TRAFFIC IMPACT STUDY

REPORT FOR:

Ogden Mall Redevelopment

OGDEN AVENUE & IROQUOIS AVENUE
NAPERVILLE, ILLINOIS

PREPARED BY:

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I. INTRODUCTION

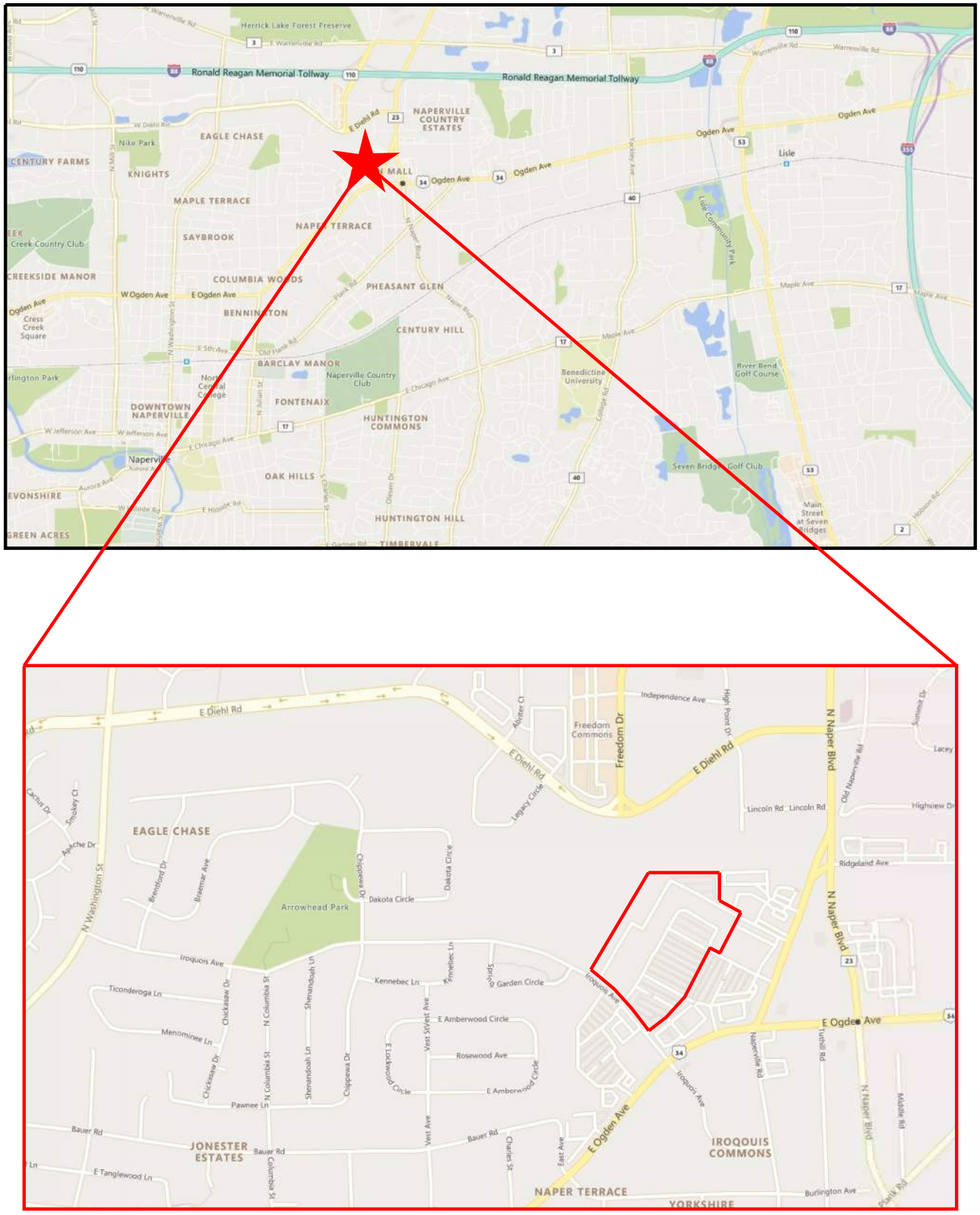
V3 Companies has been retained by Costco Wholesale Corporation to conduct a traffic impact study for the redevelopment of Ogden Mall located in Naperville, Illinois. Ogden Mall is bound by Naperville Wheaton Road to the east, Ogden Avenue to the southeast, Iroquois Avenue to the southwest, residential developments to the west, and office developments to the north. Ogden Mall is accessed via three full access driveways on Iroquois Avenue, a right-in/right-out driveway on Ogden Avenue, and two full access driveways on Naperville Wheaton Road. The westernmost driveway on Iroquois Avenue and the northern most driveway on Naperville-Wheaton Road primarily serve truck traffic. A location map is included as Figure 1.

The proposed redevelopment will involve removing portions of the existing shopping center with mixed-use retail, restaurant, and service establishments and a movie theater. The portion to be removed consists of approximately 180,000 square feet of shopping center uses, which does not include the six-screen movie theater. At the time of the traffic count, it was observed that the movie theater and approximately 35,000 square feet of the shopping center to be removed are occupied and open to the public. Removal of the trips associated with the existing shopping center will be considered in this study. The neighboring grocery store and outlots along Ogden Avenue and Naperville Wheaton Road will remain open and unaffected by the redevelopment.

The proposed site plan consists of an approximately 158,000 square foot Costco Wholesale building and a members-only gas station with 24 pumps. The site plan includes modifications to the parking lot layout and internal site roadways. Notably, the proposed redevelopment includes new vehicular access to the parking lot north of the existing grocery store along Naperville Wheaton Road due to the removal of the existing building. Ogden Mall will continue to be served by the six existing driveways. Due to the reconfigured internal roadways and building layout, it is anticipated that patron traffic will use the westernmost driveway on Iroquois Avenue and the northernmost driveway on Naperville Wheaton Road, which are currently used by delivery vehicles.

The purpose of this study is to evaluate the potential traffic impacts of the proposed redevelopment of Ogden Mall. Traffic estimates are projected to 2027, which is five years beyond the potential build out in 2022, based on traffic projections from CMAP. The study area includes the existing signalized intersections of Washington Street & Iroquois Avenue, Ogden Avenue & Iroquois Avenue, Ogden Avenue & Naperville Wheaton Road, Naper Boulevard & Naperville Wheaton Road/Ridgeland Avenue, and Ogden Avenue & Naper Boulevard, as well as the six existing unsignalized Ogden Mall driveways.

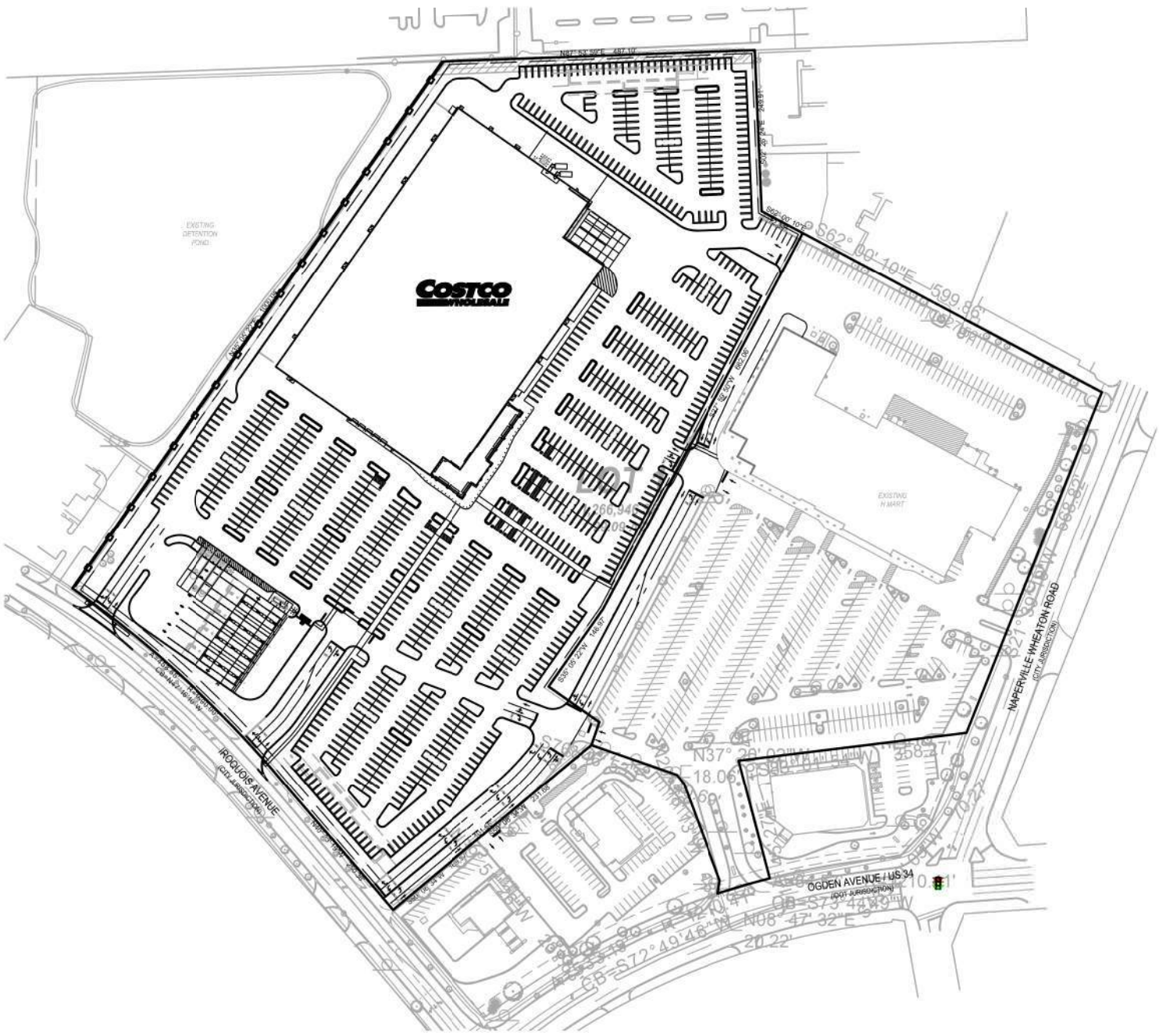
This report includes a description of existing conditions, data collection and capacity analysis, evaluation of data, and conclusions. The intersection numbering scheme used throughout the report is illustrated in Figure 3.



OGDEN MALL REDEVELOPMENT

FIGURE 1
SITE LOCATION MAP

NAPERVILLE ILLINOIS

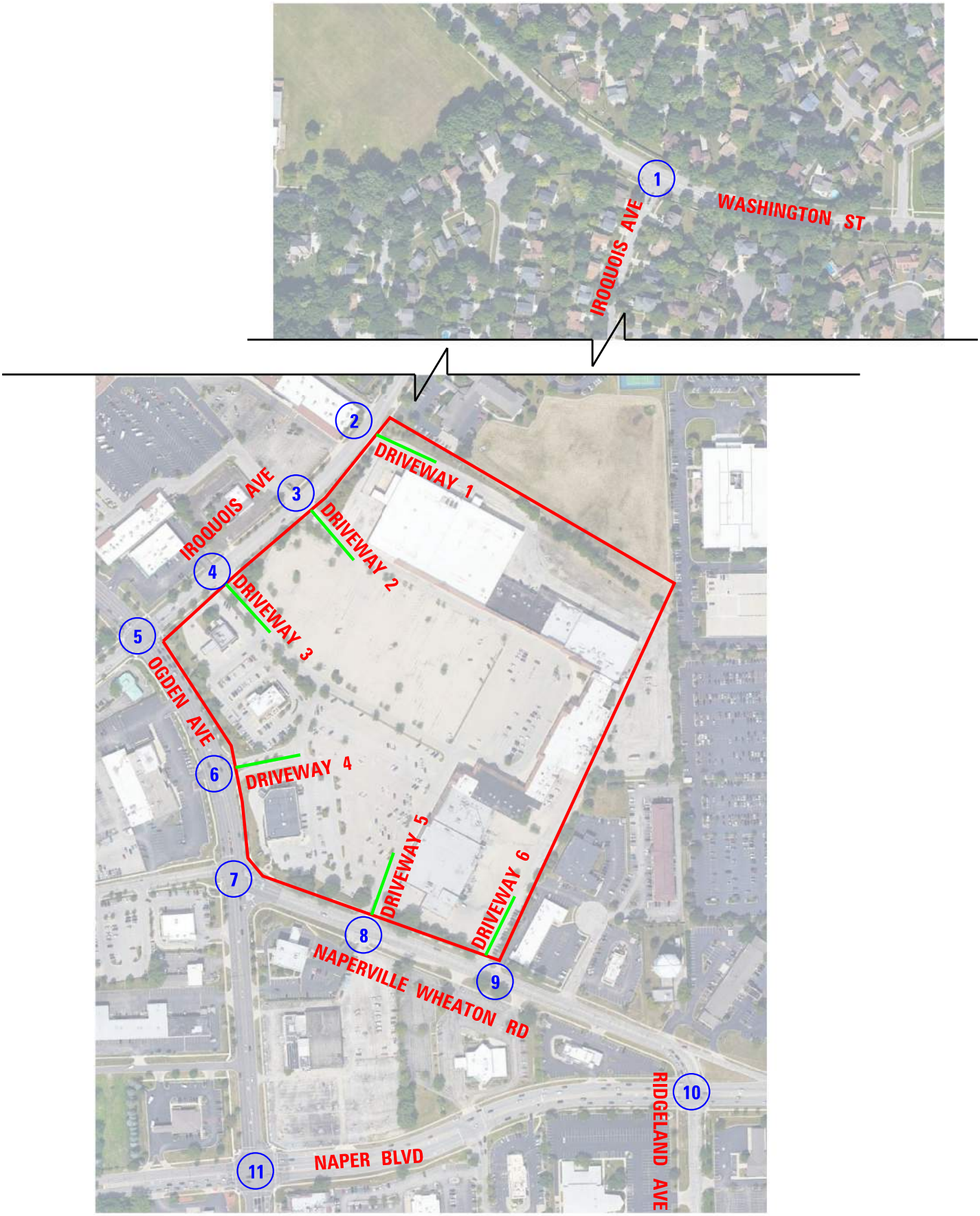


NOT TO SCALE

OGDEN MALL REDEVELOPMENT

FIGURE 2 CONCEPTUAL SITE PLAN

NAPERVILLE ILLINOIS



OGDEN MALL REDEVELOPMENT

FIGURE 3
INTERSECTION NUMBERING LEGEND

NAPERVILLE ILLINOIS

II. PROJECT CONDITIONS

Land Uses

Ogden Mall is located on a retail corridor with a variety of retail and service land uses. The greater area also contains a number of other land uses, including institutional, office, residential, and hotel uses. The surrounding land uses are illustrated in Figure 4.

Roadway System

The characteristics of the roadways in the vicinity of the site are presented below. The existing lane configurations in the study area are illustrated in Figure 5.

Roadway Descriptions

Washington Street is a major arterial with a posted speed limit of 35 mph. Washington Street has a four-lane section that widens to include left-turn lanes at major intersections. Sidewalks are provided on both the west and east side of the roadway. Washington Street is under jurisdiction of the City of Naperville.

Iroquois Avenue is a minor collector with one travel lane in each direction. In general, on street parking is allowed on Iroquois Avenue except where it is restricted near Ogden Avenue. The posted speed limit is 25 mph and a sidewalk is provided on both sides of the roadway. Iroquois Avenue is under the jurisdiction of the City of Naperville.

Ogden Avenue (US 34) is a major arterial with two travel lanes in each direction and a striped median that facilitates auxiliary turn lanes at major intersections. The posted speed limit is 35 mph. There are pedestrian facilities on both sides of Ogden Avenue. Ogden Avenue is under the jurisdiction of IDOT.

Naperville Wheaton Road is a collector street south of Ogden Avenue with a posted speed limit of 35 and minor arterial north of Ogden Avenue with a posted speed limit of 40 mph. North of Ogden Avenue, both directions are striped with two travel lanes while it is one travel lane in each direction south of Ogden Avenue. There are sidewalks on both sides of the roadway, but the sidewalk on the east side ends approximately 500 feet south of Ogden Avenue. Naperville-Wheaton Road is under jurisdiction of the City of Naperville.

Naper Boulevard is a major arterial which provides direct access to retail and service developments on both sides of the roadway. Naper Boulevard typically consists of two travel lanes in each direction with a striped median and with auxiliary turn lanes at intersections. The posted speed limit is 40 mph. A sidewalk is provided on both sides of the roadway and terminates about 300 feet south of Ogden Avenue. Naper Boulevard is under jurisdiction of the DuPage County DOT.

Intersection Descriptions

Washington Street and Iroquois Avenue is an uncoordinated signalized t-intersection. The northbound approach consists of one through lane and one shared through/right turn lane while the southbound approach consists of a left turn lane and two through lanes. The westbound approach on Iroquois Avenue consists of one left turn lane and one right turn lane. The southbound left turn lane operates as a protected/permitted movement. Pedestrian signals and marked crosswalks are provided on the north and east legs of the intersection.

Ogden Avenue and Iroquois Avenue is a coordinated signalized intersection and is part of a larger coordinated network with a 150-second cycle length during the weekday pm and a 120-second cycle length during the Saturday midday peak hours. The northbound approach consists of one left turn lane and one shared through/right turn lane. The southbound approach consists of one left turn, one through, and one right turn lane. The eastbound and westbound directions consist of one left turn lane, one through lane, and one shared through/right turn lane. The left turn movements on Ogden Avenue operate with protected-permitted phasing while the northbound and southbound approaches on Iroquois Avenue operate as permitted only. The southbound approach includes a right turn overlap. Pedestrian signals and marked crosswalks are provided on all legs of the intersection.

Ogden Avenue and Naperville Wheaton Road is a coordinated signalized intersection and is part of a larger coordinated network with a 150-second cycle length during the weekday pm and a 120-second cycle length during the Saturday midday peak hours. The northbound approach consists of one approach lane and the southbound approach consists of one left turn lane and one shared through/right turn lane. A large radius and raised island are provided for the right turn movements which allows for right turning vehicles to proceed when up to two through vehicles are queued at the stop bar. The eastbound and westbound approach consist of one left turn lane, one through lane, and one shared through/right turn lane. The southbound and eastbound left turn lanes operate with protected/permitted phasing while the northbound and westbound left turn movements operate as permitted only. Right turn overlap phasing is provided on the southbound approach. A pedestrian signal and marked crosswalk are provided on the south leg of the intersection.

Naper Boulevard and Naperville Wheaton Road is a coordinated signalized intersection and is part of a larger coordinated network with a 150-second cycle length during the weekday pm and a 120-second cycle length during the Saturday midday peak hours. The northbound approach has one left turn lane, one through lane, and one shared through/right turn lane. The southbound approach has one left turn lane and two through lanes and includes a right turn slip lane that begins approximately 200 feet before the stop bar. A southbound add lane is provided on the receiving end along Naperville Wheaton Road which allows the right turn movement to operate as free flow through the intersection. The eastbound approach consists of one left turn lane and one shared left turn/through/right turn lane and the westbound approach consists of one shared left turn/through lane and one right turn lane. Both the southbound and northbound

left turns operate as a protected/permitted movement while the eastbound and westbound approaches operate with split phase timing. All legs of the intersection provide pedestrian signals and marked crosswalks.

Ogden Avenue and Naper Boulevard is a coordinated signalized intersection and is part of a larger coordinated network with a 150-second cycle length during the weekday pm and a 120-second cycle length during the Saturday midday peak hours. The southbound and westbound approaches consist of one left turn lane, two through lanes, and one right turn lane. The northbound and eastbound approaches consist of one left turn lane, one through lane, and one shared through/right turn lane. All left turns operate as a protected/permitted movement. The right turn lanes on the southbound and westbound approach include an overlap phase. All legs of the intersection provide pedestrian signals and marked crosswalks.

Driveway 1 is a stop controlled full access driveway on Iroquois Avenue. The southbound approach is unmarked, but wide enough to allow for the approach to operate as separate right and left turn lanes. Iroquois Avenue has a striped median that will allow vehicles to enter the median to complete turns, although it is not officially striped as a turn lane. Driveway 1 primarily operates as a truck entrance based on the existing site configuration.

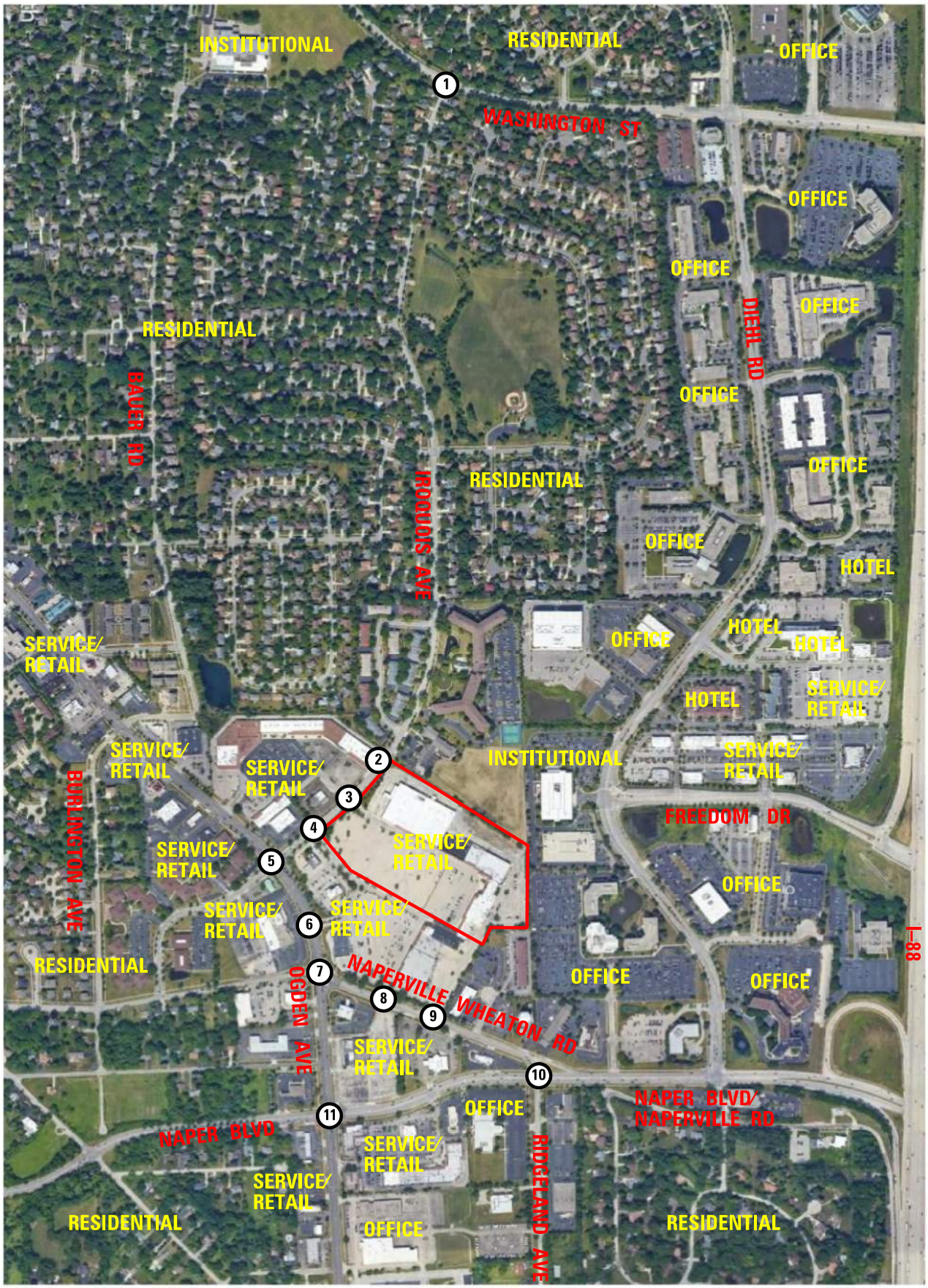
Driveway 2 is a stop controlled full access driveway on Iroquois Avenue. The southbound approach is unmarked but wide enough to allow for the approach to operate as separate right and left turn lanes. A two-way left turn lane is provided on Iroquois Avenue.

Driveway 3 is a stop controlled full access driveway on Iroquois Avenue. The southbound approach is unmarked but wide enough to allow for the approach to operate as separate right and left turn lanes. A landscaped median is provided on Driveway 3 to separate inbound and outbound trips. A two-way left turn lane is provided on Iroquois Avenue.

Driveway 4 is right-in/right-out driveway on Ogden Avenue.

Driveway 5 is a stop controlled full access driveway on Naperville Wheaton Road. The southbound approach is unmarked but wide enough to allow for the approach to operate as separate right and left turn lanes. A landscaped median is provided on Driveway 5 to separate inbound and outbound trips.

Driveway 6 is a stop controlled full access driveway on Naperville Wheaton Road. The southbound approach is unmarked but wide enough to allow for the approach to operate as separate right and left turn lanes. Driveway 6 primarily operates as a truck entrance based on the existing site configuration.

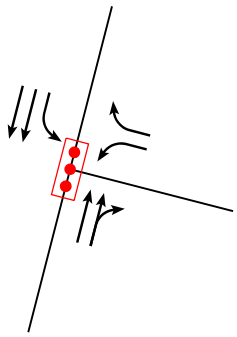


OGDEN MALL REDEVELOPMENT

FIGURE 4
LAND USE MAP

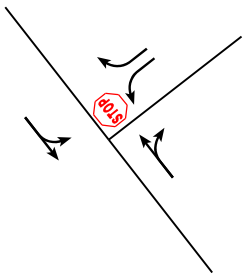
NAPERVILLE ILLINOIS

1



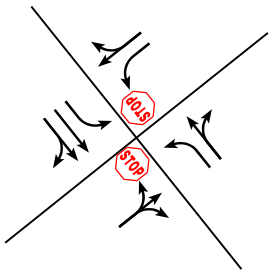
WASHINGTON ST & IROQUOIS AVE

2



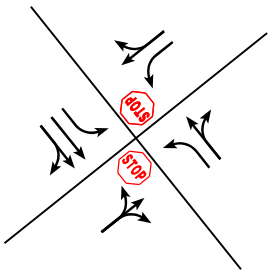
IROQUOIS AVE & DRIVEWAY 1

3



IROQUOIS AVE & DRIVEWAY 2

4



IROQUOIS AVE & DRIVEWAY 3

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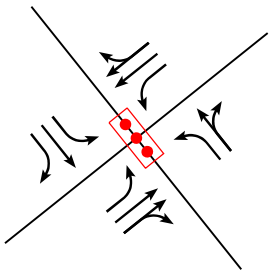
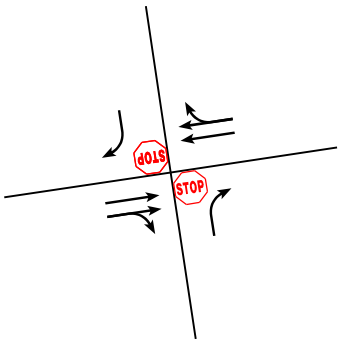


OGDEN AVE & IROQUOIS AVE

6



OGDEN AVE & DRIVEWAY 4

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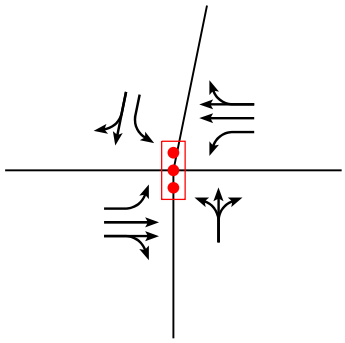
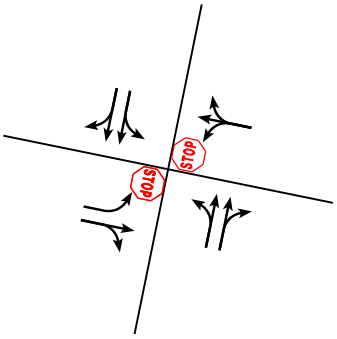


NAPERVILLE WHEATON RD & OGDEN AVE

8



NAPERVILLE WHEATON RD & DRIVEWAY 5

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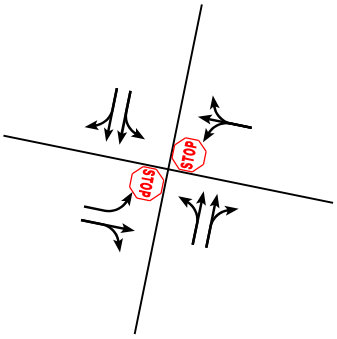

NAPERVILLE WHEATON RD & DRIVEWAY 6

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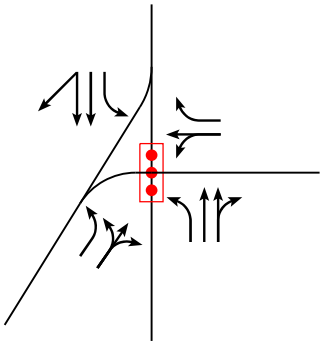
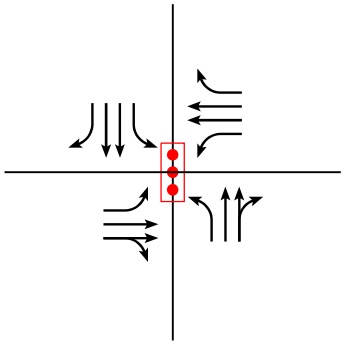
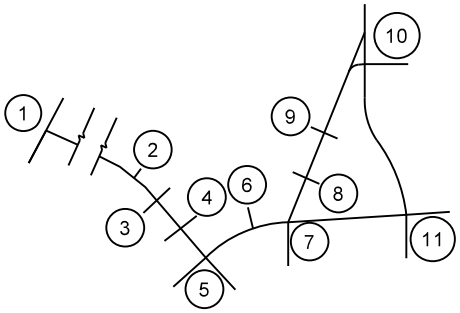


NAPER BLVD & RIDGELAND AVE/
NAPERVILLE WHEATON RD

11



OGDEN AVE & NAPER BLVD



OGDEN MALL REDEVELOPMENT

FIGURE 5
EXISTING LANE CONFIGURATION

NAPERVILLE ILLINOIS

Traffic Volumes

To assist in the evaluation of the traffic impact on the roadway system resulting from the proposed development, existing vehicular volumes were collected at the study area intersections.

Existing traffic counts were collected on Thursday, November 20, 2019 and Saturday, November 23, 2019 at the study area intersections. The weekday pm peak hour traffic counts were collected from 4:00 pm to 6:00 pm and the Saturday midday counts were collected from 10:00 am to 2:00 pm. The time periods of the traffic counts were selected to coincide with the typical peak hours of the arterial roadways like Ogden Avenue and Naper Boulevard, as well as the typical peak hours for a retail development.

The weekday pm and Saturday midday peak hours occur between 4:45 pm – 5:45 pm and 12:30 pm – 1:30 pm, respectively. The existing peak hour volumes at the study area intersections are illustrated in Figure 6. A summary of the traffic volumes collected in fifteen-minute increments is provided in Appendix A.

Proposed Development

Land Use Development

The area around Ogden Mall is fully developed with some vacant buildings, such as the former car dealership located in the northwest quadrant of the intersection of Ogden Avenue & Naper Boulevard. It is our understanding that this parcel is slated for redevelopment. However, no specific plans or development schedules are known, including traffic generated by the redevelopment. Therefore, no targeted adjustments are made for specific developments in the area. It is assumed that the changes in traffic that result from these potential redevelopments is fully captured in the CMAP growth projections, and no further adjustments will be included.

Roadway Development

DuPage County DOT is proposing capacity improvements along Naperville Road, including at the intersection of Naper Boulevard & Naperville Wheaton Road/Ridgeland Avenue which are proposed to be completed within the next two to four years. The approved intersection design study (IDS) indicates that the intersection will be modified to consist of one left turn, two through, and one through/right turn lane on the northbound approach, two left turn and one through/right turn lane on the eastbound approach, one left turn, two through, and one right turn lane on the southbound approach, and one left turn and one through/right turn lane on the westbound approach. The current split phase timing for the eastbound and westbound approaches will be modified to traditional leading protected-only left turn phasing. Since this project is scheduled to be constructed prior to the study year of the proposed Ogden Mall Redevelopment, the improvements shown in the IDS will be included in the future scenario models of this study.

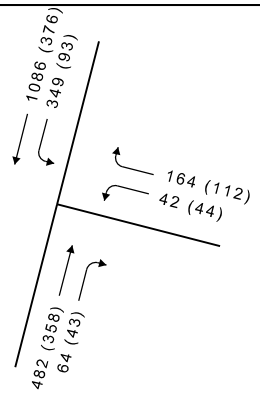
It is also known that feasibility studies have been completed in the area for potential system improvements on Ogden Avenue, Naperville Wheaton Road, and Naper Boulevard. One such study is the *Naperville Road Feasibility Study – Naper Blvd./Ogden Ave. Intersection Sub-Area* prepared by Civiltech Engineering. The feasibility study includes conceptual improvements at a number of study area intersections, which are summarized below:

- Ogden Avenue & Iroquois Avenue Intersection
  - Three through lanes on Ogden Avenue
  - Increased queue storage on the westbound left turn lane
- Ogden Avenue & Naperville Wheaton Road Intersection
  - Three through lanes on Ogden Avenue
  - Dual eastbound left turn lanes
  - Exclusive northbound left turn lane
  - Dual southbound right turn lanes
- Naper Boulevard & Naperville Wheaton Road/Ridgeland Avenue Intersection
  - Three southbound through lanes
- Naperville Wheaton Road between Ogden Avenue & Naper Boulevard
  - Striped median with two-way left turn lane

It is anticipated that improvements like those shown in the feasibility study will be needed to address capacity issues on the corridor, as some of the study area signalized intersections are observed to currently operate at near-saturation levels. However, it is our understanding that all studies are still in the concept stage and improvements are unlikely to be made by 2027. Therefore, no concept improvements are included in the analysis models for this study.

Exhibits detailing the Naper Boulevard & Naperville Wheaton Road/Ridgeland Avenue improvements and the concept improvements on Ogden are included in Appendix B.

1



WASHINGTON ST & IROQUOIS AVE

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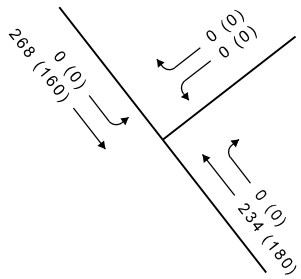
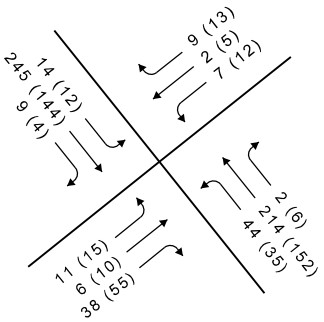


IROQUOIS AVE & DRIVEWAY 1

3



IROQUOIS AVE & DRIVEWAY 2

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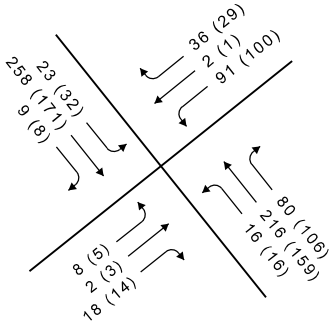

IROQUOIS AVE & DRIVEWAY 3

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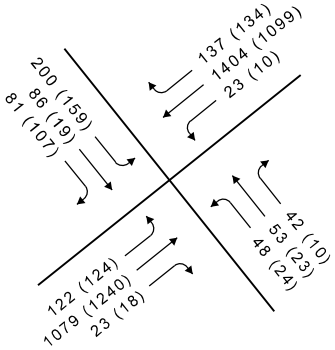

OGDEN AVE & IROQUOIS AVE

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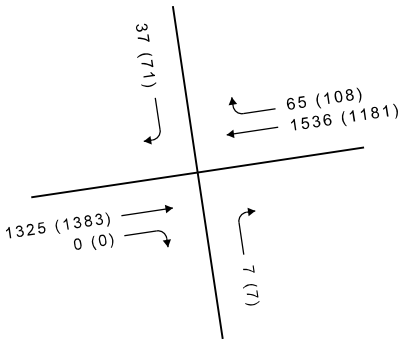

OGDEN AVE & DRIVEWAY 4

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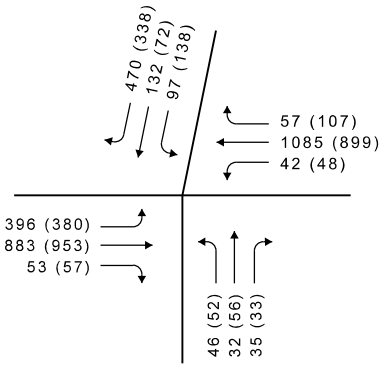

NAPERVILLE WHEATON RD & OGDEN AVE

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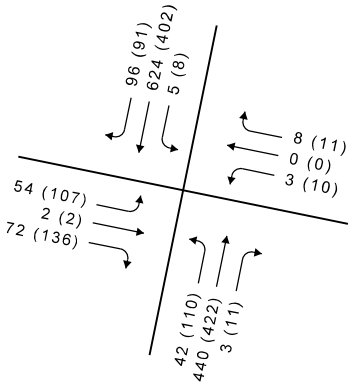

NAPERVILLE WHEATON RD & DRIVEWAY 5

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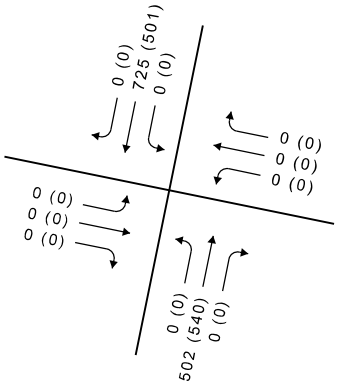
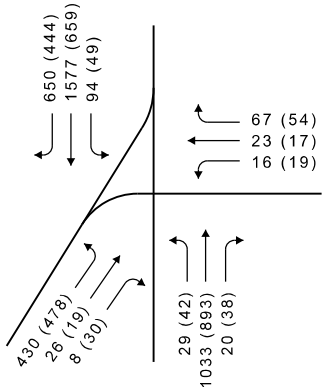


NAPERVILLE WHEATON RD & DRIVEWAY 6

10



NAPER BLVD & RIDGELAND AVE/
NAPERVILLE WHEATON RD

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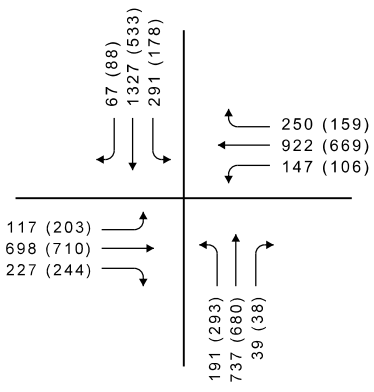
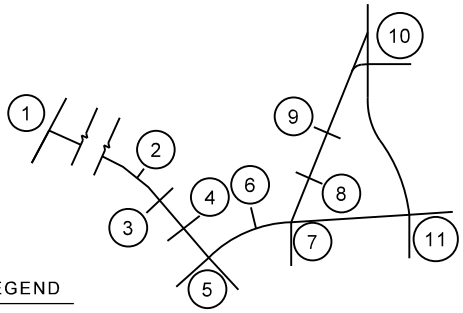


OGDEN AVE & NAPER BLVD



LEGEND

- WEEKDAY PM PEAK HOUR
(##)- SATURDAY MD PEAK HOUR

OGDEN MALL REDEVELOPMENT

FIGURE 6
EXISTING TRAFFIC VOLUME

NAPERVILLE ILLINOIS

III. TRAFFIC FORECASTS

Background Traffic Volumes

Background traffic volumes are estimated for the year 2027, which is five years beyond the anticipated build out in 2022. These volumes account for future non-project related growth in the area. The AADT for the study area roadways were obtained from the IDOT database. A summary of the CMAP growth rates is provided in Table 1. CMAP correspondence is provided in Appendix C.

Table 1: CMAP Growth Rates

Street	AADT		Total Growth from Count Year to 2050	Yearly Rate	Total Growth from 2019 to 2027
	Existing AADT (Year)	2050 Proj.			
Naper Boulevard – North of Naperville-Wheaton Road	39,100 (2018)	42,000	7.4%	0.2%	1.9%
Naper Boulevard – South of Naperville-Wheaton Road	29,100 (2018)	31,500	8.2%	0.3%	2.1%
Ridgeland Avenue	2,400 (2018)	2,600	8.3%	0.3%	2.1%
Naperville-Wheaton Road	10,700 (2018)	11,500	7.5%	0.2%	1.9%
Ogden Avenue – East of Naperville-Wheaton Road	25,400 (2017)	28,000	10.2%	0.3%	2.5%
Ogden Avenue – West of Naperville-Wheaton Road	30,000 (2017)	33,000	10.0%	0.3%	2.4%
Iroquois Avenue – South of Ogden Avenue	3,500 (2019)	3,700	5.7%	0.2%	1.5%
Iroquois Avenue – North of Ogden Avenue	8,500 (2019)	9,500	11.8%	0.4%	3.0%
Washington Street	15,000 (2016)	16,000	6.7%	0.2%	1.6%

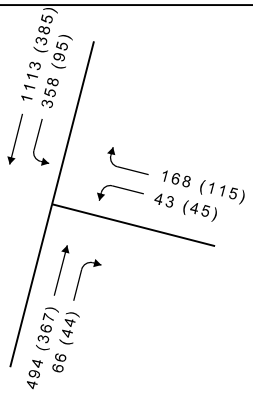
Overall, the CMAP projections indicate that there will be limited overall growth in traffic on the study area streets. This can likely be attributed to the fact that the roadway network is already operating near capacity.

For the purposes of this study, a uniform total growth factor of 2.5 percent is applied to all movements throughout the study area to accommodate non-project related growth.

Several of the study area traffic signals are a part of a larger interconnected signal system maintained by the DuPage County DOT. With the proposed capacity improvements along Naperville Road as well as several unrelated developments that are being pursued in the area, it is anticipated that the coordinated traffic signal system will be retimed and reoptimized prior to the study year of 2027. However, since no specific plans are known at this time, the existing signal timing is assumed to remain in place for the 2027 scenarios.

The 2027 background traffic volumes are illustrated in Figure 7.

1



WASHINGTON ST & IROQUOIS AVE

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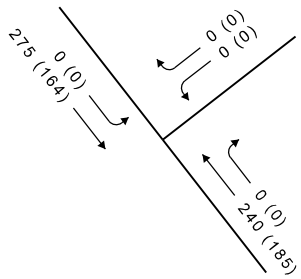

IROQUOIS AVE & DRIVEWAY 1

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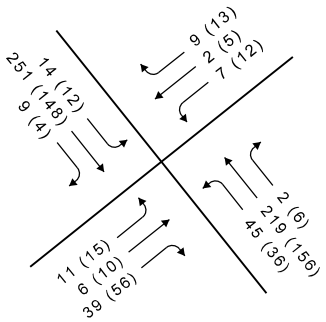

IROQUOIS AVE & DRIVEWAY 2

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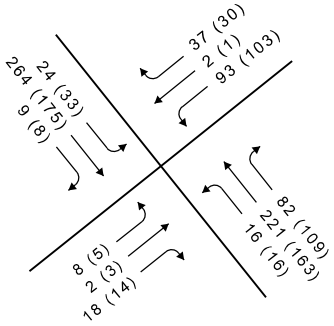

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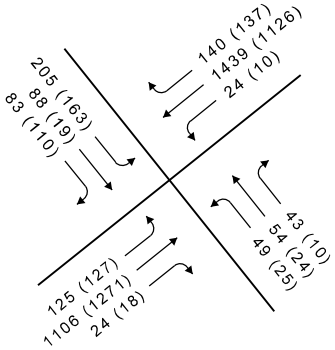

OGDEN AVE & IROQUOIS AVE

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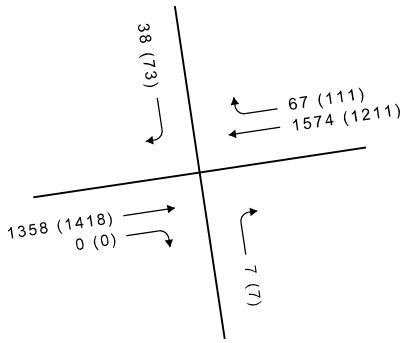

OGDEN AVE & DRIVEWAY 4

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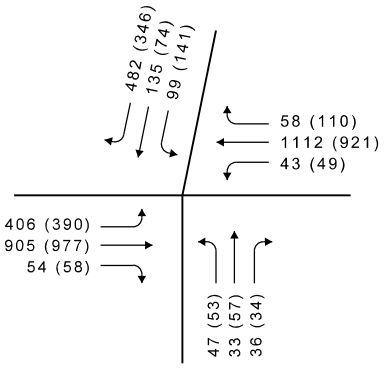
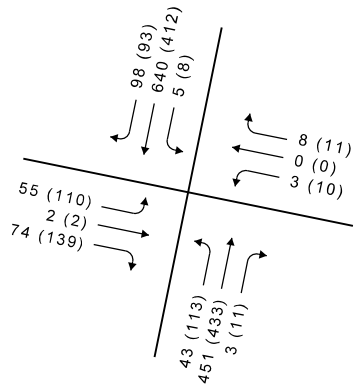


NAPERVILLE WHEATON RD & OGDEN AVE

8



NAPERVILLE WHEATON RD & DRIVEWAY 5

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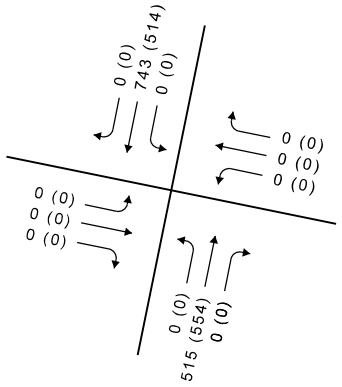

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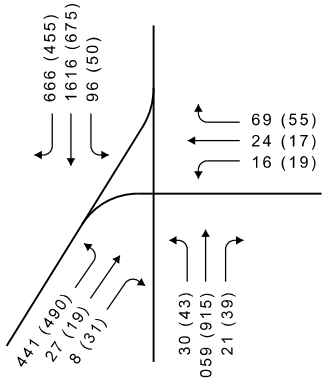
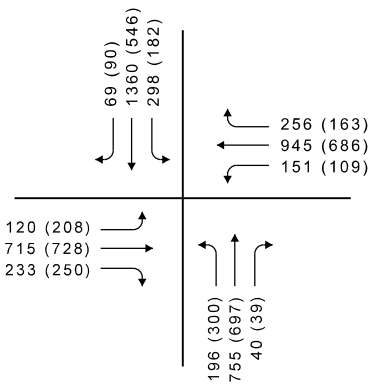


NAPER BLVD & RIDGELAND AVE/
NAPERVILLE WHEATON RD

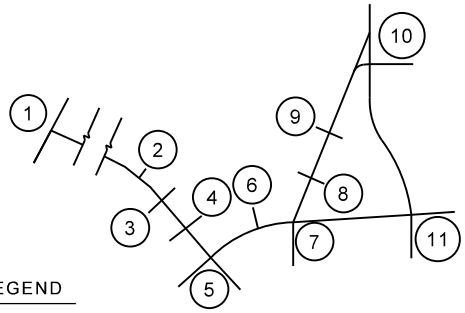
11



OGDEN AVE & NAPER BLVD

NOTE:

BACKGROUND VOLUME = EXISTING VOLUME (FIGURE 6) + 2.5 PERCENT BACKGROUND GROWTH



LEGEND

- WEEKDAY PM PEAK HOUR
(##)- SATURDAY MD PEAK HOUR

OGDEN MALL REDEVELOPMENT

FIGURE 7
2027 BACKGROUND TRAFFIC VOLUME

NAPERVILLE ILLINOIS

Trip Generation Methodology

Trip Generation

Since the proposed redevelopment of Ogden Mall includes the closure of a portion of the existing Ogden Mall, special consideration has been given to the resulting removal of existing trips. Since other existing retail and service uses will remain open following redevelopment, data collection could not include existing trips that are specifically known to be generated by the businesses that will be removed. Therefore, the number of trips that will be removed due to the closure of portions of the existing Ogden Mall is estimated. Trips generated by the redevelopment will then be estimated and added to the roadway network.

The number of trips for full occupancy of the existing shopping center, the removal of existing trips from the currently occupied shopping center, and the addition of trips related to the proposed development are estimated using the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 10th Edition*. The following land use categories were used:

Movie Theater (ITE Land Use Code 444) – A traditional movie theater consists of audience seating, typically less than 10 screens, a lobby, and a refreshment stand. The sites show movies on weekday afternoons and evenings as well as on weekends.

Shopping Center (ITE Land Use Code 820) – A shopping center is an integrated group of commercial establishments that is planned, developed, owned and managed as a unit. A shopping center's composition is related to its market area in terms of size, location and type of store. A shopping center also provides on-site parking facilities sufficient to serve its own parking demands. Many shopping centers, in addition to the integrated unit of shops in one building or enclosed around a mall, include outparcels (peripheral buildings or pads located on the perimeter of the center adjacent to the streets and major access points). These buildings are typically drive-in banks, retail stores, restaurants, or small offices.

Discount Club (ITE Land Use Code 857) – A discount club is a discount store or warehouse where shoppers pay a membership fee in order to take advantage of discounted prices on a wide variety of items such as food, clothing, tires, and appliances; many items are sold in large quantities or bulk. Some sites may include on-site fueling pumps.

Gasoline/Service Station (ITE Land Use Code 944) – This land use includes gasoline/service stations where the primary business is the fueling of motor vehicles. The sites included generally have a small building (less than 2,000 gross square feet) that houses a cashier and limited space for motor vehicle maintenance supplies and general convenience products. A gasoline/service station may also have ancillary facilities for servicing and repairing motor vehicles and may have a car wash.

The *Trip Generation Manual, 10th Edition* estimates trip generation for each land use based on a peak period and an independent variable. In this case, number of screens is the applicable variable for the movie theater, gross building area is the applicable variable for both shopping center and discount club, and number of fueling positions is the applicable variable for the gas station. The weekday pm and Saturday midday peak hour trip generation is calculated by either the average rate or fitted curve equation, when available and applicable.

It is worth noting that all retail and gas station land uses are likely generating the highest volume of traffic during the day on Saturday. Therefore, the *Trip Generation Manual* values for the Saturday peak hour of generator are used for Shopping Center, Discount Club, and Gas Station for the Saturday midday peak hour. The Saturday peak hour of generator is not appropriate for use with the movie theater since the highest generation period will be later in the day. Instead, the specific Saturday midday peak hour of generator values for the similar Multiplex Movie Theater (ITE Land Use Code 445) were used for trip generation estimation.

Trip Reductions

In a mixed-use development with complimentary land uses, it is reasonable to assume that trip interaction will occur between the uses. Internally captured trips are those made within mixed-use developments that do not access the public roadways. This results in a reduction of external trips for the site. Internal capture can be estimated using methodology included in the ITE *Trip Generation Handbook, 3rd Edition* or by using development specific rates.

As documented in the ITE *Trip Generation Manual, 10th Edition*, some land uses do not typically generate all new traffic on the roadway system. The total traffic generation is a combination of pass-by trips, or traffic drawn from the existing traffic flow on the adjacent streets, and primary trips, which represent new traffic drawn to the roadway network. In order to assess the pass-by trips, the data published in the ITE *Trip Generation Handbook, 3rd Edition* was utilized to estimate the pass-by percentages for the applicable land uses. It should be noted that pass-by trip reductions do not reduce the total number of trips into and out of the site, but decrease the number of new trips on the roadway network.

Existing Ogden Mall Traffic Volumes – Full Occupancy

Trip Generation

The full area of Ogden Mall slated for redevelopment consists of approximately 180,000 square feet of shopping center use and a six-screen movie theater. Potential trip generation if the development was fully occupied is summarized in Table 2.

Overall, 927 total trips are estimated to be generated during the weekday pm peak hour and 1,105 total trips are estimated to be generated during the Saturday midday peak. Based on the ITE *Trip Generation Handbook* methodology, it is determined that there will be a four percent reduction for internal capture between the shopping center and the movie theater. The

Handbook does not include methodology for estimating internal capture during the Saturday midday peak hour. In order to maintain a conservative analysis and better reflect the existing conditions, the same four percent reduction is assumed for the Saturday midday peak hour. Pass-by reductions are determined using the standard ITE methodology for each land use.

