	289	108	75	80	263	2141
% App. Total	10	85.3	4.7		15.3	70.1	14.7		13.5	29.8	56.7		41.1	28.5	30.4		
PHF	.781	.925	.729	.928	.865	.925	.932	.932	.650	.741	.854	.870	.771	.893	.870	.832	.939
Autos and Peds	74	637	34	745	128	584	122	834	38	85	163	286	107	74	80	261	2126
% Autos and Peds	98.7	99.5	97.1	99.3	100	99.3	99.2	99.4	97.4	98.8	99.4	99.0	99.1	98.7	100	99.2	99.3
Trucks and RTOR	1	2	1	4	0	3	1	4	1	1	1	3	1	1	0	2	13
% Trucks and RTOR	1.3	0.3	2.9	0.5	0	0.5	0.8	0.5	2.6	1.2	0.6	1.0	0.9	1.3	0	0.8	0.6
Buses	0	1	0	1	0	1	0	1	0	0	0	0	0	0	0	0	2
% Buses	0	0.2	0	0.1	0	0.2	0	0.1	0	0	0	0	0	0	0	0	0.1

Hampton Ridge Center Traffic Impact Stud
West Ridge Road (Rt 104) with Manitou Rd
Saturday April 4, 2009
11 a.m. to 2 p.m.

File Name : sat apr4 104@manitou
Site Code : 00000004
Start Date : 4/4/2009
Page No : 4



Route 104 at North Greece Road and Elmgrove Road

Bergmann associates

Hampton Ridge Center Traffic Impact Stud
Route 104 with Elmgrove Rd & N Greece Rd
Friday April 3, 2009
4-6 p.m.

File Name : fri apr3 104@elmgrove
Site Code : 00000005
Start Date : 4/3/2009
Page No : 1

Groups Printed- Autos and Peds - Trucks and RTOR - Buses

	West Ridge Road (Rt 104) Eastbound					West Ridge Road (Rt 104) Westbound					Elmgrove Road Northbound					North Greece Road Southbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
04:00 PM	35	171	24	5	230	48	206	45	6	299	49	90	37	23	176	40	41	34	21	115	55	820	875
04:15 PM	27	186	29	4	242	48	182	34	6	264	60	116	56	35	232	40	42	29	17	111	62	849	911
04:30 PM	31	161	22	1	214	44	210	41	5	295	53	96	40	27	189	54	39	25	13	118	46	816	862
04:45 PM	40	207	34	4	281	43	184	46	11	273	54	115	52	29	221	46	69	32	15	147	59	922	981
Total	133	725	109	14	967	183	782	166	28	1131	216	417	185	114	818	180	191	120	66	491	222	3407	3629
05:00 PM	27	190	32	11	249	51	238	45	15	334	52	116	54	37	222	34	37	25	12	96	75	901	976
05:15 PM	37	189	32	11	258	46	177	35	8	258	44	131	49	31	224	54	54	38	16	146	66	886	952
05:30 PM	33	164	26	5	223	48	176	52	8	276	39	78	49	31	166	46	45	23	13	114	57	779	836
05:45 PM	39	156	21	4	216	35	152	32	11	219	35	121	43	29	199	48	63	34	15	145	59	779	838
Total	136	699	111	31	946	180	743	164	42	1087	170	446	195	128	811	182	199	120	56	501	257	3345	3602
Grand Total	269	1424	220	45	1913	363	1525	330	70	2218	386	863	380	242	1629	362	390	240	122	992	479	6752	7231
Apprch %	14.1	74.4	11.5			16.4	68.8	14.9			23.7	53	23.3			36.5	39.3	24.2					
Total %	4	21.1	3.3		28.3	5.4	22.6	4.9		32.8	5.7	12.8	5.6		24.1	5.4	5.8	3.6		14.7	6.6	93.4	
Autos and Peds	266	1401	216		1886	357	1505	322		2189	382	855	377		1619	359	381	229		976	0	0	6670
% Autos and Peds	98.9	98.4	98.2	6.7	96.3	98.3	98.7	97.6	7.1	95.7	99	99.1	99.2	2.1	86.5	99.2	97.7	95.4	5.7	87.6	0	0	92.2
Trucks and RTOR	3	20	4		69	1	15	6		87	2	6	2		247	2	5	11		133	0	0	536
% Trucks and RTOR	1.1	1.4	1.8	93.3	3.5	0.3	1	1.8	92.9	3.8	0.5	0.7	0.5	97.9	13.2	0.6	1.3	4.6	94.3	11.9	0	0	7.4
Buses	0	3	0		3	5	5	2		12	2	2	1		5	1	4	0		5	0	0	25
% Buses	0	0.2	0	0	0.2	1.4	0.3	0.6	0	0.5	0.5	0.2	0.3	0	0.3	0.3	1	0	0	0.4	0	0	0.3

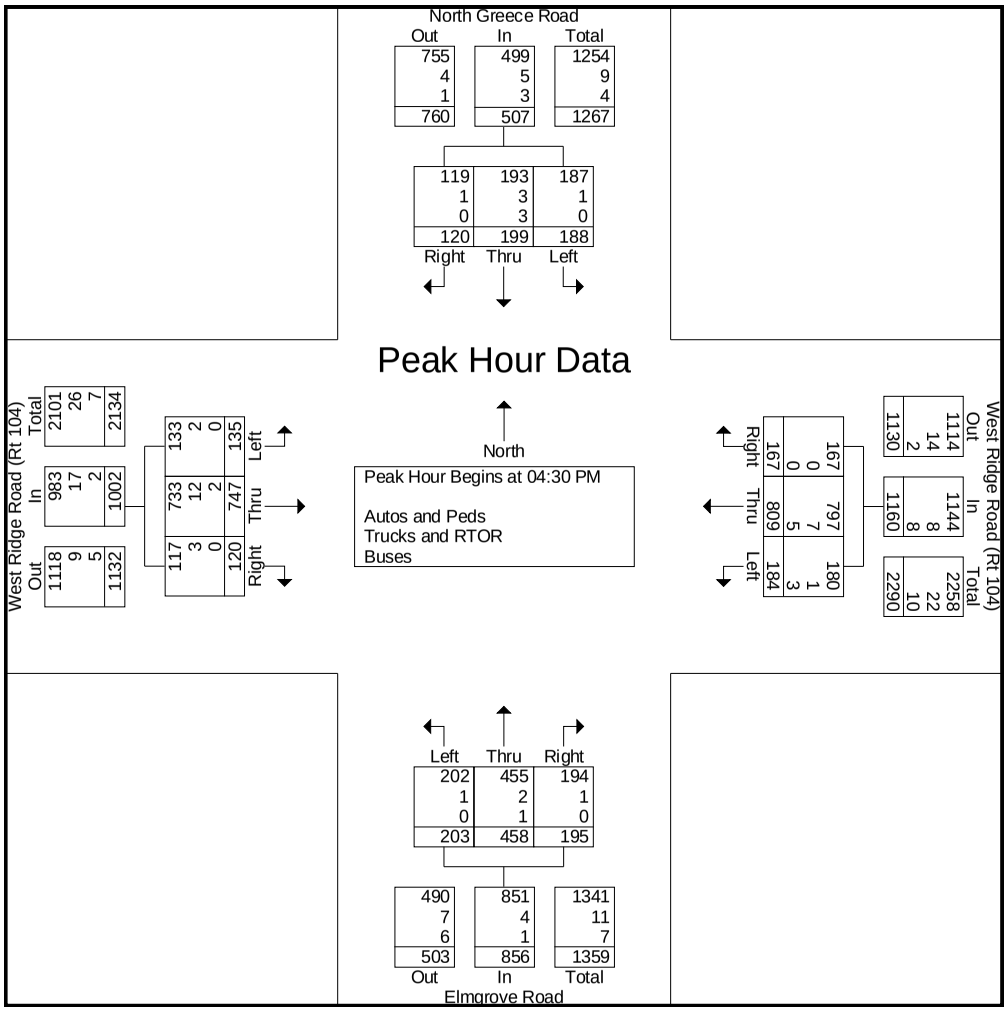
Hampton Ridge Center Traffic Impact Stud
Route 104 with Elmgrove Rd & N Greece Rd
Friday April 3, 2009
4-6 p.m.

File Name : fri apr3 104@elmgrove
Site Code : 00000005
Start Date : 4/3/2009
Page No : 3

	West Ridge Road (Rt 104) Eastbound				West Ridge Road (Rt 104) Westbound				Elmgrove Road Northbound				North Greece Road Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	31	161	22	214	44	210	41	295	53	96	40	189	**54**	39	25	118	816
04:45 PM	**40**	**207**	**34**	**281**	43	184	**46**	273	**54**	115	52	221	46	**69**	32	**147**	**922**
05:00 PM	27	190	32	249	**51**	**238**	45	**334**	52	116	**54**	222	34	37	25	96	901
05:15 PM	37	189	32	258	46	177	35	258	44	**131**	49	**224**	54	54	**38**	146	886
Total Volume	135	747	120	1002	184	809	167	1160	203	458	195	856	188	199	120	507	3525
% App. Total	13.5	74.6	12		15.9	69.7	14.4		23.7	53.5	22.8		37.1	39.3	23.7		
PHF	.844	.902	.882	.891	.902	.850	.908	.868	.940	.874	.903	.955	.870	.721	.789	.862	.956
Autos and Peds	133	733	117	983	180	797	167	1144	202	455	194	851	187	193	119	499	3477
% Autos and Peds	98.5	98.1	97.5	98.1	97.8	98.5	100	98.6	99.5	99.3	99.5	99.4	99.5	97.0	99.2	98.4	98.6
Trucks and RTOR	2	12	3	17	1	7	0	8	1	2	1	4	1	3	1	5	34
% Trucks and RTOR	1.5	1.6	2.5	1.7	0.5	0.9	0	0.7	0.5	0.4	0.5	0.5	0.5	1.5	0.8	1.0	1.0
Buses	0	2	0	2	3	5	0	8	0	1	0	1	0	3	0	3	14
% Buses	0	0.3	0	0.2	1.6	0.6	0	0.7	0	0.2	0	0.1	0	1.5	0	0.6	0.4

Hampton Ridge Center Traffic Impact Stud
Route 104 with Elmgrove Rd & N Greece Rd
Friday April 3, 2009
4-6 p.m.

File Name : fri apr3 104@elmgrove
Site Code : 00000005
Start Date : 4/3/2009
Page No : 4



Hampton Ridge Center Traffic Impact Stud
Route 104 with Elmgrove Rd & N Greece Rd
Saturday April 4, 2009
11 a.m. to 2 p.m.

File Name : sat apr4 104@elmgrove
Site Code : 00000006
Start Date : 4/4/2009
Page No : 1

Groups Printed- Autos and Peds - Trucks and RTOR - Buses

	West Ridge Road (Rt 104) Eastbound					West Ridge Road (Rt 104) Westbound					Elmgrove Road Northbound					North Greece Road Southbound							
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Exclu. Total	Inclu. Total	Int. Total
11:00 AM	34	188	23	6	245	42	148	40	9	230	29	51	49	30	129	48	52	28	20	128	65	732	797
11:15 AM	33	172	24	7	229	30	128	39	12	197	37	43	37	21	117	59	63	31	11	153	51	696	747
11:30 AM	27	223	31	8	281	46	162	37	12	245	30	51	54	45	135	55	53	41	24	149	89	810	899
11:45 AM	42	216	29	5	287	48	155	32	6	235	41	70	64	32	175	55	56	33	21	144	64	841	905
Total	136	799	107	26	1042	166	593	148	39	907	137	215	204	128	556	217	224	133	76	574	269	3079	3348
12:00 PM	28	262	30	6	320	49	200	55	6	304	27	55	69	44	151	48	47	38	20	133	76	908	984
12:15 PM	44	240	24	9	308	40	179	45	14	264	24	77	61	39	162	67	55	46	26	168	88	902	990
12:30 PM	26	231	25	7	282	62	184	51	15	297	39	69	43	26	151	49	52	42	24	143	72	873	945
12:45 PM	51	202	20	3	273	55	200	57	12	312	26	72	43	22	141	69	61	40	22	170	59	896	955
Total	149	935	99	25	1183	206	763	208	47	1177	116	273	216	131	605	233	215	166	92	614	295	3579	3874
01:00 PM	35	220	30	12	285	52	196	52	5	300	38	69	37	29	144	43	41	37	18	121	64	850	914
01:15 PM	32	240	24	1	296	54	194	49	9	297	40	94	42	23	176	63	48	41	22	152	55	921	976
01:30 PM	31	200	35	6	266	51	225	40	3	316	29	51	41	20	121	61	53	50	26	164	55	867	922
01:45 PM	63	221	22	4	306	44	181	29	9	254	22	70	48	28	140	63	48	39	18	150	59	850	909
Total	161	881	111	23	1153	201	796	170	26	1167	129	284	168	100	581	230	190	167	84	587	233	3488	3721
Grand Total	446	2615	317	74	3378	573	2152	526	112	3251	382	772	588	359	1742	680	629	466	252	1775	797	10146	10943
Apprch %	13.2	77.4	9.4			17.6	66.2	16.2			21.9	44.3	33.8			38.3	35.4	26.3					
Total %	4.4	25.8	3.1		33.3	5.6	21.2	5.2		32	3.8	7.6	5.8		17.2	6.7	6.2	4.6		17.5	7.3	92.7	
Autos and Peds	441	2601	311		3356	571	2136	520		3227	375	767	587		1732	671	624	458		1755	0	0	10070
% Autos and Peds	98.9	99.5	98.1	4.1	97.2	99.7	99.3	98.9	0	96	98.2	99.4	99.8	0.8	82.4	98.7	99.2	98.3	0.8	86.6	0	0	92
Trucks and RTOR	5	12	6		93	2	13	3		130	6	5	1		368	7	5	8		270	0	0	861
% Trucks and RTOR	1.1	0.5	1.9	94.6	2.7	0.3	0.6	0.6	100	3.9	1.6	0.6	0.2	99.2	17.5	1	0.8	1.7	99.2	13.3	0	0	7.9
Buses	0	2	0		3	0	3	3		6	1	0	0		1	2	0	0		2	0	0	12
% Buses	0	0.1	0	1.4	0.1	0	0.1	0.6	0	0.2	0.3	0	0	0	0	0.3	0	0	0	0.1	0	0	0.1

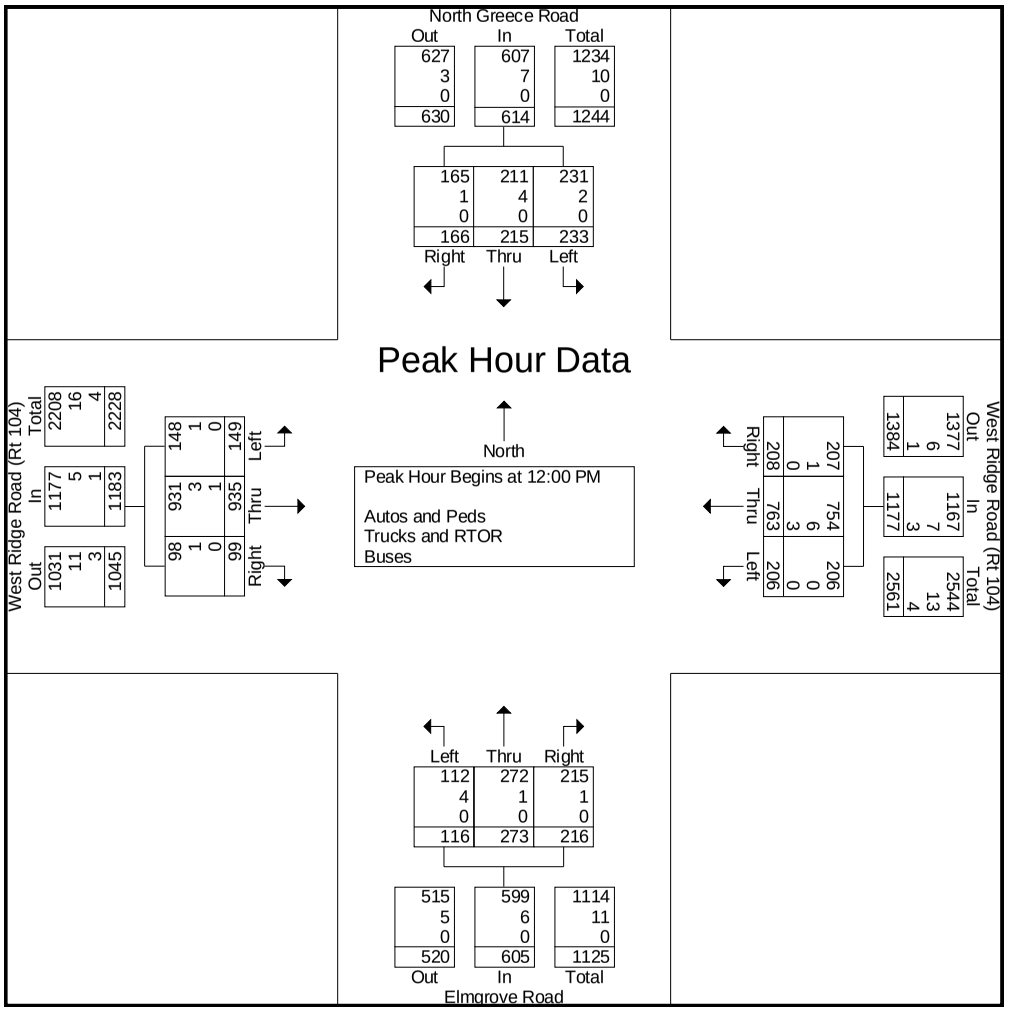
Hampton Ridge Center Traffic Impact Stud
Route 104 with Elmgrove Rd & N Greece Rd
Saturday April 4, 2009
11 a.m. to 2 p.m.

File Name : sat apr4 104@elmgrove
Site Code : 00000006
Start Date : 4/4/2009
Page No : 3

	West Ridge Road (Rt 104) Eastbound				West Ridge Road (Rt 104) Westbound				Elmgrove Road Northbound				North Greece Road Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 01:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 12:00 PM																	
12:00 PM	28	**262**	**30**	**320**	49	**200**	55	304	27	55	**69**	151	48	47	38	133	**908**
12:15 PM	44	240	24	308	40	179	45	264	24	**77**	61	**162**	67	55	**46**	168	902
12:30 PM	26	231	25	282	**62**	184	51	297	**39**	69	43	151	49	52	42	143	873
12:45 PM	**51**	202	20	273	55	200	**57**	**312**	26	72	43	141	**69**	**61**	40	**170**	896
Total Volume	149	935	99	1183	206	763	208	1177	116	273	216	605	233	215	166	614	3579
% App. Total	12.6	79	8.4		17.5	64.8	17.7		19.2	45.1	35.7		37.9	35	27		
PHF	.730	.892	.825	.924	.831	.954	.912	.943	.744	.886	.783	.934	.844	.881	.902	.903	.985
Autos and Peds	148	931	98	1177	206	754	207	1167	112	272	215	599	231	211	165	607	3550
% Autos and Peds	99.3	99.6	99.0	99.5	100	98.8	99.5	99.2	96.6	99.6	99.5	99.0	99.1	98.1	99.4	98.9	99.2
Trucks and RTOR	1	3	1	5	0	6	1	7	4	1	1	6	2	4	1	7	25
% Trucks and RTOR	0.7	0.3	1.0	0.4	0	0.8	0.5	0.6	3.4	0.4	0.5	1.0	0.9	1.9	0.6	1.1	0.7
Buses	0	1	0	1	0	3	0	3	0	0	0	0	0	0	0	0	4
% Buses	0	0.1	0	0.1	0	0.4	0	0.3	0	0	0	0	0	0	0	0	0.1

Hampton Ridge Center Traffic Impact Stud
Route 104 with Elmgrove Rd & N Greece Rd
Saturday April 4, 2009
11 a.m. to 2 p.m.

File Name : sat apr4 104@elmgrove
Site Code : 00000006
Start Date : 4/4/2009
Page No : 4



Appendix C

Detailed Synchro LOS Analysis Results

2009 Existing Conditions

Bergmann associates

DEFINITION OF LEVEL OF SERVICE FOR

SIGNALIZED INTERSECTIONS

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during ideal conditions: in the absence of traffic control, in the absence of geometric delay, in the absence of any incidents and when there are no other vehicles on the road. Only the portion of total delay attributed to the control facility is quantified. This delay is called *control delay.* Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle, typically for a 15-minute analysis period. The criteria are given in the following table. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group in question.

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (sec)
A	Less than or equal to 10.0
B	Greater than 10.0 to no more than 20.0
C	Greater than 20.0 to no more than 35.0
D	Greater than 35.0 to no more than 55.0
E	Greater than 55.0 to no more than 80.0
F	Greater than 80.0

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

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 LOS A, causing higher levels of average 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 form fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. 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 D, the influence of congestion becomes more noticeable. Longer delays may result form some combination of unfavorable progression, long cycle lengths, or high *v/c* 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. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

Level Of Service F describes operations with control delay in excess of 80 seconds per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing factors to such delay levels.

DEFINITION OF LEVEL OF SERVICE FOR

UNSIGNALIZED INTERSECTIONS

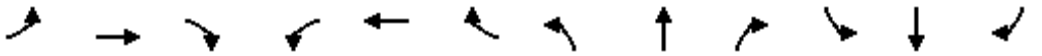
The level of service for a Two-Way-Stop-Control (TWSC) intersection is determined by the computed or measured control delay and is defined for each minor movement. Level of service is not defined for the intersection as a whole. LOS criteria are given in the accompanying table.

LEVEL OF SERVICE	CONTROL DELAY PER VEHICLE (sec)
A	Less than or equal to 10.0
B	Greater than 10.0 to no more than 15.0
C	Greater than 15.0 to no more than 25.0
D	Greater than 25.0 to no more than 35.0
E	Greater than 35.0 to no more than 50.0
F	Greater than 50.0

The LOS criteria for TWSC intersections are somewhat different than the criteria used for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection would be designed to carry higher traffic volumes than an unsignalized intersection. In addition, a number of driver behavior considerations combine to make delays at signalized intersections less onerous than delays at unsignalized intersections. Also, there is often much more variability in the amount of delay experienced by individual drivers at an unsignalized intersection versus that at signalized intersections. For these reasons, it is considered that the control delay threshold for any given level of service would be less for an unsignalized intersection than it would be for a signalized intersection.

The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during conditions with ideal geometrics and in the absence of incidents, control and traffic. This delay is called *control delay*. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

In the performance evaluation of TWSC intersections, it is important to consider other measures of effectiveness (MOE's) in addition to delay, such as v/c ratios for individual movements, average queue lengths, and 95th percentile queue lengths. By focusing on a single MOE for the worst movement only, such as delay for the minor-street left turn, inappropriate traffic control decisions may be made.

