Traffic Impact Study
Islamic Center of Naperville

Naperville, Illinois

Prepared For:

The Islamic Center of Naperville

KLOA
Kenig, Lindgren, O'Hara, Aboona, Inc.

October 12, 2020

Revised

1. Introduction

This report summarizes the methodologies, results, and findings of a traffic impact study conducted by Kenig, Lindgren, O'Hara, Aboona, Inc. (KLOA, Inc.) for the proposed Islamic Center of Naperville (ICN) to be located in Naperville, Illinois. The site, which contains a single-family home, is located on the east side of 248th Avenue at Honey Locust Drive. As proposed, the ICN is to be developed in five phases over the next 30 years and is to contain a school, mosque, multi-purpose hall, and gymnasium. Access to the Phase I of the facility is proposed to be provided via a full access drive and a restricted right-turn in/right-turn out access drive on 248th Avenue. Ultimately, access to the facility is proposed to be provided via two full access drives on 248th Avenue.

The purpose of this study was to examine background traffic conditions, assess the impact that the proposed facility will have on traffic conditions in the area, and determine if any roadway or access improvements are necessary to accommodate traffic generated by the proposed facility. **Figure 1** shows the location of the site in relation to the area roadway system. **Figure 2** shows an aerial view of the site.

The sections of this report present the following:

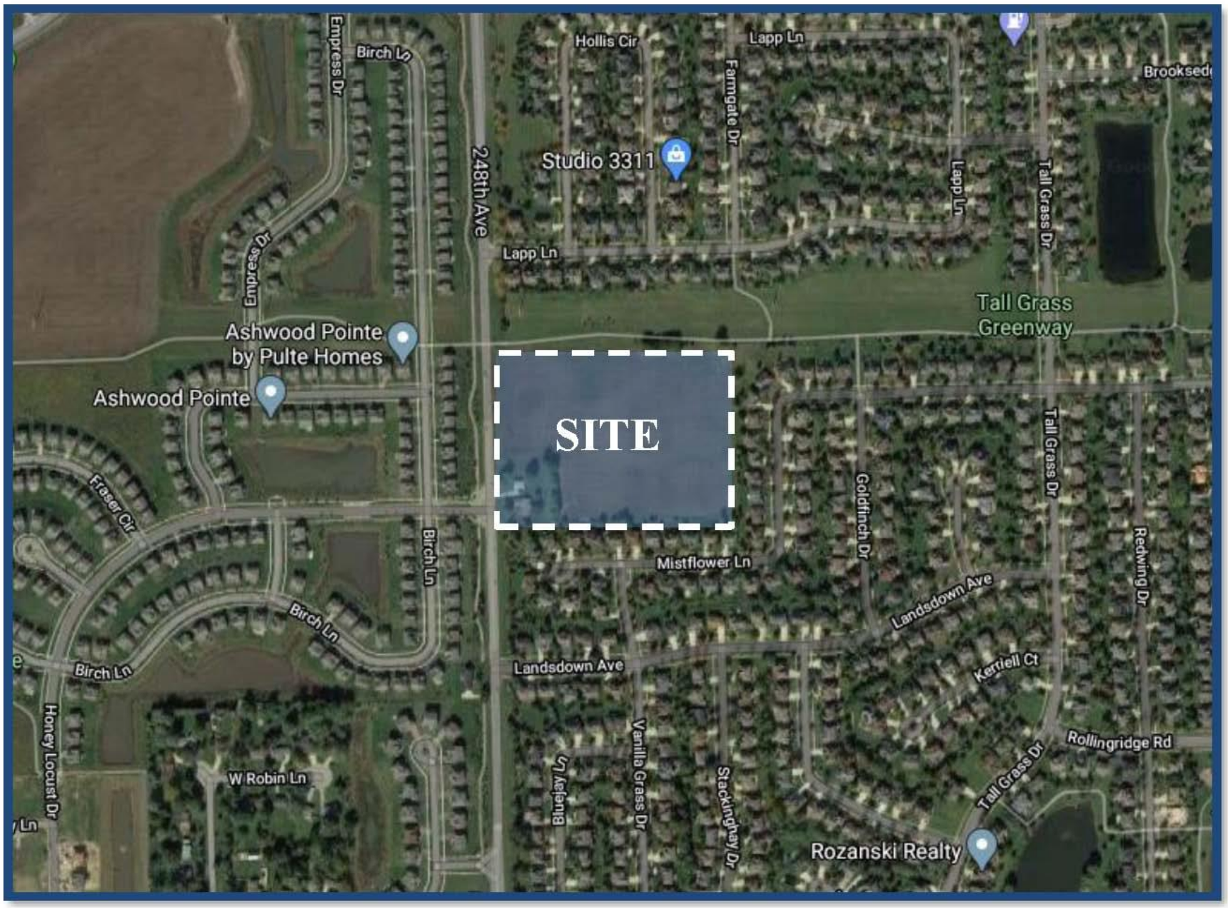
- Existing roadway conditions
- A description of the proposed facility
- Directional distribution of the facility traffic
- Vehicle trip generation for the facility
- Future traffic conditions including access to the facility
- Traffic analyses for the weekday morning, afternoon, and evening peak hours
- Recommendations with respect to adequacy of the site access and adjacent roadway system

