

Traffic Signal Optimization Project Phase III

Isolated Intersections

Onondaga County Department of Transportation

CHA Project Number: 27137



Prepared for:



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CHAPTER I

OVERVIEW

Traffic signals affect the lives of Onondaga County citizens every day. Every signalized intersection in Onondaga County addresses a wide variety of needs. The signal must be effective and functional for a wide variety of users that include pedestrians, automobiles, bicyclists, transit, and large trucks. Signalized intersections provide for the organized control of conflicting traffic movements in a safe manner; however, these intersections can be a source of frustration for motorists due to delays. As Onondaga County continues to develop, travel patterns have changed over the years, leading to outdated traffic signal timings that account for a significant amount of delay on roadways throughout the county. By updating signal timings and installing new technology, benefits can be achieved at a relatively low cost. Updated signal timings and equipment have the potential to reduce vehicular delay and thereby improve air quality through reduced emissions and less time spent idling at an intersection. This report summarizes the results of the studies conducted at various Onondaga County Department of Transportation (OCDOT) controlled intersections throughout Onondaga County.

A. Study Area

The Onondaga County Department of Transportation Traffic Signal Optimization Project – Phase III includes the following isolated intersections:

- Buckley Road at Bailey Road*
- Buckley Road at Hopkins Road*
- Buckley Road at Old Liverpool Road
- Buckley Road at Wetzel Road
- Caughdenoy Road at Lawton Road
- East Taft Road at Northern Boulevard
- East Taft Road at Thompson Road
- East Taft Road at Kreischer Road
- East Taft Road at Interstate 81 Northbound Ramps
- East Taft Road at Interstate 81 Southbound Ramps
- East Taft Road at USPO/John Street
- East Taft Road at South Bay Road
- West Taft Road at US Route 11
- West Taft Road at Teachers Drive
- West Taft Road at Woodside Run/Wegmans
- US Route 11 at Shopping Plaza/CNS Offices
- Factory Avenue at Lemoyne Avenue
- Factory Avenue at Townline Road
- Fly Road at New Venture Gear Drive
- Fremont Road at Central Avenue
- Henry Clay Boulevard at Buckley Road
- Henry Clay Boulevard at Wetzel Road

- Kinne Street at Franklin Park Drive
- Lemoyne Avenue at Boulevard Street
- Morgan Road at Fairways Drive East
- Morgan Road at Steelway Boulevard/Grampian Road
- Morgan Road at Wetzel Road*
- Newport Road at West Genesee Street
- North Burdick Street at Northeast Medical Center
- Northern Boulevard/Running Ridge/Beacon North
- Old Liverpool Road at Beechwood Avenue
- Onondaga Boulevard at Bellevue Avenue*
- Onondaga Boulevard at Wegmans/Western Lights
- Rock Cut Road at OCCRA Driveway
- Seventh North Street at Terminal Road
- Soule Road at Streamwood Drive*
- South Bay Road at Thompson Road
- Teall Avenue at Galster Avenue
- Velasko Road at McDonald Road
- Vine Street at Continuum Drive
- West Genesee Street at Fairmount Fair
- West Genesee Street at Gillespie Avenue**
- West Genesee Street at Beverly Drive**
- West Genesee Street at Whedon Road**

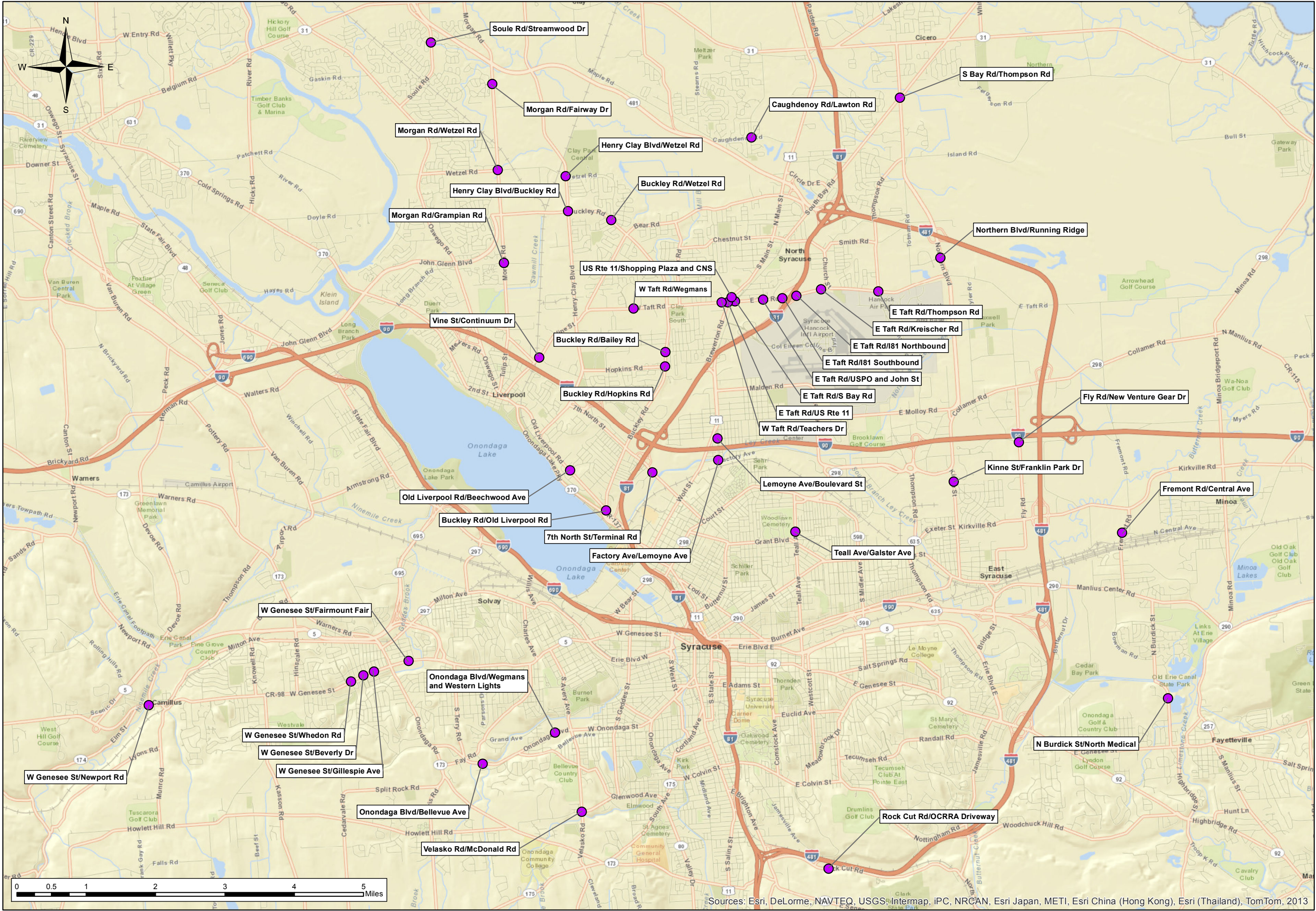
These intersections are illustrated in Figure 1. The intersections were analyzed for the weekday AM and PM peak hours and those intersections that are denoted with a “*” were also analyzed for the early evening peak hour due to the presence of adjacent schools. Those intersections denoted with “**” were also analyzed for the Saturday peak hour.

B. Project Purpose

Traffic signal optimization is a cost effective way to improve the flow of traffic along a corridor. At signalized intersections, it is important for the signal timing plans to match existing traffic patterns at each intersection. The optimizing of traffic signals is a way to maximize the capacity of the intersection without having to perform costly infrastructure improvements. Benefits from signal optimization include:

- Reduction in travel time and delays
- Reduction in stops and traffic slow downs could reduce accident potential
- Reduction in fuel consumption (i.e., less idling time) and vehicle emissions
- Potential to delay/eliminate the need for intersection widening

This project is part of an overall goal of the Onondaga County Department of Transportation to evaluate the operations of all of its traffic signals. This project is the third phase of a multi-phase project.



Project Location Map - Isolated Intersections
Onondaga County Department of Transportation
Traffic Signal Optimization - Phase III

FIGURE 1

Chapter II

ISOLATED INTERSECTION ANALYSIS

To meet the project purpose, an evaluation of existing conditions was completed and new signal timing plans were developed. In order to develop new timing plans for each intersection, traffic count data, existing signal timing data, and intersection geometry were provided by the Syracuse Metropolitan Transportation Council (SMTTC) and OCDOT. The intersections were analyzed using the traffic analysis software SYNCHRO 7 using the information provided by the SMTTC and OCDOT. The existing operations were documented so that a comparison could be made to future proposed changes. The study area intersections were then evaluated using different signal timing parameters, signal phasing sequences and detection types to improve the overall performance of the individual intersections.

This project is the third phase of a multi-phase project being conducted by the Onondaga County Department of Transportation to evaluate the operations at all of its signalized intersections.

A. Methodology

Traffic data, including peak hour turning movement volumes, traffic signal timing and phasing data, intersection geometric data, and photographs were provided to CHA in order to develop SYNCHRO models for the existing conditions at the intersections that are included within the study area. These models were used to determine existing weekday AM and PM peak hour levels of service (LOS) for all the study area intersections and for early afternoon and Saturday peak hour operations for a select set of intersections adjacent to schools or in commercial areas. The individual intersections were then optimized using different signal timing parameters. The existing levels of service were used for comparison purposes to establish the benefits of optimizing the operation of the intersection while bringing them into conformance with Onondaga County Department of Transportation signal timing standards.

Prior to developing the new signal timing plans, it was important to understand and validate the existing conditions at each intersection. By using the data that was provided and knowledge of the existing conditions observed in the field, a model of each intersection was built for each peak period using SYNCHRO. Existing cycle lengths and phase times were obtained from the existing timing plans that were provided by OCDOT and then field verified.

The existing conditions of the signals along each corridor were analyzed in a manner consistent with the Highway Capacity Manual 2000 methodologies. CHA then performed an operational analysis for each isolated intersection. The capacity analyses were consistent with the Highway Capacity Manual 2000 methodology when comparing improvement options. Existing and proposed signal phasing and sequencing were analyzed as well as identifying other possible operational improvements, such as pavement marking changes, signal control equipment additions and/or upgrades, etc. Consideration was given to compliance issues with the FHWA Manual on Uniform Traffic Control Devices (MUTCD). In discussions with OCDOT staff, it was determined that the development of optimized signal plans should be accomplished with a minimal amount of infrastructure investment (new signal heads, controllers, detection, etc). Consequently, where possible, all existing signal equipment was maintained and only as a last resort was new signal equipment proposed.

Minimum and maximum green times and yellow and all red clearance intervals were reviewed for each intersection to determine if these intervals are within industry standards. Onondaga County Department of Transportation signal timing standards were utilized to evaluate minimum green times and clearance intervals. Minimum green times are based upon the FHWA classification of the roadways at each intersection. The yellow and all red clearance times are based on the approach speeds of the intersecting roadways and the widths of the intersections. Minimum green times were determined using the OCDOT signal timing standards for actuated phases and using the proposed optimized Synchro timings times 1.25 for not actuated phases. Maximum green times are based upon OCDOT signal timing standards for actuated phases or by taking the optimized Synchro maximum green times and multiplying them by 1.5. This value is then compared to the actuated green time for each type of roadways as shown in the OCDOT traffic signal timing standards, and whichever number is greater, that was used as the maximum green time for that phase.

Passage times were determined by using the existing speed limits on the intersecting roadways and estimating the length of the detection zones shown in the intersection plans that were provided to CHA. Where plans were not available, OCDOT provided additional information, or detection zones were assumed based on detector layouts at similar intersections.

Pedestrian clearance times, for intersections where there are concurrent pedestrian timings, were reviewed to determine if they meet the guidelines contained in the FHWA Signal Timing Manual. The Manual of Uniform Traffic Control Devices (MUTCD) currently states that the pedestrian clearance interval must be calculated assuming the distance from the curb to the far side of the opposing travel way, or to a median of sufficient width for pedestrians to wait. Note that previous editions of the MUTCD only required the clearance time to be as long as needed for the pedestrian to reach the center of the farthest traveled lane.

The pedestrian clearance time was computed as the crossing distance divided by the walking speed. The speed of pedestrians is a critical assumption in determining this parameter. The MUTCD recommends a walking speed value of 4.0 feet per second (ft/sec). The Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities recommended use of 3.0 ft/sec. Recent studies suggest that a speed of 3.5 ft/sec be used to calculate the pedestrian clearance duration for curb to curb clearance. For the purposes of this study, a walking speed of 3.5 ft/sec was used to calculate the required pedestrian clearance interval.

New timing plans were then developed for each intersection using the data previously collected and the results of the existing conditions analysis. Two timing plans were developed for each intersection — an AM and PM peak hour plan. In addition, early afternoon and/or Saturday timing plans were developed for a subset of the study area intersections that are located adjacent to schools or in commercial areas. The development of these timing plans began with an evaluation of each intersection. A review of yellow and all red clearances was performed to determine if existing clearance intervals were within OCDOT standards and minimum green times, maximum green times and vehicle extension intervals were also reviewed. Finally, cycle lengths were determined for each intersection for each of the proposed timing plans. This was accomplished by the use of SYNCHRO cycle length evaluations, knowledge gained from field observations, and professional judgment. After the cycle lengths were determined, the optimal phase split times were established. This data was entered into the SYNCHRO models and then the phase sequences were evaluated to determine the optimal level of service, thus reducing vehicle stops and delay.

In some cases, the intersections are projected to operate worse than they currently do. The main reason for this is that in most cases the yellow and red clearance intervals were lengthened, thereby allowing for less green time for the intersections. There is a safety benefit of lengthening the yellow and red clearance intervals in that it allows vehicles that enter the intersection during the yellow change interval to clear through the intersection prior to opposing phases starting. In addition, minimum and maximum green times were also lengthened to comply with OCDOT signal timing standards. This had the effect of lengthening the overall cycle lengths, thereby increasing delay at the intersection.

There are a few intersections along Taft Road (Interstate 81 Ramps and South Bay Road, US Route 11 and US Route 11/Shopping Center) that operate in a coordinated mode. This portion of the study analyzes these locations as isolated intersections; consequently, there are some movements and/or intersections that operate worse with the optimized signal timings. Given the relative location of these intersections to each other, it is not likely that these intersection would operate as shown in the tables presented in this report as these intersections need to operate in a coordinated mode in order to operate most efficiently.

The final component to the timing plans was to prepare coding sheets for each intersection. CHA transferred the proposed timing plans from the SYNCHRO model into a format compatible with OCDOT's traffic signal timing program (Microsoft Excel spreadsheets).

B. List of Study Area Intersections

The following is a list of isolated intersections that were included in the Phase III of the study along with their unique Onondaga County Department of Transportation signal numbers:

OCDOT Signal No. 4	East Taft Road at Thompson Road
OCDOT Signal No. 5	Old Liverpool Road at Beechwood Avenue
OCDOT Signal No. 10	West Taft Road at Teachers Drive
OCDOT Signal No. 14	East Taft Road at Northern Boulevard
OCDOT Signal No. 26	Caughdenoy Road at Lawton Road
OCDOT Signal No. 27	Henry Clay Boulevard at Buckely Road
OCDOT Signal No. 28	Kinne Street at Franklin Park Drive
OCDOT Signal No. 29	Velasko Road at McDonald Road
OCDOT Signal No. 32	Morgan Road at Wetzel Road
OCDOT Signal No. 33	South Bay Road at Thompson Road
OCDOT Signal No. 42	Onondaga Boulevard at Bellevue Avenue
OCDOT Signal No. 44	Lemoyne Avenue at Boulevard Street
OCDOT Signal No. 45	Buckley Road at Bailey Road
OCDOT Signal No. 46	Factory Avenue at Town Line Road
OCDOT Signal No. 49	Teall Avenue at Galster Avenue
OCDOT Signal No. 51	West Genesee Street at Beverly Drive/Mackay Avenue
OCDOT Signal No. 56	Factory Avenue at Lemoyne Avenue
OCDOT Signal No. 57	Fly Road at New Venture Gear Drive
OCDOT Signal No. 62	Henry Clay Boulevard at Wetzel Road
OCDOT Signal No. 71	Buckley Road at Old Liverpool Road
OCDOT Signal No. 74	Northern Boulevard at Running Ridge/Beacon North

OCDOT Signal No. 78	Buckley Road at Wetzel Road
OCDOT Signal No. 81	West Genesee Street at Newport Road
OCDOT Signal No. 82	Morgan Road at Steelway Boulevard/Grampian Road
OCDOT Signal No. 84	Fremont Road at North Central Avenue
OCDOT Signal No. 88	West Genesee Street at Whedon Road
OCDOT Signal No. 90	Soule Road at Streamwood Drive
OCDOT Signal No. 95	East Taft Road at Kreischer Road
OCDOT Signal No. 98	Morgan Road at Fairways Drive East
OCDOT Signal No. 99	Buckley Road at Hopkins Road
OCDOT Signal No. 101	West Taft Road at Woodside Road/Wegmans
OCDOT Signal No. P-4	Onondaga Boulevard at Western Lights/Wegmans
OCDOT Signal No. P-7	West Genesee Street at Fairmount Fair
OCDOT Signal No. P-9	Seventh North Street at Terminal Drive
OCDOT Signal No. P-12	East Taft Road at USPO/John Street
OCDOT Signal No. P-16	Vine Street at Continuum Drive
OCDOT Signal No. P-18	West Genesee Street at Gillespie Avenue
OCDOT Signal No. P-19	Rock Cut Road at OCCRA Driveway
OCDOT Signal No.	North Burdick Street at Medical Center Driveway
NYSDOT – 1	West Taft Road at US Route 11
NYSDOT – 2	East Taft Road at South Bay Road
NYSDOT – 3	East Taft Road at Interstate 81 Southbound Ramps
NYSDOT – 4	East Taft Road at Interstate 81 Northbound Ramps
NYSDOT – 5	US Route 11 at Shopping Plaza/CNS Offices

C. Buckley Road at Bailey Road – OCDOT Signal No. 45

This is a three-legged intersection which operates as a semi-actuated, three-phase signal with an exclusive pedestrian phase with presence detection on the Bailey Road approach and the Buckley Road southbound left turn and northbound right turn movements. There is a pedestrian crossing of the northbound leg of the intersection with pedestrian signals. Maximum recall is set for the Buckley Road through phases. The signal currently operates on a maximum 101 second cycle for the entire day. The geometry of the intersection is as follows:

- Buckley Road Northbound – Exclusive through and right turn lanes
- Buckley Road Southbound – Exclusive through and left turn lanes
- Bailey Road Westbound – Exclusive left and right turn lanes

The posted speed limit on Buckley Road is 25 mph (because of a school zone) and 30 mph on Bailey Road. Table II.C presents the results of the level of service for the existing and proposed conditions.