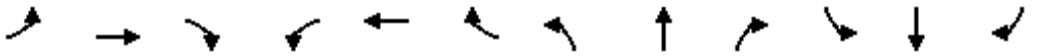


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	82	565	42	121	735	144	82	268	156	92	75	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	12	12	12	12	12	12	12
Storage Length (ft)	225		0	300		0	0		100	0		100
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	1.00			1.00				0.99
Frt		0.990			0.975				0.850			0.850
Flt Protected	0.950			0.950				0.988			0.973	
Satd. Flow (prot)	1711	3457	0	1711	3435	0	0	1840	1583	0	1812	1583
Flt Permitted	0.208			0.296				0.873			0.407	
Satd. Flow (perm)	374	3457	0	531	3435	0	0	1626	1583	0	758	1562
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									123			71
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		4300			1206			3150			2533	
Travel Time (s)		73.3			20.6			53.7			43.2	
Confl. Peds. (#/hr)	6		10	10		6	1					1
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.86	0.86	0.86	0.98	0.98	0.98
Heavy Vehicles (%)	2%	3%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	89	614	46	127	774	152	95	312	181	94	77	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	89	660	0	127	926	0	0	407	181	0	171	93
Turn Type	pm+pt			pm+pt			Perm		pm+ov	Perm		pm+ov
Protected Phases	5	2		1	6			8	1		4	5
Permitted Phases	2			6			8		8	4		4
Detector Phase	5	2		1	6		8	8	1	4	4	5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.5		9.0	21.5		27.5	27.5	9.0	27.5	27.5	9.0
Total Split (s)	15.0	40.0	0.0	15.0	40.0	0.0	35.0	35.0	15.0	35.0	35.0	15.0
Total Split (%)	16.7%	44.4%	0.0%	16.7%	44.4%	0.0%	38.9%	38.9%	16.7%	38.9%	38.9%	16.7%
Maximum Green (s)	10.0	34.5		10.0	34.5		29.5	29.5	10.0	29.5	29.5	10.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	2.0		1.5	2.0		2.0	2.0	1.5	2.0	2.0	1.5
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	0.0	-1.5	0.0	0.0	-1.5	0.0	0.0
Total Lost Time (s)	3.0	5.5	4.0	3.0	5.5	4.0	4.0	5.5	5.0	4.0	5.5	5.0
Lead/Lag	Lead	Lag		Lead	Lag				Lead			Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min	None	Min	Min	None
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)							0	0		0	0	
Act Effct Green (s)	37.1	24.4		38.6	28.0			22.8	36.9		22.8	31.3
Actuated g/C Ratio	0.51	0.34		0.53	0.39			0.31	0.51		0.31	0.43
v/c Ratio	0.24	0.57		0.28	0.70			0.79	0.21		0.72	0.13

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	9.9	22.0		10.1	23.9			37.1	5.0		43.1	4.9
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	9.9	22.0		10.1	23.9			37.1	5.0		43.1	4.9
LOS	A	C		B	C			D	A		D	A
Approach Delay		20.6			22.3			27.2			29.6	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	18	127		26	196			169	13		69	5
Queue Length 95th (ft)	41	198		56	300			299	46		#181	30
Internal Link Dist (ft)		4220			1126			3070			2453	
Turn Bay Length (ft)	225			300					100			100
Base Capacity (vph)	438	1744		498	1733			701	913		327	772
Starvation Cap Reductn	0	0		0	0			0	0		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.20	0.38		0.26	0.53			0.58	0.20		0.52	0.12

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 72.4			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 23.6		Intersection LOS: C	
Intersection Capacity Utilization 74.6%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: West Ridge Road (Rt 104) & Manitou Rd (Rt 261)



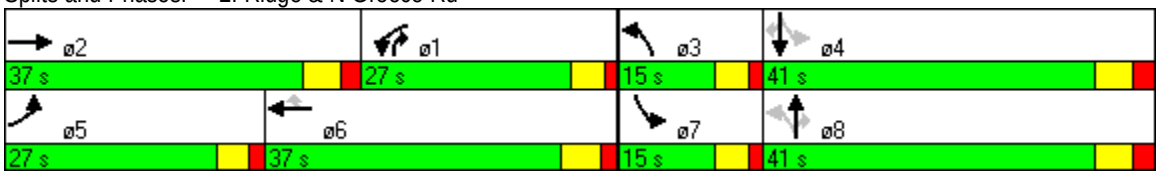
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	747	120	184	809	167	203	458	195	188	199	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	600		0	500		200	200		200	250		250
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00		0.98	1.00		0.98	1.00		0.98
Frt		0.979				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4957	0	1770	5085	1583	1770	3539	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.421			0.300		
Satd. Flow (perm)	1767	4957	0	1765	5085	1557	782	3539	1555	557	1863	1559
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		25				192			81			140
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		799			1379			882			880	
Travel Time (s)		13.6			23.5			15.0			17.1	
Confl. Peds. (#/hr)	3		4	4		3	3		5	5		3
Peak Hour Factor	0.89	0.89	0.89	0.87	0.87	0.87	0.96	0.96	0.96	0.86	0.86	0.86
Adj. Flow (vph)	152	839	135	211	930	192	211	477	203	219	231	140
Shared Lane Traffic (%)												
Lane Group Flow (vph)	152	974	0	211	930	192	211	477	203	219	231	140
Turn Type	Prot			Prot		Perm	pm+pt		pm+ov	pm+pt		Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases						6	8		8	4		4
Detector Phase	5	2		1	6	6	3	8	1	7	4	4
Switch Phase												
Minimum Initial (s)	4.0	20.0		4.0	20.0	20.0	4.0	8.0	4.0	4.0	8.0	8.0
Minimum Split (s)	9.0	28.0		9.0	28.0	28.0	9.0	36.5	9.0	9.0	36.5	36.5
Total Split (s)	27.0	37.0	0.0	27.0	37.0	37.0	15.0	41.0	27.0	15.0	41.0	41.0
Total Split (%)	22.5%	30.8%	0.0%	22.5%	30.8%	30.8%	12.5%	34.2%	22.5%	12.5%	34.2%	34.2%
Maximum Green (s)	22.0	31.0		22.0	31.0	31.0	10.0	34.5	22.0	10.0	34.5	34.5
Yellow Time (s)	3.5	4.0		3.5	4.0	4.0	3.5	4.0	3.5	3.5	4.0	4.0
All-Red Time (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.5	1.5	1.5	2.5	2.5
Lost Time Adjust (s)	-2.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	3.0	3.0	6.0	6.0	3.0	6.5	5.0	3.0	6.5	6.5
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0	4.0	2.0	4.0	2.0	2.0	4.0	4.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		15.0			15.0	15.0		23.0			23.0	23.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	16.6	42.7		24.0	50.1	50.1	38.3	22.8	46.3	38.3	22.8	22.8
Actuated g/C Ratio	0.14	0.36		0.20	0.42	0.42	0.32	0.19	0.39	0.32	0.19	0.19
v/c Ratio	0.62	0.55		0.60	0.44	0.25	0.61	0.71	0.31	0.73	0.65	0.34
Control Delay	59.2	32.1		29.7	12.5	1.5	36.9	51.3	9.8	44.7	53.5	8.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	59.2	32.1		29.7	12.5	1.5	36.9	51.3	9.8	44.7	53.5	8.5
LOS	E	C		C	B	A	D	D	A	D	D	A
Approach Delay		35.8			13.6			38.4			39.5	
Approach LOS		D			B			D			D	
Queue Length 50th (ft)	112	212		123	63	3	122	184	44	127	168	0
Queue Length 95th (ft)	172	276		180	90	10	173	228	74	170	226	45
Internal Link Dist (ft)		719			1299			802			800	
Turn Bay Length (ft)	600			500		200	200		200	250		250
Base Capacity (vph)	354	1781		354	2122	761	348	1017	655	299	536	548
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.55		0.60	0.44	0.25	0.61	0.47	0.31	0.73	0.43	0.26

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 18 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.73
Intersection Signal Delay: 29.4 Intersection LOS: C
Intersection Capacity Utilization 70.6% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 2: Ridge & N Greece Rd



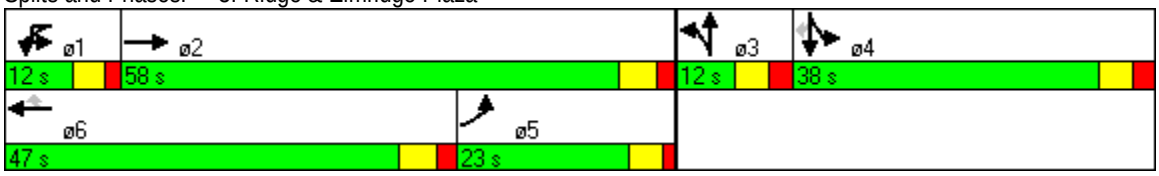
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	135	970	25	25	25	995	341	25	5	25	406	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0		200		200	75		0	0	
Storage Lanes	1		0		1		1	1		0	1	
Taper Length (ft)	25		25		25		25	25		25	25	
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.996					0.850		0.876			
Flt Protected	0.950				0.950			0.950			0.950	0.953
Satd. Flow (prot)	1770	5065	0	0	1770	5085	1583	1770	1632	0	1681	1686
Flt Permitted	0.950				0.950			0.950			0.950	0.953
Satd. Flow (perm)	1770	5065	0	0	1770	5085	1583	1770	1632	0	1681	1686
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)		4					379		28			
Link Speed (mph)		40				40			30			30
Link Distance (ft)		1379				2393			322			336
Travel Time (s)		23.5				40.8			7.3			7.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.92
Adj. Flow (vph)	150	1078	28	28	28	1106	379	28	6	28	441	5
Shared Lane Traffic (%)											49%	
Lane Group Flow (vph)	150	1106	0	0	56	1106	379	28	34	0	225	221
Turn Type	Prot			Prot	Prot		Perm	Split			Split	
Protected Phases	5	2		1	1	6		3	3		4	4
Permitted Phases							6					
Detector Phase	5	2		1	1	6	6	3	3		4	4
Switch Phase												
Minimum Initial (s)	4.0	27.0		3.0	3.0	27.0	27.0	3.0	3.0		6.0	6.0
Minimum Split (s)	9.0	33.0		8.0	8.0	33.0	33.0	10.0	10.0		35.0	35.0
Total Split (s)	23.0	58.0	0.0	12.0	12.0	47.0	47.0	12.0	12.0	0.0	38.0	38.0
Total Split (%)	19.2%	48.3%	0.0%	10.0%	10.0%	39.2%	39.2%	10.0%	10.0%	0.0%	31.7%	31.7%
Maximum Green (s)	18.0	52.0		7.0	7.0	41.0	41.0	6.0	6.0		32.0	32.0
Yellow Time (s)	3.5	4.0		3.5	3.5	4.0	4.0	3.5	3.5		3.5	3.5
All-Red Time (s)	1.5	2.0		1.5	1.5	2.0	2.0	2.5	2.5		2.5	2.5
Lost Time Adjust (s)	-2.0	0.0	-1.0	-2.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	3.0	6.0	3.0	3.0	3.0	6.0	6.0	4.0	6.0	4.0	4.0	6.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		3.0	3.0	4.0	4.0	3.0	3.0		4.0	4.0
Recall Mode	None	C-Max		None	None	C-Max	C-Max	None	None		None	None
Walk Time (s)		7.0				7.0	7.0				7.0	7.0
Flash Dont Walk (s)		20.0				20.0	20.0				22.0	22.0
Pedestrian Calls (#/hr)		0				0	0				0	0
Act Effct Green (s)	20.0	64.3			10.1	52.3	52.3	7.9	5.9		25.1	23.1
Actuated g/C Ratio	0.17	0.54			0.08	0.44	0.44	0.07	0.05		0.21	0.19
v/c Ratio	0.51	0.41			0.38	0.50	0.42	0.24	0.32		0.64	0.68
Control Delay	43.0	9.1			71.3	7.5	0.8	58.5	31.5		50.9	54.9
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	43.0	9.1			71.3	7.5	0.8	58.5	31.5		50.9	54.9
LOS	D	A			E	A	A	E	C		D	D

Lane Group	SBR
Lane Configurations	
Volume (vph)	140
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	Yes
Satd. Flow (RTOR)	152
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Adj. Flow (vph)	152
Shared Lane Traffic (%)	
Lane Group Flow (vph)	152
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	6.0
Minimum Split (s)	35.0
Total Split (s)	38.0
Total Split (%)	31.7%
Maximum Green (s)	32.0
Yellow Time (s)	3.5
All-Red Time (s)	2.5
Lost Time Adjust (s)	0.0
Total Lost Time (s)	6.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	4.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	22.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	23.1
Actuated g/C Ratio	0.19
v/c Ratio	0.36
Control Delay	8.0
Queue Delay	0.0
Total Delay	8.0
LOS	A

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Approach Delay		13.2				8.2			43.7			41.5
Approach LOS		B				A			D			D
Queue Length 50th (ft)	116	88			36	42	0	21	5		168	169
Queue Length 95th (ft)	m180	110			m43	m60	m0	52	39		235	237
Internal Link Dist (ft)		1299				2313			242			256
Turn Bay Length (ft)	200				200		200	75				
Base Capacity (vph)	295	2717			153	2216	904	118	108		476	450
Starvation Cap Reductn	0	0			0	0	0	0	0		0	0
Spillback Cap Reductn	0	0			0	0	0	0	0		0	0
Storage Cap Reductn	0	0			0	0	0	0	0		0	0
Reduced v/c Ratio	0.51	0.41			0.37	0.50	0.42	0.24	0.31		0.47	0.49

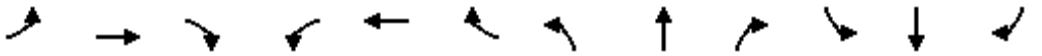
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 5 (4%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 16.4		Intersection LOS: B	
Intersection Capacity Utilization 61.4%		ICU Level of Service B	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 3: Ridge & Elmridge Plaza



Lane Group	SBR
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	51
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	534
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.28

Intersection Summary

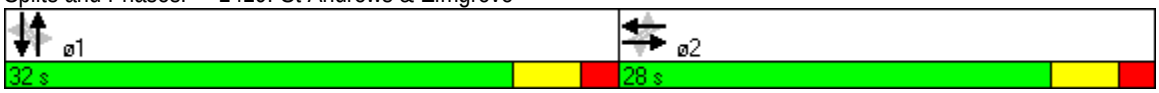


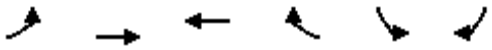
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	5	18	7	1	15	38	843	14	9	488	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	50		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00							
Frt		0.945			0.912			0.998			0.995	
Flt Protected		0.977			0.985			0.998			0.999	
Satd. Flow (prot)	0	1720	0	0	1673	0	0	1855	0	0	1852	0
Flt Permitted		0.837			0.879			0.964			0.982	
Satd. Flow (perm)	0	1473	0	0	1493	0	0	1792	0	0	1820	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			17			2			4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		477			628			1552			420	
Travel Time (s)		10.8			14.3			35.3			9.5	
Confl. Peds. (#/hr)				1								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	23	6	20	8	1	17	42	937	16	10	542	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	49	0	0	26	0	0	995	0	0	572	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Detector Phase	2	2		2	2		1	1		1	1	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	27.5	27.5		27.5	27.5		25.5	25.5		25.5	25.5	
Total Split (s)	28.0	28.0	0.0	28.0	28.0	0.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	46.7%	46.7%	0.0%	46.7%	46.7%	0.0%	53.3%	53.3%	0.0%	53.3%	53.3%	0.0%
Maximum Green (s)	22.5	22.5		22.5	22.5		26.5	26.5		26.5	26.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	0.0	-1.0	-1.0	0.0	0.0	-2.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	4.5	5.5	3.0	4.5	5.5	4.0	3.5	5.5	4.0	4.5	5.5	4.0
Lead/Lag	Lag	Lag		Lag	Lag		Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0							
Flash Dont Walk (s)	12.0	12.0		12.0	12.0							
Pedestrian Calls (#/hr)	0	0		0	0							
Act Effct Green (s)		6.5			6.5			30.0			30.0	
Actuated g/C Ratio		0.16			0.16			0.76			0.76	
v/c Ratio		0.19			0.10			0.73			0.42	
Control Delay		13.7			11.7			13.8			5.5	
Queue Delay		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		13.7			11.7			13.8			5.5	
LOS		B			B			B			A	
Approach Delay		13.7			11.7			13.8			5.5	
Approach LOS		B			B			B			A	
Queue Length 50th (ft)		7			2			174			65	
Queue Length 95th (ft)		28			17			#465			139	
Internal Link Dist (ft)		397			548			1472			340	
Turn Bay Length (ft)												
Base Capacity (vph)		868			879			1356			1377	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.06			0.03			0.73			0.42	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 39.6			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.73			
Intersection Signal Delay: 10.9		Intersection LOS: B	
Intersection Capacity Utilization 79.1%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1419: St Andrews & Elmgrove





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	75	802	955	137	136	86
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.92	0.92
Hourly flow rate (vph)	79	844	1005	144	148	93
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1149				1585	503
vC1, stage 1 conf vol					1005	
vC2, stage 2 conf vol					580	
vCu, unblocked vol	1149				1585	503
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	87				44	82
cM capacity (veh/h)	604				264	514

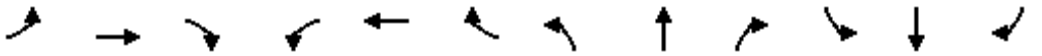
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	79	422	422	503	503	144	148	93
Volume Left	79	0	0	0	0	0	148	0
Volume Right	0	0	0	0	0	144	0	93
cSH	604	1700	1700	1700	1700	1700	264	514
Volume to Capacity	0.13	0.25	0.25	0.30	0.30	0.08	0.56	0.18
Queue Length 95th (ft)	11	0	0	0	0	0	78	16
Control Delay (s)	11.9	0.0	0.0	0.0	0.0	0.0	34.6	13.6
Lane LOS	B						D	B
Approach Delay (s)	1.0			0.0			26.5	
Approach LOS							D	

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	48	97	795	66	50	475
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.87	0.87	0.96	0.96
Hourly flow rate (vph)	53	107	914	76	52	495
Pedestrians			1			
Lane Width (ft)			12.0			
Walking Speed (ft/s)			4.0			
Percent Blockage			0			
Right turn flare (veh)		6				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1552	952			990	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1552	952			990	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	54	66			93	
cM capacity (veh/h)	116	315			698	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	159	990	547
Volume Left	53	0	52
Volume Right	107	76	0
cSH	349	1700	698
Volume to Capacity	0.46	0.58	0.07
Queue Length 95th (ft)	57	0	6
Control Delay (s)	34.7	0.0	2.0
Lane LOS	D		A
Approach Delay (s)	34.7	0.0	2.0
Approach LOS	D		

Intersection Summary			
Average Delay		3.9	
Intersection Capacity Utilization		76.7%	ICU Level of Service D
Analysis Period (min)		15	

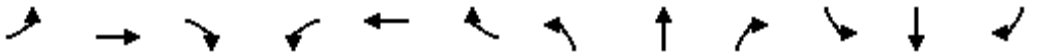


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	640	35	128	588	123	39	86	164	108	75	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	12	12	12	12	12	12	12
Storage Length (ft)	225		0	300		0	0		100	0		100
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	0.99							
Frt		0.992			0.974				0.850			0.850
Flt Protected	0.950			0.950				0.985			0.971	
Satd. Flow (prot)	1711	3503	0	1711	3425	0	0	1829	1583	0	1809	1583
Flt Permitted	0.314			0.264				0.838			0.738	
Satd. Flow (perm)	563	3503	0	474	3425	0	0	1556	1583	0	1375	1583
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									93			96
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		4077			1206			3011			2533	
Travel Time (s)		69.5			20.6			51.3			43.2	
Confl. Peds. (#/hr)	13		12	12		13						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.87	0.87	0.87	0.83	0.83	0.83
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	81	688	38	138	632	132	45	99	189	130	90	96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	81	726	0	138	764	0	0	144	189	0	220	96
Turn Type	pm+pt			pm+pt			Perm		pm+ov	Perm		pm+ov
Protected Phases	5	2		1	6			8	1		4	5
Permitted Phases	2			6			8		8	4		4
Detector Phase	5	2		1	6		8	8	1	4	4	5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.5		9.0	21.5		27.5	27.5	9.0	27.5	27.5	9.0
Total Split (s)	15.0	40.0	0.0	15.0	40.0	0.0	35.0	35.0	15.0	35.0	35.0	15.0
Total Split (%)	16.7%	44.4%	0.0%	16.7%	44.4%	0.0%	38.9%	38.9%	16.7%	38.9%	38.9%	16.7%
Maximum Green (s)	10.0	34.5		10.0	34.5		29.5	29.5	10.0	29.5	29.5	10.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	2.0		1.5	2.0		2.0	2.0	1.5	2.0	2.0	1.5
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	0.0	-1.5	0.0	0.0	-1.5	0.0	0.0
Total Lost Time (s)	3.0	5.5	4.0	3.0	5.5	4.0	4.0	5.5	5.0	4.0	5.5	5.0
Lead/Lag	Lead	Lag		Lead	Lag				Lead			Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min	None	Min	Min	None
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)							0	0		0	0	
Act Effct Green (s)	30.6	18.6		32.7	22.3			15.2	28.9		15.2	28.2
Actuated g/C Ratio	0.52	0.32		0.56	0.38			0.26	0.49		0.26	0.48
v/c Ratio	0.17	0.65		0.29	0.59			0.36	0.23		0.62	0.12

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	7.2	20.8		8.0	18.6			21.7	5.9		28.5	3.0
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	7.2	20.8		8.0	18.6			21.7	5.9		28.5	3.0
LOS	A	C		A	B			C	A		C	A
Approach Delay		19.4			17.0			12.7			20.7	
Approach LOS		B			B			B			C	
Queue Length 50th (ft)	10	108		18	114			40	16		65	0
Queue Length 95th (ft)	34	204		53	215			96	54		140	18
Internal Link Dist (ft)		3997			1126			2931			2453	
Turn Bay Length (ft)	225			300					100			100
Base Capacity (vph)	569	2165		541	2117			823	894		727	895
Starvation Cap Reductn	0	0		0	0			0	0		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.14	0.34		0.26	0.36			0.17	0.21		0.30	0.11

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 58.5			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 17.7		Intersection LOS: B	
Intersection Capacity Utilization 55.1%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: West Ridge Road (Rt 104) & Manitou Rd (Rt 261)



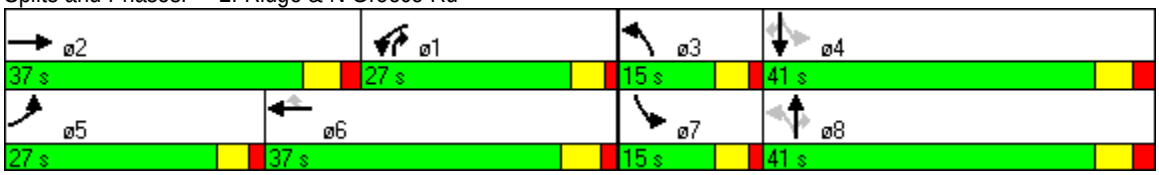
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	149	935	99	206	763	208	116	273	216	233	215	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	600		0	500		200	200		200	250		250
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00			1.00					0.99
Frt		0.986				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	5003	0	1770	5085	1583	1752	3539	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.409			0.487		
Satd. Flow (perm)	1770	5003	0	1769	5085	1583	754	3539	1583	907	1863	1562
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14				221			87			184
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		799			1379			882			1777	
Travel Time (s)		13.6			23.5			15.0			34.6	
Confl. Peds. (#/hr)			1	1			1					1
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.93	0.93	0.93	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	162	1016	108	219	812	221	125	294	232	259	239	184
Shared Lane Traffic (%)												
Lane Group Flow (vph)	162	1124	0	219	812	221	125	294	232	259	239	184
Turn Type	Prot			Prot		Perm	pm+pt		pm+ov	pm+pt		Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases						6	8		8	4		4
Detector Phase	5	2		1	6	6	3	8	1	7	4	4
Switch Phase												
Minimum Initial (s)	4.0	20.0		4.0	20.0	20.0	4.0	8.0	4.0	4.0	8.0	8.0
Minimum Split (s)	9.0	28.0		9.0	28.0	28.0	9.0	36.5	9.0	9.0	36.5	36.5
Total Split (s)	27.0	37.0	0.0	27.0	37.0	37.0	15.0	41.0	27.0	15.0	41.0	41.0
Total Split (%)	22.5%	30.8%	0.0%	22.5%	30.8%	30.8%	12.5%	34.2%	22.5%	12.5%	34.2%	34.2%
Maximum Green (s)	22.0	31.0		22.0	31.0	31.0	10.0	34.5	22.0	10.0	34.5	34.5
Yellow Time (s)	3.5	4.0		3.5	4.0	4.0	3.5	4.0	3.5	3.5	4.0	4.0
All-Red Time (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.5	1.5	1.5	2.5	2.5
Lost Time Adjust (s)	-2.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	3.0	3.0	6.0	6.0	3.0	6.5	5.0	3.0	6.5	6.5
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0	4.0	2.0	4.0	2.0	2.0	4.0	4.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		15.0			15.0	15.0		23.0			23.0	23.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	17.3	44.2		24.0	51.0	51.0	36.0	21.3	44.8	37.5	22.0	22.0
Actuated g/C Ratio	0.14	0.37		0.20	0.42	0.42	0.30	0.18	0.37	0.31	0.18	0.18
v/c Ratio	0.64	0.61		0.62	0.38	0.28	0.39	0.47	0.36	0.70	0.70	0.42
Control Delay	59.1	33.1		25.0	9.7	1.2	31.1	45.7	10.9	42.2	56.4	8.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.1	33.1		25.0	9.7	1.2	31.1	45.7	10.9	42.2	56.4	8.4
LOS	E	C		C	A	A	C	D	B	D	E	A
Approach Delay		36.4			10.9			30.5			38.1	
Approach LOS		D			B			C			D	
Queue Length 50th (ft)	120	254		128	42	1	69	108	54	156	176	0
Queue Length 95th (ft)	183	337		154	66	3	106	141	84	211	245	57
Internal Link Dist (ft)		719			1299			802			1697	
Turn Bay Length (ft)	600			500		200	200		200	250		250
Base Capacity (vph)	354	1853		354	2159	799	331	1017	645	370	536	580
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.61		0.62	0.38	0.28	0.38	0.29	0.36	0.70	0.45	0.32

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 18 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 27.4 Intersection LOS: C
Intersection Capacity Utilization 69.2% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 2: Ridge & N Greece Rd



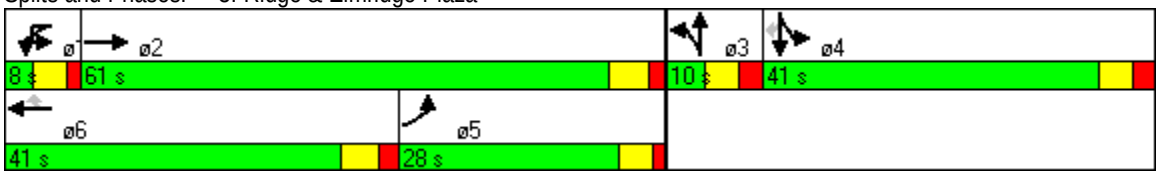
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	170	1204	10	10	10	1010	352	10	5	10	526	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0		200		200	75		0	0	
Storage Lanes	1		0		1		1	1		0	1	
Taper Length (ft)	25		25		25		25	25		25	25	
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.999					0.850		0.903			
Flt Protected	0.950				0.950			0.950			0.950	0.953
Satd. Flow (prot)	1770	5080	0	0	1770	5085	1583	1770	1682	0	1681	1686
Flt Permitted	0.950				0.950			0.950			0.950	0.953
Satd. Flow (perm)	1770	5080	0	0	1770	5085	1583	1770	1682	0	1681	1686
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)		1					362		11			
Link Speed (mph)		40				40			30			30
Link Distance (ft)		1379				2393			322			336
Travel Time (s)		23.5				40.8			7.3			7.6
Peak Hour Factor	0.93	0.93	0.93	0.90	0.93	0.93	0.93	0.90	0.90	0.90	0.92	0.92
Adj. Flow (vph)	183	1295	11	11	11	1086	378	11	6	11	572	5
Shared Lane Traffic (%)											50%	
Lane Group Flow (vph)	183	1306	0	0	22	1086	378	11	17	0	286	291
Turn Type	Prot			Prot	Prot		Perm	Split			Split	
Protected Phases	5	2		1	1	6		3	3		4	4
Permitted Phases							6					
Detector Phase	5	2		1	1	6	6	3	3		4	4
Switch Phase												
Minimum Initial (s)	4.0	27.0		3.0	3.0	27.0	27.0	3.0	3.0		6.0	6.0
Minimum Split (s)	9.0	33.0		8.0	8.0	33.0	33.0	10.0	10.0		35.0	35.0
Total Split (s)	28.0	61.0	0.0	8.0	8.0	41.0	41.0	10.0	10.0	0.0	41.0	41.0
Total Split (%)	23.3%	50.8%	0.0%	6.7%	6.7%	34.2%	34.2%	8.3%	8.3%	0.0%	34.2%	34.2%
Maximum Green (s)	23.0	55.0		3.0	3.0	35.0	35.0	4.0	4.0		35.0	35.0
Yellow Time (s)	3.5	4.0		3.5	3.5	4.0	4.0	3.5	3.5		3.5	3.5
All-Red Time (s)	1.5	2.0		1.5	1.5	2.0	2.0	2.5	2.5		2.5	2.5
Lost Time Adjust (s)	-2.0	0.0	-1.0	-2.0	-2.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	3.0	6.0	3.0	3.0	3.0	6.0	6.0	6.0	6.0	4.0	4.0	6.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		3.0	3.0	4.0	4.0	3.0	3.0		4.0	4.0
Recall Mode	None	C-Max		None	None	C-Max	C-Max	None	None		None	None
Walk Time (s)		7.0				7.0	7.0				7.0	7.0
Flash Dont Walk (s)		20.0				20.0	20.0				22.0	22.0
Pedestrian Calls (#/hr)		0				0	0				0	0
Act Effct Green (s)	25.0	68.2			7.4	46.3	46.3	4.0	4.0		29.7	27.7
Actuated g/C Ratio	0.21	0.57			0.06	0.39	0.39	0.03	0.03		0.25	0.23
v/c Ratio	0.50	0.45			0.20	0.55	0.45	0.19	0.25		0.69	0.75
Control Delay	39.4	9.0			72.8	12.2	1.5	63.7	43.5		49.1	54.4
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	39.4	9.0			72.8	12.2	1.5	63.7	43.5		49.1	54.4
LOS	D	A			E	B	A	E	D		D	D