Traffic capacity analyses were conducted for the weekday morning, afternoon, and evening peak hours for the following conditions:

1. Existing Conditions – Analyze the capacity of the existing roadway system using existing peak hour traffic volumes in the surrounding area.

2. Projected Conditions – Analyze the capacity of the future roadway system using the projected traffic volumes that include the existing traffic volumes, ambient area growth not attributable to any particular development, and the traffic estimated to be generated by the proposed facility. Per the direction of the City of Naperville, the study examined the first phase of the facility assuming two access alternatives (the north access drive only and both access drives) and the total buildout of the facility assuming both access drives.

Site Location **Figure 1**



Aerial View of Site **Figure 2**

2. Existing Conditions

Existing transportation conditions in the vicinity of the site were documented based on field visits conducted by KLOA, Inc. in order to obtain a database for projecting future conditions. The following provides a description of the geographical location of the site, physical characteristics of the area roadway system including lane usage and traffic control devices, and existing peak hour traffic volumes.

Site Location

As indicated previously, the site is located on the east side of 248th Avenue at Honey Locust Drive. Land uses in the area primarily consist of single-family homes with the PennCross Knoll residential subdivision to the north, the Tall Grass residential subdivision to the east and south, and the Ashwood Pointe residential subdivision to the west.

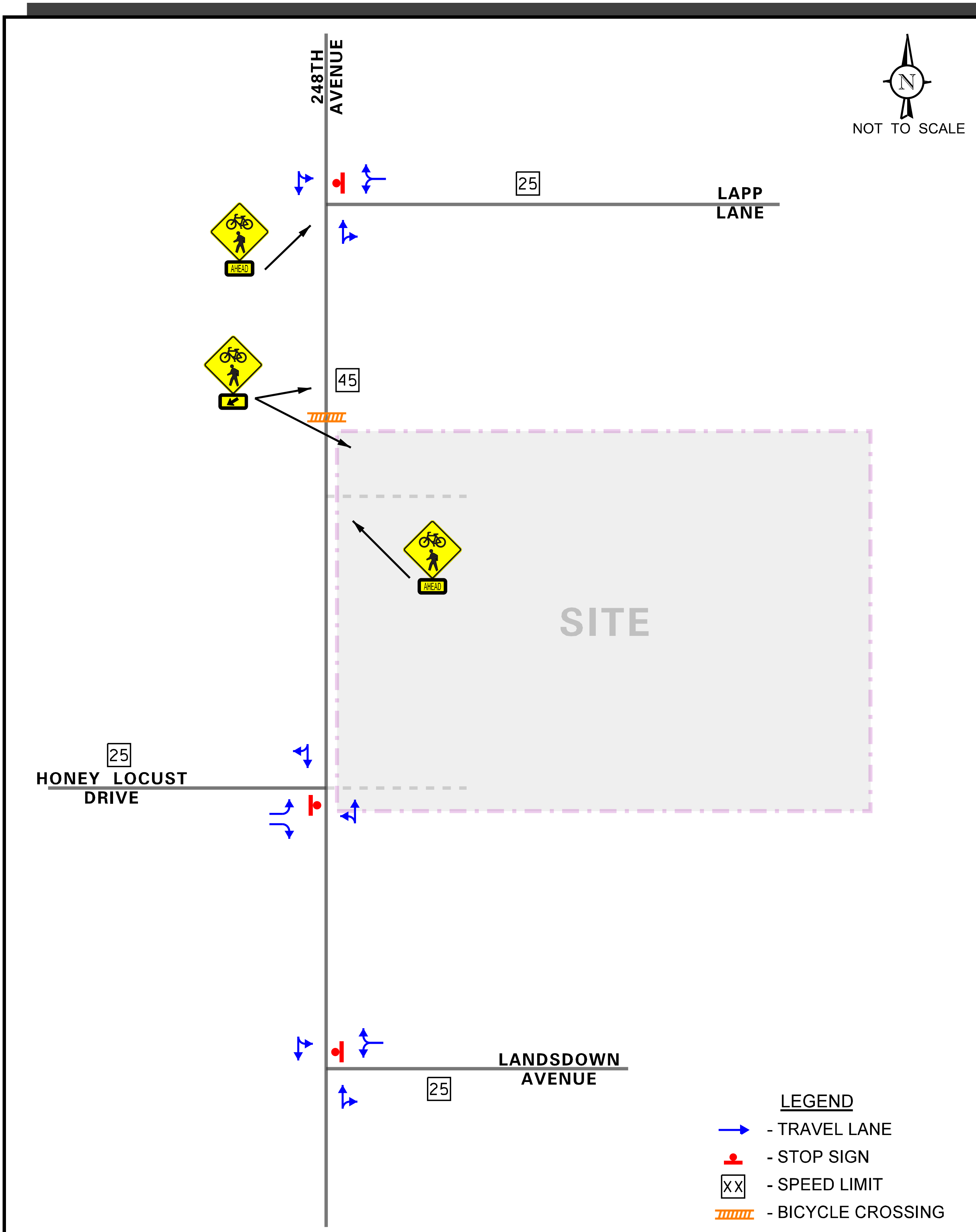
Existing Roadway System Characteristics

The characteristics of the existing roadways near the facility are described below and illustrated in **Figure 3**.

