
Traffic Impact Study

FOR

4581 Enders Road Development

Town of Manlius
Onondaga County, New York

August 2017



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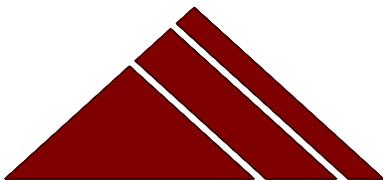


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EXECUTIVE SUMMARY

This Traffic Impact Study (TIS) was performed to analyze the potential impacts that a potential development may have on the surrounding roadway network if the parcel zoning were changed to Commercial B (CB). The goal of this report is to define the current level-of-service of the existing roadway network, including existing traffic and known projects not fully operating, assess the impact that this potential development may have on the existing roadway network, and recommending improvements from potential impacts as necessary.

The project (site) is located on the northwest corner at the intersection of Cazenovia Road (New York State Route 92) with Enders Road in the Town of Manlius, Onondaga County. The existing 4.35-acre property at this corner consists of a 2-lot subdivision, with Lot 1 having a 6,180-square foot daycare center which will soon be vacated and relocated to Lot 2 which will contain a 15,271-square foot daycare center. Lot 2 presently has a single access point on Enders Road, opposite Market Place. Both lots are currently zoned Residential-Multiple Use (RM).

This Traffic Impact Study is being prepared to analyze the impact of the potential development of Lot 1 on the existing intersection and functionality of the proposed driveways. The studied potential development of Lot 1 will consist of a 6,000-square foot convenience store with 12 fuel pumps (2 pumps each on 6 pump islands), and will include a right-in/right-out driveway on Route 9 at a location previously approved by the New York State Department of Transportation (NYSDOT). The existing daycare driveway will become a shared access for the daycare and the convenience store (Sketch Plan - APPENDIX G). The proposed right-in/right-out driveway on Route 92 will conform to NYSDOT requirements. The shared driveway on Enders Road results in a reduction in the number of driveways and a reduction in conflicting vehicle movements which currently exist.

The signalized intersection of Cazenovia Road with Enders Road was analyzed to determine the overall traffic impact on the surrounding roadway network. Traffic volumes were taken from a traffic study for the recently approved expanded Shining Stars Daycare Center for the weekday morning and evening peak hour. This intersection was analyzed using Synchro 8 – Traffic Signal Software, which is based on methods presented in the *2000* and *2010 Highway Capacity Manual (HCM)*.



The potential development includes a 6,000-square foot convenience store with gas pumps. Trips attracted to this site were estimated using the Institute of Transportation Engineers *Trip Generation, 9th Edition*, and field counts. Trip generation rates (TABLE 1) estimate the number of vehicles entering and exiting the site during peak hours.

The estimated trips generated by the potential development were distributed to the existing roadway network based on existing travel patterns in the area, and added to the existing traffic volumes. The existing traffic volumes include traffic from the Shining Stars Daycare Center (currently under construction), as well as four approved local developments that are not yet completed (Austin Meadows, Brinan Fields, Mallards Landing, and the Manlius Fire Station). Peak hour traffic volumes were analyzed to determine the level-of-service for the existing, and proposed conditions, for both the AM and PM peak hour. A summary of the intersection analysis is shown in TABLES 3 and 4 for each condition.

The analysis indicates that under proposed conditions, satisfactory operations will be maintained at the study area intersections. The studied intersection, with the potential development of a convenience store in-place, operates at a similar level-of-service as exist today.

In addition, the potential development will maintain the overall safety at the studied intersection by utilizing the access driveway that is much further from the intersection of Route 92 and Enders Road, located across from Market Place. This will maintain the overall efficiency and traffic progression from Enders Road to Cazenovia Road at the intersection. One additional driveway will serve Lot 1, a right-in/right-out entrance on Cazenovia Road. The right-in/right-out onto Route 92 is located +300 feet from the intersection, and the entrance on Enders Road is 280 feet_± from the intersection. Neither have any significant negative impact on existing traffic patterns.

Overall, the proposed development will have no significant impact on the adjacent highway network.



I. INTRODUCTION

This report presents the methodology, data, results, and recommendations pertinent to determining the traffic impacts associated with a zone change from RM to CB, the potential development of a 6,000-square foot convenience store with gas pumps on Lot 1 of the previously studied 2-lot subdivision. Lot 2 is currently being developed with a 15,271-square foot daycare center. The previously approved Traffic Study was utilized to obtain existing peak hour traffic volumes which include heavy vehicles, and previously approved projects, including the daycare center currently being constructed. The project is in the Town of Manlius in Onondaga County, New York (FIGURE 1).

The site is located at the northwest corner of the intersection of Cazenovia Road (Route 92) and Enders Road. The existing 4.35-acre site is currently occupied by a 6,100-square foot daycare center, and 2 single-family homes which will be torn down following completion of the new 15,271-square foot daycare center on Lot 2.

There are 2 proposed access points to the potential development; 1 on Enders Road, and 1 on Cazenovia Road. The driveway on Cazenovia Road will be a right-in/right-out only and the driveways on Enders Road is a full access driveway currently serving the daycare center on Lot 2. An easement has been provided across Lot 2, allowing service to Lot 1 for the shared access driveway.

A proposed Sketch Plan (APPENDIX G) has been provided which shows the potential development on Lot 1 and the approved daycare center on Lot 2 which is currently under construction.

The study considers the morning (AM), evening (PM) peak hours to accurately reflect peak traffic directly related to the use of a daycare center, and a convenience store with gas pumps, analyzing traffic impacts at the intersection of Cazenovia Road with Enders Road, along with the site access locations.



II. METHODOLOGY

The general purpose of a Traffic Impact Study is to serve as an assessment and planning tool that is used to determine the impacts of a project on the transportation network in appropriate proximity to the project. The methodology employed has evolved based on the guidance of the Institute of Transportation Engineers (ITE), which has published guidelines and methodologies for such studies.

The methodology involves a multi-step process intended to identify traffic impacts under no-build and build development scenarios. The various steps include:

- **Define Study Area and Scenario** including number and location of study intersections and network, analysis' periods, etc.
- **Collect Data** including current and historic traffic volumes, pedestrian volumes, accident statistics, highway geometry and lane use, sight distance, traffic control parameters, regional and area land uses, etc.
- **Determine Existing Conditions** based on various factors including, but not limited to, traffic levels, capacity/level-of-service analyses, travel time and delay.
- **Research Approved Developments**, and using trip generation, calculate the applicable trip generation for these developments and apply the additional traffic to the existing traffic network as if they were completed.
- **Project Future Traffic** based on the two following steps:
 1. **Trip Generation** uses established trip generation rates, or local applicable data for the appropriate land uses.
 2. **Trip Distribution and Assignment** involves determining access points, origins and destinations of site oriented traffic, and routes to be used.
- **Develop Conclusions and Recommendations.** Identify the impacts of traffic on the various measures of effectiveness. Determine the feasibility of mitigating measures such as improved traffic control and signal timing, physical improvements such as additional lanes or highway improvements as needed.



III. ANALYSIS METHOD

The signalized intersection for this Traffic Impact Study was analyzed using Synchro 8 – Traffic Signal Software. Synchro is based on methods presented in both the *2000 and 2010 Highway Capacity Manuals (HCM)*. Synchro analyzes signalized intersections to determine the level-of-service (LOS), which is defined in the HCM as a quality measure describing operational conditions within a traffic stream, in terms of speed and travel time, ability to maneuver, traffic interruptions, and comfort and convenience. LOS results are summarized with letter designations from “A” to “F”, with LOS “A” representing the best conditions and LOS “F” representing the worst. The definitions of LOS for signalized intersections are included in APPENDIX A.

IV. EXISTING CONDITIONS

A. ROADWAY DESCRIPTION

Cazenovia Road (New York State Route 92) in the project vicinity is an east-west principal arterial surrounded by mostly residential, with some retail, and professional office land uses. There is also a school located just north of the project location on Enders Road. In this study area, Cazenovia Road is a 3-lane road with 1 thru lane in each direction, and a left hand turning lane in each direction. This intersection is regularly traveled by those going to/from work, by traffic to and from the school, to retail businesses nearby, and to and from the several surrounding office buildings in the area. According to NYSDOT traffic counts from April 21, 2009 obtained through the NYSDOT Traffic Viewer Portal, the average annual daily traffic (AADT) is 11,003 vehicles within the project vicinity along Cazenovia Road.

Enders Road in the project vicinity is a northeast-southwest route surrounded mainly by residential property. At the intersection of Route 92, Enders Road has 1 northbound lane and 1 southbound lane, which allow a left, right, and straight movement. According to NYSDOT traffic counts from July 15, 2013 obtained through the NYSDOT Traffic Viewer Portal, the Average Annual Daily Traffic (AADT) is 3,287 vehicles within the project’s vicinity along Enders Road.



B. EXISTING TRAFFIC VOLUMES AND OPERATING CONDITIONS

Turning movement traffic data was manually collected and analyzed at the intersection of Cazenovia Road and Enders Road as part of the previously approved Traffic Study for the Shining Stars Daycare Center which is currently under construction on Lot 2. Traffic counts were taken on Tuesday, December 2, 2014, between 7:00 and 9:00 AM, and between 2:00 and 6:00 PM. For this study, the existing traffic movements and volumes (FIGURE 11 Proposed Peak Hour Traffic Volumes for Phase I) were taken from the previously approved study for the Shining Stars Daycare Center, which includes the existing manually-collected traffic data, generated trips for approved projects (which will be discussed later in this study), and the generated trips for the approved daycare center on Lot 2. The counts show the heaviest intersection volumes (peak hour) are between 7:15 and 8:15 AM, between 5:00 and 6:00 PM. These existing intersection turning movements and volumes mentioned above are shown in FIGURE 2 as existing peak hour traffic volumes.

The following levels-of-service currently exist at the intersections within the project vicinity:

- Cazenovia Road/Enders Road = Level-of-Service D (AM)
Level-of-Service C (PM)

C. APPROVED DEVELOPMENTS

Four approved developments exist within the area and were discussed in the previous Traffic Study (APPENDIX F). Portions of these sites are not currently built, due to this, the existing traffic volumes were amended to include traffic that is not currently on the road, but due to the approved status, should be considered when analyzing the traffic network surrounding the proposed project volumes.



The following projects were considered as approved developments within the project vicinity:

- Austin Meadows
- Brinan Fields
- Mallards Landing
- Manlius Fire Station

For additional discussion, including trip generation and the Synchro Analysis, refer to the approved Traffic Study for the Shining Stars Daycare Center.

D. SIGHT DISTANCE

Minimum sight distance requirements for the Enders Road driveway and the right-in/right-out driveway was calculated from the AASHTO *Policy on Geometric Design of Highways and Street*. The table below indicates the required and available sight distance for both driveways:

**TABLE 1
Sight Distance**

	Speed Limit	Required Left	Required Right	Available Left	Available Right
Enders Road	30	200 feet	400 feet	400 feet	575 feet
Cazenovia Road	40	320 feet	*280 feet	**600 feet	*

* *Sight distance to the right on Cazenovia Road is not applicable due to the lack of an allowed left turn at a right-out driveway.*

** *The distance to the centerline of the intersection is 365 feet and the available sight distance is 600 feet. Similarly, while the available sight distance to the right on Enders Road is 575 feet, the distance to the centerline of the intersection is 320 feet.*



E. PEDESTRIAN FACILITIES

Pedestrian facilities in the form of crosswalks with “walk/don’t walk” indications are present along Cazenovia Road and Enders Road in the project area. Pedestrian crosswalks are provided across the easterly, westerly, southerly, and northerly sides of the intersection at Route 92 and Enders Road. No sidewalks exist in this area along either Cazenovia Road or Enders Road. It should be noted that no pedestrians entered this intersection during the traffic counts referenced in Section IV. B. above.

V. PROPOSED DEVELOPMENT

A. DESCRIPTION

The existing ±4.35-acre site currently consists of 2 lots, a daycare center and parking lot (currently under construction), and a vacant lot. The potential project for Lot 1 includes a 6,000-square foot convenience store with gas pumps and associated parking. Access to the potential development will be provided by 2 entrances. The proposed driveway on Cazenovia Road (Route 92) will have a right-in/right-out only lane and the shared driveway on Enders Road will have 1 exit lane and 1 entrance lane. The Cazenovia Road driveway is located ±300 feet from the intersection and has no significant impact on existing traffic patterns. Also, as stated previously, the driveway on Enders Road that will serve Lot 1 and Lot 2 via a shared access easement. A Sketch Plan of the proposed development is shown in FIGURE 9.

B. SITE GENERATED TRIPS

To determine the amount of traffic that will be generated by the potential uses onsite, *Trip Generation, 9th Edition*, published by the Institute of Transportation Engineers (ITE) was used as a reference. The trip generation rates estimate the number of vehicles entering and exiting the site during the peak travel hours. The ITE Trip Generation Manual, Land Use Code 853 (Convenience Market with Gas Pumps), accurately describes the potential development. The morning and evening trip rates were calculated using the average rates shown in the *ITE Trip Generation Manual*. Trips for the convenience market, were generated based on gross square footage. In addition, Code 853, Convenience Market with Gas Pumps, allows for pass-by trips,



which are trips attracted to the site from traffic passing the site on an adjacent street or roadway. The percentage of pass-by trips allowed for this use is 63% in the AM and 66% in the PM, and is applied to the amount of trips generated.

TABLE 2 summarizes the average trip rates for the AM and PM peak hours for the proposed development using volumes generated during the peak hour of adjacent street traffic. All trip generation calculations and data are included in APPENDIX D:

**TABLE 2
Trip Generation Summary
Total Trips Generated**

Land Use Code	Description	Size (s.f.)	AM Peak			PM Peak		
			Enter	Exit	Total	Enter	Exit	Total
853	Convenience Market with Gas Pumps	6,000	123	123	246	153	153	306

Pass-By Trips

Land Use Code	Description	Pass-by %	AM Peak			Pass-by %	PM Peak		
			Enter	Exit	Total		Enter	Exit	Total
853	Convenience Market with Gas Pumps	63	77	77	154	66	101	101	202

New Trips

Land Use Code	Description	New Trips %	AM Peak			New Trips %	PM Peak		
			Enter	Exit	Total		Enter	Exit	Total
853	Convenience Market with Gas Pumps	37	46	46	92	34	52	52	104



D. SITE TRAFFIC DISTRIBUTION

The site traffic distribution on the transportation network is dependent on the origins and destinations of that traffic and the location of the access serving the proposed site. It is anticipated that the trips attracted to this development will coincide with existing travel patterns in the area.

Distribution of new vehicle trips going to and from the proposed site, shown in FIGURES 4 and 5, were developed based on existing traffic patterns on the adjacent roadways. Calculations for site distribution have been provided in APPENDIX E.

E. PROPOSED CONDITIONS (2017)

Proposed design year conditions were developed for each peak period by combining the existing 2016 peak hour traffic volume with the potential site generated volumes. The combined design hour volumes represent the proposed conditions in 2017, and are shown in FIGURE 8. In addition, the existing traffic volumes include traffic from the daycare center currently under construction, and four local developments that are not yet completed (Austin Meadows, Brinan Fields, Mallards Landing, and the Manlius Fire Station) but were included in the existing traffic volumes.

A capacity analysis was performed using the Synchro 8 software, and per the methodology described earlier in Section II. The final results of this analysis are shown in TABLES 3 and 4, and all of the capacity analysis reports are attached in APPENDICES B thru C.

F. GAP ANALYSIS/QUEUE ANALYSIS

In order to analyze gaps along Enders Road and Route 92 (Cazenovia Road), the existing and proposed driveways were added to the Synchro 8 model. This allowed the driveway along, with Market Place to be analyzed as unsignalized intersections in a network around the signalized intersection at Enders Road and Route 92. Synchro 8 performs a gap analysis based on the theories and methods described in the HCM (*Highway Capacity Manual, Editions 2000 and 2010*), and assigns a level-of-service at each location. In every instance during the peak hour, Synchro indicated a level-



of-service “A” at each of the proposed driveways which is the highest rating that can be achieved and shows that enough available gaps are available at these locations to allow traffic to enter traffic along Enders Road and Route 92 in a safe and controlled manner. In addition, Synchro provides the 50th percentile maximum queue length and the 95th percentile maximum queue length for each movement at the signalized location. The 50th percentile represents the maximum backup in a typical cycle, while the 95th percentile represents the maximum backup using the 95th percentile traffic volume. The queue lengths can be found in the Synchro Analysis reports provided in APPENDICES B thru C. While backup can occur, the level-of-service “A” for each driveway indicated that little or no traffic problems result from queuing during the peak hours of operation.

In addition, by having the convenience store utilize the existing driveway on Enders Road that was previously relocated 280 feet from the intersection and lined up with Market Place, an improvement to traffic operations resulted. Secondly, utilizing the daycare center driveway for both businesses further benefits the intersection by minimizing excessive vehicle movements in the intersection zone, and limiting the number of driveways on Enders Road.

G. ACCIDENT ANALYSIS

An Accident Analysis was previously discussed in the approved Traffic Study for Shining Stars Day Care Center. That analysis found that accidents in the area were mainly rear-end collisions commonly seen at traffic signals. In fact, only one could be attributed to the existing day care center. It was determined that by moving the driveway on Enders Road and lining it up with Market Place would further benefit the intersection by minimizing excessive vehicle movements in the intersection zone.

Using the AADT traffic counts for Route 92 and Enders Road, the accidents from 2012 to 2016 represent only 1.38 accidents for each one million vehicles passing this intersection.



VI. CONCLUSIONS

Cazenovia Road (Route 92) at Enders Road

This analysis indicates that from existing conditions in 2016 to proposed conditions in 2017, level-of-service remains similar for the AM and PM peak periods. This intersection currently operates a level-of-service of “D” in the AM, and “C” in the PM. In the proposed conditions, the level-of-service in the AM conditions remain a “D”, and remain a “C” in the PM condition. TABLES 3 and 4 show an increase in delay of 7.7 seconds in the AM, and 4.6 seconds in the PM, which was considered minor.

The results of the analysis show there are no significant delays in traffic entering or exiting the site at the proposed driveways. The right-in from Cazenovia Road will cause no delay and the access points for traffic exiting the site onto Cazenovia Road and Enders Road will allow drivers to exit the site efficiently using the existing traffic signal, without excess delay based on their individual travel origin and destination.

The potential development will utilize site access along Enders Road that is significantly north of the intersection to provide separation from the intersection. Traffic flow will be controlled by the limited driveway widths and the provided clearly defined enter and exit lanes controlled with a stop-sign. The driveway on Enders Road results in a reduction in the number of driveways and a reduction in conflicting turning movements which provides a significant safety improvement for traffic at the intersection.

The Site Plan will only allow a right-in/right-out movement at a single location from Cazenovia Road. This limited entrance will allow traffic to smoothly enter and exit the site in the direction of the current traffic flow from west to east. No left turn will be allowed to or from Cazenovia Road, eliminating the need to cross the westbound lane on Cazenovia Road, reducing the opportunity for accidents and impacts to flow.