Lane Group	SBR
Lane Configurations	
Volume (vph)	157
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	Yes
Satd. Flow (RTOR)	171
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Adj. Flow (vph)	171
Shared Lane Traffic (%)	
Lane Group Flow (vph)	171
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	6.0
Minimum Split (s)	35.0
Total Split (s)	41.0
Total Split (%)	34.2%
Maximum Green (s)	35.0
Yellow Time (s)	3.5
All-Red Time (s)	2.5
Lost Time Adjust (s)	0.0
Total Lost Time (s)	6.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	4.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	22.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	27.7
Actuated g/C Ratio	0.23
v/c Ratio	0.34
Control Delay	6.8
Queue Delay	0.0
Total Delay	6.8
LOS	A

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Approach Delay		12.8				10.3			51.5			41.5
Approach LOS		B				B			D			D
Queue Length 50th (ft)	141	219			14	120	10	8	5		210	220
Queue Length 95th (ft)	m213	118			m18	m115	m0	29	30		289	304
Internal Link Dist (ft)		1299				2313			242			256
Turn Bay Length (ft)	200				200		200	75				
Base Capacity (vph)	369	2888			109	1962	833	59	67		518	492
Starvation Cap Reductn	0	0			0	0	0	0	0		0	0
Spillback Cap Reductn	0	0			0	0	0	0	0		0	0
Storage Cap Reductn	0	0			0	0	0	0	0		0	0
Reduced v/c Ratio	0.50	0.45			0.20	0.55	0.45	0.19	0.25		0.55	0.59

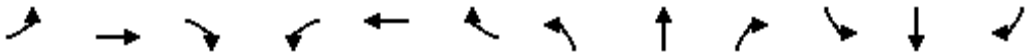
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 5 (4%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 17.8		Intersection LOS: B	
Intersection Capacity Utilization 66.6%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 3: Ridge & Elmridge Plaza



Lane Group	SBR
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	52
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	583
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.29

Intersection Summary

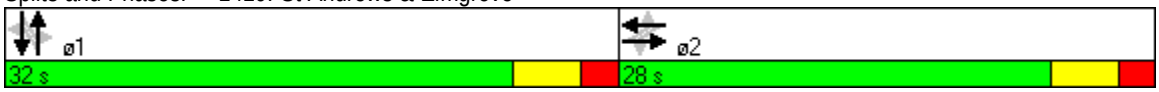


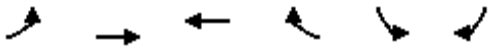
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	4	23	7	3	13	31	564	14	9	487	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	50		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.928			0.924			0.997			0.991	
Flt Protected		0.982			0.985			0.997			0.999	
Satd. Flow (prot)	0	1698	0	0	1695	0	0	1852	0	0	1844	0
Flt Permitted		0.865			0.877			0.955			0.988	
Satd. Flow (perm)	0	1495	0	0	1509	0	0	1774	0	0	1824	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33			17			3			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1310			1320			2750			1240	
Travel Time (s)		29.8			30.0			62.5			28.2	
Peak Hour Factor	0.70	0.70	0.70	0.75	0.75	0.75	0.88	0.88	0.88	0.86	0.86	0.86
Adj. Flow (vph)	23	6	33	9	4	17	35	641	16	10	566	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	62	0	0	30	0	0	692	0	0	616	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Detector Phase	2	2		2	2		1	1		1	1	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	27.5	27.5		27.5	27.5		25.5	25.5		25.5	25.5	
Total Split (s)	28.0	28.0	0.0	28.0	28.0	0.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	46.7%	46.7%	0.0%	46.7%	46.7%	0.0%	53.3%	53.3%	0.0%	53.3%	53.3%	0.0%
Maximum Green (s)	22.5	22.5		22.5	22.5		26.5	26.5		26.5	26.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	0.0	-1.0	-1.0	0.0	-1.0	-2.0	0.0	-1.0	-1.0	0.0	-1.0
Total Lost Time (s)	4.5	5.5	3.0	4.5	5.5	3.0	3.5	5.5	3.0	4.5	5.5	3.0
Lead/Lag	Lag	Lag		Lag	Lag		Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0							
Flash Dont Walk (s)	12.0	12.0		12.0	12.0							
Pedestrian Calls (#/hr)	0	0		0	0							
Act Effct Green (s)		7.3			7.3			25.9			25.9	
Actuated g/C Ratio		0.21			0.21			0.75			0.75	
v/c Ratio		0.18			0.09			0.52			0.45	
Control Delay		11.6			11.8			6.8			5.9	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		11.6			11.8			6.8			5.9	
LOS		B			B			A			A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		11.6			11.8			6.8			5.9	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		6			3			88			71	
Queue Length 95th (ft)		21			15			188			144	
Internal Link Dist (ft)		1230			1240			2670			1160	
Turn Bay Length (ft)												
Base Capacity (vph)		1063			1068			1347			1386	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.06			0.03			0.51			0.44	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 34.4			
Natural Cycle: 60			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.52			
Intersection Signal Delay: 6.7		Intersection LOS: A	
Intersection Capacity Utilization 60.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1419: St Andrews & Elmgrove





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	137	865	784	214	229	103
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	144	911	825	225	241	108
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1051				1569	413
vC1, stage 1 conf vol					825	
vC2, stage 2 conf vol					744	
vCu, unblocked vol	1051				1569	413
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	78				7	82
cM capacity (veh/h)	658				260	588

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	144	455	455	413	413	225	241	108
Volume Left	144	0	0	0	0	0	241	0
Volume Right	0	0	0	0	0	225	0	108
cSH	658	1700	1700	1700	1700	1700	260	588
Volume to Capacity	0.22	0.27	0.27	0.24	0.24	0.13	0.93	0.18
Queue Length 95th (ft)	21	0	0	0	0	0	210	17
Control Delay (s)	12.0	0.0	0.0	0.0	0.0	0.0	80.1	12.5
Lane LOS	B						F	B
Approach Delay (s)	1.6			0.0			59.1	
Approach LOS							F	

Intersection Summary			
Average Delay	9.1		
Intersection Capacity Utilization	51.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	62	69	528	78	42	511
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.74	0.74	0.84	0.84	0.95	0.95
Hourly flow rate (vph)	84	93	629	93	44	538
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1301	675			721	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1301	675			721	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	50	79			95	
cM capacity (veh/h)	169	454			880	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	177	721	582
Volume Left	84	0	44
Volume Right	93	93	0
cSH	356	1700	880
Volume to Capacity	0.50	0.42	0.05
Queue Length 95th (ft)	66	0	4
Control Delay (s)	29.5	0.0	1.3
Lane LOS	D		A
Approach Delay (s)	29.5	0.0	1.3
Approach LOS	D		

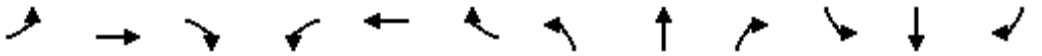
Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

Appendix D

Detailed Synchro LOS Analysis Results

2009 No Build Conditions

Bergmann associates



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	107	590	42	135	770	220	82	370	172	166	95	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	12	12	12	12	12	12	12
Storage Length (ft)	225		0	300		0	0		100	0		100
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	0.99			1.00				0.99
Frt		0.990			0.967				0.850			0.850
Flt Protected	0.950			0.950				0.991			0.969	
Satd. Flow (prot)	1711	3458	0	1711	3401	0	0	1846	1583	0	1805	1583
Flt Permitted	0.124			0.292				0.808			0.228	
Satd. Flow (perm)	223	3458	0	524	3401	0	0	1505	1583	0	425	1562
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									111			62
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		4300			1206			3150			2533	
Travel Time (s)		73.3			20.6			53.7			43.2	
Confl. Peds. (#/hr)	6		10	10		6	1					1
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.86	0.86	0.86	0.98	0.98	0.98
Heavy Vehicles (%)	2%	3%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	116	641	46	142	811	232	95	430	200	169	97	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	116	687	0	142	1043	0	0	525	200	0	266	111
Turn Type	pm+pt			pm+pt			Perm		pm+ov	Perm		pm+ov
Protected Phases	5	2		1	6			8	1		4	5
Permitted Phases	2			6			8		8	4		4
Detector Phase	5	2		1	6		8	8	1	4	4	5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.5		9.0	21.5		27.5	27.5	9.0	27.5	27.5	9.0
Total Split (s)	15.0	40.0	0.0	15.0	40.0	0.0	35.0	35.0	15.0	35.0	35.0	15.0
Total Split (%)	16.7%	44.4%	0.0%	16.7%	44.4%	0.0%	38.9%	38.9%	16.7%	38.9%	38.9%	16.7%
Maximum Green (s)	10.0	34.5		10.0	34.5		29.5	29.5	10.0	29.5	29.5	10.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	2.0		1.5	2.0		2.0	2.0	1.5	2.0	2.0	1.5
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	0.0	-1.5	0.0	0.0	-1.5	0.0	0.0
Total Lost Time (s)	3.0	5.5	4.0	3.0	5.5	4.0	4.0	5.5	5.0	4.0	5.5	5.0
Lead/Lag	Lead	Lag		Lead	Lag				Lead			Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min	None	Min	Min	None
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)							0	0		0	0	
Act Effct Green (s)	43.4	30.3		43.4	30.3			29.6	43.8		29.6	38.7
Actuated g/C Ratio	0.51	0.36		0.51	0.36			0.35	0.52		0.35	0.46
v/c Ratio	0.39	0.55		0.34	0.86			1.00	0.23		1.79	0.15

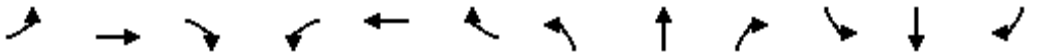
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	13.0	23.6		11.5	33.2			69.3	6.4		403.8	6.6
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	13.0	23.6		11.5	33.2			69.3	6.4		403.8	6.6
LOS	B	C		B	C			E	A		F	A
Approach Delay		22.1			30.6			51.9			286.9	
Approach LOS		C			C			D			F	
Queue Length 50th (ft)	28	151		34	267			~311	24		~223	13
Queue Length 95th (ft)	52	208		62	353			#489	58		#385	41
Internal Link Dist (ft)		4220			1126			3070			2453	
Turn Bay Length (ft)	225			300					100			100
Base Capacity (vph)	330	1417		446	1394			527	898		149	777
Starvation Cap Reductn	0	0		0	0			0	0		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.35	0.48		0.32	0.75			1.00	0.22		1.79	0.14

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 84.6			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.79			
Intersection Signal Delay: 64.7		Intersection LOS: E	
Intersection Capacity Utilization 89.8%		ICU Level of Service E	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: West Ridge Road (Rt 104) & Manitou Rd (Rt 261)

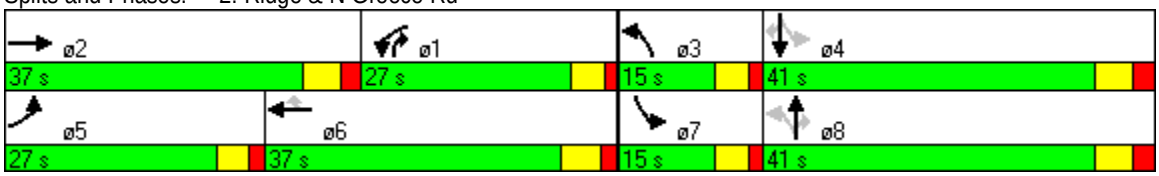


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	191	821	140	184	877	200	230	486	195	232	237	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	600		0	500		200	200		200	250		250
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00		0.98	1.00		0.98	1.00		0.98
Frt		0.978				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4951	0	1770	5085	1583	1770	3539	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.352			0.291		
Satd. Flow (perm)	1767	4951	0	1765	5085	1557	654	3539	1555	541	1863	1559
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27				227			56			207
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		799			1379			882			880	
Travel Time (s)		13.6			23.5			15.0			17.1	
Confl. Peds. (#/hr)	3		4	4		3	3		5	5		3
Peak Hour Factor	0.89	0.89	0.89	0.87	0.87	0.87	0.96	0.96	0.96	0.86	0.86	0.86
Adj. Flow (vph)	215	922	157	211	1008	230	240	506	203	270	276	207
Shared Lane Traffic (%)												
Lane Group Flow (vph)	215	1079	0	211	1008	230	240	506	203	270	276	207
Turn Type	Prot			Prot		Perm	pm+pt		pm+ov	pm+pt		Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases						6	8		8	4		4
Detector Phase	5	2		1	6	6	3	8	1	7	4	4
Switch Phase												
Minimum Initial (s)	4.0	20.0		4.0	20.0	20.0	4.0	8.0	4.0	4.0	8.0	8.0
Minimum Split (s)	9.0	28.0		9.0	28.0	28.0	9.0	36.5	9.0	9.0	36.5	36.5
Total Split (s)	27.0	37.0	0.0	27.0	37.0	37.0	15.0	41.0	27.0	15.0	41.0	41.0
Total Split (%)	22.5%	30.8%	0.0%	22.5%	30.8%	30.8%	12.5%	34.2%	22.5%	12.5%	34.2%	34.2%
Maximum Green (s)	22.0	31.0		22.0	31.0	31.0	10.0	34.5	22.0	10.0	34.5	34.5
Yellow Time (s)	3.5	4.0		3.5	4.0	4.0	3.5	4.0	3.5	3.5	4.0	4.0
All-Red Time (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.5	1.5	1.5	2.5	2.5
Lost Time Adjust (s)	-2.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	3.0	3.0	6.0	6.0	3.0	6.5	5.0	3.0	6.5	6.5
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0	4.0	2.0	4.0	2.0	2.0	4.0	4.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		15.0			15.0	15.0		23.0			23.0	23.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	20.5	40.8		24.0	44.3	44.3	40.2	24.7	48.2	40.2	24.7	24.7
Actuated g/C Ratio	0.17	0.34		0.20	0.37	0.37	0.34	0.21	0.40	0.34	0.21	0.21
v/c Ratio	0.71	0.63		0.60	0.54	0.32	0.73	0.69	0.31	0.89	0.72	0.43
Control Delay	59.6	35.4		29.3	15.6	1.9	41.6	48.8	10.9	60.5	54.6	7.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	59.6	35.4		29.3	15.6	1.9	41.6	48.8	10.9	60.5	54.6	7.5
LOS	E	D		C	B	A	D	D	B	E	D	A
Approach Delay		39.4			15.4			38.9			43.8	
Approach LOS		D			B			D			D	
Queue Length 50th (ft)	158	247		123	70	4	138	194	52	158	203	0
Queue Length 95th (ft)	229	327		178	188	12	185	231	76	#215	258	50
Internal Link Dist (ft)		719			1299			802			800	
Turn Bay Length (ft)	600			500		200	200		200	250		250
Base Capacity (vph)	360	1700		354	1875	717	331	1017	664	304	536	596
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.63		0.60	0.54	0.32	0.73	0.50	0.31	0.89	0.51	0.35

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 18 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 85			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 32.2		Intersection LOS: C	
Intersection Capacity Utilization 74.4%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 2: Ridge & N Greece Rd



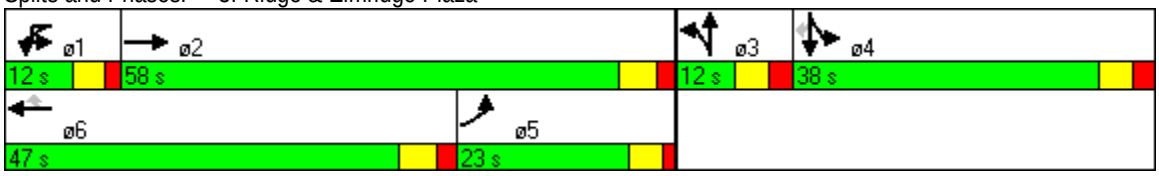
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	144	1079	25	25	25	1087	341	25	5	25	406	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0		200		200	75		0	0	
Storage Lanes	1		0		1		1	1		0	1	
Taper Length (ft)	25		25		25		25	25		25	25	
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.997					0.850		0.876			
Flt Protected	0.950				0.950			0.950			0.950	0.953
Satd. Flow (prot)	1770	5070	0	0	1770	5085	1583	1770	1632	0	1681	1686
Flt Permitted	0.950				0.950			0.950			0.950	0.953
Satd. Flow (perm)	1770	5070	0	0	1770	5085	1583	1770	1632	0	1681	1686
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)		4					352		28			
Link Speed (mph)		40				40			30			30
Link Distance (ft)		1379				2393			322			336
Travel Time (s)		23.5				40.8			7.3			7.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.92
Adj. Flow (vph)	160	1199	28	28	28	1208	379	28	6	28	441	5
Shared Lane Traffic (%)											49%	
Lane Group Flow (vph)	160	1227	0	0	56	1208	379	28	34	0	225	221
Turn Type	Prot			Prot	Prot		Perm	Split			Split	
Protected Phases	5	2		1	1	6		3	3		4	4
Permitted Phases							6					
Detector Phase	5	2		1	1	6	6	3	3		4	4
Switch Phase												
Minimum Initial (s)	4.0	27.0		3.0	3.0	27.0	27.0	3.0	3.0		6.0	6.0
Minimum Split (s)	9.0	33.0		8.0	8.0	33.0	33.0	10.0	10.0		35.0	35.0
Total Split (s)	23.0	58.0	0.0	12.0	12.0	47.0	47.0	12.0	12.0	0.0	38.0	38.0
Total Split (%)	19.2%	48.3%	0.0%	10.0%	10.0%	39.2%	39.2%	10.0%	10.0%	0.0%	31.7%	31.7%
Maximum Green (s)	18.0	52.0		7.0	7.0	41.0	41.0	6.0	6.0		32.0	32.0
Yellow Time (s)	3.5	4.0		3.5	3.5	4.0	4.0	3.5	3.5		3.5	3.5
All-Red Time (s)	1.5	2.0		1.5	1.5	2.0	2.0	2.5	2.5		2.5	2.5
Lost Time Adjust (s)	-2.0	0.0	-1.0	-2.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	3.0	6.0	3.0	3.0	3.0	6.0	6.0	4.0	6.0	4.0	4.0	6.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		3.0	3.0	4.0	4.0	3.0	3.0		4.0	4.0
Recall Mode	None	C-Max		None	None	C-Max	C-Max	None	None		None	None
Walk Time (s)		7.0				7.0	7.0				7.0	7.0
Flash Dont Walk (s)		20.0				20.0	20.0				22.0	22.0
Pedestrian Calls (#/hr)		0				0	0				0	0
Act Effct Green (s)	20.0	64.3			10.1	52.3	52.3	7.9	5.9		25.1	23.1
Actuated g/C Ratio	0.17	0.54			0.08	0.44	0.44	0.07	0.05		0.21	0.19
v/c Ratio	0.54	0.45			0.38	0.55	0.43	0.24	0.32		0.64	0.68
Control Delay	41.7	8.8			71.3	7.7	0.8	58.5	31.5		50.9	54.9
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	41.7	8.8			71.3	7.7	0.8	58.5	31.5		50.9	54.9
LOS	D	A			E	A	A	E	C		D	D

Lane Group	SBR
Lane Configurations	
Volume (vph)	149
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	Yes
Satd. Flow (RTOR)	162
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Adj. Flow (vph)	162
Shared Lane Traffic (%)	
Lane Group Flow (vph)	162
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	6.0
Minimum Split (s)	35.0
Total Split (s)	38.0
Total Split (%)	31.7%
Maximum Green (s)	32.0
Yellow Time (s)	3.5
All-Red Time (s)	2.5
Lost Time Adjust (s)	0.0
Total Lost Time (s)	6.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	4.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	22.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	23.1
Actuated g/C Ratio	0.19
v/c Ratio	0.37
Control Delay	7.9
Queue Delay	0.0
Total Delay	7.9
LOS	A

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Approach Delay		12.6				8.3			43.7			40.9
Approach LOS		B				A			D			D
Queue Length 50th (ft)	124	102			36	50	0	21	5		168	169
Queue Length 95th (ft)	m184	m126			m43	m65	m0	52	39		235	237
Internal Link Dist (ft)		1299				2313			242			256
Turn Bay Length (ft)	200				200		200	75				
Base Capacity (vph)	295	2719			153	2216	888	118	108		476	450
Starvation Cap Reductn	0	0			0	0	0	0	0		0	0
Spillback Cap Reductn	0	0			0	0	0	0	0		0	0
Storage Cap Reductn	0	0			0	0	0	0	0		0	0
Reduced v/c Ratio	0.54	0.45			0.37	0.55	0.43	0.24	0.31		0.47	0.49

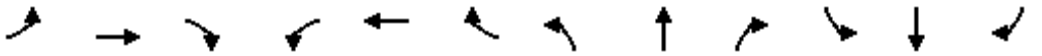
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 5 (4%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 15.9		Intersection LOS: B	
Intersection Capacity Utilization 61.9%		ICU Level of Service B	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 3: Ridge & Elmridge Plaza



Lane Group	SBR
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	53
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	541
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.30

Intersection Summary

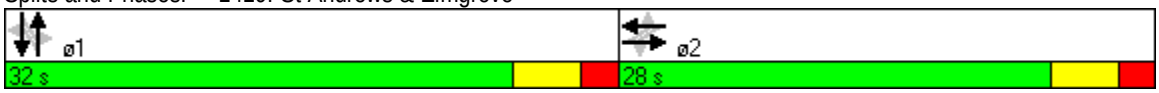


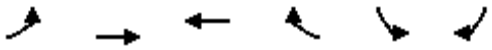
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	5	18	7	1	20	38	888	14	13	537	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	50		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00							
Frt		0.951			0.904			0.998			0.994	
Flt Protected		0.974			0.987			0.998			0.999	
Satd. Flow (prot)	0	1725	0	0	1662	0	0	1855	0	0	1850	0
Flt Permitted		0.818			0.894			0.962			0.973	
Satd. Flow (perm)	0	1449	0	0	1505	0	0	1788	0	0	1802	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			22			2			5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		477			628			1552			420	
Travel Time (s)		10.8			14.3			35.3			9.5	
Confl. Peds. (#/hr)				1								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	29	6	20	8	1	22	42	987	16	14	597	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	55	0	0	31	0	0	1045	0	0	637	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Detector Phase	2	2		2	2		1	1		1	1	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	27.5	27.5		27.5	27.5		25.5	25.5		25.5	25.5	
Total Split (s)	28.0	28.0	0.0	28.0	28.0	0.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	46.7%	46.7%	0.0%	46.7%	46.7%	0.0%	53.3%	53.3%	0.0%	53.3%	53.3%	0.0%
Maximum Green (s)	22.5	22.5		22.5	22.5		26.5	26.5		26.5	26.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	0.0	-1.0	-1.0	0.0	0.0	-2.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	4.5	5.5	3.0	4.5	5.5	4.0	3.5	5.5	4.0	4.5	5.5	4.0
Lead/Lag	Lag	Lag		Lag	Lag		Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0							
Flash Dont Walk (s)	12.0	12.0		12.0	12.0							
Pedestrian Calls (#/hr)	0	0		0	0							
Act Effct Green (s)		6.6			6.6			30.0			30.0	
Actuated g/C Ratio		0.17			0.17			0.76			0.76	
v/c Ratio		0.21			0.11			0.77			0.47	
Control Delay		14.2			10.9			15.8			6.2	
Queue Delay		0.0			0.0			0.0			0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		14.2			10.9			15.8			6.2	
LOS		B			B			B			A	
Approach Delay		14.2			10.9			15.8			6.2	
Approach LOS		B			B			B			A	
Queue Length 50th (ft)		8			2			200			78	
Queue Length 95th (ft)		30			18			#504			169	
Internal Link Dist (ft)		397			548			1472			340	
Turn Bay Length (ft)												
Base Capacity (vph)		852			885			1350			1361	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.06			0.04			0.77			0.47	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 39.7			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.77			
Intersection Signal Delay: 12.2		Intersection LOS: B	
Intersection Capacity Utilization 80.9%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1419: St Andrews & Elmgrove