Overall, the existing portion of Ogden Mall that will be redeveloped would generate 609 total new trips during the weekday pm peak hour and 811 total new trips during the Saturday midday peak hour. An additional 278 pass by trips are anticipated during the weekday pm peak hour and 250 passes by trips during the Saturday midday peak hour.

Table 2: Trip Generation – Existing Ogden Mall – Full Occupancy

LUC	LAND USE	SIZE	WEEKDAY PM			SAT MIDDAY		
			In	Out	Total	In	Out	Total
444	Movie Theater	6 Theaters	39	49	**88**	86	34	**120**
	Internal Capture Reduction:		-10	-10	-20	-3	-19	-22
	Pass-By Trips:		0	0	0	0	0	0
820	Shopping Center	180,000 SF	403	436	**839**	512	473	**985**
	Internal Capture Reduction:		-10	-10	-20	-19	-3	-22
	Pass-By Trips:		-139	-139	-278	-125	-125	-250
	Total Trip Generation:		**442**	**485**	**927**	**598**	**507**	**1105**
	Less Internal Capture:		*-20*	*-20*	*-40*	*-22*	*-22*	*-44*
	Internal Capture Rate:		*4%*			*4%*		
	Total External Trips		***422***	***465***	***887***	***576***	***485***	***1061***
	Less Pass-by:		*-139*	*-139*	*-278*	*-125*	*-125*	*-250*
	Total New Traffic Generated on Network:		***283***	***326***	***609***	***451***	***360***	***811***

Existing Ogden Mall Traffic Volumes – Current Occupancy

Trip Generation

It is observed that approximately 35,000 square feet of the shopping center and the movie theater is currently in operation. Trips associated with this portion of the mall will be removed from the roadway network when the existing mall is redeveloped. Trip generation is estimated based on the operational areas, which are summarized in Table 3.

Overall, 338 total trips are estimated during the weekday pm peak hour and 390 total trips are estimated during the Saturday midday peak hour from the currently occupied portion of the shopping center that will be removed. Based on the ITE *Trip Generation Handbook* methodology, it is determined that there will be a six percent reduction for internal capture

between the shopping center and the movie theater. The *Handbook* does not include methodology for estimating internal capture during the Saturday midday peak hour. In order to maintain a conservative analysis and better reflect the existing conditions, the same six percent reduction is assumed for the Saturday midday peak hour. Pass-by reductions are determined using the standard ITE methodology for each land use.

Overall, 236 total new trips are estimated during the weekday pm peak hour and 298 total new trips are estimated during the Saturday midday peak hour. An additional 82 pass by trips are anticipated during the weekday pm peak hour and 68 pass by trips during the Saturday midday peak hour.

Table 3: Trip Generation – Existing Ogden Mall - Current Occupancy

LUC	LAND USE	SIZE	WEEKDAY PM			SAT MIDDAY		
			In	Out	Total	In	Out	Total
444	Movie Theater	6 Theaters	39	49	**88**	86	34	**120**
	Internal Capture Reduction:		-5	-5	-10	-5	-7	-12
	Pass-By Trips:		0	0	0	0	0	0
820	Shopping Center	35,000 SF	120	130	**250**	140	130	**270**
	Internal Capture Reduction:		-5	-5	-10	-7	-5	-12
	Pass-By Trips:		-41	-41	-82	-34	-34	-68
	Total Trip Generation:		**159**	**179**	**338**	**226**	**164**	**390**
	Less Internal Capture:		*-10*	*-10*	*-20*	*-12*	*-12*	*-24*
	Internal Capture Rate:		*6%*			*6%*		
	Total External Trips		***149***	***169***	***318***	***214***	***152***	***366***
	Less Pass-by:		*-41*	*-41*	*-82*	*-34*	*-34*	*-68*
	Total New Traffic Generated on Network:		***108***	***128***	***236***	***180***	***118***	***298***

Trip Distribution and Assignment

The direction from which traffic approaches and departs a site is a function of numerous variables, including location of residences, location of employment centers, location of commercial/retail centers, available roadway systems, location and number of access points, and level of congestion on adjacent road systems.

The distribution of existing site generated trips to be removed is based on the existing roadway classifications and traffic patterns in the area. Traffic is primarily assigned to Ogden Avenue and Naper Boulevard due to the high volume arterial nature of these streets. Much lower volumes are assigned to Washington Street, Iroquois Avenue, and Naperville Wheaton Road. The overall trip distribution is summarized in Table 4.

Table 4: Proposed Trip Distribution

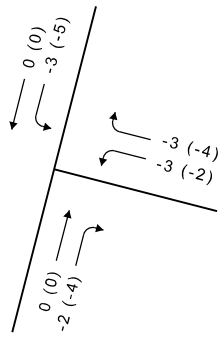
Cordon Location	Distribution
Washington St. - N. of Iroquois	3%
Washington St. - S. of Iroquois	2%
Ogden Ave. - W. of Iroquois	30%
Iroquois Ave. - S. of Ogden	5%
Naperville Wheaton Rd. - S. of Ogden	5%
Naper Blvd. - N. of Naperville Wheaton	20%
Naper Blvd. - S. of Ogden	25%
Ogden Ave. - E. of Naper	10%

It is assumed that primary trips generated by the existing Ogden Mall shopping center will evenly utilize Driveway 3 on Iroquois Avenue, Driveway 4 on Ogden Street, and Driveway 5 on Naperville Wheaton Road. No traffic is assumed to use Driveway 1 or Driveway 6 as these are currently configured primarily for truck delivery access. Little traffic is assigned to Driveway 2 on Iroquois Avenue since the observed volumes are low. The distribution and assignment of existing primary trips to be removed is illustrated in Figure 8.

It is assumed that all pass by and diverted trips originate from Ogden Avenue and are evenly split between the eastbound and westbound directions. Westbound vehicles utilize the driveways on both Iroquois Avenue and Ogden Avenue. All eastbound vehicles utilize the Iroquois Avenue driveways since Driveway 4 on Ogden Avenue is right-in/right-out only. The distribution and assignment of existing pass by and diverted trips to be removed is illustrated in Figure 9.

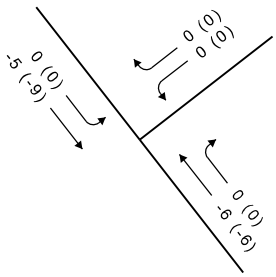
The existing primary trips are added to the existing pass by trips to obtain the total existing trips to be removed, which are illustrated in Figure 10. The total trips to be removed are then deducted from the existing traffic volumes to obtain the existing traffic volume with trips removed, which is illustrated in Figure 11.

1



WASHINGTON ST & IROQUOIS AVE

2



IROQUOIS AVE & DRIVEWAY 1

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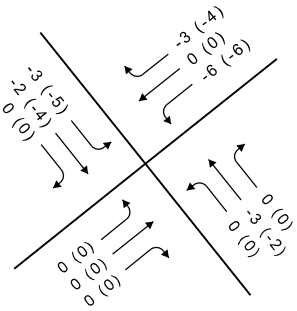

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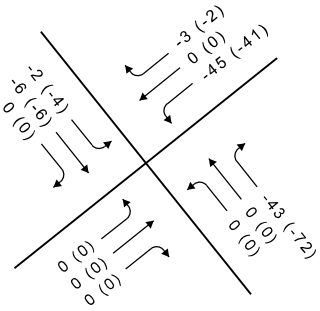

IROQUOIS AVE & DRIVEWAY 3

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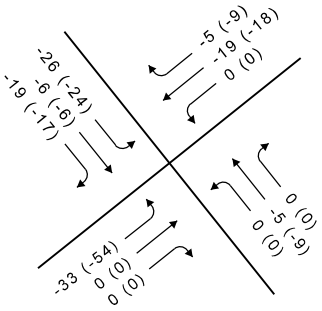
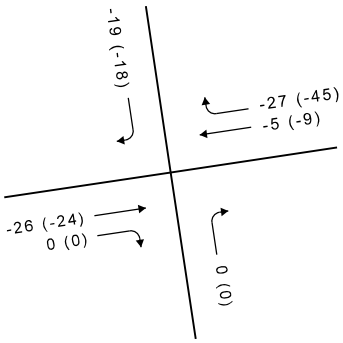


OGDEN AVE & IROQUOIS AVE

6



OGDEN AVE & DRIVEWAY 4

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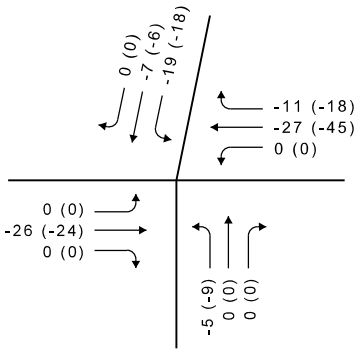
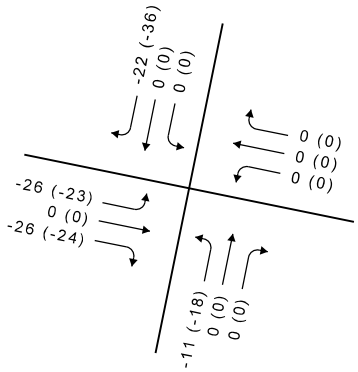


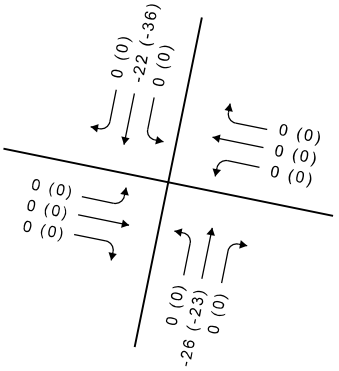
NAPERVILLE WHEATON RD & OGDEN AVE

8



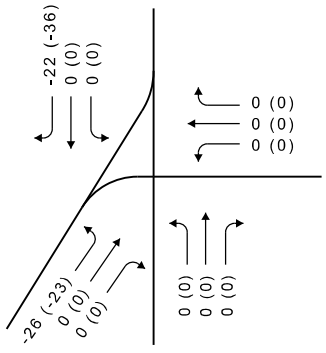
NAPERVILLE WHEATON RD & DRIVEWAY 5

9



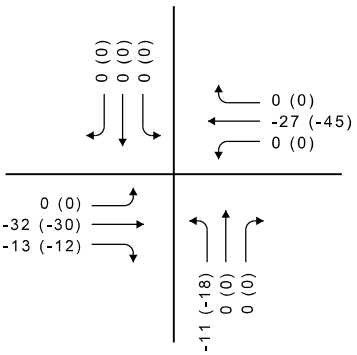
NAPERVILLE WHEATON RD & DRIVEWAY 6

10

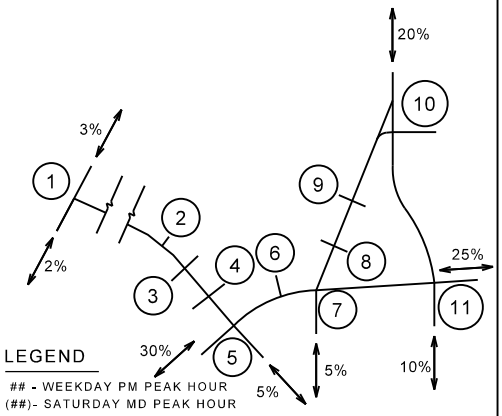


NAPER BLVD & RIDGELAND AVE/
NAPERVILLE WHEATON RD

11



OGDEN AVE & NAPER BLVD

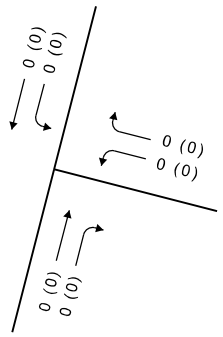


OGDEN MALL REDEVELOPMENT

FIGURE 8
EXISTING PRIMARY TRIPS TO BE REMOVED

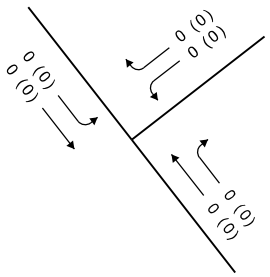
NAPERVILLE ILLINOIS

1



WASHINGTON ST & IROQUOIS AVE

2



IROQUOIS AVE & DRIVEWAY 1

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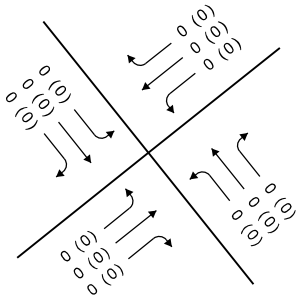

IROQUOIS AVE & DRIVEWAY 2

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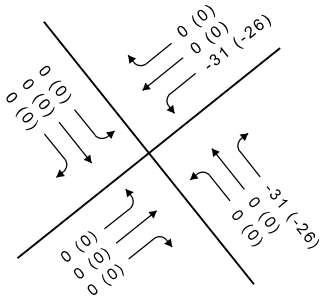
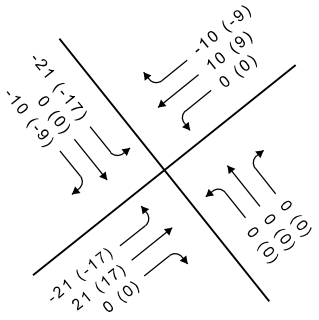


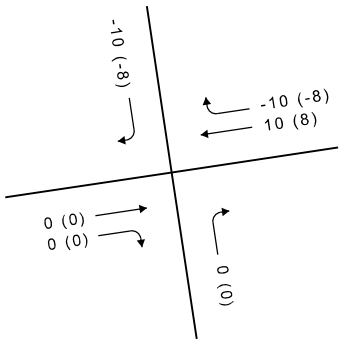
IROQUOIS AVE & DRIVEWAY 3

5



OGDEN AVE & IROQUOIS AVE

6



OGDEN AVE & DRIVEWAY 4

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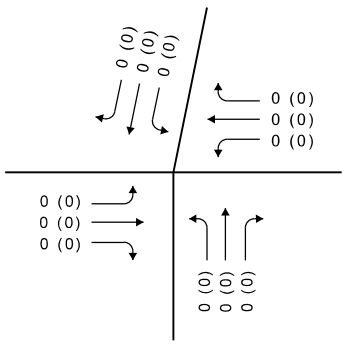

NAPERVILLE WHEATON RD & OGDEN AVE

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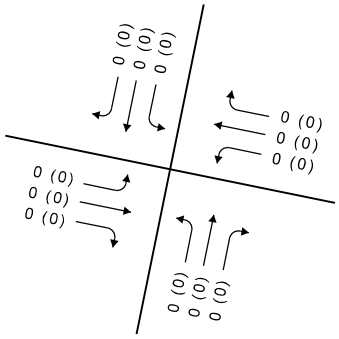

NAPERVILLE WHEATON RD & DRIVEWAY 5

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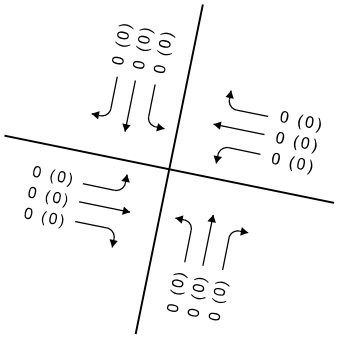
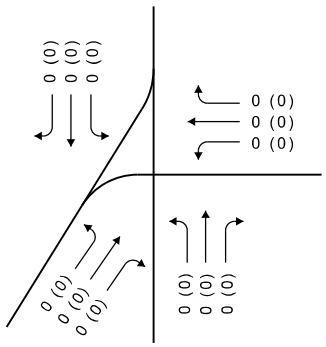


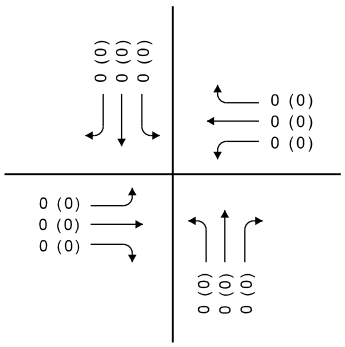
NAPERVILLE WHEATON RD & DRIVEWAY 6

10

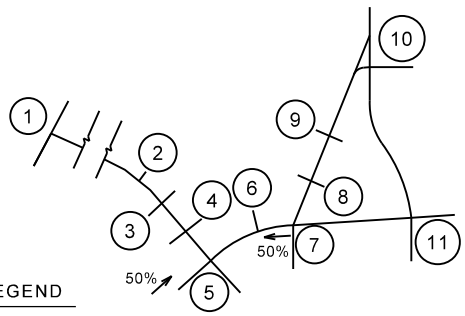


NAPER BLVD & RIDGELAND AVE/
NAPERVILLE WHEATON RD

11



OGDEN AVE & NAPER BLVD

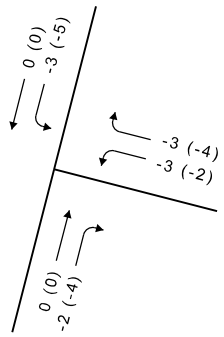


OGDEN MALL REDEVELOPMENT

FIGURE 9
EXISTING PASSBY TRIPS TO BE REMOVED

NAPERVILLE ILLINOIS

1



WASHINGTON ST & IROQUOIS AVE

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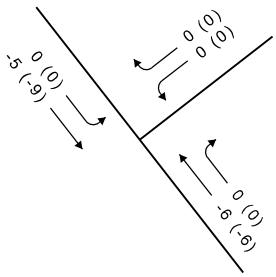

IROQUOIS AVE & DRIVEWAY 1

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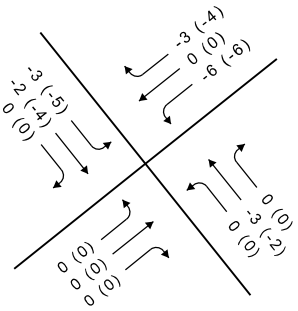

IROQUOIS AVE & DRIVEWAY 2

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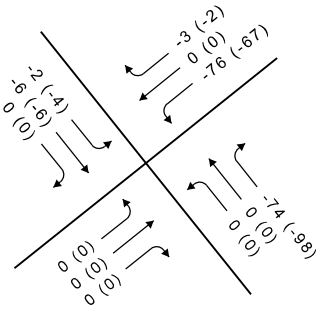

IROQUOIS AVE & DRIVEWAY 3

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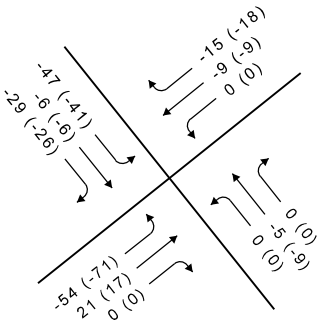
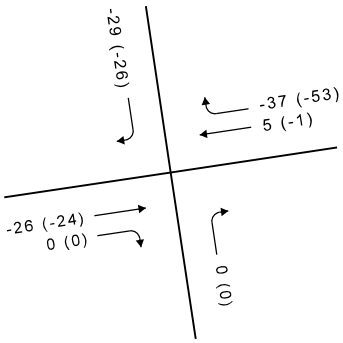


OGDEN AVE & IROQUOIS AVE

6



OGDEN AVE & DRIVEWAY 4

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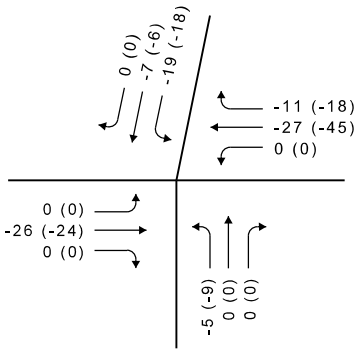

NAPERVILLE WHEATON RD & OGDEN AVE

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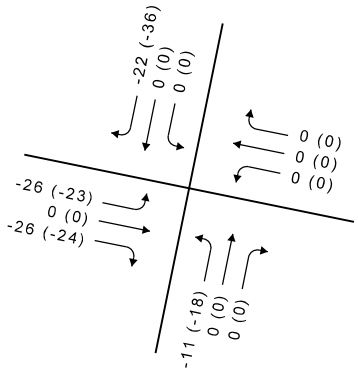
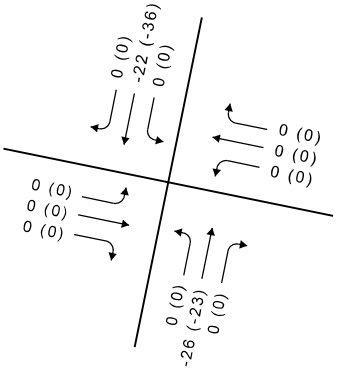


NAPERVILLE WHEATON RD & DRIVEWAY 5

9



NAPERVILLE WHEATON RD & DRIVEWAY 6

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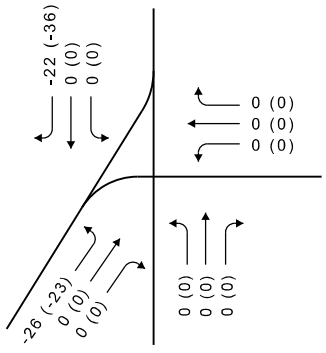
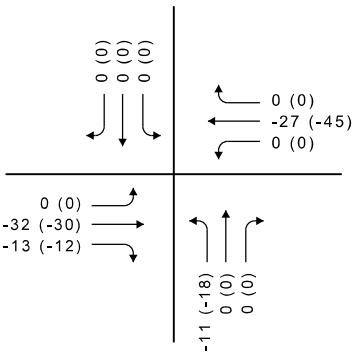


NAPER BLVD & RIDGELAND AVE/
NAPERVILLE WHEATON RD

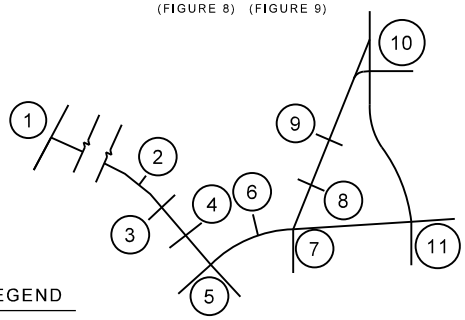
11



OGDEN AVE & NAPER BLVD

NOTE:

TOTAL EXISTING TRIPS TO REMOVE = EXISTING PRIMARY TRIPS (FIGURE 8) + EXISTING PASSBY TRIPS (FIGURE 9)



LEGEND

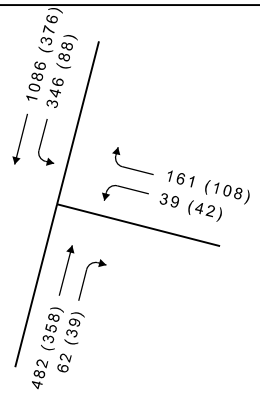
- WEEKDAY PM PEAK HOUR
(##)- SATURDAY MD PEAK HOUR

OGDEN MALL REDEVELOPMENT

FIGURE 10
TOTAL EXISTING TRIPS TO BE REMOVED

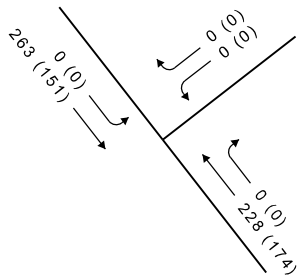
NAPERVILLE ILLINOIS

1



WASHINGTON ST & IROQUOIS AVE

2



IROQUOIS AVE & DRIVEWAY 1

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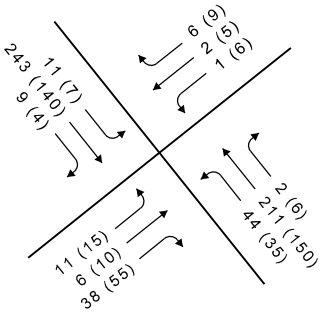

IROQUOIS AVE & DRIVEWAY 2

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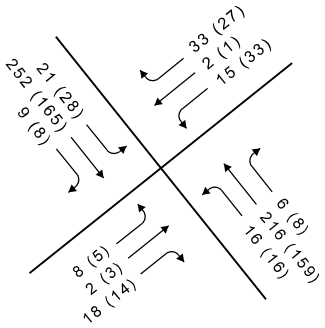

IROQUOIS AVE & DRIVEWAY 3

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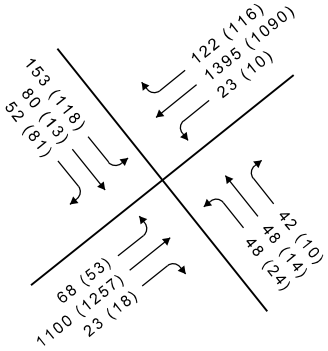
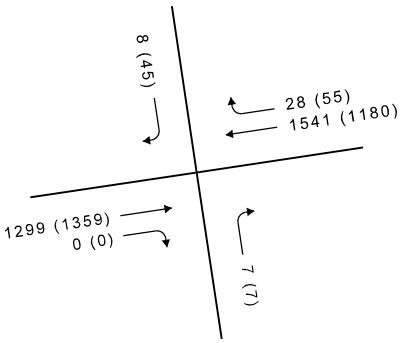


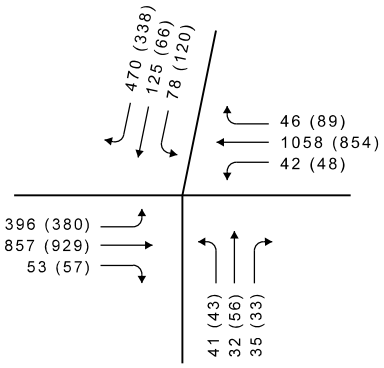
OGDEN AVE & IROQUOIS AVE

6



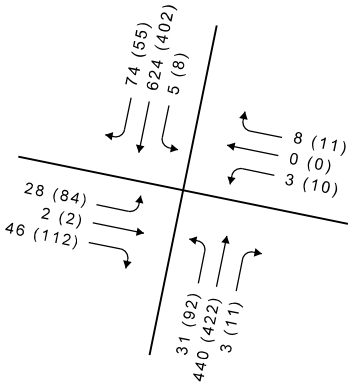
OGDEN AVE & DRIVEWAY 4

7



NAPERVILLE WHEATON RD & OGDEN AVE

8



NAPERVILLE WHEATON RD & DRIVEWAY 5

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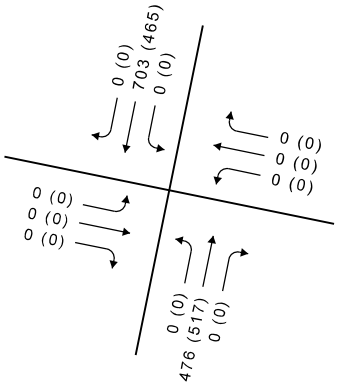

NAPERVILLE WHEATON RD & DRIVEWAY 6

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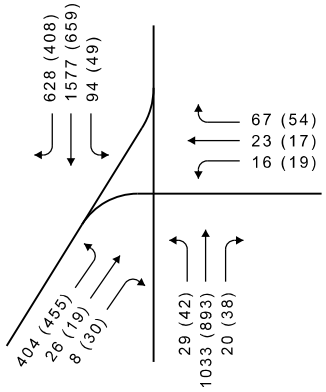
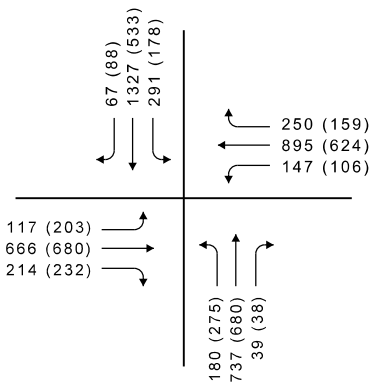


NAPER BLVD & RIDGELAND AVE/
NAPERVILLE WHEATON RD

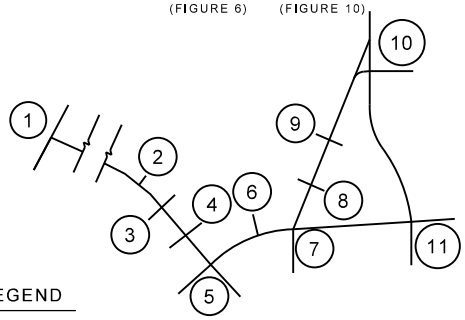
11



OGDEN AVE & NAPER BLVD

NOTE:

EXISTING VOLUME WITH TRIPS REMOVED = EXISTING TRAFFIC VOLUME (FIGURE 6) - TOTAL TRIPS TO BE REMOVED (FIGURE 10)



LEGEND

- WEEKDAY PM PEAK HOUR
(##)- SATURDAY MD PEAK HOUR

OGDEN MALL REDEVELOPMENT

FIGURE 11
EXISTING TRAFFIC VOLUME WITH TRIPS REMOVED

NAPERVILLE ILLINOIS

Proposed Ogden Mall Redevelopment Traffic Volumes

Trip Generation

The proposed site plan consists of an approximately 158,000 square foot Costco Wholesale building and a members-only gas station with 24 pumps. Trip generation is estimated based on the operational areas, which are summarized in Table 5.

Overall, it is estimated that the redevelopment will generate 997 total trips during the weekday pm peak hour and 1,312 total trips during the Saturday midday peak hour. It is unlikely that the ITE *Trip Generation Handbook* methodology for internal capture is applicable since both the discount club and gas station are both members only. The discount club operator stated that for locations in the Midwest, typically 65 to 75 percent of all gas station trips also include a trip into the discount club. In order to maintain a conservative analysis, it is assumed that 65 percent of gas station trips are internally captured, resulting in an overall internal capture of 22 percent during the weekday pm peak hour and 15 percent during the Saturday midday peak hour.

Pass-by reductions are determined using the standard ITE methodology, except a value is assumed for the Saturday midday peak hour. Pass by trips are expected at the gas station even though the Manual does not provide a rate. Therefore, weekday pm peak hour rate is assigned to the Saturday Midday peak hour.

Table 5: Trip Generation – Proposed Ogden Mall Redevelopment

LUC	LAND USE	SIZE	WEEKDAY PM			SAT MIDDAY		
			In	Out	Total	In	Out	Total
857	Discount Club	158,000 SF	330	330	**660**	493	513	**1,006**
	Internal Capture Reduction:		-55	-55	-110	-49	-50	-99
	Pass-By Trips:		-102	-102	-204	-136	-136	-272
944	Gasoline/Service Station	24 Fueling Position	169	168	**337**	153	153	**306**
	Internal Capture Reduction:		-55	-55	-110	-50	-49	-99
	Pass-By Trips:		-48	-48	-96	-43	-43	-86
	Total Trip Generation:		**499**	**498**	**997**	**646**	**666**	**1312**
	Less Internal Capture:		*-110*	*-110*	*-220*	*-99*	*-99*	*-198*
	Internal Capture Rate:		*22%*			*15%*		
	Total External Trips		***389***	***388***	***777***	***547***	***567***	***1114***
	Less Pass-by:		*-150*	*-150*	*-300*	*-179*	*-179*	*-358*
	Total New Traffic Generated on Network:		***239***	***238***	***477***	***368***	***388***	***756***

Overall, 477 total new trips are estimated during the weekday pm peak hour and 756 total new trips are estimated during the Saturday midday peak hour. An additional 300 pass by trips are anticipated during the weekday pm peak hour and 358 pass by trips during the Saturday midday peak hour.

Trip Distribution and Assignment

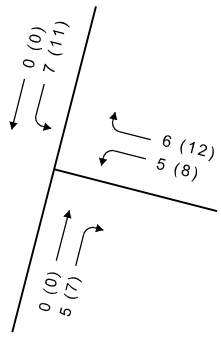
The overall trip distribution is assumed to match the distribution of existing Ogden Mall trips, which can be seen in Table 4.

The assignment of traffic to the driveways follows a similar distribution to the existing condition, with adjustments made to account for modifications to the internal roadway network and the gas station location. The site plan includes reconfiguring the site to allow full site access to Driveway 1 on Iroquois Avenue and Driveway 6 on Naperville Wheaton Road. Additionally, the configuration of the gas station and the overall site suggests that Iroquois Avenue will serve as the primary driveway for the proposed development. Therefore, approximately forty percent of the total Costco trips are assigned to the driveways on Iroquois Avenue. Due to the placement of the gas station, Driveway 1 is expected to operate as the primary entrance and Driveway 2 is expected to operate as the primary exit for gas station trips. Driveway 4 on Ogden Avenue and Driveway 5 on Naperville Wheaton Road are also expected to carry a noticeable portion of traffic related to the proposed redevelopment. The distribution and assignment of proposed primary trips is illustrated in Figure 12.

It is assumed that most pass by and diverted trips originate from Ogden Avenue. The directional split favors westbound vehicles which will access the site via right turns to and from Ogden Avenue. Westbound vehicles utilize the driveways on both Iroquois Avenue and Ogden Avenue while all eastbound vehicles utilize the Iroquois Avenue driveways since Driveway 4 on Ogden Avenue is right-in/right-out only and eastbound vehicles are unlikely to enter from Naperville-Wheaton Road. A small amount of pass by trips is also assumed to originate from southbound Iroquois Avenue, due to the ease of access to the gas station. The distribution and assignment of proposed pass by trips is illustrated in Figure 13.

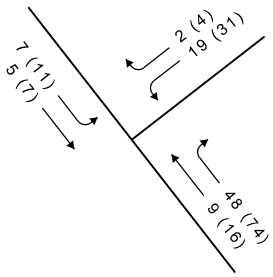
The proposed primary trips are added to the proposed pass by trips to obtain the total proposed trips, which are illustrated in Figure 14. A 2.5 percent growth factor is applied to the existing traffic volumes with trips removed and the total proposed trips are added to obtain the future with project traffic volumes, which is illustrated in Figure 15.

1



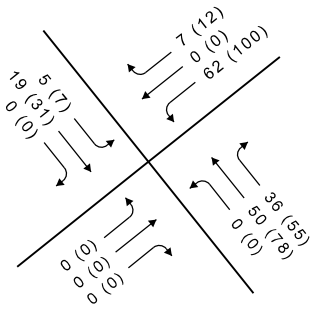
WASHINGTON ST & IROQUOIS AVE

2



IROQUOIS AVE & DRIVEWAY 1

3



IROQUOIS AVE & DRIVEWAY 2

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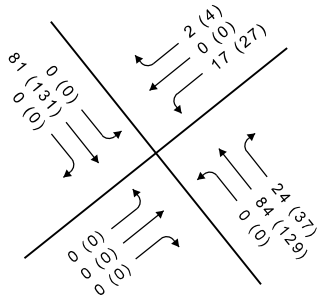

IROQUOIS AVE & DRIVEWAY 3

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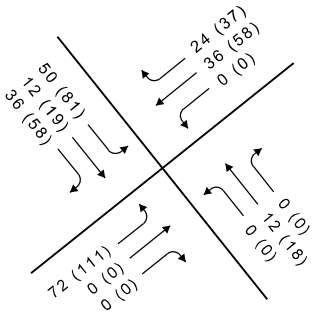
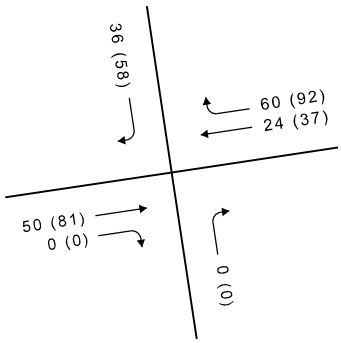


OGDEN AVE & IROQUOIS AVE

6



OGDEN AVE & DRIVEWAY 4

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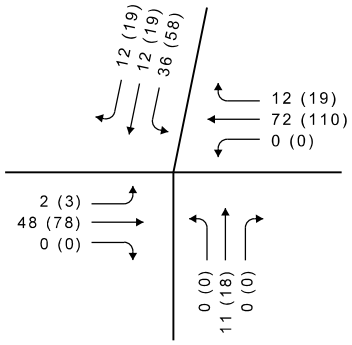
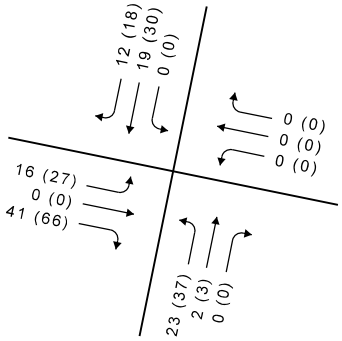


NAPERVILLE WHEATON RD & OGDEN AVE

8



NAPERVILLE WHEATON RD & DRIVEWAY 5

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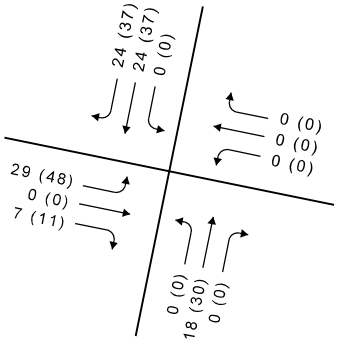
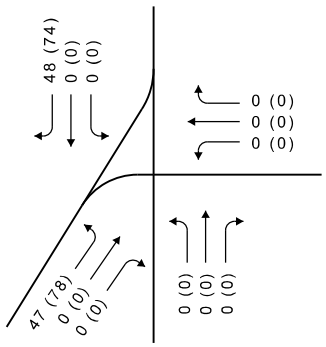


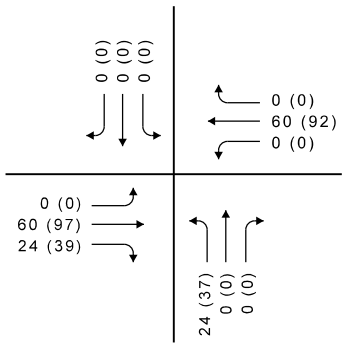
NAPERVILLE WHEATON RD & DRIVEWAY 6

10

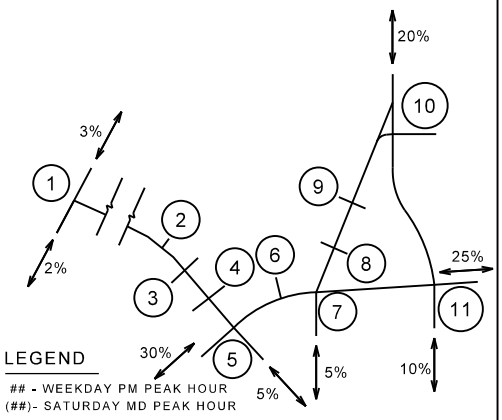


NAPER BLVD & RIDGELAND AVE/
NAPERVILLE WHEATON RD

11



OGDEN AVE & NAPER BLVD

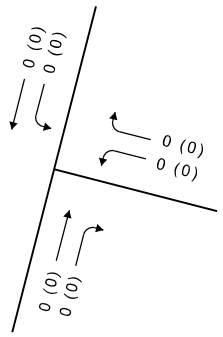


OGDEN MALL REDEVELOPMENT

FIGURE 12
PROPOSED PRIMARY TRIPS

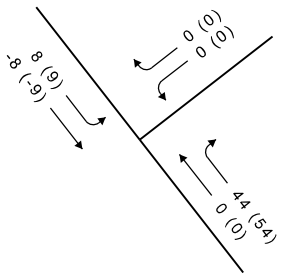
NAPERVILLE ILLINOIS

1



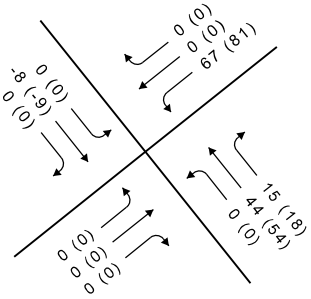
WASHINGTON ST & IROQUOIS AVE

2



IROQUOIS AVE & DRIVEWAY 1

3



IROQUOIS AVE & DRIVEWAY 2

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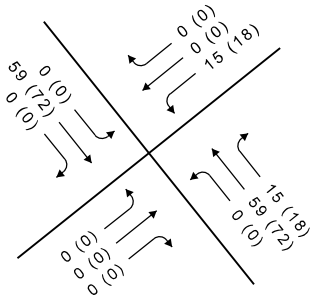

IROQUOIS AVE & DRIVEWAY 3

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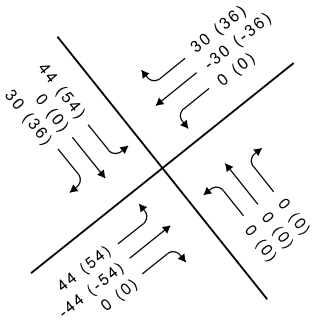
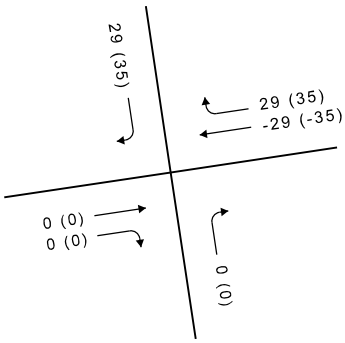


OGDEN AVE & IROQUOIS AVE

6



OGDEN AVE & DRIVEWAY 4

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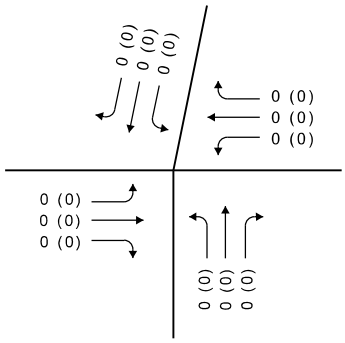
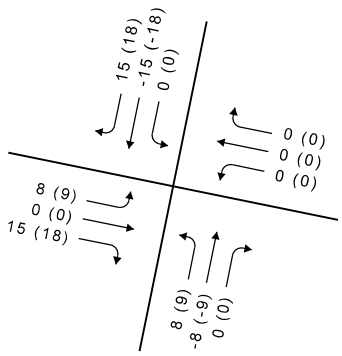


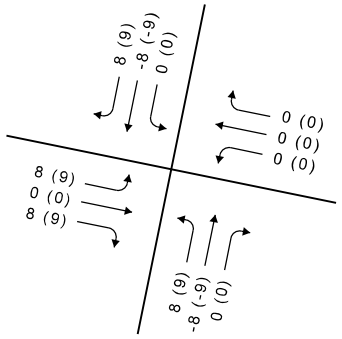
NAPERVILLE WHEATON RD & OGDEN AVE

8



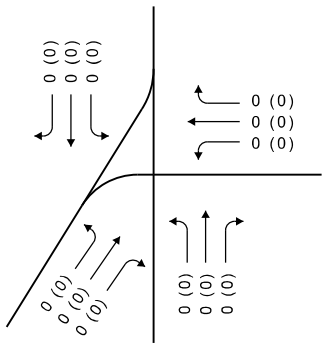
NAPERVILLE WHEATON RD & DRIVEWAY 5

9



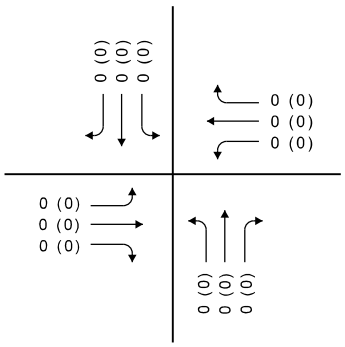
NAPERVILLE WHEATON RD & DRIVEWAY 6

10

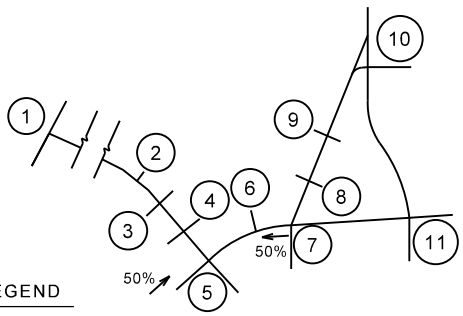


NAPER BLVD & RIDGELAND AVE/
NAPERVILLE WHEATON RD

11



OGDEN AVE & NAPER BLVD



LEGEND

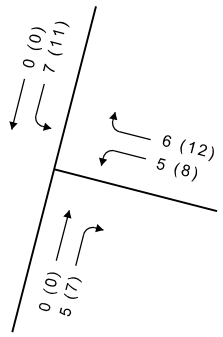
- WEEKDAY PM PEAK HOUR
(##)- SATURDAY MD PEAK HOUR

OGDEN MALL REDEVELOPMENT

FIGURE 13
PROPOSED PASSBY TRIPS

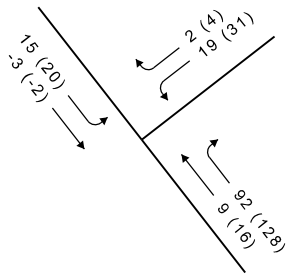
NAPERVILLE ILLINOIS

1



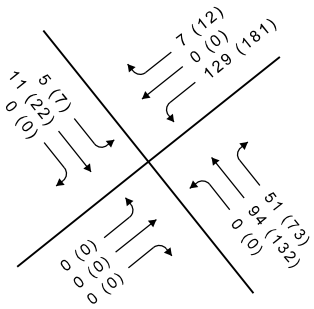
WASHINGTON ST & IROQUOIS AVE

2



IROQUOIS AVE & DRIVEWAY 1

3



IROQUOIS AVE & DRIVEWAY 2

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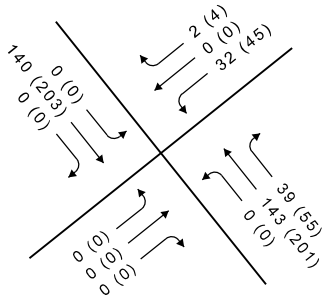
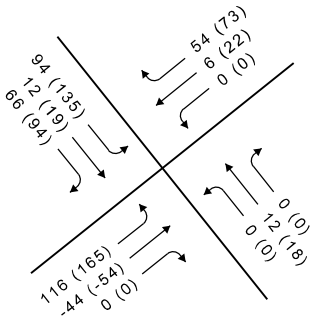


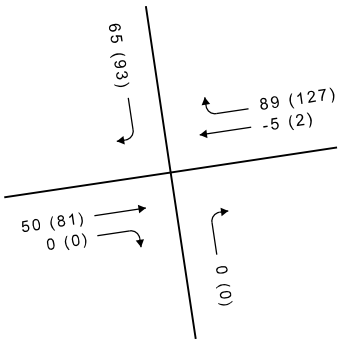
IROQUOIS AVE & DRIVEWAY 3

5



OGDEN AVE & IROQUOIS AVE

6



OGDEN AVE & DRIVEWAY 4

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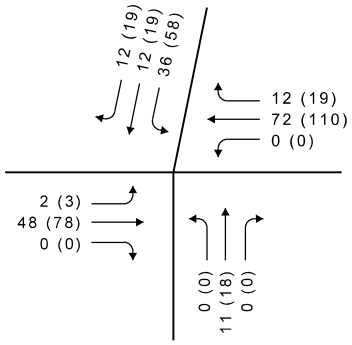
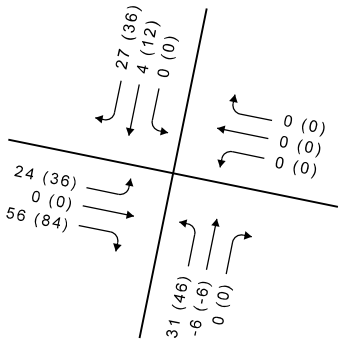


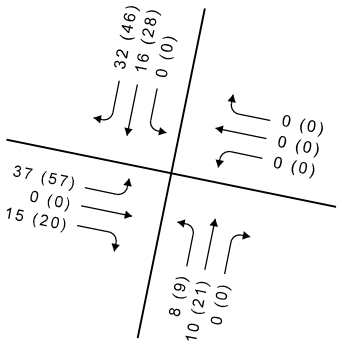
NAPERVILLE WHEATON RD & OGDEN AVE

8



NAPERVILLE WHEATON RD & DRIVEWAY 5

9



NAPERVILLE WHEATON RD & DRIVEWAY 6

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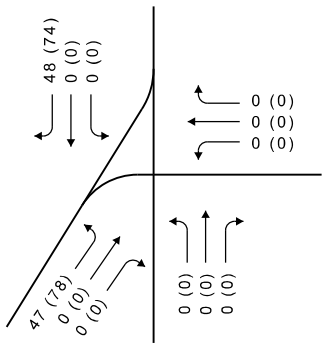
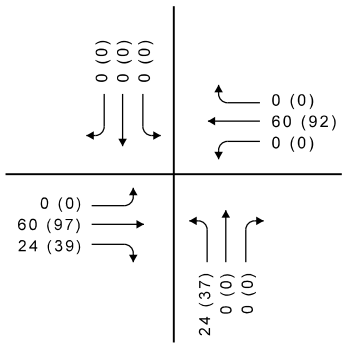


NAPER BLVD & RIDGELAND AVE/
NAPERVILLE WHEATON RD

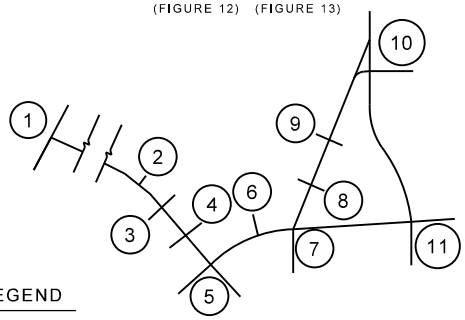
11



OGDEN AVE & NAPER BLVD

NOTE:

TOTAL PROPOSED TRIPS = PROPOSED PRIMARY TRIPS (FIGURE 12) + PROPOSED PASSBY TRIPS (FIGURE 13)



LEGEND

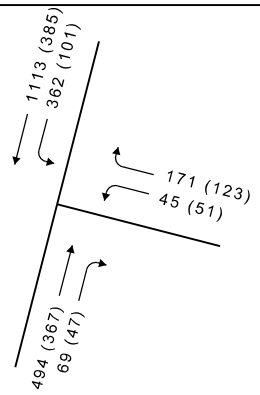
- WEEKDAY PM PEAK HOUR
(##)- SATURDAY MD PEAK HOUR

OGDEN MALL REDEVELOPMENT

FIGURE 14
TOTAL PROPOSED TRIPS

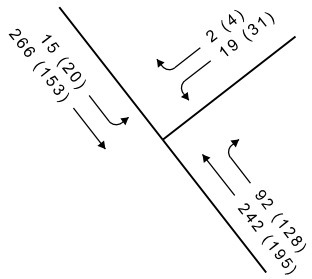
NAPERVILLE ILLINOIS

1



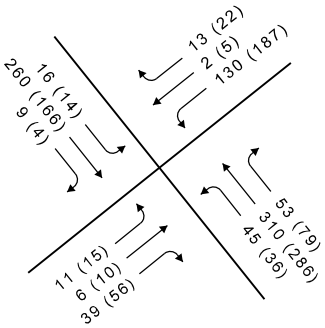
WASHINGTON ST & IROQUOIS AVE

2



IROQUOIS AVE & DRIVEWAY 1

3



IROQUOIS AVE & DRIVEWAY 2

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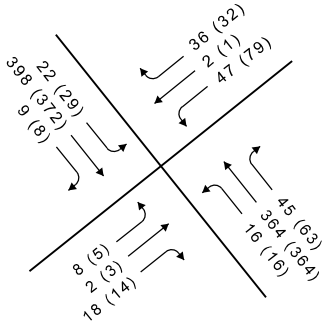

IROQUOIS AVE & DRIVEWAY 3

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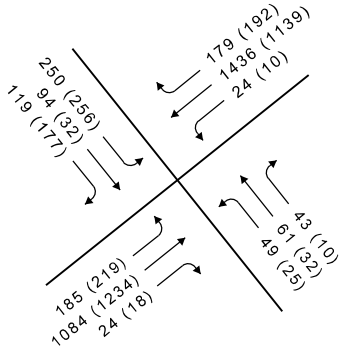
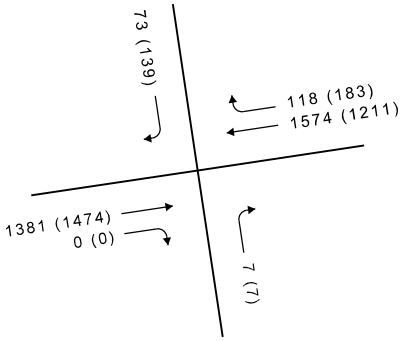


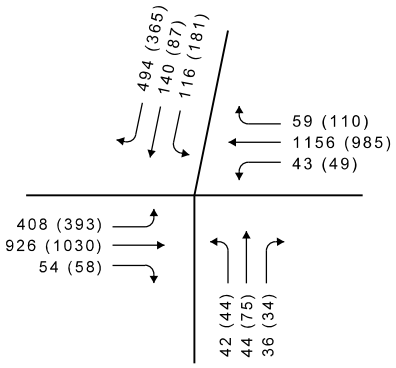
OGDEN AVE & IROQUOIS AVE

6



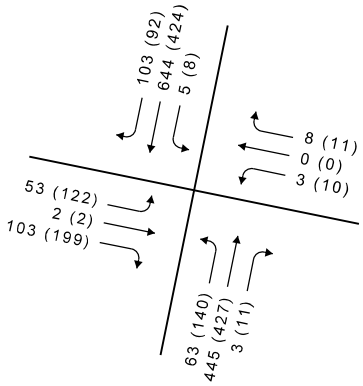
OGDEN AVE & DRIVEWAY 4

7



NAPERVILLE WHEATON RD & OGDEN AVE

8



NAPERVILLE WHEATON RD & DRIVEWAY 5

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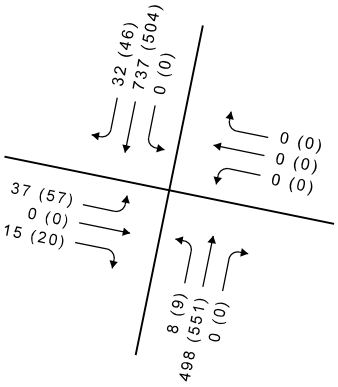

NAPERVILLE WHEATON RD & DRIVEWAY 6

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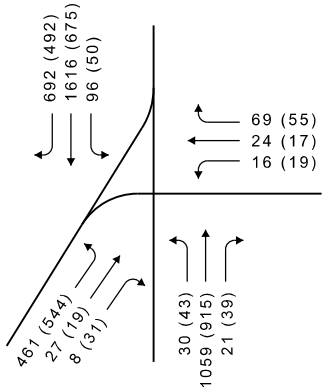
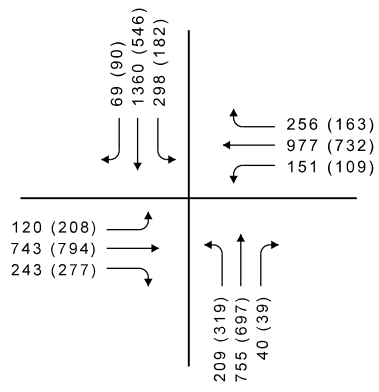


NAPER BLVD & RIDGELAND AVE/
NAPERVILLE WHEATON RD

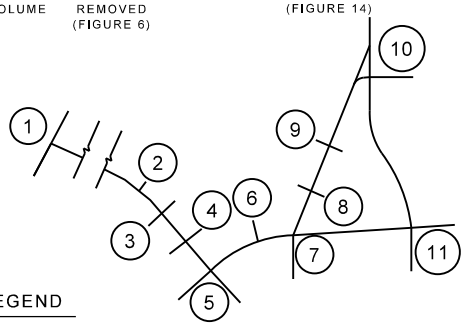
11



OGDEN AVE & NAPER BLVD

NOTE:

FUTURE WITH PROJECT VOLUME = EXISTING WITH TOTAL REMOVED (FIGURE 6) + 2.5 PERCENT BACKGROUND GROWTH + PROPOSED TOTAL TRIPS (FIGURE 14)



LEGEND

- WEEKDAY PM PEAK HOUR
(##)- SATURDAY MD PEAK HOUR

OGDEN MALL REDEVELOPMENT

FIGURE 15
FUTURE WITH PROJECT TRAFFIC VOLUMES

NAPERVILLE ILLINOIS

IV. TRAFFIC ANALYSIS

Trip Generation Comparison

The existing mall and the proposed Costco both represent large retail developments. It is worthwhile to compare the potential trip generation for full occupancy of the existing mall that will be removed with the trip generation of the proposed redevelopment. This trip generation comparison is summarized in Table 6.