VII. RECOMMENDATIONS

No mitigation measures are recommended to maintain satisfactory operations at the study area intersections. No significant change will occur on the adjacent highway network due to the proposed development.



TABLES

TABLE 3
4581 Enders Road Development
Intersection Level-of-Service Summary
AM Peak Hour

Intersection	2016 Existing Conditions	2017 Proposed Conditions
<i>Cazenovia Road (Route 92) at Enders Road</i>		
SEB Left	C (21.6)	D (36.2)
SEB Thru/Right	C (21.2)	C (21.4)
NWB Left	B (14.1)	B (14.3)
NWB Thru/Right	D (47.9)	E (57.6)
NEB Thru/Right/Left	E (62.0)	E (60.2)
SWB Thru/Right/Left	C (30.0)	D (47.0)
Intersection LOS	D (39.6)	D (47.3)
<i>Enders Road at Site Driveway</i>		
ICU LOS	A	A
<i>Enders Road at Site Driveway (Phase 2)</i>		
ICU LOS	N/A **	A
<i>Cazenovia Road at Site Driveway (Phase 2)</i>		
ICU LOS	N/A **	A

LOS (delay/seconds)

** N/A - Not Applicable At This Time

TABLE 4
4581 Enders Road Development
Intersection Level-of-Service Summary
PM Peak Hour

Intersection	2016 Existing Conditions	2017 Proposed Conditions
<i>Cazenovia Road (Route 92) at Enders Road</i>		
SEB Left	A (7.1)	B (12.5)
SEB Thru/Right	B (19.1)	C (22.7)
NWB Left	A (6.6)	A (10.0)
NWB Thru/Right	B (16.9)	C (26.6)
NEB Thru/Right/Left	D (39.1)	C (29.6)
SWB Thru/Right/Left	C (26.6)	C (34.4)
Intersection LOS	C (20.8)	C (25.4)
<i>Enders Road at Site Driveway</i>		
ICU LOS	A	A
<i>Enders Road at Site Driveway (Phase 2)</i>		
ICU LOS	N/A **	A
<i>Cazenovia Road at Site Driveway (Phase 2)</i>		
ICU LOS	N/A **	A

LOS (delay/seconds)

**** N/A - Not Applicable At This Time**

FIGURES



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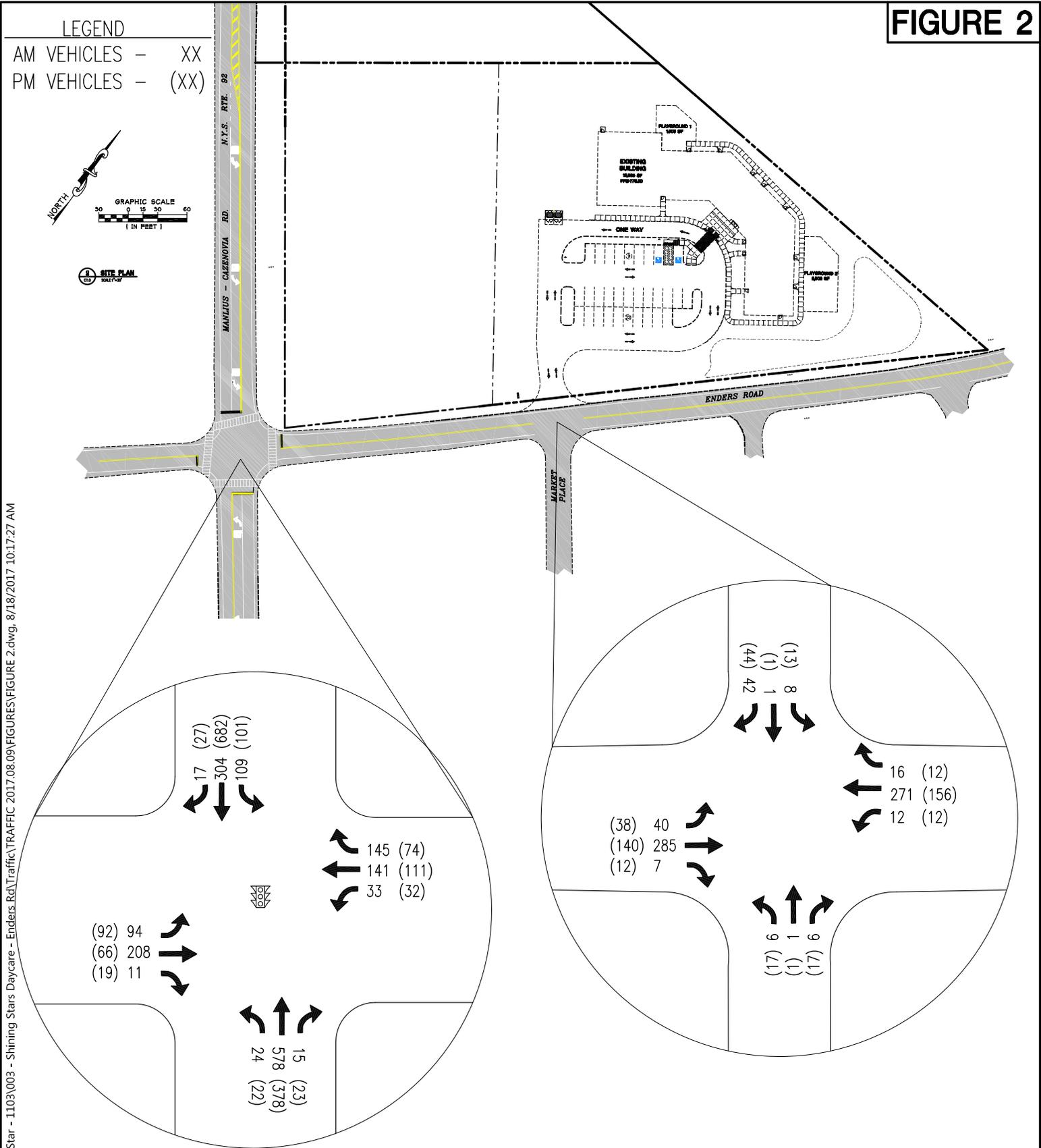
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TOWN OF MANILUS
ONONDAGA CO., NY
**4581 ENDERS ROAD
DEVELOPMENT**

LOCATION MAP

NOT TO SCALE

FIGURE 2



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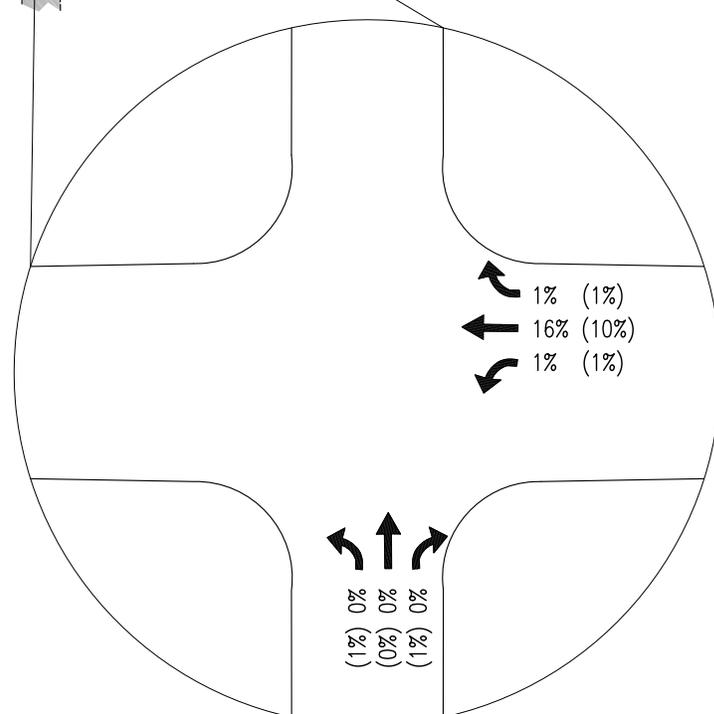
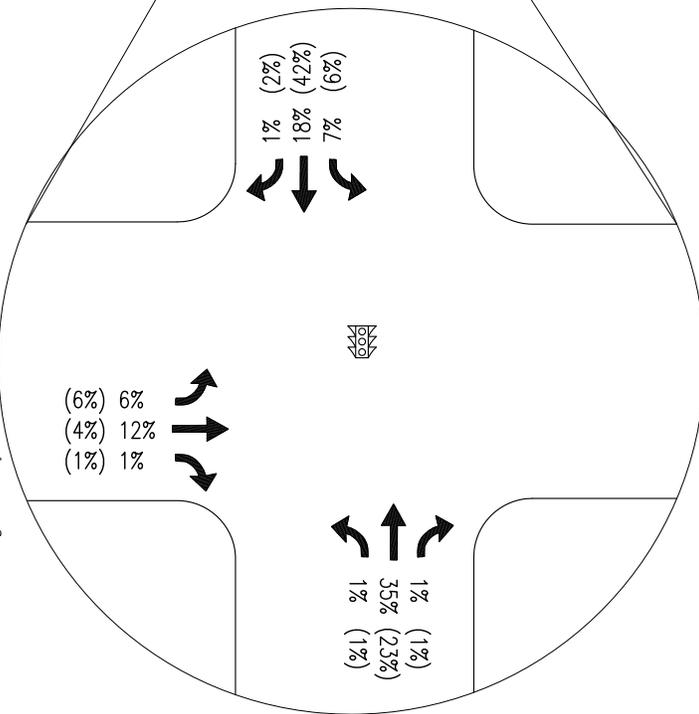
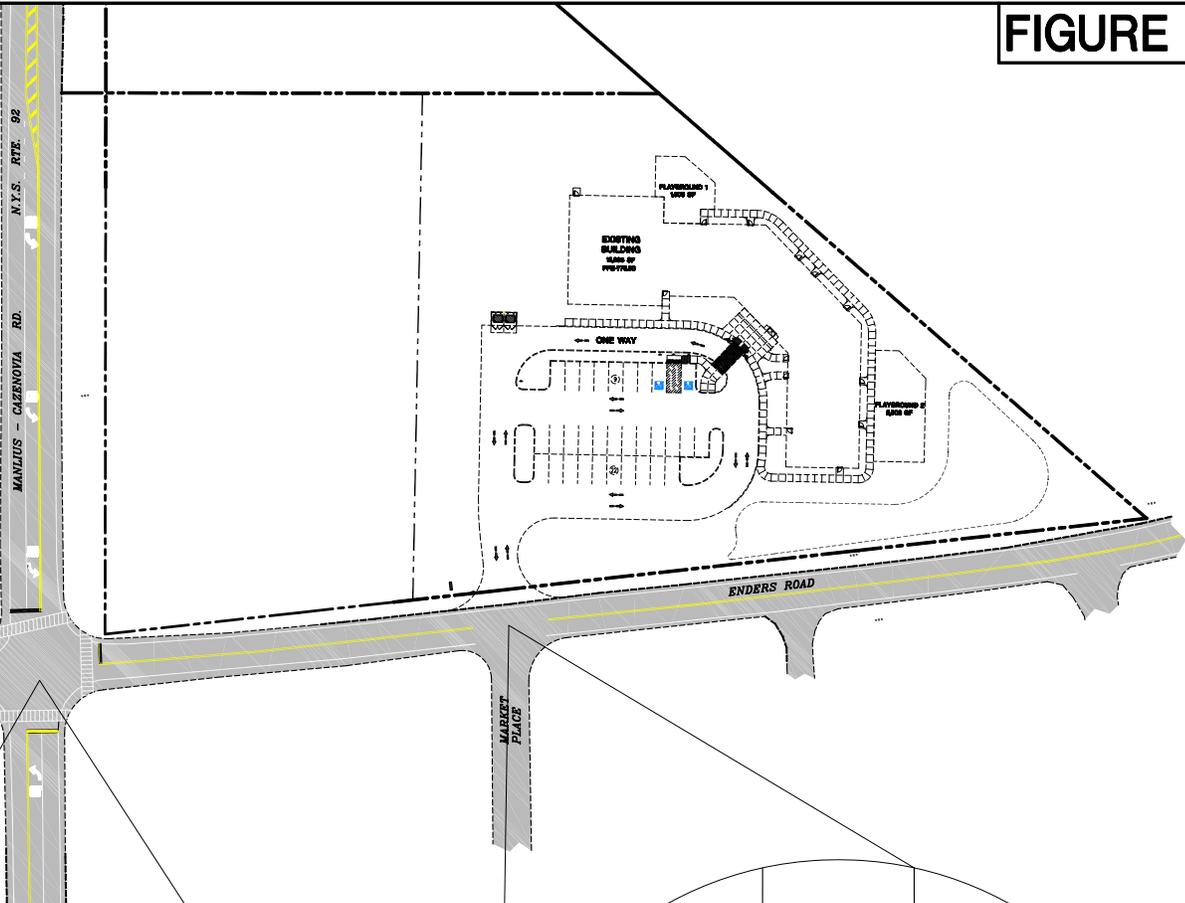
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TOWN OF MANIUS
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4581 ENDERS ROAD DEVELOPMENT
 EXISTING PEAK HOUR TRAFFIC VOLUMES
 NOT TO SCALE

LEGEND
 AM VEHICLES - XX
 PM VEHICLES - (XX)



SITE PLAN
SCALE OF



DISTRIBUTION PERCENTAGES BASED OF TRAFFIC TRIBUTARY TO SITE.

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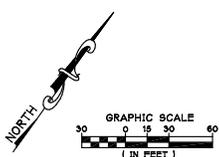
TOWN OF MANLIUS
 ONONDAGA CO., NY
**4581 ENDERS ROAD
 DEVELOPMENT**

EXISTING PEAK HOUR
 TRAFFIC DISTRIBUTION (%)
 TRIBUTARY TO THE SITE
 NOT TO SCALE

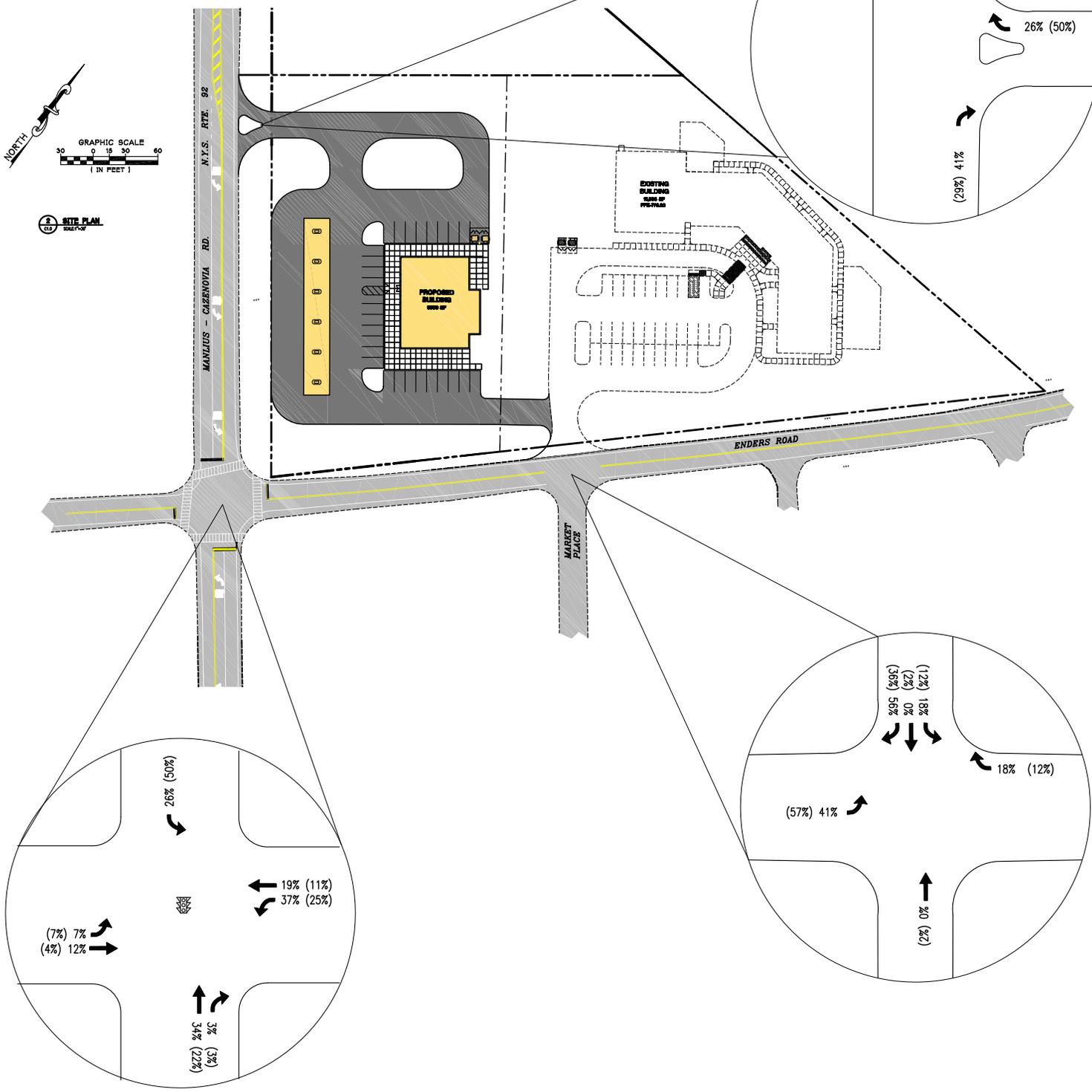
FIGURE 4

LEGEND

AM VEHICLES - XX
 PM VEHICLES - (XX)



1 SITE PLAN REF. 1



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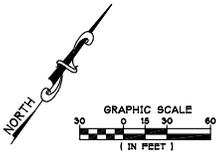
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TOWN OF MANILUS
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4581 ENDERS ROAD DEVELOPMENT
 PROPOSED PEAK HOUR TRAFFIC DISTRIBUTION % (NEW TRIPS)
 NOT TO SCALE