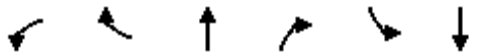




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	115	877	1034	211	213	134
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.92	0.92
Hourly flow rate (vph)	121	923	1088	222	232	146
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1311				1792	544
vC1, stage 1 conf vol					1088	
vC2, stage 2 conf vol					704	
vCu, unblocked vol	1311				1792	544
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	77				0	70
cM capacity (veh/h)	524				220	483

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	121	462	462	544	544	222	232	146
Volume Left	121	0	0	0	0	0	232	0
Volume Right	0	0	0	0	0	222	0	146
cSH	524	1700	1700	1700	1700	1700	220	483
Volume to Capacity	0.23	0.27	0.27	0.32	0.32	0.13	1.05	0.30
Queue Length 95th (ft)	22	0	0	0	0	0	251	31
Control Delay (s)	13.9	0.0	0.0	0.0	0.0	0.0	121.5	15.6
Lane LOS	B						F	C
Approach Delay (s)	1.6			0.0			80.6	
Approach LOS							F	

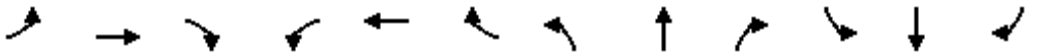
Intersection Summary			
Average Delay	11.8		
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	48	105	832	66	61	513
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.87	0.87	0.96	0.96
Hourly flow rate (vph)	53	115	956	76	64	534
Pedestrians			1			
Lane Width (ft)			12.0			
Walking Speed (ft/s)			4.0			
Percent Blockage			0			
Right turn flare (veh)		6				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1657	994			1032	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1657	994			1032	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	46	61			91	
cM capacity (veh/h)	97	297			673	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	168	1032	598
Volume Left	53	0	64
Volume Right	115	76	0
cSH	310	1700	673
Volume to Capacity	0.54	0.61	0.09
Queue Length 95th (ft)	76	0	8
Control Delay (s)	41.6	0.0	2.5
Lane LOS	E		A
Approach Delay (s)	41.6	0.0	2.5
Approach LOS	E		

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		



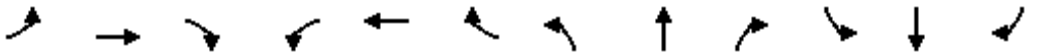
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	91	712	35	149	641	181	39	140	191	192	140	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	12	12	12	12	12	12	12
Storage Length (ft)	225		0	300		0	0		100	0		100
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	0.99							
Frt		0.993			0.967				0.850			0.850
Flt Protected	0.950			0.950				0.989			0.972	
Satd. Flow (prot)	1711	3507	0	1711	3395	0	0	1838	1583	0	1811	1583
Flt Permitted	0.179			0.198				0.804			0.685	
Satd. Flow (perm)	321	3507	0	355	3395	0	0	1494	1583	0	1276	1583
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									70			92
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		4077			1206			3011			2533	
Travel Time (s)		69.5			20.6			51.3			43.2	
Confl. Peds. (#/hr)	13		12	12		13						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.87	0.87	0.87	0.83	0.83	0.83
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	98	766	38	160	689	195	45	161	220	231	169	124
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	804	0	160	884	0	0	206	220	0	400	124
Turn Type	pm+pt			pm+pt			Perm		pm+ov	Perm		pm+ov
Protected Phases	5	2		1	6			8	1		4	5
Permitted Phases	2			6			8		8	4		4
Detector Phase	5	2		1	6		8	8	1	4	4	5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.5		9.0	21.5		27.5	27.5	9.0	27.5	27.5	9.0
Total Split (s)	15.0	40.0	0.0	15.0	40.0	0.0	35.0	35.0	15.0	35.0	35.0	15.0
Total Split (%)	16.7%	44.4%	0.0%	16.7%	44.4%	0.0%	38.9%	38.9%	16.7%	38.9%	38.9%	16.7%
Maximum Green (s)	10.0	34.5		10.0	34.5		29.5	29.5	10.0	29.5	29.5	10.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	2.0		1.5	2.0		2.0	2.0	1.5	2.0	2.0	1.5
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	0.0	-1.5	0.0	0.0	-1.5	0.0	0.0
Total Lost Time (s)	3.0	5.5	4.0	3.0	5.5	4.0	4.0	5.5	5.0	4.0	5.5	5.0
Lead/Lag	Lead	Lag		Lead	Lag				Lead			Lead
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min	None	Min	Min	None
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)							0	0		0	0	
Act Effct Green (s)	37.9	25.5		39.9	26.5			29.7	44.1		29.7	43.1
Actuated g/C Ratio	0.47	0.32		0.50	0.33			0.37	0.55		0.37	0.54
v/c Ratio	0.30	0.72		0.44	0.79			0.37	0.24		0.85	0.14

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	11.8	28.1		13.8	29.9			22.7	8.0		44.0	4.5
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	11.8	28.1		13.8	29.9			22.7	8.0		44.0	4.5
LOS	B	C		B	C			C	A		D	A
Approach Delay		26.3			27.4			15.1			34.6	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)	23	186		39	206			75	35		182	7
Queue Length 95th (ft)	45	249		69	284			148	83		#354	31
Internal Link Dist (ft)		3997			1126			2931			2453	
Turn Bay Length (ft)	225			300					100			100
Base Capacity (vph)	370	1519		385	1470			553	925		473	934
Starvation Cap Reductn	0	0		0	0			0	0		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.26	0.53		0.42	0.60			0.37	0.24		0.85	0.13

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 80.2			
Natural Cycle: 65			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.85			
Intersection Signal Delay: 26.6		Intersection LOS: C	
Intersection Capacity Utilization 73.7%		ICU Level of Service D	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: West Ridge Road (Rt 104) & Manitou Rd (Rt 261)



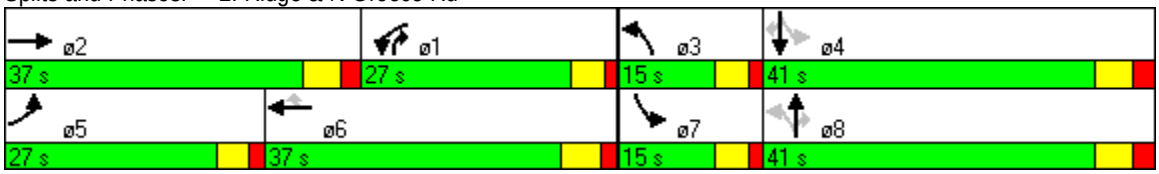
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	239	1066	150	206	879	243	154	291	216	267	232	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	600		0	500		200	200		200	250		250
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00			1.00					0.99
Frt		0.982				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4980	0	1770	5085	1583	1752	3539	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.376			0.483		
Satd. Flow (perm)	1770	4980	0	1769	5085	1583	693	3539	1583	900	1863	1562
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21				259			70			274
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		799			1379			882			1777	
Travel Time (s)		13.6			23.5			15.0			34.6	
Confl. Peds. (#/hr)			1	1			1					1
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.93	0.93	0.93	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	260	1159	163	219	935	259	166	313	232	297	258	274
Shared Lane Traffic (%)												
Lane Group Flow (vph)	260	1322	0	219	935	259	166	313	232	297	258	274
Turn Type	Prot			Prot		Perm	pm+pt		pm+ov	pm+pt		Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases						6	8		8	4		4
Detector Phase	5	2		1	6	6	3	8	1	7	4	4
Switch Phase												
Minimum Initial (s)	4.0	20.0		4.0	20.0	20.0	4.0	8.0	4.0	4.0	8.0	8.0
Minimum Split (s)	9.0	28.0		9.0	28.0	28.0	9.0	36.5	9.0	9.0	36.5	36.5
Total Split (s)	27.0	37.0	0.0	27.0	37.0	37.0	15.0	41.0	27.0	15.0	41.0	41.0
Total Split (%)	22.5%	30.8%	0.0%	22.5%	30.8%	30.8%	12.5%	34.2%	22.5%	12.5%	34.2%	34.2%
Maximum Green (s)	22.0	31.0		22.0	31.0	31.0	10.0	34.5	22.0	10.0	34.5	34.5
Yellow Time (s)	3.5	4.0		3.5	4.0	4.0	3.5	4.0	3.5	3.5	4.0	4.0
All-Red Time (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.5	1.5	1.5	2.5	2.5
Lost Time Adjust (s)	-2.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	3.0	3.0	6.0	6.0	3.0	6.5	5.0	3.0	6.5	6.5
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0	4.0	2.0	4.0	2.0	2.0	4.0	4.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		15.0			15.0	15.0		23.0			23.0	23.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	23.2	42.4		24.0	43.2	43.2	38.3	23.1	46.6	38.9	23.4	23.4
Actuated g/C Ratio	0.19	0.35		0.20	0.36	0.36	0.32	0.19	0.39	0.32	0.20	0.20
v/c Ratio	0.76	0.75		0.62	0.51	0.35	0.51	0.46	0.35	0.78	0.71	0.52
Control Delay	60.1	37.7		24.3	12.6	1.8	32.9	44.1	11.4	46.7	55.4	8.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.1	37.7		24.3	12.6	1.8	32.9	44.1	11.4	46.7	55.4	8.0
LOS	E	D		C	B	A	C	D	B	D	E	A
Approach Delay		41.4			12.5			30.8			36.7	
Approach LOS		D			B			C			D	
Queue Length 50th (ft)	190	325		126	50	1	92	113	59	178	188	0
Queue Length 95th (ft)	277	#450		137	90	8	132	145	86	235	259	66
Internal Link Dist (ft)		719			1299			802			1697	
Turn Bay Length (ft)	600			500		200	200		200	250		250
Base Capacity (vph)	373	1772		354	1830	735	329	1017	658	379	536	644
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.75		0.62	0.51	0.35	0.50	0.31	0.35	0.78	0.48	0.43

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 18 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 29.9 Intersection LOS: C
Intersection Capacity Utilization 75.3% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Ridge & N Greece Rd



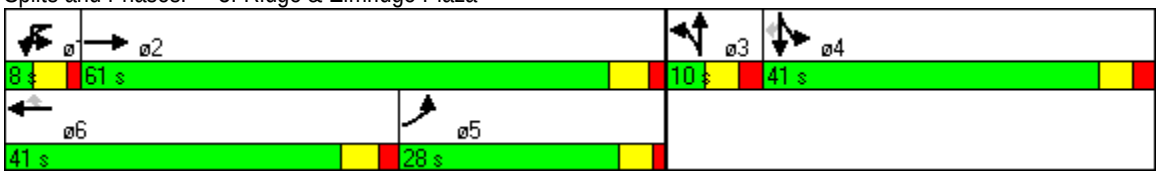
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	180	1361	10	10	10	1153	352	10	5	10	526	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0		200		200	75		0	0	
Storage Lanes	1		0		1		1	1		0	1	
Taper Length (ft)	25		25		25		25	25		25	25	
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.999					0.850		0.903			
Flt Protected	0.950				0.950			0.950			0.950	0.953
Satd. Flow (prot)	1770	5080	0	0	1770	5085	1583	1770	1682	0	1681	1686
Flt Permitted	0.950				0.950			0.950			0.950	0.953
Satd. Flow (perm)	1770	5080	0	0	1770	5085	1583	1770	1682	0	1681	1686
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)		1					317		11			
Link Speed (mph)		40				40			30			30
Link Distance (ft)		1379				2393			322			336
Travel Time (s)		23.5				40.8			7.3			7.6
Peak Hour Factor	0.93	0.93	0.93	0.90	0.93	0.93	0.93	0.90	0.90	0.90	0.92	0.92
Adj. Flow (vph)	194	1463	11	11	11	1240	378	11	6	11	572	5
Shared Lane Traffic (%)											50%	
Lane Group Flow (vph)	194	1474	0	0	22	1240	378	11	17	0	286	291
Turn Type	Prot			Prot	Prot		Perm	Split			Split	
Protected Phases	5	2		1	1	6		3	3		4	4
Permitted Phases							6					
Detector Phase	5	2		1	1	6	6	3	3		4	4
Switch Phase												
Minimum Initial (s)	4.0	27.0		3.0	3.0	27.0	27.0	3.0	3.0		6.0	6.0
Minimum Split (s)	9.0	33.0		8.0	8.0	33.0	33.0	10.0	10.0		35.0	35.0
Total Split (s)	28.0	61.0	0.0	8.0	8.0	41.0	41.0	10.0	10.0	0.0	41.0	41.0
Total Split (%)	23.3%	50.8%	0.0%	6.7%	6.7%	34.2%	34.2%	8.3%	8.3%	0.0%	34.2%	34.2%
Maximum Green (s)	23.0	55.0		3.0	3.0	35.0	35.0	4.0	4.0		35.0	35.0
Yellow Time (s)	3.5	4.0		3.5	3.5	4.0	4.0	3.5	3.5		3.5	3.5
All-Red Time (s)	1.5	2.0		1.5	1.5	2.0	2.0	2.5	2.5		2.5	2.5
Lost Time Adjust (s)	-2.0	0.0	-1.0	-2.0	-2.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	3.0	6.0	3.0	3.0	3.0	6.0	6.0	6.0	6.0	4.0	4.0	6.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		3.0	3.0	4.0	4.0	3.0	3.0		4.0	4.0
Recall Mode	None	C-Max		None	None	C-Max	C-Max	None	None		None	None
Walk Time (s)		7.0				7.0	7.0				7.0	7.0
Flash Dont Walk (s)		20.0				20.0	20.0				22.0	22.0
Pedestrian Calls (#/hr)		0				0	0				0	0
Act Effct Green (s)	25.0	68.2			7.4	46.3	46.3	4.0	4.0		29.7	27.7
Actuated g/C Ratio	0.21	0.57			0.06	0.39	0.39	0.03	0.03		0.25	0.23
v/c Ratio	0.53	0.51			0.20	0.63	0.47	0.19	0.25		0.69	0.75
Control Delay	37.3	8.3			72.8	13.0	1.7	63.7	43.5		49.1	54.4
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	37.3	8.3			72.8	13.0	1.7	63.7	43.5		49.1	54.4
LOS	D	A			E	B	A	E	D		D	D

Lane Group	SBR
Lane Configurations	
Volume (vph)	165
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	Yes
Satd. Flow (RTOR)	179
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Adj. Flow (vph)	179
Shared Lane Traffic (%)	
Lane Group Flow (vph)	179
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	6.0
Minimum Split (s)	35.0
Total Split (s)	41.0
Total Split (%)	34.2%
Maximum Green (s)	35.0
Yellow Time (s)	3.5
All-Red Time (s)	2.5
Lost Time Adjust (s)	0.0
Total Lost Time (s)	6.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	4.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	22.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	27.7
Actuated g/C Ratio	0.23
v/c Ratio	0.36
Control Delay	6.7
Queue Delay	0.0
Total Delay	6.7
LOS	A

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Approach Delay		11.7				11.2			51.5			41.1
Approach LOS		B				B			D			D
Queue Length 50th (ft)	151	167			14	154	11	8	5		210	220
Queue Length 95th (ft)	m206	131			m18	m157	m0	29	30		289	304
Internal Link Dist (ft)		1299				2313			242			256
Turn Bay Length (ft)	200				200		200	75				
Base Capacity (vph)	369	2888			109	1962	806	59	67		518	492
Starvation Cap Reductn	0	0			0	0	0	0	0		0	0
Spillback Cap Reductn	0	0			0	0	0	0	0		0	0
Storage Cap Reductn	0	0			0	0	0	0	0		0	0
Reduced v/c Ratio	0.53	0.51			0.20	0.63	0.47	0.19	0.25		0.55	0.59

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 5 (4%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.75			
Intersection Signal Delay: 17.2		Intersection LOS: B	
Intersection Capacity Utilization 67.2%		ICU Level of Service C	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 3: Ridge & Elmridge Plaza



Lane Group	SBR
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	53
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	589
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.30

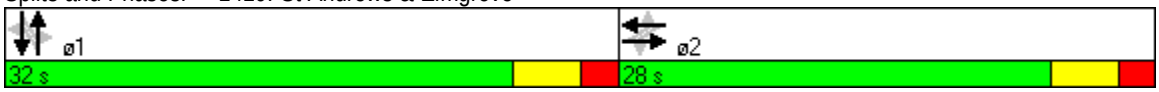
Intersection Summary

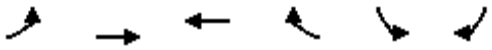
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	4	23	7	3	16	31	614	14	12	548	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	50		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.932			0.917			0.997			0.992	
Flt Protected		0.980			0.987			0.998			0.999	
Satd. Flow (prot)	0	1701	0	0	1686	0	0	1853	0	0	1846	0
Flt Permitted		0.852			0.888			0.954			0.983	
Satd. Flow (perm)	0	1479	0	0	1517	0	0	1772	0	0	1816	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33			21			2			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1310			1320			2750			1240	
Travel Time (s)		29.8			30.0			62.5			28.2	
Peak Hour Factor	0.70	0.70	0.70	0.75	0.75	0.75	0.88	0.88	0.88	0.86	0.86	0.86
Adj. Flow (vph)	27	6	33	9	4	21	35	698	16	14	637	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	66	0	0	34	0	0	749	0	0	694	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Detector Phase	2	2		2	2		1	1		1	1	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	27.5	27.5		27.5	27.5		25.5	25.5		25.5	25.5	
Total Split (s)	28.0	28.0	0.0	28.0	28.0	0.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	46.7%	46.7%	0.0%	46.7%	46.7%	0.0%	53.3%	53.3%	0.0%	53.3%	53.3%	0.0%
Maximum Green (s)	22.5	22.5		22.5	22.5		26.5	26.5		26.5	26.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	0.0	-1.0	-1.0	0.0	-1.0	-2.0	0.0	-1.0	-1.0	0.0	-1.0
Total Lost Time (s)	4.5	5.5	3.0	4.5	5.5	3.0	3.5	5.5	3.0	4.5	5.5	3.0
Lead/Lag	Lag	Lag		Lag	Lag		Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0							
Flash Dont Walk (s)	12.0	12.0		12.0	12.0							
Pedestrian Calls (#/hr)	0	0		0	0							
Act Effct Green (s)		6.9			6.9			27.8			27.8	
Actuated g/C Ratio		0.19			0.19			0.75			0.75	
v/c Ratio		0.22			0.11			0.56			0.51	
Control Delay		12.3			11.4			8.0			6.6	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		12.3			11.4			8.0			6.6	
LOS		B			B			A			A	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		12.3			11.4			8.0			6.6	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)		7			3			102			87	
Queue Length 95th (ft)		22			16			223			178	
Internal Link Dist (ft)		1230			1240			2670			1160	
Turn Bay Length (ft)												
Base Capacity (vph)		994			1015			1327			1361	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.07			0.03			0.56			0.51	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 36.9			
Natural Cycle: 65			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.56			
Intersection Signal Delay: 7.6		Intersection LOS: A	
Intersection Capacity Utilization 62.7%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1419: St Andrews & Elmgrove





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	270	915	814	419	449	203
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	284	963	857	441	473	214
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1298				1907	428
vC1, stage 1 conf vol					857	
vC2, stage 2 conf vol					1050	
vCu, unblocked vol	1298				1907	428
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	46				0	63
cM capacity (veh/h)	530				127	575

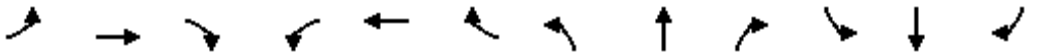
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	284	482	482	428	428	441	473	214
Volume Left	284	0	0	0	0	0	473	0
Volume Right	0	0	0	0	0	441	0	214
cSH	530	1700	1700	1700	1700	1700	127	575
Volume to Capacity	0.54	0.28	0.28	0.25	0.25	0.26	3.72	0.37
Queue Length 95th (ft)	79	0	0	0	0	0	Err	43
Control Delay (s)	19.4	0.0	0.0	0.0	0.0	0.0	Err	14.9
Lane LOS	C						F	B
Approach Delay (s)	4.4			0.0			6890.5	
Approach LOS							F	

Intersection Summary			
Average Delay	1465.1		
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	62	79	568	78	49	565
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.74	0.74	0.84	0.84	0.95	0.95
Hourly flow rate (vph)	84	107	676	93	52	595
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1421	723			769	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1421	723			769	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	41	75			94	
cM capacity (veh/h)	141	426			845	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	191	769	646
Volume Left	84	0	52
Volume Right	107	93	0
cSH	321	1700	845
Volume to Capacity	0.59	0.45	0.06
Queue Length 95th (ft)	90	0	5
Control Delay (s)	36.5	0.0	1.6
Lane LOS	E		A
Approach Delay (s)	36.5	0.0	1.6
Approach LOS	E		

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		



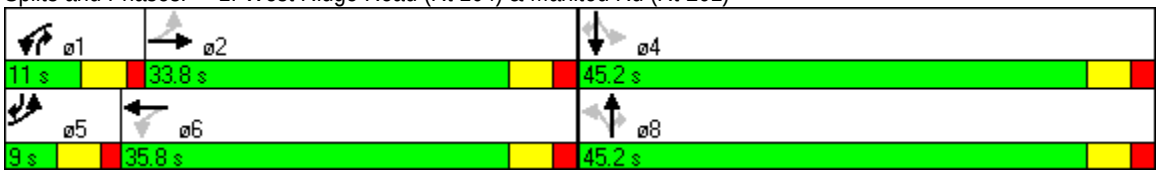
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	107	590	42	135	770	220	82	370	172	166	95	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	12	12	12	12	12	12	12
Storage Length (ft)	225		0	300		0	0		100	0		100
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	0.99			1.00				0.99
Frt		0.990			0.967				0.850			0.850
Flt Protected	0.950			0.950				0.991			0.969	
Satd. Flow (prot)	1711	3457	0	1711	3401	0	0	1846	1583	0	1805	1583
Flt Permitted	0.135			0.242				0.883			0.335	
Satd. Flow (perm)	243	3457	0	434	3401	0	0	1645	1583	0	624	1562
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									66			41
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		4300			1206			3150			2533	
Travel Time (s)		73.3			20.6			53.7			43.2	
Confl. Peds. (#/hr)	6		10	10		6	1					1
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.86	0.86	0.86	0.98	0.98	0.98
Heavy Vehicles (%)	2%	3%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	116	641	46	142	811	232	95	430	200	169	97	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	116	687	0	142	1043	0	0	525	200	0	266	111
Turn Type	pm+pt			pm+pt			Perm		pm+ov	Perm		pm+ov
Protected Phases	5	2		1	6			8	1		4	5
Permitted Phases	2			6			8		8	4		4
Detector Phase	5	2		1	6		8	8	1	4	4	5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.5		9.0	21.5		27.5	27.5	9.0	27.5	27.5	9.0
Total Split (s)	9.0	33.8	0.0	11.0	35.8	0.0	45.2	45.2	11.0	45.2	45.2	9.0
Total Split (%)	10.0%	37.6%	0.0%	12.2%	39.8%	0.0%	50.2%	50.2%	12.2%	50.2%	50.2%	10.0%
Maximum Green (s)	4.0	28.3		6.0	30.3		39.7	39.7	6.0	39.7	39.7	4.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	2.0		1.5	2.0		2.0	2.0	1.5	2.0	2.0	1.5
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	0.0	-1.5	0.0	0.0	-1.5	0.0	0.0
Total Lost Time (s)	3.0	5.5	4.0	3.0	5.5	4.0	4.0	5.5	5.0	4.0	5.5	5.0
Lead/Lag	Lead	Lag		Lead	Lag				Lead			Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min	None	Min	Min	None
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)							0	0		0	0	
Act Effct Green (s)	36.1	27.6		40.1	29.6			39.6	51.1		39.6	44.1
Actuated g/C Ratio	0.40	0.31		0.45	0.33			0.44	0.57		0.44	0.49
v/c Ratio	0.59	0.64		0.46	0.92			0.72	0.21		0.96	0.14

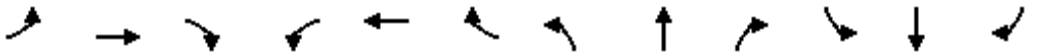
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	27.6	29.8		19.2	43.4			27.3	6.9		72.9	7.1
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	27.6	29.8		19.2	43.4			27.3	6.9		72.9	7.1
LOS	C	C		B	D			C	A		E	A
Approach Delay		29.5			40.5			21.6			53.5	
Approach LOS		C			D			C			D	
Queue Length 50th (ft)	37	174		45	295			237	33		143	18
Queue Length 95th (ft)	#75	234		81	#420			336	62		#304	42
Internal Link Dist (ft)		4220			1126			3070			2453	
Turn Bay Length (ft)	225			300					100			100
Base Capacity (vph)	197	1097		309	1155			732	935		277	794
Starvation Cap Reductn	0	0		0	0			0	0		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.59	0.63		0.46	0.90			0.72	0.21		0.96	0.14

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 89.2			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.96			
Intersection Signal Delay: 34.8		Intersection LOS: C	
Intersection Capacity Utilization 89.8%		ICU Level of Service E	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: West Ridge Road (Rt 104) & Manitou Rd (Rt 261)