Table 6: Trip Generation Comparison of Existing Ogden Mall to Proposed Redevelopment

Trip Type	Development Type	WEEKDAY PM			SAT MIDDAY		
		In	Out	Total	In	Out	Total
New Trips	Existing Mall	283	326	609	451	360	811
	Proposed Development	239	238	477	368	388	756
	Net Change	***-44***	***-88***	***-132***	***-83***	***28***	***-55***
Passby Trips	Existing Mall	139	139	278	125	125	250
	Proposed Development	150	150	300	179	179	358
	Net Change	***11***	***11***	***22***	***54***	***54***	***108***
Total Trips	Existing Mall	422	465	887	576	485	1061
	Proposed Development	389	388	777	547	567	1114
	Net Change	***-33***	***-77***	***-110***	***-29***	***82***	***53***

Overall, it is found that full occupancy at the portion of the existing mall that will be redeveloped has the potential to generate 110 more total trips than the proposed redevelopment during the weekday pm peak hour. The proposed redevelopment has the potential to generate 53 more total trips than full occupancy at the existing mall during the Saturday midday peak hour.

It is concluded that the potential trip generation of full occupancy at the existing mall and for the proposed development are of similar scale. Therefore, any external roadway network issues that are anticipated to occur with the proposed development are likely to also occur if the existing mall reached full occupancy.

Additionally, Driveway 1 and Driveway 6 serve as truck access in the existing site configuration and are unlikely to be used by general traffic. Most traffic would use only four of the six site driveways, potentially contributing to capacity and site circulation issues.

Auxiliary Lane Analysis

This study evaluated whether additional auxiliary lanes are warranted at any of the Ogden Mall Driveways. The warrant analysis follows the methodology detailed in IDOT's *Bureau of Design and Environmental Manual* (BDE). Warrants are determined based on factors such as through volume, opposing volume, and percentage of turning vehicles. Different warrants are used for left and right turn lanes, and factors such as design speed. Worksheets displaying all right and left turn lane warrants are included in Appendix D.

Overall, it is found that the northbound right turn movements at Driveway 1, Driveway 2, and Driveway 3 on Iroquois Avenue meet the warrant based on the BDE chart comparing right turn and approach volumes and should therefore be considered. This warrant is intended to identify areas with high right turn volumes that can unduly impair the through movements. In this case, the through volumes along Iroquois Avenue are relatively low and likely destined to other retail driveways or residential developments in the area. Additionally, no driveways into the existing Ogden Mall include auxiliary right turn lanes. Based on the low through volumes and low delays and that these two movements do not meet any other right turn lane warrants, it is recommended that right turn lanes are not needed.

The westbound right turn volume at Driveway 4 on Ogden Avenue also meets one warrant based on the mix of right turn and through volumes. However, this driveway is limited to right in/right out movements only and is aided by a channelizing island for right turning vehicles. This configuration allows turning vehicles to perform the movement at a higher speed and have less of an impact on through vehicles. Adding a right turn lane is not recommended at Driveway 4 on Ogden Avenue.

Left turn lanes are not currently provided at Driveway 5 and Driveway 6. It is found that these movements do not meet any warrants for auxiliary left turn lanes. The driveways currently operate without left turn lanes, and no level of service issues are anticipated to develop following the proposed development.

No other warrants are met at any of the other Ogden Mall driveways. Therefore, it is recommended that the existing configuration of all Ogden Mall driveways be maintained following redevelopment.

Capacity Analysis

The operation of a facility is evaluated based on level of service (LOS) calculations obtained by analytical methods defined in the Transportation Research Board's *Highway Capacity Manual (HCM), 6th Edition*. The concept of LOS is defined as 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, and comfort and convenience.

There are six LOS letter designations, from A to F, with LOS A representing the best operating conditions and LOS F the worst.

The LOS of an intersection is based on the average control delay per vehicle. For a signalized intersection, the delay is calculated for each lane group and then aggregated for each approach and for the intersection as a whole. Generally, the LOS is reported for the intersection as a whole. For an unsignalized intersection, the delay is only calculated and reported for each minor movement. An overall intersection LOS is not calculated.

There are different LOS criteria for signalized and unsignalized intersections primarily due to driver perceptions of transportation facilities. The perception is that a signalized intersection is expected to carry higher traffic volumes and experience a greater average delay than an unsignalized intersection. The LOS criteria for signalized and unsignalized intersections are provided in Table 7.

Table 7: Level of Service Definitions for Signalized and Unsignalized Intersections

Level of Service	Signalized Intersection Control Delay (seconds/vehicle)	Unsignalized Intersection Control Delay (seconds/vehicle)
A	≤ 10	≤ 10.0
B	> 10.0 and ≤ 20.0	> 10.0 and ≤ 15.0
C	> 20.0 and ≤ 35.0	> 15.0 and ≤ 25.0
D	> 35.0 and ≤ 55.0	> 25.0 and ≤ 35.0
E	> 55.0 and ≤ 80.0	> 35.0 and ≤ 50.0
F	> 80.0	> 50.0

Source: Transportation Research Board, *Highway Capacity Manual 6th Edition*, National Research Council, 2016.

Typically, various state and local governments adopt standards varying between LOS C and LOS E, depending on the area's size and roadway characteristics.

The study area includes the existing signalized intersections of Washington Street & Iroquois Avenue, Ogden Avenue & Iroquois Avenue, Ogden Avenue & Naperville Wheaton Road, Naper Boulevard & Naperville Wheaton Road/Ridgeland Avenue, and Ogden Avenue & Naper Boulevard, as well as the six existing unsignalized Ogden Mall driveways. Capacity analysis was performed with Synchro 9.2. Models were created for the weekday pm and Saturday midday peak hours for the existing, 2027 background, 2027 future with project scenarios.

The capacity analysis results at the signalized intersections are summarized in Table 8 and at the unsignalized intersections in Table 9. The traffic signal timing plans were obtained from videos captured during the traffic counts and utilized for this analysis and verified with information provided by DuPage County DOT. Supporting capacity analysis worksheets are provided in Appendices E, F, G, and H, respectively.

Table 8: Capacity Analysis of Signalized Intersections

Intersection	Peak Hour	Scenario	Eastbound		Westbound		Northbound		Southbound		Intersection	
			Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Washington Street & Iroquois Avenue	Weekday PM	Existing (2019)	-	-	16.0	B	10.3	B	4.9	A	7.3	A
		Background (2027)	-	-	16.0	B	10.6	B	5.0	A	7.4	A
		Future with Project (2027)	-	-	16.0	B	10.6	B	5.1	A	7.5	A
	Saturday MD	Existing (2019)	-	-	17.7	B	6.7	A	2.9	A	6.6	A
		Background (2027)	-	-	17.7	B	6.7	A	3.0	A	6.7	A
		Future with Project (2027)	-	-	18.1	B	7.1	A	3.2	A	7.1	A
Ogden Avenue & Iroquois Avenue	Weekday PM	Existing (2019)	14.9	B	14.6	B	41.0	D	60.2	E	20.9	C
		Background (2027)	16.0	B	16.1	B	40.7	D	59.9	E	22.0	C
		Future with Project (2027)	24.0	C	24.4	C	39.1	D	59.0	E	29.4	C
	Saturday MD	Existing (2019)	9.1	A	7.2	A	36.0	D	45.7	D	12.3	B
		Background (2027)	9.5	A	9.6	A	36.0	D	46.0	D	13.5	B
		Future with Project (2027)	15.4	B	14.8	B	35.2	D	52.1	D	20.6	C
Ogden Avenue & Naperville Wheaton Road	Weekday PM	Existing (2019)	21.4	C	8.0	A	93.7	F	44.2	D	23.9	C
		Background (2027)	23.3	C	8.9	A	99.8	F	56.6	E	27.8	C
		Future with Project (2027)	26.3	C	9.2	A	101.0	F	56.4	E	29.2	C
	Saturday MD	Existing (2019)	19.2	B	18.6	B	73.6	E	35.3	D	24.3	C
		Background (2027)	20.5	C	19.1	B	74.5	E	28.3	C	23.8	C
		Future with Project (2027)	22.8	C	20.2	C	75.8	E	33.2	C	26.3	C
Naper Boulevard & Naperville Wheaton Road/ Ridgeland Avenue	Weekday PM	Existing (2019)	63.9	E	44.4	D	10.7	B	70.5	E	52.8	D
		Background (2027)	70.5	E	45.4	D	18.1	B	24.9	C	28.9	C
		Future with Project (2027)	72.9	E	45.4	D	18.5	B	24.8	C	29.4	C
	Saturday MD	Existing (2019)	55.5	E	27.6	C	9.9	A	21.0	C	23.9	C
		Background (2027)	40.7	D	35.5	D	8.7	A	11.4	B	16.9	B
		Future with Project (2027)	40.4	D	35.5	D	9.3	A	12.0	B	17.6	B
Ogden Avenue & Naper Boulevard	Weekday PM	Existing (2019)	51.3	D	49.0	D	48.3	D	58.8	E	52.6	D
		Background (2027)	53.1	D	50.0	D	49.8	D	69.3	E	57.1	E
		Future with Project (2027)	54.8	D	51.0	D	50.5	D	77.2	E	60.4	E
	Saturday MD	Existing (2019)	27.4	C	27.6	C	49.2	D	53.3	D	38.4	D
		Background (2027)	28.7	C	28.7	C	50.3	D	48.5	D	38.4	D
		Future with Project (2027)	30.9	C	30.7	C	52.0	D	50.8	D	40.1	D

Table 9: Capacity Analysis of Unsignalized Intersections

Intersection / Approach	Weekday PM						Saturday MD					
	Existing		Background		Future w/ Project		Existing		Background		Future w/ Project	
	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
Iroquois Avenue & Driveaway 1												
WB Lane 1	0.0	A	0.0	A	11.6	B	0.0	A	0.0	A	10.9	B
WB Lane 2	0.0	A	0.0	A	9.2	A	0.0	A	0.0	A	9.2	A
SB Left/Thru	0.0	A	0.0	A	8.0	A	0.0	A	0.0	A	8.0	A
Iroquois Avenue & Driveaway 2												
NB Left/Thru	7.9	A	7.9	A	7.9	A	7.6	A	7.6	A	7.7	A
EB App.	9.9	A	10.0	B	9.9	A	9.6	A	9.6	A	9.7	A
WB Lane 1	10.0	B	10.0	B	11.4	B	9.9	A	10.0	B	12.2	B
WB Lane 2	9.0	A	9.0	A	9.5	A	8.8	A	8.8	A	9.5	A
SB Left	7.7	A	7.7	A	8.0	A	7.5	A	7.5	A	7.6	A
Iroquois Avenue & Driveaway 3												
NB Left/Thru	7.9	A	7.9	A	8.2	A	7.6	A	7.6	A	8.2	A
EB App.	10.0	B	10.1	B	10.4	B	9.8	A	9.9	A	10.4	B
WB Lane 1	10.0	B	10.1	B	10.6	B	10.7	B	10.8	B	10.9	B
WB Lane 2	9.3	A	9.3	A	10.0	B	8.9	A	8.9	A	9.9	A
SB Left	7.7	A	7.7	A	8.2	A	7.5	A	7.6	A	8.2	A
Ogden Avenue & Driveway 4												
NB Right	11.9	B	11.9	B	12.2	B	12.1	B	12.4	B	12.9	B
SB Right	13.8	B	14.3	B	15.3	C	11.9	B	12.0	B	13.0	B
Naperville Wheaton Road & Driveway 5												
NB Left	8.2	A	9.6	A	9.7	A	8.1	A	8.1	A	8.2	A
NB Through	0.2	A	0.3	A	0.4	A	0.3	A	0.3	A	0.4	A
EB Lane 1	11.7	B	23.5	C	26.3	D	13.1	B	17.4	C	21.7	C
EB Lane 2	9.9	A	12.2	B	12.7	B	9.8	A	9.8	A	10.3	B
WB App.	9.7	A	11.3	B	11.9	B	10.6	B	12.0	B	13.4	B
SB Left	7.6	A	7.7	A	7.7	A	7.7	A	7.7	A	7.7	A
SB Through	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A
Naperville Wheaton Road & Driveway 6												
NB Left	0.0	A	0.0	A	9.5	A	0.0	A	0.0	A	8.7	A
EB Lane 1	0.0	A	0.0	A	17.8	C	0.0	A	0.0	A	13.3	B
EB Lane 2	0.0	A	0.0	A	11.2	B	0.0	A	0.0	A	10.2	B

Existing Scenario

In general, the major approaches operate with limited delays at all the study area intersections, with the exception of the southbound approach at the intersection of Naper Boulevard & Naperville Wheaton Road/Ridgeland Avenue which operates at LOS E. However, this intersection will be reconstructed in the future as part of a DuPage County construction project. Levels of delay on the minor approaches at each intersection vary on the location with several movements operating at LOS E, including the southbound approach at Ogden Avenue & Iroquois Avenue during the weekday pm peak hour, the northbound approach at Ogden Avenue & Naperville Wheaton Road during the Saturday midday peak hour, and the southbound approach at Ogden Avenue & Naper Boulevard during the weekday pm peak hour. In addition, the northbound approach at Ogden Avenue & Naperville Wheaton Road during the weekday pm peak hour operates at LOS F.

All movements at the unsignalized intersections operate adequately.

Background Scenario

The 2027 background scenario includes the reconstruction of Naper Boulevard & Naperville Wheaton Road/Ridgeland Avenue. The various improvements result in a significant reduction of delays on the southbound approach at the intersection.

It is worth noting that most of the study area signalized intersections are part of the coordinated signal system maintained by DuPage County DOT. It is possible that the network could be retimed and reoptimized prior to 2027 due to projects to increase capacity on Naperville Road to the north and other potential redevelopments in the area. However, the existing signal timings are assumed to remain in place since no specific plans are known.

There are two notable changes in levels of service at the other signalized study area intersections. First, the southbound approach to the intersection of Ogden Avenue & Naperville Wheaton Road falls from LOS D to LOS E during the weekday pm peak hour. This change is largely attributable to the increase in traffic in the area. Second, there is an increase in delay at the intersection of Ogden Avenue & Naper Boulevard which results in the intersection falling from LOS D to LOS E during the weekday pm peak hour. Movements that operate at LOS E during the existing scenario continue to operate at LOS E during the 2027 background scenario.

All movements at the unsignalized intersections continue to operate adequately.

Overall, several study area intersections exhibit poor levels of service prior to the redevelopment of Ogden Mall. It is likely that broader area and regional improvements are necessary to mitigate these issues. It is likely that the conceptual improvements shown in the *Naperville Road Feasibility Study – Naper Blvd./Ogden Ave. Intersection Sub-Area* would lead to improvements at a number of the study area intersections.

Future with Project Scenario

Intersection delays tend to increase with the addition of project related traffic. However, there are no notable changes in levels of service at any study area intersection. The southbound approach at the intersection of Ogden Avenue and Iroquois Avenue remain at LOS E during the weekday pm peak hour and LOS D during the Saturday midday peak hour.

All movements at the unsignalized intersections continue to operate adequately.

Queue Length Analysis

A queue length analysis was conducted at each of the signalized intersections. A summary of this analysis for the signalized intersections for the weekday pm peak hour is provided in Table 10 and for the Saturday midday peak hour in Table 11. This data is comprised of the 95th percentile queue output from the Synchro analysis.

Three intersections are found to have deficient storage capacity for at least one left turn movement in the existing condition. This includes the southbound left turn at the intersection of Ogden Avenue & Iroquois Avenue, the eastbound left turn at the intersection of Ogden Avenue & Naperville Wheaton Road, and all left turns at the intersection of Ogden Avenue & Naper Boulevard. Each of these queue lengths increase in the background condition.

Since the deficiencies are present prior to proposed redevelopment of Ogden Mall, it is likely that broader area and regional improvements are necessary to mitigate these issues. It is likely that the conceptual improvements shown in the *Naperville Road Feasibility Study – Naper Blvd./Ogden Ave. Intersection Sub-Area* would lead to improvements at a number of the study area intersections, as well as potential retiming and re-optimization of the DuPage County DOT maintained coordinated signal systems that could occur in the future.

The addition of project related traffic results in increases in queue lengths for several left turn movements in the study area. Most notably, at the intersection of Ogden Avenue & Iroquois Avenue, the southbound left turn queue increases from 284 feet to 386 feet (approximately four vehicles more than background condition) and the eastbound left turn increases from 120 feet to 226 feet (approximately four vehicles more than background condition).

All left turn storage lengths that are already deficient in the background condition increase by approximately two vehicles in the worst case scenario.

No queuing issues are anticipated at any of the unsignalized intersections.

Table 10: 95% Left Turn Queue Length, Weekday PM Peak

Intersection	Scenario	Minor Movement			
		EB	WB	NB	SB
Washington Street & Iroquois Avenue	Existing	-	46	-	75
	Background	-	46	-	78
	Future w/ Project	-	48	-	79
	Storage	**-**	**270**	**-**	**185**
	Taper	**-**	**100**	**-**	**80**
Iroquois Avenue & Driveway 1	Existing	-	0	-	0
	Background	-	0	-	0
	Future w/ Project	-	3	-	0
	Storage	**-**	**-**	**-**	**-**
	Taper	**-**	**-**	**-**	**-**
Iroquois Avenue & Driveway 2	Existing	5	0	3	0
	Background	5	0	3	0
	Future w/ Project	5	18	3	0
	Storage	**-**	**-**	**-**	**-**
	Taper	**-**	**-**	**-**	**-**
Iroquois Avenue & Driveway 3	Existing	3	10	0	3
	Background	3	10	0	3
	Future w/ Project	3	5	0	3
	Storage	**-**	**-**	**-**	**-**
	Taper	**-**	**-**	**-**	**-**
Ogden Avenue & Iroquois Avenue	Existing	103	7	76	279
	Background	120	8	77	284
	Future w/ Project	226	9	77	379
	Storage	**200**	**365**	**120**	**100**
	Taper	**140**	**150**	**50**	**65**
Ogden Avenue & Driveway 4	Existing	-	-	0	8
	Background	-	-	0	8
	Future w/ Project	-	-	0	18
	Storage	**-**	**-**	**-**	**-**
	Taper	**-**	**-**	**-**	**-**

Intersection	Scenario	Minor Movement			
		EB	WB	NB	SB
Ogden Avenue & Naperville Wheaton Road	Existing	440	5	210	88
	Background	481	5	218	166
	Future w/ Project	523	5	230	189
	Storage	**220**	**150**	**-**	**-**
	Taper	**100**	**100**	**-**	**-**
Naperville Wheaton Road & Driveway 5	Existing	8	0	3	0
	Background	23	3	5	0
	Future w/ Project	25	3	8	0
	Storage	**-**	**-**	**-**	**-**
	Taper	**-**	**-**	**-**	**-**
Naperville Wheaton Road & Driveway 6	Existing	0	-	0	-
	Background	0	-	0	-
	Future w/ Project	10	-	0	-
	Storage	**-**	**-**	**-**	**-**
	Taper	**-**	**-**	**-**	**-**
Naper Blvd & Naperville Wheaton Rd/ Ridgeland Ave	Existing	303	95	12	30
	Background	217	44	52	109
	Future w/ Project	225	44	52	109
	Storage	**430**	**-**	**160**	**165**
	Taper	**330**	**-**	**145**	**120**
Ogden Avenue & Naper Boulevard	Existing	145	223	221	226
	Background	147	235	226	303
	Future w/ Project	147	235	241	309
	Storage	**80**	**200**	**250**	**200**
	Taper	**65**	**100**	**120**	**80**

Note: All values in feet

Table 11: 95% Left Turn Queue Length, Saturday Midday Peak

Intersection	Scenario	Minor Movement			
		EB	WB	NB	SB
Washington Street & Iroquois Avenue	Existing	-	48	-	20
	Background	-	48	-	20
	Future w/ Project	-	53	-	22
	Storage	**-**	**270**	**-**	**185**
	Taper	**-**	**100**	**-**	**80**
Iroquois Avenue & Driveway 1	Existing	-	0	-	0
	Background	-	0	-	0
	Future w/ Project	-	5	-	3
	Storage	**-**	**-**	**-**	**-**
	Taper	**-**	**-**	**-**	**-**
Iroquois Avenue & Driveway 2	Existing	8	3	3	0
	Background	8	3	3	0
	Future w/ Project	8	30	3	0
	Storage	**-**	**-**	**-**	**-**
	Taper	**-**	**-**	**-**	**-**
Iroquois Avenue & Driveway 3	Existing	3	13	0	3
	Background	3	13	0	3
	Future w/ Project	3	10	0	3
	Storage	**-**	**-**	**-**	**-**
	Taper	**-**	**-**	**-**	**-**
Ogden Avenue & Iroquois Avenue	Existing	46	2	41	196
	Background	47	3	43	202
	Future w/ Project	171	3	43	386
	Storage	**200**	**365**	**120**	**100**
	Taper	**140**	**150**	**50**	**65**
Ogden Avenue & Driveway 4	Existing	-	-	0	10
	Background	-	-	0	10
	Future w/ Project	-	-	0	25
	Storage	**-**	**-**	**-**	**-**
	Taper	**-**	**-**	**-**	**-**
Ogden Avenue & Naperville Wheaton Road	Existing	360	24	197	174
	Background	394	23	203	156
	Future w/ Project	415	21	217	227
	Storage	**220**	**150**	**-**	**-**
	Taper	**100**	**100**	**-**	**-**
Naperville Wheaton Road & Driveway 5	Existing	20	3	8	0
	Background	30	3	8	0
	Future w/ Project	43	5	10	0
	Storage	**-**	**-**	**-**	**-**
	Taper	**-**	**-**	**-**	**-**
Naperville Wheaton Road & Driveway 6	Existing	0	-	0	-
	Background	0	-	0	-
	Future w/ Project	10	-	0	-
	Storage	**-**	**-**	**-**	**-**
	Taper	**-**	**-**	**-**	**-**
Naper Blvd & Naperville Wheaton Rd/ Ridgeland Ave	Existing	281	65	11	38
	Background	230	41	10	39
	Future w/ Project	250	41	10	41
	Storage	**430**	**-**	**160**	**165**
	Taper	**330**	**-**	**145**	**120**
Ogden Avenue & Naper Boulevard	Existing	116	79	280	207
	Background	122	81	300	222
	Future w/ Project	122	100	342	223
	Storage	**80**	**200**	**250**	**200**
	Taper	**65**	**100**	**120**	**80**

Note: All values in feet

Potential Mitigation Scenario – Ogden Avenue and Iroquois Avenue

Iroquois Avenue serves as a primary entrance to the proposed development. As noted in the previous section, the addition of project related traffic exacerbates an existing queuing issue for the southbound left turn at the intersection of Ogden Avenue & Iroquois Avenue, which is expected to be a primary exit from the proposed development.

It is anticipated that the measures of effectiveness could be improved through traffic signal retiming of the intersection of Ogden Avenue & Iroquois Avenue. With the existing signal timing, the northbound and southbound approaches are capped at a maximum phase time of 47 seconds (31 percent of cycle length) during the weekday pm peak hour and 30 seconds (25 percent of cycle length) during the Saturday midday peak hour. As noted previously, this timing

is results is level of service E during the weekday pm peak hour and a maximum queue of 386 feet on the southbound approach.

The issues are substantially improved if the intersection is retimed to allow 56 seconds (37 percent of cycle length) during the weekday pm peak hour, and 40 seconds (33 percent of cycle length) during the Saturday midday peak hour. This mitigation strategy would result in the overall intersection continuing to operate at LOS C with the southbound approach improving from LOS E to LOS D during both peak hours. The projected delays are comparable to the delays present in the existing condition.

Additionally, retiming of the signal will reduce the southbound left turn queue by approximately two vehicles during the weekday pm peak hour and four vehicles during the Saturday peak hour.

Therefore, it is recommended that the intersection of Ogden Avenue and Iroquois Avenue is retimed as part of the Ogden Mall redevelopment. This intersection is under the jurisdiction of IDOT and is part of a coordinated signal system that is maintained of DuPage County DOT. Retiming of this signal would require coordination and permitting by both agencies. As stated previously, it is possible that the network could be retimed and reoptimized prior to 2027 due to projects to increase capacity on Naperville Road to the north and other redevelopments in the area. Communication should occur with IDOT and DuPage County to investigate if retiming of the Ogden Avenue & Iroquois Avenue intersection could occur as part of a broader retiming effort.

It is also worth noting that the eastbound left turn queue length exceeds the provided storage in the weekday pm peak hour. It is recommended that the approach is restriped to provide adequate storage. This improvement will require permitting through IDOT.

The mitigation capacity analysis results are summarized in Table 12 and the mitigation queue lengths are summarized in Table 13 for both the weekday pm and Saturday midday peak hours.

Table 12: Retimed Ogden Avenue & Iroquois Avenue – Capacity Analysis

Peak Hour	Scenario	Eastbound		Westbound		Northbound		Southbound		Intersection	
		Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
Weekday PM	Future with Project (2027)	24.0	C	24.4	C	39.1	D	59.0	E	29.4	C
	Future with Project (2027) w/ Mitigation	25.3	C	30.3	C	36.6	D	54.2	D	31.8	C
Saturday MD	Future with Project (2027)	15.4	B	14.8	B	35.2	D	52.1	D	20.6	C
	Future with Project (2027) w/ Mitigation	18.4	B	22.0	C	29.7	C	42.1	D	23.3	C

Table 13: Retimed Ogden Avenue & Iroquois Avenue – Queue Length Analysis

Peak Hour	Scenario	Minor Movement			
		EB	WB	NB	SB
Weekday PM	Future w/ Project	226	9	77	379
	FwP w/ Mitigation	229	12	71	330
Saturday MD	Future w/ Project	171	3	43	386
	FwP w/ Mitigation	197	5	38	288
Storage		**200**	**365**	**120**	**100**
Taper		**140**	**150**	**50**	**65**

Site Circulation

In the proposed site plan, Driveway 3 on Iroquois Avenue will serve as the access point to the main internal road through the broader Ogden Mall site. This internal road will have limited access points to the Costco parking fields and adjacent outlots, and will be reconfigured with four stop-controlled intersections. For the purpose of the discussion below, the internal roadway is described as an east-west street. Overall, it is expected that the internal roadway configuration, with the limited access points and stop controlled intersections, will operate effectively.

Internal Intersection Summary

- Intersection 1 – Located approximately 200 feet east of Iroquois Avenue
  - Three leg intersection
  - Stop controlled on the northbound approach, which is an exit from the bank and restaurant outlots.
- Intersection 2 – Located approximately 200 feet east of Intersection 1
  - Four leg intersection
  - All-Way Stop Controlled
  - Provides access to the Driveway 4, the Costco Parking Lot, and the outlots.
- Intersection 3 – Located approximately 450 feet east of Intersection 2
  - Four leg intersection
  - All-Way Stop Controlled
- Intersection 4 – Located approximately 350 feet east of Intersection 3
  - Three leg intersection
  - Stop controlled on the southbound approach.

Significant internal storage lengths for exiting vehicles are provided for the three driveways on Iroquois Avenue to minimize potential blocking of internal drive aisles within the site. Internal queue lengths for outbound vehicles at Iroquois Avenue can be up to 110 feet, 200 feet and 330 feet for Driveway 1, Driveway 2, and Driveway 3, respectively, without impairing internal circulation.

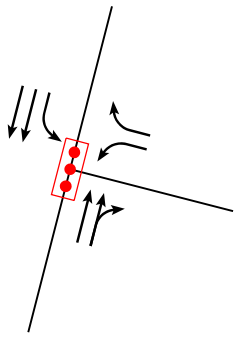
The entrance for the gas station is located on Driveway 1. The gas station consists of eight individual drive aisles with three fueling positions each. Conservatively, each drive aisle has space for approximately for five vehicles to queue waiting to pull up to the pump. Therefore, a minimum of 64 vehicles can be accommodated within the gas station area. In the event that vehicles do exceed the internal storage of the gas station area, an additional five vehicles can queue on Driveway 1 without impacting Iroquois Avenue.

The internal drive aisle adjacent to the gas station has been aligned with internal intersection 2, providing direct access between the gas station and parking fields southwest of the building to driveways on Ogden Avenue and Naperville Wheaton Road.

Proposed Lane Configuration

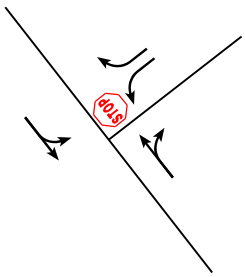
Based on the auxiliary lane, capacity, and queue length analysis, it is recommended that no geometric changes are needed at any of the study area intersections. However, the lane configuration will be modified at the intersection of Naper Boulevard & Naperville Wheaton Road as reflected in the approved intersection design study. The proposed lane configuration is illustrated in Figure 16.

1



WASHINGTON ST & IROQUOIS AVE

2



IROQUOIS AVE & DRIVEWAY 1

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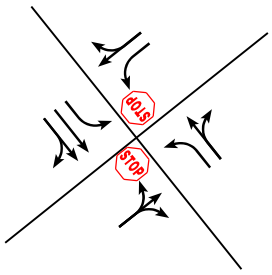

IROQUOIS AVE & DRIVEWAY 2

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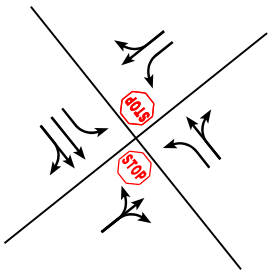

IROQUOIS AVE & DRIVEWAY 3

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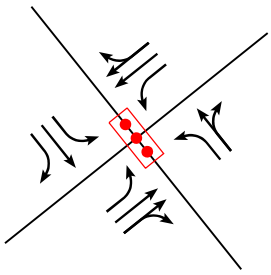
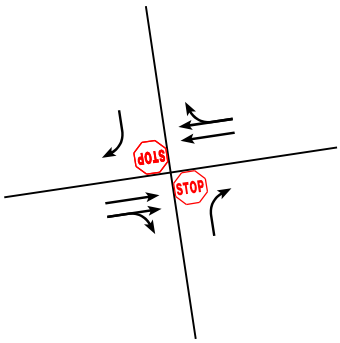


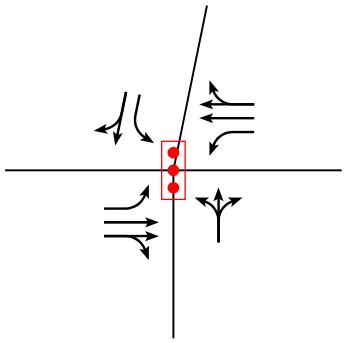
OGDEN AVE & IROQUOIS AVE

6



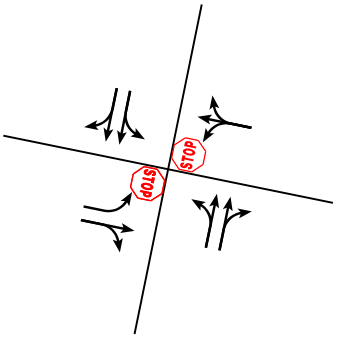
OGDEN AVE & DRIVEWAY 4

7



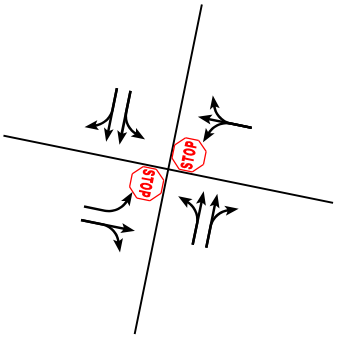
NAPERVILLE WHEATON RD & OGDEN AVE

8



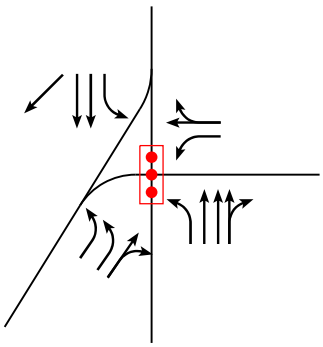
NAPERVILLE WHEATON RD & DRIVEWAY 5

9



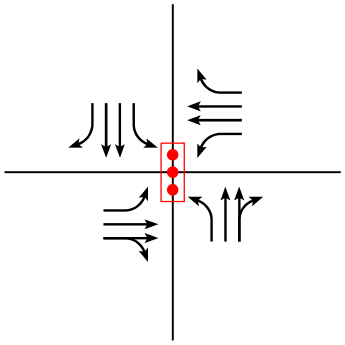
NAPERVILLE WHEATON RD & DRIVEWAY 6

10

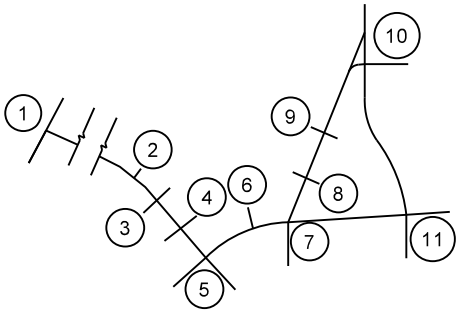


NAPER BLVD & RIDGELAND AVE/
NAPERVILLE WHEATON RD

11



OGDEN AVE & NAPER BLVD



OGDEN MALL REDEVELOPMENT

FIGURE 16
PROPOSED LANE CONFIGURATION

NAPERVILLE ILLINOIS

V. CONCLUSIONS

The purpose of this study is to evaluate the potential traffic impacts of the redevelopment of Ogden Mall located in Naperville, Illinois. The portion of the site to be redeveloped consists of approximately 180,000 square feet of shopping center uses, which does not include the six-screen movie theater. At the time of the traffic count, it was observed that the movie theater and approximately 35,000 square feet of the shopping center are leased and open to the public. The proposed site plan consists of an approximately 158,000 square foot Costco Wholesale building and a members-only gas station with 24 pumps.

The site plan includes modifications to the parking lot layout and internal site roadways. Notably, the proposed redevelopment includes new vehicular access to the parking lot north of the existing grocery store due to the removal of the existing shopping center. Ogden Mall will continue to be served by the six existing driveways. Due to the reconfigured internal roadways, it is expected that general traffic will use the westernmost driveway on Iroquois Avenue and the northern most driveway on Naperville Wheaton Road.

Traffic estimates are projected to 2027, which is five years beyond the anticipated build out in 2022, utilizing growth rates from CMAP that projected traffic volumes to 2050. The study area includes the existing signalized intersections of Washington Street & Iroquois Avenue, Ogden Avenue & Iroquois Avenue, Ogden Avenue & Naperville Wheaton Road, Naper Boulevard & Naperville Wheaton Road/Ridgeland Avenue, and Ogden Avenue & Naper Boulevard, as well as the six existing unsignalized Ogden Mall driveways.

The full area of Ogden Mall slated for redevelopment consists of approximately 180,000 square feet of shopping center use and a six-screen movie theater. The existing mall and the proposed Costco both represent large retail developments. Overall, it is found that full occupancy at the portion of the existing mall that will be redeveloped has the potential to generate 110 more total trips than the proposed redevelopment during the weekday pm peak hour. The proposed redevelopment has the potential to generate 53 more total trips than full occupancy at the existing mall during the Saturday midday peak hour. It is concluded that the potential trip generation of full occupancy at the existing mall and for the proposed development are of similar scale. Therefore, any external roadway network issues that are anticipated to occur with the proposed development are likely to also occur if the existing mall reached full occupancy.

This study evaluated whether additional auxiliary lanes are warranted at the study area intersections, including the Ogden Mall driveways. Driveway 1, Driveway 2, and Driveway 3 on Iroquois Avenue meet the warrant based on the chart comparing right turn and approach volumes and were therefore considered. However, no other warrants are met, the right turn and through movements all operate adequately, and many similar intersections in the area do not include right turn lanes. Therefore, it is recommended that right turn lanes are not needed at these driveways. Similarly, one warrant for a right turn lane is met at Driveway 4. However, this movement is right-in/right-out only and is aided by a channelizing island for right turning vehicles. This configuration allows turning vehicles to perform the movement at a higher speed

and impede through vehicles less. No other warrants are met at any of the other Ogden Mall driveways. Therefore, it is recommended that the existing configuration of all Ogden Mall driveways be maintained following redevelopment.

Results of the capacity analysis for the existing scenario indicate that several approaches are experiencing high delays at the intersections of Ogden Avenue & Iroquois Avenue, Naper Boulevard & Naperville Wheaton Road/Ridgeland Avenue, and Ogden Avenue & Naper Boulevard. Delays increase in the background condition, with several additional movements exhibiting notably high delay.

Since several study area intersections exhibit poor levels of service prior to the redevelopment of Ogden Mall, it is likely that broader area and regional improvements are necessary to mitigate these issues. It is likely that the conceptual improvements shown in the *Naperville Road Feasibility Study – Naper Blvd./Ogden Ave. Intersection Sub-Area* would lead to capacity and delay improvements at a number of the study area intersections. There are no notable changes in levels of service with the addition of project related trips.

As with signal operations, several queue storage deficiencies are present at study area intersections in the existing and background conditions. This includes movements at Ogden Avenue & Iroquois Avenue, Ogden Avenue & Naperville Wheaton Road, and Ogden Avenue & Naper Boulevard. Since the deficiencies are present prior to the proposed redevelopment of Ogden Mall, it is likely that broader area and regional improvements are necessary to mitigate these issues. It is likely that the conceptual improvements shown in the *Naperville Road Feasibility Study – Naper Blvd./Ogden Ave. Intersection Sub-Area* would lead to improvements to the projected queue lengths at a number of the study area intersections. The addition of project related trips results in notable increases in queue lengths at the intersection of Ogden Avenue & Iroquois Avenue.

It is anticipated that the measures of effectiveness could be improved through traffic signal retiming of the intersection of Ogden Avenue & Iroquois Avenue. This mitigation strategy would result in the overall intersection continuing to operate at LOS C with the southbound approach improving from LOS E to LOS D during both peak hours. The projected delays are comparable to the delays present in the existing condition. Additionally, retiming of the signal will reduce the southbound left turn queue by approximately two vehicles during the weekday pm peak hour and four vehicles during the Saturday peak hour.

Therefore, it is recommended that the intersection of Ogden Avenue and Iroquois Avenue is retimed as part of the Ogden Mall redevelopment. This intersection is under the jurisdiction of IDOT and is part of a coordinated signal system that is maintained of DuPage County DOT. Retiming of this signal would require coordination and permitting by both agencies. As stated previously, it is possible that the network could be retimed and reoptimized prior to 2027 due to projects to increase capacity on Naperville Road to the north and other redevelopments in the area. Communication should occur with IDOT and DuPage County to investigate if retiming of

the Ogden Avenue & Iroquois Avenue intersection could occur as part of a broader retiming effort.

It is also worth noting that the eastbound left turn queue length exceeds the provided storage in the weekday pm peak hour. It is recommended that the approach is restriped to provide adequate storage. This improvement will require permitting through IDOT.

Site circulation will be aided by a limited access internal roadway which is configured with traditional stop-controlled intersections and no direct access to parking aisles. The gas station is configured such that 64 vehicles can be held within the gas station area. In the worst case scenario, an additional five vehicles can queue on Driveway 1 without impacting Iroquois Avenue.

APPENDIX A

EXISTING TRAFFIC COUNTS

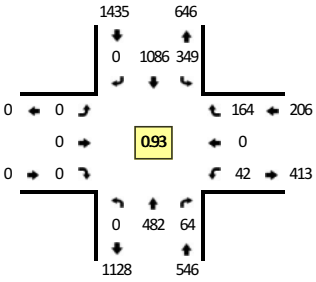
Type of peak hour being reported: Intersection Peak

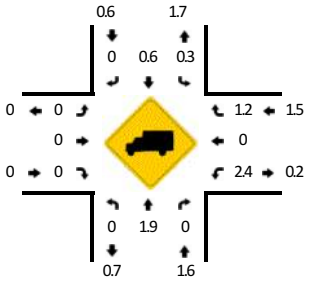
Method for determining peak hour: Total Entering Volume

LOCATION: N Washington St -- Iroquois Ave
CITY/STATE: Naperville, IL

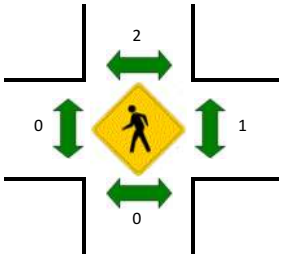
QC JOB #: 15129008
DATE: Wed, Nov 20 2019

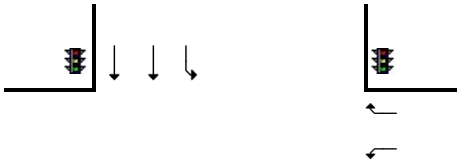
Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

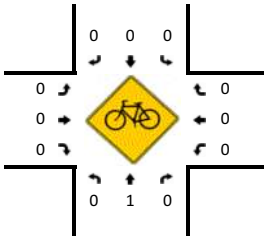


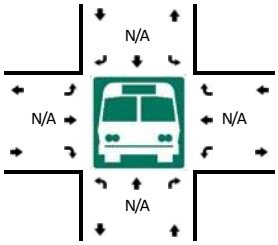


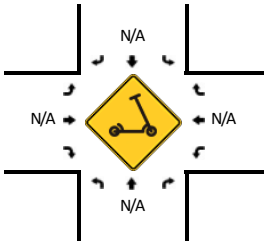
Quality Counts
DATA THAT DRIVES COMMUNITIES











15-Min Count Period Beginning At	N Washington St (Northbound)				N Washington St (Southbound)				Iroquois Ave (Eastbound)				Iroquois Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	131	24	0	60	226	0	0	0	0	0	0	12	0	39	0	492	
4:15 PM	0	131	18	0	48	227	0	0	0	0	0	0	6	0	39	0	469	
4:30 PM	0	110	6	0	72	263	0	0	0	0	0	0	14	0	33	0	498	
4:45 PM	0	131	21	0	66	254	0	0	0	0	0	0	10	0	34	0	516	1975
5:00 PM	0	117	15	0	95	302	0	0	0	0	0	0	14	0	44	0	587	2070
5:15 PM	0	136	15	0	108	270	0	0	0	0	0	0	5	0	35	0	569	2170
5:30 PM	0	98	13	0	80	260	0	0	0	0	0	0	13	0	51	0	515	2187
5:45 PM	0	142	11	0	61	209	0	0	0	0	0	0	7	0	39	0	469	2140

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	468	60	0	380	1208	0	0	0	0	0	0	56	0	176	0	2348
Heavy Trucks	0	16	0		4	8	0		0	0	0		0	0	4		32
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/2/2019 6:18 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

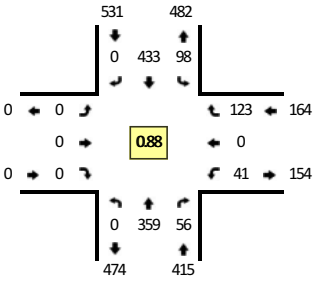
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: N Washington St -- Iroquois Ave
CITY/STATE: Naperville, IL

QC JOB #: 15129022
DATE: Sat, Nov 23 2019

Peak-Hour: 11:30 AM -- 12:30 PM
Peak 15-Min: 11:45 AM -- 12:00 PM



Quality Counts
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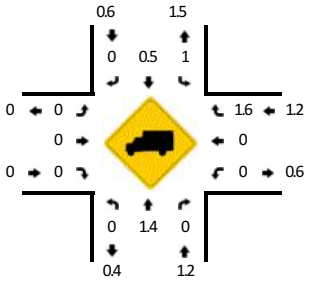

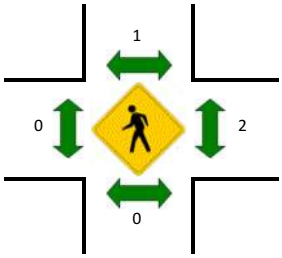

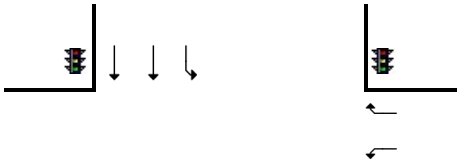

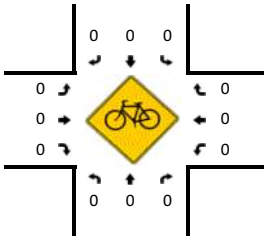

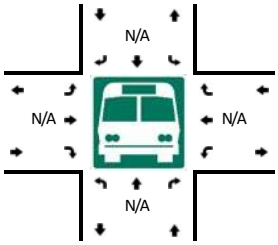

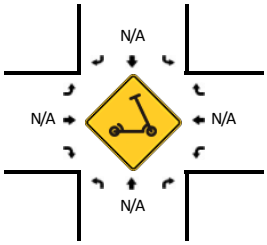

15-Min Count Period Beginning At	N Washington St (Northbound)				N Washington St (Southbound)				Iroquois Ave (Eastbound)				Iroquois Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	0	73	13	0	18	98	0	0	0	0	0	0	10	0	20	0	232	
10:15 AM	0	84	10	0	19	95	0	0	0	0	0	0	14	0	24	0	246	
10:30 AM	0	78	8	0	28	109	0	0	0	0	0	0	5	0	23	0	251	
10:45 AM	0	109	15	0	20	120	0	0	0	0	0	0	8	0	25	0	297	1026
11:00 AM	0	77	12	0	18	87	0	0	0	0	0	0	15	0	28	0	237	1031
11:15 AM	0	87	13	0	22	84	0	0	0	0	0	0	6	0	24	0	236	1021
11:30 AM	0	78	14	0	26	120	0	0	0	0	0	0	10	0	29	0	277	1047
11:45 AM	0	103	22	0	23	116	0	0	0	0	0	0	11	0	39	0	314	1064
12:00 PM	0	86	12	0	25	104	0	0	0	0	0	0	11	0	23	0	261	1088
12:15 PM	0	92	8	0	24	93	0	0	0	0	0	0	9	0	32	0	258	1110
12:30 PM	0	100	6	0	18	82	0	0	0	0	0	0	13	0	23	0	242	1075
12:45 PM	0	86	12	0	23	92	0	0	0	0	0	0	8	0	27	0	248	1009
1:00 PM	0	88	14	0	30	106	0	0	0	0	0	0	7	0	31	0	276	1024
1:15 PM	0	84	11	0	22	96	0	0	0	0	0	0	16	0	31	0	260	1026
1:30 PM	0	107	20	0	17	106	0	0	0	0	0	0	9	0	24	0	283	1067
1:45 PM	0	75	15	0	13	99	0	0	0	0	0	0	16	0	30	0	248	1067

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	412	88	0	92	464	0	0	0	0	0	0	44	0	156	0	1256
Heavy Trucks	0	8	0		0	4	0		0	0	0		0	0	4		16
Buses																	
Pedestrians		0				4				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/2/2019 6:18 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

LOCATION: Iriquois Ave -- Shopping Center Dwy | **QC JOB #:** 15129018
CITY/STATE: Naperville, IL | **DATE:** Wed, Nov 20 2019

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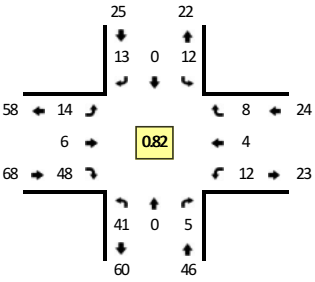
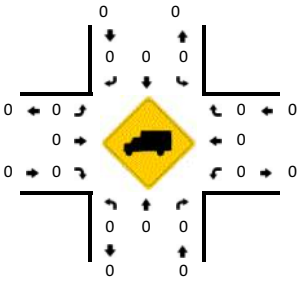
Peak 15-Min: 5:45 PM -- 6:00 PM





Quality Counts
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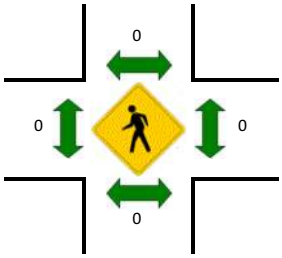

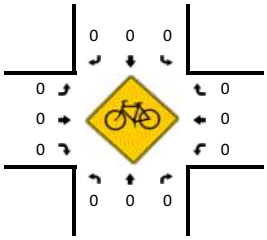

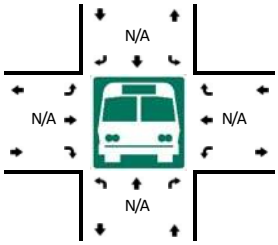

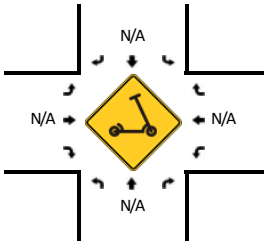

15-Min Count Period Beginning At	Iriquois Ave (Northbound)				Iriquois Ave (Southbound)				Shopping Center Dwy (Eastbound)				Shopping Center Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	12	0	0	0	3	0	1	0	3	3	8	0	5	0	1	0	36	
4:15 PM	6	0	0	0	0	0	1	0	3	0	17	0	2	0	1	0	30	
4:30 PM	9	0	2	0	3	0	2	0	3	2	13	0	0	1	2	0	37	
4:45 PM	12	0	0	0	5	0	1	0	0	0	6	0	1	0	4	0	29	132
5:00 PM	15	0	0	0	4	0	2	0	1	2	14	0	3	0	1	0	42	138
5:15 PM	9	0	0	0	2	0	4	0	5	2	6	0	1	1	4	0	34	142
5:30 PM	8	0	2	0	3	0	2	0	5	2	12	0	2	1	0	0	37	142
5:45 PM	9	0	3	0	3	0	5	0	3	0	16	0	6	2	3	0	50	163