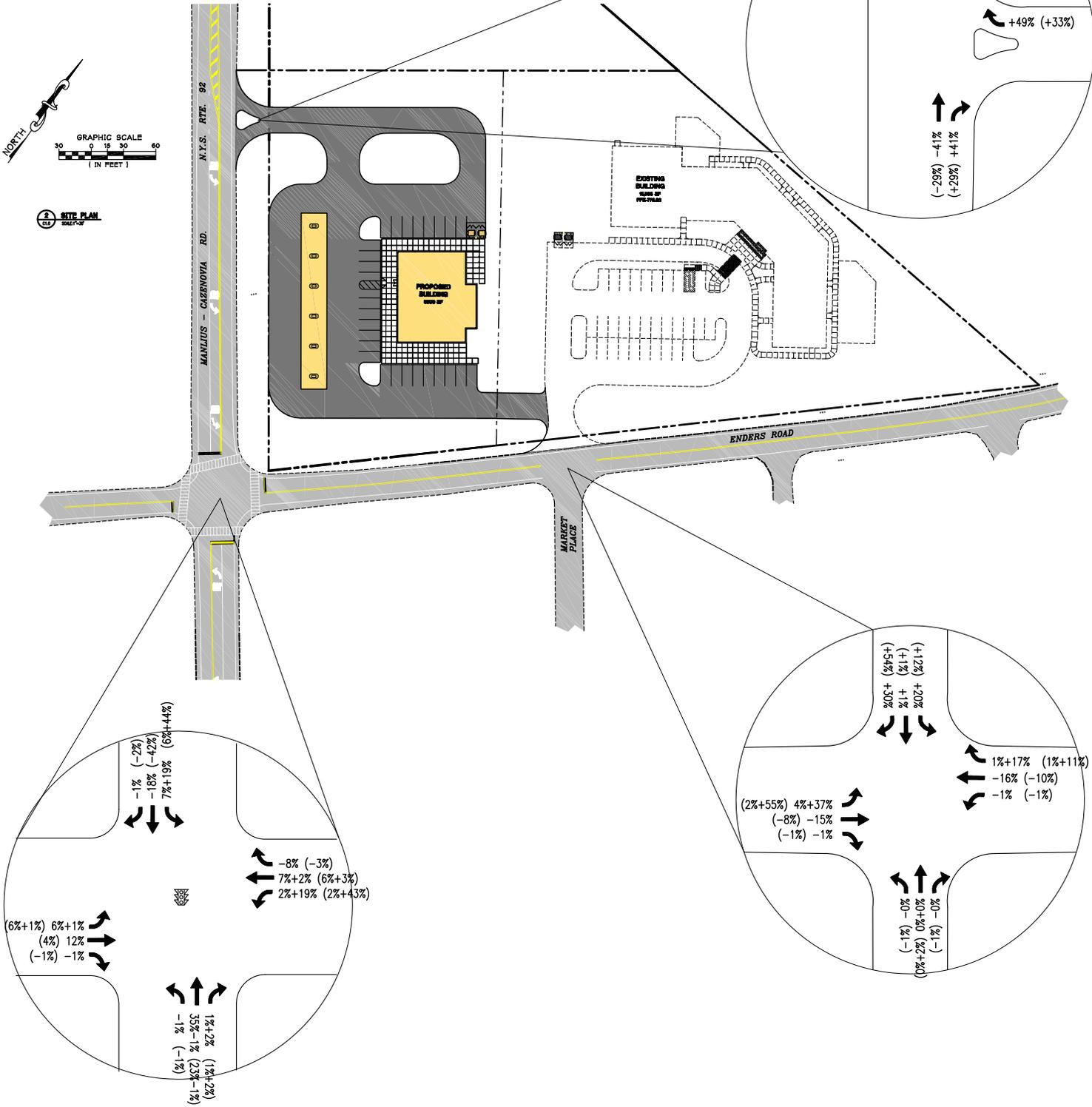
FIGURE 5

LEGEND

AM VEHICLES - XX
 PM VEHICLES - (XX)



1 SITE PLAN
 REF. 2



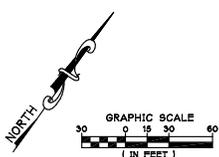
Q:\CADD Files\PROJECTS\Penizotto-Shining Star - 1103\003 - Shining Stars Daycare - Enders Rd\Traffic\TRAFFIC 2017.08.09\FIGURES\FIGURE 5.dwg, 8/18/2017 10:19:17 AM

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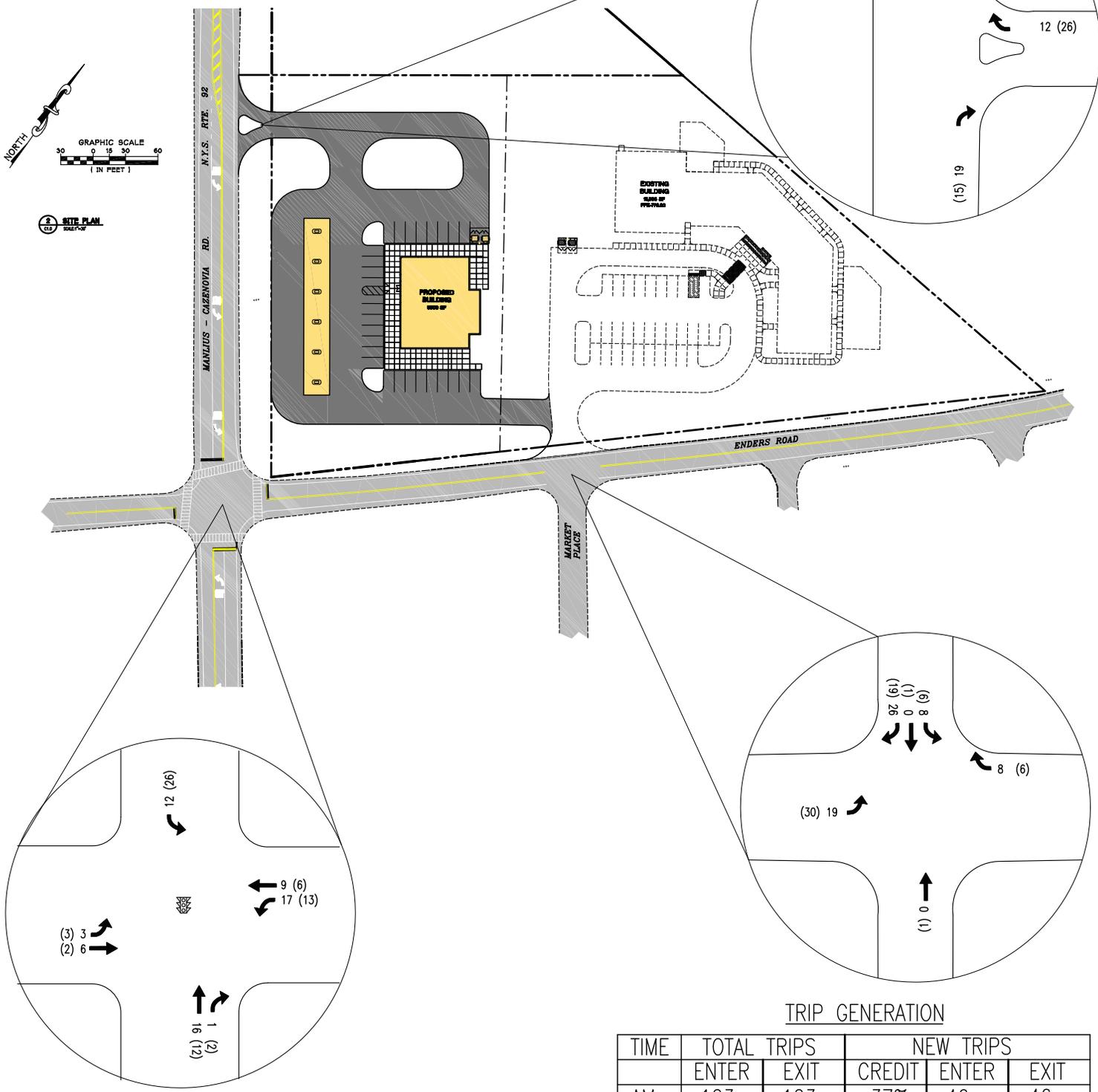
TOWN OF MANILUS
 ONONDAGA CO., NY
4581 ENDERS ROAD DEVELOPMENT
 PROPOSED PEAK HOUR TRAFFIC DISTRIBUTION %
 (PASS-BY TRIPS)
 NOT TO SCALE

LEGEND

AM VEHICLES - XX
 PM VEHICLES - (XX)



1 SITE PLAN



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FORMULA=DISTRIBUTION % (NEW TRIPS) x TRIP GENERATION (NEW TRIPS)

TRIP GENERATION

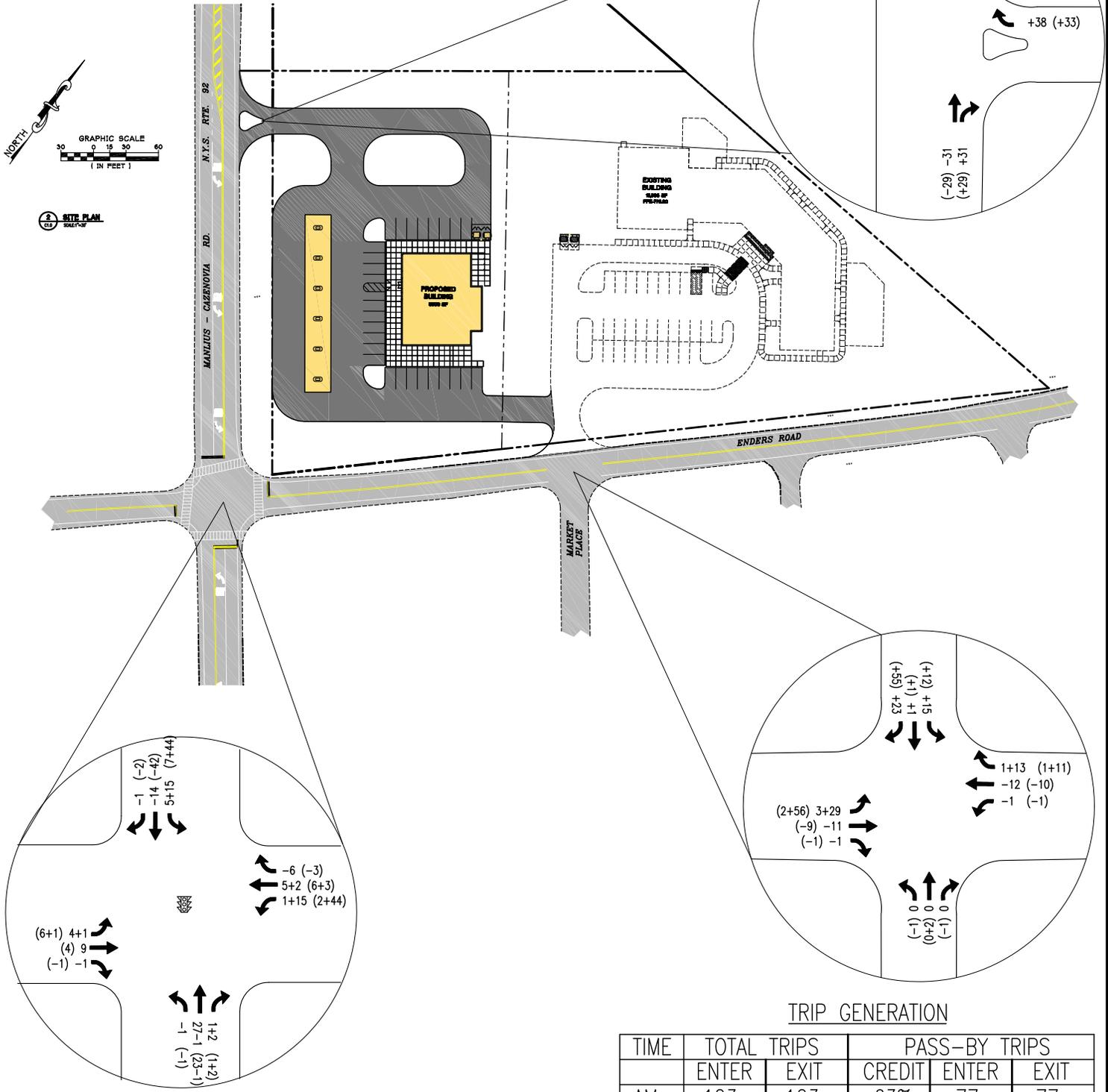
TIME	TOTAL TRIPS		NEW TRIPS		
	ENTER	EXIT	CREDIT	ENTER	EXIT
AM	123	123	37%	46	46
PM	153	153	34%	52	52

**DUNN AND
 SGROMO ENGINEERS**
 E. SYRACUSE, NEW YORK
 5800 HERITAGE LANDING DRIVE (315)449-4940 (315)449-4941 FAX

TOWN OF MANILUS
 ONONDAGA CO., NY
**4581 ENDERS ROAD
 DEVELOPMENT**
 PROPOSED PEAK HOUR
 TRAFFIC VOLUME
 (NEW TRIPS)
 NOT TO SCALE

LEGEND

- AM VEHICLES - XX
- PM VEHICLES - (XX)



TRIP GENERATION

TIME	TOTAL TRIPS		PASS-BY TRIPS		
	ENTER	EXIT	CREDIT	ENTER	EXIT
AM	123	123	63%	77	77
PM	153	153	66%	101	101

Q:\CADD Files\PROJECTS\Penizotto-Shining Star - 1103\003 - Shining Stars Daycare - Enders Rd\Traffic\TRAFFIC 2017.08.09\FIGURES\FIGURE 7.dwg, 8/18/2017 10:20:50 AM

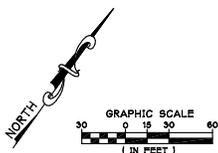

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 5800 HERITAGE LANDING DRIVE (315)449-4940 (315)449-4941 FAX

TOWN OF MANILUS
 ONONDAGA CO., NY
4581 ENDERS ROAD DEVELOPMENT
 TRIP GENERATION TRAFFIC VOLUMES (PASS-BY TRIPS)
 NOT TO SCALE

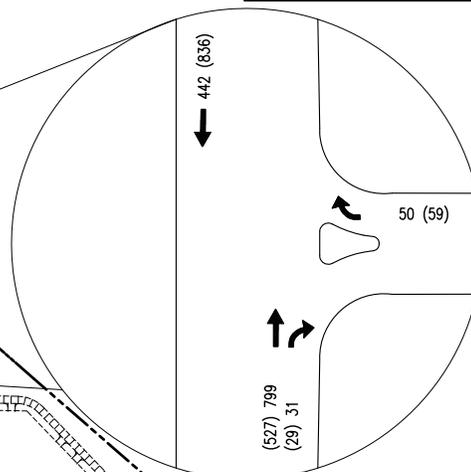
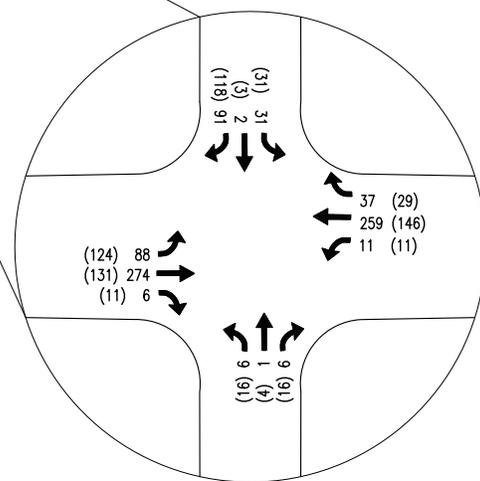
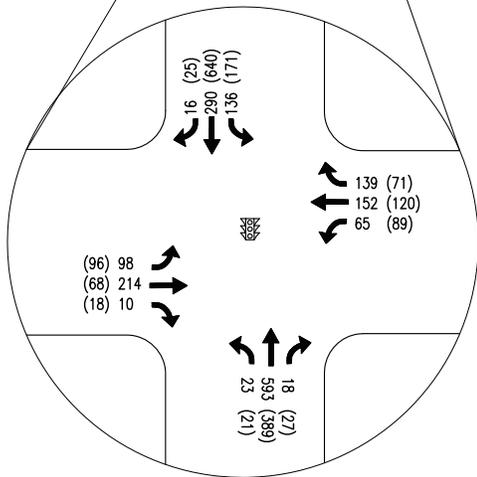
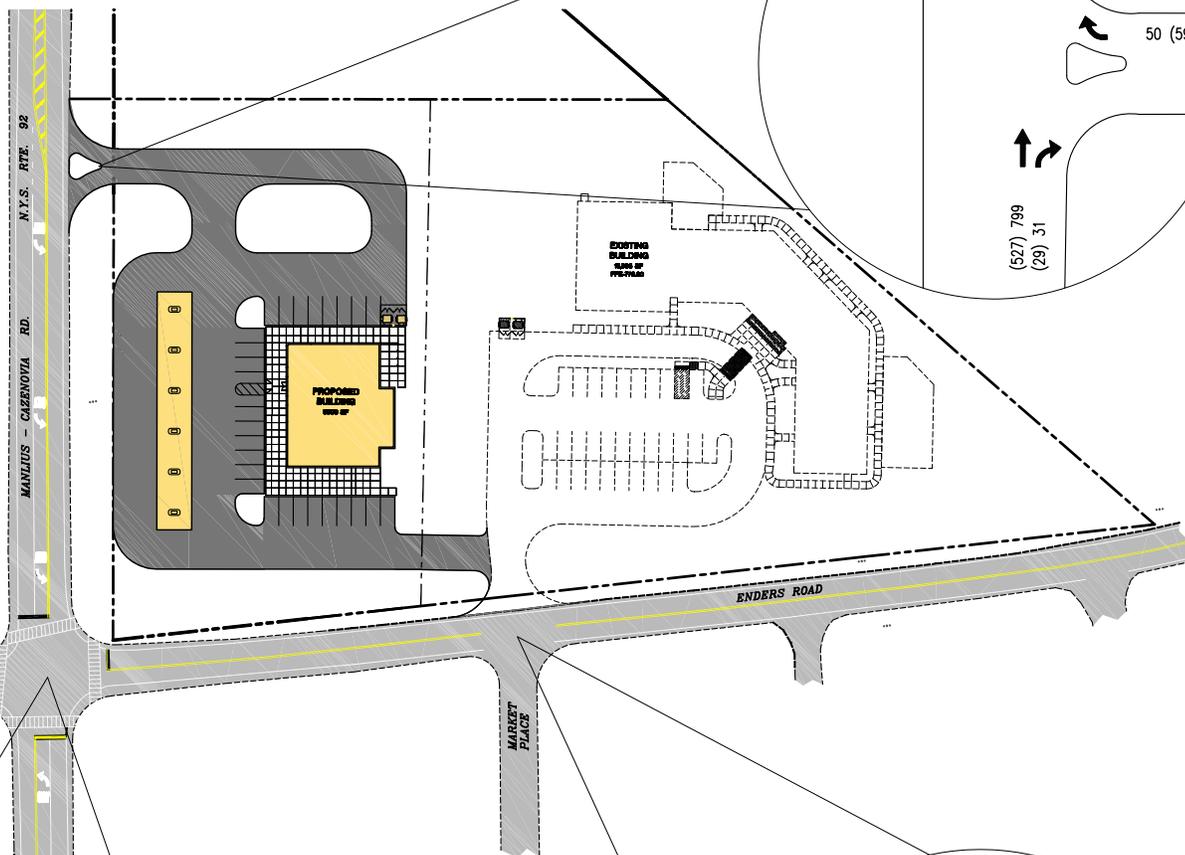
FIGURE 8

LEGEND

AM VEHICLES - XX
 PM VEHICLES - (XX)



1 SITE PLAN



Q:\CADD Files\PROJECTS\Penizotto-Shining Star - 1103\003 - Shining Stars Daycare - Enders Rd\Traffic\TRAFFIC 2017.08.09\FIGURES\FIGURE 8.dwg, 8/18/2017 10:24:18 AM

FORMULA=EXISTING PEAK HOUR TRAFFIC VOLUMES+PROPOSED PEAK HOUR TRAFFIC VOLUMES (NEW TRIPS) + PROPOSED PEAK HOUR TRAFFIC VOLUMES (PASS-BY)

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 E. SYRACUSE, NEW YORK
 5800 HERITAGE LANDING DRIVE (315)449-4940 (315)449-4941 FAX

TOWN OF MANILUS
 ONONDAGA CO., NY
4581 ENDERS ROAD DEVELOPMENT

PROPOSED PEAK HOUR TRAFFIC VOLUMES

NOT TO SCALE

APPENDIX A

L.O.S. Definitions

LEVEL-OF-SERVICE DEFINITIONS

Quality and Levels-of-Service

Quality of service requires quantitative measures to characterize operational conditions within a traffic stream. Level-of-service (LOS) is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, traffic movements, and comfort.