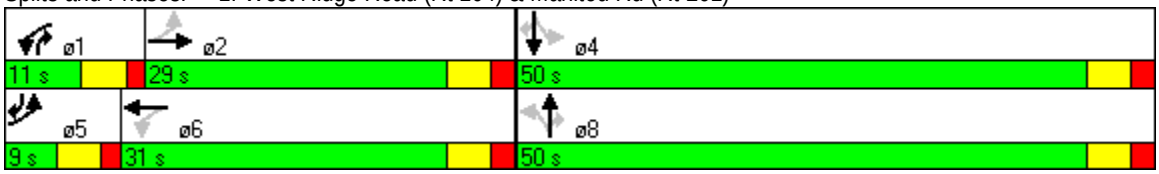
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	107	590	42	135	770	220	82	370	172	166	95	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	12	12	12	12	12	12	12
Storage Length (ft)	225		0	300		0	0		100	0		100
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	0.99			1.00				0.99
Frt		0.990			0.967				0.850			0.850
Flt Protected	0.950			0.950				0.991			0.969	
Satd. Flow (prot)	1711	3456	0	1711	3399	0	0	1846	1583	0	1805	1583
Flt Permitted	0.154			0.242				0.883			0.325	
Satd. Flow (perm)	277	3456	0	434	3399	0	0	1645	1583	0	605	1562
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									36			21
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		4300			1206			3150			2533	
Travel Time (s)		73.3			20.6			53.7			43.2	
Confl. Peds. (#/hr)	6		10	10		6	1					1
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.86	0.86	0.86	0.98	0.98	0.98
Heavy Vehicles (%)	2%	3%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	116	641	46	142	811	232	95	430	200	169	97	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	116	687	0	142	1043	0	0	525	200	0	266	111
Turn Type	pm+pt			pm+pt			Perm		pm+ov	Perm		pm+ov
Protected Phases	5	2		1	6			8	1		4	5
Permitted Phases	2			6			8		8	4		4
Detector Phase	5	2		1	6		8	8	1	4	4	5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	9.0	21.5		9.0	21.5		27.5	27.5	9.0	27.5	27.5	9.0
Total Split (s)	9.0	29.0	0.0	11.0	31.0	0.0	50.0	50.0	11.0	50.0	50.0	9.0
Total Split (%)	10.0%	32.2%	0.0%	12.2%	34.4%	0.0%	55.6%	55.6%	12.2%	55.6%	55.6%	10.0%
Maximum Green (s)	4.0	23.5		6.0	25.5		44.5	44.5	6.0	44.5	44.5	4.0
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.5	2.0		1.5	2.0		2.0	2.0	1.5	2.0	2.0	1.5
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	0.0	-1.5	0.0	0.0	-1.5	0.0	0.0
Total Lost Time (s)	3.0	5.5	4.0	3.0	5.5	4.0	4.0	5.5	5.0	4.0	5.5	5.0
Lead/Lag	Lead	Lag		Lead	Lag				Lead			Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes				Yes			Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min	None	Min	Min	None
Walk Time (s)							7.0	7.0		7.0	7.0	
Flash Dont Walk (s)							15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)							0	0		0	0	
Act Effct Green (s)	32.5	23.9		36.6	25.9			34.0	45.7		34.0	38.6
Actuated g/C Ratio	0.40	0.30		0.46	0.32			0.42	0.57		0.42	0.48
v/c Ratio	0.52	0.67		0.43	0.95			0.75	0.22		1.04	0.15

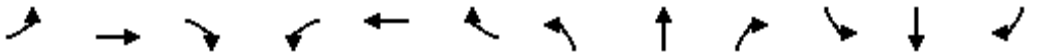
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	25.4	30.4		19.6	47.5			26.5	6.9		90.9	7.3
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	25.4	30.4		19.6	47.5			26.5	6.9		90.9	7.3
LOS	C	C		B	D			C	A		F	A
Approach Delay		29.7			44.2			21.1			66.3	
Approach LOS		C			D			C			E	
Queue Length 50th (ft)	35	167		43	283			212	36		131	20
Queue Length 95th (ft)	#79	254		91	#477			300	61		#290	42
Internal Link Dist (ft)		4220			1126			3070			2453	
Turn Bay Length (ft)	225			300					100			100
Base Capacity (vph)	221	1029		327	1098			927	917		341	763
Starvation Cap Reductn	0	0		0	0			0	0		0	0
Spillback Cap Reductn	0	0		0	0			0	0		0	0
Storage Cap Reductn	0	0		0	0			0	0		0	0
Reduced v/c Ratio	0.52	0.67		0.43	0.95			0.57	0.22		0.78	0.15

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 80.3			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 1.04			
Intersection Signal Delay: 37.7		Intersection LOS: D	
Intersection Capacity Utilization 89.8%		ICU Level of Service E	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: West Ridge Road (Rt 104) & Manitou Rd (Rt 261)



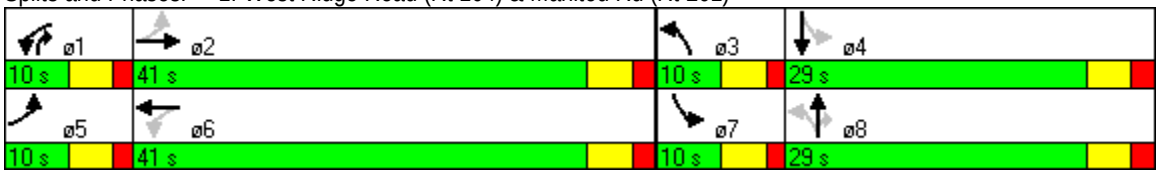


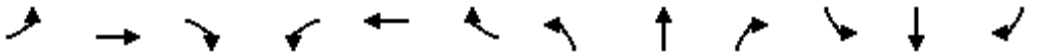
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	107	590	42	135	770	220	82	370	172	166	95	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	12	12	12	12	12	12	12
Storage Length (ft)	225		0	300		0	250		250	300		100
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	0.99		1.00				0.99	
Frt		0.990			0.967				0.850		0.920	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3458	0	1711	3402	0	1770	1863	1583	1770	1702	0
Flt Permitted	0.132			0.278			0.602			0.225		
Satd. Flow (perm)	237	3458	0	499	3402	0	1120	1863	1583	419	1702	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									134		62	
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		4300			1206			3150			2533	
Travel Time (s)		73.3			20.6			53.7			43.2	
Confl. Peds. (#/hr)	6		10	10		6	1					1
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.86	0.86	0.86	0.98	0.98	0.98
Heavy Vehicles (%)	2%	3%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	116	641	46	142	811	232	95	430	200	169	97	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	116	687	0	142	1043	0	95	430	200	169	208	0
Turn Type	pm+pt			pm+pt			pm+pt		pm+ov	pm+pt		
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
Minimum Split (s)	9.0	21.5		9.0	21.5		9.0	27.5	9.0	9.0	27.5	
Total Split (s)	10.0	41.0	0.0	10.0	41.0	0.0	10.0	29.0	10.0	10.0	29.0	0.0
Total Split (%)	11.1%	45.6%	0.0%	11.1%	45.6%	0.0%	11.1%	32.2%	11.1%	11.1%	32.2%	0.0%
Maximum Green (s)	5.0	35.5		5.0	35.5		5.0	23.5	5.0	5.0	23.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.5	2.0		1.5	2.0		1.5	2.0	1.5	1.5	2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	3.0	5.5	4.0	3.0	5.5	4.0	3.0	5.5	5.0	3.0	5.5	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Min	None	None	Min	
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								15.0			15.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	38.3	28.6		39.1	31.3		31.8	22.2	32.9	32.6	24.8	
Actuated g/C Ratio	0.46	0.35		0.47	0.38		0.39	0.27	0.40	0.40	0.30	
v/c Ratio	0.49	0.57		0.42	0.81		0.19	0.86	0.28	0.60	0.37	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	18.1	23.5		14.9	29.2		17.8	48.7	8.3	27.8	20.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	18.1	23.5		14.9	29.2		17.8	48.7	8.3	27.8	20.8	
LOS	B	C		B	C		B	D	A	C	C	
Approach Delay		22.7			27.5			33.5			23.9	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	31	152		39	266		32	224	23	59	64	
Queue Length 95th (ft)	58	204		69	346		62	#374	64	#118	132	
Internal Link Dist (ft)		4220			1126			3070			2453	
Turn Bay Length (ft)	225			300			250		250	300		
Base Capacity (vph)	238	1519		342	1495		489	542	712	283	558	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.49	0.45		0.42	0.70		0.19	0.79	0.28	0.60	0.37	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 82.4			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 27.2		Intersection LOS: C	
Intersection Capacity Utilization 78.9%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: West Ridge Road (Rt 104) & Manitou Rd (Rt 261)





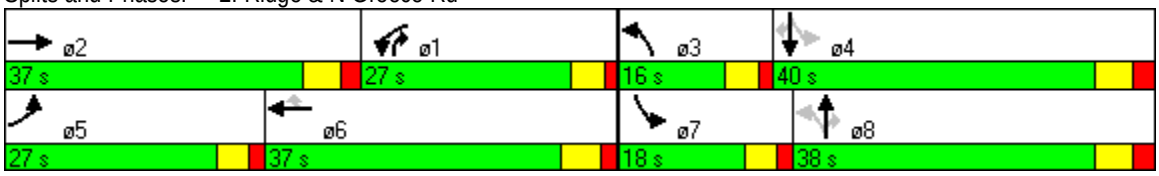
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	191	821	140	184	877	200	230	486	195	232	237	178
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	600		0	500		200	200		200	250		250
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00		0.98	1.00		0.98	1.00		0.98
Frt		0.978				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4951	0	1770	5085	1583	1770	3539	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.391			0.262		
Satd. Flow (perm)	1767	4951	0	1765	5085	1557	727	3539	1555	487	1863	1559
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27				227			65			207
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		799			1379			882			880	
Travel Time (s)		13.6			23.5			15.0			17.1	
Confl. Peds. (#/hr)	3		4	4		3	3		5	5		3
Peak Hour Factor	0.89	0.89	0.89	0.87	0.87	0.87	0.96	0.96	0.96	0.86	0.86	0.86
Adj. Flow (vph)	215	922	157	211	1008	230	240	506	203	270	276	207
Shared Lane Traffic (%)												
Lane Group Flow (vph)	215	1079	0	211	1008	230	240	506	203	270	276	207
Turn Type	Prot			Prot		Perm	pm+pt		pm+ov	pm+pt		Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases						6	8		8	4		4
Detector Phase	5	2		1	6	6	3	8	1	7	4	4
Switch Phase												
Minimum Initial (s)	4.0	20.0		4.0	20.0	20.0	4.0	8.0	4.0	4.0	8.0	8.0
Minimum Split (s)	9.0	28.0		9.0	28.0	28.0	9.0	36.5	9.0	9.0	36.5	36.5
Total Split (s)	27.0	37.0	0.0	27.0	37.0	37.0	16.0	38.0	27.0	18.0	40.0	40.0
Total Split (%)	22.5%	30.8%	0.0%	22.5%	30.8%	30.8%	13.3%	31.7%	22.5%	15.0%	33.3%	33.3%
Maximum Green (s)	22.0	31.0		22.0	31.0	31.0	11.0	31.5	22.0	13.0	33.5	33.5
Yellow Time (s)	3.5	4.0		3.5	4.0	4.0	3.5	4.0	3.5	3.5	4.0	4.0
All-Red Time (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.5	1.5	1.5	2.5	2.5
Lost Time Adjust (s)	-2.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	3.0	3.0	6.0	6.0	3.0	6.5	5.0	3.0	6.5	6.5
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0	4.0	2.0	4.0	2.0	2.0	4.0	4.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		15.0			15.0	15.0		23.0			23.0	23.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	20.3	38.8		24.0	42.5	42.5	40.3	23.8	47.3	44.1	25.7	25.7
Actuated g/C Ratio	0.17	0.32		0.20	0.35	0.35	0.34	0.20	0.39	0.37	0.21	0.21
v/c Ratio	0.72	0.67		0.60	0.56	0.33	0.67	0.72	0.31	0.80	0.69	0.42
Control Delay	58.4	39.6		29.3	16.5	1.9	36.8	50.7	10.1	45.4	52.3	7.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

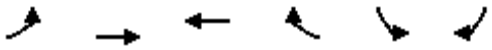
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	58.4	39.6		29.3	16.5	1.9	36.8	50.7	10.1	45.4	52.3	7.3
LOS	E	D		C	B	A	D	D	B	D	D	A
Approach Delay		42.7			16.0			38.5			37.5	
Approach LOS		D			B			D			D	
Queue Length 50th (ft)	162	270		123	71	4	133	195	46	153	200	0
Queue Length 95th (ft)	236	339		178	188	12	182	237	70	194	258	50
Internal Link Dist (ft)		719			1299			802			800	
Turn Bay Length (ft)	600			500		200	200		200	250		250
Base Capacity (vph)	357	1618		354	1799	698	357	929	658	340	520	584
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.67		0.60	0.56	0.33	0.67	0.54	0.31	0.79	0.53	0.35

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 18 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 32.2 Intersection LOS: C
Intersection Capacity Utilization 74.4% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: Ridge & N Greece Rd



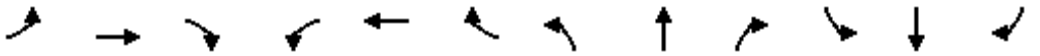


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	115	877	1034	211	213	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350			280	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3505	3539	1583	1770	1583
Flt Permitted	0.205				0.950	
Satd. Flow (perm)	382	3505	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				222		66
Link Speed (mph)		40	40		30	
Link Distance (ft)		931	1330		756	
Travel Time (s)		15.9	22.7		17.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.92	0.92
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%
Adj. Flow (vph)	121	923	1088	222	232	146
Shared Lane Traffic (%)						
Lane Group Flow (vph)	121	923	1088	222	232	146
Turn Type	pm+pt			pm+ov		pt+ov
Protected Phases	5	2	6	4	4	4 5
Permitted Phases	2			6		
Detector Phase	5	2	6	4	4	4 5
Switch Phase						
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	8.0	33.0	33.0	33.0	33.0	
Total Split (s)	13.0	81.0	68.0	39.0	39.0	52.0
Total Split (%)	10.8%	67.5%	56.7%	32.5%	32.5%	43.3%
Maximum Green (s)	9.0	75.0	62.0	33.0	33.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	0.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	2.0	6.0	6.0	6.0	4.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	None	
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		20.0	20.0	20.0	20.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	90.3	86.3	74.5	102.2	23.7	33.5
Actuated g/C Ratio	0.75	0.72	0.62	0.85	0.20	0.28
v/c Ratio	0.30	0.37	0.50	0.16	0.66	0.30
Control Delay	6.7	7.5	5.3	0.4	53.2	18.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	7.5	5.3	0.4	53.2	18.3

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
LOS	A	A	A	A	D	B
Approach Delay		7.4	4.5		39.7	
Approach LOS		A	A		D	
Queue Length 50th (ft)	22	127	41	0	167	47
Queue Length 95th (ft)	49	203	437	0	233	90
Internal Link Dist (ft)		851	1250		676	
Turn Bay Length (ft)	350			280		
Base Capacity (vph)	418	2522	2197	1502	516	521
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.29	0.37	0.50	0.15	0.45	0.28

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 81 (68%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 10.5		Intersection LOS: B	
Intersection Capacity Utilization 58.4%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 7: West Ridge Road (Route 104) & SHR driveway

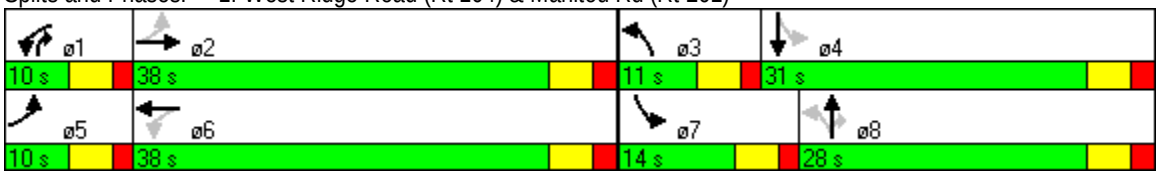


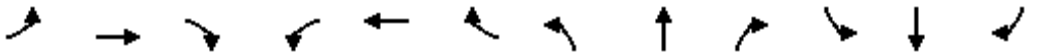
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	91	712	35	149	641	181	39	140	191	192	140	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	12	12	12	12	12	12	12
Storage Length (ft)	225		0	300		0	250		250	300		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	0.99							
Frt		0.993			0.967				0.850		0.937	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3507	0	1711	3394	0	1752	1863	1583	1770	1745	0
Flt Permitted	0.198			0.208			0.581			0.547		
Satd. Flow (perm)	355	3507	0	373	3394	0	1072	1863	1583	1019	1745	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									112		41	
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		4077			1206			3011			2533	
Travel Time (s)		69.5			20.6			51.3			43.2	
Confl. Peds. (#/hr)	13		12	12		13						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.87	0.87	0.87	0.83	0.83	0.83
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	98	766	38	160	689	195	45	161	220	231	169	124
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	804	0	160	884	0	45	161	220	231	293	0
Turn Type	pm+pt			pm+pt			pm+pt		pm+ov	pm+pt		
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
Minimum Split (s)	10.0	21.5		10.0	21.5		10.0	27.5	10.0	10.0	27.5	
Total Split (s)	10.0	38.0	0.0	10.0	38.0	0.0	11.0	28.0	10.0	14.0	31.0	0.0
Total Split (%)	11.1%	42.2%	0.0%	11.1%	42.2%	0.0%	12.2%	31.1%	11.1%	15.6%	34.4%	0.0%
Maximum Green (s)	5.0	32.5		5.0	32.5		6.0	22.5	5.0	9.0	25.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.5	2.0		1.5	2.0		1.5	2.0	1.5	1.5	2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	3.0	5.5	4.0	3.0	5.5	4.0	3.0	5.5	5.0	3.0	5.5	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Min	None	None	Min	
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								15.0			15.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	33.9	24.1		34.7	26.7		24.1	13.5	24.3	30.3	21.8	
Actuated g/C Ratio	0.46	0.33		0.47	0.36		0.33	0.18	0.33	0.41	0.30	
v/c Ratio	0.33	0.70		0.52	0.72		0.11	0.47	0.37	0.43	0.54	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	13.7	25.3		17.7	25.3		15.3	32.5	12.0	18.4	25.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	13.7	25.3		17.7	25.3		15.3	32.5	12.0	18.4	25.5	
LOS	B	C		B	C		B	C	B	B	C	
Approach Delay		24.1			24.1			20.1			22.4	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	22	161		37	185		12	67	36	70	106	
Queue Length 95th (ft)	55	258		84	295		33	126	89	124	181	
Internal Link Dist (ft)		3997			1126			2931			2453	
Turn Bay Length (ft)	225			300			250		250	300		
Base Capacity (vph)	297	1595		307	1544		430	587	598	537	649	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.33	0.50		0.52	0.57		0.10	0.27	0.37	0.43	0.45	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 73.5			
Natural Cycle: 75			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.72			
Intersection Signal Delay: 23.2		Intersection LOS: C	
Intersection Capacity Utilization 62.9%		ICU Level of Service B	
Analysis Period (min) 15			

Splits and Phases: 1: West Ridge Road (Rt 104) & Manitou Rd (Rt 261)





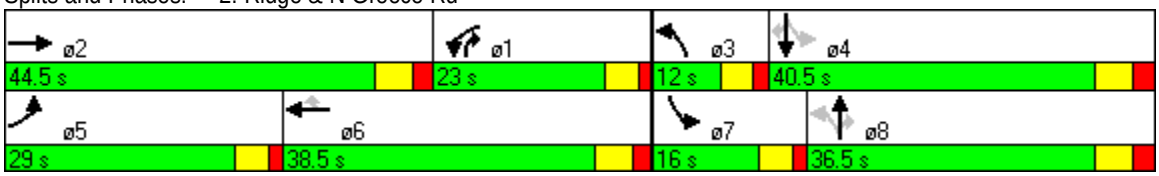
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	239	1066	150	206	879	243	154	291	216	267	232	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	600		0	500		200	200		200	250		250
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00			1.00					0.99
Frt		0.982				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4980	0	1770	5085	1583	1752	3539	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.443			0.411		
Satd. Flow (perm)	1770	4980	0	1769	5085	1583	817	3539	1583	766	1863	1562
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22				259			44			274
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		799			1379			882			1777	
Travel Time (s)		13.6			23.5			15.0			34.6	
Confl. Peds. (#/hr)			1	1			1					1
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.93	0.93	0.93	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	260	1159	163	219	935	259	166	313	232	297	258	274
Shared Lane Traffic (%)												
Lane Group Flow (vph)	260	1322	0	219	935	259	166	313	232	297	258	274
Turn Type	Prot			Prot		Perm	pm+pt		pm+ov	pm+pt		Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases						6	8		8	4		4
Detector Phase	5	2		1	6	6	3	8	1	7	4	4
Switch Phase												
Minimum Initial (s)	4.0	20.0		4.0	20.0	20.0	4.0	8.0	4.0	4.0	8.0	8.0
Minimum Split (s)	9.0	28.0		9.0	28.0	28.0	9.0	36.5	9.0	9.0	36.5	36.5
Total Split (s)	29.0	44.5	0.0	23.0	38.5	38.5	12.0	36.5	23.0	16.0	40.5	40.5
Total Split (%)	24.2%	37.1%	0.0%	19.2%	32.1%	32.1%	10.0%	30.4%	19.2%	13.3%	33.8%	33.8%
Maximum Green (s)	24.0	38.5		18.0	32.5	32.5	7.0	30.0	18.0	11.0	34.0	34.0
Yellow Time (s)	3.5	4.0		3.5	4.0	4.0	3.5	4.0	3.5	3.5	4.0	4.0
All-Red Time (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.5	1.5	1.5	2.5	2.5
Lost Time Adjust (s)	-2.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	3.0	3.0	6.0	6.0	3.0	6.5	5.0	3.0	6.5	6.5
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0	4.0	2.0	4.0	2.0	2.0	4.0	4.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		15.0			15.0	15.0		23.0			23.0	23.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	23.3	48.9		20.0	45.6	45.6	32.1	19.6	39.1	39.1	23.6	23.6
Actuated g/C Ratio	0.19	0.41		0.17	0.38	0.38	0.27	0.16	0.33	0.33	0.20	0.20
v/c Ratio	0.76	0.65		0.74	0.48	0.34	0.57	0.54	0.42	0.83	0.70	0.52
Control Delay	53.1	32.5		33.6	10.2	1.4	38.4	48.7	17.3	52.9	54.9	8.0

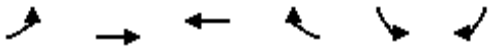
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.1	32.5		33.6	10.2	1.4	38.4	48.7	17.3	52.9	54.9	8.0
LOS	D	C		C	B	A	D	D	B	D	D	A
Approach Delay		35.9			12.2			36.1			38.7	
Approach LOS		D			B			D			D	
Queue Length 50th (ft)	199	345		141	43	0	95	118	80	185	188	0
Queue Length 95th (ft)	284	409		#255	77	0	139	153	115	247	259	66
Internal Link Dist (ft)		719			1299			802			1697	
Turn Bay Length (ft)	600			500		200	200		200	250		250
Base Capacity (vph)	394	2041		295	1931	762	289	885	546	359	528	639
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.65		0.74	0.48	0.34	0.57	0.35	0.42	0.83	0.49	0.43

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 18 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 29.0 Intersection LOS: C
Intersection Capacity Utilization 75.3% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Ridge & N Greece Rd





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	270	915	814	419	449	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350			280	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.213				0.950	
Satd. Flow (perm)	397	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				277		34
Link Speed (mph)		40	40		30	
Link Distance (ft)		931	1330		834	
Travel Time (s)		15.9	22.7		19.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	284	963	857	441	473	214
Shared Lane Traffic (%)						
Lane Group Flow (vph)	284	963	857	441	473	214
Turn Type	pm+pt			pm+ov		pt+ov
Protected Phases	5	2	6	4	4	4 5
Permitted Phases	2			6		
Detector Phase	5	2	6	4	4	4 5
Switch Phase						
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	8.0	33.0	33.0	33.0	33.0	
Total Split (s)	24.0	70.0	46.0	50.0	50.0	74.0
Total Split (%)	20.0%	58.3%	38.3%	41.7%	41.7%	61.7%
Maximum Green (s)	20.0	64.0	40.0	44.0	44.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	0.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	2.0	6.0	6.0	6.0	4.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	None	
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		20.0	20.0	20.0	20.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	73.5	69.5	50.3	94.8	40.5	57.7
Actuated g/C Ratio	0.61	0.58	0.42	0.79	0.34	0.48
v/c Ratio	0.65	0.47	0.58	0.34	0.79	0.28
Control Delay	19.2	16.4	18.2	7.9	45.8	14.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.2	16.4	18.2	7.9	45.8	14.9
LOS	B	B	B	A	D	B

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		17.0	14.7		36.2	
Approach LOS		B	B		D	
Queue Length 50th (ft)	99	223	253	89	322	78
Queue Length 95th (ft)	161	298	400	328	431	108
Internal Link Dist (ft)		851	1250		754	
Turn Bay Length (ft)	350			280		
Base Capacity (vph)	495	2052	1485	1370	680	835
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.47	0.58	0.32	0.70	0.26

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 76 (63%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 75			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.79			
Intersection Signal Delay: 20.2		Intersection LOS: C	
Intersection Capacity Utilization 74.0%		ICU Level of Service D	
Analysis Period (min) 15			

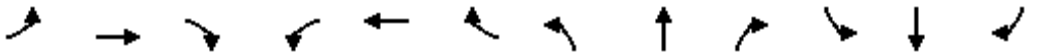
Splits and Phases: 7: West Ridge Road (Route 104) & SHR driveway