Table II.C
Buckley Road at Bailey Road

Intersection	AM		PM		School Peak	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
Buckley Rd/Bailey Rd						
WB L	C(28.9)	C(22.9)	C(31.1)	C(31.3)	C(26.8)	C(20.2)
R	D(46.3)	B(10.8)	D(35.6)	C(22.1)	E(59.5)	B(14.4)
NB T	C(25.6)	C(20.7)	C(31.3)	C(27.9)	C(27.6)	B(17.7)
R	C(21.2)	A(9.8)	B(19.8)	A(9.8)	B(18.8)	A(6.1)
SB L	B(16.7)	A(9.3)	B(15.3)	A(9.6)	B(12.2)	A(7.1)
SB T	A(7.6)	A(4.8)	A(6.4)	A(4.4)	A(8.0)	A(5.3)
Overall	C(22.5)	B(11.6)	C(25.3)	B(18.3)	C(26.7)	B(11.9)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change phasing to allow for a lead southbound left turn phase.
- Set minimum green time to 5 seconds for southbound left turn phase
- Change minimum green time to 7 seconds for Bailey Road phase
- Change yellow clearance interval to 3 seconds for all phases.
- Change the red clearance interval from 2 seconds to 3 seconds for the Buckley Road through phases.
- Set the Buckley Road through phases to minimum recall.
- Change the minimum gap and passage time on the Buckley Road phases to 1.1 seconds and 1.4 seconds for the Bailey Road phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 123 seconds for AM peak hour, 111 seconds for the PM peak hour and 121 seconds for the school peak hour.

D. Buckley Road at Hopkins Road – OCDOT Signal No. 99

This is a three-legged intersection which operates as a semi-actuated, two phase signal with presence detection on the Hopkins Road movements. Maximum recall is set for the Buckley Road northbound and southbound movements. There are no pedestrian accommodations at the intersection. The signal currently operates on a maximum 55 second cycle length with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- Buckley Road Northbound – shared through/left turn lane
- Buckley Road Southbound – shared through/right turn lane
- Hopkins Road Eastbound – exclusive left and right turn lanes

The posted speed limit on both roads is 35 mph. Table II.D presents the results of the level of service for the existing and proposed conditions.

Table II.D
Buckley Road at Hopkins Road

Intersection	AM		PM		School Peak	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
Buckley Rd/Hopkins Rd						
EB L	B(16.2)	C(23.5)	B(15.7)	C(34.7)	B(18.3)	C(20.6)
R	B(14.3)	C(20.1)	B(13.7)	C(30.2)	B(16.2)	B(18.8)
NB L/T	A(7.1)	A(5.7)	B(19.6)	A(8.9)	A(6.4)	A(5.8)
SB T/R	A(9.5)	A(7.4)	A(6.7)	A(4.8)	A(5.5)	A(5.0)
Overall	B(10.9)	B(11.9)	B(14.3)	B(11.6)	A(8.2)	A(8.2)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green to 30 seconds for Buckley Road and 10 seconds for Hopkins Road.
- Change all red clearance interval from 2.0 seconds for all phases to 2.5 seconds for Buckley Road and 1.0 seconds for Hopkins Road
- Change the minimum gap and passage time to 2.2 seconds for the Hopkins Road phase.
- Change the cycle length to 78 seconds for AM peak hour, 100 seconds for the PM peak hour and 71 seconds for the School peak hour.

E. Buckley Road at Old Liverpool Road – OCDOT Signal No. 71

This is a two-legged intersection of two one-way streets which operates as a semi-actuated, two phase signal with presence detection on the Buckley Road movements. There are no pedestrian accommodations at the intersection. Maximum recall is set, for the Old Liverpool Road movements. The signal currently operates on a maximum 60 second cycle during the AM and PM peak hours with the same signal timings for both peak hours. The geometry of the intersection is as follows:

- Old Liverpool Road Northwestbound – two exclusive through lanes
- Buckley Road Southbound – exclusive through lane

The posted speed limit on both roadways is 35 mph. Table II.E presents the results of the level of service for the existing and proposed conditions.

Table II.E
Buckley Road at Old Liverpool Road

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
Buckley Rd/Old Liverpool Rd				
SB T	B(16.6)	C(20.3)	B(18.0)	C(22.0)
NW T	A(9.3)	A(5.9)	B(10.5)	A(7.5)
Overall	B(12.0)	B(11.3)	B(12.9)	B(12.2)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green time on the Buckley Road phase from 20 seconds to 10 seconds.
- Change the all red clearance interval from 2 seconds to 1.5 seconds for the Old Liverpool Road phase.
- Set the minimum gap and passage time on the Old Liverpool Road phase to 3.0 seconds and 2.0 seconds on the Buckley Road phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 70 seconds for AM and PM peak hours.

F. Buckley Road at Wetzel Road – OCDOT Signal No. 78

This is a three-legged intersection which operates as a two-phase pre-timed signal. Maximum recall is set for both phases. There are no pedestrian accommodations at the intersection. The signal currently operates on a maximum 46 second cycle during the AM peak hour and a 64 second cycle during the PM peak hour with different phase timings for each of the peak hours. The geometry of the intersection is as follows:

- Buckley Road Eastbound – shared through/left turn lane
- Buckley Road westbound – exclusive right turn and through lanes
- Wetzel Road Southbound – shared left and right turn lanes

The posted speed limit on both roadways is 35 mph. Table II.F presents the results of the level of service for the existing and proposed conditions.

Table II.F
Buckley Road at Wetzel Road

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
Buckley Rd/Wetzel Rd				
EB L/T	B(10.8)	B(16.0)	B(12.3)	B(17.2)
WB T	A(6.7)	B(10.6)	B(11.3)	B(15.8)
R	A(1.2)	A(1.1)	A(2.0)	A(2.2)
SB L/R	C(25.7)	C(23.9)	C(23.4)	C(23.0)
Overall	B(11.9)	B(14.5)	B(10.5)	B(12.9)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change minimum green times to 31 seconds for Buckley Road phase and 19 seconds for the Wetzel Road Phase.
- Change the yellow clearance interval from 2.5 seconds to 3 seconds for all phases.
- Change all red phase from 2 seconds for all phases to 2.5 seconds for the Buckley Road phase and 1.5 seconds for the Wetzel Road phase.
- Change the cycle length to 71 seconds for AM peak hour and 79 seconds for the PM peak hour.

G. Caughdenoy Road at Lawton Road – OCDOT Signal No. 26

This is a three-legged intersection which operates as a semi-actuated, two phase signal with presence detection on the Lawton Road approach. There are no pedestrian accommodations at the intersection. Maximum recall is set for the Caughdenoy Road phase. The signal currently operates on a maximum 62 second cycle during both peak hours with same signal timings for each of the peak hours. The geometry of the intersection is as follows:

- Caughdenoy Road Eastbound – shared through/left turn lane
- Caughdenoy Road Westbound – exclusive through and right turn lanes
- Lawton Road Southbound – shared left/right turn lane

The posted speed limit on Caughdenoy Road westbound is 35 mph and 30 mph on Lawton Road. Table II.G presents the results of the level of service for the existing and proposed conditions.

Table II.G
Caughdenoy Road at Lawton Road

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
Caughdenoy Rd/Lawton Rd				
EB L/T	B(14.9)	B(12.4)	A(6.3)	A(4.9)
WB T	A(5.5)	A(4.8)	A(6.0)	A(4.6)
R	A(5.4)	A(4.7)	A(5.4)	A(4.1)
SB L/R	C(27.4)	C(30.9)	C(22.4)	C(23.0)
Overall	B(16.8)	B(15.9)	A(8.3)	A(7.2)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green time to 7 seconds for the Lawton Road phase and 23 seconds for the Caughdenoy Road phase
- Change the all red phase from 2.5 seconds to 1.5 seconds for the Lawton Road phase.
- Set the vehicle extension and passage time on the Lawton Road phase to 1.2 seconds. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 71 seconds for the AM peak hour and 56 seconds for the PM peak hour.

H. East Taft Road at Thompson Road – OCDOT Signal No. 4

This is a four-legged intersection which operates as a fully actuated, three phase signal with full presence detection on all movements. There are no pedestrian accommodations at the intersection. No recall is set, so any signal phase can be skipped if no calls exist. The signal currently operates on a maximum 85 second cycle during both peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- East Taft Road Eastbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane
- East Taft Road Westbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane
- Thompson Road Northbound – shared left/through lane and an exclusive right turn lane
- Thompson Road Southbound – Single lane from which all movements are made

The posted speed limit on East Taft Road is 40 mph, 30 mph on the Thompson Road northbound approach and 35 mph on the Thompson Road southbound approach. Table II.H presents the results of the level of service for the existing and proposed conditions.

Table II.H
East Taft Road at Thompson Road

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
East Taft Rd/Thompson Rd				
EB L	A(5.2)	A(4.8)	A(3.9)	A(3.4)
EB T/R	A(9.0)	A(8.2)	A(4.9)	A(4.5)
WB L	A(5.2)	A(4.9)	A(4.9)	A(4.4)
WB T/R	A(8.4)	A(7.7)	A(8.3)	A(7.4)
NB L/T	B(11.8)	B(11.1)	B(18.2)	B(18.0)
NB R	A(0.0)	A(0.0)	B(15.9)	B(16.1)
SB L/T/R	B(13.6)	B(12.6)	B(16.6)	B(16.6)
Overall	A(9.4)	A(8.6)	A(8.3)	A(7.7)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change minimum green time from 6 seconds to 7 seconds for the Thompson Road through phases.
- Change yellow clearance time from 4.0 seconds to 3.0 seconds for all through phases.
- Set all red phase to 1.5 seconds for the Taft Road left turn phases and 2.5 seconds for the Thompson Road through phases.
- Change the minimum gap and passage time on all Taft Road phases to 1.6 seconds and 1.2 seconds for Thompson Road phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 76 seconds for the AM and PM peak hours.

I. East Taft Road at Kreischer Road

This is a three-legged intersection which operates as a fully actuated, three phase signal with full presence detection on all approaches. There is a continuous sidewalk along the north side of East Taft Road and a crosswalk across the Kreischer Road approach with pedestrian signals. Minimum recall is set for the

East Taft Road eastbound and westbound through phase. The signal currently operates on a maximum 62 second cycle during the AM peak hour and 84 seconds during the PM peak hour with different timings for each of the peak hours. The geometry of the intersection is as follows:

- East Taft Road Eastbound – exclusive left turn lane and two exclusive through lanes
- East Taft Road Westbound – exclusive through lane and a shared through/right turn lane
- Kreischer Road Southbound – exclusive left and right turn lanes

The posted speed limit on East Taft Road is 40 mph and 35 mph on Kreischer Road. Table II.I presents the results of the level of service for the existing and proposed conditions.

Table II.I
East Taft Road at Kreischer Road

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
East Taft Rd/Kreischer Rd				
EB L	A(4.0)	A(3.5)	A(7.8)	A(5.9)
T	A(3.4)	A(3.2)	A(3.2)	A(2.8)
WB T/R	B(11.3)	A(9.1)	B(14.2)	B(10.8)
SB L	B(19.9)	B(15.5)	C(24.8)	B(19.8)
R	B(12.0)	A(9.8)	B(14.7)	B(12.3)
Overall	A(8.6)	A(7.1)	B(10.7)	A(8.4)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green time to 15 seconds for Taft Road through phases and 10 seconds for the Kreischer Road phase.
- Change the yellow clearance interval from 3.8 seconds to 3.0 seconds for all phases.
- Change the all red phase from 2.0 seconds to 1.5 seconds for the Taft Road left turn phase and the Kreischer Road phase.
- Change the minimum gap and passage time from 3.0 seconds to 1.6 seconds for the Taft Road through phases, 1.5 seconds for the Taft Road left turn phase and 2.0 seconds for the Kreischer Road phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 95 seconds for the AM peak hour and 94 seconds for the PM peak hour.

J. East Taft Road at Interstate 81 Northbound Ramps - NYSDOT Controlled

This is a four-legged intersection with one of the legs being an on-ramp to Interstate 81 northbound. It operates as a fully actuated, three phase signal with presence detection on all movements. The traffic signal is coordinated with the adjacent signal on East Taft Road at the Interstate 81 southbound ramps. There is a continuous sidewalk along the north side of East Taft Road and a crosswalk across the Interstate 81 northbound on ramp with pedestrian signals. Maximum recall is set for the East Taft Road

eastbound and westbound through phase. The signal currently operates on a 60 second cycle during the AM peak hour and a 70 second cycle during the PM peak hour. The geometry of the intersection is as follows:

- East Taft Road Eastbound – exclusive left turn lane and two exclusive through lanes
- East Taft Road Westbound – exclusive through lane and shared through/right turn lane
- Interstate 81 Northbound Off Ramp – shared through/left turn lane and two exclusive right turn lanes

The posted speed limit is 35 mph on the East Taft Road eastbound approach, 40 mph on the East Taft Road westbound approach and 30 mph on the Interstate 81 northbound off ramp. Table II.J presents the results of the level of service for the existing and proposed conditions.

The two intersections of Taft Road with the Interstate 81 Ramps operate as a coordinated system. These signals were analyzed as isolated intersections, as requested, but that is not how they operate. Consequently the levels of service shown may be worse than what currently exists because of the analysis as isolated intersections.

Table II.J
East Taft Road at Interstate 81 Northbound Ramps

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
East Taft Rd/I-81 NB Ramps				
EB L	A(9.1)	A(8.2)	C(23.3)	D(37.8)
T	A(1.7)	A(3.8)	A(2.8)	A(3.0)
WB T	A(9.9)	A(9.9)	C(24.0)	B(19.7)
NB L/R	C(25.2)	B(15.8)	D(36.3)	C(32.3)
R	C(20.4)	B(13.7)	C(25.2)	C(25.7)
Overall	B(10.9)	A(9.4)	C(21.3)	C(21.5)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green time to 5 seconds for the Taft Road left turn phase, 15 seconds for the Taft Road through phases and 7 seconds for the Interstate 81 Off Ramp phase.
- Change the yellow clearance interval from 3.0 seconds to 2.5 seconds for the Taft Road through phases and 2.0 seconds for the Taft Road left turn and Interstate 81 Off Ramp phases.
- Change the all red phase to 2.5 seconds for the Taft Road through phases and 2.0 seconds for all other phases.
- Change the minimum gap and passage time to 1.2 seconds for the Interstate 81 Off Ramp, 1.3 seconds for the Taft Road left turn phase, 1.4 seconds for the Taft Road eastbound through phase and 1.6 seconds for the Taft Road westbound through phase. This passage time is based on the prevailing speed limits and the length of the detection zones.

- Change the cycle length to 86 seconds for the AM peak hour and 87 seconds for the PM peak hour.

K. East Taft Road at Interstate 81 Southbound Ramps – NYSDOT Controlled

This is a four-legged intersection with one of the legs being an on-ramp to Interstate 81 southbound. It operates as a fully actuated, three phase signal with presence detection on all movements. The traffic signal is coordinated with the adjacent signal on East Taft Road at the Interstate 81 northbound ramps. There is a continuous sidewalk along the north side of East Taft Road and a crosswalk across the Interstate 81 southbound off ramp with pedestrian signals. Maximum recall is set for the East Taft Road eastbound and westbound through phase. The signal currently operates on a 60 second cycle during the AM peak hour and a 70 second cycle during the PM peak hour. The geometry of the intersection is as follows:

- East Taft Road Eastbound – two exclusive through lanes and exclusive right turn lane
- East Taft Road Westbound – two exclusive through lanes and exclusive left turn lane
- Interstate 81 Southbound Off Ramp – exclusive left turn lane and shared through/right turn lane

The posted speed limit is 35 mph on the East Taft Road eastbound approach, 40 mph on the East Taft Road westbound approach and 30 mph on the Interstate 81 southbound off ramp. Table II.K presents the results of the level of service for the existing and proposed conditions.