Six LOS are defined for each type of facility that has analysis procedures available. Letters designate each level, from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each level-of-service represents a range of operating conditions and the driver's perception of those conditions. Safety is not included in the measures that establish service levels.

A. Signalized

Level-of-service (LOS) for a signalized intersection is the average control delay per vehicle estimated for each lane group and aggregated for each approach and for the intersection as a whole. LOS is directly related to the control delay value. The criteria are listed below:

LOS CRITERIA FOR SIGNALIZED INTERSECTIONS

<i>LOS</i>	<i>Control Delay per Vehicle (s/veh)</i>
A	≤ 10
B	>10-20
C	>20-35
D	>35-55
E	>55-80
F	>80

B. Two-Way Stop-Controlled

Level-of-service (LOS) for a TWSC intersection is determined by the computed or measured control delay and is defined for each minor movement. LOS is not defined for the intersection as a whole. LOS criteria are given below:

LOS CRITERIA FOR TWSC INTERSECTIONS

<i>LOS</i>	<i>Average Control Delay (s/veh)</i>
A	≤ 10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

Source: *Highway Capacity Manual*

APPENDIX B

Existing Analysis

Lanes, Volumes, Timings
3: ENDERS ROAD & CAZENOVIA ROAD (RT92)

8/16/2017

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	109	304	17	24	578	15	94	208	11	33	141	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	11	10	11	11	12	12	12	12	12	12
Storage Length (ft)	300		0	300		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.996			0.995			0.939	
Flt Protected	0.950			0.950				0.985			0.995	
Satd. Flow (prot)	1560	1788	0	1685	1809	0	0	1810	0	0	1689	0
Flt Permitted	0.127			0.487				0.610			0.917	
Satd. Flow (perm)	209	1788	0	864	1809	0	0	1121	0	0	1556	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			1			2			51	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		501			481			517			300	
Travel Time (s)		8.5			8.2			11.8			6.8	
Peak Hour Factor	0.84	0.84	0.84	0.95	0.95	0.95	0.76	0.76	0.76	0.68	0.68	0.68
Heavy Vehicles (%)	8%	2%	0%	0%	1%	6%	2%	3%	9%	2%	7%	4%
Adj. Flow (vph)	130	362	20	25	608	16	124	274	14	49	207	213
Shared Lane Traffic (%)												
Lane Group Flow (vph)	130	382	0	25	624	0	0	412	0	0	469	0
Enter Blocked Intersection	No	No	No	No	No	No						
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.04	1.04	1.09	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	2		2	2		1	2		1	2	
Detector Template												
Leading Detector (ft)	60	406		60	406		55	60		55	60	
Trailing Detector (ft)	-10	12		-10	12		0	-10		0	-10	
Detector 1 Position(ft)	-10	12		-10	12		0	-10		0	-10	
Detector 1 Size(ft)	30	6		30	6		55	30		55	30	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	30	400		30	400			30			30	
Detector 2 Size(ft)	30	6		30	6			30			30	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lanes, Volumes, Timings
 3: ENDERS ROAD & CAZENOVIA ROAD (RT92)

8/16/2017

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	9.5	24.5		9.5	24.5		26.5	26.5		26.5	26.5	
Total Split (s)	15.0	40.0		15.0	40.0		50.0	50.0		50.0	50.0	
Total Split (%)	14.3%	38.1%		14.3%	38.1%		47.6%	47.6%		47.6%	47.6%	
Maximum Green (s)	9.5	34.5		9.5	34.5		44.5	44.5		44.5	44.5	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	-1.5	-1.5		-1.5	-1.5			-1.5			-1.5	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	1.0	5.3		1.0	5.3		2.5	2.5		2.5	2.5	
Minimum Gap (s)	0.2	3.4		0.2	3.4		0.2	0.2		0.2	0.2	
Time Before Reduce (s)	0.0	25.0		0.0	25.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	10.0		0.0	10.0		0.0	0.0		0.0	0.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		12.0			12.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	50.3	46.4		42.6	36.4			36.5			36.5	
Actuated g/C Ratio	0.53	0.49		0.45	0.38			0.38			0.38	
v/c Ratio	0.52	0.44		0.06	0.90			0.95			0.74	
Control Delay	21.6	21.2		14.1	47.9			62.0			30.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	21.6	21.2		14.1	47.9			62.0			30.0	
LOS	C	C		B	D			E			C	
Approach Delay		21.3			46.6			62.0			30.0	
Approach LOS		C			D			E			C	
90th %ile Green (s)	9.5	38.3		5.7	34.5		44.5	44.5		44.5	44.5	
90th %ile Term Code	Max	Hold		Gap	Max		Max	Max		Max	Max	
70th %ile Green (s)	9.5	39.0		5.0	34.5		44.5	44.5		44.5	44.5	
70th %ile Term Code	Max	Hold		Gap	Max		Max	Max		Hold	Hold	
50th %ile Green (s)	9.5	49.5		0.0	34.5		37.4	37.4		37.4	37.4	
50th %ile Term Code	Max	Hold		Skip	Max		Gap	Gap		Hold	Hold	
30th %ile Green (s)	8.1	48.1		0.0	34.5		30.1	30.1		30.1	30.1	
30th %ile Term Code	Gap	Hold		Skip	Max		Gap	Gap		Hold	Hold	
10th %ile Green (s)	5.5	45.5		0.0	34.5		21.6	21.6		21.6	21.6	
10th %ile Term Code	Gap	Hold		Skip	Max		Gap	Gap		Hold	Hold	
Stops (vph)	55	208		14	473			273			235	
Fuel Used(gal)	1	5		0	12			7			4	
CO Emissions (g/hr)	97	316		20	865			470			279	
NOx Emissions (g/hr)	19	61		4	168			91			54	
VOC Emissions (g/hr)	23	73		5	200			109			65	
Dilemma Vehicles (#)	0	0		0	28			0			0	
Queue Length 50th (ft)	40	137		7	369			239			217	
Queue Length 95th (ft)	77	267		23	#662			288			211	

Lanes, Volumes, Timings
3: ENDERS ROAD & CAZENOVIA ROAD (RT92)

8/16/2017

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Internal Link Dist (ft)		421			401			437			220	
Turn Bay Length (ft)	300			300								
Base Capacity (vph)	269	875		528	694			550			788	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.48	0.44		0.05	0.90			0.75			0.60	

Intersection Summary

Area Type: Other
 Cycle Length: 105
 Actuated Cycle Length: 95
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 39.6
 Intersection Capacity Utilization 83.7%
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 105
 70th %ile Actuated Cycle: 105
 50th %ile Actuated Cycle: 97.9
 30th %ile Actuated Cycle: 89.2
 10th %ile Actuated Cycle: 78.1
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: ENDERS ROAD & CAZENOVIA ROAD (RT92)

ø1	ø2	ø4
15 s	40 s	50 s
ø5	ø6	ø8
15 s	40 s	50 s

Lanes, Volumes, Timings

4: ENDERS ROAD & MARKET PLACE/DAYCARE ENTRANCE

8/16/2017

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	8	1	42	6	1	6	40	285	7	12	271	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.888			0.936			0.997			0.993	
Flt Protected		0.992			0.977			0.994			0.998	
Satd. Flow (prot)	0	1455	0	0	1703	0	0	1791	0	0	1790	0
Flt Permitted		0.992			0.977			0.994			0.998	
Satd. Flow (perm)	0	1455	0	0	1703	0	0	1791	0	0	1790	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		127			149			300			148	
Travel Time (s)		2.9			3.4			6.8			3.4	
Peak Hour Factor	0.68	0.68	0.68	0.76	0.76	0.76	0.76	0.76	0.76	0.68	0.68	0.68
Heavy Vehicles (%)	15%	15%	15%	2%	2%	2%	7%	5%	0%	0%	4%	29%
Adj. Flow (vph)	12	1	62	8	1	8	53	375	9	18	399	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	75	0	0	17	0	0	437	0	0	441	0
Enter Blocked Intersection	No	No	No	No	No	No						
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	41.7%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
3: ENDERS ROAD & CAZENOVIA ROAD (RT92)

8/16/2017

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	101	682	27	22	378	23	92	66	19	32	111	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	11	10	11	11	12	12	12	12	12	12
Storage Length (ft)	300		0	300		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.991			0.986			0.954	
Flt Protected	0.950			0.950				0.975			0.993	
Satd. Flow (prot)	1652	1826	0	1636	1783	0	0	1784	0	0	1773	0
Flt Permitted	0.332			0.201				0.560			0.937	
Satd. Flow (perm)	577	1826	0	346	1783	0	0	1025	0	0	1673	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			5			8			33	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		501			481			517			297	
Travel Time (s)		8.5			8.2			11.8			6.8	
Peak Hour Factor	0.94	0.94	0.94	0.82	0.82	0.82	0.93	0.93	0.93	0.78	0.78	0.78
Heavy Vehicles (%)	2%	0%	0%	3%	2%	3%	4%	0%	3%	0%	1%	3%
Adj. Flow (vph)	107	726	29	27	461	28	99	71	20	41	142	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	755	0	27	489	0	0	190	0	0	278	0
Enter Blocked Intersection	No	No	No	No	No	No						
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.04	1.04	1.09	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	2		2	2		1	2		1	2	
Detector Template												
Leading Detector (ft)	60	406		60	406		55	60		55	60	
Trailing Detector (ft)	-10	12		-10	12		0	-10		0	-10	
Detector 1 Position(ft)	-10	12		-10	12		0	-10		0	-10	
Detector 1 Size(ft)	30	6		30	6		55	30		55	30	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	30	400		30	400			30			30	
Detector 2 Size(ft)	30	6		30	6			30			30	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lanes, Volumes, Timings
 3: ENDERS ROAD & CAZENOVIA ROAD (RT92)

8/16/2017

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	9.5	24.5		9.5	24.5		26.5	26.5		26.5	26.5	
Total Split (s)	12.0	40.0		12.0	40.0		26.5	26.5		26.5	26.5	
Total Split (%)	15.3%	51.0%		15.3%	51.0%		33.8%	33.8%		33.8%	33.8%	
Maximum Green (s)	6.5	34.5		6.5	34.5		21.0	21.0		21.0	21.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	-1.5	-1.5		-1.5	-1.5			-1.5			-1.5	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	1.0	5.3		1.0	5.3		2.5	2.5		2.5	2.5	
Minimum Gap (s)	0.2	3.4		0.2	3.4		0.2	0.2		0.2	0.2	
Time Before Reduce (s)	0.0	25.0		0.0	25.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	10.0		0.0	10.0		0.0	0.0		0.0	0.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		12.0			12.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	39.7	37.1		36.4	31.9			16.7			16.7	
Actuated g/C Ratio	0.61	0.57		0.56	0.49			0.25			0.25	
v/c Ratio	0.23	0.73		0.09	0.56			0.71			0.62	
Control Delay	7.1	19.1		6.6	16.9			39.1			26.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	7.1	19.1		6.6	16.9			39.1			26.6	
LOS	A	B		A	B			D			C	
Approach Delay		17.6			16.3			39.1			26.6	
Approach LOS		B			B			D			C	
90th %ile Green (s)	6.5	35.9		5.1	34.5		21.0	21.0		21.0	21.0	
90th %ile Term Code	Max	Hold		Gap	Max		Max	Max		Max	Max	
70th %ile Green (s)	6.5	36.5		4.5	34.5		20.6	20.6		20.6	20.6	
70th %ile Term Code	Max	Hold		Gap	Max		Gap	Gap		Hold	Hold	
50th %ile Green (s)	6.0	40.6		0.0	29.1		15.9	15.9		15.9	15.9	
50th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Gap		Hold	Hold	
30th %ile Green (s)	4.7	34.5		0.0	24.3		11.7	11.7		11.7	11.7	
30th %ile Term Code	Gap	Max		Skip	Hold		Gap	Gap		Hold	Hold	
10th %ile Green (s)	0.0	26.7		0.0	26.7		8.3	8.3		8.3	8.3	
10th %ile Term Code	Skip	Gap		Skip	Hold		Hold	Hold		Gap	Gap	
Stops (vph)	37	472		10	269			144			156	
Fuel Used(gal)	1	10		0	5			3			3	
CO Emissions (g/hr)	60	686		14	372			204			178	
NOx Emissions (g/hr)	12	133		3	72			40			35	
VOC Emissions (g/hr)	14	159		3	86			47			41	
Dilemma Vehicles (#)	0	12		0	14			0			0	
Queue Length 50th (ft)	15	173		4	143			68			88	
Queue Length 95th (ft)	39	#539		12	229			#163			144	

Lanes, Volumes, Timings
3: ENDERS ROAD & CAZENOVIA ROAD (RT92)

8/16/2017

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Internal Link Dist (ft)		421			401			437			217	
Turn Bay Length (ft)	300			300								
Base Capacity (vph)	486	1096		364	1023			372			620	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.22	0.69		0.07	0.48			0.51			0.45	

Intersection Summary

Area Type: Other
 Cycle Length: 78.5
 Actuated Cycle Length: 65.5
 Natural Cycle: 75
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.73
 Intersection Signal Delay: 20.8
 Intersection Capacity Utilization 76.0%
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 78.5
 70th %ile Actuated Cycle: 78.1
 50th %ile Actuated Cycle: 67.5
 30th %ile Actuated Cycle: 57.2
 10th %ile Actuated Cycle: 46
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: ENDERS ROAD & CAZENOVIA ROAD (RT92)

φ1	φ2	φ4
12 s	40 s	26.5 s
φ5	φ6	φ8
12 s	40 s	26.5 s

Lanes, Volumes, Timings

4: ENDERS ROAD & MARKET PLACE/DAYCARE ENTRANCE

8/16/2017

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	13	1	44	17	1	17	38	140	12	12	156	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.897			0.934			0.991			0.991	
Flt Protected		0.989			0.976			0.990			0.997	
Satd. Flow (prot)	0	1556	0	0	1699	0	0	1850	0	0	1814	0
Flt Permitted		0.989			0.976			0.990			0.997	
Satd. Flow (perm)	0	1556	0	0	1699	0	0	1850	0	0	1814	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		145			178			297			178	
Travel Time (s)		3.3			4.0			6.8			4.0	
Peak Hour Factor	0.68	0.68	0.68	0.93	0.93	0.93	0.93	0.93	0.93	0.78	0.78	0.78
Heavy Vehicles (%)	27%	0%	3%	2%	0%	2%	0%	1%	0%	0%	1%	40%
Adj. Flow (vph)	19	1	65	18	1	18	41	151	13	15	200	15
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	85	0	0	37	0	0	205	0	0	230	0
Enter Blocked Intersection	No	No	No	No	No	No						
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	31.2%
Analysis Period (min)	15
	ICU Level of Service A

APPENDIX C

Proposed Analysis

Lanes, Volumes, Timings
3: ENDERS ROAD & CAZENOVIA ROAD (RT92)

8/16/2017

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	136	290	16	23	593	18	98	214	10	65	152	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	11	10	11	11	12	12	12	12	12	12
Storage Length (ft)	300		0	300		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.996			0.996			0.947	
Flt Protected	0.950			0.950				0.985			0.991	
Satd. Flow (prot)	1560	1788	0	1685	1809	0	0	1812	0	0	1700	0
Flt Permitted	0.096			0.508				0.615			0.816	
Satd. Flow (perm)	158	1788	0	901	1809	0	0	1131	0	0	1399	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			2			2			39	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		462			481			517			300	
Travel Time (s)		7.9			8.2			11.8			6.8	
Peak Hour Factor	0.84	0.84	0.84	0.95	0.95	0.95	0.76	0.76	0.76	0.68	0.68	0.68
Heavy Vehicles (%)	8%	2%	0%	0%	1%	6%	2%	3%	9%	2%	7%	4%
Adj. Flow (vph)	162	345	19	24	624	19	129	282	13	96	224	204
Shared Lane Traffic (%)												
Lane Group Flow (vph)	162	364	0	24	643	0	0	424	0	0	524	0
Enter Blocked Intersection	No											
Lane Alignment	Left	Left	Right									
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.04	1.04	1.09	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	2		2	2		1	2		1	2	
Detector Template												
Leading Detector (ft)	60	406		60	406		55	60		55	60	
Trailing Detector (ft)	-10	12		-10	12		0	-10		0	-10	
Detector 1 Position(ft)	-10	12		-10	12		0	-10		0	-10	
Detector 1 Size(ft)	30	6		30	6		55	30		55	30	
Detector 1 Type	Cl+Ex	Cl+Ex										
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	30	400		30	400			30			30	
Detector 2 Size(ft)	30	6		30	6			30			30	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lanes, Volumes, Timings
3: ENDERS ROAD & CAZENOVIA ROAD (RT92)

8/16/2017

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	9.5	24.5		9.5	24.5		26.5	26.5		26.5	26.5	
Total Split (s)	15.0	40.0		15.0	40.0		50.0	50.0		50.0	50.0	
Total Split (%)	14.3%	38.1%		14.3%	38.1%		47.6%	47.6%		47.6%	47.6%	
Maximum Green (s)	9.5	34.5		9.5	34.5		44.5	44.5		44.5	44.5	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	-1.5	-1.5		-1.5	-1.5			-1.5			-1.5	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	1.0	5.3		1.0	5.3		2.5	2.5		2.5	2.5	
Minimum Gap (s)	0.2	3.4		0.2	3.4		0.2	0.2		0.2	0.2	
Time Before Reduce (s)	0.0	25.0		0.0	25.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	10.0		0.0	10.0		0.0	0.0		0.0	0.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		12.0			12.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	50.9	46.9		42.4	36.3			38.5			38.5	
Actuated g/C Ratio	0.52	0.48		0.43	0.37			0.39			0.39	
v/c Ratio	0.69	0.42		0.05	0.95			0.95			0.91	
Control Delay	36.2	21.4		14.3	57.6			60.2			47.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	36.2	21.4		14.3	57.6			60.2			47.0	
LOS	D	C		B	E			E			D	
Approach Delay		26.0			56.1			60.2			47.0	
Approach LOS		C			E			E			D	
90th %ile Green (s)	9.5	38.3		5.7	34.5		44.5	44.5		44.5	44.5	
90th %ile Term Code	Max	Hold		Gap	Max		Max	Max		Max	Max	
70th %ile Green (s)	9.5	39.1		4.9	34.5		44.5	44.5		44.5	44.5	
70th %ile Term Code	Max	Hold		Gap	Max		Max	Max		Max	Max	
50th %ile Green (s)	9.5	49.5		0.0	34.5		41.1	41.1		41.1	41.1	
50th %ile Term Code	Max	Hold		Skip	Max		Gap	Gap		Hold	Hold	
30th %ile Green (s)	9.5	49.5		0.0	34.5		33.4	33.4		33.4	33.4	
30th %ile Term Code	Max	Hold		Skip	Max		Gap	Gap		Hold	Hold	
10th %ile Green (s)	7.2	47.2		0.0	34.5		23.9	23.9		23.9	23.9	
10th %ile Term Code	Gap	Hold		Skip	Max		Hold	Hold		Gap	Gap	
Stops (vph)	76	200		14	495			280			293	
Fuel Used(gal)	2	4		0	14			7			6	
CO Emissions (g/hr)	152	298		20	980			475			409	
NOx Emissions (g/hr)	30	58		4	191			92			80	
VOC Emissions (g/hr)	35	69		5	227			110			95	
Dilemma Vehicles (#)	0	0		0	28			0			0	
Queue Length 50th (ft)	57	140		8	-412			249			283	
Queue Length 95th (ft)	#136	253		22	#688			298			267	