Appendix E

Detailed Synchro LOS Analysis Results

2009 Build Conditions

Bergmann associates



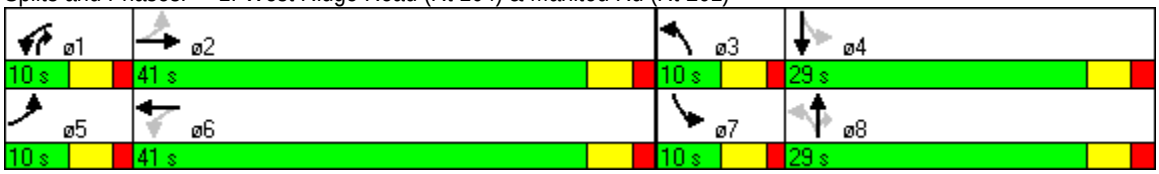
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	107	672	42	159	855	291	82	370	218	212	95	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	12	12	12	12	12	12	12
Storage Length (ft)	225		0	300		0	250		250	300		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	0.99		1.00				0.99	
Frt		0.991			0.962				0.850		0.920	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3463	0	1711	3381	0	1770	1863	1583	1770	1702	0
Flt Permitted	0.114			0.240			0.593			0.210		
Satd. Flow (perm)	205	3463	0	431	3381	0	1104	1863	1583	391	1702	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									95		62	
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		4300			1206			3150			2533	
Travel Time (s)		73.3			20.6			53.7			43.2	
Confl. Peds. (#/hr)	6		10	10		6	1					1
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.86	0.86	0.86	0.98	0.98	0.98
Heavy Vehicles (%)	2%	3%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	116	730	46	167	900	306	95	430	253	216	97	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	116	776	0	167	1206	0	95	430	253	216	208	0
Turn Type	pm+pt			pm+pt			pm+pt		pm+ov	pm+pt		
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
Minimum Split (s)	9.0	21.5		9.0	21.5		9.0	27.5	9.0	9.0	27.5	
Total Split (s)	10.0	41.0	0.0	10.0	41.0	0.0	10.0	29.0	10.0	10.0	29.0	0.0
Total Split (%)	11.1%	45.6%	0.0%	11.1%	45.6%	0.0%	11.1%	32.2%	11.1%	11.1%	32.2%	0.0%
Maximum Green (s)	5.0	35.5		5.0	35.5		5.0	23.5	5.0	5.0	23.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.5	2.0		1.5	2.0		1.5	2.0	1.5	1.5	2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	3.0	5.5	4.0	3.0	5.5	4.0	3.0	5.5	5.0	3.0	5.5	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Min	None	None	Min	
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								15.0			15.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	41.4	31.8		42.2	34.3		32.1	22.5	33.1	32.9	25.0	
Actuated g/C Ratio	0.48	0.37		0.49	0.40		0.37	0.26	0.39	0.38	0.29	
v/c Ratio	0.52	0.60		0.53	0.89		0.20	0.88	0.38	0.82	0.39	

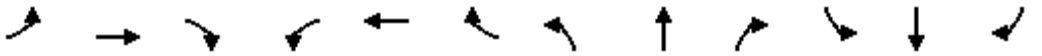
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	20.1	23.9		17.5	34.6		18.4	52.5	14.2	46.7	21.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	20.1	23.9		17.5	34.6		18.4	52.5	14.2	46.7	21.4	
LOS	C	C		B	C		B	D	B	D	C	
Approach Delay		23.4			32.5			35.9			34.3	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	31	177		46	332		34	235	61	82	67	
Queue Length 95th (ft)	63	235		81	#467		62	#374	114	#176	132	
Internal Link Dist (ft)		4220			1126			3070			2453	
Turn Bay Length (ft)	225			300			250		250	300		
Base Capacity (vph)	224	1453		318	1419		469	517	670	264	540	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.52	0.53		0.53	0.85		0.20	0.83	0.38	0.82	0.39	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 85.7			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 31.1		Intersection LOS: C	
Intersection Capacity Utilization 86.1%		ICU Level of Service E	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1: West Ridge Road (Rt 104) & Manitou Rd (Rt 261)





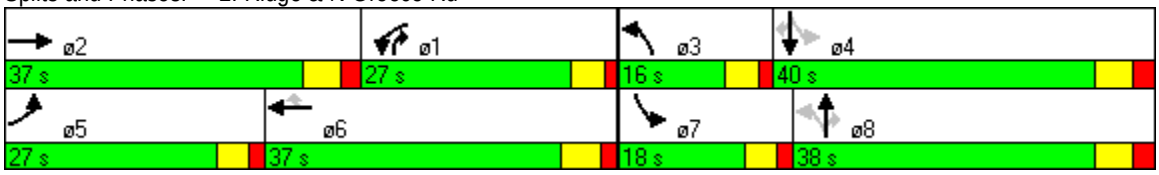
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	238	1001	206	184	1051	200	343	486	195	232	237	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	600		0	500		200	200		200	250		250
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00		0.98	1.00		0.98	1.00		0.98
Frt		0.974				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4927	0	1770	5085	1583	1770	3539	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.391			0.262		
Satd. Flow (perm)	1768	4927	0	1767	5085	1557	727	3539	1555	487	1863	1559
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35				189			62			267
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		799			1379			882			880	
Travel Time (s)		13.6			23.5			15.0			17.1	
Confl. Peds. (#/hr)	3		4	4		3	3		5	5		3
Peak Hour Factor	0.89	0.89	0.89	0.87	0.87	0.87	0.96	0.96	0.96	0.86	0.86	0.86
Adj. Flow (vph)	267	1125	231	211	1208	230	357	506	203	270	276	267
Shared Lane Traffic (%)												
Lane Group Flow (vph)	267	1356	0	211	1208	230	357	506	203	270	276	267
Turn Type	Prot			Prot		Perm	pm+pt		pm+ov	pm+pt		Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases						6	8		8	4		4
Detector Phase	5	2		1	6	6	3	8	1	7	4	4
Switch Phase												
Minimum Initial (s)	4.0	20.0		4.0	20.0	20.0	4.0	8.0	4.0	4.0	8.0	8.0
Minimum Split (s)	9.0	28.0		9.0	28.0	28.0	9.0	36.5	9.0	9.0	36.5	36.5
Total Split (s)	27.0	37.0	0.0	27.0	37.0	37.0	16.0	38.0	27.0	18.0	40.0	40.0
Total Split (%)	22.5%	30.8%	0.0%	22.5%	30.8%	30.8%	13.3%	31.7%	22.5%	15.0%	33.3%	33.3%
Maximum Green (s)	22.0	31.0		22.0	31.0	31.0	11.0	31.5	22.0	13.0	33.5	33.5
Yellow Time (s)	3.5	4.0		3.5	4.0	4.0	3.5	4.0	3.5	3.5	4.0	4.0
All-Red Time (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.5	1.5	1.5	2.5	2.5
Lost Time Adjust (s)	-2.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	3.0	3.0	6.0	6.0	3.0	6.5	5.0	3.0	6.5	6.5
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0	4.0	2.0	4.0	2.0	2.0	4.0	4.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		15.0			15.0	15.0		23.0			23.0	23.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	23.2	38.8		24.0	39.6	39.6	40.3	23.8	47.3	44.1	25.7	25.7
Actuated g/C Ratio	0.19	0.32		0.20	0.33	0.33	0.34	0.20	0.39	0.37	0.21	0.21
v/c Ratio	0.78	0.84		0.60	0.72	0.36	1.00	0.72	0.31	0.80	0.69	0.49
Control Delay	59.0	41.5		28.0	20.3	2.6	80.8	50.7	10.4	45.4	52.3	7.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	59.0	41.5		28.0	20.3	2.6	80.8	50.7	10.4	45.4	52.3	7.4
LOS	E	D		C	C	A	F	D	B	D	D	A
Approach Delay		44.4			18.8			53.1			35.3	
Approach LOS		D			B			D			D	
Queue Length 50th (ft)	212	348		122	210	5	~218	195	48	153	200	0
Queue Length 95th (ft)	#297	#491		157	#253	13	#357	237	71	194	258	53
Internal Link Dist (ft)		719			1299			802			800	
Turn Bay Length (ft)	600			500		200	200		200	250		250
Base Capacity (vph)	370	1615		354	1676	640	357	929	656	340	520	628
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.72	0.84		0.60	0.72	0.36	1.00	0.54	0.31	0.79	0.53	0.43

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 18 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 36.6 Intersection LOS: D
Intersection Capacity Utilization 84.0% ICU Level of Service E
Analysis Period (min) 15
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Ridge & N Greece Rd



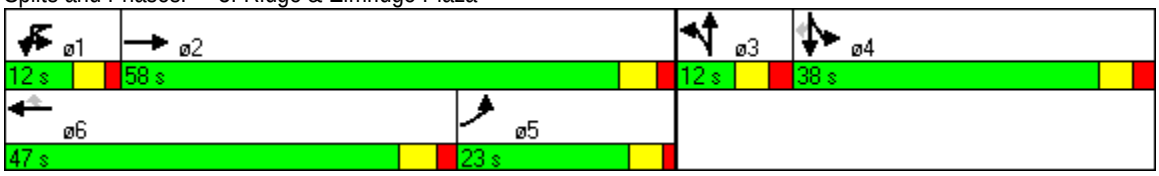
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	144	1259	25	25	25	1261	341	25	5	25	406	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0		200		200	75		0	0	
Storage Lanes	1		0		1		1	1		0	1	
Taper Length (ft)	25		25		25		25	25		25	25	
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.997					0.850		0.876			
Flt Protected	0.950				0.950			0.950			0.950	0.953
Satd. Flow (prot)	1770	5070	0	0	1770	5085	1583	1770	1632	0	1681	1686
Flt Permitted	0.950				0.950			0.950			0.950	0.953
Satd. Flow (perm)	1770	5070	0	0	1770	5085	1583	1770	1632	0	1681	1686
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)		3					303		28			
Link Speed (mph)		40				40			30			30
Link Distance (ft)		1379				2393			322			336
Travel Time (s)		23.5				40.8			7.3			7.6
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.92	0.92
Adj. Flow (vph)	160	1399	28	28	28	1401	379	28	6	28	441	5
Shared Lane Traffic (%)											49%	
Lane Group Flow (vph)	160	1427	0	0	56	1401	379	28	34	0	225	221
Turn Type	Prot			Prot	Prot		Perm	Split			Split	
Protected Phases	5	2		1	1	6		3	3		4	4
Permitted Phases							6					
Detector Phase	5	2		1	1	6	6	3	3		4	4
Switch Phase												
Minimum Initial (s)	4.0	27.0		3.0	3.0	27.0	27.0	3.0	3.0		6.0	6.0
Minimum Split (s)	9.0	33.0		8.0	8.0	33.0	33.0	10.0	10.0		35.0	35.0
Total Split (s)	23.0	58.0	0.0	12.0	12.0	47.0	47.0	12.0	12.0	0.0	38.0	38.0
Total Split (%)	19.2%	48.3%	0.0%	10.0%	10.0%	39.2%	39.2%	10.0%	10.0%	0.0%	31.7%	31.7%
Maximum Green (s)	18.0	52.0		7.0	7.0	41.0	41.0	6.0	6.0		32.0	32.0
Yellow Time (s)	3.5	4.0		3.5	3.5	4.0	4.0	3.5	3.5		3.5	3.5
All-Red Time (s)	1.5	2.0		1.5	1.5	2.0	2.0	2.5	2.5		2.5	2.5
Lost Time Adjust (s)	-2.0	0.0	-1.0	-2.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	3.0	6.0	3.0	3.0	3.0	6.0	6.0	4.0	6.0	4.0	4.0	6.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		3.0	3.0	4.0	4.0	3.0	3.0		4.0	4.0
Recall Mode	None	C-Max		None	None	C-Max	C-Max	None	None		None	None
Walk Time (s)		7.0				7.0	7.0				7.0	7.0
Flash Dont Walk (s)		20.0				20.0	20.0				22.0	22.0
Pedestrian Calls (#/hr)		0				0	0				0	0
Act Effct Green (s)	20.0	64.3			10.1	52.3	52.3	7.9	5.9		25.1	23.1
Actuated g/C Ratio	0.17	0.54			0.08	0.44	0.44	0.07	0.05		0.21	0.19
v/c Ratio	0.54	0.52			0.38	0.63	0.44	0.24	0.32		0.64	0.68
Control Delay	37.2	7.7			71.3	8.3	1.0	58.5	31.5		50.9	54.9
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	37.2	7.7			71.3	8.3	1.0	58.5	31.5		50.9	54.9
LOS	D	A			E	A	A	E	C		D	D

Lane Group	SBR
Lane Configurations	
Volume (vph)	149
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	Yes
Satd. Flow (RTOR)	162
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Adj. Flow (vph)	162
Shared Lane Traffic (%)	
Lane Group Flow (vph)	162
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	6.0
Minimum Split (s)	35.0
Total Split (s)	38.0
Total Split (%)	31.7%
Maximum Green (s)	32.0
Yellow Time (s)	3.5
All-Red Time (s)	2.5
Lost Time Adjust (s)	0.0
Total Lost Time (s)	6.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	4.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	22.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	23.1
Actuated g/C Ratio	0.19
v/c Ratio	0.37
Control Delay	7.9
Queue Delay	0.0
Total Delay	7.9
LOS	A

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Approach Delay		10.7				8.7			43.7			40.9
Approach LOS		B				A			D			D
Queue Length 50th (ft)	125	104			36	68	0	21	5		168	169
Queue Length 95th (ft)	m158	127			m43	m76	m0	52	39		235	237
Internal Link Dist (ft)		1299				2313			242			256
Turn Bay Length (ft)	200				200		200	75				
Base Capacity (vph)	295	2719			153	2216	861	118	108		476	450
Starvation Cap Reductn	0	0			0	0	0	0	0		0	0
Spillback Cap Reductn	0	0			0	0	0	0	0		0	0
Storage Cap Reductn	0	0			0	0	0	0	0		0	0
Reduced v/c Ratio	0.54	0.52			0.37	0.63	0.44	0.24	0.31		0.47	0.49

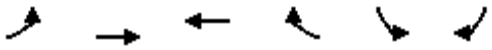
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 5 (4%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.68			
Intersection Signal Delay: 14.8		Intersection LOS: B	
Intersection Capacity Utilization 63.7%		ICU Level of Service B	
Analysis Period (min) 15			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 3: Ridge & Elmridge Plaza



Lane Group	SBR
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	53
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	541
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.30

Intersection Summary



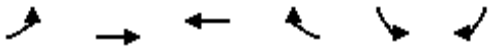
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	115	1170	1373	211	213	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350			280	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3505	3539	1583	1770	1583
Flt Permitted	0.113				0.950	
Satd. Flow (perm)	210	3505	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				222		24
Link Speed (mph)		40	40		30	
Link Distance (ft)		1160	1330		756	
Travel Time (s)		19.8	22.7		17.2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.92	0.92
Heavy Vehicles (%)	2%	3%	2%	2%	2%	2%
Adj. Flow (vph)	121	1232	1445	222	232	146
Shared Lane Traffic (%)						
Lane Group Flow (vph)	121	1232	1445	222	232	146
Turn Type	pm+pt			pm+ov		pt+ov
Protected Phases	5	2	6	4	4	4 5
Permitted Phases	2			6		
Detector Phase	5	2	6	4	4	4 5
Switch Phase						
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	8.0	33.0	33.0	33.0	33.0	
Total Split (s)	13.0	81.0	68.0	39.0	39.0	52.0
Total Split (%)	10.8%	67.5%	56.7%	32.5%	32.5%	43.3%
Maximum Green (s)	9.0	75.0	62.0	33.0	33.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	0.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	2.0	6.0	6.0	6.0	4.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	None	
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		20.0	20.0	20.0	20.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	90.3	86.3	74.0	101.6	23.7	34.0
Actuated g/C Ratio	0.75	0.72	0.62	0.85	0.20	0.28
v/c Ratio	0.41	0.49	0.66	0.16	0.66	0.31
Control Delay	11.5	5.7	10.7	0.2	53.2	27.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.5	5.7	10.7	0.2	53.2	27.9

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
LOS	B	A	B	A	D	C
Approach Delay		6.2	9.3		43.4	
Approach LOS		A	A		D	
Queue Length 50th (ft)	15	117	163	0	167	74
Queue Length 95th (ft)	44	257	m613	m0	233	113
Internal Link Dist (ft)		1080	1250		676	
Turn Bay Length (ft)	350			280		
Base Capacity (vph)	310	2522	2182	1496	516	497
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.39	0.49	0.66	0.15	0.45	0.29

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 44 (37%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.66			
Intersection Signal Delay: 11.9		Intersection LOS: B	
Intersection Capacity Utilization 67.8%		ICU Level of Service C	
Analysis Period (min) 15			

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

Splits and Phases: 7: West Ridge Road (Route 104) & SHR driveway

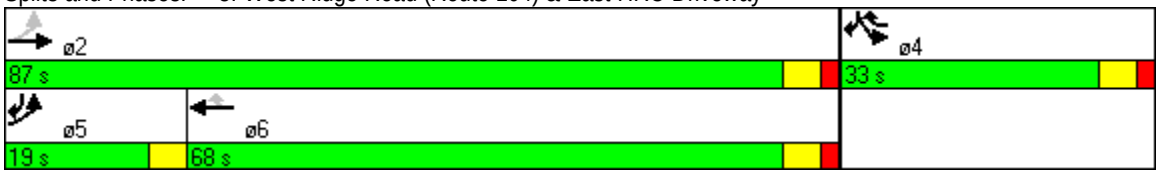


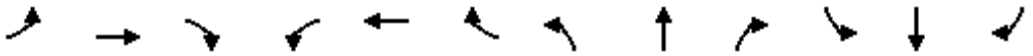
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	205	893	1165	340	382	218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300			350	0	0
Storage Lanes	1			1	2	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.123				0.950	
Satd. Flow (perm)	229	3539	3539	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				275		37
Link Speed (mph)		40	40		30	
Link Distance (ft)		525	1160		641	
Travel Time (s)		8.9	19.8		14.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	228	992	1294	378	424	242
Shared Lane Traffic (%)						
Lane Group Flow (vph)	228	992	1294	378	424	242
Turn Type	pm+pt			pm+ov		pt+ov
Protected Phases	5	2	6	4	4	4 5
Permitted Phases	2			6		
Detector Phase	5	2	6	4	4	4 5
Switch Phase						
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	10.0	33.0	33.0	33.0	33.0	
Total Split (s)	19.0	87.0	68.0	33.0	33.0	52.0
Total Split (%)	15.8%	72.5%	56.7%	27.5%	27.5%	43.3%
Maximum Green (s)	15.0	81.0	62.0	27.0	27.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	0.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	2.0	6.0	6.0	6.0	4.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	Max	Max	
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		20.0	20.0	20.0	20.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	85.0	81.0	65.2	98.2	29.0	42.8
Actuated g/C Ratio	0.71	0.68	0.54	0.82	0.24	0.36
v/c Ratio	0.67	0.42	0.67	0.28	0.51	0.41
Control Delay	21.9	9.4	11.9	1.1	41.9	26.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.9	9.4	11.9	1.1	41.9	26.3
LOS	C	A	B	A	D	C

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		11.8	9.5		36.2	
Approach LOS		B	A		D	
Queue Length 50th (ft)	53	166	168	19	147	118
Queue Length 95th (ft)	138	205	77	0	198	183
Internal Link Dist (ft)		445	1080		561	
Turn Bay Length (ft)	300			350		
Base Capacity (vph)	381	2389	1923	1346	830	630
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.42	0.67	0.28	0.51	0.38

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 60 (50%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 15.3		Intersection LOS: B	
Intersection Capacity Utilization 66.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 8: West Ridge Road (Route 104) & East HRC Driveway





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	5	18	7	1	30	38	981	14	18	589	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	50		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor					1.00							
Frt		0.959			0.894			0.998			0.993	
Flt Protected		0.971			0.991			0.998			0.999	
Satd. Flow (prot)	0	1735	0	0	1650	0	0	1855	0	0	1848	0
Flt Permitted		0.790			0.917			0.961			0.958	
Satd. Flow (perm)	0	1411	0	0	1527	0	0	1787	0	0	1772	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			33			2			6	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		477			628			1552			420	
Travel Time (s)		10.8			14.3			35.3			9.5	
Confl. Peds. (#/hr)				1								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	40	6	20	8	1	33	42	1090	16	20	654	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	66	0	0	42	0	0	1148	0	0	710	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Detector Phase	2	2		2	2		1	1		1	1	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	27.5	27.5		27.5	27.5		25.5	25.5		25.5	25.5	
Total Split (s)	28.0	28.0	0.0	28.0	28.0	0.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	46.7%	46.7%	0.0%	46.7%	46.7%	0.0%	53.3%	53.3%	0.0%	53.3%	53.3%	0.0%
Maximum Green (s)	22.5	22.5		22.5	22.5		26.5	26.5		26.5	26.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	0.0	-1.0	-1.0	0.0	0.0	-2.0	0.0	0.0	-1.0	0.0	0.0
Total Lost Time (s)	4.5	5.5	3.0	4.5	5.5	4.0	3.5	5.5	4.0	4.5	5.5	4.0
Lead/Lag	Lag	Lag		Lag	Lag		Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0							
Flash Dont Walk (s)	12.0	12.0		12.0	12.0							
Pedestrian Calls (#/hr)	0	0		0	0							
Act Effct Green (s)		7.0			7.0			30.0			30.0	
Actuated g/C Ratio		0.18			0.18			0.75			0.75	
v/c Ratio		0.25			0.14			0.86			0.53	
Control Delay		15.0			9.7			21.3			7.3	
Queue Delay		0.0			0.0			0.0			0.0	

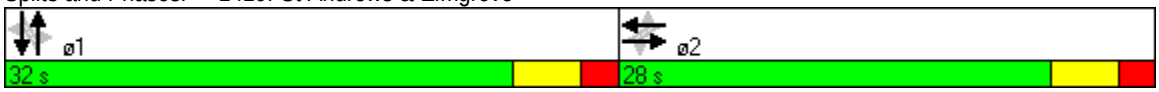
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		15.0			9.7			21.3			7.3	
LOS		B			A			C			A	
Approach Delay		15.0			9.7			21.3			7.3	
Approach LOS		B			A			C			A	
Queue Length 50th (ft)		10			2			~344			96	
Queue Length 95th (ft)		35			21			#586			218	
Internal Link Dist (ft)		397			548			1472			340	
Turn Bay Length (ft)												
Base Capacity (vph)		825			898			1342			1332	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.08			0.05			0.86			0.53	

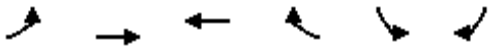
Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 40			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 15.8		Intersection LOS: B	
Intersection Capacity Utilization 87.5%		ICU Level of Service E	
Analysis Period (min) 15			

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1419: St Andrews & Elmgrove

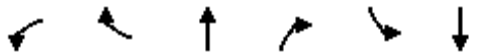




Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	88	1078	1247	145	20	96
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	98	1198	1386	161	22	107
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)			525			
pX, platoon unblocked	0.74				0.74	0.74
vC, conflicting volume	1547				2180	693
vC1, stage 1 conf vol					1386	
vC2, stage 2 conf vol					794	
vCu, unblocked vol	1037				1893	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	80				89	87
cM capacity (veh/h)	493				212	803

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	98	599	599	693	693	161	22	107
Volume Left	98	0	0	0	0	0	22	0
Volume Right	0	0	0	0	0	161	0	107
cSH	493	1700	1700	1700	1700	1700	212	803
Volume to Capacity	0.20	0.35	0.35	0.41	0.41	0.09	0.11	0.13
Queue Length 95th (ft)	18	0	0	0	0	0	9	11
Control Delay (s)	14.1	0.0	0.0	0.0	0.0	0.0	24.0	10.2
Lane LOS	B						C	B
Approach Delay (s)	1.1			0.0			12.6	
Approach LOS							B	

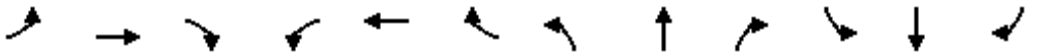
Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	52.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	48	115	915	66	75	551
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.91	0.91	0.87	0.87	0.96	0.96
Hourly flow rate (vph)	53	126	1052	76	78	574
Pedestrians			1			
Lane Width (ft)			12.0			
Walking Speed (ft/s)			4.0			
Percent Blockage			0			
Right turn flare (veh)		6				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1821	1090			1128	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1821	1090			1128	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	29	52			87	
cM capacity (veh/h)	74	262			620	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	179	1128	652
Volume Left	53	0	78
Volume Right	126	76	0
cSH	253	1700	620
Volume to Capacity	0.71	0.66	0.13
Queue Length 95th (ft)	120	0	11
Control Delay (s)	59.7	0.0	3.3
Lane LOS	F		A
Approach Delay (s)	59.7	0.0	3.3
Approach LOS	F		

Intersection Summary			
Average Delay	6.6		
Intersection Capacity Utilization	98.6%	ICU Level of Service	F
Analysis Period (min)	15		