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	36	0	12	0	12	0	20	0	12	0	64	0	24	8	12	0	200
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/2/2019 6:18 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

LOCATION: Iriquois Ave -- Shopping Center Dwy
CITY/STATE: Naperville, IL

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DATE: Sat, Nov 23 2019

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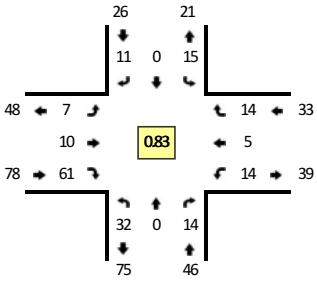
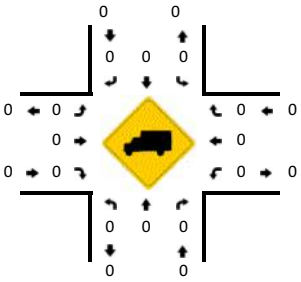
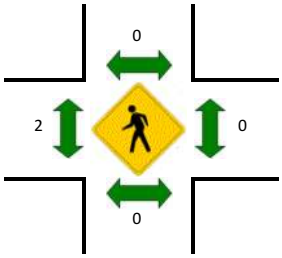
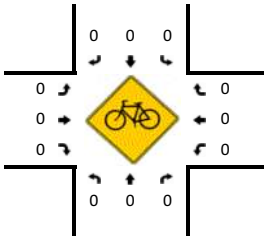
Peak 15-Min: 11:45 AM -- 12:00 PM

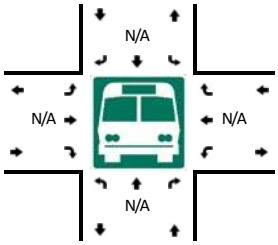


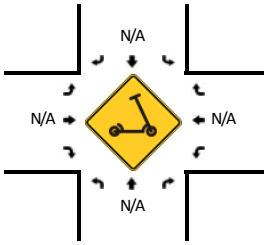


Quality Counts
DATA THAT DRIVES COMMUNITIES









15-Min Count Period Beginning At	Iriquois Ave (Northbound)				Iriquois Ave (Southbound)				Shopping Center Dwy (Eastbound)				Shopping Center Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	13	0	0	0	1	0	1	0	0	1	12	0	2	0	2	0	32	
10:15 AM	7	0	1	0	1	0	4	0	0	2	18	0	1	0	3	0	37	
10:30 AM	13	0	1	0	4	0	3	0	3	3	12	0	1	0	4	0	44	
10:45 AM	11	0	0	0	5	0	2	0	5	1	11	0	2	1	6	0	44	157
11:00 AM	19	0	3	0	1	0	1	0	2	7	10	0	0	0	1	0	44	169
11:15 AM	14	0	3	0	3	0	2	0	1	3	13	0	3	1	1	0	44	176
11:30 AM	7	0	2	0	1	0	2	0	2	0	17	0	0	1	2	0	34	166
11:45 AM	9	0	3	0	3	0	7	0	2	3	13	0	7	1	7	0	55	177
12:00 PM	2	0	6	0	8	0	0	0	2	4	18	0	4	2	4	0	50	183
12:15 PM	11	0	2	0	9	0	3	0	2	3	4	0	7	1	1	0	43	182
12:30 PM	7	0	2	0	4	0	0	0	5	0	13	0	1	0	2	0	34	182
12:45 PM	8	0	2	0	1	0	3	0	5	2	14	0	3	2	2	0	42	169
1:00 PM	9	0	1	0	2	0	1	0	1	4	11	0	6	2	5	0	42	161
1:15 PM	11	0	1	0	5	0	0	0	4	4	17	0	2	1	4	0	49	167
1:30 PM	10	0	2	0	1	0	0	0	1	2	7	0	3	0	4	0	30	163
1:45 PM	6	0	0	0	4	0	0	0	1	1	9	0	2	0	2	0	25	146

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	36	0	12	0	12	0	28	0	8	12	52	0	28	4	28	0	220
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/2/2019 6:18 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

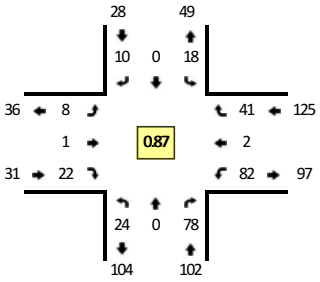
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

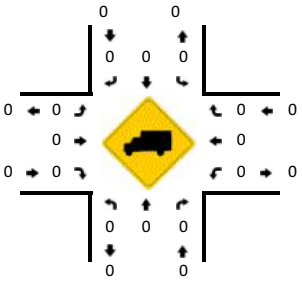
LOCATION: Iroquois Ave -- Shopping Center S Dwy
CITY/STATE: Naperville, IL

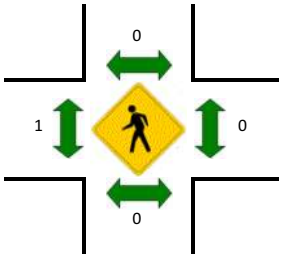
QC JOB #: 15129016
DATE: Wed, Nov 20 2019

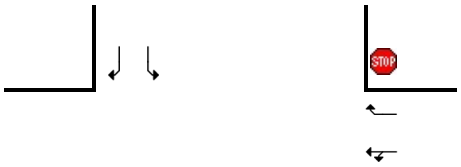
Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:45 PM -- 5:00 PM

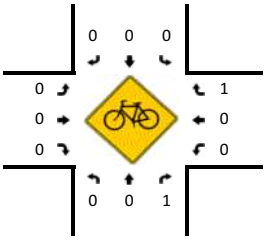


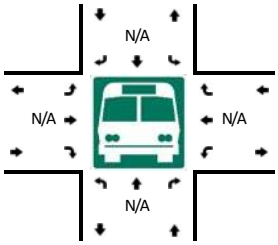
Quality Counts
DATA THAT DRIVES COMMUNITIES

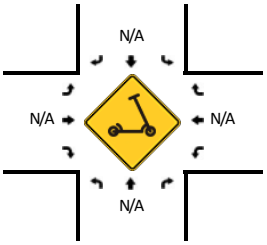












15-Min Count Period Beginning At	Iroquois Ave (Northbound)				Iroquois Ave (Southbound)				Shopping Center S Dwy (Eastbound)				Shopping Center S Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	12	0	6	0	2	0	0	1	1	0	11	0	8	0	41	
4:15 PM	5	0	13	0	4	0	3	0	3	0	4	0	14	0	12	0	58	
4:30 PM	8	0	25	0	5	0	2	0	0	0	9	0	20	0	10	0	79	
4:45 PM	9	0	18	0	5	0	3	0	3	1	5	0	28	2	8	0	82	260
5:00 PM	2	0	22	0	4	0	2	0	2	0	4	0	20	0	11	0	67	286
5:15 PM	2	0	15	0	6	0	2	0	1	0	5	0	17	0	4	0	52	280
5:30 PM	3	0	25	0	8	0	2	0	2	1	4	0	26	0	13	0	84	285
5:45 PM	2	0	14	0	3	0	2	0	3	0	3	0	21	0	8	0	56	259

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	36	0	72	0	20	0	12	0	12	4	20	0	112	8	32	0	328
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

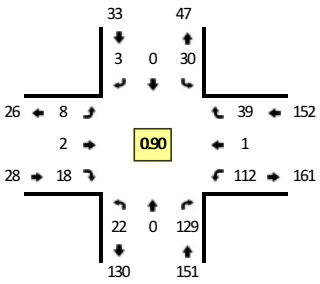
Report generated on 12/2/2019 6:18 PM

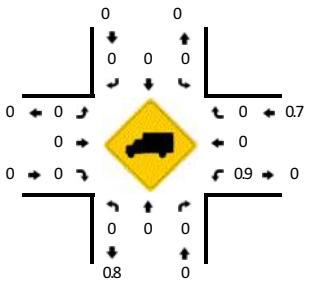
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

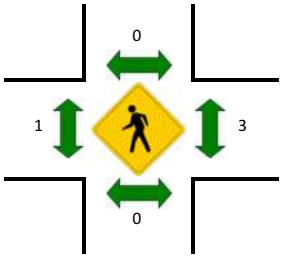
LOCATION: Iroquois Ave -- Shopping Center S Dwy | **QC JOB #:** 15129025
CITY/STATE: Naperville, IL | **DATE:** Sat, Nov 23 2019

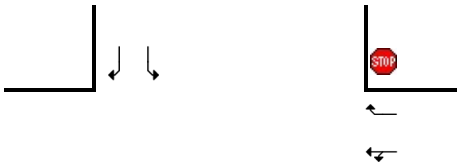
Peak-Hour: 11:30 AM -- 12:30 PM
Peak 15-Min: 12:00 PM -- 12:15 PM

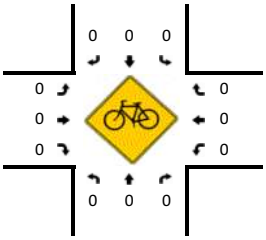


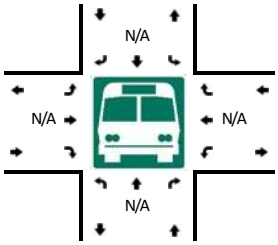


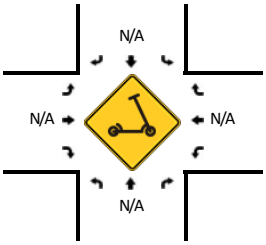
Quality Counts
DATA THAT DRIVES COMMUNITIES











15-Min Count Period Beginning At	Iroquois Ave (Northbound)				Iroquois Ave (Southbound)				Shopping Center S Dwy (Eastbound)				Shopping Center S Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	3	0	27	0	5	0	0	0	1	0	4	0	18	1	3	0	62	
10:15 AM	4	0	27	0	6	0	2	0	1	1	0	0	21	0	5	0	67	
10:30 AM	1	0	17	0	6	0	2	0	2	0	4	0	20	0	10	1	63	
10:45 AM	2	0	34	0	5	0	2	0	1	1	2	0	26	1	2	0	76	268
11:00 AM	5	0	28	0	2	0	0	0	0	1	5	0	20	0	11	0	72	278
11:15 AM	1	0	29	0	5	0	2	0	0	0	3	0	21	1	10	0	72	283
11:30 AM	8	0	22	0	6	0	1	0	3	1	2	0	33	1	9	0	86	306
11:45 AM	4	0	38	0	9	0	0	0	3	0	5	0	26	0	9	0	94	324
12:00 PM	5	0	43	0	10	0	2	0	1	0	9	0	21	0	10	0	101	353
12:15 PM	5	0	26	0	5	0	0	0	1	1	2	0	32	0	11	0	83	364
12:30 PM	6	0	22	0	5	0	4	0	2	0	8	0	24	0	7	0	78	356
12:45 PM	4	0	22	0	5	0	1	0	1	1	2	0	19	0	5	0	60	322
1:00 PM	3	0	33	0	10	0	1	0	2	1	3	0	31	1	8	0	93	314
1:15 PM	3	0	29	0	12	0	2	0	0	1	1	0	26	0	9	0	83	314
1:30 PM	3	0	26	0	4	0	2	0	5	0	5	0	20	1	11	0	77	313
1:45 PM	6	0	20	0	3	0	3	0	0	0	6	0	14	2	10	0	64	317

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	20	0	172	0	40	0	8	0	4	0	36	0	84	0	40	0	404
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				4				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/2/2019 6:18 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

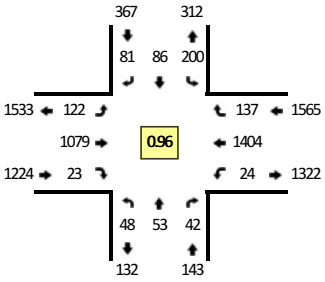
Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

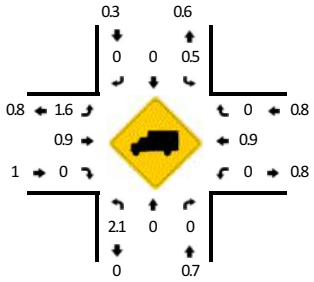
LOCATION: Iroquois Ave -- Ogden Ave
CITY/STATE: Naperville, IL

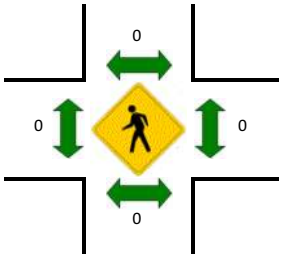
QC JOB #: 15129006
DATE: Wed, Nov 20 2019

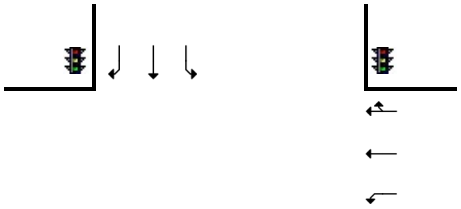
Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

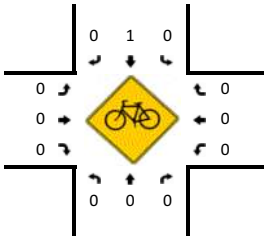


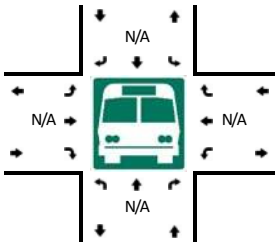
Quality Counts
DATA THAT DRIVES COMMUNITIES

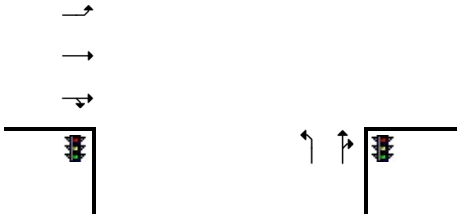


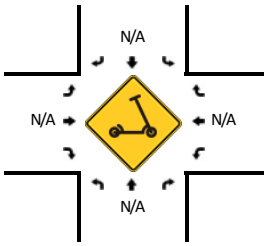












15-Min Count Period Beginning At	Iroquois Ave (Northbound)				Iroquois Ave (Southbound)				Ogden Ave (Eastbound)				Ogden Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	13	10	14	0	34	9	12	0	19	273	5	0	1	316	32	1	739	
4:15 PM	10	6	5	0	37	17	16	0	14	297	7	0	8	343	25	0	785	
4:30 PM	9	11	11	0	44	21	13	0	23	281	7	0	7	334	34	0	795	
4:45 PM	11	16	12	0	44	14	28	0	29	236	9	0	5	338	31	1	774	3093
5:00 PM	16	14	11	0	59	27	17	0	35	272	5	0	6	364	32	0	858	3212
5:15 PM	15	13	9	0	47	24	14	0	23	311	7	0	4	347	35	0	849	3276
5:30 PM	6	10	10	0	50	21	22	0	35	260	2	0	8	355	39	0	818	3299
5:45 PM	6	9	4	0	32	18	34	0	29	239	11	0	7	336	34	0	759	3284

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	64	56	44	0	236	108	68	0	140	1088	20	0	24	1456	128	0	3432
Heavy Trucks	0	0	0		0	0	0		0	8	0		0	8	0		16
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	1	0		0	0	0		0	0	0		1
Scooters																	

Comments:

Report generated on 12/2/2019 6:18 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

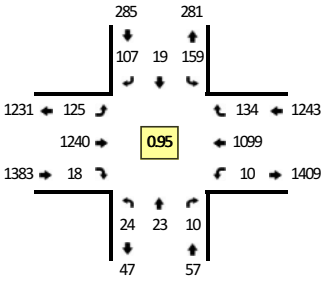
Type of peak hour being reported: Intersection Peak

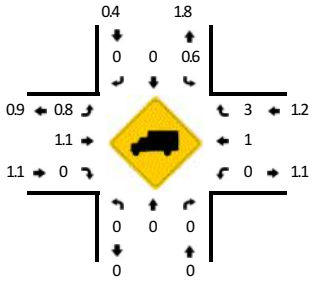
Method for determining peak hour: Total Entering Volume

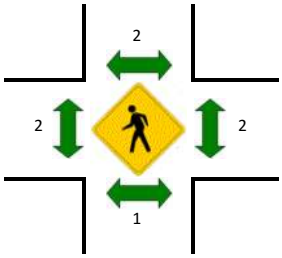
LOCATION: Iroquois Ave -- Ogden Ave
CITY/STATE: Naperville, IL

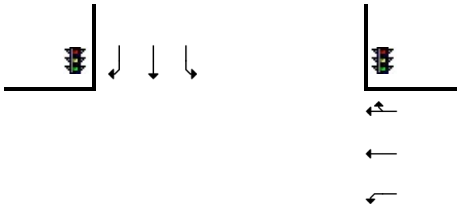
QC JOB #: 15129021
DATE: Sat, Nov 23 2019

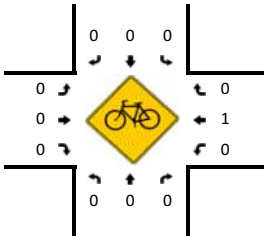
Peak-Hour: 12:30 PM -- 1:30 PM
Peak 15-Min: 12:30 PM -- 12:45 PM

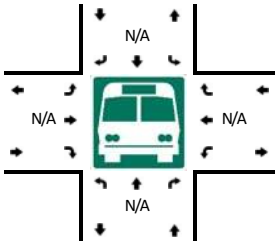


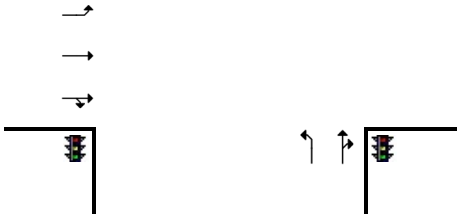


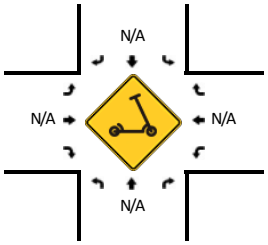












15-Min Count Period Beginning At	Iroquois Ave (Northbound)				Iroquois Ave (Southbound)				Ogden Ave (Eastbound)				Ogden Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	6	7	2	0	32	4	19	0	30	219	6	0	5	237	19	0	586	
10:15 AM	7	6	5	0	44	8	13	0	30	227	5	0	4	230	31	0	610	
10:30 AM	4	9	5	0	35	5	28	0	23	250	4	0	3	239	22	0	627	
10:45 AM	4	11	6	0	42	9	25	0	35	224	11	0	6	283	23	0	679	2502
11:00 AM	5	6	4	0	38	8	19	0	36	248	6	0	6	280	43	0	699	2615
11:15 AM	5	7	2	0	37	8	22	0	33	253	1	0	2	261	25	1	657	2662
11:30 AM	6	2	3	0	37	4	31	0	31	288	4	0	2	278	37	0	723	2758
11:45 AM	8	9	5	0	47	12	30	0	39	252	7	0	3	269	28	0	709	2788
12:00 PM	6	7	6	0	42	6	22	0	48	279	4	0	2	268	16	0	706	2795
12:15 PM	7	5	3	0	40	7	30	0	33	259	7	0	0	277	37	0	705	2843
12:30 PM	7	2	1	0	37	8	26	0	25	335	5	1	3	284	44	0	778	2898
12:45 PM	7	8	5	0	45	5	19	0	22	306	6	0	7	296	34	0	760	2949
1:00 PM	5	7	3	0	33	3	34	0	41	291	3	0	0	265	31	0	716	2959
1:15 PM	5	6	1	0	44	3	28	0	36	308	4	0	0	254	25	0	714	2968
1:30 PM	2	5	3	0	37	6	24	0	26	272	3	0	4	305	29	1	717	2907
1:45 PM	1	5	4	0	30	6	18	0	28	292	7	0	3	288	30	0	712	2859

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	28	8	4	0	148	32	104	0	100	1340	20	4	12	1136	176	0	3112
Heavy Trucks	0	0	0		4	0	0		0	12	0		0	4	0		20
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/2/2019 6:18 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

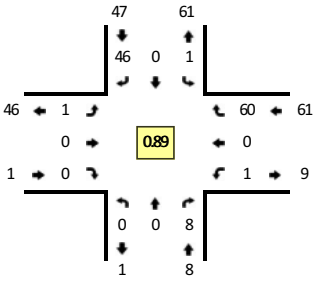
Type of peak hour being reported: Intersection Peak

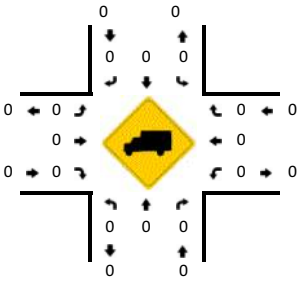
Method for determining peak hour: Total Entering Volume

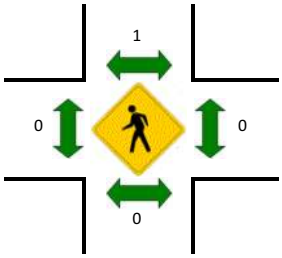
LOCATION: Shopping Complex RIRO Dwy -- Ogden Rd
CITY/STATE: Naperville, IL

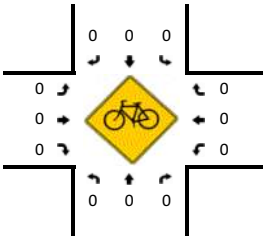
QC JOB #: 15129014
DATE: Wed, Nov 20 2019

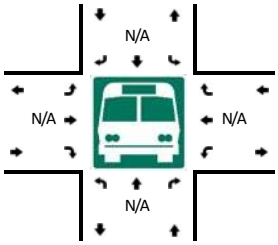
Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:30 PM -- 4:45 PM

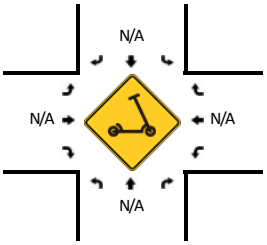












15-Min Count Period Beginning At	Shopping Complex RIRO Dwy (Northbound)				Shopping Complex RIRO Dwy (Southbound)				Ogden Rd (Eastbound)				Ogden Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	11	0	0	0	0	0	0	0	13	0	24	
4:15 PM	0	0	0	0	1	0	15	0	0	0	0	0	0	0	16	0	32	
4:30 PM	0	0	2	0	0	0	11	0	0	0	0	0	0	0	20	0	33	
4:45 PM	0	0	4	0	0	0	6	0	0	0	0	0	1	0	14	0	25	114
5:00 PM	0	0	2	0	0	0	14	0	1	0	0	0	0	0	10	0	27	117
5:15 PM	0	0	0	0	0	0	6	0	0	0	0	0	2	0	17	0	25	110
5:30 PM	0	0	1	0	0	0	11	0	0	0	0	0	0	0	24	0	36	113
5:45 PM	0	0	1	0	0	0	9	0	0	0	1	0	0	0	13	0	24	112

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	8	0	0	0	44	0	0	0	0	0	0	0	80	0	132
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

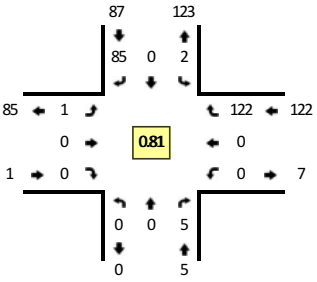
Report generated on 12/2/2019 6:18 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

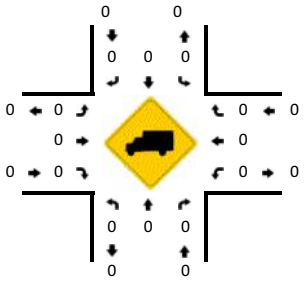
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

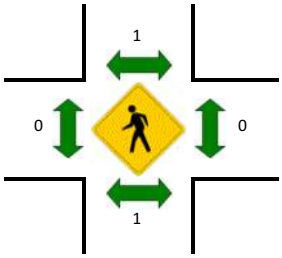
LOCATION: Shopping Complex RIRO Dwy -- Ogden Rd | **QC JOB #:** 15129024
CITY/STATE: Naperville, IL | **DATE:** Sat, Nov 23 2019

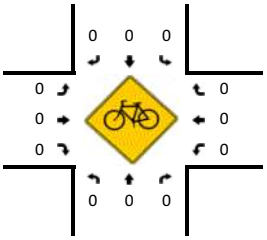
Peak-Hour: 12:45 PM -- 1:45 PM
Peak 15-Min: 1:15 PM -- 1:30 PM

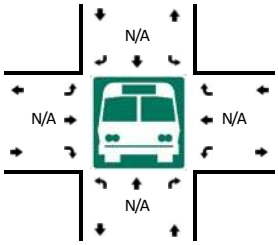


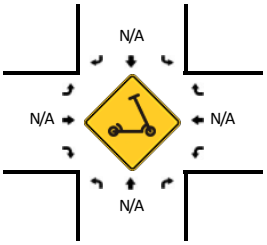
Quality Counts
DATA THAT DRIVES COMMUNITIES











15-Min Count Period Beginning At	Shopping Complex RIRO Dwy (Northbound)				Shopping Complex RIRO Dwy (Southbound)				Ogden Rd (Eastbound)				Ogden Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	0	0	0	0	0	0	6	0	0	0	0	0	0	0	34	0	40	
10:15 AM	0	0	1	0	0	0	13	0	0	0	0	0	0	0	25	0	39	
10:30 AM	0	0	1	0	1	0	12	0	0	0	0	0	0	0	14	0	28	
10:45 AM	0	0	3	0	0	0	12	0	0	0	0	0	0	0	26	0	41	148
11:00 AM	0	0	0	0	0	0	9	0	0	0	0	0	0	0	26	0	35	143
11:15 AM	0	0	4	0	0	0	13	0	0	0	0	0	0	0	19	0	36	140
11:30 AM	0	0	5	0	1	0	15	0	0	0	0	0	0	0	31	0	52	164
11:45 AM	1	0	4	0	1	0	19	0	0	0	0	0	0	0	32	0	57	180
12:00 PM	0	0	1	0	1	0	13	0	0	0	0	0	0	0	31	0	46	191
12:15 PM	0	0	0	0	0	0	17	0	1	0	0	0	1	0	19	0	38	193
12:30 PM	0	0	2	0	1	0	9	0	1	0	0	0	0	0	15	0	28	169
12:45 PM	0	0	2	0	2	0	13	0	0	0	0	0	0	0	24	0	41	153
1:00 PM	0	0	1	0	0	0	17	0	0	0	0	0	0	0	38	0	56	163
1:15 PM	0	0	2	0	0	0	32	0	1	0	0	0	0	0	31	0	66	191
1:30 PM	0	0	0	0	0	0	23	0	0	0	0	0	0	0	29	0	52	215
1:45 PM	0	0	1	0	0	0	17	0	0	0	0	0	0	0	20	0	38	212

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	8	0	0	0	128	0	4	0	0	0	0	0	124	0	264
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/2/2019 6:18 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

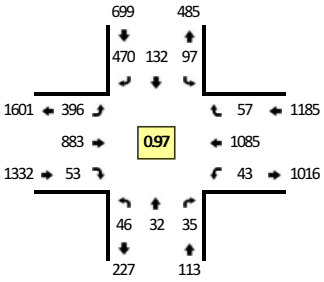
Type of peak hour being reported: Intersection Peak

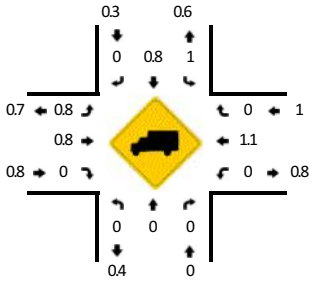
Method for determining peak hour: Total Entering Volume

LOCATION: Naperville Wheaton Rd -- Ogden Ave
CITY/STATE: Naperville, IL

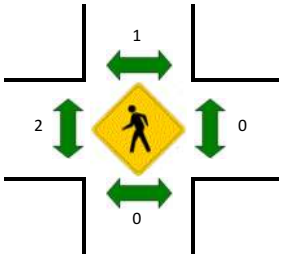
QC JOB #: 15129004
DATE: Wed, Nov 20 2019

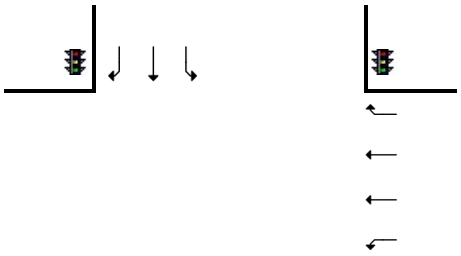
Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

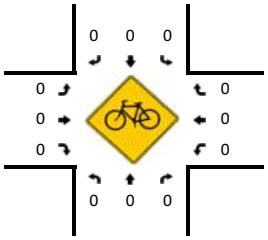


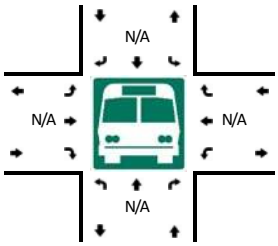


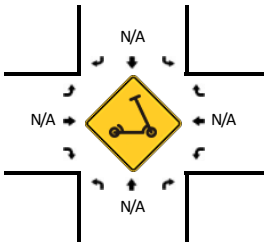
Quality Counts
DATA THAT DRIVES COMMUNITIES











15-Min Count Period Beginning At	Naperville Wheaton Rd (Northbound)				Naperville Wheaton Rd (Southbound)				Ogden Ave (Eastbound)				Ogden Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	9	16	4	0	26	36	115	0	88	217	13	0	14	223	11	0	772	
4:15 PM	11	12	11	0	22	26	112	0	88	247	13	0	14	247	13	0	816	
4:30 PM	11	13	9	0	37	36	127	0	78	238	15	0	14	244	14	0	836	
4:45 PM	7	9	5	0	26	31	122	0	80	212	11	0	7	257	20	1	788	3212
5:00 PM	13	9	13	0	28	36	120	0	93	225	16	0	14	264	12	0	843	3283
5:15 PM	12	5	10	0	20	29	106	0	125	235	10	0	12	282	10	0	856	3323
5:30 PM	14	9	7	0	23	36	122	0	98	211	16	0	9	282	15	0	842	3329
5:45 PM	7	11	6	0	23	34	98	0	76	186	10	0	18	269	15	0	753	3294

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	48	20	40	0	80	116	424	0	500	940	40	0	48	1128	40	0	3424
Heavy Trucks	0	0	0		4	4	0		4	8	0		0	20	0		40
Buses																	
Pedestrians		0				0				8				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

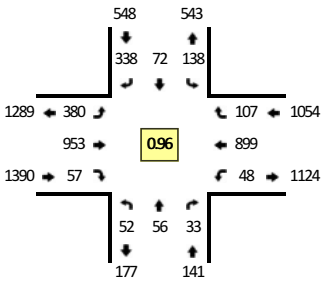
Report generated on 12/2/2019 6:18 PM

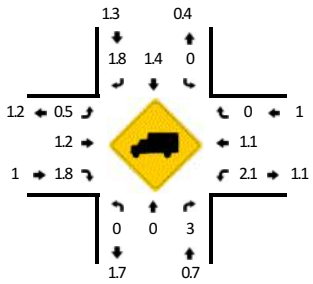
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

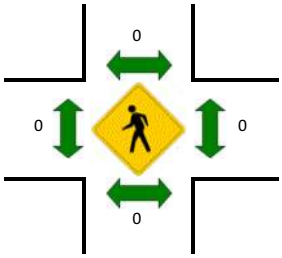
LOCATION: Naperville Wheaton Rd -- Ogden Ave | **QC JOB #:** 15129020
CITY/STATE: Naperville, IL | **DATE:** Sat, Nov 23 2019

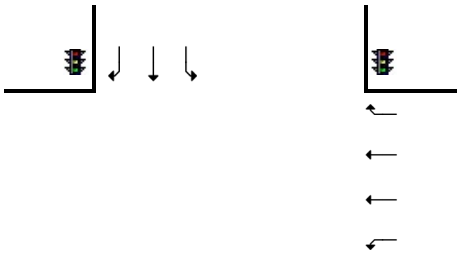
Peak-Hour: 12:30 PM -- 1:30 PM
Peak 15-Min: 12:30 PM -- 12:45 PM

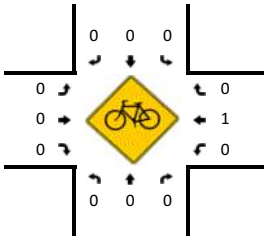


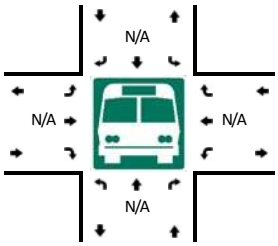


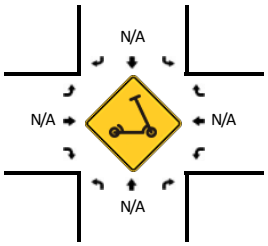
Quality Counts
DATA THAT DRIVES COMMUNITIES











15-Min Count Period Beginning At	Naperville Wheaton Rd (Northbound)				Naperville Wheaton Rd (Southbound)				Ogden Ave (Eastbound)				Ogden Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	14	15	7	0	16	17	73	0	78	162	11	0	7	204	22	0	626	
10:15 AM	13	15	7	0	23	19	90	0	76	180	16	0	13	175	15	0	642	
10:30 AM	8	12	7	0	22	20	60	0	83	194	17	0	17	202	27	0	669	
10:45 AM	14	11	11	0	33	14	84	0	67	183	15	0	10	234	9	0	685	2622
11:00 AM	12	23	5	0	27	16	74	0	81	199	15	0	13	261	28	0	754	2750
11:15 AM	8	12	12	0	30	24	92	0	75	210	12	0	6	208	16	0	705	2813
11:30 AM	9	11	13	0	37	18	105	0	88	234	15	0	13	216	24	0	783	2927
11:45 AM	19	10	8	0	35	22	92	0	89	207	13	0	13	193	27	0	728	2970
12:00 PM	9	13	5	0	35	10	78	0	94	236	17	0	11	225	18	0	751	2967
12:15 PM	13	14	14	0	41	18	97	0	79	199	16	0	15	211	22	0	739	3001
12:30 PM	17	17	3	0	37	22	82	0	110	252	10	0	10	233	25	0	818	3036
12:45 PM	15	12	6	0	37	13	107	0	81	253	14	0	14	219	24	0	795	3103
1:00 PM	9	11	15	0	18	18	73	0	94	226	20	0	12	238	37	0	771	3123
1:15 PM	11	16	9	0	46	19	76	0	95	222	13	0	12	209	21	0	749	3133
1:30 PM	11	9	12	0	31	13	103	0	97	220	10	0	10	224	18	0	758	3073
1:45 PM	11	17	6	0	35	17	93	0	94	214	14	0	5	220	27	0	753	3031

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	68	68	12	0	148	88	328	0	440	1008	40	0	40	932	100	0	3272
Heavy Trucks	0	0	0		0	4	4		4	8	4		0	8	0		32
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

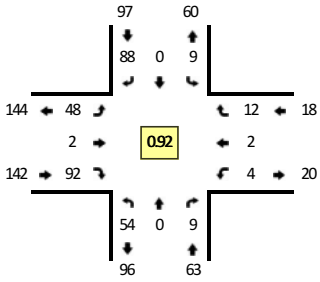
Comments:

Report generated on 12/2/2019 6:18 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

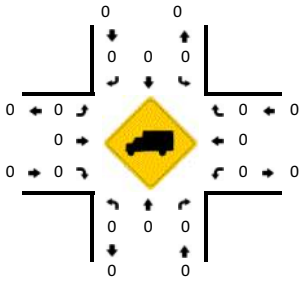
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

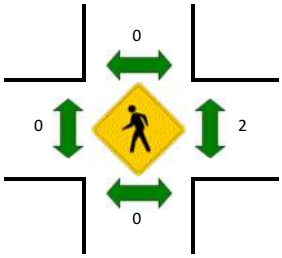
LOCATION: Naperville Wheaton Rd -- Shopping Complex S Dwy | **QC JOB #:** 15129012
CITY/STATE: Naperville, IL | **DATE:** Wed, Nov 20 2019

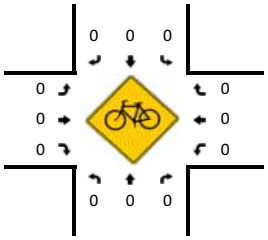
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:00 PM -- 4:15 PM

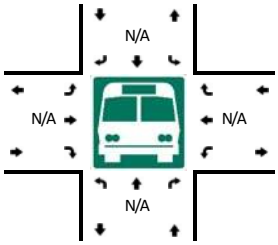


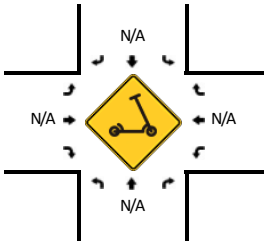
Quality Counts
DATA THAT DRIVES COMMUNITIES











15-Min Count Period Beginning At	Naperville Wheaton Rd (Northbound)				Naperville Wheaton Rd (Southbound)				Shopping Complex S Dwy (Eastbound)				Shopping Complex S Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	18	0	1	0	1	0	24	0	17	0	25	0	0	1	0	0	87	
4:15 PM	11	0	3	0	2	0	19	0	14	0	21	0	0	1	4	0	75	
4:30 PM	7	0	5	0	6	0	15	0	9	1	23	0	1	0	4	0	71	
4:45 PM	18	0	0	0	0	0	30	0	8	1	23	0	3	0	4	0	87	320
5:00 PM	6	0	1	0	2	0	20	0	19	1	14	0	0	0	3	0	66	299
5:15 PM	9	0	0	0	3	0	20	0	13	0	20	0	0	0	1	0	66	290
5:30 PM	9	0	2	0	0	0	26	0	14	0	15	0	0	0	0	0	66	285
5:45 PM	9	0	0	0	0	0	28	0	17	0	22	0	0	0	2	0	78	276

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	72	0	4	0	4	0	96	0	68	0	100	0	0	4	0	0	348
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

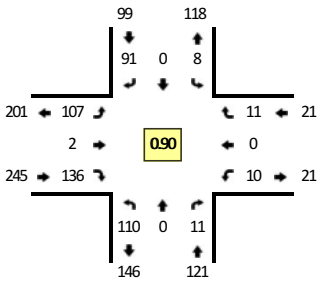
Comments:

Report generated on 12/2/2019 6:18 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

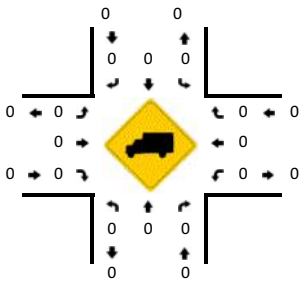
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

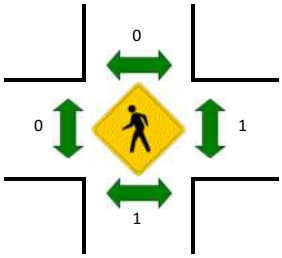
LOCATION: Naperville Wheaton Rd -- Shopping Complex S Dwy | **QC JOB #:** 15129023
CITY/STATE: Naperville, IL | **DATE:** Sat, Nov 23 2019

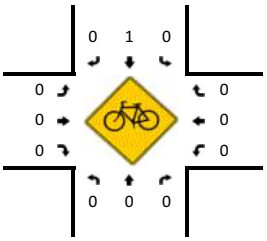
Peak-Hour: 12:30 PM -- 1:30 PM
Peak 15-Min: 1:15 PM -- 1:30 PM

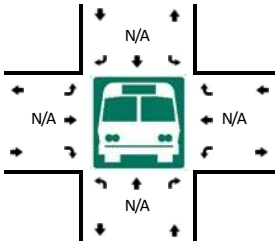


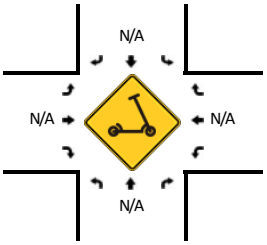
Quality Counts
DATA THAT DRIVES COMMUNITIES











15-Min Count Period Beginning At	Naperville Wheaton Rd (Northbound)				Naperville Wheaton Rd (Southbound)				Shopping Complex S Dwy (Eastbound)				Shopping Complex S Dwy (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	25	0	6	0	0	0	19	0	17	0	15	0	1	0	1	0	84	
10:15 AM	19	0	2	0	1	0	14	0	16	0	25	0	2	1	3	0	83	
10:30 AM	25	0	6	0	0	0	19	0	12	0	30	0	1	2	1	0	96	
10:45 AM	14	0	1	0	2	0	24	0	13	0	34	0	2	1	2	0	93	356
11:00 AM	26	0	0	0	2	0	19	0	14	0	24	0	1	0	1	0	87	359
11:15 AM	23	0	2	0	2	0	23	0	19	0	41	0	0	1	0	0	111	387
11:30 AM	28	0	2	0	2	0	27	0	18	0	32	0	1	0	2	0	112	403
11:45 AM	23	0	4	0	3	0	20	0	19	0	42	0	1	0	3	0	115	425
12:00 PM	24	0	3	0	0	0	30	0	25	0	35	0	1	1	1	0	120	458
12:15 PM	25	0	3	0	2	0	26	0	14	2	36	0	1	3	4	0	116	463
12:30 PM	23	0	3	0	1	0	25	0	23	0	34	0	2	0	3	0	114	465
12:45 PM	22	0	3	0	3	0	20	0	25	0	31	0	3	0	4	0	111	461
1:00 PM	33	0	2	0	2	0	22	0	31	0	32	0	3	0	1	0	126	467
1:15 PM	32	0	3	0	2	0	24	0	28	2	39	0	2	0	3	0	135	486
1:30 PM	13	0	1	0	2	0	24	0	12	0	37	0	0	0	1	0	90	462
1:45 PM	28	0	2	0	2	0	27	0	25	0	36	0	0	0	2	0	122	473

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	128	0	12	0	8	0	96	0	112	8	156	0	8	0	12	0	540
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

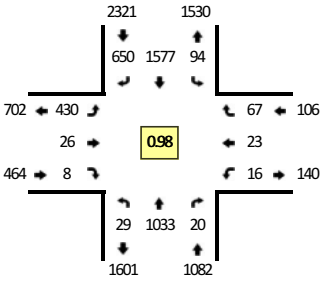
Comments:

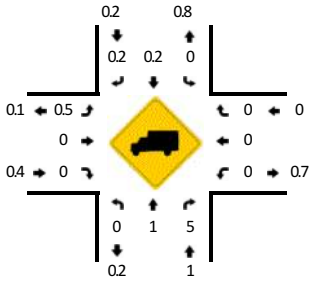
Report generated on 12/2/2019 6:18 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

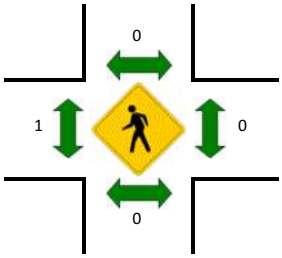
LOCATION: Naperville Rd -- Ridgeland Ave/Naperville Wheaton Rd | **QC JOB #:** 15129002
CITY/STATE: Naperville, IL | **DATE:** Wed, Nov 20 2019

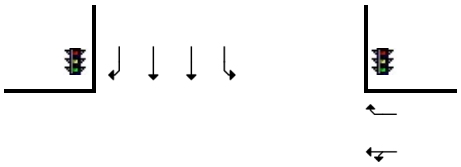
Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:30 PM -- 5:45 PM

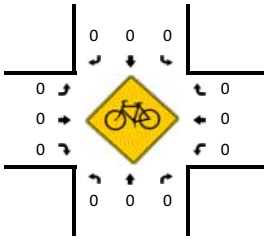


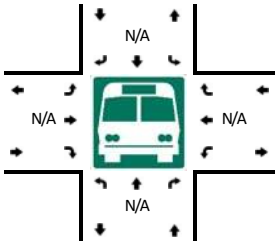


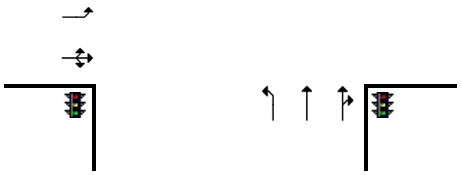
Quality Counts
DATA THAT DRIVES COMMUNITIES

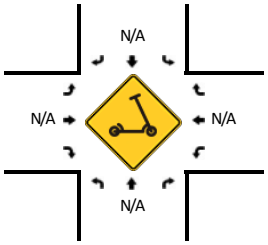












15-Min Count Period Beginning At	Naperville Rd (Northbound)				Naperville Rd (Southbound)				Ridgeland Ave/Naperville Wheaton Rd (Eastbound)				Ridgeland Ave/Naperville Wheaton Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	2	244	4	0	26	416	162	0	105	4	4	0	7	4	16	0	994	
4:15 PM	8	262	9	0	22	358	148	0	103	5	2	0	7	9	16	0	949	
4:30 PM	5	247	7	0	16	419	165	0	91	8	3	0	4	4	21	0	990	
4:45 PM	6	265	7	0	23	395	169	0	84	5	3	0	3	10	20	0	990	3923
5:00 PM	10	244	4	0	23	382	164	0	110	11	1	0	4	4	11	0	968	3897
5:15 PM	7	260	3	0	21	414	140	0	126	5	2	0	5	2	16	0	1001	3949
5:30 PM	6	264	6	0	27	386	177	0	110	5	2	0	4	7	20	0	1014	3973
5:45 PM	9	269	5	0	19	357	149	0	94	7	5	0	8	3	14	0	939	3922

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	24	1056	24	0	108	1544	708	0	440	20	8	0	16	28	80	0	4056
Heavy Trucks	0	16	0		0	0	4		4	0	0		0	0	0		24
Buses																	
Pedestrians		0				0				4				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

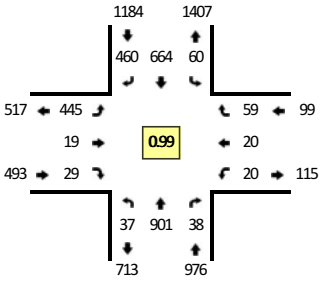
Comments:

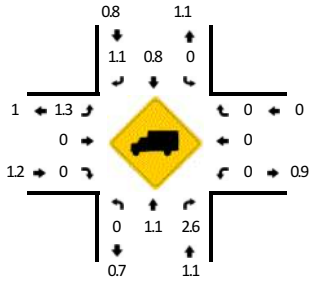
Report generated on 12/2/2019 6:18 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

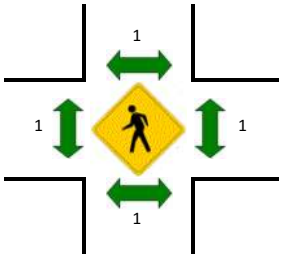
LOCATION: Naperville Rd -- Ridgeland Ave/Naperville Wheaton Rd | **QC JOB #:** 15129019
CITY/STATE: Naperville, IL | **DATE:** Sat, Nov 23 2019

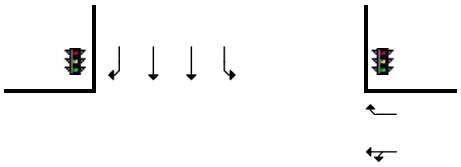
Peak-Hour: 12:15 PM -- 1:15 PM
Peak 15-Min: 12:45 PM -- 1:00 PM

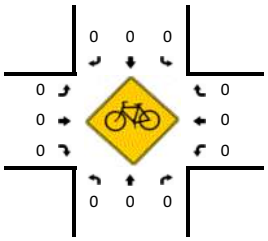


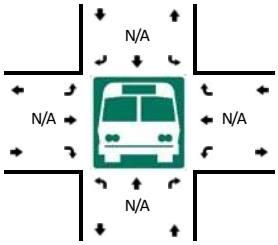


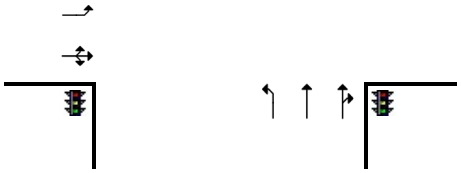
Quality Counts
DATA THAT DRIVES COMMUNITIES

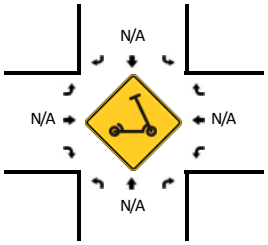












15-Min Count Period Beginning At	Naperville Rd (Northbound)				Naperville Rd (Southbound)				Ridgeland Ave/Naperville Wheaton Rd (Eastbound)				Ridgeland Ave/Naperville Wheaton Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	3	221	11	0	6	147	102	0	89	6	1	0	5	7	13	0	611	
10:15 AM	2	222	8	0	8	134	108	0	102	5	2	0	3	4	20	0	618	
10:30 AM	5	202	12	0	7	158	92	0	94	4	6	0	6	4	13	0	603	
10:45 AM	2	244	5	0	10	156	105	0	79	4	4	0	5	3	11	0	628	2460
11:00 AM	8	180	8	0	11	187	105	0	87	9	10	0	4	4	22	0	635	2484
11:15 AM	2	231	9	0	5	145	115	0	101	4	4	0	4	5	11	0	636	2502
11:30 AM	6	237	7	0	10	188	136	0	78	4	4	0	3	6	19	0	698	2597
11:45 AM	6	229	11	0	6	152	111	0	112	5	1	0	5	4	18	0	660	2629
12:00 PM	6	223	4	0	17	179	117	0	104	3	4	0	1	4	14	0	676	2670
12:15 PM	7	221	6	0	17	165	123	1	98	7	5	0	7	5	13	0	675	2709
12:30 PM	10	217	10	0	14	142	128	0	125	5	12	0	3	3	14	0	683	2694
12:45 PM	9	233	13	0	12	186	106	1	104	3	6	0	5	5	15	0	698	2732
1:00 PM	11	230	9	0	15	171	103	0	118	4	6	0	5	7	17	0	696	2752
1:15 PM	12	213	6	0	8	160	107	0	131	7	6	0	6	2	8	0	666	2743
1:30 PM	6	215	4	0	9	154	122	0	85	5	7	0	4	3	8	0	622	2682
1:45 PM	7	225	11	0	9	155	102	0	128	11	4	0	6	6	6	0	670	2654

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	36	932	52	0	48	744	424	4	416	12	24	0	20	20	60	0	2792
Heavy Trucks	0	8	4		0	8	0		4	0	0		0	0	0		24
Buses																	
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

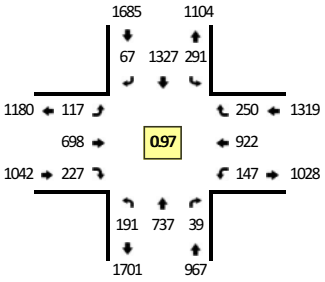
Report generated on 12/2/2019 6:18 PM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

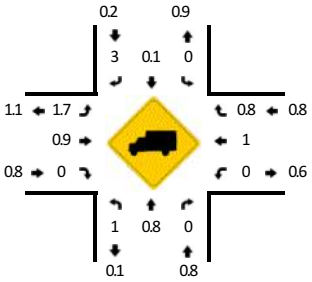
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

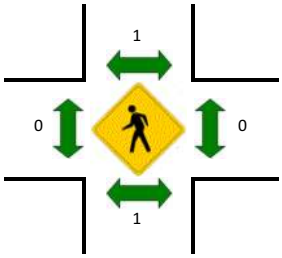
LOCATION: Naper Blvd -- Ogden Ave
CITY/STATE: Naperville, IL

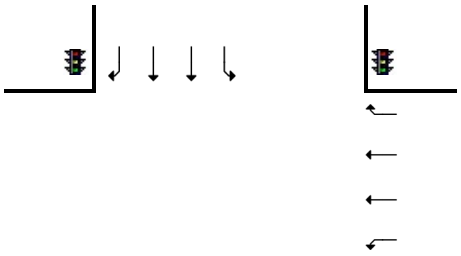
QC JOB #: 15129027
DATE: Wed, Nov 20 2019

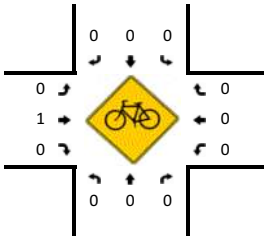
Peak-Hour: 4:45 PM -- 5:45 PM
Peak 15-Min: 5:30 PM -- 5:45 PM