The two intersections of Taft Road with the Interstate 81 Ramps operate as a coordinated system. These signals were analyzed as isolated intersections, as requested, but that is not how they operate. Consequently the levels of service shown may be worse than what currently exists because of the analysis as isolated intersections.

Table II.K
East Taft Road at Interstate 81 Southbound Ramps

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
East Taft Rd/I-81 SB Ramps				
EB T	B(18.8)	B(18.0)	B(16.5)	B(16.3)
R	B(15.1)	B(15.4)	B(11.6)	B(11.9)
WB L	C(22.2)	B(18.2)	B(16.4)	B(13.7)
T	B(11.7)	A(6.9)	A(3.5)	A(2.9)
SB L	B(16.8)	B(16.0)	C(20.6)	C(21.6)
T/R	D(41.3)	C(27.9)	C(22.7)	C(22.3)
Overall	C(22.5)	B(17.3)	B(13.2)	B(12.6)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green time to 5 seconds for the Taft Road left turn phase, 7 seconds for the Interstate 81 Off Ramp phase and 15 seconds for the Taft Road through phases.
- Change the yellow clearance intervals to 3.0 seconds for all phases
- Change the all red interval to 1.5 seconds for the Taft Road left turn phase, 3.0 seconds for the Interstate 81 Off Ramp phase and 2.5 seconds for the Taft Road through phases.
- Change the minimum gap and passage time to 1.2 seconds for the Interstate 81 Off Ramp phase, 1.4 seconds for the Taft Road eastbound phase and 1.6 seconds for the Taft Road westbound phases. This passage time is based on the prevailing speed limit and length of the detection zones.
- Change the cycle length to 83 seconds for the AM peak hour and 81 seconds for the PM peak hour.

L. East Taft Road at USPO/John Street – OCDOT Signal No. P-12

This is a four-legged intersection which operates as a fully actuated, three-phase traffic signal with full presence detection on all approaches. There is a continuous sidewalk along the north side of East Taft Road and a crosswalk across the John Street approach with pedestrian signals. Recall is set to maximum for the East Taft Road eastbound and westbound through phase. The signal currently operates on a maximum 55 second cycle length during the AM peak hour and a 70 second cycle during the PM peak hour with different timings for each of the peak hours. The geometry of the intersection is as follows:

- East Taft Road Eastbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane
- East Taft Road Westbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane
- USPO Driveway Northbound – exclusive left turn lane, shared through/right turn lane
- John Street Southbound – single lane from which all movements are made

The posted speed limit on East Taft Road is 35 mph and 30 mph on the John Street and USPO Driveway approaches. Table II.L presents the results of the level of service for the existing and proposed conditions.

**Table II.L
East Taft Road at USPO/John Street**

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
East Taft Rd/John St/USPO				
EB L	A(5.3)	A(4.9)	A(4.6)	A(4.8)
EB T/R	A(9.2)	A(8.0)	A(8.8)	A(8.7)
WB L	A(3.3)	A(3.1)	A(3.5)	A(3.7)
WB T/R	A(7.8)	A(6.4)	A(5.9)	A(6.0)
NB L	B(18.3)	B(17.7)	C(26.4)	B(19.9)
NB T/R	B(17.9)	B(17.2)	C(24.6)	B(18.7)
SB L/T/R	B(19.7)	B(19.1)	C(25.2)	B(19.1)
Overall	A(9.4)	A(8.2)	A(9.2)	A(8.5)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green to 7 seconds for the side street phases and 15 seconds for the Taft Road through phases.
- Change the yellow clearance time to 3.0 seconds for all phases.
- Change the all red clearance time to 2.5 seconds for the Taft Road through phases.
- Change the minimum gap and passage time to 1.4 seconds for the Taft Road through phases, 1.2 seconds for the John Street phase, and 1.9 seconds for the Post Office phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 85 seconds for the AM peak hour and 87 seconds for the PM peak hour.

M. East Taft Road at South Bay Road – NYSDOT Controlled

This is a four-legged intersection which operates as a fully-actuated, eight phase traffic signal with full presence detection on all movements. This traffic signal is coordinated with the adjacent signal at East Taft Road and US Route 11. There is a continuous sidewalk along the north side of East Taft Road and a crosswalk across the South Bay Road southbound approach with pedestrian signals. Maximum recall is set for the East Taft Road eastbound and westbound through movements. The signal currently operates on a 90 second cycle during both peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- East Taft Road Eastbound – exclusive left turn lane, two exclusive through lanes and a channelized right turn lane that is under yield control
- East Taft Road Westbound – exclusive left turn lane, three exclusive through lanes and a channelized right turn lane that is under yield control
- South Bay Road Northbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane
- South Bay Road Southbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane

The posted speed limit on both roadways is 35 mph. Table II.M presents the results of the level of service for the existing and proposed conditions.

The South Bay Road, US Route 11 and US Route 11/Shopping Center Driveway intersections currently operate as a coordinated system. These signals were analyzed as isolated intersections, as requested, but that is not how they operate. Consequently the levels of service shown may worse then what currently exists because of the analysis as isolated intersections.

Table II.M
East Taft Road at South Bay Road

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
East Taft Rd/South Bay Rd				
EB L	C(34.5)	F(83.8)	D(36.9)	F(83.6)
T	B(16.2)	B(12.8)	C(21.7)	C(21.1)
R	C(29.8)	B(14.2)	B(19.3)	B(13.4)
WB L	D(37.4)	E(61.3)	D(36.9)	E(61.4)
T	B(12.5)	B(10.6)	B(18.8)	C(24.6)
R	B(11.2)	A(9.5)	B(16.2)	C(21.5)
NB L	D(39.6)	E(62.9)	F(196)	F(80.8)
T/R	C(31.7)	D(52.8)	C(34.5)	D(46.9)
SB L	D(40.8)	E(62.0)	D(42.1)	E(62.1)
T/R	C(34.1)	E(57.2)	C(31.6)	D(53.7)
Overall	C(23.8)	C(31.4)	D(40.8)	D(40.3)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green to 5 seconds for all left turn phases.
- Change the yellow clearance interval to 3.0 seconds for all phases.
- Change the all red interval to 2.5 seconds for all left turn phases and 3.0 seconds for all through phases.
- Change the minimum gap and passage time from 3.0 seconds to 1.0 seconds for the Taft Road westbound left turn phase, 1.1 seconds for the South Bay Road southbound through, the Taft Road eastbound left turn and the Taft Road westbound through phases, 1.2 seconds for the South Bay Road left turn phase and 1.3 seconds for the Taft Road eastbound through and South Bay Road northbound left turn phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 135 seconds for the AM and PM peak hours.

N. West Taft Road at US Route 11 – NYSDOT Controlled

This is a four-legged intersection which operates as a fully-actuated, eight phase traffic signal with presence detection on all movements. This traffic signal is coordinated with the adjacent signals at East Taft Road/South Bay Road and US Route 11/Shopping Plaza. There is a continuous sidewalk along the north side of East Taft Road and a crosswalk across the US Route 11 southbound approach with pedestrian signals. Maximum recall is set for the East Taft Road eastbound and westbound through phases. The signal currently operates on a maximum 90 second cycle with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- West Taft Road Eastbound – exclusive left turn lane, two exclusive through lanes and a channelized right turn lane that is under yield control

- West Taft Road Westbound – exclusive left turn lane, three exclusive through lanes and a channelized right turn lane that is under yield control
- US Route 11 Northbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane
- US Route 11 Southbound – exclusive left turn lane, two exclusive through lanes and an exclusive right turn lane

The posted speed limit on both roads is 35 mph. Table II.N presents the results of the level of service for the existing and proposed conditions.

The South Bay Road, US Route 11 and US Route 11/Shopping Center Driveway intersections currently operate as a coordinated system. These signals were analyzed as isolated intersections, as requested, but that is not how they operate. Consequently the levels of service shown may be worse than what currently exists because of the analysis as isolated intersections.

Table II.N
East Taft Road at US Route 11

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
West Taft Rd/US Route 11				
EB L	D(42.1)	E(67.6)	E(77.5)	F(91.0)
T	C(22.1)	C(24.4)	C(20.8)	C(29.0)
R	D(38.6)	E(57.1)	D(37.9)	D(54.3)
WB L	D(39.3)	E(67.1)	D(51.5)	E(76.7)
T	C(34.9)	B(17.9)	D(36.9)	C(22.5)
R	E(78.0)	A(9.0)	F(109)	B(18.0)
NB L	E(61.7)	F(84.0)	F(297)	F(243)
T/R	C(25.6)	D(42.2)	C(35.0)	D(50.6)
SB L	D(42.2)	E(60.6)	E(65.6)	E(60.3)
T	C(31.1)	E(67.3)	C(30.4)	D(52.7)
R	B(19.8)	D(40.3)	B(16.4)	C(31.5)
Overall	C(34.5)	D(43.6)	E(68.4)	E(63.5)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green time to 5 seconds for all left turn phases.
- Change the yellow clearance interval from 3.5 seconds to 3.0 seconds for all phases.
- Change the all red interval from 1.5 seconds to 2.5 seconds for all left turn phases and 3.0 seconds for all through phases.
- Change the minimum gap and passage time from 3.0 seconds to 1.4 seconds for all phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 135 seconds for the AM and PM peak hours.

O. West Taft Road at Teachers Drive – OCDOT Signal No. 10

This is a four-legged intersection which operates as a fully-actuated, three phase traffic signal with presence detection on all movements. There is a continuous sidewalk on the north side of West Taft Road with pedestrian crossings and pedestrian signals across the Teachers Drive southbound approach and the West Taft Road eastbound approach. Maximum recall is set for the West Taft Road eastbound and westbound through phases. The signal currently operates on a maximum 80 second cycle during the AM peak hour and 100 second cycle during the PM peak hour with different timings for each of the peak hours. The geometry of the intersection is as follows:

- West Taft Road Eastbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane
- West Taft Road Westbound – exclusive left turn lane, two exclusive through lanes and a shared through/right turn lane
- Plaza Driveway Northbound – exclusive left turn lane and a shared through/right turn lane
- Teachers Drive Southbound – exclusive left turn lane and a shared through/right turn lane

The posted speed limit on West Taft Road is 35 mph and 30 mph on the side roads. Table II.O presents the results of the level of service for the existing and proposed conditions.

Table II.O
West Taft Road at Teachers Drive

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
West Taft Rd/Teachers Dr				
EB L	A(7.7)	A(8.7)	A(3.9)	A(3.0)
EB T/R	B(14.6)	B(15.5)	A(6.2)	A(5.2)
WB L	B(11.8)	B(12.2)	A(5.7)	A(4.5)
WB T/R	B(16.2)	B(15.8)	A(9.5)	A(7.3)
NB L	C(20.6)	C(27.3)	C(27.6)	C(34.2)
T/R	B(19.8)	C(26.3)	C(26.7)	C(33.3)
SB L/T	D(52.8)	E(68.2)	C(30.4)	D(38.9)
R	B(16.2)	C(24.5)	C(22.3)	D(35.3)
Overall	B(18.9)	C(21.6)	A(10.0)	A(9.9)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green time to 5.0 seconds for the Taft Road left turn phase, 7 seconds for the Teacher Driveway phase and 39 seconds for the Taft Road through phases.
- Change the all red clearance time to 2.5 seconds for the Taft Road through phases, 3.0 seconds for the side street phases.
- Change the minimum gap and passage time to 1.2 seconds for the Teacher Driveway phase, 1.3 seconds for the Taft Road left turn phases, 1.4 seconds for the Taft Road eastbound through phase, 1.5 seconds for the Taft Road westbound through phase and 2.0 seconds for the Pharmacy

Driveway phase. This passage time is based on the prevailing speed limits and the length of the detection zones.

- Change the cycle length to 111 seconds for the AM and PM peak hours.

P. West Taft Road at Woodside Run/Wegmans – OCDOT Signal No. 101

This is a four-legged intersection which operates as a semi-actuated, four phase traffic signal with presence detection on the left turn movements on West Taft Road and the Wegmans Driveway and the Woodside Run approach. There are no pedestrian accommodations at the intersection. Maximum recall is set for the West Taft Road eastbound and westbound through phases. The signal currently operates on a maximum 105 second cycle with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- West Taft Road Eastbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane
- West Taft Road Westbound – exclusive left turn lane, two exclusive through lanes and an exclusive right turn lane
- Woodside Run Northbound – single lane from which all movements are made
- Wegmans Driveway Southbound – exclusive left and right turn lanes and a shared through/left turn lane

The posted speed limit on West Taft Road is 40 mph and 30 mph on the side streets. Table II.P presents the results of the level of service for the existing and proposed conditions.

Table II.P
West Taft Road at Woodside Run/Wegmans

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
West Taft Rd/Woodside Run				
EB L	A(5.9)	A(7.0)	B(17.3)	B(14.9)
T/R	A(9.7)	B(11.2)	C(21.4)	C(20.8)
WB L	A(7.6)	A(8.5)	B(14.9)	B(15.5)
T	B(10.2)	B(11.4)	C(23.2)	C(24.6)
R	A(6.4)	A(7.3)	B(11.2)	B(12.9)
NB L/T/R	D(35.0)	C(33.5)	D(42.7)	D(45.2)
SB L	C(34.7)	C(33.3)	D(36.7)	D(38.3)
T	C(34.7)	C(33.2)	D(36.9)	D(38.6)
R	C(28.7)	C(27.6)	C(26.5)	C(25.5)
Overall	B(13.0)	B(13.9)	C(23.3)	C(23.8)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green times on the Taft Road through phases from 10 seconds to 30 seconds. Change the Wegmans Driveway and Woodside Run minimum green times from 5 seconds to 7 seconds.
- Change the all red clearance time to 2.5 seconds for the Taft Road through phases and the Wegmans Driveway phase, 3.0 seconds for the Woodside Run phase
- Change the minimum gap and passage times from 2 seconds for all phases to 1.6 seconds for the Taft Road westbound left phase, 1.4 seconds for the Wegmans Driveway phase, 1.8 seconds for the Taft Road eastbound left phase and 1.2 seconds for the Woodside Run phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 98 seconds for the AM and PM peak hours.

Q. US Route 11 at Shopping Plaza – NYSDOT Controlled

This is a three-legged intersection which operates as a fully-actuated, three phase signal with presence detection on all movements. This signal is coordinated with the signal at the intersection of US Route 11 and West Taft Road. There are crosswalks across the US Route 11 southbound and Shopping Plaza Driveway approaches with pedestrian signals. Maximum recall is set for the US Route 11 northbound and southbound through phases. The signal currently operates on a maximum 90 second cycle with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- US Route 11 Northbound – exclusive left turn lane and two exclusive through lanes
- US Route 11 Southbound – exclusive through lane and a shared through/right turn lane
- Shopping Plaza Eastbound – exclusive left and right turn lanes

The posted speed limit on US Route 11 is 35 mph and 30 mph on the Shopping Plaza driveway. Table II.Q presents the results of the level of service for the existing and proposed conditions.

The South Bay Road, US Route 11 and US Route 11/Shopping Center Driveway intersections currently operate as a coordinated system. These signals were analyzed as isolated intersections, as requested, but that is not how they operate. Consequently the levels of service shown may be worse than what currently exists because of the analysis as isolated intersections.

Table II.Q
US Route 11 at Shopping Plaza

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
US Route 11/Shopping Plaza				
EB L	D(44.3)	E(64.7)	D(37.9)	E(65.7)
R	D(35.6)	E(58.2)	C(26.1)	D(45.4)
NB L	A(1.0)	A(3.9)	A(4.8)	A(2.7)
T	A(0.9)	A(4.0)	A(2.6)	A(1.4)
SB T/R	A(3.5)	A(2.7)	A(9.4)	A(7.9)
Overall	A(5.0)	A(7.4)	A(10.0)	B(12.5)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green time to 5 seconds for US Route 11 left turn phase, 7 seconds for the driveway phase and 10 seconds for the US Route 11 phases.
- Change the yellow clearance interval to 3.0 seconds for all phases.
- Change the all red clearance time to 1.5 seconds for the driveway phase and 2.5 seconds for all other phases.
- Change the minimum gap and passage time to 1.4 seconds for all phases with the exception of the US Route 11 left turn phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 135 seconds for the AM peak hour and 60 seconds for the PM peak hour.

R. Factory Avenue at Lemoyne Avenue – OCDOT Signal No. 56

This is a four-legged intersection which operates as a pre-timed, four phase traffic signal. There are sidewalks on all corners of the intersection and there are also marked crosswalks across all four approaches of the intersection with pedestrian signals. The signal currently operates on a 76 second cycle with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- Factory Avenue Eastbound – exclusive left turn lane and a shared through/right turn lane
- Factory Avenue Westbound – exclusive left and a shared through/right turn lane
- Lemoyne Avenue Northbound – exclusive left turn lane and a shared through/right turn lane
- Lemoyne Avenue Southbound – exclusive left turn lane and a shared through/right turn lane

The posted speed limit on Factory Avenue is 35 mph and 45 mph on Lemoyne Avenue. Table II.R presents the results of the level of service for the existing and proposed conditions.