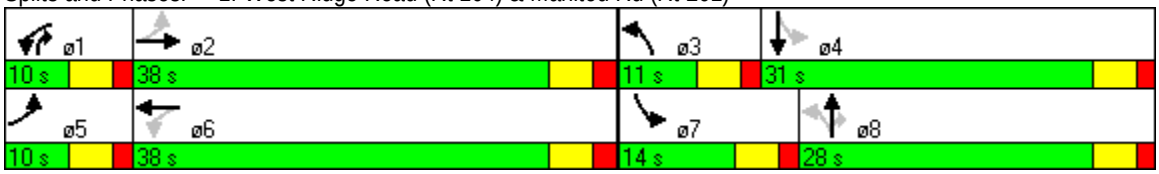


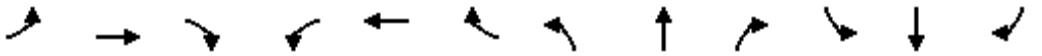
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	91	932	35	192	777	265	39	140	261	302	140	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	12	12	12	12	12	12	12
Storage Length (ft)	225		0	300		0	250		250	300		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	0.99							
Frt		0.995			0.962				0.850		0.937	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3516	0	1711	3372	0	1752	1863	1583	1770	1745	0
Flt Permitted	0.123			0.128			0.561			0.518		
Satd. Flow (perm)	221	3516	0	230	3372	0	1035	1863	1583	965	1745	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									53		41	
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		4077			1206			3011			2533	
Travel Time (s)		69.5			20.6			51.3			43.2	
Confl. Peds. (#/hr)	13		12	12		13						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.87	0.87	0.87	0.83	0.83	0.83
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	98	1002	38	206	835	285	45	161	300	364	169	124
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	1040	0	206	1120	0	45	161	300	364	293	0
Turn Type	pm+pt			pm+pt			pm+pt		pm+ov	pm+pt		
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
Minimum Split (s)	10.0	21.5		10.0	21.5		10.0	27.5	10.0	10.0	27.5	
Total Split (s)	10.0	38.0	0.0	10.0	38.0	0.0	11.0	28.0	10.0	14.0	31.0	0.0
Total Split (%)	11.1%	42.2%	0.0%	11.1%	42.2%	0.0%	12.2%	31.1%	11.1%	15.6%	34.4%	0.0%
Maximum Green (s)	5.0	32.5		5.0	32.5		6.0	23.0	5.0	9.0	26.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.5	2.0		1.5	2.0		1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	3.0	5.5	4.0	3.0	5.5	4.0	3.0	5.0	5.0	3.0	5.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None		None	Min	None	None	Min	
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								15.0			15.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	38.9	29.2		39.6	31.7		23.9	13.8	24.0	30.1	22.0	
Actuated g/C Ratio	0.50	0.37		0.51	0.41		0.31	0.18	0.31	0.39	0.28	
v/c Ratio	0.40	0.79		0.82	0.82		0.12	0.49	0.57	0.75	0.56	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	15.1	27.5		42.1	28.5		16.7	34.6	23.7	30.5	27.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	15.1	27.5		42.1	28.5		16.7	34.6	23.7	30.5	27.5	
LOS	B	C		D	C		B	C	C	C	C	
Approach Delay		26.4			30.6			26.6			29.1	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	22	229		49	260		14	75	105	143	120	
Queue Length 95th (ft)	54	355		#193	#442		33	126	173	198	180	
Internal Link Dist (ft)		3997			1126			2931			2453	
Turn Bay Length (ft)	225			300			250		250	300		
Base Capacity (vph)	246	1488		252	1427		392	558	523	487	618	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.40	0.70		0.82	0.78		0.11	0.29	0.57	0.75	0.47	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 78.1			
Natural Cycle: 80			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.82			
Intersection Signal Delay: 28.5		Intersection LOS: C	
Intersection Capacity Utilization 77.1%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			

Splits and Phases: 1: West Ridge Road (Rt 104) & Manitou Rd (Rt 261)





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	341	1396	302	206	1238	243	274	291	216	267	232	367
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	200		200	200		200	200		200
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00			1.00					0.99
Frt		0.973				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4928	0	1770	5085	1583	1752	3539	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.449			0.415		
Satd. Flow (perm)	1770	4928	0	1769	5085	1583	828	3539	1583	773	1863	1562
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42				199			39			408
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		799			1379			882			1777	
Travel Time (s)		13.6			23.5			15.0			34.6	
Confl. Peds. (#/hr)			1	1			1					1
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.93	0.93	0.93	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	371	1517	328	219	1317	259	295	313	232	297	258	408
Shared Lane Traffic (%)												
Lane Group Flow (vph)	371	1845	0	219	1317	259	295	313	232	297	258	408
Turn Type	Prot			Prot		Perm	pm+pt		pm+ov	pm+pt		Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases						6	8		8	4		4
Detector Phase	5	2		1	6	6	3	8	1	7	4	4
Switch Phase												
Minimum Initial (s)	4.0	20.0		4.0	20.0	20.0	4.0	8.0	4.0	4.0	8.0	8.0
Minimum Split (s)	9.0	28.0		9.0	28.0	28.0	9.0	36.5	9.0	9.0	36.5	36.5
Total Split (s)	29.0	44.5	0.0	23.0	38.5	38.5	12.0	36.5	23.0	16.0	40.5	40.5
Total Split (%)	24.2%	37.1%	0.0%	19.2%	32.1%	32.1%	10.0%	30.4%	19.2%	13.3%	33.8%	33.8%
Maximum Green (s)	24.0	38.5		18.0	32.5	32.5	7.0	30.0	18.0	11.0	34.0	34.0
Yellow Time (s)	3.5	4.0		3.5	4.0	4.0	3.5	4.0	3.5	3.5	4.0	4.0
All-Red Time (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.5	1.5	1.5	2.5	2.5
Lost Time Adjust (s)	-2.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	3.0	3.0	6.0	6.0	3.0	6.5	5.0	3.0	6.5	6.5
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0	4.0	2.0	4.0	2.0	2.0	4.0	4.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		15.0			15.0	15.0		23.0			23.0	23.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	31.0	48.4		20.0	37.4	37.4	32.6	20.1	39.6	39.6	24.1	24.1
Actuated g/C Ratio	0.26	0.40		0.17	0.31	0.31	0.27	0.17	0.33	0.33	0.20	0.20
v/c Ratio	0.81	0.92		0.74	0.83	0.41	1.00	0.53	0.42	0.82	0.69	0.64
Control Delay	42.2	36.2		29.2	18.5	2.5	91.1	48.0	17.5	51.2	53.6	8.4

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.2	36.2		29.2	18.5	2.5	91.1	48.0	17.5	51.2	53.6	8.4
LOS	D	D		C	B	A	F	D	B	D	D	A
Approach Delay		37.2			17.5			54.7			33.7	
Approach LOS		D			B			D			C	
Queue Length 50th (ft)	243	525		122	87	0	~188	118	83	185	188	0
Queue Length 95th (ft)	m#431	#693		m140	#436	m0	#298	151	115	244	257	80
Internal Link Dist (ft)		719			1299			802			1697	
Turn Bay Length (ft)	300			200		200	200		200	200		200
Base Capacity (vph)	457	2012		295	1584	630	294	885	549	363	528	735
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.92		0.74	0.83	0.41	1.00	0.35	0.42	0.82	0.49	0.56

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 18 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 33.1 Intersection LOS: C
Intersection Capacity Utilization 90.0% ICU Level of Service E
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

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

Splits and Phases: 2: Ridge & N Greece Rd

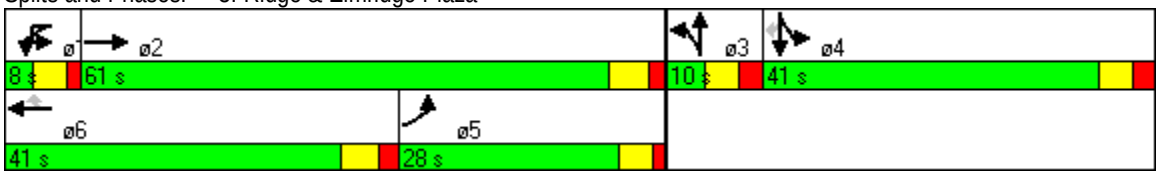
Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations												
Volume (vph)	180	1691	10	10	10	1512	352	10	5	10	526	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0		200		200	75		0	0	
Storage Lanes	1		0		1		1	1		0	1	
Taper Length (ft)	25		25		25		25	25		25	25	
Lane Util. Factor	1.00	0.91	0.91	0.91	1.00	0.91	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.999					0.850		0.903			
Flt Protected	0.950				0.950			0.950			0.950	0.953
Satd. Flow (prot)	1770	5080	0	0	1770	5085	1583	1770	1682	0	1681	1686
Flt Permitted	0.950				0.950			0.950			0.950	0.953
Satd. Flow (perm)	1770	5080	0	0	1770	5085	1583	1770	1682	0	1681	1686
Right Turn on Red			Yes				Yes			Yes		
Satd. Flow (RTOR)		1					242		11			
Link Speed (mph)		40				40			30			30
Link Distance (ft)		1379				2393			322			336
Travel Time (s)		23.5				40.8			7.3			7.6
Peak Hour Factor	0.93	0.93	0.93	0.90	0.93	0.93	0.93	0.90	0.90	0.90	0.92	0.92
Adj. Flow (vph)	194	1818	11	11	11	1626	378	11	6	11	572	5
Shared Lane Traffic (%)											50%	
Lane Group Flow (vph)	194	1829	0	0	22	1626	378	11	17	0	286	291
Turn Type	Prot			Prot	Prot		Perm	Split			Split	
Protected Phases	5	2		1	1	6		3	3		4	4
Permitted Phases							6					
Detector Phase	5	2		1	1	6	6	3	3		4	4
Switch Phase												
Minimum Initial (s)	4.0	27.0		3.0	3.0	27.0	27.0	3.0	3.0		6.0	6.0
Minimum Split (s)	9.0	33.0		8.0	8.0	33.0	33.0	10.0	10.0		35.0	35.0
Total Split (s)	28.0	61.0	0.0	8.0	8.0	41.0	41.0	10.0	10.0	0.0	41.0	41.0
Total Split (%)	23.3%	50.8%	0.0%	6.7%	6.7%	34.2%	34.2%	8.3%	8.3%	0.0%	34.2%	34.2%
Maximum Green (s)	23.0	55.0		3.0	3.0	35.0	35.0	4.0	4.0		35.0	35.0
Yellow Time (s)	3.5	4.0		3.5	3.5	4.0	4.0	3.5	3.5		3.5	3.5
All-Red Time (s)	1.5	2.0		1.5	1.5	2.0	2.0	2.5	2.5		2.5	2.5
Lost Time Adjust (s)	-2.0	0.0	-1.0	-2.0	-2.0	0.0	0.0	0.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	3.0	6.0	3.0	3.0	3.0	6.0	6.0	6.0	6.0	4.0	4.0	6.0
Lead/Lag	Lag	Lag		Lead	Lead	Lead	Lead	Lead	Lead		Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		3.0	3.0	4.0	4.0	3.0	3.0		4.0	4.0
Recall Mode	None	C-Max		None	None	C-Max	C-Max	None	None		None	None
Walk Time (s)		7.0				7.0	7.0				7.0	7.0
Flash Dont Walk (s)		20.0				20.0	20.0				22.0	22.0
Pedestrian Calls (#/hr)		0				0	0				0	0
Act Effct Green (s)	25.0	68.2			7.4	46.3	46.3	4.0	4.0		29.7	27.7
Actuated g/C Ratio	0.21	0.57			0.06	0.39	0.39	0.03	0.03		0.25	0.23
v/c Ratio	0.53	0.63			0.20	0.83	0.50	0.19	0.25		0.69	0.75
Control Delay	33.2	9.9			72.8	17.9	2.3	63.7	43.5		49.1	54.4
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0	0.0		0.0	0.0
Total Delay	33.2	9.9			72.8	17.9	2.3	63.7	43.5		49.1	54.4
LOS	C	A			E	B	A	E	D		D	D

Lane Group	SBR
Lane Configurations	
Volume (vph)	165
Ideal Flow (vphpl)	1900
Storage Length (ft)	0
Storage Lanes	1
Taper Length (ft)	25
Lane Util. Factor	1.00
Frt	0.850
Flt Protected	
Satd. Flow (prot)	1583
Flt Permitted	
Satd. Flow (perm)	1583
Right Turn on Red	Yes
Satd. Flow (RTOR)	179
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	0.92
Adj. Flow (vph)	179
Shared Lane Traffic (%)	
Lane Group Flow (vph)	179
Turn Type	Perm
Protected Phases	
Permitted Phases	4
Detector Phase	4
Switch Phase	
Minimum Initial (s)	6.0
Minimum Split (s)	35.0
Total Split (s)	41.0
Total Split (%)	34.2%
Maximum Green (s)	35.0
Yellow Time (s)	3.5
All-Red Time (s)	2.5
Lost Time Adjust (s)	0.0
Total Lost Time (s)	6.0
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	4.0
Recall Mode	None
Walk Time (s)	7.0
Flash Dont Walk (s)	22.0
Pedestrian Calls (#/hr)	0
Act Effct Green (s)	27.7
Actuated g/C Ratio	0.23
v/c Ratio	0.36
Control Delay	6.7
Queue Delay	0.0
Total Delay	6.7
LOS	A

Lane Group	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Approach Delay		12.1				15.6			51.5			41.1
Approach LOS		B				B			D			D
Queue Length 50th (ft)	148	281			14	287	14	8	5		210	220
Queue Length 95th (ft)	m162	173			m18	m#523	m0	29	30		289	304
Internal Link Dist (ft)		1299				2313			242			256
Turn Bay Length (ft)	200				200		200	75				
Base Capacity (vph)	369	2888			109	1962	759	59	67		518	492
Starvation Cap Reductn	0	0			0	0	0	0	0		0	0
Spillback Cap Reductn	0	0			0	0	0	0	0		0	0
Storage Cap Reductn	0	0			0	0	0	0	0		0	0
Reduced v/c Ratio	0.53	0.63			0.20	0.83	0.50	0.19	0.25		0.55	0.59

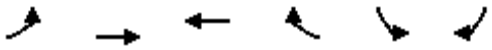
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 5 (4%), Referenced to phase 2:EBT and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 18.3		Intersection LOS: B	
Intersection Capacity Utilization 73.9%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 3: Ridge & Elmridge Plaza



Lane Group	SBR
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	0
Queue Length 95th (ft)	53
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	589
Starvation Cap Reductn	0
Spillback Cap Reductn	0
Storage Cap Reductn	0
Reduced v/c Ratio	0.30

Intersection Summary

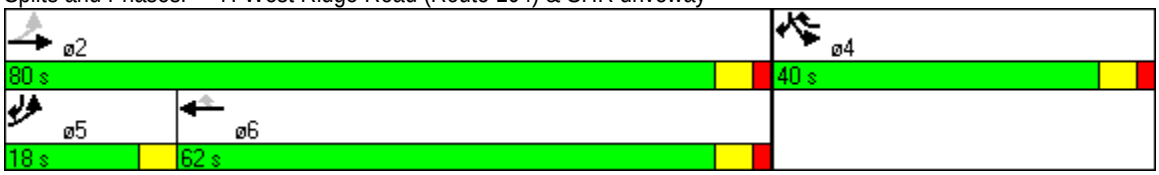


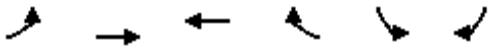
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	270	1499	1413	419	449	203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	350			280	0	0
Storage Lanes	1			1	1	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.066				0.950	
Satd. Flow (perm)	123	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				119		14
Link Speed (mph)		40	40		30	
Link Distance (ft)		1160	1330		834	
Travel Time (s)		19.8	22.7		19.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	284	1578	1487	441	473	214
Shared Lane Traffic (%)						
Lane Group Flow (vph)	284	1578	1487	441	473	214
Turn Type	pm+pt			pm+ov		pt+ov
Protected Phases	5	2	6	4	4	4 5
Permitted Phases	2			6		
Detector Phase	5	2	6	4	4	4 5
Switch Phase						
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	8.0	33.0	33.0	33.0	33.0	
Total Split (s)	18.0	80.0	62.0	40.0	40.0	58.0
Total Split (%)	15.0%	66.7%	51.7%	33.3%	33.3%	48.3%
Maximum Green (s)	14.0	74.0	56.0	34.0	34.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	0.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	2.0	6.0	6.0	6.0	4.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Min	C-Min	None	None	
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		20.0	20.0	20.0	20.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	78.7	74.7	56.4	95.7	35.3	51.6
Actuated g/C Ratio	0.66	0.62	0.47	0.80	0.29	0.43
v/c Ratio	0.93	0.72	0.89	0.34	0.91	0.31
Control Delay	66.9	11.4	24.5	3.0	63.5	22.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.9	11.4	24.5	3.0	63.5	22.3
LOS	E	B	C	A	E	C

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		19.8	19.6		50.7	
Approach LOS		B	B		D	
Queue Length 50th (ft)	149	398	620	42	350	99
Queue Length 95th (ft)	m#290	448	m661	m0	#542	159
Internal Link Dist (ft)		1080	1250		754	
Turn Bay Length (ft)	350			280		
Base Capacity (vph)	305	2206	1667	1296	533	684
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.93	0.72	0.89	0.34	0.89	0.31

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 60 (50%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 24.5		Intersection LOS: C	
Intersection Capacity Utilization 90.6%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 7: West Ridge Road (Route 104) & SHR driveway



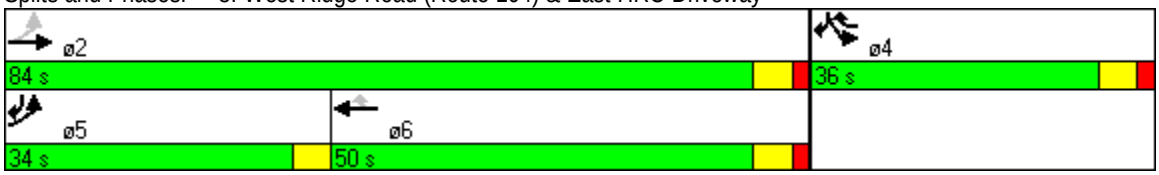


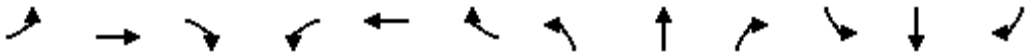
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	406	1026	1080	538	716	288
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300			350	0	0
Storage Lanes	1			1	2	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.080				0.950	
Satd. Flow (perm)	149	3539	3539	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				153		12
Link Speed (mph)		40	40		30	
Link Distance (ft)		525	1160		641	
Travel Time (s)		8.9	19.8		14.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	451	1140	1200	598	796	320
Shared Lane Traffic (%)						
Lane Group Flow (vph)	451	1140	1200	598	796	320
Turn Type	pm+pt			pm+ov		pt+ov
Protected Phases	5	2	6	4	4	4 5
Permitted Phases	2			6		
Detector Phase	5	2	6	4	4	4 5
Switch Phase						
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	10.0	33.0	33.0	33.0	33.0	
Total Split (s)	34.0	84.0	50.0	36.0	36.0	70.0
Total Split (%)	28.3%	70.0%	41.7%	30.0%	30.0%	58.3%
Maximum Green (s)	30.0	78.0	44.0	30.0	30.0	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	0.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	2.0	6.0	6.0	6.0	4.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max	C-Max	None	None	
Walk Time (s)		7.0	7.0	7.0	7.0	
Flash Dont Walk (s)		20.0	20.0	20.0	20.0	
Pedestrian Calls (#/hr)		0	0	0	0	
Act Effct Green (s)	82.0	78.0	46.2	82.2	32.0	61.8
Actuated g/C Ratio	0.68	0.65	0.38	0.68	0.27	0.52
v/c Ratio	0.89	0.50	0.88	0.53	0.87	0.39
Control Delay	53.2	11.7	22.0	3.8	53.6	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.2	11.7	22.0	3.8	53.6	18.2
LOS	D	B	C	A	D	B

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		23.5	15.9		43.4	
Approach LOS		C	B		D	
Queue Length 50th (ft)	275	221	340	51	304	133
Queue Length 95th (ft)	#451	270	m#577	m57	#404	201
Internal Link Dist (ft)		445	1080		561	
Turn Bay Length (ft)	300			350		
Base Capacity (vph)	534	2301	1363	1132	915	834
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.50	0.88	0.53	0.87	0.38

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 88 (73%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.89			
Intersection Signal Delay: 25.4		Intersection LOS: C	
Intersection Capacity Utilization 84.4%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 8: West Ridge Road (Route 104) & East HRC Driveway





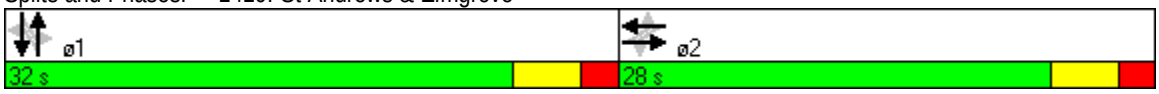
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	4	23	7	3	26	31	714	14	20	684	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	50		0	0		0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.944			0.902			0.997			0.992	
Flt Protected		0.975			0.991			0.998			0.999	
Satd. Flow (prot)	0	1714	0	0	1665	0	0	1853	0	0	1846	0
Flt Permitted		0.813			0.915			0.950			0.971	
Satd. Flow (perm)	0	1430	0	0	1537	0	0	1764	0	0	1794	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33			35			2			7	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1310			1320			2750			1240	
Travel Time (s)		29.8			30.0			62.5			28.2	
Peak Hour Factor	0.70	0.70	0.70	0.75	0.75	0.75	0.88	0.88	0.88	0.86	0.86	0.86
Adj. Flow (vph)	41	6	33	9	4	35	35	811	16	23	795	52
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	80	0	0	48	0	0	862	0	0	870	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		2			2			1			1	
Permitted Phases	2			2			1			1		
Detector Phase	2	2		2	2		1	1		1	1	
Switch Phase												
Minimum Initial (s)	3.0	3.0		3.0	3.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	27.5	27.5		27.5	27.5		25.5	25.5		25.5	25.5	
Total Split (s)	28.0	28.0	0.0	28.0	28.0	0.0	32.0	32.0	0.0	32.0	32.0	0.0
Total Split (%)	46.7%	46.7%	0.0%	46.7%	46.7%	0.0%	53.3%	53.3%	0.0%	53.3%	53.3%	0.0%
Maximum Green (s)	22.5	22.5		22.5	22.5		26.5	26.5		26.5	26.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.0	0.0	-1.0	-1.0	0.0	-1.0	-2.0	0.0	-1.0	-1.0	0.0	-1.0
Total Lost Time (s)	4.5	5.5	3.0	4.5	5.5	3.0	3.5	5.5	3.0	4.5	5.5	3.0
Lead/Lag	Lag	Lag		Lag	Lag		Lead	Lead		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0							
Flash Dont Walk (s)	12.0	12.0		12.0	12.0							
Pedestrian Calls (#/hr)	0	0		0	0							
Act Effct Green (s)		7.0			7.0			30.1			30.1	
Actuated g/C Ratio		0.17			0.17			0.75			0.75	
v/c Ratio		0.29			0.16			0.65			0.65	
Control Delay		13.9			10.1			11.1			10.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		13.9			10.1			11.1			10.8	
LOS		B			B			B			B	

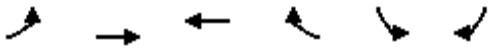
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		13.9			10.1			11.1			10.8	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		11			3			138			137	
Queue Length 95th (ft)		27			18			#382			#364	
Internal Link Dist (ft)		1230			1240			2670			1160	
Turn Bay Length (ft)												
Base Capacity (vph)		840			903			1322			1346	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.10			0.05			0.65			0.65	

Intersection Summary			
Area Type:	Other		
Cycle Length: 60			
Actuated Cycle Length: 40.1			
Natural Cycle: 75			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 0.65			
Intersection Signal Delay: 11.1		Intersection LOS: B	
Intersection Capacity Utilization 69.1%		ICU Level of Service C	
Analysis Period (min) 15			

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 1419: St Andrews & Elmgrove





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	173	1412	1153	233	20	121
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	192	1569	1281	259	22	134
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)			525			
pX, platoon unblocked	0.70				0.70	0.70
vC, conflicting volume	1540				2450	641
vC1, stage 1 conf vol					1281	
vC2, stage 2 conf vol					1169	
vCu, unblocked vol	901				2209	0
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	63				85	82
cM capacity (veh/h)	522				144	754

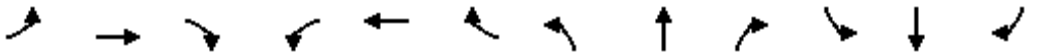
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	192	784	784	641	641	259	22	134
Volume Left	192	0	0	0	0	0	22	0
Volume Right	0	0	0	0	0	259	0	134
cSH	522	1700	1700	1700	1700	1700	144	754
Volume to Capacity	0.37	0.46	0.46	0.38	0.38	0.15	0.15	0.18
Queue Length 95th (ft)	42	0	0	0	0	0	13	16
Control Delay (s)	15.9	0.0	0.0	0.0	0.0	0.0	34.4	10.8
Lane LOS	C						D	B
Approach Delay (s)	1.7			0.0			14.2	
Approach LOS							B	

Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	62	99	648	78	57	693
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.74	0.74	0.84	0.84	0.95	0.95
Hourly flow rate (vph)	84	134	771	93	60	729
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1667	818			864	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1667	818			864	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	14	64			92	
cM capacity (veh/h)	98	376			779	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	218	864	789
Volume Left	84	0	60
Volume Right	134	93	0
cSH	254	1700	779
Volume to Capacity	0.86	0.51	0.08
Queue Length 95th (ft)	176	0	6
Control Delay (s)	63.3	0.0	2.0
Lane LOS	F		A
Approach Delay (s)	63.3	0.0	2.0
Approach LOS	F		

Intersection Summary			
Average Delay		8.2	
Intersection Capacity Utilization		91.9%	ICU Level of Service F
Analysis Period (min)		15	