Lanes, Volumes, Timings
3: ENDERS ROAD & CAZENOVIA ROAD (RT92)

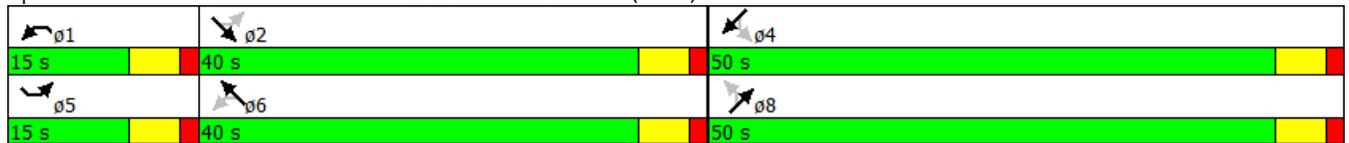
8/16/2017

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Internal Link Dist (ft)		382			401			437			220	
Turn Bay Length (ft)	300			300								
Base Capacity (vph)	242	861		527	674			539			685	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.67	0.42		0.05	0.95			0.79			0.76	

Intersection Summary

Area Type: Other
 Cycle Length: 105
 Actuated Cycle Length: 97.5
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 47.3 Intersection LOS: D
 Intersection Capacity Utilization 78.5% ICU Level of Service D
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 105
 70th %ile Actuated Cycle: 105
 50th %ile Actuated Cycle: 101.6
 30th %ile Actuated Cycle: 93.9
 10th %ile Actuated Cycle: 82.1
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: ENDERS ROAD & CAZENOVIA ROAD (RT92)



Lanes, Volumes, Timings

4: ENDERS ROAD & MARKET PLACE/DAYCARE ENTRANCE

8/16/2017

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	31	2	91	6	1	6	88	274	6	11	259	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.901			0.936			0.998			0.984	
Flt Protected		0.988			0.977			0.988			0.998	
Satd. Flow (prot)	0	1471	0	0	1703	0	0	1778	0	0	1746	0
Flt Permitted		0.988			0.977			0.988			0.998	
Satd. Flow (perm)	0	1471	0	0	1703	0	0	1778	0	0	1746	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		127			149			300			148	
Travel Time (s)		2.9			3.4			6.8			3.4	
Peak Hour Factor	0.68	0.68	0.68	0.76	0.76	0.76	0.76	0.76	0.76	0.68	0.68	0.68
Heavy Vehicles (%)	15%	15%	15%	2%	2%	2%	7%	5%	0%	0%	4%	29%
Adj. Flow (vph)	46	3	134	8	1	8	116	361	8	16	381	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	183	0	0	17	0	0	485	0	0	451	0
Enter Blocked Intersection	No	No	No	No	No	No						
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	54.2%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
 6: CAZENOVIA ROAD (RT92)

8/16/2017



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↑	↗			↖
Volume (vph)	0	442	799	31	0	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.995			0.865
Flt Protected						
Satd. Flow (prot)	0	1827	1872	0	0	1627
Flt Permitted						
Satd. Flow (perm)	0	1827	1872	0	0	1627
Link Speed (mph)		40	40		30	
Link Distance (ft)		303	462		80	
Travel Time (s)		5.2	7.9		1.8	
Peak Hour Factor	0.84	0.84	0.95	0.95	0.68	0.68
Heavy Vehicles (%)	0%	4%	1%	1%	0%	1%
Adj. Flow (vph)	0	526	841	33	0	74
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	526	874	0	0	74
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		10	10		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	53.9%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
3: ENDERS ROAD & CAZENOVIA ROAD (RT92)

8/16/2017

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	171	640	25	21	389	27	96	68	18	89	120	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	11	10	11	11	12	12	12	12	12	12
Storage Length (ft)	300		0	300		0	0		0	0		0
Storage Lanes	1		0	1		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.990			0.987			0.966	
Flt Protected	0.950			0.950				0.974			0.984	
Satd. Flow (prot)	1652	1826	0	1636	1782	0	0	1784	0	0	1785	0
Flt Permitted	0.263			0.229				0.603			0.826	
Satd. Flow (perm)	457	1826	0	394	1782	0	0	1104	0	0	1498	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			4			7			21	
Link Speed (mph)		40			40			30			30	
Link Distance (ft)		462			481			517			300	
Travel Time (s)		7.9			8.2			11.8			6.8	
Peak Hour Factor	0.94	0.94	0.94	0.82	0.82	0.82	0.93	0.93	0.93	0.78	0.78	0.78
Heavy Vehicles (%)	2%	0%	0%	3%	2%	3%	4%	0%	3%	0%	1%	3%
Adj. Flow (vph)	182	681	27	26	474	33	103	73	19	114	154	91
Shared Lane Traffic (%)												
Lane Group Flow (vph)	182	708	0	26	507	0	0	195	0	0	359	0
Enter Blocked Intersection	No	No	No	No	No							
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		10			10			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.09	1.04	1.04	1.09	1.04	1.04	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	2	2		2	2		1	2		1	2	
Detector Template												
Leading Detector (ft)	60	406		60	406		55	60		55	60	
Trailing Detector (ft)	-10	12		-10	12		0	-10		0	-10	
Detector 1 Position(ft)	-10	12		-10	12		0	-10		0	-10	
Detector 1 Size(ft)	30	6		30	6		55	30		55	30	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	30	400		30	400			30			30	
Detector 2 Size(ft)	30	6		30	6			30			30	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0	0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			8			4	

Lanes, Volumes, Timings
 3: ENDERS ROAD & CAZENOVIA ROAD (RT92)

8/16/2017

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Permitted Phases	2			6			8			4		
Detector Phase	5	2		1	6		8	8		4	4	
Switch Phase												
Minimum Initial (s)	4.0	10.0		4.0	10.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	9.5	24.5		9.5	24.5		26.5	26.5		26.5	26.5	
Total Split (s)	15.0	40.0		15.0	40.0		50.0	50.0		50.0	50.0	
Total Split (%)	14.3%	38.1%		14.3%	38.1%		47.6%	47.6%		47.6%	47.6%	
Maximum Green (s)	9.5	34.5		9.5	34.5		44.5	44.5		44.5	44.5	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)	-1.5	-1.5		-1.5	-1.5			-1.5			-1.5	
Total Lost Time (s)	4.0	4.0		4.0	4.0			4.0			4.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	1.0	5.3		1.0	5.3		2.5	2.5		2.5	2.5	
Minimum Gap (s)	0.2	3.4		0.2	3.4		0.2	0.2		0.2	0.2	
Time Before Reduce (s)	0.0	25.0		0.0	25.0		0.0	0.0		0.0	0.0	
Time To Reduce (s)	0.0	10.0		0.0	10.0		0.0	0.0		0.0	0.0	
Recall Mode	None	Min		None	Min		None	None		None	None	
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		12.0			12.0		14.0	14.0		14.0	14.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	46.9	43.2		39.0	32.9			24.7			24.7	
Actuated g/C Ratio	0.59	0.54		0.49	0.41			0.31			0.31	
v/c Ratio	0.44	0.72		0.09	0.69			0.56			0.75	
Control Delay	12.5	22.7		10.0	26.6			29.6			34.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	12.5	22.7		10.0	26.6			29.6			34.4	
LOS	B	C		A	C			C			C	
Approach Delay		20.6			25.8			29.6			34.4	
Approach LOS		C			C			C			C	
90th %ile Green (s)	9.5	38.5		5.5	34.5		34.8	34.8		34.8	34.8	
90th %ile Term Code	Max	Hold		Gap	Max		Hold	Hold		Gap	Gap	
70th %ile Green (s)	9.5	39.4		4.6	34.5		27.7	27.7		27.7	27.7	
70th %ile Term Code	Max	Hold		Gap	Max		Hold	Hold		Gap	Gap	
50th %ile Green (s)	9.5	49.5		0.0	34.5		23.5	23.5		23.5	23.5	
50th %ile Term Code	Max	Hold		Skip	Max		Hold	Hold		Gap	Gap	
30th %ile Green (s)	7.8	42.4		0.0	29.1		19.4	19.4		19.4	19.4	
30th %ile Term Code	Gap	Hold		Skip	Gap		Hold	Hold		Gap	Gap	
10th %ile Green (s)	5.3	34.5		0.0	23.7		13.3	13.3		13.3	13.3	
10th %ile Term Code	Gap	Max		Skip	Hold		Hold	Hold		Gap	Gap	
Stops (vph)	73	448		11	322			135			224	
Fuel Used(gal)	2	10		0	7			3			4	
CO Emissions (g/hr)	118	668		15	474			180			270	
NOx Emissions (g/hr)	23	130		3	92			35			52	
VOC Emissions (g/hr)	27	155		4	110			42			62	
Dilemma Vehicles (#)	0	8		0	17			0			0	
Queue Length 50th (ft)	38	217		5	205			84			163	
Queue Length 95th (ft)	92	#631		18	335			149			210	

Lanes, Volumes, Timings
3: ENDERS ROAD & CAZENOVIA ROAD (RT92)

8/16/2017

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Internal Link Dist (ft)		382			401			437			220	
Turn Bay Length (ft)	300			300								
Base Capacity (vph)	437	988		394	829			657			897	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.42	0.72		0.07	0.61			0.30			0.40	

Intersection Summary

Area Type: Other
 Cycle Length: 105
 Actuated Cycle Length: 79.8
 Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.75
 Intersection Signal Delay: 25.4 Intersection LOS: C
 Intersection Capacity Utilization 65.4% ICU Level of Service C
 Analysis Period (min) 15
 90th %ile Actuated Cycle: 95.3
 70th %ile Actuated Cycle: 88.2
 50th %ile Actuated Cycle: 84
 30th %ile Actuated Cycle: 72.8
 10th %ile Actuated Cycle: 58.8
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: ENDERS ROAD & CAZENOVIA ROAD (RT92)

ø1	ø2	ø4
15 s	40 s	50 s
ø5	ø6	ø8
15 s	40 s	50 s

Lanes, Volumes, Timings

4: ENDERS ROAD & MARKET PLACE/DAYCARE ENTRANCE

8/16/2017

												
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	31	3	118	16	4	16	124	131	11	11	146	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.895			0.940			0.994			0.979	
Flt Protected		0.990			0.978			0.977			0.997	
Satd. Flow (prot)	0	1561	0	0	1716	0	0	1836	0	0	1733	0
Flt Permitted		0.990			0.978			0.977			0.997	
Satd. Flow (perm)	0	1561	0	0	1716	0	0	1836	0	0	1733	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		127			149			300			148	
Travel Time (s)		2.9			3.4			6.8			3.4	
Peak Hour Factor	0.68	0.68	0.68	0.93	0.93	0.93	0.93	0.93	0.93	0.78	0.78	0.78
Heavy Vehicles (%)	27%	0%	3%	2%	0%	2%	0%	1%	0%	0%	1%	40%
Adj. Flow (vph)	46	4	174	17	4	17	133	141	12	14	187	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	224	0	0	38	0	0	286	0	0	238	0
Enter Blocked Intersection	No	No	No	No	No	No						
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	44.3%
Analysis Period (min)	15
	ICU Level of Service A

Lanes, Volumes, Timings
 6: CAZENOVIA ROAD (RT92)

8/16/2017



Lane Group	SEL	SET	NWT	NWR	SWL	SWR
Lane Configurations		↑	↗			↖
Volume (vph)	0	836	527	29	0	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.993			0.865
Flt Protected						
Satd. Flow (prot)	0	1881	1868	0	0	1627
Flt Permitted						
Satd. Flow (perm)	0	1881	1868	0	0	1627
Link Speed (mph)		40	40		30	
Link Distance (ft)		303	462		80	
Travel Time (s)		5.2	7.9		1.8	
Peak Hour Factor	0.94	0.94	0.82	0.82	0.68	0.68
Heavy Vehicles (%)	0%	1%	1%	1%	0%	1%
Adj. Flow (vph)	0	889	643	35	0	87
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	889	678	0	0	87
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		10	10		0	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	47.3%
Analysis Period (min)	15
	ICU Level of Service A

APPENDIX D

Trip Generation

PROPOSED CALCULATIONS

PROJECT: 4581 Enders Road Development
 PEAK HOUR: AM

TRIP GENERATION

USE	USE CODE	BUILDING AREA	AVERAGE TRIP RATE	TRIPS GENERATED	PASS-BY PERCENTAGE	PASS-BY TRIPS	NON-PASS-BY TRIPS	DIRECTIONAL DISTRIBUTION PASS-BY TRIPS				DIRECTIONAL DISTRIBUTION NON-PASS-BY TRIPS			
		(SQFT)	(PER SQFT)					ENTERING %	EXITING %	ENTERING	EXITING	ENTERING %	EXITING %	ENTERING	EXITING
CONVENIENCE WITH GAS	853	6,000	40.92	246	63%	156	90	50%	50%	78	78	50%	50%	45	45

PROPOSED CALCULATIONS

PROJECT: 4581 Enders Road Development
 PEAK HOUR: PM

TRIP GENERATION

USE	USE CODE	BUILDING AREA	AVERAGE TRIP RATE	TRIPS GENERATED	PASS-BY PERCENTAGE	PASS-BY TRIPS	NON-PASS-BY TRIPS	DIRECTIONAL DISTRIBUTION PASS-BY TRIPS				DIRECTIONAL DISTRIBUTION NON-PASS-BY TRIPS			
		(SQFT)	(PER SQFT)					ENTERING %	EXITING %	ENTERING	EXITING	ENTERING %	EXITING %	ENTERING	EXITING
CONVENIENCE WITH GAS	853	6,000	50.92	306	66%	202	104	50%	50%	101	101	50%	50%	52	52

APPENDIX E

Trip Distribution

TRIP DISTRIBUTION

PROJECT NAME: 4581 Enders Road Development
 DATE: 08.11.2017
 PEAK HOUR: AM

TRIP GENERATION

TOTAL TRIPS ENTERING =	123
TOTAL TRIPS EXITING =	123
PASS-BY CREDIT =	63%
MULTI USE CREDIT =	0%

TABLE H1-ENTERING															
	CAZENOVIA ROAD (RT 92)						ENDERS ROAD						MARKET PLACE		
	EAST BOUND			WEST BOUND			NORTH BOUND			SOUTH BOUND			RIGHT	THROUGH	LEFT
	RIGHT	THROUGH	LEFT	RIGHT	THROUGH	LEFT	RIGHT	THROUGH	LEFT	RIGHT	THROUGH	LEFT			
EXISTING (PEAK HOUR)	17	304	109	15	578	24	11	208	94	16	271	12	6	1	6
EXISTING DISTRIBUTION % OF TOTAL	1%	18%	7%	1%	35%	1%	1%	12%	6%	1%	16%	1%	0%	0%	0%
DISTRIBUTION % ADJUSTMENTS	-1%	-18%	19%	2%	-1%	-1%	-1%	0%	1%	17%	-16%	-1%	0%	0%	0%
PROPOSED DISTRIBUTION %	0%	0%	26%	3%	34%	0%	0%	12%	7%	18%	0%	0%	0%	0%	0%
TRIP DISTRIBUTION (TOTAL ENTERING)	0	0	32	4	42	0	0	15	8	22	0	0	0	0	0
PASS BY TRIP REDUCTION	0	0	20	3	26	0	0	9	5	14	0	0	0	0	0
PASS BY TRIP ADJUSTMENTS	-1	-14	15	2	-1	-1	-1	0	1	13	-12	-1	0	0	0
TRIP DISTRIBUTION (NEW TRIPS)	0	0	12	1	16	0	0	6	3	8	0	0	0	0	0
MULTI USE CREDIT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PROPOSED (PEAK HOUR)	16	290	136	18	593	23	10	214	98	37	259	11	6	1	6

TABLE H1-ENTERING-MARKET PLACE		
ENDERS ROAD		
SOUTHBOUND		
RIGHT	THROUGH	LEFT
7	285	40
1%	15%	4%
-1%	-15%	37%
0%	0%	42%
0	0	52
0	0	33
-1	-11	31
0	0	19
0	0	0
6	274	88

* TRIPS TAKEN FROM THE APPROVED SHINING STARS DAYCARE TRAFFIC IMPACT STUDY-FIGURE 11 PROPOSED PEAK HOUR TRAFFIC VOLUMES PHASE 1

MOVEMENTS TO SITE

TABLE H1-EXITING					
	CAZENOVIA ROAD (RT 92)		ENDERS ROAD		
	DRIVEWAY		DRIVEWAY		
	RIGHT	THROUGH	RIGHT	THROUGH	LEFT
EXISTING (PEAK HOUR)	0	42	1	8	8
EXISTING DISTRIBUTION %	0%	82%	2%	16%	16%
NEW TRIP DISTRIBUTION %	26%	56%	0%	18%	18%
PASS BY DISTRIBUTION %	49%	30%	1%	20%	20%
TRIP DISTRIBUTION (NEW TRIPS)	12	26	0	8	8
TRIP DISTRIBUTION (PASS-BY TRIPS)	38	23	1	15	15
TRIP DISTRIBUTION % (TOTAL EXITING)	40%	40%	1%	19%	19%
PROPOSED (PEAK HOUR)	50	91	2	31	31

TABLE H1-EXITING-RT92		
ENDERS ROAD		
SOUTHBOUND		
RIGHT	THROUGH	LEFT
145	141	33
46%	44%	10%
0%	19%	37%
-8%	9%	21%
0	9	17
-6	7	16
-5%	13%	27%
139	152	65

* TRIP DISTRIBUTION PERCENTAGES EXTRAPOLATED FROM EXISTING DISTRIBUTION PERCENTAGES ENTERING THE SITE, NEW TRIP GO BACK WHERE THEY CAME FROM, PASS-BY TRIPS CONTINUE ON IN THE DIRECTION OF ORIGINAL TRAVEL