Table II.R
Factory Avenue at Lemoyne Avenue

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
Factory Ave/Lemoyne Ave				
EB L	B(15.8)	C(29.2)	B(18.0)	C(26.6)
EB T/R	C(27.6)	D(40.0)	C(21.7)	C(27.4)
WB L	B(17.5)	C(24.2)	B(17.5)	B(19.0)
WB T/R	C(24.0)	C(29.9)	E(66.6)	D(46.9)
NB L	B(16.3)	C(24.1)	B(16.5)	C(20.7)
NB T/R	D(45.0)	D(37.4)	D(49.4)	C(31.7)
SB L	F(129)	B(18.3)	C(24.9)	B(17.0)
SB T/R	C(29.4)	B(15.1)	C(28.6)	B(19.0)
Overall	D(50.5)	C(28.7)	D(45.5)	C(32.3)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green time from 22 seconds to 10 seconds for the Factory Avenue eastbound through phase.
- Change the yellow clearance time to 3.0 seconds for all phases.
- Change the all red clearance phase from 2.0 seconds to 2.5 seconds for the Factory Avenue through phases and 1.5 seconds for the Lemoyne Avenue left turn phases.
- Change the minimum gap and passage time from 4.0 seconds to 1.9 seconds for all phases with the exception of the Lemoyne Avenue southbound phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the pedestrian clearance interval from 12 seconds to 18 seconds for the Factory Avenue through phase and from 10 seconds to 13 seconds for the Lemoyne Avenue through phase.
- Set the controller to minimum recall on the Factory Avenue eastbound and westbound through phases.
- Change the cycle length to 141 seconds for the AM peak hour and 140 seconds for the PM peak hour.

S. Fly Road at New Venture Gear Drive – OCDOT Signal No. 57

This is a four-legged intersection which operates as a semi-actuated, three phase signal with presence detection all approaches with the exception of the Fly Road southbound approach. There are no pedestrian accommodations at the intersection. Maximum recall is set for the Fly Road northbound and southbound through phase. The signal currently operates on a 68 second cycle for the AM and PM peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- New Venture Gear Drive Eastbound – shared through/left turn lane and a channelized right turn lane with yield control
- Myers Road Westbound – single lane from which all movements are made
- Fly Road Northbound – exclusive left turn lane and a shared through/right turn lane
- Fly Road Southbound – exclusive left turn and through lanes and a channelized right turn lane with yield control

The posted speed limit on New Venture Gear Drive and Myers Road is 30 mph and 45 mph on Fly Road. Table II.S presents the results of the level of service for the existing and proposed conditions.

Table II.S
New Venture Gear Drive at Fly Road

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
New Venture Gear Dr/Fly Rd				
EB L/T	C(26.8)	C(25.5)	C(33.4)	C(24.5)
R	C(23.3)	C(23.3)	C(22.7)	C(21.3)
WB L/T/R	C(24.0)	C(23.7)	C(23.3)	C(21.4)
NB L	B(10.3)	A(8.2)	A(7.8)	A(8.0)
NB T/R	A(3.8)	A(3.3)	A(4.9)	A(5.4)
SB L	B(10.0)	A(7.0)	B(10.8)	A(9.0)
T	B(15.0)	B(10.1)	B(13.8)	B(11.4)
R	B(10.1)	A(7.2)	B(10.8)	A(9.0)
Overall	B(12.7)	B(10.4)	B(15.8)	B(14.0)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Set the minimum green to 20 seconds for the Fly Road through phases, 5 seconds for the Fly Road northbound left turn phase and 10 seconds for the New Venter Gear Drive phase.
- Change the all red clearance interval from 3.0 seconds to 1.5 seconds for the Fly Road phases and 2.5 seconds for the New Venture Gear Drive phase.
- Set the minimum gap and passage time to 2.2 seconds for the Fly Road northbound left turn phase and 2.4 seconds for the New Venture Gear Drive phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 82 seconds for the AM peak hour and 81 seconds for the PM peak hour.

T. Fremont Road at N. Central Avenue – OCDOT Signal No. 84

This is a three-legged intersection which operates as a semi-actuated, three phase traffic signal with presence detection on N. Central Avenue and the Fremont Road southbound left turn movement. There are no pedestrian accommodations at the intersection. Minimum recall is set for the South Bay Road northbound and southbound phases. The signal currently operates on an 86 second cycle during both peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- N. Central Avenue Westbound exclusive left and right turn lanes
- Fremont Road Northbound – shared through/right turn lane
- Fremont Road Southbound – exclusive left turn and through lanes

The posted speed limit is 35 mph on all roadways. Table II.T presents the results of the level of service for the existing and proposed conditions.

**Table II.T
Fremont Road at Central Avenue**

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
Fremont Rd/N. Central Ave				
WB L	C(32.7)	D(42.4)	C(29.7)	D(36.6)
WB R	C(22.1)	C(27.9)	B(19.6)	C(26.8)
NB T/R	C(20.9)	B(13.9)	C(20.5)	B(13.0)
SB L	A(8.3)	A(6.2)	A(8.6)	A(5.9)
SB T	A(6.2)	A(5.1)	A(6.8)	A(5.6)
Overall	B(18.6)	B(17.4)	B(14.9)	B(12.5)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green time for the Fremont Road northbound through phase to 36 seconds and 49 seconds for the Fremont Road southbound through phase.
- Change the yellow clearance time from 4.0 to 3.0 seconds for all phases.
- Change the all red clearance time from 2.0 seconds to 3.0 seconds for the Fremont Road through phases.
- Change the minimum gap and passage time from 3.0 seconds to 1.4 seconds for Fremont Road southbound left turn phase and 2.0 seconds for the N. Central Avenue phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 94 seconds for the AM and PM peak hours.

U. Henry Clay Boulevard at Buckley Road – OCDOT Signal No. 27

This is a four-legged intersection which operates as a fully-actuated, four phase signal with presence detection on all movements. There are crosswalks across all approaches with pedestrian signals. There is no recall. The signal currently operates on a 104 second cycle during both peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- Buckley Road Eastbound – exclusive left turn lane, two exclusive through lanes and an exclusive right turn lane
- Buckley Road Westbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane
- Henry Clay Boulevard Northbound – two exclusive left turn lanes, exclusive through lane and a shared through/right turn lane
- Henry Clay Boulevard Southbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane

The posted speed limit on all approaches is 45 mph with the exception of Buckley Road westbound which is 35 mph. Table II.U presents the results of the level of service for the existing and proposed conditions.

Table II.U
Henry Clay Boulevard at Buckley Road

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
Henry Clay Blvd/Buckley Rd				
EB L	D(41.9)	D(38.4)	D(39.6)	D(38.4)
T	C(31.9)	C(27.1)	C(27.6)	C(28.6)
R	C(26.5)	C(25.5)	B(14.3)	B(12.5)
WB L	D(40.2)	D(37.6)	D(41.4)	D(41.3)
T/R	C(27.0)	C(23.5)	C(31.5)	C(32.9)
NB L	D(35.4)	C(32.9)	D(38.4)	C(31.5)
TR	B(18.6)	B(18.6)	C(24.7)	C(23.6)
SB L	D(42.2)	D(36.3)	D(41.1)	D(40.9)
T/R	C(29.3)	C(27.0)	C(28.8)	C(31.2)
Overall	C(29.3)	C(26.7)	C(29.3)	C(28.3)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green to 7 seconds for the Henry Clay Boulevard left turn phase and all through movement phases to 15 seconds.
- Change the yellow clearance time from 4.5 seconds to 3.0 seconds for all through movement phases.
- Change the all red clearance time to 2.0 seconds for the Henry Clay Boulevard left turn phases, 2.5 seconds for the Henry Clay Boulevard through and Buckley Road left turn phases and 3.0 seconds for the Buckley Road through phases..
- Change the minimum gap and passage time to 1.2 seconds for Buckley Road westbound left turn phase, 1.4 seconds for the Buckley Road westbound through phase, 1.6 seconds for the Henry Clay Boulevard southbound left turn and Buckley Road eastbound left turn phases, and 1.7 seconds for all other phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 163 seconds for the AM peak hour and 169 seconds for the PM peak hour.

V. Henry Clay Boulevard at Wetzel Road – OCDOT Signal No. 62

This is a four-legged intersection which operates as a fully-actuated, three phase traffic signal with presence detection on all movements. There are crosswalks across all approaches, with the exception of the Wetzel Road eastbound approach, with pedestrian signals. Minimum recall is set for the Henry Clay Boulevard northbound and southbound through movement phases. The signal currently operates on a maximum 125 second cycle during the AM peak hour and a 117 second cycle during the PM peak hour with different timings for each of the peak hours. The geometry of the intersection is as follows:

- Wetzel Road Eastbound – exclusive left turn lane and a share through/right turn lane
- Wetzel Road Westbound – exclusive left turn lane and a share through/right turn lane

- Henry Clay Boulevard Northbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane
- Henry Clay Boulevard Southbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane

The posted speed limit on Henry Clay Boulevard is 45 mph and 35 mph on Wetzel Road. Table II.V presents the results of the level of service for the existing and proposed conditions.

Table II.V
Henry Clay Boulevard at Wetzel Road

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
Henry Clay Blvd/Wetzel Rd				
EB L	C(20.4)	B(17.9)	B(18.8)	B(16.9)
TR	C(25.6)	C(20.8)	C(24.3)	C(21.0)
WB L	B(18.4)	B(14.9)	B(19.4)	B(17.4)
T/R	C(23.2)	B(18.3)	D(37.4)	C(30.1)
NB L	D(37.1)	C(31.0)	D(38.8)	C(34.2)
T/R	B(18.2)	B(16.7)	C(32.1)	C(30.4)
SB L	C(33.1)	C(27.2)	D(38.6)	D(35.3)
T/R	B(19.5)	B(18.1)	C(28.1)	C(26.9)
Overall	C(22.4)	B(19.5)	C(32.3)	C(28.7)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green to 5 seconds for all left turn phases and 15 seconds for the through phases.
- Change the yellow clearance time to 3.0 seconds for all phases.
- Change the all red clearance time from 2.0 seconds to 3.0 seconds for the Buckley Road through phases.
- Change the passage time to 1.3 seconds for Buckley Road left turn phases, 1.4 seconds for the Buckley Road through phases, 1.5 seconds for Henry Clay Boulevard left turn phases and 1.7 seconds for the Henry Clay Boulevard through phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 130 seconds for the AM and PM peak hours.

W. Kinne Street at Franklin Park Drive – OCDOT Signal No. 28

This is a four-legged intersection which operates as a fully-actuated, three phase traffic signal with presence detection on all approaches. There are no pedestrian accommodations at the intersection. There is no recall set for the intersection. The signal currently operates on 70 second cycle during both peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- Franklin Park Drive Eastbound – single lane from which all movements are made
- Franklin Park Drive Westbound – shared through/left turn lane and an exclusive right turn lane
- Kinne Street Northbound – shared through/left turn lane and a shared through/right turn lane
- Kinne Street Southbound – shared through/left turn lane and a shared through/right turn lane

The posted speed limit on Kinne Street is 35 mph and 40 mph on the Franklin Park Drive westbound approach and 30 mph on the Franklin Park Drive eastbound approach. Table II.W presents the results of the level of service for the existing and proposed conditions.

Table II.W
Kinne Street at Franklin Park Drive

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
Kinne St/Franklin Park Dr				
EB L/T/R	B(16.2)	B(15.3)	C(20.1)	B(18.7)
WB L/T	B(18.3)	B(16.7)	B(16.8)	B(16.3)
R	A(8.4)	A(8.1)	A(6.6)	A(6.5)
NB L/T/R	B(14.2)	B(14.1)	B(18.5)	B(18.7)
SB L/T/R	B(13.5)	B(13.8)	B(17.1)	B(17.8)
Overall	B(12.5)	B(12.3)	B(16.4)	B(16.5)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Increase the minimum green for the Franklin Park Drive phases from 5 seconds to 10 seconds.
- Change the minimum gap and the passage time from 3.0 seconds to 2.0 seconds for the Kinne Road phases and 2.1 seconds for the Franklin Park Drive phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 95 seconds for the AM and PM peak hours.

X. Lemoyne Avenue at Boulevard Street – OCDOT Signal No. 44

This is a four-legged intersection which operates as a semi-actuated, two phase traffic signal with presence detection on the Boulevard Street approaches. There are no pedestrian accommodations at the intersection. Maximum recall is set for Lemoyne Avenue northbound and southbound through phase. The signal currently operates on 46 second cycle during both peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- Boulevard Street Eastbound – single lane from which all movements are made
- Boulevard Street Westbound – single lane from which all movements are made
- Lemoyne Avenue Northbound – shared through/left turn lane and a shared through/right turn lane
- Lemoyne Avenue Southbound – shared through/left turn lane and a shared through/right turn lane

The posted speed limit on Lemoyne Avenue is 45 mph and 30 mph on Boulevard Street. Table II.X presents the results of the level of service for the existing and proposed conditions.

Table II.X
Lemoyne Avenue at Boulevard Street

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
Lemoyne Ave/Boulevard St				
EB L/T/R	B(14.3)	B(19.3)	B(14.9)	B(20.0)
WB L/T/R	B(15.0)	C(20.2)	B(14.6)	B(19.7)
NB L/T/R	A(5.3)	A(3.1)	A(6.2)	A(3.7)
SB L/T/R	A(5.7)	A(3.4)	A(5.3)	A(3.2)
Overall	A(7.1)	A(6.0)	A(7.5)	A(6.4)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green time Lemoyne Avenue through phases to 30 seconds and 7 seconds for the Boulevard Street phase.
- Change the yellow clearance time from 4.0 seconds to 3.0 seconds for the Lemoyne Avenue phase.
- Change the all red clearance time from 2.0 seconds to 1.5 seconds for the Lemoyne Avenue phase.
- Change the minimum gap and passage time from 3.0 seconds to 1.9 seconds for Boulevard Street phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 58 seconds for the AM peak hour and 56 seconds for the PM peak hour.

Y. Morgan Road at Fairways Drive East – OCDOT Signal No. 98

This is a four-legged intersection which operates as a semi-actuated, three phase traffic signal with presence detection on the Morgan Road left turn movements and the movements from Fairways Drive East and Millstream Drive. There are no pedestrian accommodations at the intersection. Maximum recall is set for the Morgan Road northbound and southbound through phase. The signal currently operates on 61 second cycle during both peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- Fairways Drive East Eastbound – shared through/left turn lane and an exclusive right turn lane
- Millstream Drive Westbound – single lane from which all movements are made
- Morgan Road Northbound – exclusive left turn lane and a shared through/right turn lane
- Morgan Road Southbound – exclusive left turn lane and a shared through/right turn lane

The posted speed limit on Morgan Road is 45 mph and 30 mph on Fairways Drive East and Millstream Drive. Table II.Y presents the results of the level of service for the existing and proposed conditions.

Table II.Y
Morgan Road at Fairways Drive East

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
Morgan Rd/Fairways Drive East				
EB L/T	C(27.6)	D(37.7)	C(26.6)	C(32.5)
R	C(27.9)	E(58.4)	B(18.1)	C(24.5)
WB L/T/R	C(28.3)	D(38.3)	C(26.1)	C(32.1)
NB L	A(4.5)	A(4.0)	A(3.7)	A(2.6)
T/R	A(5.0)	A(3.7)	A(7.3)	A(5.3)
SB L	A(7.2)	A(7.3)	A(6.6)	A(4.9)
SB T/R	B(16.1)	B(14.3)	B(11.2)	A(8.1)
Overall	B(18.2)	C(27.9)	A(9.8)	A(9.0)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Set the minimum green times to 35 seconds for the Morgan Road northbound phase, 7 seconds for the Fairways Drive/Millstream Drive phase, and 30 seconds for the Morgan Road southbound phase.
- Set the all red clearance time to 1.5 seconds for the Morgan Road left turn phases and 2.0 seconds for the Morgan Road northbound through phase.
- Change the minimum gap and the passage times from 3.0 seconds to 1.8 seconds for Morgan Road left turn phases and 1.9 seconds for the Fairways Drive/Millstream Drive phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 95 seconds for the AM peak hour and 87 seconds for the PM peak hour.

Z. Morgan Road at Steelway Boulevard/Grampian Road – OCDOT Signal No. 82

This is a four-legged intersection which operates as a semi-actuated, three phase traffic signal with presence detection on the Morgan Road left turn movements and the movements from Steelway Boulevard and Grampian Road. There are no pedestrian accommodations at the intersection. Maximum recall is set for the Morgan Road northbound and southbound through phase. The signal currently operates on 60 second cycle during both peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- Grampian Road Eastbound – exclusive left turn lane and a shared through/right turn lane
- Steelway Boulevard Westbound – single lane from which all movements are made
- Morgan Road Northbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane
- Morgan Road Southbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane

The posted speed limit on Morgan Road is 45 mph and 30 mph on Steelway Boulevard and Grampian Road. Table II.Z presents the results of the level of service for the existing and proposed conditions.