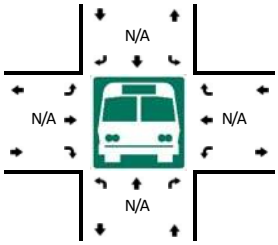


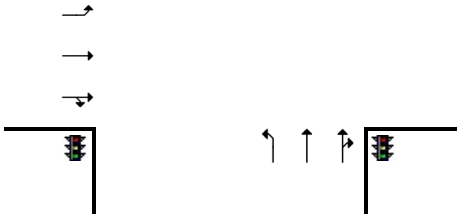


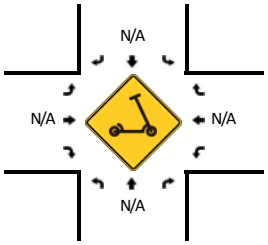












15-Min Count Period Beginning At	Naper Blvd (Northbound)				Naper Blvd (Southbound)				Ogden Ave (Eastbound)				Ogden Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	45	166	6	0	77	322	13	0	33	147	54	0	34	181	46	0	1124	
4:15 PM	48	201	6	0	77	297	20	0	37	190	53	0	32	203	46	0	1210	
4:30 PM	47	159	11	0	53	344	9	0	42	176	69	0	35	214	63	0	1222	
4:45 PM	54	189	8	0	73	326	19	0	35	166	51	0	24	211	56	0	1212	4768
5:00 PM	41	164	8	0	81	327	12	0	22	185	54	0	37	229	69	0	1229	4873
5:15 PM	42	188	10	0	65	333	22	0	30	171	72	0	42	241	65	0	1281	4944
5:30 PM	54	196	13	0	72	341	14	0	30	176	50	0	44	241	60	0	1291	5013
5:45 PM	53	200	4	0	56	294	14	0	25	134	60	0	30	229	56	0	1155	4956

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	216	784	52	0	288	1364	56	0	120	704	200	0	176	964	240	0	5164
Heavy Trucks	8	16	0		0	0	0		0	0	0		0	8	4		36
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/2/2019 6:18 PM

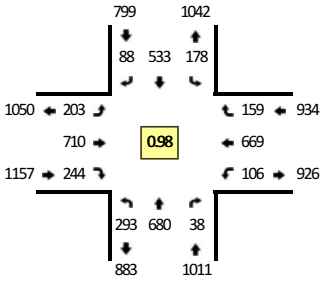
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

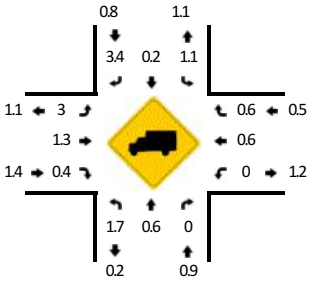
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

LOCATION: Naper Blvd -- Ogden Ave
CITY/STATE: Naperville, IL

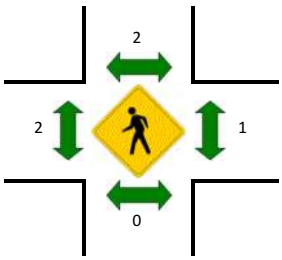
QC JOB #: 15129028
DATE: Sat, Nov 23 2019

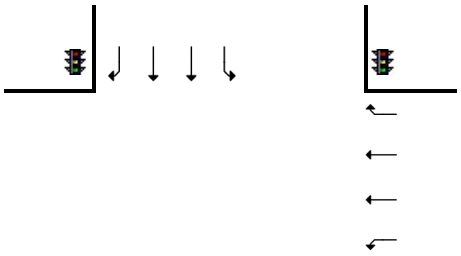
Peak-Hour: 12:30 PM -- 1:30 PM
Peak 15-Min: 12:45 PM -- 1:00 PM

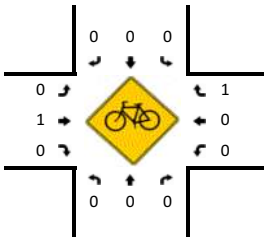


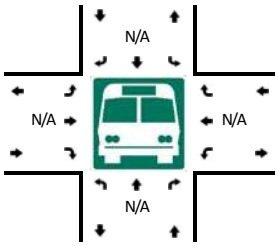


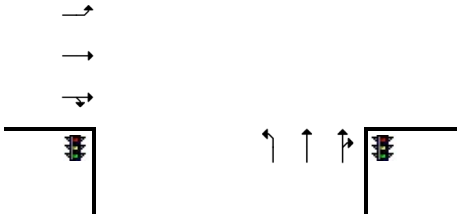
Quality Counts
DATA THAT DRIVES COMMUNITIES

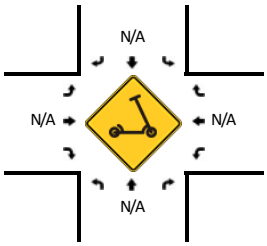












15-Min Count Period Beginning At	Naper Blvd (Northbound)				Naper Blvd (Southbound)				Ogden Ave (Eastbound)				Ogden Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
10:00 AM	61	158	8	0	30	88	21	0	45	113	46	0	16	155	38	0	779	
10:15 AM	66	185	9	0	42	92	22	0	42	120	46	0	17	123	33	0	797	
10:30 AM	51	162	9	0	36	106	16	0	52	147	46	0	24	163	21	0	833	
10:45 AM	77	210	11	0	41	124	24	0	37	134	56	0	21	157	24	0	916	3325
11:00 AM	85	135	6	0	44	115	20	0	39	142	65	1	27	193	31	0	903	3449
11:15 AM	59	171	8	0	48	122	18	0	57	143	60	0	21	157	27	0	891	3543
11:30 AM	72	186	9	0	38	122	23	0	51	182	56	0	29	158	32	0	958	3668
11:45 AM	78	192	12	0	40	138	33	0	52	155	50	0	18	129	36	0	933	3685
12:00 PM	55	162	15	0	30	133	22	0	56	165	55	0	27	170	36	0	926	3708
12:15 PM	73	171	6	1	52	137	26	0	48	132	84	0	26	155	38	0	949	3766
12:30 PM	54	166	9	0	30	113	21	0	46	190	61	0	25	194	37	0	946	3754
12:45 PM	82	174	14	0	50	152	22	0	57	169	62	0	26	155	34	0	997	3818
1:00 PM	84	168	8	0	50	116	23	0	54	179	52	0	30	178	48	0	990	3882
1:15 PM	73	172	7	0	48	152	22	0	46	172	69	0	25	142	40	0	968	3901
1:30 PM	55	140	6	0	50	116	24	0	47	174	68	0	32	160	38	0	910	3865
1:45 PM	64	188	14	0	41	139	18	0	49	142	57	0	25	170	36	0	943	3811

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	328	696	56	0	200	608	88	0	228	676	248	0	104	620	136	0	3988
Heavy Trucks	8	0	0		4	0	8		12	8	4		0	4	0		48
Buses																	
Pedestrians		0				4				0				0			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 12/2/2019 6:18 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

APPENDIX B

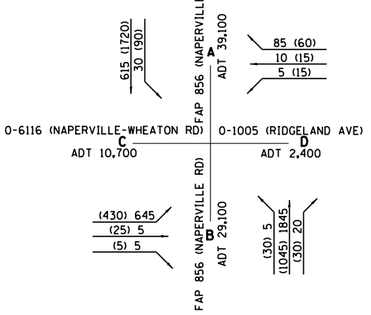
NON-PROJECT RELATED ROADWAY DEVELOPMENTS

PLOT DATE = 3/13/2019
FILE NAME = S:\Projects\415-0032-04Y Naperville Road\Design\CADD Sheets\Sht_IDS_RidgelandAve.dgn
PLOT SCALE = 100.0000 ' / in.
USER NAME = Jennifer

SIGNALIZED CAPACITY DESIGN ANALYSIS

PROGRAM USED: HCS 7 , VERSION: 7.50 SIGNAL TYPE: ACTUATED AREA TYPE: NON-CBD
NUMBER OF PHASES: (A.M.) 6 (P.M.) 6 CYCLE LENGTH: (A.M.) 120 SEC. (P.M.) 115 SEC. PEAK HOUR FACTOR: 0.95
INTERSECTION DELAY/LEVEL-OF-SERVICE A.M. 24.9 SECONDS LOS C P.M. 22.2 SECONDS LOS C

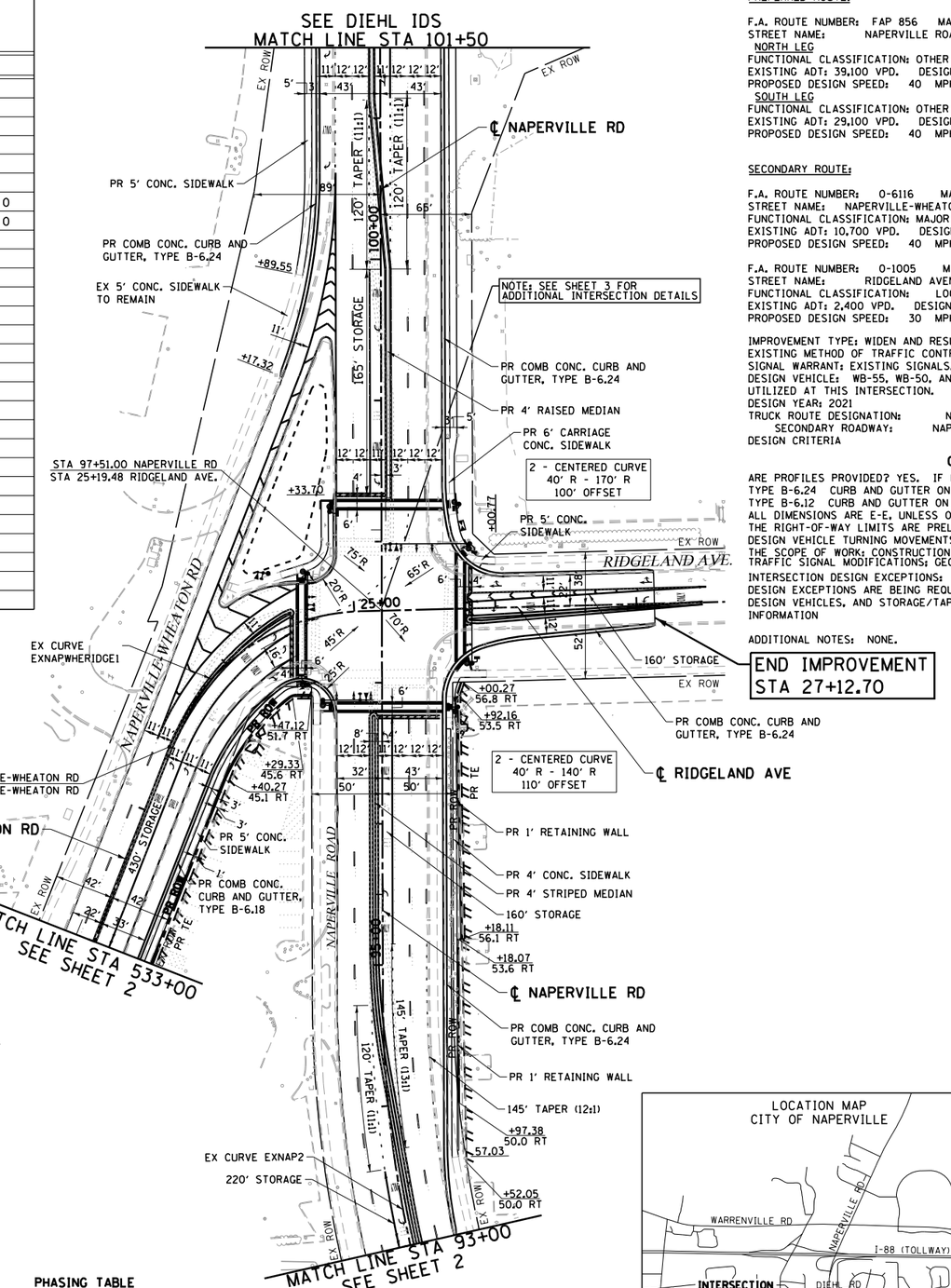
APPROACH		EASTBOUND (C)				WESTBOUND (D)				NORTHBOUND (B)				SOUTHBOUND (A)			
LANE GROUP		L	TR			L	TR			L	T	TR		L	T		
NUMBER OF LANES		2	1			1	1			1	2	1		1	2		
2016 30TH MAX. HOUR TRAFFIC (veh/h)	A.M.	645	10			5	95			5	1240	625		30	615		
	P.M.	430	30			15	75			30	715	360		90	1720		
BASE SATURATION FLOW RATE (veh/h)		1900	1900			1900	1900			1900	2000	1900		1900	2000		
LANE WIDTH (FT)		11	11			11	11			11	12	12		11	12		
VOLUME OF RIGHT TURN ON RED (veh/h)	A.M.	0	P.M.	0		A.M.	0	P.M.	0	A.M.	0	P.M.	0	A.M.	0	P.M.	0
PEDESTRIANS/HOUR (ped/h)	A.M.	0	P.M.	0		A.M.	0	P.M.	0	A.M.	0	P.M.	0	A.M.	0	P.M.	0
ARRIVAL TYPE		3				3				4				4			
LANE UTILIZATION ADJ. FACTOR		0.971	1.000			1.000	1.000			1.000	1.000	1.000		1.000	0.952		
GREEN TIME (SECONDS)	A.M.	27.4	36.6			0.5	9.7			0.5	59.2	59.2		6.8	61.5		
	P.M.	18.2	24.9			1.2	7.9			4.0	59.7	59.7		8.2	63.9		
GREEN RATIO (g/C)	A.M.	0.23	0.30			0.00	0.08			0.00	0.49	0.49		0.02	0.51		
	P.M.	0.16	0.22			0.01	0.07			0.03	0.52	0.52		0.07	0.56		
CAPACITY (c)	A.M.	795	531			7	130			7	1861	925		40	1905		
	P.M.	548	399			19	114			63	1958	967		129	2099		
v/c RATIO (X)	A.M.	0.854	0.020			0.718	0.769			0.722	0.704	0.705		0.784	0.340		
	P.M.	0.826	0.079			0.838	0.696			0.499	0.385	0.385		0.734	0.862		
STORAGE QUEUE (FEET OR VEHICLES)	A.M.	419	12			8	172			8	529	533		49	257		
	P.M.	295	38			24	112			46	277	279		134	616		
LANE GROUP DELAY(SECONDS)	A.M.	47.2	29.2			141.6	66.7			142.8	17.2	19.7		85.7	11.1		
	P.M.	50.1	36.0			115.8	62.8			60.5	10.6	11.6		60.1	16.7		
LANE GROUP LEVEL-OF-SERVICE	A.M.	D	C			F	E			F	B	B		F	B		
	P.M.	D	D			F	E			E	B	B		E	B		
APPROACH DELAY (SECONDS/VEHICLE)	A.M.	46.9				70.5				18.4				14.6			
	P.M.	49.2				71.6				12.3				18.9			
APPROACH LEVEL-OF-SERVICE	A.M.	D				E				B				B			
	P.M.	D				E				B				B			



TRAFFIC DATA

MOVEMENT	YEAR 2018 30TH MAXIMUM HOUR TRAFFIC		PERCENT TRUCK TRAFFIC IN 30TH MAX. HOUR		ESTIMATED PERCENT INCREASE BY ----	YEAR 2021 30TH MAXIMUM HOUR TRAFFIC	
	A.M.	P.M.	A.M.	P.M.		A.M.	P.M.
AD (L)	30	90	3%	0%		30	90
AB (T)	615	1720	3%	1%		615	1720
AC (R)	0	0	0%	0%		0	0
BC (L)	5	30	0%	0%		5	30
BA (T)	1845	1045	1%	1%		1845	1045
BD (R)	15	25	0%	0%		15	25
CA (L)	645	430	1%	2%		645	430
CD (T)	5	25	0%	0%		5	25
CB (R)	5	5	0%	0%		5	5
DB (L)	5	15	0%	0%		5	15
DC (T)	10	15	18%	0%		10	15
DA (R)	85	60	0%	0%		85	60
TOTAL A	3220	3345				3220	3345
TOTAL B	2490	2840				2490	2840
TOTAL C	670	505				670	505
TOTAL D	150	230				150	230

T = THROUGH, L = LEFT, R = RIGHT



EXIST. CURVE EXNAP2
PI STA. = 93+11.62
Δ = 23° 24' 27" (RT)
D = 7° 00' 00"
R = 818.51'
T = 169.56'
L = 334.39'
E = 17.38'
e = -----
T.R. = -----
S.E. RUN = -----
P.C. STA. = 91+42.06
P.T. STA. = 94+76.45

EXIST. CURVE EXNAPWHERIDGE1
PI STA. = 24+28.63
Δ = 67° 29' 40" (RT)
D = 38° 11' 50"
R = 150.00'
T = 100.22'
L = 176.70'
E = 30.40'
e = -----
T.R. = -----
S.E. RUN = -----
P.C. STA. = 23+28.42
P.T. STA. = 25+05.12

PHASING TABLE

PHASE	1			2			3			4			5			6			
		YELLOW	RED		YELLOW	RED		YELLOW	RED		YELLOW	RED		YELLOW	RED		YELLOW	RED	CYCLE LENGTH
GREEN TIME A.M.	0.5	3.0	1.0	2.3	0.0	0.0	59.2	4.5	2.0	0.5	3.0	1.0	22.9	3.0	1.0	9.7	4.5	2.0	120 SEC.
IN SECONDS P.M.	4.0	3.0	1.0	0.2	3.0	1.0	59.7	4.5	2.0	1.2	3.0	1.0	13.0	3.0	1.0	7.9	4.5	2.0	115 SEC.

ELEMENTS CONTROLLING DESIGN

PREFERRED ROUTE:

F.A. ROUTE NUMBER: FAP 856 MARKED ROUTE NUMBER: ROUTE 23
STREET NAME: NAPERVILLE ROAD SRA ROUTE ? N
NORTH LEG
FUNCTIONAL CLASSIFICATION: OTHER PRINCIPAL ARTERIAL. OSOW DESIGN? N
EXISTING ADT: 39,100 VPD. DESIGN YEAR ADT: 39,100 VPD.
PROPOSED DESIGN SPEED: 40 MPH. PROPOSED POSTED SPEED: 40 MPH
SOUTH LEG
FUNCTIONAL CLASSIFICATION: OTHER PRINCIPAL ARTERIAL. OSOW DESIGN? N
EXISTING ADT: 29,100 VPD. DESIGN YEAR ADT: 29,100 VPD.
PROPOSED DESIGN SPEED: 40 MPH. PROPOSED POSTED SPEED: 40 MPH

SECONDARY ROUTE:

F.A. ROUTE NUMBER: 0-6116 MARKED ROUTE NUMBER: N/A
STREET NAME: NAPERVILLE-WHEATON RD SRA ROUTE? N
FUNCTIONAL CLASSIFICATION: MAJOR COLLECTOR. OSOW DESIGN N
EXISTING ADT: 10,700 VPD. DESIGN YEAR ADT: 10,700 VPD.
PROPOSED DESIGN SPEED: 40 MPH. PROPOSED POSTED SPEED: 40 MPH

F.A. ROUTE NUMBER: 0-1005 MARKED ROUTE NUMBER: N/A
STREET NAME: RIDGELAND AVENUE SRA ROUTE? N
FUNCTIONAL CLASSIFICATION: LOCAL ROAD OSOW DESIGN ? N
EXISTING ADT: 2,400 VPD. DESIGN YEAR ADT: 2,400 VPD.
PROPOSED DESIGN SPEED: 30 MPH. PROPOSED POSTED SPEED: 30 MPH

IMPROVEMENT TYPE: WIDEN AND RESURFACE. ANTICIPATED YEAR OF CONSTRUCTION: 2021
EXISTING METHOD OF TRAFFIC CONTROL: TRAFFIC SIGNALS. PROPOSED METHOD: TRAFFIC SIGNALS.
SIGNAL WARRANT: EXISTING SIGNALS.
DESIGN VEHICLE: WB-55, WB-50, AND SU (WB-50 WITH ENCROACHMENT) DESIGN VEHICLES WERE UTILIZED AT THIS INTERSECTION.
DESIGN YEAR: 2021
TRUCK ROUTE DESIGNATION: NONE. PREFERRED ROADWAY: NAPERVILLE RD.
SECONDARY ROADWAY: NAPERVILLE-WHEATON RD.
DESIGN CRITERIA 3R (BLRS MANUAL CH.33)

GENERAL NOTES

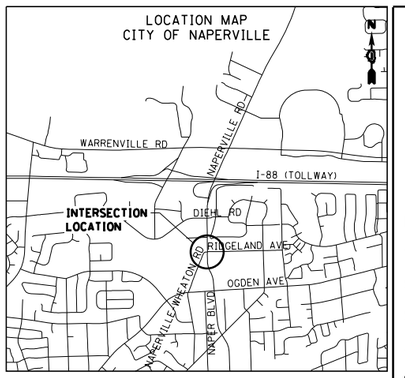
ARE PROFILES PROVIDED? YES. IF NOT, STATE REASON WHY: N/A
TYPE B-6.24 CURB AND GUTTER ON THE OUTSIDE OF THE ROADWAY/SHOULDERS UNLESS OTHERWISE NOTED.
TYPE B-6.12 CURB AND GUTTER ON THE MEDIAN.
ALL DIMENSIONS ARE E-E, UNLESS OTHERWISE NOTED.
THE RIGHT-OF-WAY LIMITS ARE PRELIMINARY.
DESIGN VEHICLE TURNING MOVEMENTS ARE ACCOMMODATED PER AUTOTURN PRO SOFTWARE, VERSION 10.0.
THE SCOPE OF WORK: CONSTRUCTION OF ONE AUXILIARY LANE IN EACH DIRECTION OF NAPERVILLE ROAD; TRAFFIC SIGNAL MODIFICATIONS; GEOMETRIC IMPROVEMENTS; RESURFACING; RESTRIPING; ADA IMPROVEMENTS.
INTERSECTION DESIGN EXCEPTIONS:
DESIGN EXCEPTIONS ARE BEING REQUESTED FOR INDIVIDUAL MOVEMENT LOS, DESIGN VEHICLES, AND STORAGE/TAPER LENGTHS. SEE FORM BLR 22120 SUBMITTAL FOR MORE INFORMATION

ADDITIONAL NOTES: NONE.

LEGEND
TEMPORARY EASEMENT
EXISTING ROW
EXISTING EASEMENT
PROPOSED ROW

PREPARED BY:
LOCHMUELLER GROUP
PROJ. MGR. L. KRAUT PROJ. ENG. J. STINES

N
50 0 50
GRAPHIC SCALE



INTERSECTION DESIGN STUDY

FAP ROUTE 856 (NAPERVILLE RD)
WITH
ROUTE 0-6116/0-1005 (NAPERVILLE-WHEATON RD/ RIDGELAND AVE)

SEC. NO. 16-00195-00-ES PROJ. NO. DT-P-0127-16
SCALE 1"=50' COUNTY DUPAGE
SJN : REV. NO.
DESIGNED BY LK/JS DATE 3/14/19

SATISFACTORY _____ DISTRICT GEOMETRICS ENGINEER DATE
SATISFACTORY _____ DISTRICT PROGRAM DEVELOPMENT ENGINEER DATE
SATISFACTORY _____ DISTRICT OPERATIONS ENGINEER DATE
APPROVED _____ REGIONAL ENGINEER DATE

CADD FILE NAME : [ ] I.D.S. SHEET 1 OF 6

BDE-9908

PLOT DATE = 2/19/2019
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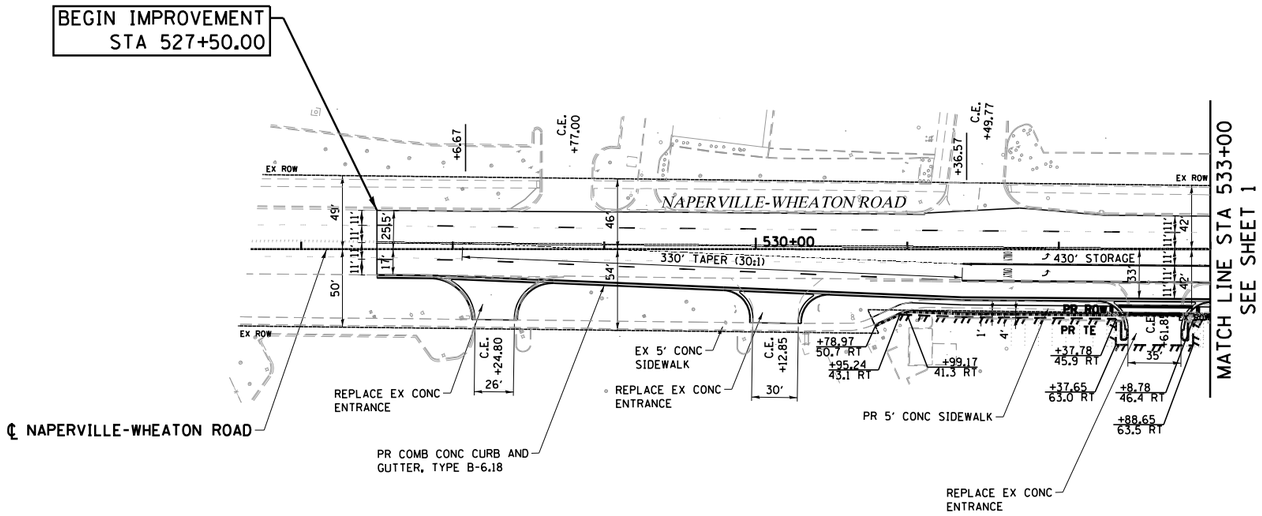
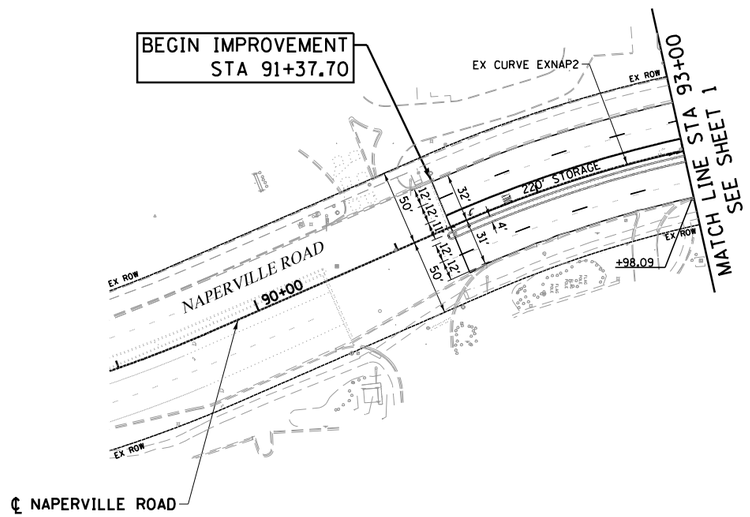
USER NAME = Jennifer





EXIST. CURVE EXNAP2
PI STA. = 93+11.62
Δ = 23° 24′ 27″ (RT)
D = 7° 00′ 00″
R = 818.51′
T = 169.56′
L = 334.39′
E = 17.38′
e = -----
T.R. = -----
S.E. RUN = -----
P.C. STA. = 91+42.06
P.T. STA. = 94+76.45

LEGEND
- TEMPORARY EASEMENT
- EXISTING ROW
- EXISTING EASEMENT
- PROPOSED ROW

INTERSECTION DESIGN STUDY

FAP ROUTE 856 (NAPERVILLE ROAD)
WITH
ROUTE 0-6116/0-1005 (NAPERVILLE-WHEATON RD/ RIDGELAND AVE)

SEC. NO. 16-00195-00-ES

SCALE 1"=50' COUNTY DUPAGE

KF/JS _____ PROJ. NO. DT-P-0127-16

I.D.S. SHEET 2 OF 6

MODEL NAME: IDS.02

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USER NAME = Jennifer

MODEL NAME: IDS.03

STA 97+61.00 NAPERVILLE RD
STA 25+19.48 RIDGELAND AVE

STA 534+47.82 NAPERVILLE-WHEATON RD
STA 23+28.42 NAPERVILLE-WHEATON RD

℄ NAPERVILLE-WHEATON RD

℄ RIDGELAND AVE

℄ NAPERVILLE RD

NAPERVILLE ROAD

NAPERVILLE-WHEATON RD

RIDGELAND AVE.

EX ROW

PR ROW

PR TE

PR 5' CONC. SIDEWALK

PR COMB CONC. CURB AND GUTTER, TYPE B-6.18

EX 5' SIDEWALK

PR 6' CARRIAGE CONC. SIDEWALK

2 - CENTERED CURVE
40' R - 170' R
100' OFFSET

PR COMB CONC. CURB AND GUTTER, TYPE B-6.24

2 - CENTERED CURVE
40' R - 140' R
110' OFFSET

END IMPROVEMENT
STA 27+12.70

EX SIGN TO REMAIN

PR RETAINING WALL

PR 4' CONC. SIDEWALK

PR 4' STRIPED MEDIAN

PR COMB CONC. CURB AND GUTTER, TYPE B-6.24

25+00

95+00

ONLY

+47.12 51.7 RT
+45.88 43.6 RT
+28.69 47.6 RT
+73.73 49.5 RT
+73.66 54.1 RT
+29.33 45.6 RT
+56.44 56.7 RT
+54.44 49.1 RT
+34.09 48.1 RT
+40.27 45.1 RT
+88.78 46.4 RT
+88.65 63.5 RT
+37.78 45.9 RT
+37.65 63.1 RT
+00.26 56.1 RT
+47.12 53.5 RT
+00.31 58.1 RT
+91.78 55.5 RT
+70.38 55.8 RT
+70.50 60.4 RT
65.71 60.4 RT
+65.58 55.8 RT
+18.14 58.1 RT
+18.11 56.1 RT
+18.07 53.6 RT

0 20' 40'

INTERSECTION DESIGN STUDY

FAP ROUTE 856 (NAPERVILLE ROAD)
WITH
ROUTE 0-6116/0-1005 (NAPERVILLE-WHEATON RD/ RIDGELAND AVE)

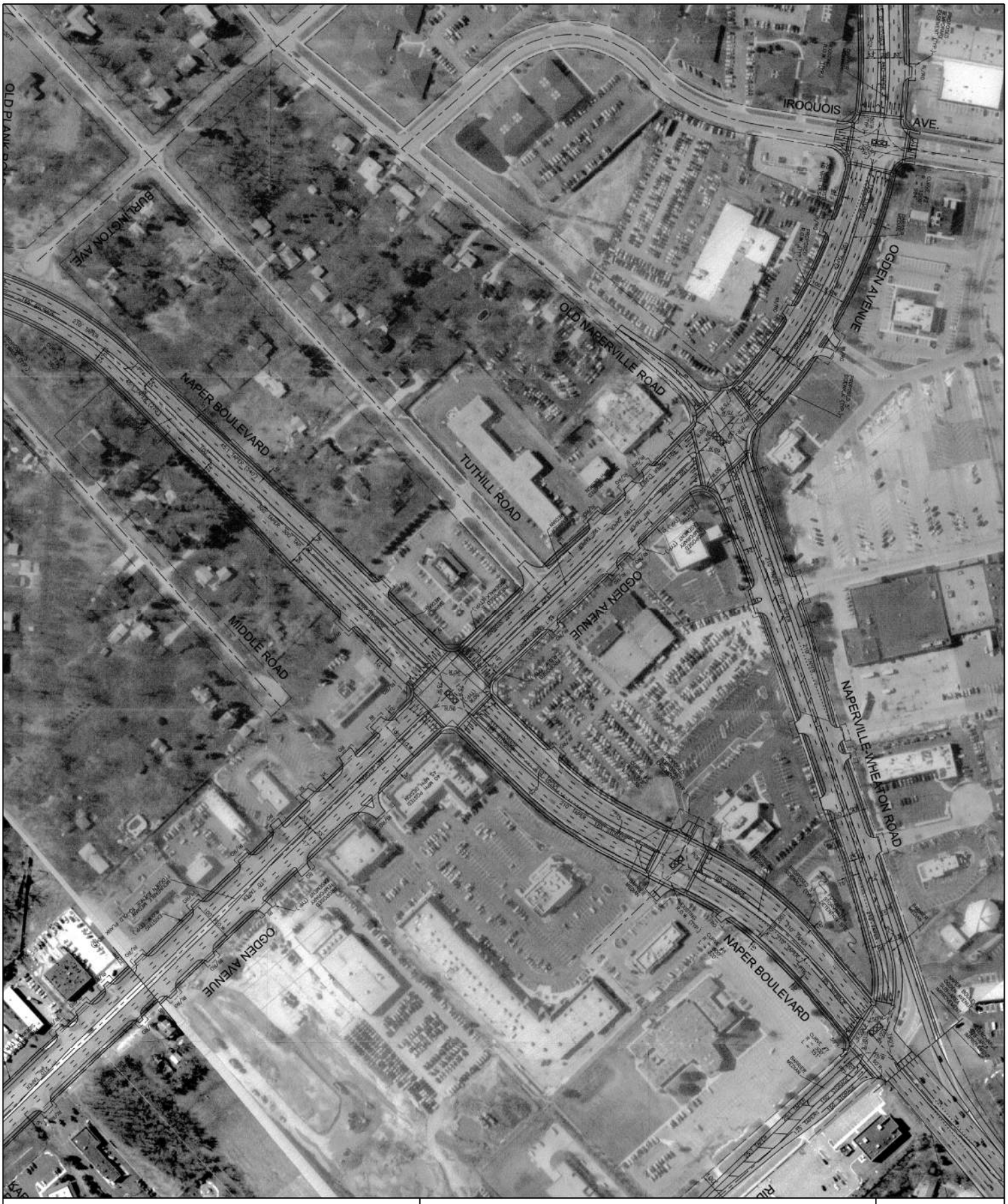
SEC. NO. 16-00195-00-ES

SCALE 1"=20' COUNTY DUPAGE

KF/JS _____ PROJ. NO. DT-P-0127-16

I.D.S. SHEET 3 OF 6

BDE-9908



OGDEN MALL REDEVELOPMENT

EXCERPT FROM NAPERVILLE ROAD FEASIBILITY STUDY NAPER BLVD/OGDEN AVE INT. SUB–AREA

NAPERVILLE ILLINOIS

APPENDIX C

CMAP CORRESPONDENCE

Chicago Metropolitan Agency for Planning

233 South Wacker Drive
Suite 800
Chicago, Illinois 60606

312 454 0400
www.cmap.illinois.gov

December 11, 2019

Carl Schwarzer, P.E.
Project Engineer
V3 Companies
444 N Wells St,
Suite 602
Chicago, IL 60654

Subject: ***Naperville-Wheaton Road @ Naper Boulevard***
IDOT

Dear Mr. Schwarzer:

In response to a request made on your behalf and dated December 10, 2019, we have developed year 2050 average daily traffic (ADT) projections for the subject location. These are located in a table on the following page..

Traffic projections are developed using existing ADT data provided in the request letter and the results from the October 2019 CMAP Travel Demand Analysis. The regional travel model uses CMAP 2050 socioeconomic projections and assumes the implementation of the ON TO 2050 Comprehensive Regional Plan for the Northeastern Illinois area. The provision of this data in support of your request does not constitute a CMAP endorsement of the proposed development or any subsequent developments.

If you have any questions, please call me at (312) 386-8806.

Sincerely,

Jose Rodriguez, PTP, AICP
Senior Planner, Research & Analysis

cc: Quigley (IDOT)
\\cmap.local\shared\AdminGroups\ResearchAnalysis\2019_ForecastsTraffic\Naperville\du-42-19\du-42-19-response.docx

Table:
Year 2050 ADT - Naperville-Wheaton Road @ Naper Boulevard

Road Segment	Current Volumes	Year 2050 ADT
Naper Blvd N of Ridgeland	39,100	42,000
Naper Blvd S of Ridgeland	29,100	31,500
Ridgeland Ave E of Naper	2,400	2,600
Naperville-Wheaton Rd SW of Ridgeland	10,700	11,500
Naper Blvd N of Ogden	29,100	31,500
Ogden Ave W of Naper	25,400	28,000
Naperville-Wheaton Rd N of Ogden	10,700	11,500
Ogden Ave E of Naperville-Wheaton	25,400	28,000
Ogden Ave W of Naperville-Wheaton	30,000	33,000
Iroquois Ave N of Ogden	8,500	9,500
Iroquois Ave S of Ogden	3,500	3,700
Ogden Ave E of Iroquois	30,000	33,000
Washington Ave S of Iroquois	15,000	16,000
Iroquois Ave E of Washington	8,500	9,500

Finalized by CMAP, December 11, 2019

APPENDIX D

AUXILIARY LANE ANALYsIS

Criteria	Right-Turn Lane Warrants	Criteria Met?						Comments
		Driveway 1	Driveway 2	Driveway 3	Driveway 4	Driveway 5	Driveway 6	
1	Unsignalized intersection on a two lane highway that satisfies the criteria in BDE Figures	Yes	Yes	Yes	No	No	No	Driveways 1, 2, and 3 meet the criteria to consider a right turn lane
2	Unsignalized intersection on a four lane highway that satisfies the criteria in BDE Figures	No	No	No	No	No	No	Figures are for speed limits over 50 mph.
3	On expressways where the side street ADT is over 250	No	No	No	No	No	No	Not on an expressway.
4	Any intersection where a capacity analysis determines a right-turn lane is necessary to meet the LOS criteria	No	No	No	No	No	No	All movements operate at acceptable LOS.
5	At any intersection where the right-turning volume is greater than 150 vph and where there is greater than 300 vplph on the mainline	No	No	Yes	No	No	No	Westbound Right at Driveway 4 meets criteria, but traffic flow aided by channelized island.
6	Uniformity of intersection design along the highway if other intersections have right-turn lanes	No	No	No	No	No	No	No unsignalized intersections in the area have right turn lanes.
7	Any intersection where the mainline is curved to the left and the mainline curve requires superelevation	No	No	No	No	No	No	Roads are not on superelevated curves
8	At railroad crossings where the railroad is located close to the intersection and a right turn lane would be desirable to efficiently move through traffic on the parallel roadway	No	No	No	No	No	No	Not near a railroad.
9	Any intersection where the crash experience, traffic operations, sight distance restrictions, or engineering judgement indicates a significant conflict related to right-turning vehicles.	No	No	No	No	No	No	No additional indicators mandating right-turn lanes.

Criteria	Left-Turn Lane Warrants	Criteria Met?						Comments
		Driveway 1	Driveway 2	Driveway 3	Driveway 4	Driveway 5	Driveway 6	
1	Unsignalized intersection on a two lane highway that satisfies the criteria in BDE Figures	N/A-Already Provided	N/A-Already Provided	N/A-Already Provided	N/A - RIRO Only	No	No	Not a two-lane Highway.
2	Signalized intersetion where the left-turning volume is equal to or greater than 75 vph	N/A-Already Provided	N/A-Already Provided	N/A-Already Provided	N/A - RIRO Only	No	No	Not Signalized.
3	Any intersection where a capacity analysis determines a left-turn lane is necessary to meet the LOS criteria	N/A-Already Provided	N/A-Already Provided	N/A-Already Provided	N/A - RIRO Only	No	No	All movements operate at acceptable LOS.
4	Uniformity of intersection design along the highway if other intersections have left-turn lanes	N/A-Already Provided	N/A-Already Provided	N/A-Already Provided	N/A - RIRO Only	No	No	Driveways 5 and 6 are present in the existing condition w/o left turn lanes. Many other driveways on Naperville Wheaton Road lack aux.
5	Any intersection where the crash experience, traffic operations, sight distance restrictions, or engineering judgement indicates a significant conflict related to left-turning vehicles.	N/A-Already Provided	N/A-Already Provided	N/A-Already Provided	N/A - RIRO Only	No	No	No additional indicators mandating left-turn lanes.


Right Turn Lane Warrant 1
Right-Turn Volume During Design Hour (VPH)
140
130
120
110
100
90
80
70
60
50
40
0
100
200
300
400
500
600
DHV, In One Direction (VPH)
Warrant Threshold
Driveway 1
Driveway 2
Driveway 3
Linear (Warrant Threshold)

APPENDIX E

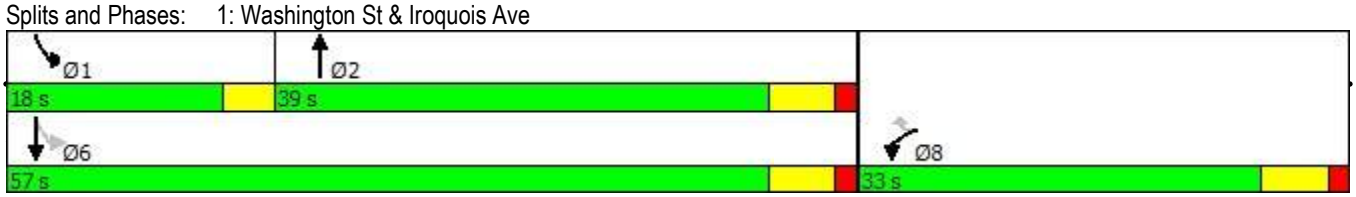
CAPACITY ANALYSIS WORKSHEETS
2019 EXISTING

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	42	164	482	64	349	1086
Future Volume (vph)	42	164	482	64	349	1086
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	2000
Storage Length (ft)	275	0		0	175	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3476	0	1770	3725
Flt Permitted	0.950				0.391	
Satd. Flow (perm)	1770	1583	3476	0	728	3725
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		173	18			
Link Speed (mph)	25		35			35
Link Distance (ft)	4415		716			679
Travel Time (s)	120.4		13.9			13.2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	44	173	507	67	367	1143
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	173	574	0	367	1143
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
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	0.94
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	24.0	24.0	24.0		9.5	24.0
Total Split (s)	33.0	33.0	39.0		18.0	57.0
Total Split (%)	36.7%	36.7%	43.3%		20.0%	63.3%
Maximum Green (s)	27.0	27.0	33.0		14.5	51.0
Yellow Time (s)	4.5	4.5	4.5		3.5	4.5
All-Red Time (s)	1.5	1.5	1.5		0.0	1.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		3.5	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	7.0			7.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	7.5	7.5	37.4		53.5	51.0
Actuated g/C Ratio	0.11	0.11	0.53		0.76	0.72
v/c Ratio	0.23	0.54	0.31		0.52	0.42
Control Delay	31.7	11.9	10.3		5.7	4.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	31.7	11.9	10.3		5.7	4.7
LOS	C	B	B		A	A
Approach Delay	16.0		10.3			4.9
Approach LOS	B		B			A
90th %ile Green (s)	10.8	10.8	33.6		13.9	51.0
90th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
70th %ile Green (s)	8.0	8.0	36.4		11.1	51.0
70th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
50th %ile Green (s)	7.1	7.1	37.7		9.8	51.0
50th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
30th %ile Green (s)	6.3	6.3	38.8		8.7	51.0
30th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
10th %ile Green (s)	5.5	5.5	40.0		7.5	51.0
10th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
Queue Length 50th (ft)	18	0	63		34	78
Queue Length 95th (ft)	46	51	118		75	134
Internal Link Dist (ft)	4335		636			599
Turn Bay Length (ft)	275				175	
Base Capacity (vph)	677	713	1850		767	2695
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.06	0.24	0.31		0.48	0.42

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 70.5			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.54			
Intersection Signal Delay: 7.3		Intersection LOS: A	
Intersection Capacity Utilization 52.2%		ICU Level of Service A	
Analysis Period (min) 15			
90th %ile Actuated Cycle: 73.8			
70th %ile Actuated Cycle: 71			
50th %ile Actuated Cycle: 70.1			
30th %ile Actuated Cycle: 69.3			
10th %ile Actuated Cycle: 68.5			

Splits and Phases: 1: Washington St & Iroquois Ave



Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	234	0	0	268
Future Vol, veh/h	0	0	234	0	0	268
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	246	0	0	282

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	528	246	0	0	246	0
Stage 1	246	-	-	-	-	-
Stage 2	282	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	*558	*883	-	-	*1321	-
Stage 1	*832	-	-	-	-	-
Stage 2	*766	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	*558	*883	-	-	*1321	-
Mov Cap-2 Maneuver	*617	-	-	-	-	-
Stage 1	*832	-	-	-	-	-
Stage 2	*766	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	-	* 1321	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	0	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	6	38	7	2	9	44	214	2	14	245	9
Future Vol, veh/h	11	6	38	7	2	9	44	214	2	14	245	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	6	40	7	2	9	46	225	2	15	258	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	612	612	134	481	616	226	267	0	0	227	0	0
Stage 1	292	292	-	319	319	-	-	-	-	-	-	-
Stage 2	320	320	-	162	297	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	*689	*627	891	*852	*624	*904	1295	-	-	*1353	-	-
Stage 1	*692	*670	-	*853	*747	-	-	-	-	-	-	-
Stage 2	*853	*747	-	*825	*667	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*656	*598	891	*779	*595	*904	1295	-	-	*1353	-	-
Mov Cap-2 Maneuver	*656	*598	-	*779	*595	-	-	-	-	-	-	-
Stage 1	*667	*663	-	*822	*720	-	-	-	-	-	-	-
Stage 2	*811	*720	-	*772	*660	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	9.5	1.3	0.4
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1295	-	-	792	729	904	* 1353	-	-
HCM Lane V/C Ratio	0.036	-	-	0.073	0.013	0.01	0.011	-	-
HCM Control Delay (s)	7.9	-	-	9.9	10	9	7.7	-	-
HCM Lane LOS	A	-	-	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0	0	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	2	18	91	2	36	16	216	80	23	258	9
Future Vol, veh/h	8	2	18	91	2	36	16	216	80	23	258	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	2	19	96	2	38	17	227	84	24	272	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	648	670	141	488	632	269	281	0	0	312	0	0
Stage 1	325	325	-	303	303	-	-	-	-	-	-	-
Stage 2	323	345	-	185	329	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	*644	*575	882	*852	*609	*904	1280	-	-	*1353	-	-
Stage 1	*662	*648	-	*853	*747	-	-	-	-	-	-	-
Stage 2	*853	*747	-	*800	*646	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*601	*557	882	*812	*590	*904	1280	-	-	*1353	-	-
Mov Cap-2 Maneuver	*601	*557	-	*812	*590	-	-	-	-	-	-	-
Stage 1	*653	*637	-	*841	*737	-	-	-	-	-	-	-
Stage 2	*804	*737	-	*766	*635	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	9.8	0.4	0.6
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1280	-	-	750	812	879	* 1353	-	-
HCM Lane V/C Ratio	0.013	-	-	0.039	0.118	0.046	0.018	-	-
HCM Control Delay (s)	7.9	-	-	10	10	9.3	7.7	-	-
HCM Lane LOS	A	-	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.1	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	1079	23	23	1404	137	48	53	42	200	86	81
Future Volume (vph)	122	1079	23	23	1404	137	48	53	42	200	86	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	200		0	350		0	120		0	95		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.987			0.934				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3529	0	1770	3493	0	1770	1740	0	1770	1961	1583
Flt Permitted	0.077			0.212			0.689			0.668		
Satd. Flow (perm)	143	3529	0	395	3493	0	1283	1740	0	1244	1961	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			9			26				85
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		756			461			529			276	
Travel Time (s)		12.9			7.9			12.0			7.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	128	1136	24	24	1478	144	51	56	44	211	91	85
Shared Lane Traffic (%)												
Lane Group Flow (vph)	128	1160	0	24	1622	0	51	100	0	211	91	85
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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	0.94	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	24.0		9.5	24.0		24.0	24.0		24.0	24.0	24.0
Total Split (s)	24.0	79.0		24.0	79.0		47.0	47.0		47.0	47.0	47.0
Total Split (%)	16.0%	52.7%		16.0%	52.7%		31.3%	31.3%		31.3%	31.3%	31.3%
Maximum Green (s)	20.5	73.0		20.5	73.0		41.0	41.0		41.0	41.0	41.0
Yellow Time (s)	3.5	4.5		3.5	4.5		4.5	4.5		4.5	4.5	4.5
All-Red Time (s)	0.0	1.5		0.0	1.5		1.5	1.5		1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	110.4	102.0		102.2	93.6		30.1	30.1		30.1	30.1	30.1
Actuated g/C Ratio	0.74	0.68		0.68	0.62		0.20	0.20		0.20	0.20	0.20
v/c Ratio	0.58	0.48		0.07	0.74		0.20	0.27		0.85	0.23	0.22
Control Delay	23.3	13.9		5.2	14.6		48.9	36.9		85.2	49.5	9.6
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.0		0.0	0.0	0.0
Total Delay	23.3	13.9		5.2	14.7		48.9	36.9		85.2	49.5	9.6
LOS	C	B		A	B		D	D		F	D	A
Approach Delay		14.9			14.6			41.0			60.2	
Approach LOS		B			B			D			E	
90th %ile Green (s)	17.0	87.2		7.0	77.2		40.3	40.3		40.3	40.3	40.3
90th %ile Term Code	Gap	Coord		Gap	Coord		Hold	Hold		Gap	Gap	Gap
70th %ile Green (s)	13.0	93.7		6.4	87.1		34.4	34.4		34.4	34.4	34.4
70th %ile Term Code	Gap	Coord		Gap	Coord		Hold	Hold		Gap	Gap	Gap
50th %ile Green (s)	10.2	98.3		6.0	94.1		30.2	30.2		30.2	30.2	30.2
50th %ile Term Code	Gap	Coord		Gap	Coord		Hold	Hold		Gap	Gap	Gap
30th %ile Green (s)	7.5	112.1		0.0	101.1		25.9	25.9		25.9	25.9	25.9
30th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Gap	Gap	Gap
10th %ile Green (s)	6.4	118.5		0.0	108.6		19.5	19.5		19.5	19.5	19.5
10th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Gap	Gap	Gap
Queue Length 50th (ft)	32	288		4	282		42	61		201	75	0
Queue Length 95th (ft)	103	422		m7	460		76	108		279	118	43
Internal Link Dist (ft)		676			381			449			196	
Turn Bay Length (ft)	200			350			120			95		
Base Capacity (vph)	327	2399		478	2183		350	494		340	536	494
Starvation Cap Reductn	0	0		0	59		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.39	0.48		0.05	0.76		0.15	0.20		0.62	0.17	0.17

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 142 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 20.9 Intersection LOS: C
Intersection Capacity Utilization 81.0% ICU Level of Service D
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Iroquois Ave & Ogden Ave

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↳			↑↑↳				↱			↱
Traffic Vol, veh/h	0	1325	0	0	1536	65	0	0	7	0	0	37
Future Vol, veh/h	0	1325	0	0	1536	65	0	0	7	0	0	37
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1395	0	0	1617	68	0	0	7	0	0	39

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	697	-	-	808
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	0	0	0	*528	0	0	*446
Stage 1	0	-	-	0	-	0	0	0	-	0	0	-
Stage 2	0	-	-	0	-	0	0	0	-	0	0	-
Platoon blocked, %		-	-		-				1			1
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	*528	-	-	*446
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	11.9	13.8
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	SBLn1
Capacity (veh/h)	528	-	-	-	446
HCM Lane V/C Ratio	0.014	-	-	-	0.087
HCM Control Delay (s)	11.9	-	-	-	13.8
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	396	883	53	42	1085	57	46	32	35	97	132	470
Future Volume (vph)	396	883	53	42	1085	57	46	32	35	97	132	470
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	150		0	0		0	0		50
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991			0.993			0.958				0.850
Flt Protected	0.950			0.950				0.980		0.950		
Satd. Flow (prot)	1770	3507	0	1770	3514	0	0	1749	0	1770	1863	1583
Flt Permitted	0.127			0.291				0.807		0.482		
Satd. Flow (perm)	237	3507	0	542	3514	0	0	1440	0	898	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			5			12				55
Link Speed (mph)		40			40			35			40	
Link Distance (ft)		299			870			720			413	
Travel Time (s)		5.1			14.8			14.0			7.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	417	929	56	44	1142	60	48	34	37	102	139	495
Shared Lane Traffic (%)												
Lane Group Flow (vph)	417	985	0	44	1202	0	0	119	0	102	139	495
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	pm+ov
Protected Phases	5	2			6			8		7	4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	24.0		24.0	24.0		21.0	21.0		14.0	24.0	9.5
Total Split (s)	32.0	115.0		83.0	83.0		21.0	21.0		14.0	35.0	32.0
Total Split (%)	21.3%	76.7%		55.3%	55.3%		14.0%	14.0%		9.3%	23.3%	21.3%
Maximum Green (s)	28.5	109.0		77.0	77.0		15.0	15.0		8.0	29.0	28.5
Yellow Time (s)	3.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	3.5
All-Red Time (s)	0.0	1.5		1.5	1.5		1.5	1.5		1.5	1.5	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		6.0	6.0			6.0		6.0	6.0	3.5
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		C-Min	C-Min		None	None		None	None	None
Walk Time (s)		7.0										