TRIP DISTRIBUTION

PROJECT NAME: 4581 Enders Road Development
 DATE: 08.11.2017
 PEAK HOUR: PM

TRIP GENERATION

TOTAL TRIPS ENTERING =	153
TOTAL TRIPS EXITING =	153
PASS-BY CREDIT =	66%
MULTI USE CREDIT =	0%

TABLE H2-ENTERING															
	CAZENOVIA ROAD (RT 92)						ENDERS ROAD						MARKET PLACE		
	EAST BOUND			WEST BOUND			NORTH BOUND			SOUTH BOUND			RIGHT	THROUGH	LEFT
	RIGHT	THROUGH	LEFT	RIGHT	THROUGH	LEFT	RIGHT	THROUGH	LEFT	RIGHT	THROUGH	LEFT			
EXISTING (PEAK HOUR)	27	682	101	23	378	22	19	66	92	12	156	12	17	1	17
EXISTING DISTRIBUTION % OF TOTAL	2%	42%	6%	1%	23%	1%	1%	4%	6%	1%	10%	1%	1%	0%	1%
DISTRIBUTION % ADJUSTMENTS	-2%	-42%	44%	2%	-1%	-1%	-1%	0%	1%	11%	-10%	-1%	-1%	2%	-1%
PROPOSED DISTRIBUTION %	0%	0%	50%	3%	22%	0%	0%	4%	7%	12%	0%	0%	0%	2%	0%
TRIP DISTRIBUTION (TOTAL ENTERING)	0	0	77	5	34	0	0	6	10	18	0	0	0	3	0
PASS BY TRIP REDUCTION	0	0	51	3	22	0	0	4	7	12	0	0	0	2	0
PASS BY TRIP ADJUSTMENTS	-2	-42	44	2	-1	-1	-1	0	1	11	-10	-1	-1	2	-1
TRIP DISTRIBUTION (NEW TRIPS)	0	0	26	2	12	0	0	2	3	6	0	0	0	1	0
MULTI USE CREDIT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PROPOSED (PEAK HOUR)	25	640	171	27	389	21	18	68	96	29	146	11	16	4	16

TABLE H2-ENTERING-MARKET PLACE		
ENDERS ROAD		
SOUTHBOUND		
RIGHT	THROUGH	LEFT
12	140	38
1%	8%	2%
-1%	-8%	55%
0%	0%	57%
0	0	87
0	0	57
-1	-9	56
0	0	30
0	0	0
11	131	124

* TRIPS TAKEN FROM THE APPROVED SHINING STARS DAYCARE TRAFFIC IMPACT STUDY-FIGURE 11 PROPOSED PEAK HOUR TRAFFIC VOLUMES PHASE :
 MOVEMENTS TO SITE

TABLE H2-EXITING					
	CAZENOVIA ROAD (RT 92)		ENDERS ROAD		
	DRIVEWAY		DRIVEWAY		
	RIGHT	RIGHT	THROUGH	LEFT	
EXISTING (PEAK HOUR)	0	44	1	13	
EXISTING DISTRIBUTION %	0%	76%	2%	22%	
NEW TRIP DISTRIBUTION %	50%	36%	2%	12%	
PASS BY DISTRIBUTION %	33%	54%	1%	12%	
TRIP DISTRIBUTION (NEW TRIPS)	26	19	1	6	
TRIP DISTRIBUTION (PASS-BY TRIPS)	33	55	1	12	
TRIP DISTRIBUTION % (TOTAL EXITING)	39%	48%	1%	12%	
PROPOSED (PEAK HOUR)	59	118	3	31	

TABLE H2-EXITING-RT92		
ENDERS ROAD		
SOUTHBOUND		
RIGHT	THROUGH	LEFT
74	111	32
34%	51%	15%
0%	11%	25%
-3%	9%	45%
0	6	13
-3	9	46
-2%	10%	39%
71	120	89

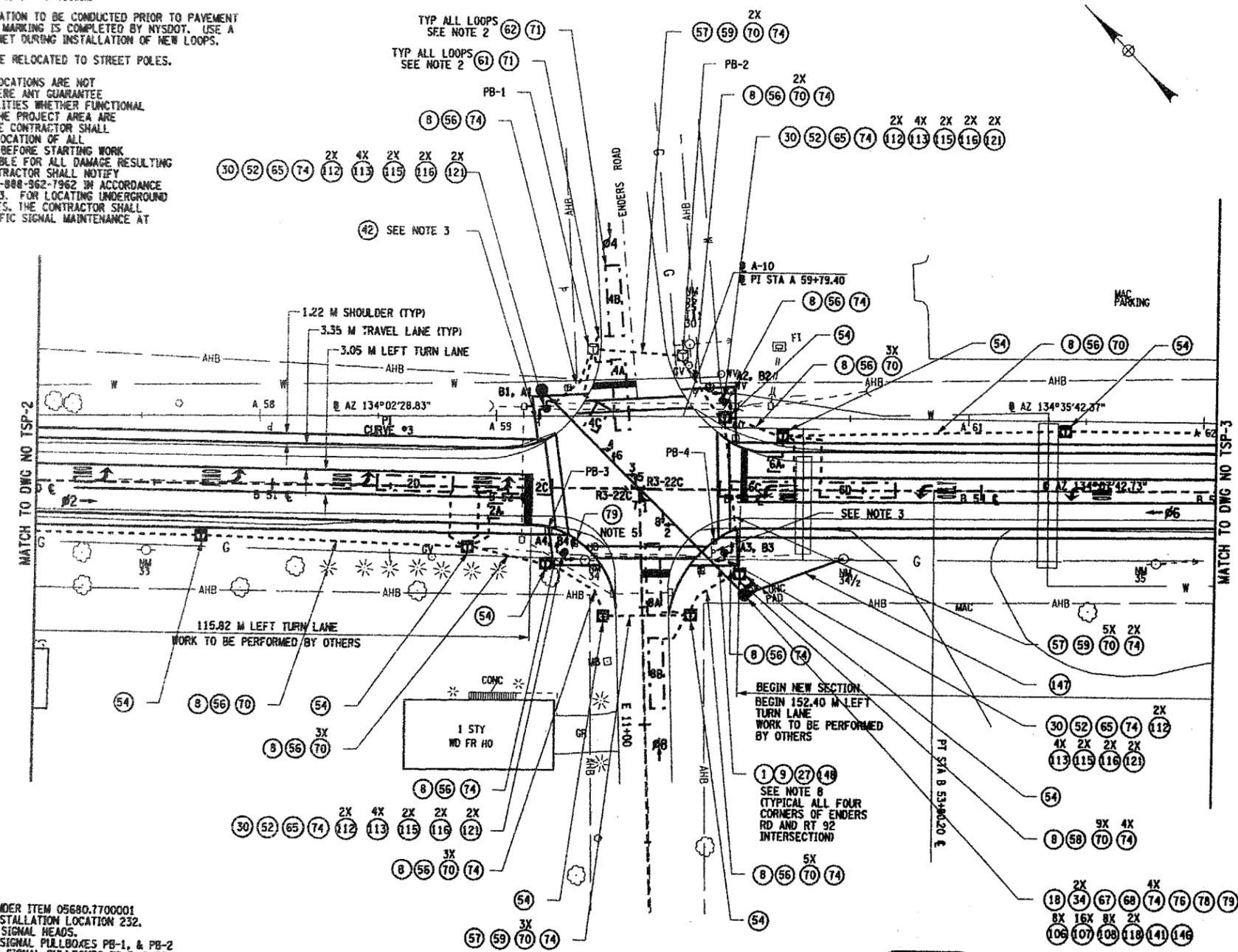
* TRIP DISTRIBUTION PERCENTAGES EXTRAPOLATED FROM EXISTING DISTRIBUTION PERCENTAGES ENTERING THE SITE, NEW TRIP GO BACK WHERE THEY CAME FROM, PASS-BY TRIPS CONTINUE ON IN THE DIRECTION OF ORIGINAL TRAVE

APPENDIX F

*New York State
Department of Transportation
Signal Data*

NOTES:

1. THE COUNTDOWN TIMER SIGNS SHALL BE 113mm x 150mm WHEN INSTALLED ON PEDESTRIAN POLES AND 225mm x 300mm WHEN INSTALLED ON POLES FOR MAST ARMS OR SPAN WIRES. THE COST OF FURNISHING AND INSTALLING COUNTDOWN TIMER SIGNS SHALL BE INCLUDED IN THE PRICE FOR ITEM 645.7101M, GROUND MOUNTED SIGN PANEL, MUTCD CODES R, P, W AND M - CLASS 1, UP TO 460mm.
2. LOOP WIRE AND INSTALLATION TO BE CONDUCTED PRIOR TO PAVEMENT OVERLAY AND PAVEMENT MARKING IS COMPLETED BY NYSDDOT. USE A TIMER IN CONTROL CABINET DURING INSTALLATION OF NEW LOOPS.
3. STREET SIGNS ARE TO BE RELOCATED TO STREET POLES.
4. UNDERGROUND UTILITY LOCATIONS ARE NOT GUARANTEED, NOR IS THERE ANY GUARANTEE THAT ALL EXISTING UTILITIES WHETHER FUNCTIONAL OR ABANDONED WITHIN THE PROJECT AREA ARE SHOWN ON THIS DWG. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL UNDERGROUND UTILITIES BEFORE STARTING WORK AND SHALL BE RESPONSIBLE FOR ALL DAMAGE RESULTING FROM THEIR WORK. CONTRACTOR SHALL NOTIFY DGS SAFELY NEW YORK 1-888-962-7962 IN ACCORDANCE WITH 16 NYCRR PART 753. FOR LOCATING UNDERGROUND TRAFFIC SIGNAL FEATURES, THE CONTRACTOR SHALL CONTACT NYSDDOT - TRAFFIC SIGNAL MAINTENANCE AT 315-454-4312.



FED ROAD REG. NO.	STATE	CONTRACT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	D260138	19	32
P.L.N. 3805.15		B.L.N.		
ONONDAGA COUNTY				
2005 SIGNAL REQUIREMENTS CONTRACT				
HYS ROUTE 92 AT ENDERS ROAD				
TOWN OF MANLIUS				

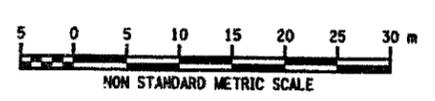
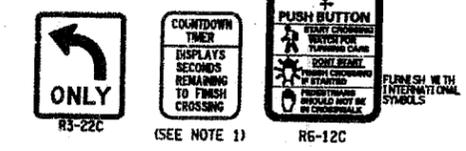
KEY NO - ITEM NO & DESCRIPTION		
SEE ESTIMATE OF QUANTITIES SHEET FOR A FULL DESCRIPTION OF THESE ITEMS.		
1	203.02	M EXCAVATION
8	206.0320	10 M CONDUIT EXCAV GRASS
9	304.15	M SUBBASE
18	608.03	91 M MAINTAIN SIGNAL (REQ C)
27	619.1613	M SURFACE APPLIED DETECTABLE WARNING
30	645.7101	M GRND MOUNTED SIGN - CLASS 1
34	645.72	M OVERHEAD SIGN
42	647.11	M RELOCATE SIGNS, A
52	680.5001	M FOUNDATION
54	680.510501	M PULLBOX
56	680.520106	M CONDUIT, 2 NPS
57	680.520108	M CONDUIT, 3 NPS
58	680.520110	M CONDUIT, 4 NPS
59	680.53	M JACKING
61	680.53080305	M CONDUIT, 1 NPS
62	680.54	M LOOP INSTALLATION
65	680.6830	M TRAFFIC SIGNAL POLE - 3.0 m
67	680.7002	M DUAL SPAN WIRE
68	680.700603	M RISER, 1 NPS
70	680.71	M SHIELDED CABLE
71	680.72	M LOOP WIRE
74	680.731014	M CABLE, 10 WIRE
76	680.731914	M CABLE, 19 WIRE
79	680.77000105	M MODIFY TRAFFIC SIG, LOCATION 1
99	680.80324515	M COMPUTER CABINET
103	680.810308	M LED SIGNAL MODULE
106	680.8106	M TRAFFIC SIGNAL SECTION
107	680.810601	M TRAFFIC SIGNAL SECTION, TYPE I
108	680.8111	M SIGNAL BRACKET, 1 WAY
112	680.813105	M PED SIGNAL MODULE LED
113	680.81310603	M PED SIGNAL SECTION, TYPE I
119	680.8142	M PED POST TOP ASSEMBLY
119	680.8150	03 M PED COUNT - DOWN TIMER
118	680.8207	M OH SIGN ASSEMBLY, G
12	680.8225	M PED BUTTON / SIGN NO POST
14	680.9092	01 M ELECTRIC METER
148	680.9401	03 M DISCONNECT BOX
14	680.95010615	M CABLE, 1 WIRE
148	608.020101	M ASPH CONC SW'S, DWY'S, & BIKE PATHS

UTILITY QUALITY LEVEL D
ALL DIMENSIONS ARE IN m UNLESS OTHERWISE NOTED
AS BUILT REVISIONS

SIGNATURE		DATE
SIGNAL NO 232 - PLAN		
STATE OF NEW YORK DEPARTMENT OF TRANSPORTATION REGION 03		
DOCUMENT NAME SIG232AA_TSP.DGN	DATE 12/05	DRAWING NO. TSP-4

5. WORK TO BE PERFORMED UNDER ITEM 05680.7700001 MODIFY TRAFFIC SIGNAL INSTALLATION LOCATION 232.
 - *REPLACE SPAN WIRE, AND SIGNAL HEADS.
 - *REUSE EXISTING TRAFFIC SIGNAL PULLBOXES PB-1, & PB-2
 - *REMOVE EXISTING TRAFFIC SIGNAL PULLBOXES PB-3, & PB-4 AFTER NEW CONDUIT INSTALLATION IS COMPLETE.
 - *REMOVE AND STORE FOR PICK-UP BY STATE FORCES, ALL LED MODULES, THE CONTROLLER THE CONTROLLER CABINET AND ALL ITS CONTENTS.
 - *REPLACE EXISTING PEDESTRIAN POLES AND PUSH BUTTONS.
6. CONTRACTOR SHALL PROVIDE 14 DAYS NOTICE TO THE REGIONAL TRAFFIC ENGINEERING & SAFETY OPERATIONS GROUP (315)428-4064 TO PROVIDE RED AND GREEN LED MODULES FOR ALL REQUIRED SIGNAL FACES INCLUDING TURN ASSEMBLIES.
7. THE CONTRACTOR'S ATTENTION IS DRAWN TO GENERAL NOTE 23 REQUIRING FIELD VERIFICATION OF SPAN WIRE POLE HEIGHTS AND CONSEQUENTLY FOUNDATION TYPE AND ANCHOR BOLT DETAILS PRIOR TO FOUNDATION EXCAVATION AND CONCRETE PLACEMENT.

8. THE FOUR PAVED AREAS FROM THE PEDESTRIAN POLES TO THE SHOULDER SHALL CONSIST OF 75mm OF ASPHALT, KEY NO (48) OVER 150mm (6IN) OF GRAVEL, KEY NO (9). THESE PAVED AREAS SHALL BE SMOOTHLY TRANSITIONED FROM THE SHOULDER TO THE PED POLES AT A MAXIMUM GRADE OF 12.0%. THE CROSS SLOPE SHOULD NOT BE GREATER THAN 2.0%.
9. ALL EXISTING PULLBOXES NOT USED OR IN PAVEMENT TO BE REMOVED AND BACKFILLED.



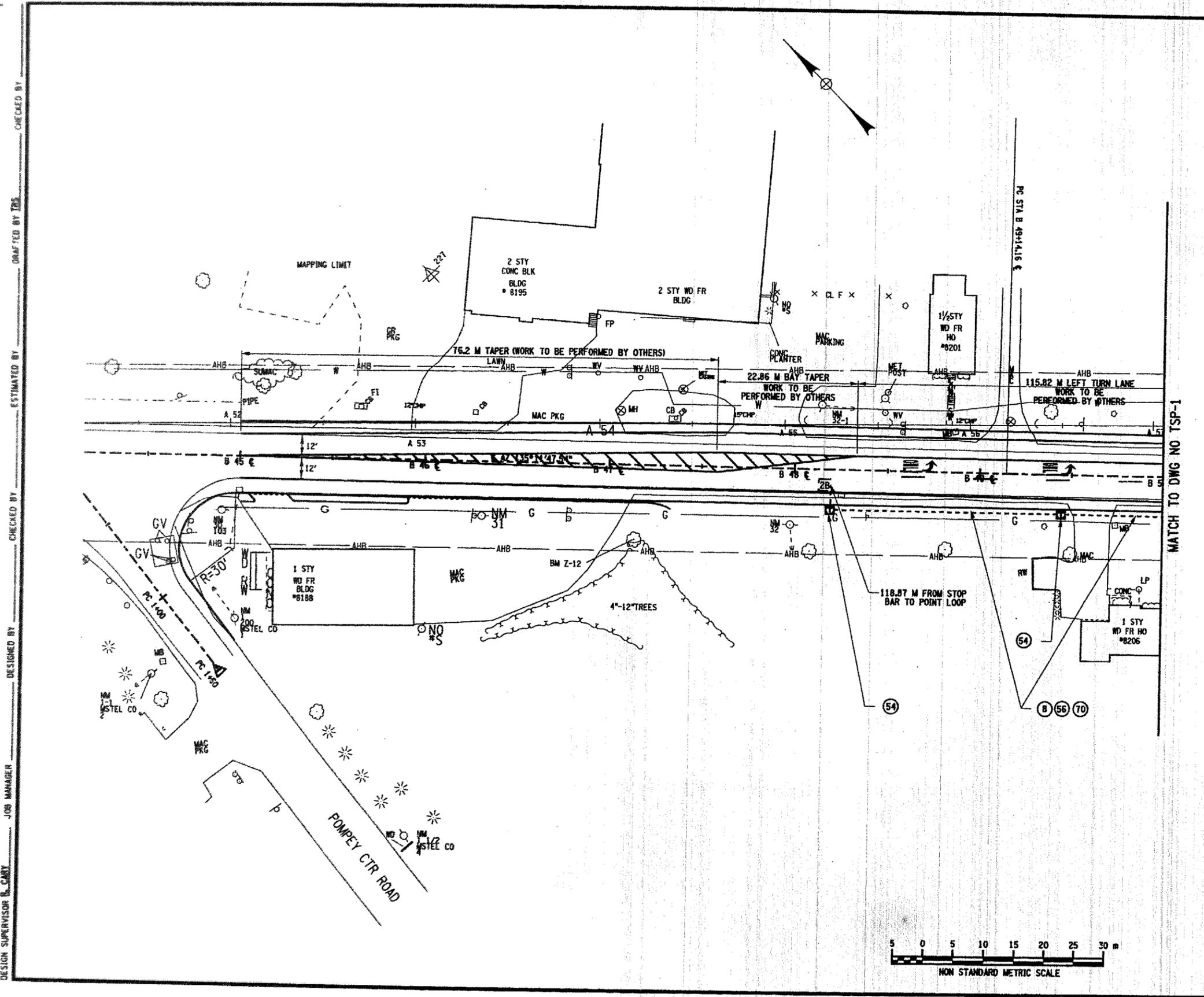
**SIGNAL NO 232
ONONDAGA COUNTY**

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DATE/TIME = 08-DEC-2005 13:49
USER = jasper@state.gov