Table II.Z
Morgan Road at Steelway Boulevard/Grampian Road

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
Morgan Rd/Steelway Blvd/Grampian Rd				
EB L	B(19.8)	C(27.6)	C(22.0)	C(29.0)
T/R	B(18.5)	C(25.6)	C(20.2)	C(25.0)
WB L/T/R	B(18.6)	C(25.8)	C(20.9)	C(25.9)
NB L	A(5.4)	A(4.3)	A(3.6)	A(2.8)
T/R	A(5.8)	A(4.9)	A(7.1)	A(5.7)
SB L	A(4.2)	A(3.2)	A(6.1)	A(5.1)
SB T/R	A(8.8)	A(7.1)	A(7.6)	A(6.3)
Overall	A(9.3)	A(8.8)	A(9.1)	A(8.8)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Increase the minimum green for the Morgan Road through phases to 30 seconds and to 7 seconds for the Grampian Road/Steelway Boulevard phase.
- Change the all red clearance time from 2.0 seconds to 1.5 seconds for all phases with the exception of the Grampian Road/Steelway Boulevard phase which should be changed to 2.5 seconds.
- Change the minimum gap and passage time to 1.8 seconds for the Morgan Road left turn phases and 1.1 seconds for the Grampian Road/Steelway Boulevard phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 80 seconds for the AM peak hour and 76 seconds for the PM peak hour.

AA. Morgan Road at Wetzel Road – OCDOT Signal No. 32

This is a four-legged intersection which operates as a fully-actuated, three phase traffic signal with presence detection on all movements. There are no pedestrian accommodations at the intersection. Minimum recall is set for the Morgan Road northbound and southbound through phase. The signal currently operates on 83 second cycle during all three peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- Wetzel Road Eastbound – exclusive left turn, through and right turn lanes
- Wetzel Road Westbound – exclusive left turn lane and a shared through/right turn lane
- Morgan Road Northbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane
- Morgan Road Southbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane

The posted speed limit on Morgan Road is 45 mph and 30 mph on Wetzel Road eastbound and 35 mph on Wetzel Road westbound. Table II.AA presents the results of the level of service for the existing and proposed conditions.

Table II.AA
Morgan Road at Wetzel Road

Intersection	AM		PM		School Peak	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
Morgan Rd/Wetzel Rd						
EB L	C(25.3)	C(24.9)	C(27.8)	B(18.3)	C(23.4)	B(15.3)
T	C(24.6)	C(31.3)	B(19.4)	C(21.4)	B(20.0)	B(19.8)
R	C(23.0)	B(19.8)	B(18.4)	B(11.9)	B(19.4)	B(12.1)
WB L	C(21.7)	C(30.4)	B(18.0)	C(20.3)	B(18.5)	C(21.3)
T/R	C(27.2)	D(41.8)	C(32.4)	D(36.7)	C(22.4)	C(27.6)
NB L	C(34.2)	C(27.0)	C(33.9)	C(21.6)	C(26.3)	B(13.6)
T/R	B(11.6)	B(15.1)	B(16.0)	C(25.8)	B(11.1)	B(19.4)
SB L	C(32.1)	B(18.1)	C(33.8)	C(25.6)	D(35.6)	C(20.0)
T/R	C(25.2)	C(33.4)	C(22.5)	C(33.1)	B(17.4)	C(26.4)
Overall	C(24.7)	C(28.9)	C(23.0)	C(26.6)	B(17.9)	C(20.1)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green for the left turn phases to 5 seconds and 10 seconds for the through phases.
- Change the all red clearance time from 2.0 seconds to 1.5 seconds for the Morgan Road left turn phases and 2.5 seconds for the Wetzel Road through phases.
- Change the minimum gap and passage time to 1.8 seconds for Morgan Road left turn and through phases and 1.4 seconds for the Wetzel Road phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 133 seconds for the AM, PM and School peak hours.

BB. Newport Road at West Genesee Street – OCDOT Signal No. 81

This is a three-legged intersection which operates as a semi-actuated, two phase traffic signal with presence detection on the Newport Road movements and the West Genesee Street eastbound left turn and westbound right turn movements. There are no pedestrian accommodations at the intersection. Maximum recall is set for the West Genesee Street eastbound and westbound through phase. The signal currently operates on 55 second cycle during both peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- West Genesee Street Eastbound – exclusive left turn and through lanes
- West Genesee Street Westbound – exclusive through and right turn lanes
- Newport Road Southbound – exclusive left and right turn lanes

The posted speed limit on all roadways is 30 mph. Table II.BB presents the results of the level of service for the existing and proposed conditions.

Table II.BB
Newport Road at West Genesee Street

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
Newport Rd/West Genesee St				
EB L	A(7.7)	A(5.6)	A(8.2)	A(6.7)
T	A(4.7)	A(4.7)	A(8.4)	A(6.7)
WB T	A(4.7)	B(18.7)	A(8.5)	B(16.6)
R	A(4.5)	A(8.4)	A(6.8)	A(4.9)
SB L	B(18.0)	B(16.9)	B(16.2)	B(16.1)
R	B(16.4)	B(16.0)	B(14.4)	B(14.2)
Overall	A(7.7)	B(10.4)	B(11.0)	B(11.8)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change from two phase operation to a three phase operation with the addition of a lead left turn phase.
- Change the minimum green to 10 seconds for all phases and 5 seconds for the West Genesee Street left turn phase.
- Change the all red clearance time to 1.5 seconds for the Newport Road phase.
- Change the minimum gap and passage time to 1.2 seconds for West Genesee Street eastbound phases and 1.1 seconds for all other phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 102 seconds for the AM peak hour and 104 seconds for the PM peak hour.

CC. North Burdick Street at Northeast Medical Center – OCDOT Signal No. XX

This is a three-legged intersection which operates as a fully-actuated, three phase traffic signal with presence detection on all movements. There are no pedestrian accommodations at the intersection. Minimum recall is set for the North Burdick Street northbound and southbound through phase. The signal currently operates on 59 second cycle during both peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- Medical Center Drive Eastbound – exclusive left and right turn lanes
- North Burdick Street Northbound – exclusive left turn and through lanes
- North Burdick Street Southbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane.

The posted speed limit on North Burdick Street is 45 mph and 30 mph on the driveway for the Northeast Medical Center. Table II.CC presents the results of the level of service for the existing and proposed conditions.

Table II.CC
North Burdick Street at Medical Center East

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
North Burdick St/Medical Center East				
EB L	C(21.7)	C(21.0)	B(18.2)	C(20.6)
R	A(9.0)	A(9.2)	A(9.9)	B(10.4)
NB L	A(4.3)	A(4.4)	A(4.8)	A(4.9)
T	A(2.3)	A(2.4)	A(3.7)	A(3.9)
SB T/R	A(8.6)	A(9.3)	B(12.2)	B(14.0)
Overall	A(6.8)	A(7.1)	A(9.7)	B(10.8)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green to 7 seconds for the Medical Center Driveway phase.
- Change the all red clearance time from 1.5 seconds to 2.0 seconds for the Medical Center Driveway phase.
- Change the minimum gap and passage time to 1.8 seconds for the North Burdick Street phases and 1.9 seconds for the Medical Center Driveway phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 75 seconds for the AM and PM peak hours.

DD. Northern Boulevard at Running Ridge/Beacon North – OCDOT Signal No. 74

This is a four-legged jug handle intersection which operates as a semi-actuated, three phase traffic signal with presence detection on the Running Ridge and jug handle approaches. The westbound leg of the intersection is part of the jug handle and is one-way. There are no pedestrian accommodations at the intersection. Maximum recall is set for the Northern Boulevard northbound and southbound through phase. The signal currently operates on 74 second cycle during both peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- Running Ridge Eastbound – two exclusive left turn lanes and an exclusive right turn lane
- Jug Handle Westbound – exclusive through lane
- Northern Boulevard Northbound – two exclusive through lanes
- Northern Boulevard Southbound – exclusive through lane and a shared through/right turn lane.

The posted speed limit on Northern Boulevard is 55 mph and 30 mph on Running Ridge and the jug handle. Table II.DD presents the results of the level of service for the existing and proposed conditions.

Table II.DD
Northern Boulevard at Running Ridge/Beacon North

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
Northern Blvd/Running Ridge/Beacon North				
EB L	C(24.5)	C(33.0)	C(22.2)	D(39.0)
R	C(26.4)	C(34.9)	C(21.1)	C(33.3)
WB T	C(28.8)	D(38.7)	C(30.2)	D(39.3)
NB T	A(7.3)	A(5.6)	B(14.4)	B(10.4)
SB T/R	B(17.6)	B(11.2)	A(8.8)	A(7.0)
Overall	B(16.8)	B(12.4)	B(15.1)	B(15.7)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green time to 37 seconds for the Northern Boulevard through phase and 7 seconds for the Running Ridge Road phases.
- Change the yellow clearance time from 4.0 seconds to 3.5 seconds for the Northern Boulevard through phase.
- Change the all red clearance time to 1.5 seconds for the Northern Boulevard through phase and 3.0 seconds for the Running Ridge Road westbound phase.
- Set the minimum gap and passage time to 1.1 seconds for Running Ridge Road eastbound phase and 1.8 seconds for the Running Ridge westbound Road phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 91 seconds for the AM peak hour and 97 seconds for the PM peak hour.

EE. Old Liverpool Road at Beechwood Avenue – OCDOT Signal No. 5

This is a four-legged intersection which operates as a semi-actuated, three phase traffic signal with presence detection on the Beechwood Avenue and Lakeview Drive approaches. There are no pedestrian accommodations at the intersection. Maximum recall is set for the Old Liverpool Road northbound and southbound through phase. The signal currently operates on a 66 second cycle during both peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- Lakeview Drive Eastbound – single lane from which all movements are made
- Beechwood Avenue Westbound – single lane from which all movements are made
- Old Liverpool Road Northbound – shared through/left lane and a shared through/right lane
- Old Liverpool Road Southbound – shared through/left lane and a shared through/right lane

The posted speed limit on Old Liverpool Road is 40 mph and 30 mph on Beechwood Avenue and Lakeview Drive. Table II.EE presents the results of the level of service for the existing and proposed conditions.

Table II.EE
Old Liverpool Road at Beechwood Avenue

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
Old Liverpool Rd/Beechwood Ave				
EB L/T/R	A(7.5)	A(5.3)	A(9.2)	A(6.6)
WB L/T/R	B(13.6)	B(10.4)	B(18.4)	B(13.8)
NB L/T/R	C(22.4)	C(23.9)	C(21.3)	C(23.3)
SB L/T/R	C(31.6)	D(36.1)	C(27.5)	C(30.8)
Overall	B(12.7)	B(10.9)	B(15.8)	B(12.9)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green to 7 seconds for the Lakeview Drive phase, 5 seconds for the Old Liverpool Road southbound left turn phase and 30 seconds for the Old Liverpool Road through phases.
- Change the yellow clearance time from 4 seconds to 3 seconds for the Beechwood Ave phase.
- Change the all red clearance time to 1.5 seconds for the Old Liverpool Road phases and 2.0 seconds for the side road phases.
- Change the minimum gap and passage time to 1.6 seconds for the Old Liverpool Road southbound left turn phase, 1.9 seconds for the side road phases and 3.0 seconds for the Old Liverpool Road through phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 75 seconds for the AM peak hour and 77 seconds for the PM peak hour.

FF. Onondaga Boulevard at Bellevue Avenue – OCDOT Signal No. 42

This is an offset four-legged intersection controlled by two different signals with a single controller. The intersection operates as a semi-actuated, three phase traffic signal with presence detection on the Bellevue Avenue and School Exit Driveway approaches. There are no pedestrian accommodations at the intersection. Maximum recall is set for the Onondaga Boulevard eastbound and westbound through phase. The signal currently operates on a 72 second cycle during all three peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- Onondaga Boulevard Eastbound – exclusive through lane and a shared through/right turn lane
- Onondaga Boulevard Westbound – exclusive through lane and a shared through/left turn lane
- Bellevue Avenue Northbound – shared left/right turn lane
- School Exit Driveway Southbound – exclusive left and right turn lanes

The posted speed limit on Onondaga Boulevard is 35 mph and 30 mph on Bellevue Avenue and the School Driveway. Table II.FF presents the results of the level of service for the existing and proposed conditions.

Table II.FF
Onondaga Boulevard at Bellevue Avenue

Intersection	AM		PM		School Peak	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
Onondaga Blvd/Bellevue Ave						
EB T/R	A(0.4)	A(0.3)	A(0.5)	A(0.3)	A(0.5)	A(0.3)
WB L/T	A(8.4)	B(10.1)	A(9.5)	B(11.0)	A(9.1)	B(10.5)
NB L/R	C(24.9)	C(25.1)	C(27.5)	C(25.4)	C(26.7)	C(24.9)
Overall	A(8.0)	A(8.2)	B(10.2)	B(10.3)	A(9.3)	A(9.4)

XX(XX) – LOS(delay)

Intersection	AM		PM		School Peak	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
Onondaga Blvd/School Drive						
EB T	A(9.3)	B(11.1)	A(8.9)	B(10.3)	A(8.9)	B(10.2)
WB T	A(1.2)	A(0.9)	A(0.6)	A(0.4)	A(0.6)	A(0.4)
SB L	C(32.4)	D(36.5)	A(0.0)	A(0.0)	C(26.9)	C(29.0)
R	C(24.7)	C(27.1)	A(0.0)	A(0.0)	C(25.9)	C(28.2)
Overall	B(12.3)	B(14.0)	A(4.1)	A(4.6)	A(6.7)	A(7.4)

Recommended improvements to the signal timing include the following:

- Change the minimum green to 30 seconds for the Onondaga Boulevard through phase and 10 seconds for the Bellevue Avenue phase.
- Change the yellow clearance time to 3.0 seconds for all phases.
- Change the all red clearance time to 1.5 seconds for the Bellevue Avenue phase, 2.0 seconds for the Westhill Driveway phase and 2.5 seconds for the Onondaga Boulevard through phase.
- Change the minimum gap and passage time to 1.2 seconds for the Bellevue Avenue phase, 1.6 seconds for the Westhill Driveway and 3.0 seconds for the Onondaga Boulevard through phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 82 seconds for the AM, PM and School peak hours.

GG. Onondaga Boulevard at Western Lights/Wegmans – OCDOT Signal No. P-4

This is a four-legged intersection that operates as a semi-actuated, three phase traffic signal with presence detection on the Western Lights and Wegmans approaches and the left turn movements from Onondaga Boulevard. There are no pedestrian accommodations at the intersection. Maximum recall is set for the Onondaga Boulevard eastbound and westbound through phase. The signal currently operates on a 79 second cycle during all three peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- Onondaga Boulevard Eastbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane

- Onondaga Boulevard Westbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane
- Wegmans Driveway Northbound – shared through/left turn lane and an exclusive right turn lane
- Western Lights Driveway Southbound – single lane from which all movements are made

The posted speed limit on Onondaga Boulevard is 35 mph and 30 mph on the two driveways. Table II.GG presents the results of the level of service for the existing and proposed conditions.

Table II.GG
Onondaga Boulevard at Western Lights/Wegmans

Intersection	AM		PM		Sat. Peak	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
Onondaga Blvd/Western Lights/Wegmans						
EBL	A(3.2)	A(3.9)	A(4.6)	A(5.7)	A(5.5)	A(6.0)
TR	A(4.3)	A(5.1)	A(6.4)	A(7.1)	A(7.6)	A(7.9)
WB L	A(3.9)	A(4.6)	A(5.5)	A(5.7)	A(5.5)	A(6.0)
T/R	A(4.5)	A(5.2)	A(6.9)	A(7.1)	A(7.5)	A(7.7)
NB L/R	C(27.5)	C(24.9)	C(27.5)	C(23.3)	C(29.3)	C(25.6)
R	C(25.8)	C(24.0)	C(23.5)	C(21.2)	C(23.0)	C(21.4)
SB L/T/R	C(27.2)	C(24.9)	C(26.0)	C(23.0)	C(26.0)	C(23.9)
Overall	A(9.0)	A(9.2)	B(13.6)	B(12.7)	B(15.3)	B(14.5)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green to 7 seconds for the Shopping Center phases and 30 seconds for the Onondaga Boulevard through phases.
- Change the yellow clearance time from 3.5 seconds to 3.0 seconds for all phases.
- Change the all red clearance time from 1.5 seconds to 2.0 seconds for the Onondaga Boulevard left turn phases, 2.5 seconds for the Onondaga Boulevard through phases and 3.0 seconds for the Shopping Center phases.
- Change the minimum gap and passage time from 3.0 seconds to 1.4 seconds for Onondaga Boulevard left turn phases and 1.3 seconds for the Shopping Center phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 77 seconds for the AM, PM and Saturday peak hours.