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0										
Pedestrian Calls (#/hr)		0										
Act Effct Green (s)	109.7	107.2		77.2	77.2			14.4		30.8	30.8	63.3
Actuated g/C Ratio	0.73	0.71		0.51	0.51			0.10		0.21	0.21	0.42
v/c Ratio	0.94	0.39		0.16	0.66			0.80		0.42	0.36	0.71
Control Delay	57.6	6.1		4.8	8.0			93.7		67.8	67.4	32.9
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Delay	57.6	6.1		4.8	8.1			93.7		67.8	67.4	32.9
LOS	E	A		A	A			F		E	E	C
Approach Delay		21.4			8.0			93.7			44.2	
Approach LOS		C			A			F			D	
90th %ile Green (s)	28.5	109.0		77.0	77.0		15.0	15.0		8.0	29.0	28.5
90th %ile Term Code	Max	Coord		Coord	Coord		Max	Max		Max	Hold	Max
70th %ile Green (s)	28.5	107.0		75.0	75.0		15.0	15.0		10.0	31.0	28.5
70th %ile Term Code	Max	Coord		Coord	Coord		Max	Max		Max	Hold	Max
50th %ile Green (s)	29.9	100.9		67.5	67.5		17.4	17.4		13.7	37.1	29.9
50th %ile Term Code	Max	Coord		Coord	Coord		Gap	Gap		Gap	Hold	Max
30th %ile Green (s)	27.6	105.9		74.8	74.8		14.5	14.5		11.6	32.1	27.6
30th %ile Term Code	Gap	Coord		Coord	Coord		Gap	Gap		Gap	Hold	Gap
10th %ile Green (s)	18.0	113.1		91.6	91.6		10.3	10.3		8.6	24.9	18.0
10th %ile Term Code	Gap	Coord		Coord	Coord		Gap	Gap		Gap	Hold	Gap
Queue Length 50th (ft)	149	108		4	56			102		85	115	190
Queue Length 95th (ft)	#440	109		m5	54			#210		m88	m120	m196
Internal Link Dist (ft)		219			790			640			333	
Turn Bay Length (ft)	230			150								50
Base Capacity (vph)	467	2570		288	1874			159		244	393	723
Starvation Cap Reductn	0	0		0	0			0		0	0	0
Spillback Cap Reductn	0	0		0	44			0		0	0	0
Storage Cap Reductn	0	0		0	0			0		0	0	0
Reduced v/c Ratio	0.89	0.38		0.15	0.66			0.75		0.42	0.35	0.68

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 6 (4%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 23.9 Intersection LOS: C
Intersection Capacity Utilization 85.4% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Naperville Wheaton Rd & Odgen Ave

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	54	2	72	3	0	8	42	440	3	5	624	96
Future Vol, veh/h	54	2	72	3	0	8	42	440	3	5	624	96
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	57	2	76	3	0	8	44	463	3	5	657	101

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1038	1273	379	893	1321	233	758	0	0	466	0	0
Stage 1	718	718	-	553	553	-	-	-	-	-	-	-
Stage 2	320	555	-	340	768	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	*628	432	*834	*628	391	*915	1159	-	-	1368	-	-
Stage 1	*751	666	-	*752	683	-	-	-	-	-	-	-
Stage 2	*863	681	-	*786	624	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	*595	407	*834	*544	368	*915	1159	-	-	1368	-	-
Mov Cap-2 Maneuver	*595	407	-	*544	368	-	-	-	-	-	-	-
Stage 1	*712	662	-	*714	648	-	-	-	-	-	-	-
Stage 2	*811	646	-	*708	621	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	9.7	0.9	0.1
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1159	-	-	595	811	772	1368	-	-
HCM Lane V/C Ratio	0.038	-	-	0.096	0.096	0.015	0.004	-	-
HCM Control Delay (s)	8.2	0.2	-	11.7	9.9	9.7	7.6	0	-
HCM Lane LOS	A	A	-	B	A	A	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.3	0	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0

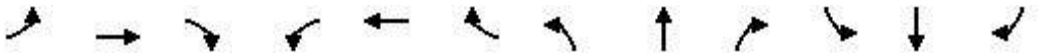
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	502	725	0
Future Vol, veh/h	0	0	0	502	725	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	528	763	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1027	382	763	0	-	0
Stage 1	763	-	-	-	-	-
Stage 2	264	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	*351	616	845	-	-	-
Stage 1	*421	-	-	-	-	-
Stage 2	*845	-	-	-	-	-
Platoon blocked, %	1			-	-	-
Mov Cap-1 Maneuver	*351	616	845	-	-	-
Mov Cap-2 Maneuver	*351	-	-	-	-	-
Stage 1	*421	-	-	-	-	-
Stage 2	*845	-	-	-	-	-

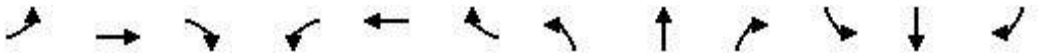
Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	845	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	0	0	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	430	26	8	16	23	67	29	1033	20	94	1577	650
Future Volume (vph)	430	26	8	16	23	67	29	1033	20	94	1577	650
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	175		0	120		0	100		0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.995				0.850		0.997			0.956	
Flt Protected	0.950	0.959			0.980		0.950			0.950		
Satd. Flow (prot)	1681	1689	0	0	1825	1583	1770	3529	0	1770	3383	0
Flt Permitted	0.950	0.959			0.751		0.046			0.179		
Satd. Flow (perm)	1681	1689	0	0	1399	1583	86	3529	0	333	3383	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				91		2			67	
Link Speed (mph)		40			30			40			40	
Link Distance (ft)		782			1146			1286			1236	
Travel Time (s)		13.3			26.0			21.9			21.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	453	27	8	17	24	71	31	1087	21	99	1660	684
Shared Lane Traffic (%)	46%											
Lane Group Flow (vph)	245	243	0	0	41	71	31	1108	0	99	2344	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	4	4			8		5	2		1	6	
Permitted Phases				8		8	2			6		
Detector Phase	4	4		8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		11.0	11.0	11.0	9.5	24.0		9.5	24.0	
Total Split (s)	35.0	35.0		14.0	14.0	14.0	12.0	89.0		12.0	89.0	
Total Split (%)	23.3%	23.3%		9.3%	9.3%	9.3%	8.0%	59.3%		8.0%	59.3%	
Maximum Green (s)	29.0	29.0		8.0	8.0	8.0	8.5	83.0		8.5	83.0	
Yellow Time (s)	4.5	4.5		4.5	4.5	4.5	3.5	4.5		3.5	4.5	
All-Red Time (s)	1.5	1.5		1.5	1.5	1.5	0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0			6.0	6.0	3.5	6.0		3.5	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	
Walk Time (s)	7.0	7.0						7.0			7.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	11.0	11.0						11.0			11.0	
Pedestrian Calls (#/hr)	0	0						0			0	
Act Effct Green (s)	25.6	25.6			7.9	7.9	96.0	87.1		99.8	92.2	
Actuated g/C Ratio	0.17	0.17			0.05	0.05	0.64	0.58		0.67	0.61	
v/c Ratio	0.86	0.84			0.56	0.42	0.24	0.54		0.33	1.11	
Control Delay	64.9	62.9			96.6	14.3	21.4	10.4		8.4	73.1	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	64.9	62.9			96.6	14.3	21.4	10.4		8.4	73.1	
LOS	E	E			F	B	C	B		A	E	
Approach Delay		63.9			44.4			10.7			70.5	
Approach LOS		E			D			B			E	
90th %ile Green (s)	29.0	29.0		8.0	8.0	8.0	7.5	83.0		8.5	84.0	
90th %ile Term Code	Max	Max		Max	Max	Max	Gap	Coord		Max	Coord	
70th %ile Green (s)	29.0	29.0		8.0	8.0	8.0	6.8	83.0		8.5	84.7	
70th %ile Term Code	Max	Max		Max	Max	Max	Gap	Coord		Max	Coord	
50th %ile Green (s)	27.4	27.4		9.6	9.6	9.6	6.4	83.0		8.5	85.1	
50th %ile Term Code	Gap	Gap		Max	Max	Max	Gap	Coord		Max	Coord	
30th %ile Green (s)	23.9	23.9		8.3	8.3	8.3	0.0	88.8		7.5	99.8	
30th %ile Term Code	Gap	Gap		Gap	Gap	Gap	Skip	Coord		Gap	Coord	
10th %ile Green (s)	18.8	18.8		5.7	5.7	5.7	0.0	97.7		6.3	107.5	
10th %ile Term Code	Gap	Gap		Gap	Gap	Gap	Skip	Coord		Gap	Coord	
Queue Length 50th (ft)	249	245			39	0	6	141		21	~1440	
Queue Length 95th (ft)	m303	m300			#95	33	m12	162		m30	#672	
Internal Link Dist (ft)		702			1066			1206			1156	
Turn Bay Length (ft)							120			100		
Base Capacity (vph)	324	327			78	174	151	2049		302	2105	
Starvation Cap Reductn	0	0			0	0	0	0		0	0	
Spillback Cap Reductn	0	0			0	0	0	0		0	0	
Storage Cap Reductn	0	0			0	0	0	0		0	0	
Reduced v/c Ratio	0.76	0.74			0.53	0.41	0.21	0.54		0.33	1.11	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 75 (50%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.11
Intersection Signal Delay: 52.8 Intersection LOS: D
Intersection Capacity Utilization 101.4% ICU Level of Service G
Analysis Period (min) 15

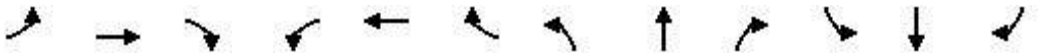
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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

Splits and Phases: 10: Naper Blvd & Naperville Wheaton Rd/Ridgeland Ave

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	698	227	147	922	250	191	737	39	291	1327	67
Future Volume (vph)	117	698	227	147	922	250	191	737	39	291	1327	67
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	85		0	205		270	250		0	200		125
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.963				0.850		0.992				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3408	0	1770	3725	1583	1770	3511	0	1770	3725	1583
Flt Permitted	0.086			0.085			0.078			0.167		
Satd. Flow (perm)	160	3408	0	158	3725	1583	145	3511	0	311	3725	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		30				77		4				47
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		870			1169			1289			1286	
Travel Time (s)		14.8			19.9			22.0			21.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	123	735	239	155	971	263	201	776	41	306	1397	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	123	974	0	155	971	263	201	817	0	306	1397	71
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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	0.94	1.00	1.00	1.00	1.00	1.00	0.94	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6	7	3	8		7	4	5
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	24.0		9.5	24.0	9.5	9.5	24.0		9.5	24.0	9.5
Total Split (s)	15.0	53.0		15.0	53.0	30.0	30.0	52.0		30.0	52.0	15.0
Total Split (%)	10.0%	35.3%		10.0%	35.3%	20.0%	20.0%	34.7%		20.0%	34.7%	10.0%
Maximum Green (s)	11.5	47.0		11.5	47.0	26.5	26.5	46.0		26.5	46.0	11.5
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	0.0	1.5		0.0	1.5	0.0	0.0	1.5		0.0	1.5	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0	3.5	3.5	6.0		3.5	6.0	3.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min	None	None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	59.6	46.4		61.1	47.2	74.7	71.7	51.6		78.7	55.6	72.3
Actuated g/C Ratio	0.40	0.31		0.41	0.31	0.50	0.48	0.34		0.52	0.37	0.48
v/c Ratio	0.69	0.91		0.83	0.83	0.32	0.78	0.68		0.82	1.01	0.09
Control Delay	63.1	49.8		67.7	54.9	15.9	56.9	46.2		47.7	63.5	15.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	63.1	49.8		67.7	54.9	15.9	56.9	46.2		47.7	63.5	15.5
LOS	E	D		E	D	B	E	D		D	E	B
Approach Delay		51.3			49.0			48.3			58.8	
Approach LOS		D			D			D			E	
90th %ile Green (s)	11.5	47.0		11.5	47.0	26.5	25.2	46.0		26.5	47.3	11.5
90th %ile Term Code	Max	Coord		Max	Coord	Max	Gap	Max		Max	Max	Max
70th %ile Green (s)	11.5	47.0		11.5	47.0	26.5	20.8	46.0		26.5	51.7	11.5
70th %ile Term Code	Max	Coord		Max	Coord	Max	Gap	Max		Max	Max	Max
50th %ile Green (s)	11.5	47.0		11.5	47.0	22.3	17.5	50.2		22.3	55.0	11.5
50th %ile Term Code	Max	Coord		Max	Coord	Gap	Gap	Hold		Gap	Max	Max
30th %ile Green (s)	10.4	47.0		11.5	48.1	18.2	14.1	54.3		18.2	58.4	10.4
30th %ile Term Code	Gap	Coord		Max	Coord	Gap	Gap	Hold		Gap	Max	Gap
10th %ile Green (s)	8.3	44.2		10.9	46.8	14.3	10.1	61.6		14.3	65.8	8.3
10th %ile Term Code	Gap	Coord		Gap	Coord	Gap	Gap	Hold		Gap	Max	Gap
Queue Length 50th (ft)	66	486		97	465	103	139	363		248	~702	18
Queue Length 95th (ft)	m#145	#520		#223	553	156	221	458		m226	m#720	m17
Internal Link Dist (ft)		790			1089			1209			1206	
Turn Bay Length (ft)	85			205		270	250			200		125
Base Capacity (vph)	187	1088		187	1172	877	362	1210		420	1381	795
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.66	0.90		0.83	0.83	0.30	0.56	0.68		0.73	1.01	0.09

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 143 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 52.6 Intersection LOS: D
Intersection Capacity Utilization 96.8% ICU Level of Service F
Analysis Period (min) 15

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

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

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

Splits and Phases: 11: Naper Blvd & Odgen Ave

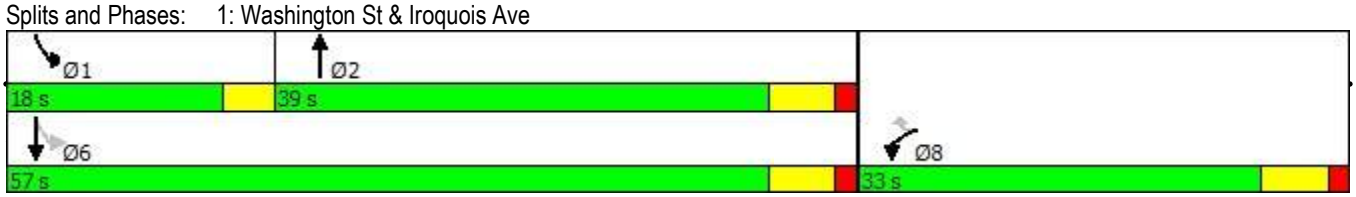
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	44	112	358	43	93	376
Future Volume (vph)	44	112	358	43	93	376
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	2000
Storage Length (ft)	275	0		0	175	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.984			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3483	0	1770	3725
Flt Permitted	0.950				0.470	
Satd. Flow (perm)	1770	1583	3483	0	875	3725
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		118	16			
Link Speed (mph)	25		35			35
Link Distance (ft)	4415		716			679
Travel Time (s)	120.4		13.9			13.2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	46	118	377	45	98	396
Shared Lane Traffic (%)						
Lane Group Flow (vph)	46	118	422	0	98	396
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
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	0.94
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	24.0	24.0	24.0		9.5	24.0
Total Split (s)	33.0	33.0	39.0		18.0	57.0
Total Split (%)	36.7%	36.7%	43.3%		20.0%	63.3%
Maximum Green (s)	27.0	27.0	33.0		14.5	51.0
Yellow Time (s)	4.5	4.5	4.5		3.5	4.5
All-Red Time (s)	1.5	1.5	1.5		0.0	1.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		3.5	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	7.0			7.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	7.3	7.3	46.9		56.4	55.1
Actuated g/C Ratio	0.10	0.10	0.66		0.79	0.78
v/c Ratio	0.25	0.44	0.18		0.13	0.14
Control Delay	32.3	12.0	6.7		2.7	3.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	32.3	12.0	6.7		2.7	3.0
LOS	C	B	A		A	A
Approach Delay	17.7		6.7			2.9
Approach LOS	B		A			A
90th %ile Green (s)	9.6	9.6	39.9		7.6	51.0
90th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
70th %ile Green (s)	8.1	8.1	40.6		6.9	51.0
70th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
50th %ile Green (s)	7.2	7.2	41.1		6.4	51.0
50th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
30th %ile Green (s)	6.3	6.3	41.4		6.1	51.0
30th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
10th %ile Green (s)	0.0	0.0	66.0		0.0	66.0
10th %ile Term Code	Skip	Skip	Dwell		Skip	Dwell
Queue Length 50th (ft)	19	0	38		8	21
Queue Length 95th (ft)	48	43	67		20	37
Internal Link Dist (ft)	4335		636			599
Turn Bay Length (ft)	275				175	
Base Capacity (vph)	672	674	2306		878	2892
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.07	0.18	0.18		0.11	0.14

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 71
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.44
Intersection Signal Delay: 6.6 Intersection LOS: A
Intersection Capacity Utilization 33.9% ICU Level of Service A
Analysis Period (min) 15
90th %ile Actuated Cycle: 72.6
70th %ile Actuated Cycle: 71.1
50th %ile Actuated Cycle: 70.2
30th %ile Actuated Cycle: 69.3
10th %ile Actuated Cycle: 72

Splits and Phases: 1: Washington St & Iroquois Ave



Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	180	0	0	160
Future Vol, veh/h	0	0	180	0	0	160
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	189	0	0	168

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	357	189	0	0	189	0
Stage 1	189	-	-	-	-	-
Stage 2	168	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	*700	*940	-	-	*1407	-
Stage 1	*887	-	-	-	-	-
Stage 2	*862	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	*700	*940	-	-	*1407	-
Mov Cap-2 Maneuver	*718	-	-	-	-	-
Stage 1	*887	-	-	-	-	-
Stage 2	*862	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	-	* 1407	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	0	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	10	55	12	5	13	35	152	6	12	144	4
Future Vol, veh/h	15	10	55	12	5	13	35	152	6	12	144	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	11	58	13	5	14	37	160	6	13	152	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	418	419	78	343	418	163	156	0	0	166	0	0
Stage 1	179	179	-	237	237	-	-	-	-	-	-	-
Stage 2	239	240	-	106	181	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	*774	*698	967	*882	*699	*966	1423	-	-	*1446	-	-
Stage 1	*806	*751	-	*912	*799	-	-	-	-	-	-	-
Stage 2	*912	*799	-	*889	*749	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*738	*674	967	*797	*674	*966	1423	-	-	*1446	-	-
Mov Cap-2 Maneuver	*738	*674	-	*797	*674	-	-	-	-	-	-	-
Stage 1	*785	*744	-	*888	*778	-	-	-	-	-	-	-
Stage 2	*870	*778	-	*817	*742	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.6	9.4	1.4	0.6
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1423	-	-	869	756	966	* 1446	-	-
HCM Lane V/C Ratio	0.026	-	-	0.097	0.024	0.014	0.009	-	-
HCM Control Delay (s)	7.6	-	-	9.6	9.9	8.8	7.5	-	-
HCM Lane LOS	A	-	-	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.1	0	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.9

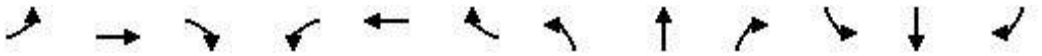
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	3	14	100	1	29	16	159	106	32	171	8
Future Vol, veh/h	5	3	14	100	1	29	16	159	106	32	171	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	3	15	105	1	31	17	167	112	34	180	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	525	565	94	416	513	223	188	0	0	279	0	0
Stage 1	252	252	-	257	257	-	-	-	-	-	-	-
Stage 2	273	313	-	159	256	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	*642	*567	945	*776	*610	*966	1385	-	-	*1446	-	-
Stage 1	*731	*698	-	*912	*799	-	-	-	-	-	-	-
Stage 2	*912	*799	-	*828	*695	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*604	*547	945	*740	*589	*966	1385	-	-	*1446	-	-
Mov Cap-2 Maneuver	*604	*547	-	*740	*589	-	-	-	-	-	-	-
Stage 1	*722	*682	-	*901	*789	-	-	-	-	-	-	-
Stage 2	*871	*789	-	*792	*679	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.8	10.3	0.4	1.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1385	-	-	770	740	946	* 1446	-	-
HCM Lane V/C Ratio	0.012	-	-	0.03	0.142	0.033	0.023	-	-
HCM Control Delay (s)	7.6	-	-	9.8	10.7	8.9	7.5	-	-
HCM Lane LOS	A	-	-	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.5	0.1	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	1240	18	10	1099	134	24	23	10	159	19	107
Future Volume (vph)	124	1240	18	10	1099	134	24	23	10	159	19	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	200		0	350		0	120		0	95		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.984			0.953				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3532	0	1770	3483	0	1770	1775	0	1770	1961	1583
Flt Permitted	0.151			0.181			0.744			0.734		
Satd. Flow (perm)	281	3532	0	337	3483	0	1386	1775	0	1367	1961	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			16			11				113
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		756			461			529			276	
Travel Time (s)		12.9			7.9			12.0			7.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	131	1305	19	11	1157	141	25	24	11	167	20	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	131	1324	0	11	1298	0	25	35	0	167	20	113
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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	0.94	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	24.0		9.5	24.0		24.0	24.0		24.0	24.0	24.0
Total Split (s)	22.0	68.0		22.0	68.0		30.0	30.0		30.0	30.0	30.0
Total Split (%)	18.3%	56.7%		18.3%	56.7%		25.0%	25.0%		25.0%	25.0%	25.0%
Maximum Green (s)	18.5	62.0		18.5	62.0		24.0	24.0		24.0	24.0	24.0
Yellow Time (s)	3.5	4.5		3.5	4.5		4.5	4.5		4.5	4.5	4.5
All-Red Time (s)	0.0	1.5		0.0	1.5		1.5	1.5		1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	91.4	87.0		85.6	77.4		19.1	19.1		19.1	19.1	19.1
Actuated g/C Ratio	0.76	0.72		0.71	0.64		0.16	0.16		0.16	0.16	0.16
v/c Ratio	0.42	0.52		0.04	0.58		0.11	0.12		0.77	0.06	0.33
Control Delay	8.4	9.2		2.7	7.2		42.1	31.6		70.4	40.8	10.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	8.4	9.2		2.7	7.2		42.1	31.6		70.4	40.8	10.1
LOS	A	A		A	A		D	C		E	D	B
Approach Delay		9.1			7.2			36.0			45.7	
Approach LOS		A			A			D			D	
90th %ile Green (s)	10.2	74.4		6.1	70.3		24.0	24.0		24.0	24.0	24.0
90th %ile Term Code	Gap	Coord		Gap	Coord		Hold	Hold		Max	Max	Max
70th %ile Green (s)	8.8	85.0		0.0	72.7		23.0	23.0		23.0	23.0	23.0
70th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Gap	Gap	Gap
50th %ile Green (s)	7.8	88.2		0.0	76.9		19.8	19.8		19.8	19.8	19.8
50th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Gap	Gap	Gap
30th %ile Green (s)	7.0	91.3		0.0	80.8		16.7	16.7		16.7	16.7	16.7
30th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Gap	Gap	Gap
10th %ile Green (s)	6.1	96.0		0.0	86.4		12.0	12.0		12.0	12.0	12.0
10th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Gap	Gap	Gap
Queue Length 50th (ft)	23	199		1	137		17	16		125	13	0
Queue Length 95th (ft)	46	371		m2	180		41	44		196	35	49
Internal Link Dist (ft)		676			381			449			196	
Turn Bay Length (ft)	200			350			120			95		
Base Capacity (vph)	443	2560		477	2252		277	363		273	392	407
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.30	0.52		0.02	0.58		0.09	0.10		0.61	0.05	0.28

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 109 (91%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 12.3 Intersection LOS: B
Intersection Capacity Utilization 70.3% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Iroquois Ave & Ogden Ave

Intersection	
Int Delay, s/veh	0.4

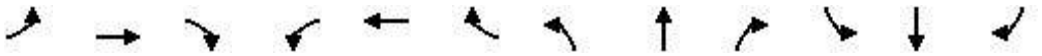
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↳			↑↑↳				↱			↱
Traffic Vol, veh/h	0	1383	0	0	1181	108	0	0	7	0	0	71
Future Vol, veh/h	0	1383	0	0	1181	108	0	0	7	0	0	71
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1456	0	0	1243	114	0	0	7	0	0	75

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	728	-	-	622
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	0	0	0	*516	0	0	*593
Stage 1	0	-	-	0	-	0	0	0	-	0	0	-
Stage 2	0	-	-	0	-	0	0	0	-	0	0	-
Platoon blocked, %		-	-		-				1			1
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	*516	-	-	*593
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	12.1	11.9
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	SBLn1
Capacity (veh/h)	516	-	-	-	593
HCM Lane V/C Ratio	0.014	-	-	-	0.126
HCM Control Delay (s)	12.1	-	-	-	11.9
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	380	953	57	48	899	107	52	56	33	138	72	338
Future Volume (vph)	380	953	57	48	899	107	52	56	33	138	72	338
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	150		0	0		0	0		50
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.984			0.968				0.850
Flt Protected	0.950			0.950				0.982		0.950		
Satd. Flow (prot)	1770	3511	0	1770	3483	0	0	1771	0	1770	1863	1583
Flt Permitted	0.142			0.269				0.846		0.461		
Satd. Flow (perm)	265	3511	0	501	3483	0	0	1525	0	859	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			13			11				59
Link Speed (mph)		40			40			35			40	
Link Distance (ft)		299			870			720			413	
Travel Time (s)		5.1			14.8			14.0			7.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	400	1003	60	51	946	113	55	59	35	145	76	356
Shared Lane Traffic (%)												
Lane Group Flow (vph)	400	1063	0	51	1059	0	0	149	0	145	76	356
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	pm+ov
Protected Phases	5	2			6			8		7	4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	24.0		24.0	24.0		21.0	21.0		14.0	24.0	9.5
Total Split (s)	26.0	84.0		58.0	58.0		22.0	22.0		14.0	36.0	26.0
Total Split (%)	21.7%	70.0%		48.3%	48.3%		18.3%	18.3%		11.7%	30.0%	21.7%
Maximum Green (s)	22.5	78.0		52.0	52.0		16.0	16.0		8.0	30.0	22.5
Yellow Time (s)	3.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	3.5
All-Red Time (s)	0.0	1.5		1.5	1.5		1.5	1.5		1.5	1.5	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		6.0	6.0			6.0		6.0	6.0	3.5
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		C-Min	C-Min		None	None		None	None	None
Walk Time (s)		7.0										

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0										
Pedestrian Calls (#/hr)		0										
Act Effct Green (s)	80.5	78.0		53.7	53.7			14.4		30.0	30.0	56.8
Actuated g/C Ratio	0.67	0.65		0.45	0.45			0.12		0.25	0.25	0.47
v/c Ratio	0.91	0.47		0.23	0.68			0.78		0.51	0.16	0.46
Control Delay	48.8	8.0		17.8	18.7			73.6		57.1	49.9	23.4
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Delay	48.8	8.0		17.8	18.7			73.6		57.1	49.9	23.4
LOS	D	A		B	B			E		E	D	C
Approach Delay		19.2			18.6			73.6			35.3	
Approach LOS		B			B			E			D	
90th %ile Green (s)	22.5	78.0		52.0	52.0		16.0	16.0		8.0	30.0	22.5
90th %ile Term Code	Max	Coord		Coord	Coord		Max	Max		Max	Hold	Max
70th %ile Green (s)	22.5	78.0		52.0	52.0		16.0	16.0		8.0	30.0	22.5
70th %ile Term Code	Max	Coord		Coord	Coord		Max	Max		Max	Hold	Max
50th %ile Green (s)	22.5	76.2		50.2	50.2		16.0	16.0		9.8	31.8	22.5
50th %ile Term Code	Max	Coord		Coord	Coord		Max	Max		Max	Hold	Max
30th %ile Green (s)	22.1	75.2		49.6	49.6		13.9	13.9		12.9	32.8	22.1
30th %ile Term Code	Gap	Coord		Coord	Coord		Gap	Gap		Gap	Hold	Gap
10th %ile Green (s)	14.5	82.6		64.6	64.6		9.9	9.9		9.5	25.4	14.5
10th %ile Term Code	Gap	Coord		Coord	Coord		Gap	Gap		Gap	Hold	Gap
Queue Length 50th (ft)	155	204		14	154			104		106	55	115
Queue Length 95th (ft)	#360	123		m24	180			#197		174	m95	235
Internal Link Dist (ft)		219			790			640			333	
Turn Bay Length (ft)	230			150								50
Base Capacity (vph)	459	2312		227	1589			212		287	479	801
Starvation Cap Reductn	0	0		0	0			0		0	0	0
Spillback Cap Reductn	0	0		0	0			0		0	0	0
Storage Cap Reductn	0	0		0	0			0		0	0	0
Reduced v/c Ratio	0.87	0.46		0.22	0.67			0.70		0.51	0.16	0.44

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 116 (97%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 24.3 Intersection LOS: C
Intersection Capacity Utilization 77.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Naperville Wheaton Rd & Odgen Ave

Intersection	
Int Delay, s/veh	3.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	107	2	136	10	0	11	110	422	11	8	402	91
Future Vol, veh/h	107	2	136	10	0	11	110	422	11	8	402	91
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	113	2	143	11	0	12	116	444	12	8	423	96

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	942	1175	259	911	1218	228	519	0	0	456	0	0
Stage 1	488	488	-	682	682	-	-	-	-	-	-	-
Stage 2	454	687	-	229	536	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	626	371	*924	*672	342	*924	1279	-	-	1361	-	-
Stage 1	809	723	-	*597	576	-	-	-	-	-	-	-
Stage 2	854	573	-	*871	684	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	557	323	*924	*509	298	*924	1279	-	-	1361	-	-
Mov Cap-2 Maneuver	557	323	-	*509	298	-	-	-	-	-	-	-
Stage 1	710	717	-	*524	506	-	-	-	-	-	-	-
Stage 2	740	503	-	*728	678	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.2	10.6	1.9	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1279	-	-	557	900	666	1361	-	-
HCM Lane V/C Ratio	0.091	-	-	0.202	0.161	0.033	0.006	-	-
HCM Control Delay (s)	8.1	0.3	-	13.1	9.8	10.6	7.7	0	-
HCM Lane LOS	A	A	-	B	A	B	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0.8	0.6	0.1	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0

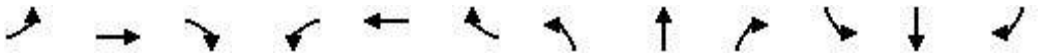
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	540	501	0
Future Vol, veh/h	0	0	0	540	501	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	568	527	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	811	264	527	0	-	0
Stage 1	527	-	-	-	-	-
Stage 2	284	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	*549	734	1036	-	-	-
Stage 1	*557	-	-	-	-	-
Stage 2	*824	-	-	-	-	-
Platoon blocked, %	1			-	-	-
Mov Cap-1 Maneuver	*549	734	1036	-	-	-
Mov Cap-2 Maneuver	*549	-	-	-	-	-
Stage 1	*557	-	-	-	-	-
Stage 2	*824	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1036	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	0	0	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



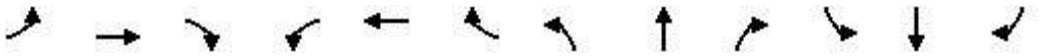
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	478	19	30	19	17	54	42	893	38	49	659	444
Future Volume (vph)	478	19	30	19	17	54	42	893	38	49	659	444
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	175		0	120		0	100		0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.983				0.850		0.994			0.940	
Flt Protected	0.950	0.961			0.974		0.950			0.950		
Satd. Flow (prot)	1681	1672	0	0	1814	1583	1770	3518	0	1770	3327	0
Flt Permitted	0.950	0.961			0.687		0.149			0.208		
Satd. Flow (perm)	1681	1672	0	0	1280	1583	278	3518	0	387	3327	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				114		4			167	
Link Speed (mph)		40			30			40			40	
Link Distance (ft)		782			1146			1286			1236	
Travel Time (s)		13.3			26.0			21.9			21.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	503	20	32	20	18	57	44	940	40	52	694	467
Shared Lane Traffic (%)	45%											
Lane Group Flow (vph)	277	278	0	0	38	57	44	980	0	52	1161	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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
Turn Type	Split	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases	4	4			8		5	2		1	6	
Permitted Phases				8		8	2			6		
Detector Phase	4	4		8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		11.0	11.0	11.0	9.5	24.0		9.5	24.0	
Total Split (s)	33.0	33.0		18.0	18.0	18.0	13.0	56.0		13.0	56.0	
Total Split (%)	27.5%	27.5%		15.0%	15.0%	15.0%	10.8%	46.7%		10.8%	46.7%	
Maximum Green (s)	27.0	27.0		12.0	12.0	12.0	9.5	50.0		9.5	50.0	
Yellow Time (s)	4.5	4.5		4.5	4.5	4.5	3.5	4.5		3.5	4.5	
All-Red Time (s)	1.5	1.5		1.5	1.5	1.5	0.0	1.5		0.0	1.5	
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0			6.0	6.0	3.5	6.0		3.5	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	
Walk Time (s)	7.0	7.0						7.0			7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	11.0	11.0						11.0			11.0	
Pedestrian Calls (#/hr)	0	0						0			0	
Act Effct Green (s)	23.6	23.6			8.8	8.8	71.4	63.2		71.8	63.4	
Actuated g/C Ratio	0.20	0.20			0.07	0.07	0.60	0.53		0.60	0.53	
v/c Ratio	0.84	0.84			0.40	0.26	0.18	0.53		0.17	0.63	
Control Delay	56.1	54.9			64.8	2.8	7.4	10.0		12.9	21.3	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	56.1	54.9			64.8	2.8	7.4	10.0		12.9	21.3	
LOS	E	D			E	A	A	B		B	C	
Approach Delay		55.5			27.6			9.9			21.0	
Approach LOS		E			C			A			C	
90th %ile Green (s)	27.0	27.0		12.0	12.0	12.0	8.4	50.7		8.8	51.1	
90th %ile Term Code	Max	Max		Max	Max	Max	Gap	Coord		Gap	Coord	
70th %ile Green (s)	27.0	27.0		10.5	10.5	10.5	7.4	53.3		7.7	53.6	
70th %ile Term Code	Max	Max		Gap	Gap	Gap	Gap	Coord		Gap	Coord	
50th %ile Green (s)	25.1	25.1		8.9	8.9	8.9	6.7	57.6		6.9	57.8	
50th %ile Term Code	Gap	Gap		Gap	Gap	Gap	Gap	Coord		Gap	Coord	
30th %ile Green (s)	21.8	21.8		7.3	7.3	7.3	6.1	63.2		6.2	63.3	
30th %ile Term Code	Gap	Gap		Gap	Gap	Gap	Gap	Coord		Gap	Coord	
10th %ile Green (s)	17.0	17.0		0.0	0.0	0.0	0.0	91.0		0.0	91.0	
10th %ile Term Code	Gap	Gap		Skip	Skip	Skip	Skip	Coord		Skip	Coord	
Queue Length 50th (ft)	215	212			29	0	7	91		16	307	
Queue Length 95th (ft)	m281	m278			65	0	m11	125		38	434	
Internal Link Dist (ft)		702			1066			1206			1156	
Turn Bay Length (ft)							120			100		
Base Capacity (vph)	378	380			128	260	287	1853		346	1835	
Starvation Cap Reductn	0	0			0	0	0	0		0	0	
Spillback Cap Reductn	0	0			0	0	0	0		0	0	
Storage Cap Reductn	0	0			0	0	0	0		0	0	
Reduced v/c Ratio	0.73	0.73			0.30	0.22	0.15	0.53		0.15	0.63	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 73 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 23.9 Intersection LOS: C
Intersection Capacity Utilization 71.3% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Naper Blvd & Naperville Wheaton Rd/Ridgeland Ave



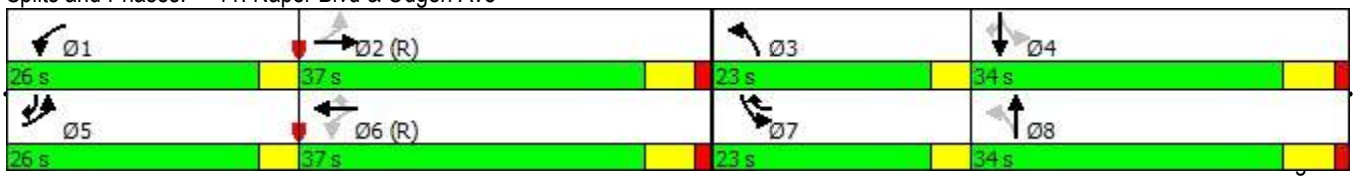
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	203	710	244	106	669	159	293	680	38	178	533	88
Future Volume (vph)	203	710	244	106	669	159	293	680	38	178	533	88
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	85		0	205		270	250		0	200		125
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.962				0.850		0.992				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3405	0	1770	3725	1583	1770	3511	0	1770	3725	1583
Flt Permitted	0.236			0.146			0.212			0.156		
Satd. Flow (perm)	440	3405	0	272	3725	1583	395	3511	0	291	3725	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38				167		4				83
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		870			1169			1289			1286	
Travel Time (s)		14.8			19.9			22.0			21.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	214	747	257	112	704	167	308	716	40	187	561	93
Shared Lane Traffic (%)												
Lane Group Flow (vph)	214	1004	0	112	704	167	308	756	0	187	561	93
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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	0.94	1.00	1.00	1.00	1.00	1.00	0.94	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6	7	3	8		7	4	5
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	24.0		9.5	24.0	9.5	9.5	24.0		9.5	24.0	9.5
Total Split (s)	26.0	37.0		26.0	37.0	23.0	23.0	34.0		23.0	34.0	26.0
Total Split (%)	21.7%	30.8%		21.7%	30.8%	19.2%	19.2%	28.3%		19.2%	28.3%	21.7%
Maximum Green (s)	22.5	31.0		22.5	31.0	19.5	19.5	28.0		19.5	28.0	22.5
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	0.0	1.5		0.0	1.5	0.0	0.0	1.5		0.0	1.5	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0	3.5	3.5	6.0		3.5	6.0	3.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min	None	None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	61.7	46.3		54.4	42.2	62.5	50.3	30.8		43.6	26.8	46.6
Actuated g/C Ratio	0.51	0.39		0.45	0.35	0.52	0.42	0.26		0.36	0.22	0.39
v/c Ratio	0.57	0.75		0.46	0.54	0.18	0.82	0.84		0.67	0.67	0.14
Control Delay	19.8	29.0		22.8	34.3	2.9	43.6	51.5		48.3	61.9	10.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	19.8	29.0		22.8	34.3	2.9	43.6	51.5		48.3	61.9	10.9
LOS	B	C		C	C	A	D	D		D	E	B
Approach Delay		27.4			27.6			49.2			53.3	
Approach LOS		C			C			D			D	
90th %ile Green (s)	18.6	40.2		13.3	34.9	19.5	19.5	28.0		19.5	28.0	18.6
90th %ile Term Code	Gap	Coord		Gap	Coord	Max	Max	Max		Max	Max	Gap
70th %ile Green (s)	15.7	42.8		10.7	37.8	16.0	19.5	31.5		16.0	28.0	15.7
70th %ile Term Code	Gap	Coord		Gap	Coord	Gap	Max	Max		Gap	Hold	Gap
50th %ile Green (s)	13.8	44.0		9.5	39.7	13.7	19.5	33.8		13.7	28.0	13.8
50th %ile Term Code	Gap	Coord		Gap	Coord	Gap	Max	Max		Gap	Hold	Gap
30th %ile Green (s)	11.7	48.0		8.3	44.6	12.2	17.7	32.5		12.2	27.0	11.7
30th %ile Term Code	Gap	Coord		Gap	Coord	Gap	Gap	Gap		Gap	Hold	Gap
10th %ile Green (s)	8.9	56.4		6.6	54.1	9.8	14.9	28.2		9.8	23.1	8.9
10th %ile Term Code	Gap	Coord		Gap	Coord	Gap	Gap	Gap		Gap	Hold	Gap
Queue Length 50th (ft)	57	374		45	235	0	157	281		127	228	8
Queue Length 95th (ft)	m116	398		79	318	35	#280	#417		m207	299	m40
Internal Link Dist (ft)		790			1089			1209			1206	
Turn Bay Length (ft)	85			205		270	250			200		125
Base Capacity (vph)	476	1336		421	1310	966	389	904		358	869	774
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.45	0.75		0.27	0.54	0.17	0.79	0.84		0.52	0.65	0.12

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 1 (1%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 38.4 Intersection LOS: D
Intersection Capacity Utilization 80.2% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Naper Blvd & Odgen Ave



APPENDIX F

CAPACITY ANALYSIS WORKSHEETS
2027 BACKGROUND

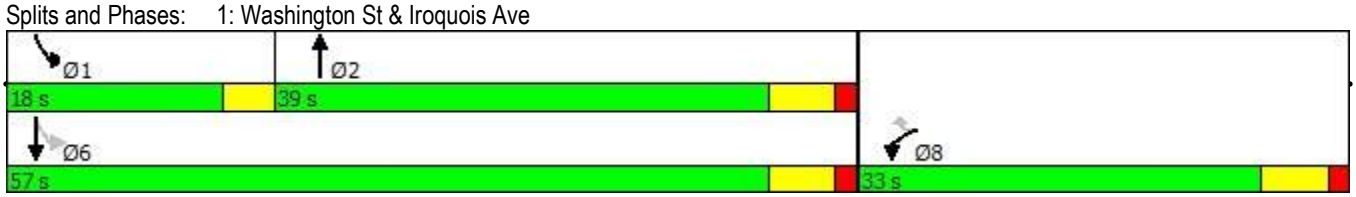
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	43	168	494	66	358	1113
Future Volume (vph)	43	168	494	66	358	1113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	2000
Storage Length (ft)	275	0		0	175	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3476	0	1770	3725
Flt Permitted	0.950				0.383	
Satd. Flow (perm)	1770	1583	3476	0	713	3725
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		177	18			
Link Speed (mph)	25		35			35
Link Distance (ft)	4415		716			679
Travel Time (s)	120.4		13.9			13.2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	45	177	520	69	377	1172
Shared Lane Traffic (%)						
Lane Group Flow (vph)	45	177	589	0	377	1172
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
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	0.94
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	24.0	24.0	24.0		9.5	24.0
Total Split (s)	33.0	33.0	39.0		18.0	57.0
Total Split (%)	36.7%	36.7%	43.3%		20.0%	63.3%
Maximum Green (s)	27.0	27.0	33.0		14.5	51.0
Yellow Time (s)	4.5	4.5	4.5		3.5	4.5
All-Red Time (s)	1.5	1.5	1.5		0.0	1.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		3.5	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	7.0			7.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	7.5	7.5	37.2		53.6	51.0
Actuated g/C Ratio	0.11	0.11	0.53		0.76	0.72
v/c Ratio	0.24	0.54	0.32		0.54	0.44
Control Delay	31.8	11.9	10.6		6.0	4.7
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	31.8	11.9	10.6		6.0	4.7
LOS	C	B	B		A	A
Approach Delay	16.0		10.6			5.0
Approach LOS	B		B			A
90th %ile Green (s)	10.9	10.9	33.2		14.3	51.0
90th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
70th %ile Green (s)	8.0	8.0	36.2		11.3	51.0
70th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
50th %ile Green (s)	7.2	7.2	37.5		10.0	51.0
50th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
30th %ile Green (s)	6.3	6.3	38.7		8.8	51.0
30th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
10th %ile Green (s)	5.5	5.5	39.9		7.6	51.0
10th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
Queue Length 50th (ft)	18	0	66		36	83
Queue Length 95th (ft)	46	51	124		78	140
Internal Link Dist (ft)	4335		636			599
Turn Bay Length (ft)	275				175	
Base Capacity (vph)	677	715	1840		758	2693
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.07	0.25	0.32		0.50	0.44

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 70.6
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.54
Intersection Signal Delay: 7.4 Intersection LOS: A
Intersection Capacity Utilization 53.1% ICU Level of Service A
Analysis Period (min) 15
90th %ile Actuated Cycle: 73.9
70th %ile Actuated Cycle: 71
50th %ile Actuated Cycle: 70.2
30th %ile Actuated Cycle: 69.3
10th %ile Actuated Cycle: 68.5

Splits and Phases: 1: Washington St & Iroquois Ave



Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	240	0	0	275
Future Vol, veh/h	0	0	240	0	0	275
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	253	0	0	289

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	542	253	0	0	253	0
Stage 1	253	-	-	-	-	-
Stage 2	289	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	*546	*883	-	-	*1321	-
Stage 1	*832	-	-	-	-	-
Stage 2	*760	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	*546	*883	-	-	*1321	-
Mov Cap-2 Maneuver	*610	-	-	-	-	-
Stage 1	*832	-	-	-	-	-
Stage 2	*760	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	-	* 1321	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	0	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	6	39	7	2	9	45	219	2	14	251	9
Future Vol, veh/h	11	6	39	7	2	9	45	219	2	14	251	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	6	41	7	2	9	47	231	2	15	264	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	625	625	137	491	629	232	274	0	0	233	0	0
Stage 1	298	298	-	326	326	-	-	-	-	-	-	-
Stage 2	327	327	-	165	303	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	*673	*616	887	*852	*612	*904	1288	-	-	*1353	-	-
Stage 1	*687	*666	-	*853	*747	-	-	-	-	-	-	-
Stage 2	*853	*747	-	*821	*663	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*640	*587	887	*777	*583	*904	1288	-	-	*1353	-	-
Mov Cap-2 Maneuver	*640	*587	-	*777	*583	-	-	-	-	-	-	-
Stage 1	*662	*659	-	*822	*720	-	-	-	-	-	-	-
Stage 2	*811	*720	-	*767	*656	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	9.5	1.3	0.4
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1288	-	-	785	723	904	* 1353	-	-
HCM Lane V/C Ratio	0.037	-	-	0.075	0.013	0.01	0.011	-	-
HCM Control Delay (s)	7.9	-	-	10	10	9	7.7	-	-
HCM Lane LOS	A	-	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0	0	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	2.4

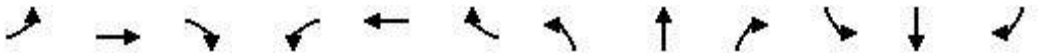
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	2	18	93	2	37	16	221	82	24	264	9
Future Vol, veh/h	8	2	18	93	2	37	16	221	82	24	264	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	2	19	98	2	39	17	233	86	25	278	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	663	686	144	500	647	276	287	0	0	319	0	0
Stage 1	333	333	-	309	309	-	-	-	-	-	-	-
Stage 2	330	353	-	191	338	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	*626	*561	878	*849	*595	*904	1274	-	-	*1353	-	-
Stage 1	*655	*643	-	*853	*747	-	-	-	-	-	-	-
Stage 2	*853	*747	-	*793	*640	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*583	*543	878	*808	*576	*904	1274	-	-	*1353	-	-
Mov Cap-2 Maneuver	*583	*543	-	*808	*576	-	-	-	-	-	-	-
Stage 1	*646	*631	-	*841	*737	-	-	-	-	-	-	-
Stage 2	*803	*737	-	*759	*628	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.1	9.9	0.4	0.6
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1274	-	-	739	808	878	* 1353	-	-
HCM Lane V/C Ratio	0.013	-	-	0.04	0.121	0.047	0.019	-	-
HCM Control Delay (s)	7.9	-	-	10.1	10.1	9.3	7.7	-	-
HCM Lane LOS	A	-	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.1	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	1106	24	24	1439	140	49	54	43	205	88	83
Future Volume (vph)	125	1106	24	24	1439	140	49	54	43	205	88	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	200		0	350		0	120		0	95		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.987			0.934				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3529	0	1770	3493	0	1770	1740	0	1770	1961	1583
Flt Permitted	0.068			0.203			0.686			0.665		
Satd. Flow (perm)	127	3529	0	378	3493	0	1278	1740	0	1239	1961	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			9			26				87
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		756			461			529			276	
Travel Time (s)		12.9			7.9			12.0			7.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	132	1164	25	25	1515	147	52	57	45	216	93	87
Shared Lane Traffic (%)												
Lane Group Flow (vph)	132	1189	0	25	1662	0	52	102	0	216	93	87
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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	0.94	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	24.0		9.5	24.0		24.0	24.0		24.0	24.0	24.0
Total Split (s)	24.0	79.0		24.0	79.0		47.0	47.0		47.0	47.0	47.0
Total Split (%)	16.0%	52.7%		16.0%	52.7%		31.3%	31.3%		31.3%	31.3%	31.3%
Maximum Green (s)	20.5	73.0		20.5	73.0		41.0	41.0		41.0	41.0	41.0
Yellow Time (s)	3.5	4.5		3.5	4.5		4.5	4.5		4.5	4.5	4.5
All-Red Time (s)	0.0	1.5		0.0	1.5		1.5	1.5		1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	109.7	101.2		101.2	92.6		30.8	30.8		30.8	30.8	30.8
Actuated g/C Ratio	0.73	0.67		0.67	0.62		0.21	0.21		0.21	0.21	0.21
v/c Ratio	0.62	0.50		0.08	0.77		0.20	0.27		0.85	0.23	0.22
Control Delay	29.4	14.6		5.5	16.1		48.3	36.8		85.0	49.0	9.3
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.0		0.0	0.0	0.0
Total Delay	29.4	14.6		5.5	16.3		48.3	36.8		85.0	49.0	9.3
LOS	C	B		A	B		D	D		F	D	A
Approach Delay		16.0			16.1			40.7			59.9	
Approach LOS		B			B			D			E	
90th %ile Green (s)	17.5	86.4		7.1	76.0		41.0	41.0		41.0	41.0	41.0
90th %ile Term Code	Gap	Coord		Gap	Coord		Hold	Hold		Max	Max	Max
70th %ile Green (s)	13.5	92.8		6.4	85.7		35.3	35.3		35.3	35.3	35.3
70th %ile Term Code	Gap	Coord		Gap	Coord		Hold	Hold		Gap	Gap	Gap
50th %ile Green (s)	10.6	97.6		6.0	93.0		30.9	30.9		30.9	30.9	30.9
50th %ile Term Code	Gap	Coord		Gap	Coord		Hold	Hold		Gap	Gap	Gap
30th %ile Green (s)	7.7	111.5		0.0	100.3		26.5	26.5		26.5	26.5	26.5
30th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Gap	Gap	Gap
10th %ile Green (s)	6.5	117.9		0.0	107.9		20.1	20.1		20.1	20.1	20.1
10th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Gap	Gap	Gap
Queue Length 50th (ft)	38	303		3	300		43	62		206	77	0
Queue Length 95th (ft)	120	443		m8	#684		77	109		284	120	44
Internal Link Dist (ft)		676			381			449			196	
Turn Bay Length (ft)	200			350			120			95		
Base Capacity (vph)	317	2382		466	2159		349	494		338	536	495
Starvation Cap Reductn	0	0		0	59		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.42	0.50		0.05	0.79		0.15	0.21		0.64	0.17	0.18

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 142 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 22.0 Intersection LOS: C
Intersection Capacity Utilization 82.5% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Iroquois Ave & Ogden Ave

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1358	0	0	1574	67	0	0	7	0	0	38
Future Vol, veh/h	0	1358	0	0	1574	67	0	0	7	0	0	38
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1429	0	0	1657	71	0	0	7	0	0	40