248th Avenue is a north-south, minor arterial roadway that extends from 95th Street south to its terminus at 127th Street. Between 95th Street and 103rd Street, 248th Avenue has one lane in each direction. At its unsignalized intersection with Honey Locust Drive, 248th Avenue has an exclusive left-turn lane and a through lane on the northbound approach and a shared through/right-turn lane on the southbound approach. At is intersections with Lapp Lane and Landsdown Avenue, 248th Avenue provides a shared left-turn/through lane on the southbound approaches and a shared through/right-turn lane on the southbound approaches. A pedestrian and bicycle crossing, with marked crosswalk and warning signs, is located on 248th Avenue immediately north of the subject site. 248th Avenue has a posted speed limit of 45 mph, carries an average daily traffic (ADT) volume between 11,400 and 12,000 vehicles (IDOT Year 2019) within the vicinity of the site, and is under the jurisdiction of the City of Naperville.

Honey Locust Drive is a residential road that serves the Ashwood Pointe subdivision and has one lane in each direction. At its unsignalized intersection with 248th Avenue, Honey Locust Drive is under stop sign control and has two eastbound lanes striped for an exclusive left-turn lane and an exclusive right-turn lane. Honey Locust Drive has a posted speed limit of 25 mph and is under the jurisdiction of the City of Naperville.

Lapp Lane is a residential road that serves the Penncross Knoll subdivision and has one lane in each direction. At its unsignalized intersection with 248th Avenue, Lapp Lane is under stop sign control and has one westbound lane striped for a shared left-turn/right-turn lane. Lapp Lane has a posted speed limit of 25 mph and is under the jurisdiction of the City of Naperville.