HH. Rock Cut Road at OCCRA Driveway – OCDOT Signal No. P-19

This is a four-legged intersection that operates as a semi-actuated, two phase traffic signal with presence detection on OCCRA Driveway approaches. There are no pedestrian accommodations at the intersection. Maximum recall is set for the Rock Cut Road eastbound and westbound through phase. The signal currently operates on a 61 second cycle during both peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- Rock Cut Road Eastbound – single lane from which all movements are made
- Rock Cut Road Westbound – single lane from which all movements are made
- OCCRA Driveway Northbound – single lane from which all movements are made
- OCCRA Driveway Southbound – single lane from which all movements are made

The posted speed limit on Rock Cut Road is 55 mph and 5 mph on the two driveways. Table II.HH presents the results of the level of service for the existing and proposed conditions.

Table II.HH
Rock Cut Road at OCCRA Driveway

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
Rock Cut Rd/OCCRA Driveway				
EB L/T/R	A(2.5)	A(2.4)	A(1.6)	A(1.7)
WB L/T/R	A(2.6)	A(2.5)	A(1.4)	A(1.6)
NB L/T/R	C(26.5)	C(25.5)	C(29.7)	C(26.1)
SB L/T/R	C(23.8)	C(21.2)	C(28.2)	C(24.7)
Overall	A(7.9)	A(7.3)	A(3.0)	A(3.0)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green to 21 seconds for the Rock Cut Road phase.
- Change the yellow clearance time from 3.0 seconds to 3.5 seconds for the Rock Cut Road phase.
- Change the all red clearance time from 2.5 seconds to 1.5 seconds for the Rock Cut Road phase and 3.0 seconds for the OCCRA Driveway phases.
- Change the cycle length to 54 seconds for the AM and PM peak hours.

II. Seventh North Street at Terminal Road – OCDOT Signal No. P-9

This is an four-legged intersection that operates as a semi-actuated, two phase traffic signal with presence detection on the Terminal Road and Ley Creek Drive approaches. There are no pedestrian accommodations at the intersection. Maximum recall is set for the Seventh North Street northbound and southbound through phase. The signal currently operates on a 45 second cycle during the AM peak hour and a 77 second cycle during the PM peak hour with different timings for each of the peak hours. The geometry of the intersection is as follows:

- Terminal Road Eastbound – single lane from which all movements are made
- Ley Creek Drive Westbound – single lane from which all movements are made
- Seventh North Street Northbound – exclusive left turn lane and a shared through/right turn lane
- Seventh North Street Southbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane

The posted speed limit on Rock Cut Road is 40 mph and 30 mph for Terminal Road and Ley Creek Drive. Table II.II presents the results of the level of service for the existing and proposed conditions.

Table II.II
Seventh North Street at Terminal Road

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
Seventh North St/Terminal Rd				
EB L/T/R	A(6.0)	A(6.0)	A(6.4)	A(5.2)
WB L/T/R	A(7.2)	A(7.2)	A(8.0)	A(6.5)
NB L	A(7.3)	A(7.1)	A(7.5)	A(6.1)
T/R	A(8.3)	A(8.0)	B(12.5)	B(10.1)
SB L	B(19.5)	C(26.1)	C(25.7)	C(28.6)
T/R	B(12.0)	B(16.0)	B(17.5)	B(18.2)
Overall	A(9.6)	B(10.8)	B(13.1)	B(12.0)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green to 30 seconds for the 7th North Street phase.
- Change the yellow clearance time from 2.5 seconds to 3.0 seconds for the side street phase.
- Change the minimum gap and passage time to 1.9 seconds for the side street phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 62 seconds for the AM peak hour and 69 seconds for the PM peak hour.

JJ. Soule Road at Streamwood Drive – OCDOT Signal No. 90

This is a four-legged intersection that operates as a fully-actuated, three phase traffic signal with presence detection on all approaches. There are no pedestrian accommodations at the intersection. Minimum recall is set for the Soule Road northbound and southbound through phase. The signal currently operates on an 88 second cycle during the AM, PM and afternoon peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- Pine Gate Parkway Eastbound – shared left/through lane and an exclusive right turn lane
- Streamwood Drive Westbound – shared left/through lane and an exclusive right turn lane
- Soule Road Northbound – exclusive left turn lane and a shared through/right turn lane
- Soule Road Southbound – exclusive left turn lane and a shared through/right turn lane

The posted speed limit on all roadways is 30 mph. Table II.JJ presents the results of the level of service for the existing and proposed conditions.

Table II.JJ
Soule Road at Streamwood Drive

Intersection	AM		PM		Mid-Day	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
Soule Rd/Streamwood Dr						
EB L/T	C(30.3)	C(26.1)	D(35.1)	C(28.9)	C(29.5)	C(20.9)
R	C(20.3)	B(18.1)	C(21.8)	B(18.6)	C(21.4)	B(17.1)
WB L/T	C(24.2)	C(21.4)	C(26.7)	C(22.7)	C(25.6)	B(20.0)
R	C(20.8)	B(18.3)	C(22.1)	B(19.1)	C(20.3)	B(17.3)
NB L	A(6.8)	A(5.8)	A(7.2)	A(6.0)	A(5.5)	A(4.4)
T/R	B(19.8)	B(16.6)	B(11.2)	A(9.4)	A(9.5)	A(7.3)
SB L	A(9.3)	A(7.8)	A(6.1)	A(5.3)	A(4.5)	A(4.4)
T/R	B(10.6)	A(8.9)	B(15.0)	B(13.0)	A(9.5)	A(8.3)
Overall	B(19.1)	B(16.3)	B(15.4)	B(13.0)	B(11.3)	A(9.2)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green to 7 seconds for the Pine Gate Parkway and Streamwood Drive phases and 10 seconds for the Soule Road through phases.
- Change the all red clearance time from 3.0 seconds to 2.0 seconds for the Soule Road and side street phases and 2.5 seconds for the Soule Road through phases.
- Change the minimum gap and passage time from 3.0 seconds to 1.9 seconds for all phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 86 seconds for the AM and PM peak hours and 80 seconds for the School peak hour.

KK. South Bay Road at Thompson Road – OCDOT Signal No. 33

This is a four-legged intersection that operates as a fully-actuated, three phase traffic signal with presence detection on all approaches. There are no pedestrian accommodations at the intersection. Minimum recall is set for the South Bay Road eastbound and westbound through phase. The signal currently operates on an 83 second cycle during the AM and PM peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- Thompson Road Northbound – shared left/through lane and an exclusive right turn lane
- Thompson Road Southbound – shared left/through lane and an exclusive right turn lane
- South Bay Road Eastbound – exclusive left turn lane and a shared through/right turn lane
- South Bay Road Westbound – exclusive left turn lane and a shared through/right turn lane

The posted speed limit on all approaches is 45 mph with the exception of the Thompson Road southbound approach which is 40 mph. Table II.KK presents the results of the level of service for the existing and proposed conditions.

Table II.KK
South Bay Road at Thompson Road

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
South Bay Rd/Thompson Rd				
EB L	B(18.1)	B(15.3)	C(27.6)	C(21.8)
T/R	A(9.1)	A(7.8)	B(13.2)	B(11.3)
WB L	C(31.3)	C(24.6)	B(19.6)	B(16.3)
T/R	B(11.2)	A(9.4)	B(10.0)	A(8.0)
NB L/T	B(15.9)	B(12.4)	B(12.5)	A(9.2)
R	C(23.3)	B(19.1)	C(20.6)	B(15.4)
SB L/T	B(14.6)	B(11.5)	B(15.1)	B(12.6)
R	C(30.0)	C(22.7)	C(25.7)	C(20.6)
Overall	C(21.3)	B(16.9)	B(18.3)	B(14.4)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the yellow clearance time from 3.5 seconds to 3.0 seconds for all phases.
- Change the all red clearance time from 3.0 seconds to 1.5 seconds for the South Bay Road left turn phases and 2.0 seconds for all other phases.
- Change the passage time to 1.6 seconds for Thompson Road southbound phase, 1.7 seconds for the South Bay Road through phases and 1.8 seconds for all other phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 95 seconds for the AM peak hour and 90 seconds for the PM peak hour.

LL. Teall Avenue at Galster Avenue – OCDOT Signal No. 49

This is currently a three-legged intersection that operates as a semi-actuated, two phase traffic signal with presence detection on the Galster Avenue approach. The intersection will be converted to a four-legged intersection in the future with the addition of an eastbound approach for a driveway for a Dunkin Donuts. There are no pedestrian accommodations at the intersection. Maximum recall is set for the Teall Avenue northbound and southbound through phase. The signal currently operates on a 51 second cycle during the AM and PM peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- Teall Avenue Northbound – exclusive through lane shared and a shared through/right turn lane
- Teall Avenue Southbound – shared left/through lane and an exclusive through turn lane
- Galster Avenue Westbound – single lane from which all movements are made.

The posted speed limit on all approaches is 30 mph. Table II.LL presents the results of the level of service for the existing and proposed conditions.

Table II.LL
Teall Avenue at Galster Avenue

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
Teall Ave/Galster Ave				
EB L/T	N/A	B(19.9)	N/A	C(20.9)
R	N/A	B(18.6)	N/A	C(20.5)
WB L/R	C(22.5)	B(19.7)	C(22.2)	C(22.4)
NB T/R	A(4.3)	A(3.2)	A(4.7)	A(2.7)
SB L/T	A(4.0)	A(3.0)	A(4.8)	A(2.7)
Overall	A(5.5)	A(5.9)	A(6.0)	A(4.6)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green to 30 seconds for the Teall Avenue phase and 7 seconds for the side street phase.
- Change the yellow clearance time from 4.0 seconds to 3.0 seconds for all phases.
- Change the all red clearance time to 1.5 seconds for the side street phase and 2.0 seconds for the Teall Avenue phase.
- Change the passage time to 1.9 seconds for the side street phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 57 seconds for the AM and PM peak hours.

MM. Velasko Road at McDonald Road – OCDOT Signal No. 29

This is currently a four-legged intersection that operates as a fully actuated, two phase traffic signal with presence detection on all approaches. There are no pedestrian accommodations at the intersection. The signal currently operates on a 70 second cycle during the AM and PM peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- Velasko Road Eastbound – single lane from which all movements are made
- Velasko Road Westbound – single lane from which all movements are made
- McDonald Road Northbound – single lane from which all movements are made
- McDonald Road Southbound – single lane from which all movements are made.

The posted speed limit on all approaches is 30 mph. Table II.MM presents the results of the level of service for the existing and proposed conditions.

**Table II.MM
Velasko Road at McDonald Road**

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
Velasko Rd/McDonald Rd				
EB L/T/R	C(20.4)	B(16.2)	B(14.0)	B(10.0)
WB L/T/R	B(14.2)	B(11.9)	C(21.0)	B(14.7)
NB L/T/R	B(15.7)	B(16.8)	B(12.1)	B(12.5)
SB L/T/R	A(9.3)	A(9.0)	B(13.5)	B(14.8)
Overall	B(15.4)	B(14.6)	B(15.0)	B(13.6)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green to 10 seconds for all phases.
- Change the all red clearance time from 2.0 seconds to 1.5 seconds for the Velasko Road phase.
- Change the passage time from 4.0 seconds to 1.8 seconds for all phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Set the signal to minimum recall for the Velasko Road phase.
- Change the cycle length to 85 seconds for the AM peak hour and 78 seconds for the PM peak hour.

NN. Vine Street at Continuum Drive – OCDOT Signal No. P-16

This is currently a three-legged intersection that operates as a semi-actuated, two phase traffic signal with presence detection on the Continuum Drive approach. There are no pedestrian accommodations at the intersection. The signal currently operates on a 50 second cycle during the AM and PM peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- Continuum Drive Westbound – single lane from which all movements are made
- Vine Street Northbound – single lane from which all movements are made
- Vine Street Southbound – single lane from which all movements are made.

The posted speed limit on Vine Street is 40 mph. Table II.NN presents the results of the level of service for the existing and proposed conditions.

Table II.NN
Vine Street at Continuum Drive

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
Vine St/Continum Dr				
WB L/R	D(36.5)	D(33.9)	B(14.7)	C(20.4)
NB T/R	A(3.8)	A(3.7)	A(9.6)	A(8.1)
SB L/T	A(3.0)	A(2.9)	B(11.0)	A(8.9)
Overall	A(4.2)	A(4.1)	B(11.2)	B(10.9)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green to 30 seconds for the Vine Street phase.
- Change the minimum gap and passage time from 3.0 seconds to 1.9 seconds for the Continuum Drive phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 74 seconds for the AM peak hour and 56 seconds for the PM peak hour.

OO. West Genesee Street at Fairmount Fair – OCDOT Signal No. P-7

This is currently a three-legged intersection that operates as a semi-actuated, two phase traffic signal with presence detection on the Fairmount Fair approach and the West Genesee Street westbound left turn movement. There is a crosswalk across the westbound leg of the intersection with pedestrian signals. The signal currently operates on a 60 second cycle during the AM, A 65 second cycle during the PM peak and a 70 second cycle during the mid-day peak hour. The geometry of the intersection is as follows:

- West Genesee Street Eastbound – exclusive through lane and a shared through/right turn lane
- West Genesee Street Westbound – exclusive left turn lane and two exclusive through lanes
- Fairmount Fair Northbound – two exclusive left turn lanes and an exclusive right turn lane

The posted speed limit on West Genesee Street is 35 mph. Table II.OO presents the results of the level of service for the existing and proposed conditions.

Table II.OO
West Genesee Street at Fairmount Fair

Intersection	AM		PM		Saturday	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
West Genesee St/Fairmount Fair						
EB T/R	A(8.4)	A(5.4)	B(17.0)	B(11.8)	B(18.9)	B(13.6)
WB L	A(2.9)	A(1.9)	A(9.2)	A(5.2)	B(12.1)	A(6.8)
R	A(3.1)	A(2.1)	A(7.3)	A(4.9)	A(6.7)	A(4.8)
NB L	C(20.9)	C(32.3)	B(18.2)	C(30.1)	B(19.6)	C(32.1)
R	B(14.1)	C(25.1)	B(10.7)	B(19.0)	B(13.2)	C(22.5)
Overall	A(6.5)	A(5.2)	B(12.1)	B(10.5)	B(14.2)	B(13.6)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green to 30 seconds for the West Genesee Street eastbound through phase and 32 seconds for the West Genesee Street westbound through phase.
- Change the minimum gap and passage time to 1.2 seconds for Fairmount Fair Driveway phase and 1.4 seconds for the West Genesee Street left turn phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 92 seconds for the AM and PM peak hours and 97 seconds for the Saturday peak hour.

PP. West Genesee Street at Gillespie Avenue – OCDOT Signal No. P-18

This is currently a four-legged intersection that operates as a fully actuated, two phase traffic signal with presence detection on all approaches. There are pedestrian accommodations on all approaches with the exception of West Genesee Street eastbound. The signal currently operates on a 67 second cycle during the AM, PM and Saturday peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- West Genesee Street Eastbound – shared through/left turn lane and a shared through/right turn lane
- West Genesee Street Westbound – shared through/left turn lane and a shared through/right turn lane
- Gillespie Avenue Northbound – single lane from which all movements are made
- Gillespie Avenue Southbound – single lane from which all movements are made.

The posted speed limit on West Genesee Street is 35 mph and 30 mph on Gillespie Avenue. Table II.PP presents the results of the level of service for the existing and proposed conditions.

Table II.PP
West Genesee Street at Gillespie Avenue

Intersection	AM		PM		Saturday	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
West Genesee St/Gillespie Ave						
EB L/T/R	A(5.0)	A(3.1)	A(5.2)	A(3.5)	A(5.2)	A(3.3)
WB L/T/R	A(4.9)	A(3.0)	A(5.9)	A(4.0)	A(5.2)	A(3.3)
NB L/T/R	B(12.5)	C(22.1)	B(17.0)	C(24.0)	B(16.8)	C(22.6)
SB L/T/R	B(12.2)	C(21.8)	B(18.4)	C(25.2)	B(17.0)	C(22.8)
Overall	A(5.7)	A(4.9)	A(7.0)	A(6.1)	A(6.1)	A(4.8)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green to 7 seconds for the Gillespie Avenue phase and 26 seconds for the West Genesee Street phase.
- Change the yellow clearance time from 4.0 seconds to 3.0 seconds for all phases.
- Change the minimum gap and passage time from 3.0 seconds to 1.2 seconds for the Gillespie Avenue phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Set the signal to maximum recall for the West Genesee Street phase.
- Change the cycle length to 71 seconds for the AM and Saturday peak hours and 79 seconds for the PM peak hour.

QQ. West Genesee Street at Beverly Drive – OCDOT Signal No. 51

This is currently a four-legged intersection that operates as a semi-actuated, two phase traffic signal with presence detection on the Beverly Drive and Mackay Avenue approaches. There are pedestrian accommodations on all approaches with the exception of West Genesee Street westbound. The signal currently operates on a 57 second cycle during the AM, PM and Saturday peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- West Genesee Street Eastbound – shared through/left turn lane and a shared through/right turn lane
- West Genesee Street Westbound – shared through/left turn lane and a shared through/right turn lane
- Beverly Drive Northbound – shared through/left turn lane and an exclusive right turn lane
- Mackay Avenue Southbound – single lane from which all movements are made.