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	715	-	-	828
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	0	0	0	*528	0	0	*426
Stage 1	0	-	-	0	-	0	0	0	-	0	0	-
Stage 2	0	-	-	0	-	0	0	0	-	0	0	-
Platoon blocked, %		-	-		-				1			1
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	*528	-	-	*426
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	11.9	14.3
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	SBLn1
Capacity (veh/h)	528	-	-	-	426
HCM Lane V/C Ratio	0.014	-	-	-	0.094
HCM Control Delay (s)	11.9	-	-	-	14.3
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	406	905	54	43	1112	58	47	33	36	99	135	482
Future Volume (vph)	406	905	54	43	1112	58	47	33	36	99	135	482
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	150		0	0		0	0		50
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.993			0.958				0.850
Flt Protected	0.950			0.950				0.980		0.950		
Satd. Flow (prot)	1770	3511	0	1770	3514	0	0	1749	0	1770	1863	1583
Flt Permitted	0.117			0.284				0.806		0.474		
Satd. Flow (perm)	218	3511	0	529	3514	0	0	1438	0	883	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		11			5			12				51
Link Speed (mph)		40			40			35			40	
Link Distance (ft)		299			870			720			413	
Travel Time (s)		5.1			14.8			14.0			7.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	427	953	57	45	1171	61	49	35	38	104	142	507
Shared Lane Traffic (%)												
Lane Group Flow (vph)	427	1010	0	45	1232	0	0	122	0	104	142	507
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	pm+ov
Protected Phases	5	2			6			8		7	4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	24.0		24.0	24.0		21.0	21.0		14.0	24.0	9.5
Total Split (s)	32.0	115.0		83.0	83.0		21.0	21.0		14.0	35.0	32.0
Total Split (%)	21.3%	76.7%		55.3%	55.3%		14.0%	14.0%		9.3%	23.3%	21.3%
Maximum Green (s)	28.5	109.0		77.0	77.0		15.0	15.0		8.0	29.0	28.5
Yellow Time (s)	3.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	3.5
All-Red Time (s)	0.0	1.5		1.5	1.5		1.5	1.5		1.5	1.5	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		6.0	6.0			6.0		6.0	6.0	3.5
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		C-Min	C-Min		None	None		None	None	None
Walk Time (s)		7.0										

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0										
Pedestrian Calls (#/hr)		0										
Act Effct Green (s)	110.3	107.8		76.6	76.6			14.2		30.2	30.2	63.9
Actuated g/C Ratio	0.74	0.72		0.51	0.51			0.09		0.20	0.20	0.43
v/c Ratio	0.96	0.40		0.17	0.69			0.84		0.44	0.38	0.72
Control Delay	64.5	5.9		5.2	8.8			99.8		69.5	67.1	51.0
Queue Delay	0.0	0.0		0.0	0.2			0.0		0.0	0.0	0.0
Total Delay	64.5	5.9		5.2	9.0			99.8		69.5	67.1	51.0
LOS	E	A		A	A			F		E	E	D
Approach Delay		23.3			8.9			99.8			56.6	
Approach LOS		C			A			F			E	
90th %ile Green (s)	28.5	109.0		77.0	77.0		15.0	15.0		8.0	29.0	28.5
90th %ile Term Code	Max	Coord		Coord	Coord		Max	Max		Max	Hold	Max
70th %ile Green (s)	28.5	108.5		76.5	76.5		15.0	15.0		8.5	29.5	28.5
70th %ile Term Code	Max	Coord		Coord	Coord		Max	Max		Max	Hold	Max
50th %ile Green (s)	28.5	104.0		72.0	72.0		15.0	15.0		13.0	34.0	28.5
50th %ile Term Code	Max	Coord		Coord	Coord		Max	Max		Max	Hold	Max
30th %ile Green (s)	31.7	105.1		69.9	69.9		15.1	15.1		11.8	32.9	31.7
30th %ile Term Code	Gap	Coord		Coord	Coord		Gap	Gap		Gap	Hold	Gap
10th %ile Green (s)	21.3	112.5		87.7	87.7		10.8	10.8		8.7	25.5	21.3
10th %ile Term Code	Gap	Coord		Coord	Coord		Gap	Gap		Gap	Hold	Gap
Queue Length 50th (ft)	191	97		4	59			107		101	140	343
Queue Length 95th (ft)	#481	111		m5	57			#218		166	216	468
Internal Link Dist (ft)		219			790			640			333	
Turn Bay Length (ft)	230			150								50
Base Capacity (vph)	461	2570		279	1856			154		236	383	718
Starvation Cap Reductn	0	0		0	130			0		0	0	0
Spillback Cap Reductn	0	0		0	70			0		0	0	1
Storage Cap Reductn	0	0		0	0			0		0	0	0
Reduced v/c Ratio	0.93	0.39		0.16	0.71			0.79		0.44	0.37	0.71

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 6 (4%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 27.8 Intersection LOS: C
Intersection Capacity Utilization 87.1% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Naperville Wheaton Rd & Odgen Ave

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	55	2	74	3	0	8	43	451	3	5	640	98
Future Vol, veh/h	55	2	74	3	0	8	43	451	3	5	640	98
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	58	2	78	3	0	8	45	475	3	5	674	103

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1064	1304	388	915	1354	239	777	0	0	478	0	0
Stage 1	736	736	-	567	567	-	-	-	-	-	-	-
Stage 2	328	568	-	348	787	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	*271	206	611	363	190	*915	835	-	-	1352	-	-
Stage 1	*377	423	-	735	672	-	-	-	-	-	-	-
Stage 2	*863	671	-	641	401	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*252	190	611	295	175	*915	835	-	-	1352	-	-
Mov Cap-2 Maneuver	*252	190	-	295	175	-	-	-	-	-	-	-
Stage 1	*349	420	-	682	623	-	-	-	-	-	-	-
Stage 2	*793	622	-	553	398	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.9	11.3	1.1	0.1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	835	-	-	252	577	582	1352	-	-
HCM Lane V/C Ratio	0.054	-	-	0.23	0.139	0.02	0.004	-	-
HCM Control Delay (s)	9.6	0.3	-	23.5	12.2	11.3	7.7	0	-
HCM Lane LOS	A	A	-	C	B	B	A	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.9	0.5	0.1	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0

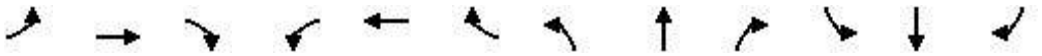
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	515	743	0
Future Vol, veh/h	0	0	0	515	743	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	542	782	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1053	391	782	0	-	0
Stage 1	782	-	-	-	-	-
Stage 2	271	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	*354	608	832	-	-	-
Stage 1	*411	-	-	-	-	-
Stage 2	*825	-	-	-	-	-
Platoon blocked, %	1			-	-	-
Mov Cap-1 Maneuver	*354	608	832	-	-	-
Mov Cap-2 Maneuver	*354	-	-	-	-	-
Stage 1	*411	-	-	-	-	-
Stage 2	*825	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	832	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	0	0	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	441	27	8	16	24	69	30	1059	21	96	1616	666
Future Volume (vph)	441	27	8	16	24	69	30	1059	21	96	1616	666
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	430		0	175		0	160		0	165		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.967			0.888			0.997				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1801	0	1770	1654	0	1770	5070	0	1770	3725	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1801	0	1770	1654	0	1770	5070	0	1770	3725	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			73			3				207
Link Speed (mph)		40			30			40			40	
Link Distance (ft)		782			1146			1286			1236	
Travel Time (s)		13.3			26.0			21.9			21.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	464	28	8	17	25	73	32	1115	22	101	1701	701
Shared Lane Traffic (%)												
Lane Group Flow (vph)	464	36	0	17	98	0	32	1137	0	101	1701	701
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
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	0.94	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.5		9.5	11.5		9.5	24.5		9.5	24.5	
Total Split (s)	30.0	38.3		9.7	18.0		10.0	81.9		20.1	92.0	
Total Split (%)	20.0%	25.5%		6.5%	12.0%		6.7%	54.6%		13.4%	61.3%	
Maximum Green (s)	26.0	31.8		5.7	11.5		6.0	75.4		16.1	85.5	
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5		3.0	4.5	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.5		4.0	6.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	
Walk Time (s)	7.0	7.0						7.0			7.0	

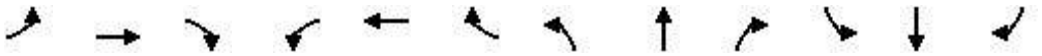
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	11.0	11.0						11.0			11.0	
Pedestrian Calls (#/hr)	0	0						0			0	
Act Effct Green (s)	24.0	32.2		5.7	8.1		6.8	83.6		13.2	94.2	150.0
Actuated g/C Ratio	0.16	0.21		0.04	0.05		0.05	0.56		0.09	0.63	1.00
v/c Ratio	0.84	0.09		0.25	0.62		0.41	0.40		0.65	0.73	0.44
Control Delay	73.9	25.9		79.6	39.4		73.9	16.5		59.8	32.9	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	73.9	25.9		79.6	39.4		73.9	16.5		59.8	32.9	0.3
LOS	E	C		E	D		E	B		E	C	A
Approach Delay		70.5			45.4			18.1			24.9	
Approach LOS		E			D			B			C	
90th %ile Green (s)	26.0	31.8		5.7	11.5		6.0	75.4		16.1	85.5	
90th %ile Term Code	Max	Hold		Max	Max		Max	Coord		Max	Coord	
70th %ile Green (s)	26.0	30.4		5.7	10.1		7.4	76.9		16.0	85.5	
70th %ile Term Code	Max	Hold		Max	Gap		Max	Coord		Gap	Coord	
50th %ile Green (s)	25.4	37.2		0.0	7.8		8.1	82.0		13.8	87.7	
50th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	
30th %ile Green (s)	23.1	32.6		0.0	5.5		0.0	88.7		11.7	104.4	
30th %ile Term Code	Gap	Hold		Skip	Gap		Skip	Coord		Gap	Coord	
10th %ile Green (s)	19.7	29.2		0.0	5.5		0.0	95.2		8.6	107.8	
10th %ile Term Code	Gap	Hold		Skip	Gap		Skip	Coord		Gap	Coord	
Queue Length 50th (ft)	191	11		16	24		32	134		101	603	0
Queue Length 95th (ft)	m217	m14		44	85		m52	222		m109	m616	m0
Internal Link Dist (ft)		702			1066			1206			1156	
Turn Bay Length (ft)	430			175			160			165		
Base Capacity (vph)	595	403		67	194		81	2828		189	2338	1583
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.78	0.09		0.25	0.51		0.40	0.40		0.53	0.73	0.44

Intersection Summary

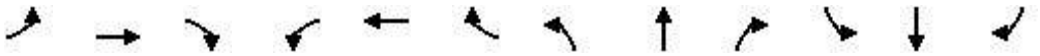
Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 54 (36%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 28.9 Intersection LOS: C
Intersection Capacity Utilization 80.0% ICU Level of Service D
Analysis Period (min) 15

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

Splits and Phases: 10: Naper Blvd & Naperville Wheaton Rd/Ridgeland Ave



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	715	233	151	945	256	196	755	40	298	1360	69
Future Volume (vph)	120	715	233	151	945	256	196	755	40	298	1360	69
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	85		0	205		270	250		0	200		125
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.963				0.850		0.992				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3408	0	1770	3725	1583	1770	3511	0	1770	3725	1583
Flt Permitted	0.086			0.084			0.079			0.151		
Satd. Flow (perm)	160	3408	0	156	3725	1583	147	3511	0	281	3725	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31				73		4				47
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		870			1169			1289			1286	
Travel Time (s)		14.8			19.9			22.0			21.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	126	753	245	159	995	269	206	795	42	314	1432	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	998	0	159	995	269	206	837	0	314	1432	73
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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	0.94	1.00	1.00	1.00	1.00	1.00	0.94	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6	7	3	8		7	4	5
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	24.0		9.5	24.0	9.5	9.5	24.0		9.5	24.0	9.5
Total Split (s)	15.0	53.0		15.0	53.0	30.0	30.0	52.0		30.0	52.0	15.0
Total Split (%)	10.0%	35.3%		10.0%	35.3%	20.0%	20.0%	34.7%		20.0%	34.7%	10.0%
Maximum Green (s)	11.5	47.0		11.5	47.0	26.5	26.5	46.0		26.5	46.0	11.5
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	0.0	1.5		0.0	1.5	0.0	0.0	1.5		0.0	1.5	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0	3.5	3.5	6.0		3.5	6.0	3.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min	None	None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	59.9	46.7		61.3	47.4	75.8	70.9	50.5		78.4	54.9	71.6
Actuated g/C Ratio	0.40	0.31		0.41	0.32	0.51	0.47	0.34		0.52	0.37	0.48
v/c Ratio	0.71	0.92		0.85	0.85	0.32	0.78	0.71		0.85	1.05	0.09
Control Delay	63.9	51.7		70.8	55.8	16.1	57.5	47.9		62.3	74.3	2.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	63.9	51.7		70.8	55.8	16.1	57.5	47.9		62.3	74.3	2.9
LOS	E	D		E	E	B	E	D		E	E	A
Approach Delay		53.1			50.0			49.8			69.3	
Approach LOS		D			D			D			E	
90th %ile Green (s)	11.5	47.0		11.5	47.0	26.5	25.6	46.0		26.5	46.9	11.5
90th %ile Term Code	Max	Coord		Max	Coord	Max	Gap	Max		Max	Max	Max
70th %ile Green (s)	11.5	47.0		11.5	47.0	26.5	21.3	46.0		26.5	51.2	11.5
70th %ile Term Code	Max	Coord		Max	Coord	Max	Gap	Max		Max	Max	Max
50th %ile Green (s)	11.5	47.0		11.5	47.0	24.2	18.1	48.3		24.2	54.4	11.5
50th %ile Term Code	Max	Coord		Max	Coord	Gap	Gap	Hold		Gap	Max	Max
30th %ile Green (s)	10.6	47.0		11.5	47.9	19.7	14.6	52.8		19.7	57.9	10.6
30th %ile Term Code	Gap	Coord		Max	Coord	Gap	Gap	Hold		Gap	Max	Gap
10th %ile Green (s)	8.5	45.4		11.2	48.1	15.2	10.3	59.2		15.2	64.1	8.5
10th %ile Term Code	Gap	Coord		Gap	Coord	Gap	Gap	Hold		Gap	Max	Gap
Queue Length 50th (ft)	73	502		102	481	106	145	382		189	~826	3
Queue Length 95th (ft)	m#147	#598		#235	571	163	226	473		#303	#1034	m6
Internal Link Dist (ft)		790			1089			1209			1206	
Turn Bay Length (ft)	85			205		270	250			200		125
Base Capacity (vph)	188	1089		187	1177	877	362	1183		410	1363	788
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.67	0.92		0.85	0.85	0.31	0.57	0.71		0.77	1.05	0.09

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 143 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 100			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 57.1		Intersection LOS: E	
Intersection Capacity Utilization 98.8%		ICU Level of Service F	
Analysis Period (min) 15			

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

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

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

Splits and Phases: 11: Naper Blvd & Odgen Ave

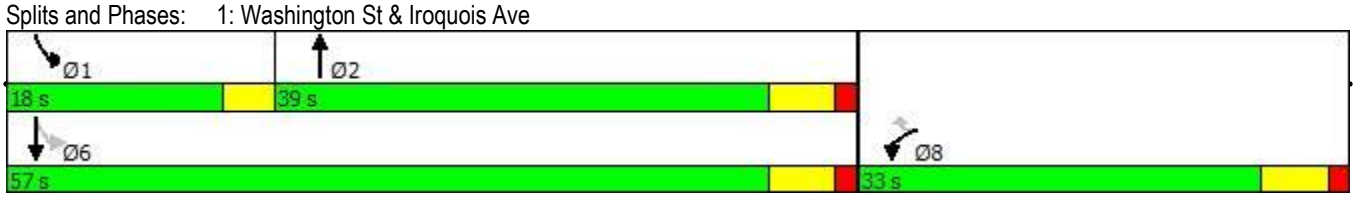
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	45	115	367	44	95	385
Future Volume (vph)	45	115	367	44	95	385
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	2000
Storage Length (ft)	275	0		0	175	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.984			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3483	0	1770	3725
Flt Permitted	0.950				0.465	
Satd. Flow (perm)	1770	1583	3483	0	866	3725
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		121	16			
Link Speed (mph)	25		35			35
Link Distance (ft)	4415		716			679
Travel Time (s)	120.4		13.9			13.2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	47	121	386	46	100	405
Shared Lane Traffic (%)						
Lane Group Flow (vph)	47	121	432	0	100	405
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
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	0.94
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	24.0	24.0	24.0		9.5	24.0
Total Split (s)	33.0	33.0	39.0		18.0	57.0
Total Split (%)	36.7%	36.7%	43.3%		20.0%	63.3%
Maximum Green (s)	27.0	27.0	33.0		14.5	51.0
Yellow Time (s)	4.5	4.5	4.5		3.5	4.5
All-Red Time (s)	1.5	1.5	1.5		0.0	1.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		3.5	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	7.0			7.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	7.4	7.4	46.9		56.5	55.2
Actuated g/C Ratio	0.10	0.10	0.66		0.79	0.78
v/c Ratio	0.26	0.44	0.19		0.13	0.14
Control Delay	32.4	11.9	6.7		2.7	3.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	32.4	11.9	6.7		2.7	3.0
LOS	C	B	A		A	A
Approach Delay	17.7		6.7			3.0
Approach LOS	B		A			A
90th %ile Green (s)	9.7	9.7	39.9		7.6	51.0
90th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
70th %ile Green (s)	8.1	8.1	40.6		6.9	51.0
70th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
50th %ile Green (s)	7.2	7.2	41.0		6.5	51.0
50th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
30th %ile Green (s)	6.4	6.4	41.4		6.1	51.0
30th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
10th %ile Green (s)	0.0	0.0	66.0		0.0	66.0
10th %ile Term Code	Skip	Skip	Dwell		Skip	Dwell
Queue Length 50th (ft)	19	0	40		8	22
Queue Length 95th (ft)	48	43	70		20	38
Internal Link Dist (ft)	4335		636			599
Turn Bay Length (ft)	275				175	
Base Capacity (vph)	672	676	2304		872	2890
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.07	0.18	0.19		0.11	0.14

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 71.1
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.44
Intersection Signal Delay: 6.7 Intersection LOS: A
Intersection Capacity Utilization 34.3% ICU Level of Service A
Analysis Period (min) 15
90th %ile Actuated Cycle: 72.7
70th %ile Actuated Cycle: 71.1
50th %ile Actuated Cycle: 70.2
30th %ile Actuated Cycle: 69.4
10th %ile Actuated Cycle: 72

Splits and Phases: 1: Washington St & Iroquois Ave



Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	185	0	0	164
Future Vol, veh/h	0	0	185	0	0	164
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	195	0	0	173

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	368	195	0	0	195	0
Stage 1	195	-	-	-	-	-
Stage 2	173	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	*689	*940	-	-	*1407	-
Stage 1	*887	-	-	-	-	-
Stage 2	*857	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	*689	*940	-	-	*1407	-
Mov Cap-2 Maneuver	*712	-	-	-	-	-
Stage 1	*887	-	-	-	-	-
Stage 2	*857	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	-	* 1407	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	-	-	0	0	0	-
HCM Lane LOS	-	-	A	A	A	-
HCM 95th %tile Q(veh)	-	-	-	-	0	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	10	56	12	5	13	36	156	6	12	148	4
Future Vol, veh/h	15	10	56	12	5	13	36	156	6	12	148	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	11	59	13	5	14	38	164	6	13	156	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	429	429	80	351	428	167	160	0	0	171	0	0
Stage 1	183	183	-	243	243	-	-	-	-	-	-	-
Stage 2	246	246	-	108	185	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	*759	*688	965	*869	*689	*966	1418	-	-	*1446	-	-
Stage 1	*802	*748	-	*912	*799	-	-	-	-	-	-	-
Stage 2	*912	*799	-	*886	*746	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*724	*664	965	*784	*664	*966	1418	-	-	*1446	-	-
Mov Cap-2 Maneuver	*724	*664	-	*784	*664	-	-	-	-	-	-	-
Stage 1	*781	*741	-	*888	*777	-	-	-	-	-	-	-
Stage 2	*869	*777	-	*813	*739	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.6	9.5	1.4	0.5
HCM LOS	A	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1418	-	-	863	744	966	* 1446	-	-
HCM Lane V/C Ratio	0.027	-	-	0.099	0.024	0.014	0.009	-	-
HCM Control Delay (s)	7.6	-	-	9.6	10	8.8	7.5	-	-
HCM Lane LOS	A	-	-	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	0.1	0	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	3

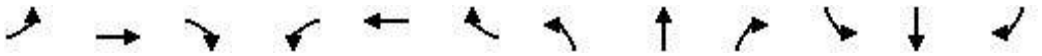
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	3	14	103	1	30	16	163	109	33	175	8
Future Vol, veh/h	5	3	14	103	1	30	16	163	109	33	175	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	3	15	108	1	32	17	172	115	35	184	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	537	578	96	426	525	229	193	0	0	286	0	0
Stage 1	258	258	-	263	263	-	-	-	-	-	-	-
Stage 2	279	320	-	163	262	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	*628	*556	942	*763	*600	*966	1379	-	-	*1446	-	-
Stage 1	*725	*694	-	*912	*799	-	-	-	-	-	-	-
Stage 2	*912	*799	-	*823	*691	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*590	*536	942	*727	*578	*966	1379	-	-	*1446	-	-
Mov Cap-2 Maneuver	*590	*536	-	*727	*578	-	-	-	-	-	-	-
Stage 1	*716	*677	-	*901	*789	-	-	-	-	-	-	-
Stage 2	*870	*789	-	*787	*674	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	10.4	0.4	1.2
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1379	-	-	760	727	946	* 1446	-	-
HCM Lane V/C Ratio	0.012	-	-	0.03	0.149	0.034	0.024	-	-
HCM Control Delay (s)	7.6	-	-	9.9	10.8	8.9	7.6	-	-
HCM Lane LOS	A	-	-	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.5	0.1	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	127	1271	18	10	1126	137	25	24	10	163	19	110
Future Volume (vph)	127	1271	18	10	1126	137	25	24	10	163	19	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	200		0	350		0	120		0	95		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.984			0.954				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3532	0	1770	3483	0	1770	1777	0	1770	1961	1583
Flt Permitted	0.142			0.172			0.744			0.734		
Satd. Flow (perm)	265	3532	0	320	3483	0	1386	1777	0	1367	1961	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			16			11				116
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		756			461			529			276	
Travel Time (s)		12.9			7.9			12.0			7.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	134	1338	19	11	1185	144	26	25	11	172	20	116
Shared Lane Traffic (%)												
Lane Group Flow (vph)	134	1357	0	11	1329	0	26	36	0	172	20	116
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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	0.94	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	24.0		9.5	24.0		24.0	24.0		24.0	24.0	24.0
Total Split (s)	22.0	68.0		22.0	68.0		30.0	30.0		30.0	30.0	30.0
Total Split (%)	18.3%	56.7%		18.3%	56.7%		25.0%	25.0%		25.0%	25.0%	25.0%
Maximum Green (s)	18.5	62.0		18.5	62.0		24.0	24.0		24.0	24.0	24.0
Yellow Time (s)	3.5	4.5		3.5	4.5		4.5	4.5		4.5	4.5	4.5
All-Red Time (s)	0.0	1.5		0.0	1.5		1.5	1.5		1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	91.1	86.7		85.0	76.8		19.4	19.4		19.4	19.4	19.4
Actuated g/C Ratio	0.76	0.72		0.71	0.64		0.16	0.16		0.16	0.16	0.16
v/c Ratio	0.44	0.53		0.04	0.59		0.12	0.12		0.78	0.06	0.33
Control Delay	9.0	9.5		3.3	9.6		41.9	31.7		70.9	40.5	9.9
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.0		0.0	0.0	0.0
Total Delay	9.0	9.5		3.3	9.7		41.9	31.7		70.9	40.5	9.9
LOS	A	A		A	A		D	C		E	D	A
Approach Delay		9.5			9.6			36.0			46.0	
Approach LOS		A			A			D			D	
90th %ile Green (s)	11.2	74.4		6.1	69.3		24.0	24.0		24.0	24.0	24.0
90th %ile Term Code	Gap	Coord		Gap	Coord		Hold	Hold		Max	Max	Max
70th %ile Green (s)	8.9	84.5		0.0	72.1		23.5	23.5		23.5	23.5	23.5
70th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Gap	Gap	Gap
50th %ile Green (s)	7.9	87.7		0.0	76.3		20.3	20.3		20.3	20.3	20.3
50th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Gap	Gap	Gap
30th %ile Green (s)	7.1	91.0		0.0	80.4		17.0	17.0		17.0	17.0	17.0
30th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Gap	Gap	Gap
10th %ile Green (s)	6.1	95.7		0.0	86.1		12.3	12.3		12.3	12.3	12.3
10th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Gap	Gap	Gap
Queue Length 50th (ft)	24	211		1	172		17	17		128	13	0
Queue Length 95th (ft)	47	386		m3	244		43	46		202	35	50
Internal Link Dist (ft)		676			381			449			196	
Turn Bay Length (ft)	200			350			120			95		
Base Capacity (vph)	433	2551		466	2236		277	364		273	392	409
Starvation Cap Reductn	0	0		0	85		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.31	0.53		0.02	0.62		0.09	0.10		0.63	0.05	0.28

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 106 (88%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 65
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 13.5 Intersection LOS: B
Intersection Capacity Utilization 71.6% ICU Level of Service C
Analysis Period (min) 15

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

Splits and Phases: 5: Iroquois Ave & Ogden Ave

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1418	0	0	1211	111	0	0	7	0	0	73
Future Vol, veh/h	0	1418	0	0	1211	111	0	0	7	0	0	73
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1493	0	0	1275	117	0	0	7	0	0	77

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	746	-	-	637
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	0	0	0	*491	0	0	*593
Stage 1	0	-	-	0	-	0	0	0	-	0	0	-
Stage 2	0	-	-	0	-	0	0	0	-	0	0	-
Platoon blocked, %		-	-		-				1			1
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	*491	-	-	*593
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	12.4	12
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	SBLn1
Capacity (veh/h)	491	-	-	-	593
HCM Lane V/C Ratio	0.015	-	-	-	0.13
HCM Control Delay (s)	12.4	-	-	-	12
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.4

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	390	977	58	49	921	110	53	57	34	141	74	346
Future Volume (vph)	390	977	58	49	921	110	53	57	34	141	74	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	150		0	0		0	0		50
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.984			0.968				0.850
Flt Protected	0.950			0.950				0.982		0.950		
Satd. Flow (prot)	1770	3511	0	1770	3483	0	0	1771	0	1770	1863	1583
Flt Permitted	0.128			0.262				0.846		0.458		
Satd. Flow (perm)	238	3511	0	488	3483	0	0	1525	0	853	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			13			11				54
Link Speed (mph)		40			40			35			40	
Link Distance (ft)		299			870			720			413	
Travel Time (s)		5.1			14.8			14.0			7.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	411	1028	61	52	969	116	56	60	36	148	78	364
Shared Lane Traffic (%)												
Lane Group Flow (vph)	411	1089	0	52	1085	0	0	152	0	148	78	364
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	pm+ov
Protected Phases	5	2			6			8		7	4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	24.0		24.0	24.0		21.0	21.0		14.0	24.0	9.5
Total Split (s)	26.0	84.0		58.0	58.0		22.0	22.0		14.0	36.0	26.0
Total Split (%)	21.7%	70.0%		48.3%	48.3%		18.3%	18.3%		11.7%	30.0%	21.7%
Maximum Green (s)	22.5	78.0		52.0	52.0		16.0	16.0		8.0	30.0	22.5
Yellow Time (s)	3.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	3.5
All-Red Time (s)	0.0	1.5		1.5	1.5		1.5	1.5		1.5	1.5	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		6.0	6.0			6.0		6.0	6.0	3.5
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		C-Min	C-Min		None	None		None	None	None
Walk Time (s)		7.0										

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0										
Pedestrian Calls (#/hr)		0										
Act Effct Green (s)	80.5	78.0		52.5	52.5			14.5		30.0	30.0	58.0
Actuated g/C Ratio	0.67	0.65		0.44	0.44			0.12		0.25	0.25	0.48
v/c Ratio	0.93	0.48		0.24	0.71			0.79		0.52	0.17	0.46
Control Delay	53.8	8.0		17.8	19.2			74.5		44.7	36.7	19.8
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Delay	53.8	8.0		17.8	19.2			74.5		44.7	36.7	19.8
LOS	D	A		B	B			E		D	D	B
Approach Delay		20.5			19.1			74.5			28.3	
Approach LOS		C			B			E			C	
90th %ile Green (s)	22.5	78.0		52.0	52.0		16.0	16.0		8.0	30.0	22.5
90th %ile Term Code	Max	Coord		Coord	Coord		Max	Max		Max	Hold	Max
70th %ile Green (s)	22.5	78.0		52.0	52.0		16.0	16.0		8.0	30.0	22.5
70th %ile Term Code	Max	Coord		Coord	Coord		Max	Max		Max	Hold	Max
50th %ile Green (s)	22.5	77.4		51.4	51.4		16.0	16.0		8.6	30.6	22.5
50th %ile Term Code	Max	Coord		Coord	Coord		Max	Max		Max	Hold	Max
30th %ile Green (s)	25.1	74.7		46.1	46.1		14.2	14.2		13.1	33.3	25.1
30th %ile Term Code	Gap	Coord		Coord	Coord		Gap	Gap		Gap	Hold	Gap
10th %ile Green (s)	17.6	82.1		61.0	61.0		10.2	10.2		9.7	25.9	17.6
10th %ile Term Code	Gap	Coord		Coord	Coord		Gap	Gap		Gap	Hold	Gap
Queue Length 50th (ft)	166	156		14	160			106		93	47	150
Queue Length 95th (ft)	#394	122		m23	180			#203		156	90	233
Internal Link Dist (ft)		219			790			640			333	
Turn Bay Length (ft)	230			150								50
Base Capacity (vph)	453	2309		218	1568			212		285	477	805
Starvation Cap Reductn	0	0		0	0			0		0	0	0
Spillback Cap Reductn	0	0		0	0			0		0	0	0
Storage Cap Reductn	0	0		0	0			0		0	0	0
Reduced v/c Ratio	0.91	0.47		0.24	0.69			0.72		0.52	0.16	0.45

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 114 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 23.8 Intersection LOS: C
Intersection Capacity Utilization 78.6% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Naperville Wheaton Rd & Odgen Ave

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	110	2	139	10	0	11	113	433	11	8	412	93
Future Vol, veh/h	110	2	139	10	0	11	113	433	11	8	412	93
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	116	2	146	11	0	12	119	456	12	8	434	98

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	965	1204	266	934	1247	234	532	0	0	467	0	0
Stage 1	499	499	-	699	699	-	-	-	-	-	-	-
Stage 2	466	705	-	235	548	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	457	297	*924	*488	276	*924	1263	-	-	1347	-	-
Stage 1	796	714	-	*580	564	-	-	-	-	-	-	-
Stage 2	837	561	-	*871	674	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	405	257	*924	*366	239	*924	1263	-	-	1347	-	-
Mov Cap-2 Maneuver	405	257	-	*366	239	-	-	-	-	-	-	-
Stage 1	694	707	-	*507	493	-	-	-	-	-	-	-
Stage 2	722	490	-	*725	668	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.1	12	1.9	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1263	-	-	405	891	535	1347	-	-
HCM Lane V/C Ratio	0.094	-	-	0.286	0.167	0.041	0.006	-	-
HCM Control Delay (s)	8.1	0.3	-	17.4	9.8	12	7.7	0	-
HCM Lane LOS	A	A	-	C	A	B	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-	1.2	0.6	0.1	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0

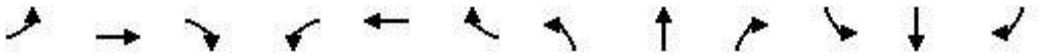
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	554	514	0
Future Vol, veh/h	0	0	0	554	514	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	0	583	541	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	833	271	541	0	-	0
Stage 1	541	-	-	-	-	-
Stage 2	292	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	*528	727	1024	-	-	-
Stage 1	*548	-	-	-	-	-
Stage 2	*824	-	-	-	-	-
Platoon blocked, %	1			-	-	-
Mov Cap-1 Maneuver	*528	727	1024	-	-	-
Mov Cap-2 Maneuver	*528	-	-	-	-	-
Stage 1	*548	-	-	-	-	-
Stage 2	*824	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1024	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	0	0	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	490	19	31	19	17	55	43	915	39	50	675	455
Future Volume (vph)	490	19	31	19	17	55	43	915	39	50	675	455
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		0	175		0	160		0	165		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.907			0.886			0.994				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1690	0	1770	1650	0	1770	5055	0	1770	3539	1583
Flt Permitted	0.950			0.950			0.330			0.236		
Satd. Flow (perm)	3433	1690	0	1770	1650	0	615	5055	0	440	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33			58			6				423
Link Speed (mph)		40			30			40			40	
Link Distance (ft)		782			1146			1286			1236	
Travel Time (s)		13.3			26.0			21.9			21.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	516	20	33	20	18	58	45	963	41	53	711	479
Shared Lane Traffic (%)												
Lane Group Flow (vph)	516	53	0	20	76	0	45	1004	0	53	711	479
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
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
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases							2			6		Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.5		9.5	11.5		9.5	24.5		9.5	24.5	
Total Split (s)	39.0	46.0		12.0	19.0		11.0	51.0		11.0	51.0	
Total Split (%)	32.5%	38.3%		10.0%	15.8%		9.2%	42.5%		9.2%	42.5%	
Maximum Green (s)	35.0	39.5		8.0	12.5		7.0	44.5		7.0	44.5	
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5		3.0	4.5	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.5		4.0	6.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	
Walk Time (s)	7.0	7.0						7.0			7.0	

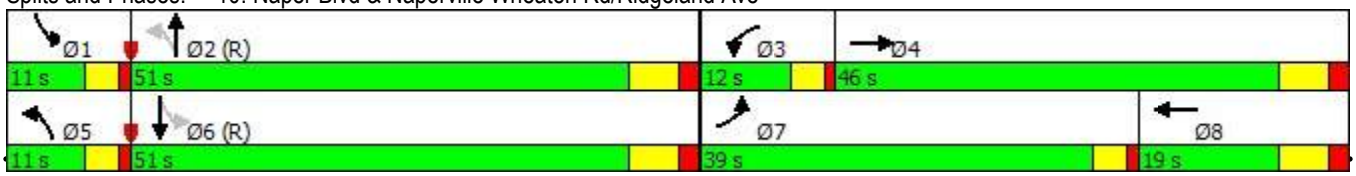
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	11.0	11.0						11.0			11.0	
Pedestrian Calls (#/hr)	0	0						0			0	
Act Effct Green (s)	23.4	27.8		6.8	7.5		73.6	65.4		74.0	65.6	120.0
Actuated g/C Ratio	0.20	0.23		0.06	0.06		0.61	0.54		0.62	0.55	1.00
v/c Ratio	0.77	0.13		0.20	0.48		0.10	0.36		0.15	0.37	0.30
Control Delay	43.8	10.8		58.3	29.6		6.0	8.8		11.7	18.7	0.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	43.8	10.8		58.3	29.6		6.0	8.8		11.7	18.7	0.5
LOS	D	B		E	C		A	A		B	B	A
Approach Delay		40.7			35.5			8.7			11.4	
Approach LOS		D			D			A			B	
90th %ile Green (s)	28.9	32.2		8.0	11.3		8.4	49.9		8.9	50.4	
90th %ile Term Code	Gap	Hold		Max	Gap		Gap	Coord		Gap	Coord	
70th %ile Green (s)	25.7	26.7		7.6	8.6		7.3	57.1		7.6	57.4	
70th %ile Term Code	Gap	Hold		Gap	Gap		Gap	Coord		Gap	Coord	
50th %ile Green (s)	23.4	34.2		0.0	6.8		6.6	62.0		6.8	62.2	
50th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	
30th %ile Green (s)	21.1	30.6		0.0	5.5		6.1	66.2		6.2	66.3	
30th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	
10th %ile Green (s)	17.8	15.3		0.0	0.0		0.0	91.7		0.0	91.7	
10th %ile Term Code	Gap	Hold		Skip	Skip		Skip	Coord		Skip	Coord	
Queue Length 50th (ft)	181	3		15	14		8	80		15	168	0
Queue Length 95th (ft)	m230	m25		41	62		m10	72		39	262	0
Internal Link Dist (ft)		702			1066			1206			1156	
Turn Bay Length (ft)	430			175			160			165		
Base Capacity (vph)	1001	578		118	223		449	2756		355	1934	1583
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.52	0.09		0.17	0.34		0.10	0.36		0.15	0.37	0.30

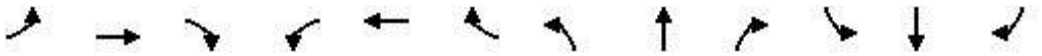
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 83 (69%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 16.9 Intersection LOS: B
Intersection Capacity Utilization 57.6% ICU Level of Service B
Analysis Period (min) 15

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

Splits and Phases: 10: Naper Blvd & Naperville Wheaton Rd/Ridgeland Ave





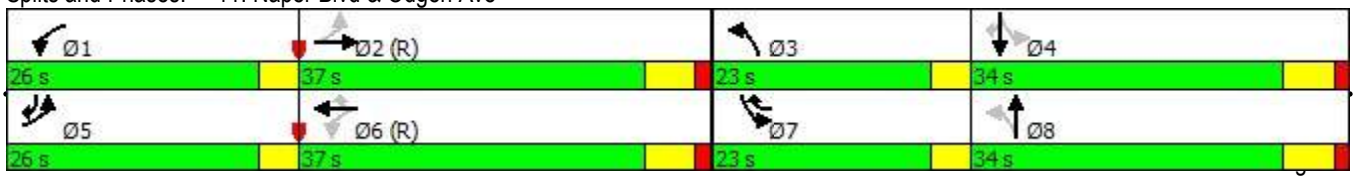
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	208	728	250	109	686	163	300	697	39	182	546	90
Future Volume (vph)	208	728	250	109	686	163	300	697	39	182	546	90
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	85		0	205		270	250		0	200		125
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.962				0.850		0.992				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3405	0	1770	3725	1583	1770	3511	0	1770	3725	1583
Flt Permitted	0.220			0.131			0.205			0.147		
Satd. Flow (perm)	410	3405	0	244	3725	1583	382	3511	0	274	3725	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38				166		4				77
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		870			1169			1289			1286	
Travel Time (s)		14.8			19.9			22.0			21.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	219	766	263	115	722	172	316	734	41	192	575	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	219	1029	0	115	722	172	316	775	0	192	575	95
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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	0.94	1.00	1.00	1.00	1.00	1.00	0.94	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6	7	3	8		7	4	5
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	24.0		9.5	24.0	9.5	9.5	24.0		9.5	24.0	9.5
Total Split (s)	26.0	37.0		26.0	37.0	23.0	23.0	34.0		23.0	34.0	26.0
Total Split (%)	21.7%	30.8%		21.7%	30.8%	19.2%	19.2%	28.3%		19.2%	28.3%	21.7%
Maximum Green (s)	22.5	31.0		22.5	31.0	19.5	19.5	28.0		19.5	28.0	22.5
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	0.0	1.5		0.0	1.5	0.0	0.0	1.5		0.0	1.5	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0	3.5	3.5	6.0		3.5	6.0	3.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min	None	None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	61.2	45.5		53.6	41.2	61.7	50.8	31.2		44.2	27.2	47.4
Actuated g/C Ratio	0.51	0.38		0.45	0.34	0.51	0.42	0.26		0.37	0.23	0.40
v/c Ratio	0.59	0.78		0.49	0.56	0.19	0.84	0.85		0.68	0.68	0.14
Control Delay	21.4	30.2		24.3	35.4	3.3	46.0	52.0		55.0	53.2	7.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	21.4	30.2		24.3	35.4	3.3	46.0	52.0		55.0	53.2	7.5
LOS	C	C		C	D	A	D	D		D	D	A
Approach Delay		28.7			28.7			50.3			48.5	
Approach LOS		C			C			D			D	
90th %ile Green (s)	19.7	39.9		13.6	33.8	19.5	19.5	28.0		19.5	28.0	19.7
90th %ile Term Code	Gap	Coord		Gap	Coord	Max	Max	Max		Max	Max	Gap
70th %ile Green (s)	16.0	42.6		10.9	37.5	16.3	19.5	31.2		16.3	28.0	16.0
70th %ile Term Code	Gap	Coord		Gap	Coord	Gap	Max	Max		Gap	Max	Gap
50th %ile Green (s)	14.0	43.8		9.7	39.5	14.0	19.5	33.5		14.0	28.0	14.0
50th %ile Term Code	Gap	Coord		Gap	Coord	Gap	Max	Max		Gap	Hold	Gap
30th %ile Green (s)	12.0	46.5		8.4	42.9	12.4	18.0	33.7		12.4	28.1	12.0
30th %ile Term Code	Gap	Coord		Gap	Coord	Gap	Gap	Gap		Gap	Hold	Gap
10th %ile Green (s)	9.1	54.9		6.7	52.5	10.0	15.3	29.4		10.0	24.1	9.1
10th %ile Term Code	Gap	Coord		Gap	Coord	Gap	Gap	Gap		Gap	Hold	Gap
Queue Length 50th (ft)	58	387		47	244	2	162	291		120	117	2
Queue Length 95th (ft)	m122	#460		81	331	38	#300	#434		222	308	44
Internal Link Dist (ft)		790			1089			1209			1206	
Turn Bay Length (ft)	85			205		270	250			200		125
Base Capacity (vph)	464	1315		410	1280	954	387	914		355	870	776
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.47	0.78		0.28	0.56	0.18	0.82	0.85		0.54	0.66	0.12

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 38.4 Intersection LOS: D
Intersection Capacity Utilization 81.8% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Naper Blvd & Odgen Ave



APPENDIX G

CAPACITY ANALYSIS WORKSHEETS
2027 FUTURE WITH PROJECT

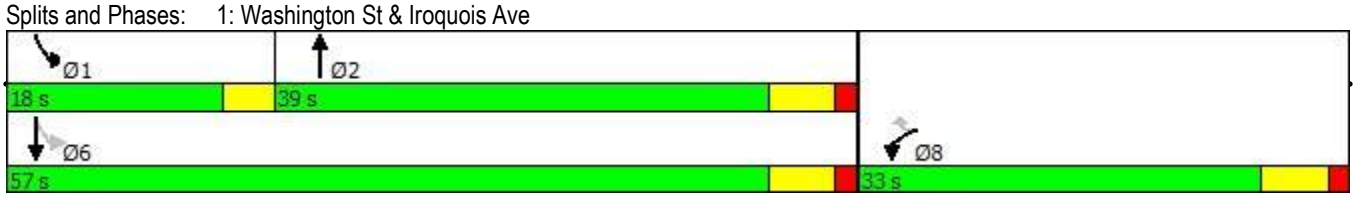
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	45	171	494	69	362	1113
Future Volume (vph)	45	171	494	69	362	1113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	2000
Storage Length (ft)	275	0		0	175	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3476	0	1770	3725
Flt Permitted	0.950				0.380	
Satd. Flow (perm)	1770	1583	3476	0	708	3725
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		180	19			
Link Speed (mph)	25		35			35
Link Distance (ft)	4415		716			679
Travel Time (s)	120.4		13.9			13.2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	47	180	520	73	381	1172
Shared Lane Traffic (%)						
Lane Group Flow (vph)	47	180	593	0	381	1172
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
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	0.94
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	24.0	24.0	24.0		9.5	24.0
Total Split (s)	33.0	33.0	39.0		18.0	57.0
Total Split (%)	36.7%	36.7%	43.3%		20.0%	63.3%
Maximum Green (s)	27.0	27.0	33.0		14.5	51.0
Yellow Time (s)	4.5	4.5	4.5		3.5	4.5
All-Red Time (s)	1.5	1.5	1.5		0.0	1.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		3.5	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	7.0			7.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	7.6	7.6	37.1		53.5	51.0
Actuated g/C Ratio	0.11	0.11	0.53		0.76	0.72
v/c Ratio	0.25	0.55	0.32		0.55	0.44
Control Delay	31.9	11.9	10.6		6.1	4.8
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	31.9	11.9	10.6		6.1	4.8
LOS	C	B	B		A	A
Approach Delay	16.0		10.6			5.1
Approach LOS	B		B			A
90th %ile Green (s)	11.0	11.0	33.1		14.4	51.0
90th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
70th %ile Green (s)	8.1	8.1	36.1		11.4	51.0
70th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
50th %ile Green (s)	7.2	7.2	37.5		10.0	51.0
50th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
30th %ile Green (s)	6.4	6.4	38.6		8.9	51.0
30th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
10th %ile Green (s)	5.5	5.5	39.9		7.6	51.0
10th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
Queue Length 50th (ft)	19	0	67		36	83
Queue Length 95th (ft)	48	52	125		79	141
Internal Link Dist (ft)	4335		636			599
Turn Bay Length (ft)	275				175	
Base Capacity (vph)	676	716	1835		754	2691
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.07	0.25	0.32		0.51	0.44

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 70.6
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.55
Intersection Signal Delay: 7.5 Intersection LOS: A
Intersection Capacity Utilization 53.4% ICU Level of Service A
Analysis Period (min) 15
90th %ile Actuated Cycle: 74
70th %ile Actuated Cycle: 71.1
50th %ile Actuated Cycle: 70.2
30th %ile Actuated Cycle: 69.4
10th %ile Actuated Cycle: 68.5

Splits and Phases: 1: Washington St & Iroquois Ave



Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	19	2	242	92	15	266
Future Vol, veh/h	19	2	242	92	15	266
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	2	255	97	16	280

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	615	303	0	0	352	0
Stage 1	303	-	-	-	-	-
Stage 2	312	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	485	850	-	-	1225	-
Stage 1	808	-	-	-	-	-
Stage 2	742	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	477	850	-	-	1225	-
Mov Cap-2 Maneuver	567	-	-	-	-	-
Stage 1	808	-	-	-	-	-
Stage 2	731	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.4	0	0.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	567	850	1225	-
HCM Lane V/C Ratio	-	-	0.035	0.002	0.013	-
HCM Control Delay (s)	-	-	11.6	9.2	8	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	0	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	6	39	130	2	13	45	310	53	16	260	9
Future Vol, veh/h	11	6	39	130	2	13	45	310	53	16	260	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	12	6	41	137	2	14	47	326	56	17	274	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	762	789	142	623	766	354	283	0	0	382	0	0
Stage 1	312	312	-	449	449	-	-	-	-	-	-	-
Stage 2	450	477	-	174	317	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	*731	*618	880	*771	*642	*818	1278	-	-	*1224	-	-
Stage 1	*674	*657	-	*772	*676	-	-	-	-	-	-	-
Stage 2	*772	*676	-	*811	*654	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*689	*587	880	*701	*610	*818	1278	-	-	*1224	-	-
Mov Cap-2 Maneuver	*689	*587	-	*701	*610	-	-	-	-	-	-	-
Stage 1	*649	*648	-	*743	*651	-	-	-	-	-	-	-
Stage 2	*728	*651	-	*755	*645	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.9	11.2	0.9	0.4
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1278	-	-	794	699	818	* 1224	-	-
HCM Lane V/C Ratio	0.037	-	-	0.074	0.199	0.017	0.014	-	-
HCM Control Delay (s)	7.9	-	-	9.9	11.4	9.5	8	-	-
HCM Lane LOS	A	-	-	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.7	0.1	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	2	18	47	2	36	16	364	45	22	398	9
Future Vol, veh/h	8	2	18	47	2	36	16	364	45	22	398	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	2	19	49	2	38	17	383	47	23	419	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	931	934	214	698	916	407	428	0	0	431	0	0
Stage 1	470	470	-	441	441	-	-	-	-	-	-	-
Stage 2	461	464	-	257	475	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	*619	*556	792	*730	*575	*775	1130	-	-	*1159	-	-
Stage 1	*544	*559	-	*731	*640	-	-	-	-	-	-	-
Stage 2	*731	*640	-	*726	*556	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*572	*537	792	*692	*555	*775	1130	-	-	*1159	-	-
Mov Cap-2 Maneuver	*572	*537	-	*692	*555	-	-	-	-	-	-	-
Stage 1	*536	*548	-	*720	*630	-	-	-	-	-	-	-
Stage 2	*682	*630	-	*692	*545	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.4	10.3	0.3	0.4
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1130	-	-	692	692	759	* 1159	-	-
HCM Lane V/C Ratio	0.015	-	-	0.043	0.071	0.053	0.02	-	-
HCM Control Delay (s)	8.2	-	-	10.4	10.6	10	8.2	-	-
HCM Lane LOS	A	-	-	B	B	B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.2	0.2	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	1084	24	24	1436	179	49	61	43	250	94	119
Future Volume (vph)	185	1084	24	24	1436	179	49	61	43	250	94	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	200		0	350		0	120		0	95		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.983			0.938				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3529	0	1770	3479	0	1770	1747	0	1770	1961	1583
Flt Permitted	0.046			0.211			0.680			0.660		
Satd. Flow (perm)	86	3529	0	393	3479	0	1267	1747	0	1229	1961	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			12			23				125
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		756			461			529			276	
Travel Time (s)		12.9			7.9			12.0			7.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	195	1141	25	25	1512	188	52	64	45	263	99	125
Shared Lane Traffic (%)												
Lane Group Flow (vph)	195	1166	0	25	1700	0	52	109	0	263	99	125
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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	0.94	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	24.0		9.5	24.0		24.0	24.0		24.0	24.0	24.0
Total Split (s)	24.0	79.0		24.0	79.0		47.0	47.0		47.0	47.0	47.0
Total Split (%)	16.0%	52.7%		16.0%	52.7%		31.3%	31.3%		31.3%	31.3%	31.3%
Maximum Green (s)	20.5	73.0		20.5	73.0		41.0	41.0		41.0	41.0	41.0
Yellow Time (s)	3.5	4.5		3.5	4.5		4.5	4.5		4.5	4.5	4.5
All-Red Time (s)	0.0	1.5		0.0	1.5		1.5	1.5		1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	105.0	96.4		92.1	83.4		35.5	35.5		35.5	35.5	35.5
Actuated g/C Ratio	0.70	0.64		0.61	0.56		0.24	0.24		0.24	0.24	0.24
v/c Ratio	0.83	0.51		0.08	0.88		0.17	0.25		0.91	0.21	0.27
Control Delay	67.6	16.7		7.3	24.1		44.9	36.4		88.3	45.6	7.9
Queue Delay	0.0	0.0		0.0	0.5		0.0	0.0		0.0	0.0	0.0
Total Delay	67.6	16.7		7.3	24.6		44.9	36.4		88.3	45.6	7.9
LOS	E	B		A	C		D	D		F	D	A
Approach Delay		24.0			24.4			39.1			59.0	
Approach LOS		C			C			D			E	
90th %ile Green (s)	20.5	86.4		7.1	73.0		41.0	41.0		41.0	41.0	41.0
90th %ile Term Code	Max	Coord		Gap	Coord		Hold	Hold		Max	Max	Max
70th %ile Green (s)	19.9	86.9		6.6	73.6		41.0	41.0		41.0	41.0	41.0
70th %ile Term Code	Gap	Coord		Gap	Coord		Hold	Hold		Max	Max	Max
50th %ile Green (s)	16.5	91.0		6.1	80.6		37.4	37.4		37.4	37.4	37.4
50th %ile Term Code	Gap	Coord		Gap	Coord		Hold	Hold		Gap	Gap	Gap
30th %ile Green (s)	13.0	105.4		0.0	88.9		32.6	32.6		32.6	32.6	32.6
30th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Gap	Gap	Gap
10th %ile Green (s)	8.0	112.5		0.0	101.0		25.5	25.5		25.5	25.5	25.5
10th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Gap	Gap	Gap
Queue Length 50th (ft)	136	336		4	372		40	67		248	77	0
Queue Length 95th (ft)	226	431		m9	#1028		77	119		#379	126	52
Internal Link Dist (ft)		676			381			449			196	
Turn Bay Length (ft)	200			350			120			95		
Base Capacity (vph)	290	2269		459	1940		346	494		335	536	523
Starvation Cap Reductn	0	0		0	47		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.67	0.51		0.05	0.90		0.15	0.22		0.79	0.18	0.24

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 142 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 29.4 Intersection LOS: C
Intersection Capacity Utilization 89.5% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Iroquois Ave & Ogden Ave

Intersection	
Int Delay, s/veh	0.4

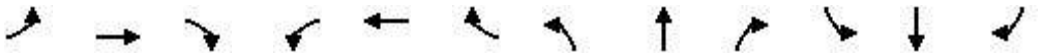
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1381	0	0	1574	118	0	0	7	0	0	73
Future Vol, veh/h	0	1381	0	0	1574	118	0	0	7	0	0	73
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1454	0	0	1657	124	0	0	7	0	0	77

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	727	-	-	828
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	0	0	0	*507	0	0	*426
Stage 1	0	-	-	0	-	0	0	0	-	0	0	-
Stage 2	0	-	-	0	-	0	0	0	-	0	0	-
Platoon blocked, %		-	-		-				1			1
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	*507	-	-	*426
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	12.2	15.3
HCM LOS			B	C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	SBLn1
Capacity (veh/h)	507	-	-	-	426
HCM Lane V/C Ratio	0.015	-	-	-	0.18
HCM Control Delay (s)	12.2	-	-	-	15.3
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.7