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Existing Roadway Characteristics

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Figure: 3

Landsdown Avenue is a residential road that serves the Tall Grass subdivision and has one lane in each direction. At its unsignalized intersection with 248th Avenue, Landsdown Avenue is under stop sign control and has one westbound lane striped for a shared left-turn/right-turn lane. Landsdown Avenue has a posted speed limit of 25 mph and is under the jurisdiction of the City of Naperville.

The Tall Grass Greenway Trail At-Grade Crossing

The Tall Grass Greenway Trail generally extends in an east-west direction along the northern property line of the site and has an at-grade crossing with 248th Avenue just north of the northern property line. Currently, the crossing is designed with the following striping and signage enhancements (see Figure 3):

- A high visibility, bicycle style crosswalk is provided on 248th Avenue.
- Combined Bicycle/Pedestrian (W11-15) warning signs with Ahead plaques (W16-9P) are located on northbound and southbound 248th Avenue in advance of the trail crossing.
- Combined Bicycle/Pedestrian (W11-15) warning signs with Supplemental Arrow plaques (W17-7P) are provided on both directions of 248th Avenue at the crossing.

248th Avenue Roadway Improvements

The City of Naperville is currently conducting a Phase 1 study for the widening and improvements to 248th Avenue between 95th Street and 103rd Street. Similar to the 248th Avenue cross-section south of 103rd Street, the 248th Avenue improvement will likely include the widening of the road to provide two lanes in each direction separated by a landscaped median. Exclusive left-turn lanes will be provided at most intersections and access drives. In addition, various pedestrian and bicycle enhancements will be considered within the study area, including the Tall Grass Greenway Trail at-grade crossing. According to the City of Naperville web site, construction is expected to begin in 2024 and last for approximately 12 months.

Existing Traffic Volumes

In order to determine current traffic conditions in the vicinity of the site, KLOA, Inc. conducted peak period vehicle, pedestrian, and bicycle traffic counts at the following intersections.

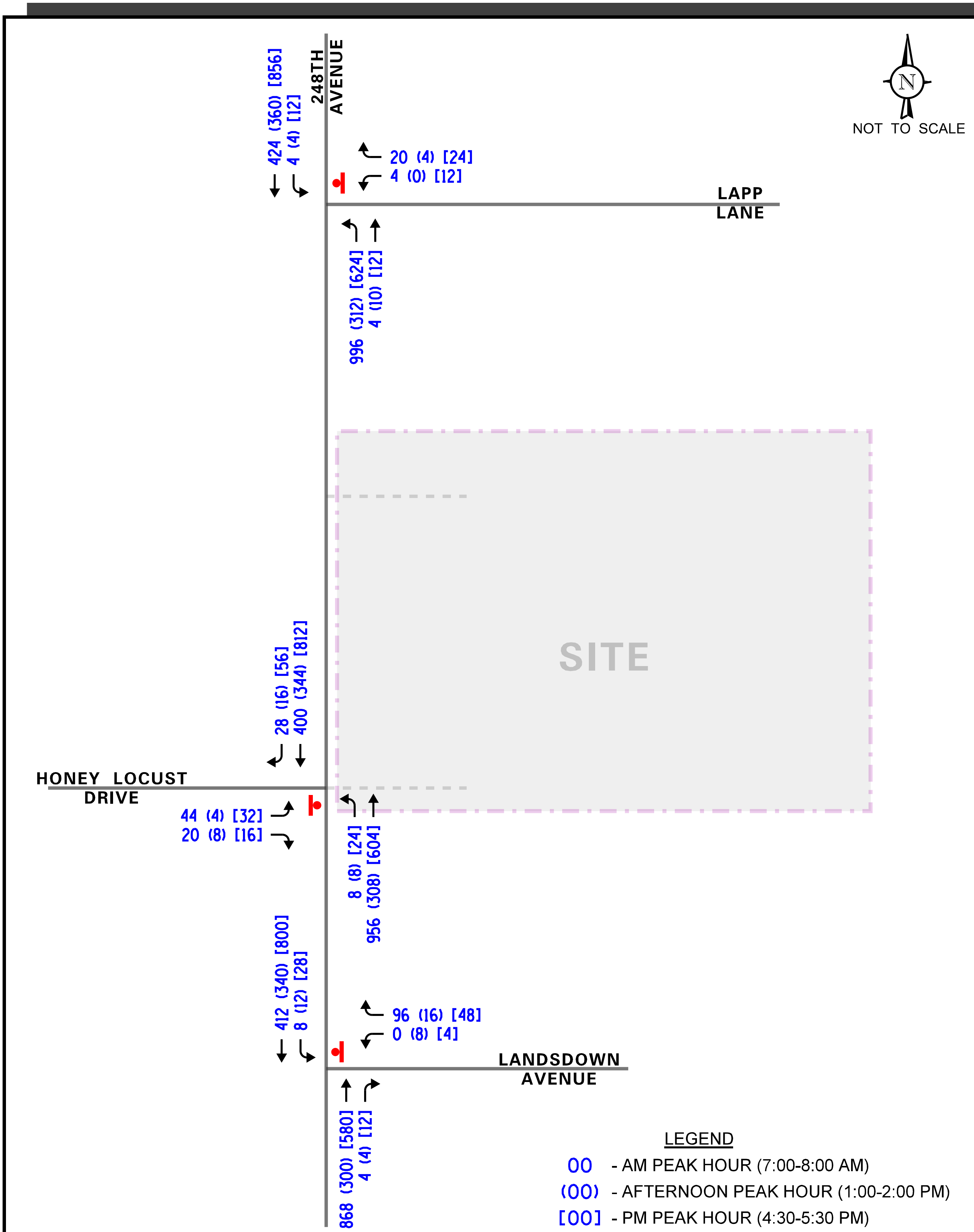
- 248th Avenue with Lapp Lane
- 248th Avenue with Honey Locust Drive
- 248th Avenue with Landsdown Avenue