The posted speed limit on West Genesee Street is 35 mph and 30 mph on Beverly Drive and Mackay Drive. Table II.QQ presents the results of the level of service for the existing and proposed conditions.

Table II.QQ
West Genesee Street at Beverly Drive

Intersection	AM		PM		Saturday	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
West Genesee St/Beverly Dr						
EB L/T/R	A(5.1)	A(3.9)	A(7.9)	A(5.8)	A(8.2)	A(7.4)
WB L/T/R	A(4.5)	A(3.5)	A(9.4)	A(6.8)	A(7.8)	A(7.1)
NB L/T	C(20.0)	C(30.0)	B(19.9)	C(28.5)	C(24.6)	C(27.9)
R	B(16.1)	C(22.5)	B(16.0)	C(20.7)	B(15.1)	B(19.8)
SB L/T/R	B(17.3)	C(23.9)	B(14.1)	C(23.3)	B(15.8)	C(20.8)
Overall	A(7.8)	A(8.6)	B(10.4)	A(9.7)	B(10.3)	B(10.5)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green to 7 seconds for the side street phase and 32 seconds for the West Genesee Street phase.
- Change the yellow clearance time from 3.5 seconds to 3.0 seconds for the West Genesee Street phase.
- Change the minimum gap and passage time from 3.0 seconds to 1.9 seconds for the side street phase.
- Change the cycle length to 79 seconds for the AM, PM and Saturday peak hours.

RR. West Genesee Street at Whedon Road – OCDOT Signal No. 88

This is currently a three-legged intersection that operates as a semi-actuated, three phase traffic signal with presence detection on the Whedon Road and West Genesee Street westbound approaches. There are pedestrian accommodations on all approaches with the exception of West Genesee Street westbound. The signal currently operates on a 74 second cycle during the AM, PM and Saturday peak hours with similar timings for each of the peak hours. The geometry of the intersection is as follows:

- West Genesee Street Eastbound –shared through/right turn lane and an exclusive through lane
- West Genesee Street Westbound – shared through/left turn lane and an exclusive through lane
- Whedon Road Northbound – exclusive left and right turn lanes

The posted speed limit on West Genesee Street is 35 mph and 30 mph on Whedon Road. Table II.RR presents the results of the level of service for the existing and proposed conditions.

Table II.RR
West Genesee Street at Whedon Road

Intersection	AM		PM		Saturday	
	Existing	Proposed	Existing	Proposed	Existing	Proposed
West Genesee St/Whedon Road						
EB T/R	B(10.4)	A(9.8)	B(12.6)	A(9.9)	B(12.9)	A(9.9)
WB L/T	A(4.5)	A(4.0)	A(5.2)	A(5.3)	A(4.6)	A(4.4)
NB L	B(30.1)	B(18.0)	C(30.1)	B(18.7)	C(27.6)	B(18.9)
R	B(16.1)	B(12.3)	B(15.5)	B(14.0)	B(15.9)	B(14.8)
Overall	B(11.0)	A(9.0)	B(10.4)	A(8.5)	A(9.9)	A(8.0)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green to 7 seconds for the West Genesee Street left turn phase.
- Change the all red clearance time from 1.5 seconds to 2.0 seconds for the Whedon Road and West Genesee Street left turn phases and 2.5 seconds for the West Genesee Street through phases.
- Change the minimum gap and passage time to 1.2 seconds for the Whedon Road and West Genesee Street westbound through phases and 1.4 seconds for the West Genesee Street left turn and eastbound through phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the signal to minimum recall for the West Genesee Street through phases.
- Change the cycle length to 107 seconds for the AM, PM and Saturday peak hours.

SS. West Taft Road at Northern Boulevard – OCDOT Signal No. 14

This is currently a four-legged intersection that operates as a fully-actuated, eight phase traffic signal with presence detection on all approaches. There are no pedestrian accommodations. The signal currently operates on a 134 second cycle during the AM, and 144 seconds during the PM peak hour. The geometry of the intersection is as follows:

- East Taft Road Eastbound – exclusive left turn lane, two exclusive through lanes and an exclusive right turn lane
- East Taft Road Westbound – exclusive left turn lane, exclusive through lane and a shared through/right turn lane
- Northern Boulevard Northbound – exclusive left turn lane, two exclusive through lanes and a shared through/right turn lane
- Northern Boulevard Southbound – exclusive left turn lane, two exclusive through lanes and a shared through/right turn lane

The posted speed limit on the East Taft Road eastbound approach is 40 mph and 50 mph on the westbound approach. The posted speed limit on Northern Boulevard is 55 mph. Table II.SS presents the results of the level of service for the existing and proposed conditions.

Table II.SS
East Taft Road at Northern Boulevard

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
East Taft Rd/Northern Blvd				
EB L	D(51.9)	D(46.5)	D(44.7)	D(41.6)
T	D(42.3)	D(37.1)	C(31.7)	C(27.8)
R	C(32.5)	C(31.8)	B(14.0)	B(12.4)
WB L	D(53.0)	D(47.2)	D(47.8)	D(38.8)
TR	D(41.5)	D(35.2)	D(39.3)	C(31.9)
NB L	D(48.4)	D(47.1)	D(43.4)	C(33.9)
T/R	C(28.3)	C(28.0)	D(35.6)	C(26.8)
SB L	E(79.4)	D(47.7)	D(44.7)	D(38.1)
T/R	D(38.9)	C(32.1)	D(36.3)	C(29.5)
Overall	D(42.4)	D(35.0)	D(36.2)	C(29.1)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green to 5 seconds for all left turn phases and 15 seconds for the eastbound and westbound through phases.
- Change the yellow clearance time from 4.0 seconds to 3.5 seconds for all phases.
- Change the all red clearance time from 2.0 seconds to 1.5 seconds for all left turn phases and 2.5 seconds for all through phases.
- Change the minimum gap and passage time from 4.0 seconds to 1.6 seconds for the East Taft Road eastbound phases, 1.7 seconds for the Northern Boulevard left turn phases, 1.8 seconds for the East Taft Road westbound through phase and 1.9 seconds for all other phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Set the signal to minimum recall for the Northern Boulevard through phases.
- Change the cycle length to 127 seconds for the AM peak hour and 117 seconds for the PM peak hour.

TT. Factory Avenue at Townline Road – OCDOT Signal No. 46

This is currently a four-legged intersection that operates as a fully-actuated, two phase traffic signal with presence detection on all approaches. There are no pedestrian accommodations. The signal currently operates on a 73 second cycle during the AM and PM peak hours. The geometry of the intersection is as follows:

- Factory Avenue Eastbound – shared through/left turn lane and an exclusive right turn lane
- Driveway Westbound – single lane from which all movements are made
- Townline Road Northbound – shared through/left turn lane and a shared through/right turn lane
- Townline Road Southbound – shared through/left turn lane, exclusive through lane and a channelized right turn lane

The posted speed limit on the Factory Avenue eastbound approach is 55 mph. The posted speed limit on all other approaches is 35 mph. Table II.TT presents the results of the level of service for the existing and proposed conditions.

Table II.TT
Factory Avenue at Townline Road

Intersection	AM		PM	
	Existing	Proposed	Existing	Proposed
Factory Ave/Townline Rd				
EB L/T	A(9.0)	A(6.9)	B(12.4)	B(10.6)
R	A(9.9)	A(9.5)	B(11.8)	B(10.5)
WB L/T/R	A(7.9)	A(6.2)	B(11.1)	A(9.9)
NB L/T/R	A(7.9)	B(10.9)	A(8.4)	B(10.2)
SB L/T/R	A(7.1)	A(9.6)	A(5.4)	A(6.3)
Overall	A(8.6)	A(9.7)	A(8.6)	A(9.3)

XX(XX) – LOS(delay)

Recommended improvements to the signal timing include the following:

- Change the minimum green to 7 seconds for northbound, southbound and westbound phases and 10 seconds for the Factory Avenue eastbound phase.
- Change the yellow clearance time from 3.5 seconds to 3.0 seconds for the Townline Road northbound and southbound phases.
- Change the all red clearance time from 1.5 seconds to 2.0 seconds for the Townline Road northbound and southbound phases.
- Change the minimum gap and passage time from 3.0 seconds to 1.8 seconds for the Townline Road northbound and southbound phases, 2.0 seconds for the Factory Avenue eastbound phase and 2.1 seconds for the driveway phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 58 seconds for the AM peak hour and 70 seconds for the PM peak hour.

CHAPTER III

SUMMARY OF RECOMMENDATIONS

Based on the results of the signal timing analysis of the isolated study area intersections, the following is a summary of the recommendations.

❖ **General Recommendations**

- For the semi-actuated intersections, the traffic signal should rest in green for the main street through phases when there are no vehicle detections on the side streets.

❖ **Buckley Road at Bailey Road**

- Change phasing to allow for a lead southbound left turn phase.
- Set minimum green time to 5 seconds for southbound left turn phase
- Change minimum green time to 7 seconds for Bailey Road phase
- Change yellow clearance interval to 3 seconds for all phases.
- Change the red clearance interval from 2 seconds to 3 seconds for the Buckley Road through phases.
- Set the Buckley Road through phases to minimum recall.
- Change the minimum gap and passage time on the Buckley Road phases to 1.1 seconds and 1.4 seconds for the Bailey Road phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 123 seconds for AM peak hour, 111 seconds for the PM peak hour and 121 seconds for the school peak hour.

❖ **Buckley Road at Hopkins Road**

- Change the minimum green to 30 seconds for Buckley Road and 10 seconds for Hopkins Road.
- Change all red clearance interval from 2.0 seconds for all phases to 2.5 seconds for Buckley Road and 1.0 seconds for Hopkins Road
- Change the minimum gap and passage time from 3.0 seconds to 2.2 seconds for the Hopkins Road phase.
- Change the cycle length to 78 seconds for AM peak hour, 100 seconds for the PM peak hour and 71 seconds for the School peak hour.

❖ **Buckley Road at Old Liverpool Road**

- Change the minimum green time on the Buckley Road phase from 20 seconds to 10 seconds.
- Change the all red clearance interval from 2 seconds to 1.5 seconds for the Old Liverpool Road phase.

- Set the minimum gap and passage time on the Old Liverpool Road phase to 3.0 seconds and 2.0 seconds on the Buckley Road phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 70 seconds for AM and PM peak hours.

❖ **Buckley Road at Wetzel Road**

- Change minimum green times to 31 seconds for Buckley Road phase and 19 seconds for the Wetzel Road Phase..
- Change the yellow clearance interval from 2.5 seconds to 3 seconds for all phases.
- Change all red phase from 2 seconds for all phases to 2.5 seconds for the Buckley Road phase and 1.5 seconds for the Wetzel Road phase.
- Change the cycle length to 71 seconds for AM peak hour and 79 seconds for the PM peak hour.

❖ **Caughdenoy Road at Lawton Road**

- Change the minimum green time to 7 seconds for the Lawton Road phase and 23 seconds for the Caughdenoy Road phase
- Change the all red phase from 2.5 seconds to 1.5 seconds for the Lawton Road phase.
- Set the vehicle extension and passage time on the Lawton Road phase to 1.2 seconds. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 71 seconds for the AM peak hour and 56 seconds for the PM peak hour.

❖ **East Taft Road at Thompson Road**

- Change minimum green time from 6 seconds to 7 seconds for the Thompson Road through phases.
- Change yellow clearance time from 4.0 seconds to 3.0 seconds for all through phases.
- Set all red phase to 1.5 seconds for the Taft Road left turn phases and 2.5 seconds for the Thompson Road through phases.
- Change the minimum gap and passage time on all Taft Road phases to 1.6 seconds and 1.2 seconds for Thompson Road phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 76 seconds for the AM and PM peak hours.

❖ **East Taft Road at Kreischer Road**

- Change the minimum green time to 15 seconds for Taft Road through phases and 10 seconds for the Kreischer Road phase.
- Change the yellow clearance interval from 3.8 seconds to 3.0 seconds for all phases.
- Change the all red phase from 2.0 seconds to 1.5 seconds for the Taft Road left turn phase and the Kreischer Road phase.
- Change the minimum gap and passage time from 3.0 seconds to 1.6 seconds for the Taft Road through phases, 1.5 seconds for the Taft Road left turn phase and 2.0 seconds for

the Kreischer Road phase. This passage time is based on the prevailing speed limits and the length of the detection zones.

- Change the cycle length to 95 seconds for the AM peak hour and 94 seconds for the PM peak hour.

❖ **East Taft Road at Interstate 81 Northbound Ramps**

- Change the minimum green time to 5 seconds for the Taft Road left turn phase, 15 seconds for the Taft Road through phases and 7 seconds for the Interstate 81 Off Ramp phase.
- Change the yellow clearance interval from 3.0 seconds to 2.5 seconds for the Taft Road through phases and 2.0 seconds for the Taft Road left turn and Interstate 81 Off Ramp phases..
- Change the all red phase to 2.5 seconds for the Taft Road through phases and 2.0 seconds for all other phases.
- Change the minimum gap and passage time to 1.2 seconds for the Interstate 81 Off Ramp, 1.3 seconds for the Taft Road left turn phase, 1.4 seconds for the Taft Road eastbound through phase and 1.6 seconds for the Taft Road westbound through phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 86 seconds for the AM peak hour and 87 seconds for the PM peak hour.

❖ **East Taft Road at Interstate 81 Southbound Ramps**

- Change the minimum green time to 5 seconds for the Taft Road left turn phase, 7 seconds for the Interstate 81 Off Ramp phase and 15 seconds for the Taft Road through phases.
- Change the yellow clearance intervals to 3.0 seconds for all phases
- Change the all red interval to 1.5 seconds for the Taft Road left turn phase, 3.0 seconds for the Interstate 81 Off Ramp phase and 2.5 seconds for the Taft Road through phases.
- Change the minimum gap and passage time to 1.2 seconds for the Interstate 81 Off Ramp phase, 1.4 seconds for the Taft Road eastbound phase and 1.6 seconds for the Taft Road westbound phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 83 seconds for the AM peak hour and 81 seconds for the PM peak hour.

❖ **East Taft Road at USPO/John Street**

- Change the minimum green to 7 seconds for the side street phases and 15 seconds for the Taft Road through phases.
- Change the yellow clearance time to 3.0 seconds for all phases.
- Change the all red clearance time to 2.5 seconds for the Taft Road through phases.
- Change the minimum gap and passage time to 1.4 seconds for the Taft Road through phases, 1.2 seconds for the John Street phase, and 1.9 seconds for the Post Office phases. This passage time is based on the prevailing speed limits and the length of the detection zones.

- Change the cycle length to 85 seconds for the AM peak hour and 87 seconds for the PM peak hour.

❖ **East Taft Road at South Bay Road**

- Change the minimum green to 5 seconds for all left turn phases.
- Change the yellow clearance interval to 3.0 seconds for all phases.
- Change the all red interval to 2.5 seconds for all left turn phases and 3.0 seconds for all through phases.
- Change the minimum gap and passage time from 3.0 seconds to 1.0 seconds for the Taft Road westbound left turn phase, 1.1 seconds for the South Bay Road southbound through, the Taft Road eastbound left turn and the Taft Road westbound through phases, 1.2 seconds for the South Bay Road left turn phase and 1.3 seconds for the Taft Road eastbound through and South Bay Road northbound left turn phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 135 seconds for the AM and PM peak hours.

❖ **West Taft Road at US Route 11**

- Change the minimum green time to 5 seconds for all left turn phases.
- Change the yellow clearance interval from 3.5 seconds to 3.0 seconds for all phases.
- Change the all red interval from 1.5 seconds to 2.5 seconds for all left turn phases and 3.0 seconds for all through phases.
- Change the minimum gap and passage time from 3.0 seconds to 1.4 seconds for all phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 135 seconds for the AM and PM peak hours.

❖ **West Taft Road at Teachers Drive**

- Change the minimum green time to 5.0 seconds for the Taft Road left turn phase, 7 seconds for the Teacher Driveway phase and 39 seconds for the Taft Road through phases.
- Change the all red clearance time to 2.5 seconds for the Taft Road through phases, 3.0 seconds for the side street phases.
- Change the minimum gap and passage time to 1.2 seconds for the Teacher Driveway phase, 1.3 seconds for the Taft Road left turn phases, 1.4 seconds for the Taft Road eastbound through phase, 1.5 seconds for the Taft Road westbound through phase and 2.0 seconds for the Pharmacy Driveway phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 111 seconds for the AM and PM peak hours.

❖ **West Taft Road at Wegmans Driveway**

- Change the minimum green times on the Taft Road through phases from 10 seconds to 30 seconds. Change the Wegmans Driveway and Woodside Run minimum green times from 5 seconds to 7 seconds.

- Change the all red clearance time to 2.5 seconds for the Taft Road through phases and the Wegmans Driveway phase, 3.0 seconds for the Woodside Run phase
- Change the minimum gap and passges times from 2 seconds for all phases to 1.6 seconds for the Taft Road westbound left phase, 1.4 seconds for the Wegmans Driveway phase, 1.8 seconds for the Taft Road eastbound left phase and 1.2 seconds for the Woodside Run phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 98 seconds for the AM and PM peak hours.