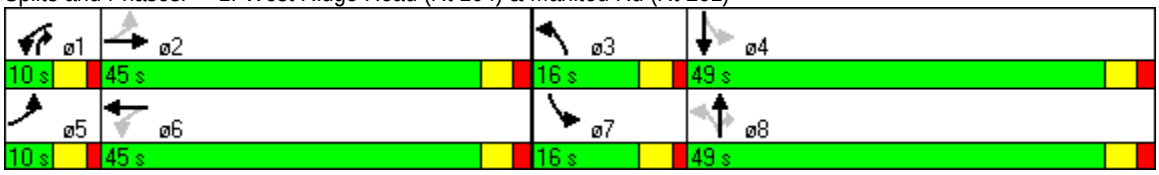


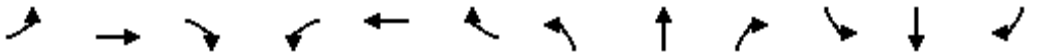
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	107	672	42	159	855	291	82	370	218	212	95	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	12	12	12	12	12	12	12
Storage Length (ft)	225		0	300		0	250		250	300		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	0.99		1.00				0.99	
Frt		0.991			0.962				0.850		0.920	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3462	0	1711	3380	0	1770	1863	1583	1770	1701	0
Flt Permitted	0.085			0.227			0.558			0.188		
Satd. Flow (perm)	153	3462	0	407	3380	0	1038	1863	1583	350	1701	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									92		54	
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		4300			1206			3150			2533	
Travel Time (s)		73.3			20.6			53.7			43.2	
Confl. Peds. (#/hr)	6		10	10		6	1					1
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.86	0.86	0.86	0.98	0.98	0.98
Heavy Vehicles (%)	2%	3%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	116	730	46	167	900	306	95	430	253	216	97	111
Shared Lane Traffic (%)												
Lane Group Flow (vph)	116	776	0	167	1206	0	95	430	253	216	208	0
Turn Type	pm+pt			pm+pt			pm+pt		pm+ov	pm+pt		
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
Minimum Split (s)	9.0	21.5		9.0	21.5		9.0	27.5	9.0	9.0	27.5	
Total Split (s)	10.0	45.0	0.0	10.0	45.0	0.0	16.0	49.0	10.0	16.0	49.0	0.0
Total Split (%)	8.3%	37.5%	0.0%	8.3%	37.5%	0.0%	13.3%	40.8%	8.3%	13.3%	40.8%	0.0%
Maximum Green (s)	5.0	39.5		5.0	39.5		11.0	43.5	5.0	11.0	43.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.5	2.0		1.5	2.0		1.5	2.0	1.5	1.5	2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	3.0	5.5	4.0	3.0	5.5	4.0	3.0	5.5	5.0	3.0	5.5	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								15.0			15.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	58.3	45.0		60.2	45.9		47.0	33.2	48.5	50.2	35.0	
Actuated g/C Ratio	0.49	0.38		0.50	0.38		0.39	0.28	0.40	0.42	0.29	
v/c Ratio	0.54	0.60		0.50	0.93		0.20	0.83	0.36	0.72	0.39	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	29.9	33.8		16.9	34.2		20.1	54.7	15.9	35.2	26.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	29.9	33.8		16.9	34.2		20.1	54.7	15.9	35.2	26.0	
LOS	C	C		B	C		C	D	B	D	C	
Approach Delay		33.3			32.1			37.9			30.7	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	45	262		29	484		43	313	79	106	94	
Queue Length 95th (ft)	#125	343		m77	#680		64	371	128	141	149	
Internal Link Dist (ft)		4220			1126			3070			2453	
Turn Bay Length (ft)	225			300			250		250	300		
Base Capacity (vph)	215	1298		332	1294		501	675	695	301	651	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.54	0.60		0.50	0.93		0.19	0.64	0.36	0.72	0.32	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 5 (4%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.93			
Intersection Signal Delay: 33.5		Intersection LOS: C	
Intersection Capacity Utilization 86.1%		ICU Level of Service E	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 1: West Ridge Road (Rt 104) & Manitou Rd (Rt 261)





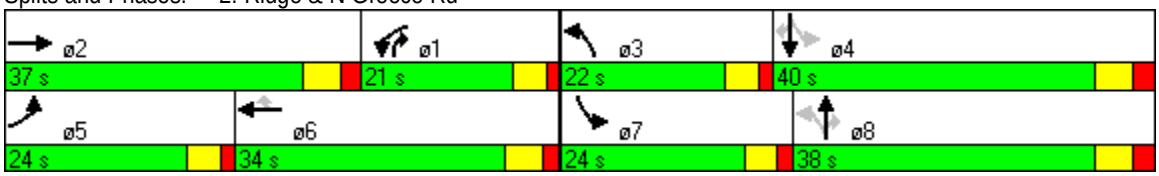
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	238	1001	206	184	1051	200	343	486	195	232	237	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	600		0	500		200	200		200	250		250
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	0.99		1.00		0.98	1.00		0.98	1.00		0.98
Frt		0.974				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4927	0	1770	5085	1583	1770	3539	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.344			0.300		
Satd. Flow (perm)	1768	4927	0	1767	5085	1557	639	3539	1555	557	1863	1559
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		35				183			120			267
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		799			1379			882			880	
Travel Time (s)		13.6			23.5			15.0			17.1	
Confl. Peds. (#/hr)	3		4	4		3	3		5	5		3
Peak Hour Factor	0.89	0.89	0.89	0.87	0.87	0.87	0.96	0.96	0.96	0.86	0.86	0.86
Adj. Flow (vph)	267	1125	231	211	1208	230	357	506	203	270	276	267
Shared Lane Traffic (%)												
Lane Group Flow (vph)	267	1356	0	211	1208	230	357	506	203	270	276	267
Turn Type	Prot			Prot		Perm	pm+pt		pm+ov	pm+pt		Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases						6	8		8	4		4
Detector Phase	5	2		1	6	6	3	8	1	7	4	4
Switch Phase												
Minimum Initial (s)	4.0	20.0		4.0	20.0	20.0	4.0	8.0	4.0	4.0	8.0	8.0
Minimum Split (s)	9.0	28.0		9.0	28.0	28.0	9.0	37.5	9.0	9.0	37.5	37.5
Total Split (s)	24.0	37.0	0.0	21.0	34.0	34.0	22.0	38.0	21.0	24.0	40.0	40.0
Total Split (%)	20.0%	30.8%	0.0%	17.5%	28.3%	28.3%	18.3%	31.7%	17.5%	20.0%	33.3%	33.3%
Maximum Green (s)	19.0	31.0		16.0	28.0	28.0	17.0	31.5	16.0	19.0	33.5	33.5
Yellow Time (s)	3.5	4.0		3.5	4.0	4.0	3.5	4.0	3.5	3.5	4.0	4.0
All-Red Time (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.5	1.5	1.5	2.5	2.5
Lost Time Adjust (s)	-2.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	3.0	3.0	6.0	6.0	3.0	6.5	5.0	3.0	6.5	6.5
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0	4.0	2.0	4.0	2.0	2.0	4.0	4.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		15.0			15.0	15.0		23.0			23.0	23.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	23.0	40.0		18.0	35.0	35.0	47.2	25.1	42.6	46.5	24.6	24.6
Actuated g/C Ratio	0.19	0.33		0.15	0.29	0.29	0.39	0.21	0.36	0.39	0.20	0.20
v/c Ratio	0.79	0.81		0.79	0.82	0.39	0.83	0.68	0.32	0.67	0.72	0.50
Control Delay	54.8	35.6		44.6	25.2	3.7	43.1	48.6	7.2	32.1	55.0	7.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

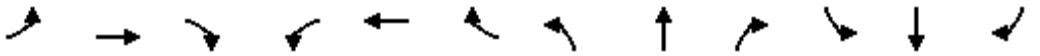
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	54.8	35.6		44.6	25.2	3.7	43.1	48.6	7.2	32.1	55.0	7.7
LOS	D	D		D	C	A	D	D	A	C	D	A
Approach Delay		38.8			24.7			38.9			31.8	
Approach LOS		D			C			D			C	
Queue Length 50th (ft)	150	369		142	276	27	198	192	27	141	201	0
Queue Length 95th (ft)	#327	#494		#253	#409	3	#264	237	51	175	258	53
Internal Link Dist (ft)		719			1299			802			800	
Turn Bay Length (ft)	600			500		200	200		200	250		250
Base Capacity (vph)	348	1666		266	1482	584	430	929	633	440	520	628
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.81		0.79	0.82	0.39	0.83	0.54	0.32	0.61	0.53	0.43

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 13 (11%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 33.2 Intersection LOS: C
Intersection Capacity Utilization 84.0% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 2: Ridge & N Greece Rd



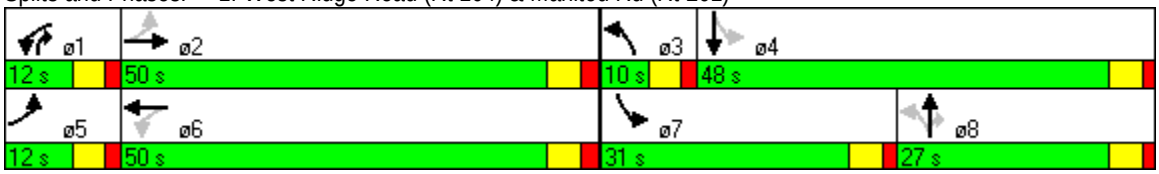


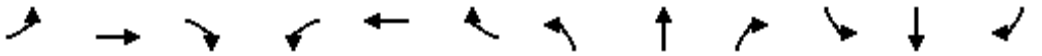
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	91	932	35	192	777	265	39	140	261	302	140	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	12	12	11	12	12	12	12	12	12	12	12
Storage Length (ft)	225		0	300		0	250		250	300		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00	1.00		1.00	0.99							
Frt		0.995			0.962				0.850		0.937	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1711	3516	0	1711	3373	0	1752	1863	1583	1770	1745	0
Flt Permitted	0.126			0.112			0.581			0.408		
Satd. Flow (perm)	226	3516	0	201	3373	0	1072	1863	1583	760	1745	0
Right Turn on Red			No			No			Yes			Yes
Satd. Flow (RTOR)									101		34	
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		4077			1206			3011			2533	
Travel Time (s)		69.5			20.6			51.3			43.2	
Confl. Peds. (#/hr)	13		12	12		13						
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.87	0.87	0.87	0.83	0.83	0.83
Heavy Vehicles (%)	2%	2%	3%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	98	1002	38	206	835	285	45	161	300	364	169	124
Shared Lane Traffic (%)												
Lane Group Flow (vph)	98	1040	0	206	1120	0	45	161	300	364	293	0
Turn Type	pm+pt			pm+pt			pm+pt		pm+ov	pm+pt		
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		3	8	1	7	4	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		3.0	4.0	4.0	3.0	4.0	
Minimum Split (s)	10.0	50.0		10.0	50.0		10.0	27.0	10.0	31.0	27.5	
Total Split (s)	12.0	50.0	0.0	12.0	50.0	0.0	10.0	27.0	12.0	31.0	48.0	0.0
Total Split (%)	10.0%	41.7%	0.0%	10.0%	41.7%	0.0%	8.3%	22.5%	10.0%	25.8%	40.0%	0.0%
Maximum Green (s)	7.0	44.5		7.0	44.5		5.0	22.0	7.0	26.0	43.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.5	2.0		1.5	2.0		1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	3.0	5.5	4.0	3.0	5.5	4.0	3.0	5.0	5.0	3.0	5.0	4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lead	Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	
Walk Time (s)								7.0			7.0	
Flash Dont Walk (s)								15.0			15.0	
Pedestrian Calls (#/hr)								0			0	
Act Effct Green (s)	59.1	46.5		65.8	51.2		24.6	15.6	33.3	47.3	37.3	
Actuated g/C Ratio	0.49	0.39		0.55	0.43		0.20	0.13	0.28	0.39	0.31	
v/c Ratio	0.42	0.76		0.70	0.78		0.17	0.67	0.58	0.69	0.52	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Control Delay	19.8	37.0		49.6	17.8		24.6	62.5	29.3	34.6	33.0	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	19.8	37.0		49.6	17.8		24.6	62.5	29.3	34.6	33.0	
LOS	B	D		D	B		C	E	C	C	C	
Approach Delay		35.5			22.8			39.4			33.9	
Approach LOS		D			C			D			C	
Queue Length 50th (ft)	35	375		100	141		21	120	131	208	166	
Queue Length 95th (ft)	70	461		m#179	#435		40	177	214	247	212	
Internal Link Dist (ft)		3997			1126			2931			2453	
Turn Bay Length (ft)	225			300			250		250	300		
Base Capacity (vph)	238	1363		295	1438		259	342	513	535	647	
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	
Reduced v/c Ratio	0.41	0.76		0.70	0.78		0.17	0.47	0.58	0.68	0.45	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 11 (9%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 120			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.78			
Intersection Signal Delay: 31.1		Intersection LOS: C	
Intersection Capacity Utilization 77.1%		ICU Level of Service D	
Analysis Period (min) 15			
# 95th percentile volume exceeds capacity, queue may be longer.			
Queue shown is maximum after two cycles.			
m Volume for 95th percentile queue is metered by upstream signal.			

Splits and Phases: 1: West Ridge Road (Rt 104) & Manitou Rd (Rt 261)





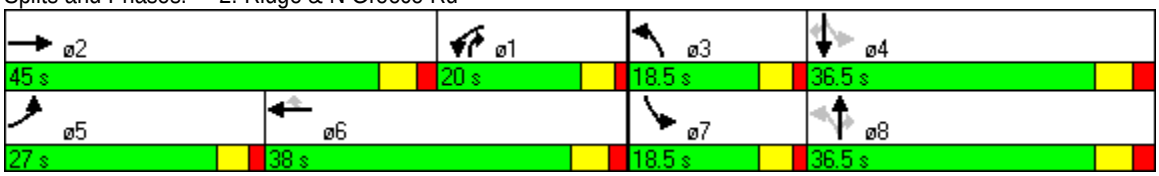
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	341	1396	302	206	1238	243	274	291	216	267	232	367
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	600		0	500		200	200		200	250		250
Storage Lanes	1		0	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	0.91	0.91	1.00	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00		1.00			1.00					0.99
Frt		0.973				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	4928	0	1770	5085	1583	1752	3539	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.375			0.492		
Satd. Flow (perm)	1770	4928	0	1769	5085	1583	691	3539	1583	916	1863	1562
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		42				198			77			408
Link Speed (mph)		40			40			40			35	
Link Distance (ft)		799			1379			882			1777	
Travel Time (s)		13.6			23.5			15.0			34.6	
Confl. Peds. (#/hr)			1	1			1					1
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.93	0.93	0.93	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	2%	2%	2%	2%	2%
Adj. Flow (vph)	371	1517	328	219	1317	259	295	313	232	297	258	408
Shared Lane Traffic (%)												
Lane Group Flow (vph)	371	1845	0	219	1317	259	295	313	232	297	258	408
Turn Type	Prot			Prot		Perm	pm+pt		pm+ov	pm+pt		Perm
Protected Phases	5	2		1	6		3	8	1	7	4	
Permitted Phases						6	8		8	4		4
Detector Phase	5	2		1	6	6	3	8	1	7	4	4
Switch Phase												
Minimum Initial (s)	4.0	20.0		4.0	20.0	20.0	4.0	8.0	4.0	4.0	8.0	8.0
Minimum Split (s)	12.0	28.0		12.0	28.0	28.0	12.0	36.5	12.0	12.0	36.5	36.5
Total Split (s)	27.0	45.0	0.0	20.0	38.0	38.0	18.5	36.5	20.0	18.5	36.5	36.5
Total Split (%)	22.5%	37.5%	0.0%	16.7%	31.7%	31.7%	15.4%	30.4%	16.7%	15.4%	30.4%	30.4%
Maximum Green (s)	22.0	39.0		15.0	32.0	32.0	13.5	30.0	15.0	13.5	30.0	30.0
Yellow Time (s)	3.5	4.0		3.5	4.0	4.0	3.5	4.0	3.5	3.5	4.0	4.0
All-Red Time (s)	1.5	2.0		1.5	2.0	2.0	1.5	2.5	1.5	1.5	2.5	2.5
Lost Time Adjust (s)	-2.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	0.0	0.0	-2.0	0.0	0.0
Total Lost Time (s)	3.0	6.0	3.0	3.0	6.0	6.0	3.0	6.5	5.0	3.0	6.5	6.5
Lead/Lag	Lead	Lead		Lag	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	4.0		2.0	4.0	4.0	2.0	4.0	2.0	2.0	4.0	4.0
Recall Mode	None	C-Max		None	C-Max	C-Max	None	None	None	None	None	None
Walk Time (s)		7.0			7.0	7.0		7.0			7.0	7.0
Flash Dont Walk (s)		15.0			15.0	15.0		23.0			23.0	23.0
Pedestrian Calls (#/hr)		0			0	0		0			0	0
Act Effct Green (s)	29.7	45.3		17.0	32.5	32.5	42.7	23.7	40.2	42.7	23.7	23.7
Actuated g/C Ratio	0.25	0.38		0.14	0.27	0.27	0.36	0.20	0.34	0.36	0.20	0.20
v/c Ratio	0.85	0.98		0.87	0.96	0.45	0.77	0.45	0.40	0.68	0.70	0.64
Control Delay	48.9	45.6		46.3	30.8	3.9	41.8	43.5	13.0	35.9	54.6	8.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.9	45.6		46.3	30.8	3.9	41.8	43.5	13.0	35.9	54.6	8.6
LOS	D	D		D	C	A	D	D	B	D	D	A
Approach Delay		46.2			28.8			34.5			29.3	
Approach LOS		D			C			C			C	
Queue Length 50th (ft)	257	542		142	179	0	167	112	59	168	186	0
Queue Length 95th (ft)	m#483	#705		m#219	#442	m0	227	148	94	228	263	83
Internal Link Dist (ft)		719			1299			802			1697	
Turn Bay Length (ft)	600			500		200	200		200	250		250
Base Capacity (vph)	439	1885		251	1379	573	383	885	582	436	466	697
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.98		0.87	0.96	0.45	0.77	0.35	0.40	0.68	0.55	0.59

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 19 (16%), Referenced to phase 2:EBT and 6:WBT, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 36.3 Intersection LOS: D
Intersection Capacity Utilization 90.0% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Ridge & N Greece Rd



Appendix F

Signal Warrant

Bergmann associates

Greece, NY
Route 104 at the east HRC driveway
SIGNAL WARRANT ANALYSIS
2009 FUTURE BUILD CONDITION

Route 104 operating speed > 40 mph
Weekday Volumes
Southbound right turns are reduced by 60% to account for right turns on red

TIME			VOLUMES: MAJOR ST. Route 104 EB	WB	TOTAL	MINOR ST. East HRC Driveway SB	WARRANTS MET: WARRANT 1 Condition B - Interuption of Continuous Traffic MAJOR	MINOR	Warrant 2 Four Hour	Warrant 3 Peak Hour
VOLUME CRITERIA:							900*.7=630	100*.7=70		
10:00 AM	TO	11:00 AM								
11:00 AM	TO	12:00 PM	646	549	1195	291	YES	YES	YES	YES
12:00 PM	TO	1:00 PM	712	674	1386	390	YES	YES	YES	YES
1:00 PM	TO	2:00 PM	696	719	1415	405	YES	YES	YES	YES
2:00 PM	TO	3:00 PM	673	728	1401	435	YES	YES	YES	YES
3:00 PM	TO	4:00 PM	718	877	1595	440	YES	YES	YES	YES
4:00 PM	TO	5:00 PM	714	1011	1725	449	YES	YES	YES	YES
5:00 PM	TO	6:00 PM	760	1091	1851	469	YES	YES	YES	YES
6:00 PM	TO	7:00 PM	816	1046	1862	380	YES	YES	YES	YES
7:00 PM	TO	8:00 PM								
HOURS SATISFIED:							8 Hours Met		8 Hrs Met	8 Hrs Met

Developed using count data and ITE Report

ITE Shopping Center percent by hour:

Entering Traffic			Exiting Traffic		
Entering traffic variation less than 100ksf	Entering traffic variation More than 300ksf	Sum of less than 100ksf and more than 300ksf	Exiting traffic variation less than 100ksf	Exiting traffic variation More than 300ksf	Sum of less than 100ksf and more than 300ksf
7.6	7.5	15.1	6.5	3.7	10
7.6	8.6	16.2	8.4	5.9	14
7.6	9.5	17.1	8.2	7.9	16
6.9	8.7	15.6	7.5	8.2	16
9	7.9	16.9	7.8	8.8	17
9.6	7.7	17.3	9.5	8.9	18
9.7	8.2	17.9	10.4	9.1	20
10.3	8.3	18.6	11	9.5	21
7.4	7.8	15.2	8.3	7.7	16
5.4	8.4	13.8	5.3	7	12

SATURDAY PEAK HOUR MEETS ALL VOLUME WARRANTS

CONCLUSION

IN YEAR 2009 With HRC

REDUCED WARRANT 1 IS MET

REDUCED WARRANT 2 IS MET

REDUCED WARRANT 3 IS MET

WARRANT DEFINITIONS:

WARRANT 1 = EIGHT-HOUR VEHICULAR VOLUME

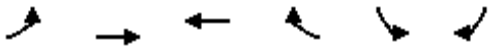
WARRANT 2 = FOUR-HOUR VEHICULAR VOLUME

WARRANT 3 = PEAK HOUR

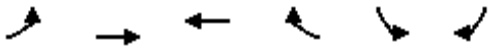
Free-Flow Slip Lane Analysis

HRC east driveway

Bergmann associates



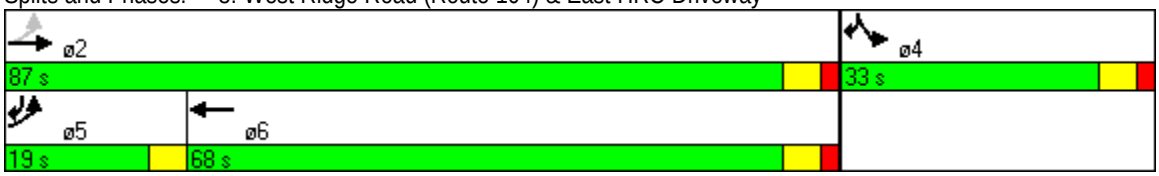
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	205	893	1165	340	382	218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300			350	0	0
Storage Lanes	1			1	2	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.123				0.950	
Satd. Flow (perm)	229	3539	3539	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				250		37
Link Speed (mph)		40	40		30	
Link Distance (ft)		525	1160		641	
Travel Time (s)		8.9	19.8		14.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	228	992	1294	378	424	242
Shared Lane Traffic (%)						
Lane Group Flow (vph)	228	992	1294	378	424	242
Turn Type	pm+pt			Free		pt+ov
Protected Phases	5	2	6		4	4 5
Permitted Phases	2			Free		
Detector Phase	5	2	6		4	4 5
Switch Phase						
Minimum Initial (s)	3.0	3.0	3.0		3.0	
Minimum Split (s)	10.0	33.0	33.0		33.0	
Total Split (s)	19.0	87.0	68.0	0.0	33.0	52.0
Total Split (%)	15.8%	72.5%	56.7%	0.0%	27.5%	43.3%
Maximum Green (s)	15.0	81.0	62.0		27.0	
Yellow Time (s)	4.0	4.0	4.0		4.0	
All-Red Time (s)	0.0	2.0	2.0		2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	2.0	6.0	6.0	4.0	4.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	C-Max	C-Max		Max	
Walk Time (s)		7.0	7.0		7.0	
Flash Dont Walk (s)		20.0	20.0		20.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	85.0	81.0	65.2	120.0	29.0	42.8
Actuated g/C Ratio	0.71	0.68	0.54	1.00	0.24	0.36
v/c Ratio	0.67	0.42	0.67	0.24	0.51	0.41
Control Delay	18.6	6.5	13.5	0.3	41.9	26.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.6	6.5	13.5	0.3	41.9	26.3
LOS	B	A	B	A	D	C

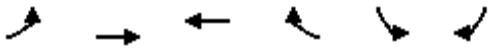


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		8.8	10.5		36.2	
Approach LOS		A	B		D	

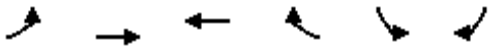
Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 69 (58%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 80			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.67			
Intersection Signal Delay: 14.7		Intersection LOS: B	
Intersection Capacity Utilization 66.1%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 8: West Ridge Road (Route 104) & East HRC Driveway





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	406	1026	1080	538	716	288
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300			350	0	0
Storage Lanes	1			1	2	1
Taper Length (ft)	25			25	25	25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.078				0.950	
Satd. Flow (perm)	145	3539	3539	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				426		15
Link Speed (mph)		40	40		30	
Link Distance (ft)		525	1160		641	
Travel Time (s)		8.9	19.8		14.6	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	451	1140	1200	598	796	320
Shared Lane Traffic (%)						
Lane Group Flow (vph)	451	1140	1200	598	796	320
Turn Type	pm+pt			Free		pt+ov
Protected Phases	5	2	6		4	4 5
Permitted Phases	2			Free		
Detector Phase	5	2	6		4	4 5
Switch Phase						
Minimum Initial (s)	3.0	3.0	3.0		3.0	
Minimum Split (s)	10.0	33.0	33.0		33.0	
Total Split (s)	32.0	84.0	52.0	0.0	36.0	68.0
Total Split (%)	26.7%	70.0%	43.3%	0.0%	30.0%	56.7%
Maximum Green (s)	28.0	78.0	46.0		30.0	
Yellow Time (s)	4.0	4.0	4.0		4.0	
All-Red Time (s)	0.0	2.0	2.0		2.0	
Lost Time Adjust (s)	-2.0	0.0	0.0	0.0	-2.0	0.0
Total Lost Time (s)	2.0	6.0	6.0	4.0	4.0	6.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Recall Mode	None	C-Max	C-Max		None	
Walk Time (s)		7.0	7.0		7.0	
Flash Dont Walk (s)		20.0	20.0		20.0	
Pedestrian Calls (#/hr)		0	0		0	
Act Effct Green (s)	82.3	78.3	47.5	120.0	31.7	60.5
Actuated g/C Ratio	0.69	0.65	0.40	1.00	0.26	0.50
v/c Ratio	0.92	0.49	0.86	0.38	0.88	0.40
Control Delay	44.1	8.9	18.5	0.4	54.5	18.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	44.1	8.9	18.5	0.4	54.5	18.9
LOS	D	A	B	A	D	B



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		18.9	12.5		44.3	
Approach LOS		B	B		D	

Intersection Summary			
Area Type:	Other		
Cycle Length: 120			
Actuated Cycle Length: 120			
Offset: 88 (73%), Referenced to phase 2:EBTL and 6:WBT, Start of Green			
Natural Cycle: 90			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 22.6		Intersection LOS: C	
Intersection Capacity Utilization 84.4%		ICU Level of Service E	
Analysis Period (min) 15			

Splits and Phases: 8: West Ridge Road (Route 104) & East HRC Driveway