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FED ROAD REG. NO.	STATE	CONTRACT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	D260138	20	32
P.I.N. 3805.15		B.I.N.		
ONONDAGA COUNTY				
2005 SIGNAL REQUIREMENTS CONTRACT				
NYS ROUTE 92 AT ENDERS ROAD				
TOWN OF MANLIUS				

KEY NO - ITEM NO & DESCRIPTION	
SEE ESTIMATE OF QUANTITIES SHEET FOR A FULL DESCRIPTION OF THESE ITEMS.	
(8)	206.0320 10 M CONDUIT EXCAV GRASS
(54)	680.510501 M PULLBOX - REINFORCED CONCRETE
(56)	680.520106 M CONDUIT, 2 MPS
(70)	680.71 M SHIELDED LEAD IN CABLE



SIGNAL NO 232
ONONDAGA COUNTY

UTILITY QUALITY LEVEL D
 ALL DIMENSIONS ARE IN M UNLESS OTHERWISE NOTED

AS BUILT REVISIONS

SIGNATURE	DATE
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SIGNAL NO 232 - PLAN

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
REGION 03

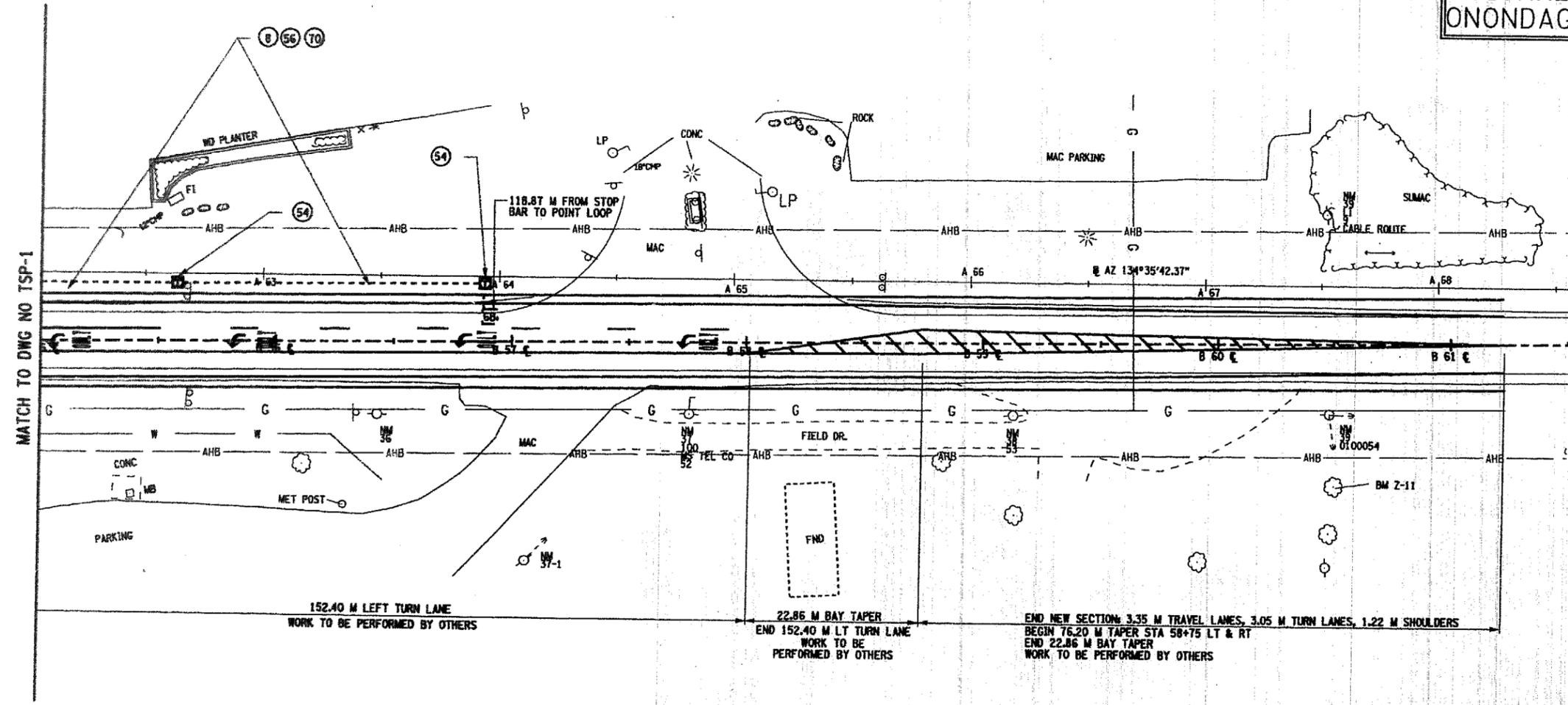
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FILE NAME = SIG232BA.TSP.DGN
 DATE PLOTTED = 28-DEC-2005 13:02
 USER = jcarney

DESIGN SUPERVISOR B. CARY
 JOB MANAGER
 DESIGNED BY
 CHECKED BY
 ESTIMATED BY
 CRAFTED BY
 CHECKED BY

FED ROAD REG. NO.	STATE	CONTRACT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	D260138	21	32
P.I.N. 3805.15		B.I.N.		
ONONDAGA COUNTY				
2005 SIGNAL REQUIREMENTS CONTRACT				
NYS ROUTE 92 AT ENDERS ROAD				
TOWN OF MANLIUS				

SIGNAL NO 232
ONONDAGA COUNTY

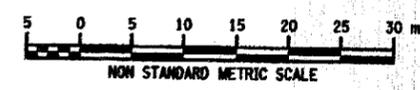


MATCH TO DWG NO TSP-1

152.40 M LEFT TURN LANE
WORK TO BE PERFORMED BY OTHERS

22.86 M BAY TAPER
END 152.40 M LT TURN LANE
WORK TO BE PERFORMED BY OTHERS

END NEW SECTION: 3.35 M TRAVEL LANES, 3.05 M TURN LANES, 1.22 M SHOULDERS
BEGIN 76.20 M TAPER STA 58+75 LT & RT
END 22.86 M BAY TAPER
WORK TO BE PERFORMED BY OTHERS



KEY NO - ITEM NO & DESCRIPTION	
SEE ESTIMATE OF QUANTITIES SHEET FOR A FULL DESCRIPTION OF THESE ITEMS.	
8	206.0320 10 M CONDUIT EXCAV GRASS
54	680.510501 M PULLBOX - REINFORCED CONCRETE
56	680.520106 M CONDUIT, 2 NPS
70	680.71 M SHIELDED LEAD IN CABLE

UTILITY QUALITY LEVEL D
ALL DIMENSIONS ARE IN M UNLESS OTHERWISE NOTED
AS BUILT REVISIONS

SIGNATURE _____ DATE _____

SIGNAL NO 232 - PLAN

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
REGION 03

DOCUMENT NAME SIG232CA_TSP.DGN	DATE 12/05	DRAWING NO. TSP-6
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FILE NAME : SIG232CA_TSP.DGN
DATE : 12-05-05
JOB NO : 260138

DESIGNED BY _____ CHECKED BY _____ ESTIMATED BY _____ DRAWN BY DMS

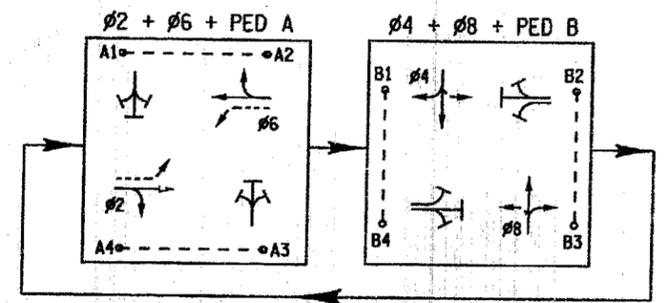
ESTIMATE OF QUANTITIES				SIGNAL NO. 232	
KEY NO.	ITEM NO.	DESCRIPTION	UNIT	QUANTITY	
1	203.02	M UNCLASSIFIED EXCAVATION AND DISPOSAL	M3	6	
2	206.0320	10 M TRAFFIC SIGNAL CONDUIT EXCAVATION AND RESTORATION IN GRASS AND UNPAVED AREAS	M	320	
3	304.15	M SUBBASE COURSE, OPTIONAL TYPE	M3	10	
18	619.1613	M MAINTAIN TRAFFIC SIGNAL EQUIPMENT REQUIREMENT C3	INT MO	6	
27	608.03	91 M SURFACE APPLIED DETECTABLE WARNING UNITS	M2	0.38	
28	645.7101	M GROUND MOUNTED SIGN PANELS MUTCD CODES R,P,W AND M - CLASS 1	M2	0.38	
29	645.72	M OVERHEAD MOUNTED SIGN PANELS MUTCD CODES R, P, W & M	M2	1.40	
30	647.11	M RELOCATING SIGNS, SIZE A 0.0 TO 1.0 S.M.J	EA	8	
32	680.5001	M POLE EXCAVATION & CONCRETE FOUNDATION	M3	4	
34	680.510501	M PULLBOX - RECTANGULAR 650mm X 450mm REINFORCED CONCRETE	EA	13	
35	680.520106	M CONDUIT, METAL STEEL, ZINC COATED, 2 NPS	M	315	
36	680.520108	M CONDUIT, METAL STEEL, ZINC COATED, 3 NPS	M	32	
37	680.520110	M CONDUIT, METAL STEEL, ZINC COATED, 4 NPS	M	4	
38	680.53	M CONDUIT JACKING OR BORING	M	32	
39	680.53080305	M CONDUIT, FLEXIBLE, LIQUID TIGHT, NON - METALLIC, 1 NPS DIAMETER	M	30	
40	680.54	M INDUCTANCE LOOP INSTALLATION	M	280	
41	680.6830	M TRAFFIC SIGNAL POLE - BRACKET MOUNT - 3.0 METERS	EA	4	
42	680.7002	M DUAL SPAN WIRE WITH UPPER TETHER WIRE	EA	1	
43	680.700603	M RISER ASSEMBLY, 1 NPS DIAMETER	EA	1	
44	680.71	M SHIELDED LEAD IN CABLE	M	840	
45	680.72	M INDUCTANCE LOOP WIRE	M	815	
46	680.731014	M SIGNAL CABLE, 10 CONDUCTORS, 14AWG	M	100	
47	680.731914	M SIGNAL CABLE, 19 CONDUCTORS, 14AWG	M	40	
48	680.77008105	M MODIFY TRAFFIC SIGNAL - LOCATION 1 SIGNAL 232 ONONDAGA COUNTY	EA	1	
49	680.80324515	M INSTALL MICROCOMPUTER CABINET	EA	1	
50	680.810308	M INSTALL BALL/ARROW LED TRAFFIC SIGNAL MODULE	EA	16	
51	680.8106	M TRAFFIC SIGNAL SECTION - POLYCARBONATE, 300mm	EA	8	
52	680.810601	M TRAFFIC SIGNAL SECTION - POLYCARBONATE - TYPE 1, 300mm	EA	16	
53	680.8111	M TRAFFIC SIGNAL BRACKET ASSEMBLY 1 WAY	EA	8	
54	680.813105	M PEDESTRIAN SIGNAL MODULE 300mm, BI-MODAL HAND/MAN SYMBOL, LED	EA	8	
55	680.81310603	M PEDESTRIAN SIGNAL SECTION, POLYCARBONATE, TYPE 1 300mm	EA	16	
56	680.8142	M PEDESTRIAN SIGNAL POST TOP MOUNT ASSEMBLY	EA	8	
57	680.8150	03 M PEDESTRIAN COUNT - DOWN TIMER MODULE	EA	8	
58	680.8207	M OVERHEAD SIGN ASSEMBLY, TYPE G	EA	2	
59	680.8225	M PEDESTRIAN PUSH BUTTON AND SIGN WITHOUT POST	EA	8	
60	680.9092	01 M ELECTRIC METER SOCKET, 100 AMP, SINGLE PHASE, FOR TRAFFIC SIGNAL LIGHT CIRCUITS	EA	1	
61	680.9401	03 M WATERTIGHT DISCONNECT BOX - NEMA 4X	EA	1	
62	680.95010615	M SERVICE CABLE, 1 CONDUCTOR, NO. 6 AWG	M	18	
63	608.020101	M ASPHALT CONCRETE SIDEWALKS, DRIVEWAYS, AND BICYCLE PATHS	MT	16	

SIGNAL OPERATIONS SPECIFICATIONS							SIGNAL NO 232		COUNTY ONONDAGA	
SWITCH PACK	FUNCTION	FACE NOS	FLASH PLUG	INDICATIONS	TERMINAL WIRING BOARD					
					TERMINAL	WIRE COLOR CODE				
SP 1	#2	1, 2	Y	R Y G GRND WIRE	SP 1R SP 1Y SP 1G GRND BUS	14/19C-1-R 14/19C-1-O 14/19C-1-G 14/19C-1-W				
SP 2	#4	5, 6	R	R Y G GRND WIRE	SP 2R SP 2Y SP 2G GRND BUS	14/19C-1-R/B 14/19C-1-O/B 14/19C-1-G/B 14/19C-1-W/B				
SP 3	#6	3, 4	Y	R Y G GRND WIRE	SP 3R SP 3Y SP 3G GRND BUS	14/19C-1-R/W 14/19C-1-BL/W 14/19C-1-G/W 14/19C-1-B/W				
SP 4	#8	7, 8	R	R Y G GRND WIRE	SP 4R SP 4Y SP 4G GRND BUS	14/19C-1-B/R 14/19C-1-O/R 14/19C-1-BL/R 14/19C-1-W/R				
SP 5	PED A #6	A1	W	HAND MAN GRND WIRE	SP 5R SP 5Y SP 5G GRND BUS	14/10C-1-R 14/10C-1-G 14/10C-1-W				
SP 6	PED A #6	A2	W	HAND MAN GRND WIRE	SP 5R SP 5Y SP 5G GRND BUS	14/10C-2-R 14/10C-2-G 14/10C-2-W				
SP 7	PED A #2	A3	W	HAND MAN GRND WIRE	SP 6R SP 6Y SP 6G GRND BUS	14/10C-3-R 14/10C-3-G 14/10C-3-W				
SP 8	PED A #2	A4	W	HAND MAN GRND WIRE	SP 6R SP 6Y SP 6G GRND BUS	14/10C-4-R 14/10C-4-G 14/10C-4-W				
SP 9	PED B #4	B1	W	HAND MAN GRND WIRE	SP 7R SP 7Y SP 7G GRND BUS	14/10C-1-R/B 14/10C-1-G/B 14/10C-1-W/B				
SP 10	PED B #8	B2	W	HAND MAN GRND WIRE	SP 7R SP 7Y SP 7G GRND BUS	14/10C-2-R/B 14/10C-2-G/B 14/10C-2-W/B				
SP 11	PED B #8	B3	W	HAND MAN GRND WIRE	SP 8R SP 8Y SP 8G GRND BUS	14/10C-3-R/B 14/10C-3-G/B 14/10C-3-W/B				
SP 12	PED B #4	B4	W	HAND MAN GRND WIRE	SP 8R SP 8Y SP 8G GRND BUS	14/10C-4-R/B 14/10C-4-G/B 14/10C-4-W/B				

FED ROAD REG. NO.	STATE	CONTRACT NO.	SHEET NO.	TOTAL SHEETS
1	N.Y.	D260138	22	32
P.L.N. 3805.15		B.J.N.		
ONONDAGA COUNTY				
2005 SIGNAL REQUIREMENTS CONTRACT				
NYS ROUTE 92 AT ENDERS ROAD				
TOWN OF MANLIUS				

TABLE OF OPERATIONS											
FACE	R	R	R	R	R	R	R	R	R	P A	P B
	Y	Y	Y	Y	Y	Y	Y	Y	Y		
PHASE	1	2	3	4	5	6	7	8	A-A	B-B	
#2	G	G	R	R	R	R	R	R	DW*	DW	
#4	R	R	R	R	G	G	R	R	DW	DW*	
#6	R	R	G	G	R	R	R	R	DW*	DW	
#8	R	R	R	R	R	R	G	G	DW	DW*	
#2 + #6	G	G	G	G	R	R	R	R	DW*	DW*	
#4 + #8	R	R	R	R	G	G	G	G	DW	DW*	
EMERGENCY FLASH	FY	FY	FY	FY	FR	FR	FR	FR	BLANK	BLANK	

* UPON ACTUATION OF A PEDESTRIAN PUSH BUTTON, A "WALKING MAN" INDICATION FOLLOWED BY A FLASHING "HAND" INDICATION FOLLOWED BY A STEADY "HAND" WILL BE DISPLAYED, AND COUNTDOWN TIMER IS INITIATED.