❖ **US Route 11 at Shopping Center**

- Change the minimum green time to 5 seconds for US Route 11 left turn phase, 7 seconds for the driveway phase and 10 seconds for the US Route 11 phases.
- Change the yellow clearance interval to 3.0 seconds for all phases.
- Change the all red clearance time to 1.5 seconds for the driveway phase and 2.5 seconds for all other phases.
- Change the minimum gap and passage time to 1.4 seconds for all phases with the exception of the US Route 11 left turn phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 135 seconds for the AM peak hour and 60 seconds for the PM peak hour.

❖ **Factory Avenue at Lemoyne Avenue**

- Change the minimum green time from 22 seconds to 10 seconds for the Factory Avenue eastbound through phase.
- Change the yellow clearance time to 3.0 seconds for all phases.
- Change the all red clearance phase from 2.0 seconds to 2.5 seconds for the Factory Avenue through phases and 1.5 seconds for the Lemoyne Avenue left turn phases.
- Change the minimum gap and passage time from 4.0 seconds to 1.9 seconds for all phases with the exception of the Lemoyne Avenue southbound phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the pedestrian clearance interval from 12 seconds to 18 seconds for the Factory Avenue through phase and from 10 seconds to 13 seconds for the Lemoyne Avenue through phase.
- Set the controller to minimum recall on the Factory Avenue eastbound and westbound through phases.
- Change the cycle length to 141 seconds for the AM peak hour and 140 seconds for the PM peak hour.

❖ **Fly Road at New Venture Gear Drive**

- Set the minimum green to 20 seconds for the Fly Road through phases, 5 seconds for the Fly Road northbound left turn phase and 10 seconds for the New Venter Gear Drive phase.
- Change the all red clearance interval from 3.0 seconds to 1.5 seconds for the Fly Road phases and 2.5 seconds for the New Venture Gear Drive phase.

- Set the minimum gap and passage time to 2.2 seconds for the Fly Road northbound left turn phase and 2.4 seconds for the New Venture Gear Drive phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 82 seconds for the AM peak hour and 81 seconds for the PM peak hour.

❖ **Fremont Road at Central Avenue**

- Change the minimum green time for the Fremont Road northbound through phase to 36 seconds and 49 seconds for the Fremont Road southbound through phase.
- Change the yellow clearance time from 4.0 to 3.0 seconds for all phases.
- Change the all red clearance time from 2.0 seconds to 3.0 seconds for the Fremont Road through phases.
- Change the Minimum gap and passage time from 3.0 seconds to 1.4 seconds for Fremont Road southbound left turn phase and 2.0 seconds for the N. Central Avenue phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 94 seconds for the AM and PM peak hours.

❖ **Henry Clay Boulevard at Buckley Road**

- Change the minimum green to 7 seconds for the Henry Clay Boulevard left turn phase and all through movement phases to 15 seconds.
- Change the yellow clearance time from 4.5 seconds to 3.0 seconds for all through movement phases.
- Change the all red clearance time to 2.0 seconds for the Henry Clay Boulevard left turn phases, 2.5 seconds for the Henry Clay Boulevard through and Buckley Road left turn phases and 3.0 seconds for the Buckley Road through phases..
- Change the minimum gap and passage time to 1.2 seconds for Buckley Road westbound left turn phase, 1.4 seconds for the Buckley Road westbound through phase, 1.6 seconds for the Henry Clay Boulevard southbound left turn and Buckley Road eastbound left turn phases, and 1.7 seconds for all other phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 163 seconds for the AM peak hour and 169 seconds for the PM peak hour.

❖ **Henry Clay Boulevard at Wetzel Road**

- Change the minimum green to 5 seconds for all left turn phases and 15 seconds for the through phases.
- Change the yellow clearance time to 3.0 seconds for all phases.
- Change the all red clearance time from 2.0 seconds to 3.0 seconds for the Buckley Road through phases.
- Change the passage time to 1.3 seconds for Buckley Road left turn phases, 1.4 seconds for the Buckley Road through phases, 1.5 seconds for Henry Clay Boulevard left turn phases and 1.7 seconds for the Henry Clay Boulevard through phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 130 seconds for the AM and PM peak hours.

❖ **Kinne Street at Franklin Park Drive**

- Increase the minimum green for the Franklin Park Drive phases from 5 seconds to 10 seconds.
- Change the minimum gap and the passage time from 3.0 seconds to 2.0 seconds for the Kinne Road phases and 2.1 seconds for the Franklin Park Drive phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 95 seconds for the AM and PM peak hours.

❖ **Lemoyne Avenue at Boulevard Street**

- Change the minimum green time Lemoyne Avenue through phases to 30 seconds and 7 seconds for the Boulevard Street phase.
- Change the yellow clearance time from 4.0 seconds to 3.0 seconds for the Lemoyne Avenue phase.
- Change the all red clearance time from 2.0 seconds to 1.5 seconds for the Lemoyne Avenue phase.
- Change the minimum gap and passage time from 3.0 seconds to 1.9 seconds for Boulevard Street phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 58 seconds for the AM peak hour and 56 seconds for the PM peak hour.

❖ **Morgan Road at Fairways Drive East**

- Set the minimum green times to 35 seconds for the Morgan Road northbound phase, 7 seconds for the Fairways Drive/Millstream Drive phase, and 30 seconds for the Morgan Road southbound phase.
- Set the all red clearance time to 1.5 seconds for the Morgan Road left turn phases and 2.0 seconds for the Morgan Road northbound through phase.
- Change the minimum gap and the passage times from 3.0 seconds to 1.8 seconds for Morgan Road left turn phases and 1.9 seconds for the Fairways Drive/Millstream Drive phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 95 seconds for the AM peak hour and 87 seconds for the PM peak hour.

❖ **Morgan Road at Steelway Boulevard/Grampian Road**

- Increase the minimum green for the Morgan Road through phases to 30 seconds and to 7 seconds for the Grampian Road/Steelway Boulevard phase.
- Change the all red clearance time from 2.0 seconds to 1.5 seconds for all phases with the exception of the Grampian Road/Steelway Boulevard phase which should be changed to 2.5 seconds.

- Change the minimum gap and passage time to 1.8 seconds for the Morgan Road left turn phases and 1.1 seconds for the Grampian Road/Steelway Boulevard phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 80 seconds for the AM peak hour and 76 seconds for the PM peak hour.

❖ **Morgan Road at Wetzel Road**

- Change the minimum green for the left turn phases to 5 seconds and 10 seconds for the through phases.
- Change the all red clearance time from 2.0 seconds to 1.5 seconds for the Morgan Road left turn phases and 2.5 seconds for the Wetzel Road through phases.
- Change the minimum gap and passage time to 1.8 seconds for Morgan Road left turn and through phases and 1.4 seconds for the Wetzel Road phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 133 seconds for the AM, PM and School peak hours.

❖ **Newport Road at West Genesee Street**

- Change from two phase operation to a three phase operation with a lead left turn phase.
- Change the minimum green to 10 seconds for all phases and 5 seconds for the West Genesee Street left turn phase.
- Set the all red clearance time to 1.5 seconds for the Newport Road phase.
- Set the minimum gap and passage time to 1.2 seconds for West Genesee Street eastbound phases and 1.1 seconds for all other phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 102 seconds for the AM peak hour and 104 seconds for the PM peak hour.

❖ **North Burdick Street at Northeast Medical Center**

- Change the minimum green to 7 seconds for the Medical Center Driveway phase.
- Change the all red clearance time from 1.5 seconds to 2.0 seconds for the Medical Center Driveway phase.
- Change the minimum gap and passage time to 1.8 seconds for the North Burdick Street phases and 1.9 seconds for the Medical Center Driveway phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 75 seconds for the AM and PM peak hours.

❖ **Northern Boulevard at Running Ridge Road/Beacon North**

- Change the minimum green time to 37 seconds for the Northern Boulevard through phase and 7 seconds for the Running Ridge Road phases.
- Change the yellow clearance time from 4.0 seconds to 3.5 seconds for the Northern Boulevard through phase.
- Change the all red clearance time to 1.5 seconds for the Northern Boulevard through phase and 3.0 seconds for the Running Ridge Road westbound phase.

- Set the minimum gap and passage time to 1.1 seconds for Running Ridge Road eastbound phase and 1.8 seconds for the Running Ridge westbound Road phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 91 seconds for the AM peak hour and 97 seconds for the PM peak hour.

❖ **Old Liverpool Road at Beechwood Avenue**

- Change the minimum green to 7 seconds for the Lakeview Drive phase, 5 seconds for the Old Liverpool Road southbound left turn phase and 30 seconds for the Old Liverpool Road through phases.
- Change the yellow clearance time from 4 seconds to 3 seconds for the Beechwood Ave phase.
- Change the all red clearance time to 1.5 seconds for the Old Liverpool Road phases and 2.0 seconds for the side road phases.
- Change the minimum gap and passage time to 1.6 seconds for the Old Liverpool Road southbound left turn phase, 1.9 seconds for the side road phases and 3.0 seconds for the Old Liverpool Road through phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 75 seconds for the AM peak hour and 77 seconds for the PM peak hour.

❖ **Onondaga Boulevard at Bellevue Avenue**

- Change the minimum green to 30 seconds for the Onondaga Boulevard through phase and 10 seconds for the Bellevue Avenue phase.
- Change the yellow clearance time to 3.0 seconds for all phases.
- Change the all red clearance time to 1.5 seconds for the Bellevue Avenue phase, 2.0 seconds for the Westhill Driveway phase and 2.5 seconds for the Onondaga Boulevard through phase.
- Change the minimum gap and passage time to 1.2 seconds for the Bellevue Avenue phase, 1.6 seconds for the Westhill Driveway and 3.0 seconds for the Onondaga Boulevard through phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 82 seconds for the AM, PM and School peak hours.

❖ **Onondaga Boulevard at Wegmans/Western Lights**

- Change the minimum green to 7 seconds for the Shopping Center phases and 30 seconds for the Onondaga Boulevard through phases.
- Change the yellow clearance time from 3.5 seconds to 3.0 seconds for all phases.
- Change the all red clearance time from 1.5 seconds to 2.0 seconds for the Onondaga Boulevard left turn phases, 2.5 seconds for the Onondaga Boulevard through phases and 3.0 seconds for the Shopping Center phases.
- Change the minimum gap and passage time from 3.0 seconds to 1.4 seconds for Onondaga Boulevard left turn phases and 1.3 seconds for the Shopping Center phases.

This passage time is based on the prevailing speed limits and the length of the detection zones.

- Change the cycle length to 77 seconds for the AM, PM and Saturday peak hours.

❖ **Rock Cut Road at OCCRA Driveway**

- Change the minimum green to 21 seconds for the Rock Cut Road phase.
- Change the yellow clearance time from 3.0 seconds to 3.5 seconds for the Rock Cut Road phase.
- Change the all red clearance time from 2.5 seconds to 1.5 seconds for the Rock Cut Road phase and 3.0 seconds for the OCCRA Driveway phases.
- Change the cycle length to 54 seconds for the AM and PM peak hours.

❖ **Seventh North Street at Terminal Road**

- Change the minimum green to 30 seconds for the 7th North Street phase.
- Change the yellow clearance time from 2.5 seconds to 3.0 seconds for the side street phase.
- Change the minimum gap and passage time to 1.9 seconds for the side street phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 62 seconds for the AM peak hour and 69 seconds for the PM peak hour.

❖ **Soule Road at Streamwood Drive**

- Change the minimum green to 7 seconds for the Pine Gate Parkway and Streamwood Drive phases and 10 seconds for the Soule Road through phases.
- Change the all red clearance time from 3.0 seconds to 2.0 seconds for the Soule Road and side street phases and 2.5 seconds for the Soule Road through phases.
- Change the minimum gap and passage time from 3.0 seconds to 1.9 seconds for all phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 86 seconds for the AM and PM peak hours and 80 seconds for the School peak hour.

❖ **South Bay Road at Thompson Road**

- Change the yellow clearance time from 3.5 seconds to 3.0 seconds for all phases.
- Change the all red clearance time from 3.0 seconds to 1.5 seconds for the South Bay Road left turn phases and 2.0 seconds for all other phases.
- Change the passage time to 1.6 seconds for Thompson Road southbound phase, 1.7 seconds for the South Bay Road through phases and 1.8 seconds for all other phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 95 seconds for the AM peak hour and 90 seconds for the PM peak hour.

❖ **Teall Avenue at Galster Avenue**

- Change the minimum green to 30 seconds for the Teall Avenue phase and 7 seconds for the side street phase.
- Change the yellow clearance time from 4.0 seconds to 3.0 seconds for all phases.
- Change the all red clearance time to 1.5 seconds for the side street phase and 2.0 seconds for the Teall Avenue phase.
- Change the passage time to 1.9 seconds for the side street phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 57 seconds for the AM and PM peak hours.

❖ **Velasko Road at McDonald Road**

- Change the minimum green to 10 seconds for all phases.
- Change the all red clearance time from 2.0 seconds to 1.5 seconds for the Velasko Road phase..
- Change the passage time from 4.0 seconds to 1.8 seconds for all phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Set the signal to minimum recall for the Velasko Road phase.
- Change the cycle length to 85 seconds for the AM peak hour and 78 seconds for the PM peak hour.

❖ **Vine Street at Continum Drive**

- Change the minimum green to 30 seconds for the Vine Street phase.
- Change the minimum gap and passage time from 3.0 seconds to 1.9 seconds for the Continum Drive phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 74 seconds for the AM peak hour and 56 seconds for the PM peak hour.

❖ **West Genesee Street at Fairmount Fair**

- Change the minimum green to 30 seconds for the West Genesee Street eastbound through phase and 32 seconds for the West Genesee Street westbound through phase.
- Change the minimum gap and passage time to 1.2 seconds for Fairmount Fair Driveway phase and 1.4 seconds for the West Genesee Street left turn phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 92 seconds for the AM and PM peak hours and 97 seconds for the Saturday peak hour.

❖ **West Genesee Street at Gillespie Avenue**

- Change the minimum green to 7 seconds for the Gillespie Avenue phase and 26 seconds for the West Genesee Street phase.
- Change the yellow clearance time from 4.0 seconds to 3.0 seconds for all phases.
- Change the minimum gap and passage time from 3.0 seconds to 1.2 seconds for the Gillespie Avenue phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Set the signal to maximum recall for the West Genesee Street phase.
- Change the cycle length to 71 seconds for the AM and Saturday peak hours and 79 seconds for the PM peak hour.

❖ **West Genesee Street at Beverly Drive/Mackay Avenue**

- Change the minimum green to 7 seconds for the side street phase and 32 seconds for the West Genesee Street phase.
- Change the yellow clearance time from 3.5 seconds to 3.0 seconds for the West Genesee Street phase.
- Change the minimum gap and passage time from 3.0 seconds to 1.9 seconds for the side street phase.
- Change the cycle length to 79 seconds for the AM, PM and Saturday peak hours.

❖ **West Genesee Street at Whedon Road**

- Change the minimum green to 7 seconds for the West Genesee Street left turn phase.
- Change the all red clearance time from 1.5 seconds to 2.0 seconds for the Whedon Road and West Genesee Street left turn phases and 2.5 seconds for the West Genesee Street through phases.
- Change the minimum gap and passage time to 1.2 seconds for the Whedon Road and West Genesee Street westbound through phases and 1.4 seconds for the West Genesee Street left turn and eastbound through phases. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the signal to minimum recall for the West Genesee Street through phases.
- Change the cycle length to 107 seconds for the AM, PM and Saturday peak hours.

❖ **East Taft Road at Northern Boulevard**

- Change the minimum green to 5 seconds for all left turn phases and 15 seconds for the eastbound and westbound through phases.
- Change the yellow clearance time from 4.0 seconds to 3.5 seconds for all phases.
- Change the all red clearance time from 2.0 seconds to 1.5 seconds for all left turn phases and 2.5 seconds for all through phases.
- Change the minimum gap and passage time from 4.0 seconds to 1.6 seconds for the East Taft Road eastbound phases, 1.7 seconds for the Northern Boulevard left turn phases, 1.8 seconds for the East Taft Road westbound through phase and 1.9 seconds for all other

phases. This passage time is based on the prevailing speed limits and the length of the detection zones.

- Set the signal to minimum recall for the Northern Boulevard through phases.
- Change the cycle length to 127 seconds for the AM peak hour and 117 seconds for the PM peak hour.

❖ **Factory Avenue at Townline Road**

- Change the minimum green to 7 seconds for northbound, southbound and westbound phases and 10 seconds for the Factory Avenue eastbound phase.
- Change the yellow clearance time from 3.5 seconds to 3.0 seconds for the Townline Road northbound and southbound phases.
- Change the all red clearance time from 1.5 seconds to 2.0 seconds for the Townline Road northbound and southbound phases.
- Change the minimum gap and passage time from 3.0 seconds to 1.8 seconds for the Townline Road northbound and southbound phases, 2.0 seconds for the Factory Avenue eastbound phase and 2.1 seconds for the driveway phase. This passage time is based on the prevailing speed limits and the length of the detection zones.
- Change the cycle length to 58 seconds for the AM peak hour and 70 seconds for the PM peak hour.