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	408	926	54	43	1156	59	42	44	36	116	140	494
Future Volume (vph)	408	926	54	43	1156	59	42	44	36	116	140	494
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	150		0	0		0	0		50
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.993			0.960				0.850
Flt Protected	0.950			0.950				0.983		0.950		
Satd. Flow (prot)	1770	3511	0	1770	3514	0	0	1758	0	1770	1863	1583
Flt Permitted	0.100			0.278				0.827		0.428		
Satd. Flow (perm)	186	3511	0	518	3514	0	0	1479	0	797	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			5			11				45
Link Speed (mph)		40			40			35			40	
Link Distance (ft)		299			870			720			413	
Travel Time (s)		5.1			14.8			14.0			7.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	429	975	57	45	1217	62	44	46	38	122	147	520
Shared Lane Traffic (%)												
Lane Group Flow (vph)	429	1032	0	45	1279	0	0	128	0	122	147	520
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	pm+ov
Protected Phases	5	2			6			8		7	4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	24.0		24.0	24.0		21.0	21.0		14.0	24.0	9.5
Total Split (s)	32.0	115.0		83.0	83.0		21.0	21.0		14.0	35.0	32.0
Total Split (%)	21.3%	76.7%		55.3%	55.3%		14.0%	14.0%		9.3%	23.3%	21.3%
Maximum Green (s)	28.5	109.0		77.0	77.0		15.0	15.0		8.0	29.0	28.5
Yellow Time (s)	3.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	3.5
All-Red Time (s)	0.0	1.5		1.5	1.5		1.5	1.5		1.5	1.5	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		6.0	6.0			6.0		6.0	6.0	3.5
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		C-Min	C-Min		None	None		None	None	None
Walk Time (s)		7.0										

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0										
Pedestrian Calls (#/hr)		0										
Act Effct Green (s)	110.1	107.6		75.0	75.0			14.4		30.4	30.4	65.5
Actuated g/C Ratio	0.73	0.72		0.50	0.50			0.10		0.20	0.20	0.44
v/c Ratio	0.97	0.41		0.17	0.73			0.84		0.54	0.39	0.73
Control Delay	73.8	6.5		4.6	9.0			101.0		73.8	67.8	49.1
Queue Delay	0.0	0.0		0.0	0.3			0.0		0.0	0.0	0.0
Total Delay	73.8	6.5		4.6	9.4			101.0		73.8	67.8	49.1
LOS	E	A		A	A			F		E	E	D
Approach Delay		26.3			9.2			101.0			56.4	
Approach LOS		C			A			F			E	
90th %ile Green (s)	28.5	109.0		77.0	77.0		15.0	15.0		8.0	29.0	28.5
90th %ile Term Code	Max	Coord		Coord	Coord		Max	Max		Max	Hold	Max
70th %ile Green (s)	28.5	109.0		77.0	77.0		15.0	15.0		8.0	29.0	28.5
70th %ile Term Code	Max	Coord		Coord	Coord		Max	Max		Max	Hold	Max
50th %ile Green (s)	28.5	106.2		74.2	74.2		15.0	15.0		10.8	31.8	28.5
50th %ile Term Code	Max	Coord		Coord	Coord		Max	Max		Max	Hold	Max
30th %ile Green (s)	34.4	103.2		65.3	65.3		15.7	15.7		13.1	34.8	34.4
30th %ile Term Code	Max	Coord		Coord	Coord		Gap	Gap		Gap	Hold	Max
10th %ile Green (s)	25.5	110.7		81.7	81.7		11.5	11.5		9.8	27.3	25.5
10th %ile Term Code	Gap	Coord		Coord	Coord		Gap	Gap		Gap	Hold	Gap
Queue Length 50th (ft)	236	116		4	58			114		118	144	360
Queue Length 95th (ft)	#523	133		m5	58			#230		189	222	493
Internal Link Dist (ft)		219			790			640			333	
Turn Bay Length (ft)	230			150								50
Base Capacity (vph)	450	2562		268	1828			158		225	381	722
Starvation Cap Reductn	0	0		0	148			0		0	0	0
Spillback Cap Reductn	0	0		0	113			0		0	0	1
Storage Cap Reductn	0	0		0	0			0		0	0	0
Reduced v/c Ratio	0.95	0.40		0.17	0.76			0.81		0.54	0.39	0.72

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 6 (4%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 29.2 Intersection LOS: C
Intersection Capacity Utilization 89.0% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Naperville Wheaton Rd & Odgen Ave

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	53	2	103	3	0	8	63	445	3	5	644	103
Future Vol, veh/h	53	2	103	3	0	8	63	445	3	5	644	103
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	56	2	108	3	0	8	66	468	3	5	678	108

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1110	1347	393	954	1400	236	786	0	0	472	0	0
Stage 1	743	743	-	603	603	-	-	-	-	-	-	-
Stage 2	367	604	-	351	797	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	*248	193	606	336	177	*915	829	-	-	1361	-	-
Stage 1	*373	420	-	695	644	-	-	-	-	-	-	-
Stage 2	*863	643	-	639	397	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*224	171	606	250	156	*915	829	-	-	1361	-	-
Mov Cap-2 Maneuver	*224	171	-	250	156	-	-	-	-	-	-	-
Stage 1	*333	417	-	620	574	-	-	-	-	-	-	-
Stage 2	*763	574	-	518	394	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.3	11.9	1.5	0.1
HCM LOS	C	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	829	-	-	224	578	530	1361	-	-
HCM Lane V/C Ratio	0.08	-	-	0.249	0.191	0.022	0.004	-	-
HCM Control Delay (s)	9.7	0.4	-	26.3	12.7	11.9	7.7	0	-
HCM Lane LOS	A	A	-	D	B	B	A	A	-
HCM 95th %tile Q(veh)	0.3	-	-	1	0.7	0.1	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	37	15	8	498	737	32
Future Vol, veh/h	37	15	8	498	737	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	39	16	8	524	776	34

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1072	405	809	0	-	0
Stage 1	793	-	-	-	-	-
Stage 2	279	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	*324	595	812	-	-	-
Stage 1	*406	-	-	-	-	-
Stage 2	*845	-	-	-	-	-
Platoon blocked, %	1			-	-	-
Mov Cap-1 Maneuver	*319	595	812	-	-	-
Mov Cap-2 Maneuver	*319	-	-	-	-	-
Stage 1	*406	-	-	-	-	-
Stage 2	*833	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	15.9	0.2	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	812	-	319	595	-	-
HCM Lane V/C Ratio	0.01	-	0.122	0.027	-	-
HCM Control Delay (s)	9.5	0.1	17.8	11.2	-	-
HCM Lane LOS	A	A	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	461	27	8	16	24	69	30	1059	21	96	1616	692
Future Volume (vph)	461	27	8	16	24	69	30	1059	21	96	1616	692
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	430		0	175		0	160		0	165		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.967			0.888			0.997				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1801	0	1770	1654	0	1770	5070	0	1770	3725	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1801	0	1770	1654	0	1770	5070	0	1770	3725	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8			73			3				215
Link Speed (mph)		40			30			40			40	
Link Distance (ft)		782			1146			1286			1236	
Travel Time (s)		13.3			26.0			21.9			21.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	485	28	8	17	25	73	32	1115	22	101	1701	728
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	36	0	17	98	0	32	1137	0	101	1701	728
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
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	0.94	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.5		9.5	11.5		9.5	24.5		9.5	24.5	
Total Split (s)	30.0	38.3		9.7	18.0		10.0	81.9		20.1	92.0	
Total Split (%)	20.0%	25.5%		6.5%	12.0%		6.7%	54.6%		13.4%	61.3%	
Maximum Green (s)	26.0	31.8		5.7	11.5		6.0	75.4		16.1	85.5	
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5		3.0	4.5	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.5		4.0	6.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	
Walk Time (s)	7.0	7.0						7.0			7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	11.0	11.0						11.0			11.0	
Pedestrian Calls (#/hr)	0	0						0			0	
Act Effct Green (s)	24.6	32.8		5.7	8.1		6.8	83.1		13.2	93.7	150.0
Actuated g/C Ratio	0.16	0.22		0.04	0.05		0.05	0.55		0.09	0.62	1.00
v/c Ratio	0.86	0.09		0.25	0.62		0.41	0.40		0.65	0.73	0.46
Control Delay	76.4	25.6		79.6	39.4		74.5	17.0		60.4	33.0	0.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	76.4	25.6		79.6	39.4		74.5	17.0		60.4	33.0	0.6
LOS	E	C		E	D		E	B		E	C	A
Approach Delay		72.9			45.4			18.5			24.8	
Approach LOS		E			D			B			C	
90th %ile Green (s)	26.0	31.8		5.7	11.5		6.0	75.4		16.1	85.5	
90th %ile Term Code	Max	Hold		Max	Max		Max	Coord		Max	Coord	
70th %ile Green (s)	26.0	30.4		5.7	10.1		7.4	76.9		16.0	85.5	
70th %ile Term Code	Max	Hold		Max	Gap		Max	Coord		Gap	Coord	
50th %ile Green (s)	26.0	37.8		0.0	7.8		8.1	81.4		13.8	87.1	
50th %ile Term Code	Max	Hold		Skip	Gap		Gap	Coord		Gap	Coord	
30th %ile Green (s)	24.1	33.6		0.0	5.5		0.0	87.7		11.7	103.4	
30th %ile Term Code	Gap	Hold		Skip	Gap		Skip	Coord		Gap	Coord	
10th %ile Green (s)	20.7	30.2		0.0	5.5		0.0	94.2		8.6	106.8	
10th %ile Term Code	Gap	Hold		Skip	Gap		Skip	Coord		Gap	Coord	
Queue Length 50th (ft)	201	11		16	24		32	135		101	603	0
Queue Length 95th (ft)	m225	m16		44	85		m52	222		m109	m617	m0
Internal Link Dist (ft)		702			1066			1206			1156	
Turn Bay Length (ft)	430			175			160			165		
Base Capacity (vph)	595	406		67	194		81	2810		189	2325	1583
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.82	0.09		0.25	0.51		0.40	0.40		0.53	0.73	0.46

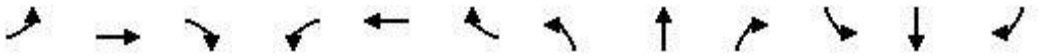
Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 54 (36%), Referenced to phase 2:NBT and 6:SBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 29.4 Intersection LOS: C
Intersection Capacity Utilization 80.6% ICU Level of Service D
Analysis Period (min) 15

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

Splits and Phases: 10: Naper Blvd & Naperville Wheaton Rd/Ridgeland Ave

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	743	243	151	977	256	209	755	40	298	1360	69
Future Volume (vph)	120	743	243	151	977	256	209	755	40	298	1360	69
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	85		0	205		270	250		0	200		125
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.963				0.850		0.992				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3408	0	1770	3725	1583	1770	3511	0	1770	3725	1583
Flt Permitted	0.085			0.084			0.080			0.149		
Satd. Flow (perm)	158	3408	0	156	3725	1583	149	3511	0	278	3725	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		31				72		4				47
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		870			1169			1289			1286	
Travel Time (s)		14.8			19.9			22.0			21.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	126	782	256	159	1028	269	220	795	42	314	1432	73
Shared Lane Traffic (%)												
Lane Group Flow (vph)	126	1038	0	159	1028	269	220	837	0	314	1432	73
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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	0.94	1.00	1.00	1.00	1.00	1.00	0.94	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6	7	3	8		7	4	5
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	24.0		9.5	24.0	9.5	9.5	24.0		9.5	24.0	9.5
Total Split (s)	15.0	53.0		15.0	53.0	30.0	30.0	52.0		30.0	52.0	15.0
Total Split (%)	10.0%	35.3%		10.0%	35.3%	20.0%	20.0%	34.7%		20.0%	34.7%	10.0%
Maximum Green (s)	11.5	47.0		11.5	47.0	26.5	26.5	46.0		26.5	46.0	11.5
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	0.0	1.5		0.0	1.5	0.0	0.0	1.5		0.0	1.5	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0	3.5	3.5	6.0		3.5	6.0	3.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min	None	None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	60.3	47.1		61.7	47.8	76.3	71.5	50.0		77.8	53.5	70.2
Actuated g/C Ratio	0.40	0.31		0.41	0.32	0.51	0.48	0.33		0.52	0.36	0.47
v/c Ratio	0.71	0.95		0.85	0.87	0.32	0.80	0.71		0.85	1.08	0.10
Control Delay	64.0	53.7		70.5	57.1	16.1	58.7	48.4		63.3	84.1	2.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	64.0	53.7		70.5	57.1	16.1	58.7	48.4		63.3	84.1	2.9
LOS	E	D		E	E	B	E	D		E	F	A
Approach Delay		54.8			51.0			50.5			77.2	
Approach LOS		D			D			D			E	
90th %ile Green (s)	11.5	47.0		11.5	47.0	26.5	26.5	46.0		26.5	46.0	11.5
90th %ile Term Code	Max	Coord		Max	Coord	Max	Max	Max		Max	Max	Max
70th %ile Green (s)	11.5	47.0		11.5	47.0	26.5	22.6	46.0		26.5	49.9	11.5
70th %ile Term Code	Max	Coord		Max	Coord	Max	Gap	Max		Max	Max	Max
50th %ile Green (s)	11.5	47.0		11.5	47.0	24.2	19.3	48.3		24.2	53.2	11.5
50th %ile Term Code	Max	Coord		Max	Coord	Gap	Gap	Hold		Gap	Max	Max
30th %ile Green (s)	10.6	47.0		11.5	47.9	19.9	15.7	52.6		19.9	56.8	10.6
30th %ile Term Code	Gap	Coord		Max	Coord	Gap	Gap	Hold		Gap	Max	Gap
10th %ile Green (s)	8.4	47.4		11.1	50.1	15.5	11.0	57.0		15.5	61.5	8.4
10th %ile Term Code	Gap	Coord		Gap	Coord	Gap	Gap	Hold		Gap	Max	Gap
Queue Length 50th (ft)	74	513		102	503	107	158	382		193	~842	3
Queue Length 95th (ft)	m#147	#643		#235	595	164	241	473		#309	#1045	m6
Internal Link Dist (ft)		790			1089			1209			1206	
Turn Bay Length (ft)	85			205		270	250			200		125
Base Capacity (vph)	187	1091		188	1187	880	362	1172		408	1328	773
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.67	0.95		0.85	0.87	0.31	0.61	0.71		0.77	1.08	0.09

Intersection Summary			
Area Type:	Other		
Cycle Length: 150			
Actuated Cycle Length: 150			
Offset: 143 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.08			
Intersection Signal Delay: 60.4		Intersection LOS: E	
Intersection Capacity Utilization 100.6%		ICU Level of Service G	
Analysis Period (min) 15			

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

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

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

Splits and Phases: 11: Naper Blvd & Odgen Ave

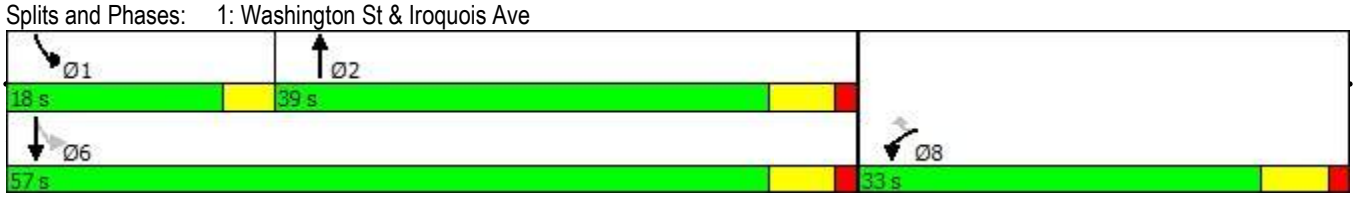
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	51	123	367	47	101	385
Future Volume (vph)	51	123	367	47	101	385
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	2000
Storage Length (ft)	275	0		0	175	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	0.95
Frt		0.850	0.983			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	3479	0	1770	3725
Flt Permitted	0.950				0.463	
Satd. Flow (perm)	1770	1583	3479	0	862	3725
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		129	17			
Link Speed (mph)	25		35			35
Link Distance (ft)	4415		716			679
Travel Time (s)	120.4		13.9			13.2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	54	129	386	49	106	405
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	129	435	0	106	405
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
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	0.94
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0		5.0	5.0
Minimum Split (s)	24.0	24.0	24.0		9.5	24.0
Total Split (s)	33.0	33.0	39.0		18.0	57.0
Total Split (%)	36.7%	36.7%	43.3%		20.0%	63.3%
Maximum Green (s)	27.0	27.0	33.0		14.5	51.0
Yellow Time (s)	4.5	4.5	4.5		3.5	4.5
All-Red Time (s)	1.5	1.5	1.5		0.0	1.5
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		3.5	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Max		None	Max
Walk Time (s)	7.0	7.0	7.0			7.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	7.7	7.7	45.3		56.4	53.9
Actuated g/C Ratio	0.10	0.10	0.62		0.77	0.73
v/c Ratio	0.29	0.46	0.20		0.14	0.15
Control Delay	33.1	11.8	7.1		2.9	3.3
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	33.1	11.8	7.1		2.9	3.3
LOS	C	B	A		A	A
Approach Delay	18.1		7.1			3.2
Approach LOS	B		A			A
90th %ile Green (s)	10.0	10.0	39.7		7.8	51.0
90th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
70th %ile Green (s)	8.5	8.5	40.5		7.0	51.0
70th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
50th %ile Green (s)	7.5	7.5	41.0		6.5	51.0
50th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
30th %ile Green (s)	6.6	6.6	41.4		6.1	51.0
30th %ile Term Code	Gap	Gap	Hold		Gap	MaxR
10th %ile Green (s)	5.5	5.5	66.0		0.0	66.0
10th %ile Term Code	Gap	Gap	Dwell		Skip	Dwell
Queue Length 50th (ft)	22	0	41		9	22
Queue Length 95th (ft)	53	45	71		22	39
Internal Link Dist (ft)	4335		636			599
Turn Bay Length (ft)	275				175	
Base Capacity (vph)	651	664	2147		839	2725
Starvation Cap Reductn	0	0	0		0	0
Spillback Cap Reductn	0	0	0		0	0
Storage Cap Reductn	0	0	0		0	0
Reduced v/c Ratio	0.08	0.19	0.20		0.13	0.15

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 73.6
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.46
Intersection Signal Delay: 7.1 Intersection LOS: A
Intersection Capacity Utilization 34.7% ICU Level of Service A
Analysis Period (min) 15
90th %ile Actuated Cycle: 73
70th %ile Actuated Cycle: 71.5
50th %ile Actuated Cycle: 70.5
30th %ile Actuated Cycle: 69.6
10th %ile Actuated Cycle: 83.5

Splits and Phases: 1: Washington St & Iroquois Ave



Intersection	
Int Delay, s/veh	1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	31	4	195	128	20	153
Future Vol, veh/h	31	4	195	128	20	153
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	33	4	205	135	21	161

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	476	273	0	0	340	0
Stage 1	273	-	-	-	-	-
Stage 2	203	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	594	865	-	-	1234	-
Stage 1	825	-	-	-	-	-
Stage 2	831	-	-	-	-	-
Platoon blocked, %	1	1	-	-	1	-
Mov Cap-1 Maneuver	583	865	-	-	1234	-
Mov Cap-2 Maneuver	640	-	-	-	-	-
Stage 1	825	-	-	-	-	-
Stage 2	815	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.7	0	0.9
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	640	865	1234	-
HCM Lane V/C Ratio	-	-	0.051	0.005	0.017	-
HCM Control Delay (s)	-	-	10.9	9.2	8	0
HCM Lane LOS	-	-	B	A	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	0.1	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	10	56	187	5	22	36	286	79	14	166	4
Future Vol, veh/h	15	10	56	187	5	22	36	286	79	14	166	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	0	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	11	59	197	5	23	38	301	83	15	175	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	627	666	89	540	626	343	179	0	0	384	0	0
Stage 1	206	206	-	418	418	-	-	-	-	-	-	-
Stage 2	421	460	-	122	208	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	*784	*688	952	*784	*688	*832	1395	-	-	*1245	-	-
Stage 1	*777	*731	-	*785	*688	-	-	-	-	-	-	-
Stage 2	*785	*688	-	*870	*729	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*735	*661	952	*705	*661	*832	1395	-	-	*1245	-	-
Mov Cap-2 Maneuver	*735	*661	-	*705	*661	-	-	-	-	-	-	-
Stage 1	*756	*722	-	*764	*669	-	-	-	-	-	-	-
Stage 2	*737	*669	-	*795	*720	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.7	11.9	0.7	0.6
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1395	-	-	858	704	832	* 1245	-	-
HCM Lane V/C Ratio	0.027	-	-	0.099	0.287	0.028	0.012	-	-
HCM Control Delay (s)	7.7	-	-	9.7	12.2	9.5	7.9	-	-
HCM Lane LOS	A	-	-	A	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.3	1.2	0.1	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	3	14	79	1	32	16	364	63	29	372	8
Future Vol, veh/h	5	3	14	79	1	32	16	364	63	29	372	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	0	-	-	50	-	-	50	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	3	15	83	1	34	17	383	66	31	392	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	924	940	200	708	911	416	400	0	0	449	0	0
Stage 1	457	457	-	450	450	-	-	-	-	-	-	-
Stage 2	467	483	-	258	461	-	-	-	-	-	-	-
Critical Hdwy	7.33	6.53	6.93	7.33	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.53	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.53	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.519	4.019	3.319	3.519	4.019	3.319	2.219	-	-	2.219	-	-
Pot Cap-1 Maneuver	*619	*544	808	*734	*573	*778	1157	-	-	*1165	-	-
Stage 1	*554	*567	-	*734	*643	-	-	-	-	-	-	-
Stage 2	*734	*643	-	*725	*564	-	-	-	-	-	-	-
Platoon blocked, %	1	1		1	1	1		-	-	1	-	-
Mov Cap-1 Maneuver	*573	*522	808	*695	*549	*778	1157	-	-	*1165	-	-
Mov Cap-2 Maneuver	*573	*522	-	*695	*549	-	-	-	-	-	-	-
Stage 1	*546	*552	-	*724	*634	-	-	-	-	-	-	-
Stage 2	*691	*634	-	*689	*549	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.4	10.6	0.3	0.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1157	-	-	692	695	768	* 1165	-	-
HCM Lane V/C Ratio	0.015	-	-	0.033	0.12	0.045	0.026	-	-
HCM Control Delay (s)	8.2	-	-	10.4	10.9	9.9	8.2	-	-
HCM Lane LOS	A	-	-	B	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.1	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	219	1234	18	10	1139	192	25	32	10	256	32	177
Future Volume (vph)	219	1234	18	10	1139	192	25	32	10	256	32	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	200		0	350		0	120		0	95		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.978			0.963				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3532	0	1770	3461	0	1770	1794	0	1770	1961	1583
Flt Permitted	0.092			0.183			0.735			0.728		
Satd. Flow (perm)	171	3532	0	341	3461	0	1369	1794	0	1356	1961	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			23			11				186
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		756			461			529			276	
Travel Time (s)		12.9			7.9			12.0			7.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	231	1299	19	11	1199	202	26	34	11	269	34	186
Shared Lane Traffic (%)												
Lane Group Flow (vph)	231	1318	0	11	1401	0	26	45	0	269	34	186
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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	0.94	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	24.0		9.5	24.0		24.0	24.0		24.0	24.0	24.0
Total Split (s)	22.0	68.0		22.0	68.0		30.0	30.0		30.0	30.0	30.0
Total Split (%)	18.3%	56.7%		18.3%	56.7%		25.0%	25.0%		25.0%	25.0%	25.0%
Maximum Green (s)	18.5	62.0		18.5	62.0		24.0	24.0		24.0	24.0	24.0
Yellow Time (s)	3.5	4.5		3.5	4.5		4.5	4.5		4.5	4.5	4.5
All-Red Time (s)	0.0	1.5		0.0	1.5		1.5	1.5		1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	84.7	80.3		73.2	64.9		25.8	25.8		25.8	25.8	25.8
Actuated g/C Ratio	0.71	0.67		0.61	0.54		0.22	0.22		0.22	0.22	0.22
v/c Ratio	0.76	0.56		0.04	0.74		0.09	0.11		0.92	0.08	0.38
Control Delay	35.6	11.8		4.6	14.7		40.0	32.3		84.0	39.5	8.2
Queue Delay	0.0	0.0		0.0	0.1		0.0	0.0		0.0	0.0	0.0
Total Delay	35.6	11.8		4.6	14.8		40.0	32.3		84.0	39.5	8.2
LOS	D	B		A	B		D	C		F	D	A
Approach Delay		15.4			14.8			35.2			52.1	
Approach LOS		B			B			D			D	
90th %ile Green (s)	18.5	74.4		6.1	62.0		24.0	24.0		24.0	24.0	24.0
90th %ile Term Code	Max	Coord		Gap	Coord		Hold	Hold		Max	Max	Max
70th %ile Green (s)	17.1	84.0		0.0	63.4		24.0	24.0		24.0	24.0	24.0
70th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Max	Max	Max
50th %ile Green (s)	13.9	84.0		0.0	66.6		24.0	24.0		24.0	24.0	24.0
50th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Max	Max	Max
30th %ile Green (s)	11.2	79.3		0.0	64.6		28.7	28.7		28.7	28.7	28.7
30th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Max	Max	Max
10th %ile Green (s)	8.3	79.9		0.0	68.1		28.1	28.1		28.1	28.1	28.1
10th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Gap	Gap	Gap
Queue Length 50th (ft)	86	230		1	194		17	22		210	22	0
Queue Length 95th (ft)	171	368		m3	304		43	55		#386	51	61
Internal Link Dist (ft)		676			381			449			196	
Turn Bay Length (ft)	200			350			120			95		
Base Capacity (vph)	367	2364		458	1883		293	393		291	421	486
Starvation Cap Reductn	0	0		0	44		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.63	0.56		0.02	0.76		0.09	0.11		0.92	0.08	0.38

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 106 (88%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 20.6 Intersection LOS: C
Intersection Capacity Utilization 83.9% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Iroquois Ave & Ogden Ave

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	1474	0	0	1211	183	0	0	7	0	0	139
Future Vol, veh/h	0	1474	0	0	1211	183	0	0	7	0	0	139
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	Free	-	-	None	-	-	Stop
Storage Length	-	-	-	-	-	-	-	-	0	-	-	0
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1552	0	0	1275	193	0	0	7	0	0	146

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	-	0	0	-	-	0	-	-	776	-	-	637
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	-	-	-	6.94	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	-	-	3.32	-	-	3.32
Pot Cap-1 Maneuver	0	-	-	0	-	0	0	0	*465	0	0	*593
Stage 1	0	-	-	0	-	0	0	0	-	0	0	-
Stage 2	0	-	-	0	-	0	0	0	-	0	0	-
Platoon blocked, %		-	-		-				1			1
Mov Cap-1 Maneuver	-	-	-	-	-	-	-	-	*465	-	-	*593
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	0	12.9	13
HCM LOS			B	B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT	SBLn1
Capacity (veh/h)	465	-	-	-	593
HCM Lane V/C Ratio	0.016	-	-	-	0.247
HCM Control Delay (s)	12.9	-	-	-	13
HCM Lane LOS	B	-	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	393	1030	58	49	985	110	44	75	34	181	87	365
Future Volume (vph)	393	1030	58	49	985	110	44	75	34	181	87	365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	230		0	150		0	0		0	0		50
Storage Lanes	1		0	1		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992			0.985			0.970				0.850
Flt Protected	0.950			0.950				0.986		0.950		
Satd. Flow (prot)	1770	3511	0	1770	3486	0	0	1782	0	1770	1863	1583
Flt Permitted	0.102			0.248				0.871		0.396		
Satd. Flow (perm)	190	3511	0	462	3486	0	0	1574	0	738	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10			13			10				44
Link Speed (mph)		40			40			35			40	
Link Distance (ft)		299			870			720			413	
Travel Time (s)		5.1			14.8			14.0			7.0	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	414	1084	61	52	1037	116	46	79	36	191	92	384
Shared Lane Traffic (%)												
Lane Group Flow (vph)	414	1145	0	52	1153	0	0	161	0	191	92	384
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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
Turn Type	pm+pt	NA		Perm	NA		Perm	NA		pm+pt	NA	pm+ov
Protected Phases	5	2			6			8		7	4	5
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		6	6		8	8		7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	24.0		24.0	24.0		21.0	21.0		14.0	24.0	9.5
Total Split (s)	26.0	84.0		58.0	58.0		22.0	22.0		14.0	36.0	26.0
Total Split (%)	21.7%	70.0%		48.3%	48.3%		18.3%	18.3%		11.7%	30.0%	21.7%
Maximum Green (s)	22.5	78.0		52.0	52.0		16.0	16.0		8.0	30.0	22.5
Yellow Time (s)	3.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	3.5
All-Red Time (s)	0.0	1.5		1.5	1.5		1.5	1.5		1.5	1.5	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		6.0	6.0			6.0		6.0	6.0	3.5
Lead/Lag	Lead			Lag	Lag		Lag	Lag		Lead		Lead
Lead-Lag Optimize?	Yes			Yes	Yes		Yes	Yes		Yes		Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		C-Min	C-Min		None	None		None	None	None
Walk Time (s)		7.0										

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0										
Pedestrian Calls (#/hr)		0										
Act Effct Green (s)	80.6	78.1		51.6	51.6			14.7		29.9	29.9	58.9
Actuated g/C Ratio	0.67	0.65		0.43	0.43			0.12		0.25	0.25	0.49
v/c Ratio	0.97	0.50		0.26	0.77			0.80		0.73	0.20	0.48
Control Delay	65.4	7.4		17.8	20.4			75.8		56.3	37.3	20.8
Queue Delay	0.0	0.0		0.0	0.0			0.0		0.0	0.0	0.0
Total Delay	65.4	7.4		17.8	20.4			75.8		56.3	37.3	20.8
LOS	E	A		B	C			E		E	D	C
Approach Delay		22.8			20.2			75.8			33.2	
Approach LOS		C			C			E			C	
90th %ile Green (s)	22.5	78.0		52.0	52.0		16.0	16.0		8.0	30.0	22.5
90th %ile Term Code	Max	Coord		Coord	Coord		Max	Max		Max	Hold	Max
70th %ile Green (s)	22.5	78.0		52.0	52.0		16.0	16.0		8.0	30.0	22.5
70th %ile Term Code	Max	Coord		Coord	Coord		Max	Max		Max	Hold	Max
50th %ile Green (s)	22.5	78.0		52.0	52.0		16.0	16.0		8.0	30.0	22.5
50th %ile Term Code	Max	Coord		Coord	Coord		Max	Max		Max	Hold	Max
30th %ile Green (s)	23.8	77.4		50.1	50.1		14.7	14.7		9.9	30.6	23.8
30th %ile Term Code	Max	Coord		Coord	Coord		Gap	Gap		Max	Hold	Max
10th %ile Green (s)	23.6	79.0		51.9	51.9		10.7	10.7		12.3	29.0	23.6
10th %ile Term Code	Gap	Coord		Coord	Coord		Gap	Gap		Gap	Hold	Gap
Queue Length 50th (ft)	183	137		15	167			114		125	56	170
Queue Length 95th (ft)	m#415	m155		m21	188			#217		#227	103	257
Internal Link Dist (ft)		219			790			640			333	
Turn Bay Length (ft)	230			150								50
Base Capacity (vph)	429	2291		200	1517			218		263	467	799
Starvation Cap Reductn	0	0		0	0			0		0	0	0
Spillback Cap Reductn	0	0		0	0			0		0	0	0
Storage Cap Reductn	0	0		0	0			0		0	0	0
Reduced v/c Ratio	0.97	0.50		0.26	0.76			0.74		0.73	0.20	0.48

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 114 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 26.3 Intersection LOS: C
Intersection Capacity Utilization 82.5% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: Naperville Wheaton Rd & Odgen Ave

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	122	2	199	10	0	11	140	427	11	8	424	92
Future Vol, veh/h	122	2	199	10	0	11	140	427	11	8	424	92
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	128	2	209	11	0	12	147	449	12	8	446	97

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1031	1268	272	991	1310	231	543	0	0	461	0	0
Stage 1	512	512	-	750	750	-	-	-	-	-	-	-
Stage 2	519	756	-	241	560	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	397	266	*924	*432	247	*924	1250	-	-	1355	-	-
Stage 1	779	703	-	*536	531	-	-	-	-	-	-	-
Stage 2	771	527	-	*871	665	-	-	-	-	-	-	-
Platoon blocked, %	1	1	1	1	1	1	1	-	-	1	-	-
Mov Cap-1 Maneuver	342	222	*924	*290	206	*924	1250	-	-	1355	-	-
Mov Cap-2 Maneuver	342	222	-	*290	206	-	-	-	-	-	-	-
Stage 1	656	697	-	*451	447	-	-	-	-	-	-	-
Stage 2	641	444	-	*666	659	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.6	13.4	2.3	0.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1250	-	-	342	896	453	1355	-	-
HCM Lane V/C Ratio	0.118	-	-	0.376	0.236	0.049	0.006	-	-
HCM Control Delay (s)	8.3	0.4	-	21.7	10.3	13.4	7.7	0	-
HCM Lane LOS	A	A	-	C	B	B	A	A	-
HCM 95th %tile Q(veh)	0.4	-	-	1.7	0.9	0.2	0	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	57	20	9	551	504	46
Future Vol, veh/h	57	20	9	551	504	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	60	21	9	580	531	48

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	864	289	579	0	-	0
Stage 1	555	-	-	-	-	-
Stage 2	309	-	-	-	-	-
Critical Hdwy	6.84	6.94	4.14	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	2.22	-	-	-
Pot Cap-1 Maneuver	*500	708	991	-	-	-
Stage 1	*539	-	-	-	-	-
Stage 2	*824	-	-	-	-	-
Platoon blocked, %	1			-	-	-
Mov Cap-1 Maneuver	*494	708	991	-	-	-
Mov Cap-2 Maneuver	*494	-	-	-	-	-
Stage 1	*539	-	-	-	-	-
Stage 2	*813	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.5	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	991	-	494	708	-	-
HCM Lane V/C Ratio	0.01	-	0.121	0.03	-	-
HCM Control Delay (s)	8.7	0.1	13.3	10.2	-	-
HCM Lane LOS	A	A	B	B	-	-
HCM 95th %tile Q(veh)	0	-	0.4	0.1	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	544	19	31	19	17	55	43	915	39	50	675	492
Future Volume (vph)	544	19	31	19	17	55	43	915	39	50	675	492
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		0	175		0	160		0	165		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.907			0.886			0.994				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1690	0	1770	1650	0	1770	5055	0	1770	3539	1583
Flt Permitted	0.950			0.950			0.324			0.232		
Satd. Flow (perm)	3433	1690	0	1770	1650	0	604	5055	0	432	3539	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		33			58			6				457
Link Speed (mph)		40			30			40			40	
Link Distance (ft)		782			1146			1286			1236	
Travel Time (s)		13.3			26.0			21.9			21.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	573	20	33	20	18	58	45	963	41	53	711	518
Shared Lane Traffic (%)												
Lane Group Flow (vph)	573	53	0	20	76	0	45	1004	0	53	711	518
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		24			24			12			12	
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
Turn Type	Prot	NA		Prot	NA		pm+pt	NA		pm+pt	NA	Free
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases							2			6		Free
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	24.0	24.5		9.5	11.5		9.5	24.5		9.5	24.5	
Total Split (s)	39.0	46.0		12.0	19.0		11.0	51.0		11.0	51.0	
Total Split (%)	32.5%	38.3%		10.0%	15.8%		9.2%	42.5%		9.2%	42.5%	
Maximum Green (s)	35.0	39.5		8.0	12.5		7.0	44.5		7.0	44.5	
Yellow Time (s)	3.0	4.5		3.0	4.5		3.0	4.5		3.0	4.5	
All-Red Time (s)	1.0	2.0		1.0	2.0		1.0	2.0		1.0	2.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.5		4.0	6.5		4.0	6.5		4.0	6.5	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	C-Min		None	C-Min	
Walk Time (s)	7.0	7.0						7.0			7.0	

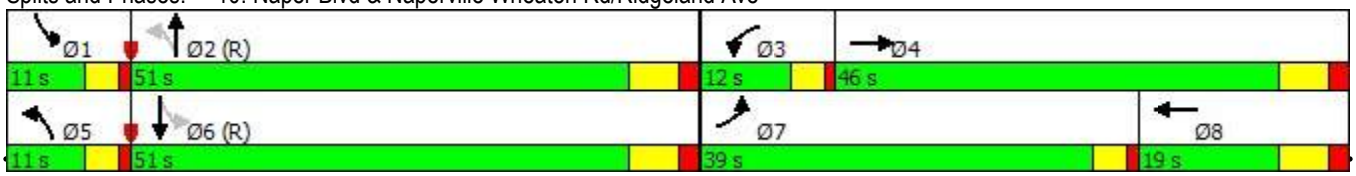
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)	11.0	11.0						11.0			11.0	
Pedestrian Calls (#/hr)	0	0						0			0	
Act Effct Green (s)	25.5	29.9		6.8	7.5		71.5	63.2		71.9	63.4	120.0
Actuated g/C Ratio	0.21	0.25		0.06	0.06		0.60	0.53		0.60	0.53	1.00
v/c Ratio	0.79	0.12		0.20	0.48		0.11	0.38		0.16	0.38	0.33
Control Delay	43.2	10.9		58.3	29.6		6.5	9.4		12.8	20.2	0.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	43.2	10.9		58.3	29.6		6.5	9.4		12.8	20.2	0.6
LOS	D	B		E	C		A	A		B	C	A
Approach Delay		40.4			35.5			9.3			12.0	
Approach LOS		D			D			A			B	
90th %ile Green (s)	31.8	35.1		8.0	11.3		8.6	46.9		9.0	47.3	
90th %ile Term Code	Gap	Hold		Max	Gap		Gap	Coord		Gap	Coord	
70th %ile Green (s)	27.7	28.7		7.6	8.6		7.4	55.0		7.7	55.3	
70th %ile Term Code	Gap	Hold		Gap	Gap		Gap	Coord		Gap	Coord	
50th %ile Green (s)	25.4	36.2		0.0	6.8		6.7	59.9		6.9	60.1	
50th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	
30th %ile Green (s)	23.0	32.5		0.0	5.5		6.1	64.3		6.2	64.4	
30th %ile Term Code	Gap	Hold		Skip	Gap		Gap	Coord		Gap	Coord	
10th %ile Green (s)	19.5	17.0		0.0	0.0		0.0	90.0		0.0	90.0	
10th %ile Term Code	Gap	Hold		Skip	Skip		Skip	Coord		Skip	Coord	
Queue Length 50th (ft)	205	1		15	14		8	83		15	175	0
Queue Length 95th (ft)	m250	m26		41	62		m10	73		41	275	0
Internal Link Dist (ft)		702			1066			1206			1156	
Turn Bay Length (ft)	430			175			160			165		
Base Capacity (vph)	1001	578		118	223		432	2666		343	1870	1583
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.57	0.09		0.17	0.34		0.10	0.38		0.15	0.38	0.33

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 83 (69%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 17.6 Intersection LOS: B
Intersection Capacity Utilization 59.2% ICU Level of Service B
Analysis Period (min) 15

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

Splits and Phases: 10: Naper Blvd & Naperville Wheaton Rd/Ridgeland Ave



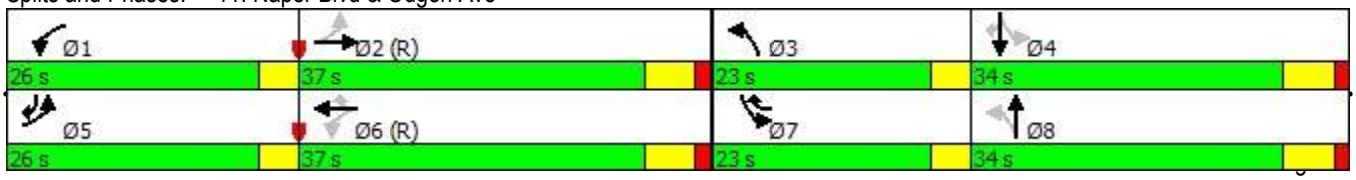
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	208	794	277	109	732	163	319	697	39	182	546	90
Future Volume (vph)	208	794	277	109	732	163	319	697	39	182	546	90
Ideal Flow (vphpl)	1900	1900	1900	1900	2000	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	85		0	205		270	250		0	200		125
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	1.00
Frt		0.961				0.850		0.992				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3401	0	1770	3725	1583	1770	3511	0	1770	3725	1583
Flt Permitted	0.193			0.098			0.200			0.150		
Satd. Flow (perm)	360	3401	0	183	3725	1583	373	3511	0	279	3725	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39				160		4				66
Link Speed (mph)		40			40			40			40	
Link Distance (ft)		870			1169			1289			1286	
Travel Time (s)		14.8			19.9			22.0			21.9	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	219	836	292	115	771	172	336	734	41	192	575	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	219	1128	0	115	771	172	336	775	0	192	575	95
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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	0.94	1.00	1.00	1.00	1.00	1.00	0.94	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA	pm+ov	pm+pt	NA		pm+pt	NA	pm+ov
Protected Phases	5	2		1	6	7	3	8		7	4	5
Permitted Phases	2			6		6	8			4		4
Detector Phase	5	2		1	6	7	3	8		7	4	5
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	24.0		9.5	24.0	9.5	9.5	24.0		9.5	24.0	9.5
Total Split (s)	26.0	37.0		26.0	37.0	23.0	23.0	34.0		23.0	34.0	26.0
Total Split (%)	21.7%	30.8%		21.7%	30.8%	19.2%	19.2%	28.3%		19.2%	28.3%	21.7%
Maximum Green (s)	22.5	31.0		22.5	31.0	19.5	19.5	28.0		19.5	28.0	22.5
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	4.5		3.5	4.5	3.5
All-Red Time (s)	0.0	1.5		0.0	1.5	0.0	0.0	1.5		0.0	1.5	0.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0	3.5	3.5	6.0		3.5	6.0	3.5
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min	None	None	None		None	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	61.2	45.6		53.2	40.9	61.3	50.8	31.2		43.5	26.6	47.2
Actuated g/C Ratio	0.51	0.38		0.44	0.34	0.51	0.42	0.26		0.36	0.22	0.39
v/c Ratio	0.62	0.86		0.55	0.61	0.19	0.89	0.85		0.69	0.70	0.14
Control Delay	22.5	32.6		30.2	36.8	3.7	52.0	52.0		54.9	56.2	9.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	22.5	32.6		30.2	36.8	3.7	52.0	52.0		54.9	56.2	9.5
LOS	C	C		C	D	A	D	D		D	E	A
Approach Delay		30.9			30.7			52.0			50.8	
Approach LOS		C			C			D			D	
90th %ile Green (s)	21.2	39.9		13.6	32.3	19.5	19.5	28.0		19.5	28.0	21.2
90th %ile Term Code	Gap	Coord		Gap	Coord	Max	Max	Max		Max	Max	Gap
70th %ile Green (s)	16.6	42.6		10.9	36.9	16.3	19.5	31.2		16.3	28.0	16.6
70th %ile Term Code	Gap	Coord		Gap	Coord	Gap	Max	Max		Gap	Max	Gap
50th %ile Green (s)	14.0	43.8		9.7	39.5	14.0	19.5	33.5		14.0	28.0	14.0
50th %ile Term Code	Gap	Coord		Gap	Coord	Gap	Max	Max		Gap	Hold	Gap
30th %ile Green (s)	12.0	46.7		8.4	43.1	12.2	19.5	33.7		12.2	26.4	12.0
30th %ile Term Code	Gap	Coord		Gap	Coord	Gap	Max	Gap		Gap	Hold	Gap
10th %ile Green (s)	9.1	55.0		6.7	52.6	9.9	16.7	29.4		9.9	22.6	9.1
10th %ile Term Code	Gap	Coord		Gap	Coord	Gap	Gap	Gap		Gap	Hold	Gap
Queue Length 50th (ft)	60	443		47	264	5	174	291		124	133	4
Queue Length 95th (ft)	m122	#583		100	364	42	#342	#434		223	308	53
Internal Link Dist (ft)		790			1089			1209			1206	
Turn Bay Length (ft)	85			205		270	250			200		125
Base Capacity (vph)	448	1316		390	1268	947	384	914		355	869	762
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	0.49	0.86		0.29	0.61	0.18	0.88	0.85		0.54	0.66	0.12

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 40.1 Intersection LOS: D
Intersection Capacity Utilization 85.5% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 11: Naper Blvd & Odgen Ave



APPENDIX H

CAPACITY ANALYSIS WORKSHEETS
2027 FUTURE WITH PROJECT
WITH PROPOSED MITIGATION

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	1084	24	24	1436	179	49	61	43	250	94	119
Future Volume (vph)	185	1084	24	24	1436	179	49	61	43	250	94	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	200		0	350		0	120		0	95		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.983			0.938				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3529	0	1770	3479	0	1770	1747	0	1770	1961	1583
Flt Permitted	0.047			0.208			0.682			0.663		
Satd. Flow (perm)	88	3529	0	387	3479	0	1270	1747	0	1235	1961	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			11			25				125
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		756			461			529			276	
Travel Time (s)		12.9			7.9			12.0			7.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	195	1141	25	25	1512	188	52	64	45	263	99	125
Shared Lane Traffic (%)												
Lane Group Flow (vph)	195	1166	0	25	1700	0	52	109	0	263	99	125
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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	0.94	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	24.0		9.5	24.0		24.0	24.0		24.0	24.0	24.0
Total Split (s)	23.0	84.0		10.0	71.0		56.0	56.0		56.0	56.0	56.0
Total Split (%)	15.3%	56.0%		6.7%	47.3%		37.3%	37.3%		37.3%	37.3%	37.3%
Maximum Green (s)	19.5	78.0		6.5	65.0		50.0	50.0		50.0	50.0	50.0
Yellow Time (s)	3.5	4.5		3.5	4.5		4.5	4.5		4.5	4.5	4.5
All-Red Time (s)	0.0	1.5		0.0	1.5		1.5	1.5		1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	103.7	95.1		91.1	82.3		36.8	36.8		36.8	36.8	36.8
Actuated g/C Ratio	0.69	0.63		0.61	0.55		0.25	0.25		0.25	0.25	0.25
v/c Ratio	0.84	0.52		0.09	0.89		0.17	0.24		0.87	0.21	0.26
Control Delay	68.0	18.1		10.8	30.0		42.6	33.8		80.5	43.7	7.2
Queue Delay	0.0	0.0		0.0	0.5		0.0	0.0		0.0	0.0	0.0
Total Delay	68.0	18.1		10.8	30.6		42.6	33.8		80.5	43.7	7.2
LOS	E	B		B	C		D	C		F	D	A
Approach Delay		25.3			30.3			36.6			54.2	
Approach LOS		C			C			D			D	
90th %ile Green (s)	20.8	78.4		7.4	65.0		48.7	48.7		48.7	48.7	48.7
90th %ile Term Code	Max	Coord		Gap	Coord		Hold	Hold		Gap	Gap	Gap
70th %ile Green (s)	19.7	86.2		6.6	73.1		41.7	41.7		41.7	41.7	41.7
70th %ile Term Code	Gap	Coord		Gap	Coord		Hold	Hold		Gap	Gap	Gap
50th %ile Green (s)	16.2	91.5		6.1	81.4		36.9	36.9		36.9	36.9	36.9
50th %ile Term Code	Gap	Coord		Gap	Coord		Hold	Hold		Gap	Gap	Gap
30th %ile Green (s)	12.7	106.1		0.0	89.9		31.9	31.9		31.9	31.9	31.9
30th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Gap	Gap	Gap
10th %ile Green (s)	7.7	113.3		0.0	102.1		24.7	24.7		24.7	24.7	24.7
10th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Gap	Gap	Gap
Queue Length 50th (ft)	135	333		5	459		40	66		249	78	0
Queue Length 95th (ft)	229	491		m12	#1130		71	108		330	116	48
Internal Link Dist (ft)		676			381			449			196	
Turn Bay Length (ft)	200			350			120			95		
Base Capacity (vph)	282	2238		297	1913		423	599		411	653	611
Starvation Cap Reductn	0	0		0	42		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.69	0.52		0.08	0.91		0.12	0.18		0.64	0.15	0.20

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 142 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 31.8 Intersection LOS: C
Intersection Capacity Utilization 89.5% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Iroquois Ave & Ogden Ave

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	219	1234	18	10	1139	192	25	32	10	256	32	177
Future Volume (vph)	219	1234	18	10	1139	192	25	32	10	256	32	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	2000	1900
Storage Length (ft)	200		0	350		0	120		0	95		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.978			0.963				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3532	0	1770	3461	0	1770	1794	0	1770	1961	1583
Flt Permitted	0.081			0.179			0.735			0.728		
Satd. Flow (perm)	151	3532	0	333	3461	0	1369	1794	0	1356	1961	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			20			11				186
Link Speed (mph)		40			40			30			25	
Link Distance (ft)		756			461			529			276	
Travel Time (s)		12.9			7.9			12.0			7.5	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	231	1299	19	11	1199	202	26	34	11	269	34	186
Shared Lane Traffic (%)												
Lane Group Flow (vph)	231	1318	0	11	1401	0	26	45	0	269	34	186
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
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	0.94	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phase	5	2		1	6		8	8		4	4	4
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	9.5	24.0		9.5	24.0		24.0	24.0		24.0	24.0	24.0
Total Split (s)	21.0	70.0		10.0	59.0		40.0	40.0		40.0	40.0	40.0
Total Split (%)	17.5%	58.3%		8.3%	49.2%		33.3%	33.3%		33.3%	33.3%	33.3%
Maximum Green (s)	17.5	64.0		6.5	53.0		34.0	34.0		34.0	34.0	34.0
Yellow Time (s)	3.5	4.5		3.5	4.5		4.5	4.5		4.5	4.5	4.5
All-Red Time (s)	0.0	1.5		0.0	1.5		1.5	1.5		1.5	1.5	1.5
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	3.5	6.0		3.5	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Min		None	C-Min		None	None		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	7.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)		0			0		0	0		0	0	0
Act Effct Green (s)	82.5	78.1		70.4	62.1		28.0	28.0		28.0	28.0	28.0
Actuated g/C Ratio	0.69	0.65		0.59	0.52		0.23	0.23		0.23	0.23	0.23
v/c Ratio	0.78	0.57		0.04	0.78		0.08	0.11		0.85	0.07	0.36
Control Delay	41.0	14.4		8.9	22.1		33.8	27.4		67.6	33.6	6.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	41.0	14.4		8.9	22.1		33.8	27.4		67.6	33.6	6.8
LOS	D	B		A	C		C	C		E	C	A
Approach Delay		18.4			22.0			29.7			42.1	
Approach LOS		B			C			C			D	
90th %ile Green (s)	17.5	64.2		6.3	53.0		34.0	34.0		34.0	34.0	34.0
90th %ile Term Code	Max	Coord		Gap	Coord		Hold	Hold		Max	Max	Max
70th %ile Green (s)	18.6	75.1		0.0	53.0		32.9	32.9		32.9	32.9	32.9
70th %ile Term Code	Max	Coord		Skip	Coord		Hold	Hold		Gap	Gap	Gap
50th %ile Green (s)	15.9	79.0		0.0	59.6		29.0	29.0		29.0	29.0	29.0
50th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Gap	Gap	Gap
30th %ile Green (s)	12.4	83.0		0.0	67.1		25.0	25.0		25.0	25.0	25.0
30th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Gap	Gap	Gap
10th %ile Green (s)	7.9	89.0		0.0	77.6		19.0	19.0		19.0	19.0	19.0
10th %ile Term Code	Gap	Coord		Skip	Coord		Hold	Hold		Gap	Gap	Gap
Queue Length 50th (ft)	102	268		2	253		16	20		198	20	0
Queue Length 95th (ft)	197	463		m5	#568		38	49		288	45	54
Internal Link Dist (ft)		676			381			449			196	
Turn Bay Length (ft)	200			350			120			95		
Base Capacity (vph)	342	2298		275	1799		387	516		384	555	581
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.68	0.57		0.04	0.78		0.07	0.09		0.70	0.06	0.32

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 106 (88%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 23.3 Intersection LOS: C
Intersection Capacity Utilization 83.9% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Iroquois Ave & Ogden Ave