PHASE DIAGRAM

SIGNAL NO 232
ONONDAGA COUNTY

ALL DIMENSIONS ARE IN M UNLESS OTHERWISE NOTED
AS BUILT REVISIONS

FILE NAME = SIG232TB.TBL.DGN
DATE/TIME = 05-04-2005 10:58:10
USER = mrc@csd.com

DESIGN SUPERVISOR B. CARY

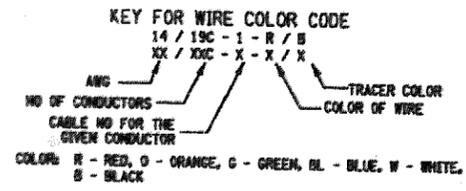
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CHECKED BY

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- LEGEND
- G = CIRCULAR GREEN
 - G = LEFT GREEN ARROW
 - G+ = RIGHT GREEN ARROW
 - G^ = VERTICAL GREEN ARROW
 - R = CIRCULAR RED
 - R = LEFT RED ARROW
 - R+ = RIGHT RED ARROW
 - Y = CIRCULAR YELLOW
 - Y = LEFT YELLOW ARROW
 - Y+ = RIGHT YELLOW ARROW

		FROM	
TO	R	R	G
	G	R	R

SIGNAL OPERATIONS SPECIFICATIONS					
TABLE OF INPUT WIRING					
FUNCTION	DETECTOR NUMBER	DET. TYPE	TERMINAL BOARD WIRING	DET. AM. OVER	REMARKS
#2	2A	CALLING LOOP	1A, 1B	6' x 6'	ROUTE 92 EASTBOUND THRU/RIGHT
#2	2B	POINT LOOP	2A, 2B	6' x 6'	ROUTE 92 EASTBOUND THRU/RIGHT
#2	2C, 2D	SPLIT PRESENCE	3A, 3B	6' x 32'	ROUTE 92 EASTBOUND LEFT
#4	4A, 4B	SPLIT PRESENCE	4A, 4B	6' x 30'	ENDERS ROAD SOUTHBOUND
#4	4C	PRESENCE	5A, 5B	6' x 10'	ENDERS ROAD SOUTHBOUND
#6	6A	CALLING LOOP	6A, 6B	6' x 6'	ROUTE 92 WESTBOUND THRU/RIGHT
#6	6B	POINT LOOP	7A, 7B	6' x 6'	ROUTE 92 WESTBOUND THRU/RIGHT
#6	6C, 6D	SPLIT PRESENCE	8A, 8B	6' x 32'	ROUTE 92 WESTBOUND LEFT
#8	8A, 8B	SPLIT PRESENCE	9A, 9B	6' x 30'	ENDERS ROAD NORTHBOUND
PED A (#6)	A1, A2	PED BUTTON	10A, 10B		CROSSING ENDERS, NORTH SIDE
PED A (#2)	A3, A4	PED BUTTON	11A, 11B		CROSSING ENDERS, SOUTH SIDE
PED B (#4)	B1, B4	PED BUTTON	12A, 12B		CROSSING ROUTE 92, WEST SIDE
PED B (#8)	B2, B3	PED BUTTON	13A, 13B		CROSSING ROUTE 92, EAST SIDE

SIGNATURE _____ DATE _____

SIGNAL NO 232 - PLAN

STATE OF NEW YORK
DEPARTMENT OF TRANSPORTATION
REGION 03

DOCUMENT NAME: SIG232TB.TBL.DGN DATE: 12/05 DRAWING NO.: TSP-7

Phase Times [1.1.1]				Coordination Patterns [2.4] and Coordination Split Tables [2.7.1]																				STD8								
Times [1.1.1]	1	2	3	4	5	6	7	8	Pat#	Cyc	Off	Split	Seq	Pat#	Cyc	Off	Split	Seq	Pat#	Cyc	Off	Split	Seq					Pat#	Cyc	Off	Split	Seq
Min Green	4	10		6	4	10		6	1	0	0	1	1	13	0	0	13	1	25	0	0		1	37	0	0		1				
Gap, Ext	1	5.3		2.5	1	5.3		2.5	2	0	0	2	1	14	0	0	14	1	26	0	0		1	38	0	0		1				
Max 1	12	40		25	12	40		25	3	0	0	3	1	15	0	0	15	1	27	0	0		1	39	0	0		1				
Max 2									4	0	0	4	1	16	0	0	16	1	28	0	0		1	40	0	0		1				
Yel Clearance	4	4		4	4	4		4	5	0	0	5	1	17	0	0	17	1	29	0	0		1	41	0	0		1				
Red Clearance	1.5	1.5		1.5	1.5	1.5		1.5	6	0	0	6	1	18	0	0	18	1	30	0	0		1	42	0	0		1				
Walk		7		7		7		7	7	0	0	7	1	19	0	0	19	1	31	0	0		1	43	0	0		1				
Ped Clearance		12		14		12		14	8	0	0	8	1	20	0	0	20	1	32	0	0		1	44	0	0		1				
Red Revert									9	0	0	9	1	21	0	0	21	1	33	0	0		1	45	0	0		1				
Add Initial		2.3				2.3			10	0	0	10	1	22	0	0	22	1	34	0	0		1	46	0	0		1				
Min Initial		25				25			11	0	0	11	1	23	0	0	23	1	35	0	0		1	47	0	0		1				
Time B4 Reduct		25				25			12	0	0	12	1	24	0	0	24	1	36	0	0		1	48	0	0		1				
Cars B4 Reduct									Split				1	2	3	4	5	6	7	8	Split				1	2	3	4	5	6	7	8
Time To Reduce		10				10			1	Coord		12	40	0	40	12	40	0	40	13	Coord		0	0	0	0	0	0	0			
Reduce By									2	Coord		15	40	0	50	15	40	0	50	14	Coord		0	0	0	0	0	0	0			
Min Gap		3.4				3.4			3	Coord		0	0	0	0	0	0	0	0	15	Coord		0	0	0	0	0	0	0			
DyMaxLim									4	Coord		0	0	0	0	0	0	0	0	16	Coord		0	0	0	0	0	0	0			
Max Step									5	Coord		0	0	0	0	0	0	0	0	17	Coord		0	0	0	0	0	0	0			
Options [1.1.2]	1	2	3	4	5	6	7	8	6	Coord		0	0	0	0	0	0	0	0	18	Coord		0	0	0	0	0	0	0			
Enable	1	1		1	1	1		1	7	Coord		0	0	0	0	0	0	0	0	19	Coord		0	0	0	0	0	0	0			
Min Recall									8	Coord		0	0	0	0	0	0	0	0	20	Coord		0	0	0	0	0	0	0			
Max Recall									9	Coord		0	0	0	0	0	0	0	0	21	Coord		0	0	0	0	0	0	0			
Ped Recall									10	Coord		0	0	0	0	0	0	0	0	22	Coord		0	0	0	0	0	0	0			
Soft Recall		1				1			11	Coord		0	0	0	0	0	0	0	0	23	Coord		0	0	0	0	0	0	0			
Lock Calls		1				1			12	Coord		0	0	0	0	0	0	0	0	24	Coord		0	0	0	0	0	0	0			
Auto Flash Entry									1	Coord		0	0	0	0	0	0	0	0				0	0	0	0	0	0	0			
Auto Flash Exit									2	Coord		0	0	0	0	0	0	0	0				0	0	0	0	0	0	0			
Dual Entry		1		1		1		1	3	Coord		0	0	0	0	0	0	0	0				0	0	0	0	0	0	0			
Enable Simul Gap	1	1	1	1	1	1	1	1	4	Coord		0	0	0	0	0	0	0	0				0	0	0	0	0	0	0			
Gaurantee Passage									5	Coord		0	0	0	0	0	0	0	0				0	0	0	0	0	0	0			
Rest In Walk									6	Coord		0	0	0	0	0	0	0	0				0	0	0	0	0	0	0			
Conditon Service									7	Coord		0	0	0	0	0	0	0	0				0	0	0	0	0	0	0			
Non-Actuated 1									8	Coord		0	0	0	0	0	0	0	0				0	0	0	0	0	0	0			
Non-Actuated 2									9	Coord		0	0	0	0	0	0	0	0				0	0	0	0	0	0	0			
Add Init Calc									10	Coord		0	0	0	0	0	0	0	0				0	0	0	0	0	0	0			
Options+ [1.1.3]	1	2	3	4	5	6	7	8	11	Coord		0	0	0	0	0	0	0	0				0	0	0	0	0	0	0			
Reservice									12	Coord		0	0	0	0	0	0	0	0				0	0	0	0	0	0	0			
PedClr Thru Yel									Page#																							
Skip Red No Call									1	8 Phase Times/Options; Patterns/Splits; Ring Startup; Coord/Flash Mode; Unit Param																			MCE Timeout	0		
Red Rest									1A&1B	16 Phase Times/Options; Patterns/Splits; Ring Startup; Coord/Flash Mode; Unit Param																			Feature Profile	0		
Max II									2	Overlaps; Channel Settings; Coord Alt Table+ (values not associated with time-of-day)																			Free Ring Seq	1		
Conflicting Phase									3	Detection; Sample Time and Unit Parameters related to detection																			Auxswitch	STOPTM		
Red Rest On Gap									4	Preemption and Alternate Phase Time and Phase Options																			SDLC Retry	0		
Omit Yellow									5	Annual Schedule																			TS2 Det Faults	ON		
Ped Delay									6	Day Plans; Action Tables; Coord Alt Table+ (values varied by time-of-day)																			Auto Ped Clear	OFF		
Grn/Ped Delay									7	Communications; Secutiry; I/O Setup																			SDLC Retry	0		
92 @ ENDERS (ID 3232) (Permanent File)									8	Misc - Events/Alarms; Call/Inhibit/Redirect; P/OLAP Auto Flash; CIC; Misc Unit Param																			05/15/13	Page 1A		

Ring/Startup [1.1.4]

Phs	Ring	Start	Enable
1	1	RED	1
2	1	RED	1
3	1	RED	0
4	1	RED	1
5	2	RED	1
6	2	RED	1
7	2	RED	0
8	2	RED	1

Coord Modes [2.1]

Test OpMode	0
Correction	SHRT/LNG
Maximum	MAX 1
Force-Off	FLOAT
Closed Loop	ON
Stop-in-Walk	OFF
Auto Reset	ON
Expand Split	OFF
Ped Recycle	NO_RECYCLE
Before	TIMED
After	TIMED

Auto Flash [1.4.1]

Auto Flash	CHANNEL
Flash Yel	4.5
Flash Red	2

Unit Params [1.2.1]

Phase Mode	STD8
IO Mode	USER
Loc Flash Start	RED
Start Flash(s)	0
Start AllRed(s)	6
Yellow < 3"	OFF
Display Time	20
Red Revert	3

Preemption Times [3.1], Options+ [3.6]

Pre #	Enable	Type	Output	Delay	MinDura
1	ON	RAIL	DWELL		
2	ON	RAIL	DWELL		
3	ON	EMERG	DWELL		
4	ON	EMERG	DWELL		
5	ON	EMERG	DWELL		
6	ON	EMERG	DWELL		

Pre #	MaxPres	MinGrn	MinWlk	PedClr	Co+Pre
1					ON
2					ON
3					ON
4					ON
5					ON
6					ON

Pre #	Track Grr	Min Dwell	Ext Dwell	PedClr	Yel
1		2			
2		2			
3		2			
4		2			
5		2			
6		2			

Pre #	Red	Pattern	Skip
1			OFF
2			OFF
3			OFF
4			OFF
5			OFF
6			OFF

Low Priority Preempts

Pre #	Type	Min	Max
7	OFF	0	0
8	OFF	0	0
9	OFF	0	0
10	OFF	0	0

Unit Parameters [1.2.1]

Stop Timer Over Preempt	OFF
Preempt or Ext Output	PRE
Max Seek Track Time	0
Max Seek Dwell Time	0

Channel Parameters [1.8.3]

D Conn Mappings	NONE
Pre Invert Rail Input	

Adv Timers [3.8]

enterYellowChange	
enterRedClr	trackRedClr
trackYellowClr	AllRedB4Dwell

Track Clear Phases [3.2], Track Clear Overlaps+ [3.5]

Pre #	Track Phases	Track Overlaps
1		
2		
3		
4		
5		
6		

Dwell Phases [3.2] and Overlaps+ [3.5]

Pre #	Phases	Overlaps	Peds
1			
2			
3			
4			
5			
6			

Preemption 1, Options+ [3.6]

Pre #	Exit Phase	Pre #	Lock	Override Auto Fish	Override Higher	Fish Dwell	Link
1		1	ON	ON	ON	OFF	
2		2	ON	ON	ON	ON	
3		3	ON	ON	ON	OFF	
4		4	ON	ON	ON	OFF	
5		5	ON	ON	ON	OFF	
6		6	ON	ON	ON	OFF	

Init'l Dwell [3.9]

Phases				
Peds				
Overlap				

Alt# 1 Times Table [1.1.6.1]

Column#.... ->	1	2	3	4	5	6	7	8
Assign Ø								
Min Grn								
Gap, Ext								
Max 1								
Max 2								
Yel Clr								
Red Clr								
Walk								
Ped Clr								

Alt# 2 Times Table [1.1.6.1]

Column#.... ->	1	2	3	4	5	6	7	8
Assign Ø								
Min Grn								
Gap, Ext								
Max 1								
Max 2								
Yel Clr								
Red Clr								
Walk								
Ped Clr								

Alt# 3 Times Table [1.1.6.1]

Column#.... ->	1	2	3	4	5	6	7	8
Assign Ø								
Min Grn								
Gap, Ext								
Max 1								
Max 2								
Yel Clr								
Red Clr								
Walk								
Ped Clr								

Alt# 1 Options Table [1.1.6.2]

Column # ->	1	2	3	4	5	6	7	8
Assign Ø								
Lock Calls	1	1	1	1	1	1	1	1
Soft Recall								
Dual Entry								
Enabl SimGap	1	1	1	1	1	1	1	1
Gaur Passage								
Rest In Walk								
Cond Service								
Reservice								
Non-Act 1								
Red Rest								
Max2								
Ped Delay								
Conflicting Ø1								

C1-USER IO Map [1.8.9.1 In]

11-1	1	Veh Call 1
11-2	2	Veh Call 2
11-3	3	Veh Call 3
11-4	4	Veh Call 4
11-5	5	Veh Call 5
11-6	6	Veh Call 6
11-7	7	Veh Call 7
11-8	8	Veh Call 8
12-1	9	Veh Call 9
12-2	189	Unused
12-3	129	Ped Call 1
12-4	130	Ped Call 2
12-5	131	Ped Call 3
12-6	132	Ped Call 4
12-7	189	Unused
12-8	189	Unused
13-1	189	Unused
13-2	189	Unused
13-3	189	Unused
13-4	189	Unused
13-5	189	Unused
13-6	189	Unused
13-7	189	Unused
13-8	189	Unused
14-1		C11S Connector
14-2		
14-3		
14-4		
14-5	189	Unused
14-6	189	Unused
14-7	229	33xCMUStop
14-8	228	33xFlashSns
15-1	189	Unused
15-2	189	Unused
15-3	189	Unused
15-4	189	Unused
15-5	189	Unused
15-6	189	Unused
15-7	189	Unused
15-8	189	Unused
16-1	189	Unused
16-2	189	Unused
16-3	189	Unused
16-4	189	Unused
16-5	189	Unused
16-6	189	Unused
16-7	189	Unused
16-8	189	Unused

C1-USER IO Map [1.8.9.2 Out]

O1-1	1	Ch1 Red
O1-2	49	Ch1 Green
O1-3	2	Ch2 Red
O1-4	26	Ch2 Yellow
O1-5	50	Ch2 Green
O1-6	3	Ch3 Red
O1-7	27	Ch3 Yellow
O1-8	51	Ch3 Green
O2-1	4	Ch4 Red
O2-2	52	Ch4 Green
O2-3	5	Ch5 Red
O2-4	29	Ch5 Yellow
O2-5	53	Ch5 Green
O2-6	6	Ch6 Red
O2-7	30	Ch6 Yellow
O2-8	54	Ch6 Green
O3-1	7	Ch7 Red
O3-2	55	Ch7 Green
O3-3	8	Ch8 Red
O3-4	32	Ch8 Yellow
O3-5	56	Ch8 Green
O3-6	9	Ch9 Red
O3-7	33	Ch9 Yellow
O3-8	57	Ch9 Green
O4-1	10	Ch10 Red
O4-2	58	Ch10 Green
O4-3	11	Ch11 Red
O4-4	35	Ch11 Yellow
O4-5	59	Ch11 Green
O4-6	12	Ch12 Red
O4-7	36	Ch12 Yellow
O4-8	60	Ch12 Green
O5-1	28	Ch4 Yellow
O5-2	34	Ch10 Yellow
O5-3	25	Ch1 Yellow
O5-4	31	Ch7 Yellow
O5-5	115	Not Used
O5-6	115	Not Used
O5-7	115	Not Used
O5-8	114	Watchdog
O6-1	115	Not Used
O6-2	115	Not Used
O6-3	13	Ch13 Red
O6-4	37	Ch13 Yellow
O6-5	61	Ch13 Green
O6-6	14	Ch14 Red
O6-7	38	Ch14 Yellow
O6-8	62	Ch14 Green

C1-USER IO Map [1.8.9.2 Out]

O7-1	115	Not Used
O7-2	115	Not Used
O1-3	2	Ch2 Red
O7-4	115	Not Used
O7-5	115	Not Used
O7-6	115	Not Used
O7-7	115	Not Used
O7-8	115	Not Used
C11S-USER IO Map [1.8.9.1 In]		
I4-1	189	Unused
I4-2	189	Unused
I4-3	189	Unused
I4-4	189	Unused
I7-1	189	Unused
I7-2	189	Unused
I7-3	189	Unused
I7-4	189	Unused
I7-5	189	Unused
I7-6	189	Unused
I7-7	189	Unused
I7-8	189	Unused
I8-1	189	Unused
I8-2	189	Unused
I8-3	189	Unused
I8-4	189	Unused
I8-5	189	Unused
I8-6	189	Unused
I8-7	189	Unused
I8-8	189	Unused
C11S-USER IO Map [1.8.9.2 Out]		
O8-1	115	Not Used
O8-2	115	Not Used
O8-3	115	Not Used
O8-4	115	Not Used
O8-5	115	Not Used
O8-6	115	Not Used
O8-7	115	Not Used
O8-8	115	Not Used

IO Logic [1.8.7]

Result	Fn	Oper	Fn	Oper	Fn Timer
I 0 =	I 0	----	I 0	----	I 0 DLY 0
I 0 =	I 0	----	I 0	----	I 0 DLY 0
I 0 =	I 0	----	I 0	----	I 0 DLY 0
I 0 =	I 0	----	I 0	----	I 0 DLY 0
I 0 =	I 0	----	I 0	----	I 0 DLY 0
I 0 =	I 0	----	I 0	----	I 0 DLY 0
I 0 =	I 0	----	I 0	----	I 0 DLY 0
I 0 =	I 0	----	I 0	----	I 0 DLY 0
I 0 =	I 0	----	I 0	----	I 0 DLY 0
I 0 =	I 0	----	I 0	----	I 0 DLY 0

Security Access Levels [8.2]

1	SWLOAD	22	NONE
2	SECURE	23	NONE
3	NONE	24	NONE
4	NONE	25	NONE
5	NONE	26	NONE
6	NONE	27	NONE
7	NONE	28	NONE
8	NONE	29	NONE
9	NONE	30	NONE
10	NONE	31	NONE
11	NONE	32	NONE
12	NONE	33	NONE
13	NONE	34	NONE
14	NONE	35	NONE
15	NONE	36	NONE
16	NONE	37	NONE
17	NONE	38	NONE
18	NONE	39	NONE
19	NONE	40	NONE
20	NONE	41	NONE
21	NONE	42	NONE

2070 IP 1 Addressing [6.5]

Addr	Addressing		
Mask			
Brdcst			
GtWay			
Port			

2070 Port Binding Ports [6.6]

Port	Echo	Mode
ASync1	SP1	NONE
ASync2	SP2	NONE
ASync3	SP3	NONE
ASync4	SP4	NONE
SYNC1	SP5S	
SYNC2	OFF	

2070 IP 2 Addressing [6.5]

43	NONE
44	NONE
45	NONE
46	NONE
47	NONE
48	NONE
49	NONE
50	NONE
51	NONE
52	NONE
53	NONE
54	NONE
55	NONE
56	NONE
57	NONE
58	NONE
59	NONE
60	NONE
61	NONE
62	NONE
63	NONE
64	NONE

2070 IP 2 Addressing [6.5]

Addr	Addressing		
Mask			
Brdcst			
GtWay			
Port			

2070 Port Binding Functions [6.6]

Function	Channel	Function	Channel
TS2/CVM	NONE	SYSUp	ASync2
CMU/MMU	NONE	SYSDown	ASync1
Opticom	NONE	Shell	NONE
Loop Det.	NONE		
GPS	NONE		

Com Parameters [6.1]

Station ID	3232
Group ID	
Master ID	0
Backup Time	900
SysUp Modem [6.1]	
Enable Modem	OFF
Idle Time	15
Dial Time	5
Tel:	0,0-000-000-0000
Alt:	0,0-000-000-0000

2070 Port Parms [6.2]

Port	Baud Rate	FCM
SP1	9600	6
SP2	9600	6
SP3	19200	6
SP4	38400	6
SP5	1200	
SP6	1200	
SP7	1200	
SP8	1200	

APPENDIX G

Sketch Plan