The traffic counts were performed on Tuesday, January 14, 2020 during the weekday morning (7:00 to 9:00 A.M.), afternoon (noon to 3:00 P.M.), and evening (4:00 to 6:00 P.M.) peak periods. From the turning movement count data, it was determined that the weekday morning peak hour generally occurs between 7:00 and 8:00 A.M., the weekday afternoon peak hour generally occurs between 1:00 P.M. and 2:00 P.M., and the weekday evening peak hour generally occurs between 4:30 and 5:30 P.M. It should be noted that the pedestrian and bicycle activity at the three intersections was very limited. The existing peak hour traffic volumes are shown in **Figure 4** and the results of the traffic counts are located in the Appendix.

Crash Analysis

KLOA, Inc. obtained crash data[1] from IDOT for the most recent available five years (2014 to 2018) for the intersections of 248th Avenue/Lapp Lane, 248th Avenue/Honey Locust Drive, and 248th Avenue/Landsdown Avenue. A review of the crash data showed that four crashes were reported at the 248th Avenue/Lapp Lane intersection, four crashes were reported at the 248th Avenue/Landsdown Avenue intersection, and no crashes were reported at the 248th Avenue/Honey Locust Drive intersection. Further, the crash data indicated that no fatalities were reported at any of the intersections.

[1] IDOT DISCLAIMER: The motor vehicle crash data referenced herein was provided by the Illinois Department of Transportation. Any conclusions drawn from analysis of the aforementioned data are the sole responsibility of the data recipient(s). Additionally, for coding years 2015 to present, the Bureau of Data Collection uses the exact latitude/longitude supplied by the investigating law enforcement agency to locate crashes. Therefore, location data may vary in previous years since data prior to 2015 was physically located by bureau personnel.



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Existing Traffic Volumes

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Figure: 4

3. Traffic Characteristics of the Proposed Facility

In order to properly evaluate future traffic conditions in the surrounding area, it was necessary to determine the traffic characteristics of the proposed facility, including the directional distribution and volumes of traffic that it will generate.

Proposed Facility Plan

The ICN will be developed in five phases over 30 years that will include a mosque, school, multi-purpose hall, and a gymnasium. Below is a description of each phase of the development.

Phase I is proposed to consist of a 26,219 square-foot mosque with construction to begin in 2020. Initially, the mosque will provide worship space for approximately 300 men and 150 women and ultimately for approximately 500 men and 350 women with a 3,259 square-foot expansion to be completed as part of *Phase V*. In accordance with the Muslim faith, the mosque will hold five daily prayers and the following services and activities:

- Jumuah Prayer (Friday afternoon – two prayer services)
- Ramadan
- Eid (Muslim holiday)
- Religious activities such as weddings, funerals, and special observances throughout the week

Phase II is proposed to consist of a 41,479 square-foot school with 25 classrooms and space for support activities such as offices, storage, multipurpose room, mechanical spaces, staff lounge, nurse's office, etc. with initial construction to begin in 2030. It is anticipated that the school will have a maximum enrollment of 250 students (kindergarten through 5th grade and pre-school children). The school is proposed to operate Monday through Thursday from 7:00 A.M. to 3:00 P.M. and 7:00 A.M. to noon on Friday. In addition, religious classes will be held on Saturdays between 9:00 A.M. and 2:00 P.M. with a maximum enrollment of 500 students.

Phase III is proposed to consist of a 22,814 square-foot multi-purpose hall that will be used for conferences, interfaith events, and wedding receptions with construction to begin in 2040. The multi-purpose hall will seat approximately 500 people and will generally be used Friday through Sunday.

Phase IV is proposed to consist of a 25,852 square-foot gymnasium that will provide the congregation with a space for indoor physical activities including league play for volleyball, basketball, and badminton, "open gym" use at times, and other uses such as scouting activities with construction to begin in 2050. The use of the gymnasium will occur mostly in the evening and on weekends.

The Phase I and overall site plans are located in the Appendix.

Site Access

Access to Phase I of the facility is proposed be provided via the following two access drives on 248th Avenue:

- The south access drive will be located opposite Honey Locust Drive and will provide full access to the facility. As proposed, the access drive will provide one inbound lane and two outbound lanes separated by a raised median similar to the one provided on Honey Locust Drive. The outbound lanes will be striped for an exclusive left-turn lane and a shared through/right-turn lane and will be under stop sign control. As part of the facility, a 185-foot left-turn lane with 200-foot taper will be provided along southbound 248th Avenue serving the access drive.

- The north access drive will be located approximately 440 feet north of Honey Locust Drive and will provide restricted right-turn in/right-turn out access to the facility. As proposed, the access drive will provide one inbound lane and one outbound lane channelized and signed to prohibit left-turn movements. The outbound lane will be under stop sign control.

With the future development of the facility's other phases and the 248th Avenue improvements, the north access drive is proposed to be converted from a restricted right-turn in/right-turn out to a full access drive. As proposed, the full access drive will provide one inbound lane and two outbound lanes striped for an exclusive left-turn lane and an exclusive right-turn lane with outbound movements under stop sign control. In addition, a left-turn lane will be provided along southbound 248th Avenue serving the access drive. It should be noted that in order to convert the north access drive to a full access drive, the following modifications to the transportation system will be required:

- The length of the proposed 248th Avenue left-turn lane and/or taper serving the south access drive will need to be reduced by approximately 50 feet as the end of the left-turn lane taper will encroach on the location of the north access drive.

- To accommodate a southbound left-turn lane serving the north access drive, the Tall Grass Greenway trail at-grade crossing with 248th Avenue will need to be relocated further north. It is our understanding that the Phase I study for the 248th Avenue improvements is examining various alternatives for the location and design of the at-grade crossing.

Similar to their other facilities, ICN has committed to use traffic control personnel and/or police officers within the facility and at the intersections of 248th Avenue with the access drives to assist with the management of traffic and to expedite the movement of traffic to and from the facility and Honey Locust Drive during the higher traffic-generating services at the mosque, including Friday prayer services, Ramadan, Eid, and other large functions. It is important to note that most of the other activities at the facility will not require the need for traffic control personnel.

Directions of Approach and Departure

The directions from which traffic will travel to and from the facility were determined based on previous studies in the area and the general area population. It is anticipated that 60 percent of the traffic will approach and depart the site from the north with the remaining 40 percent approaching and departing the site from the south. **Figure 5** shows the anticipated directions of approach and departure.

Islamic Center of Naperville Trip Generation Estimates

The following summarizes the traffic estimated to be generated by each phase of the facility.

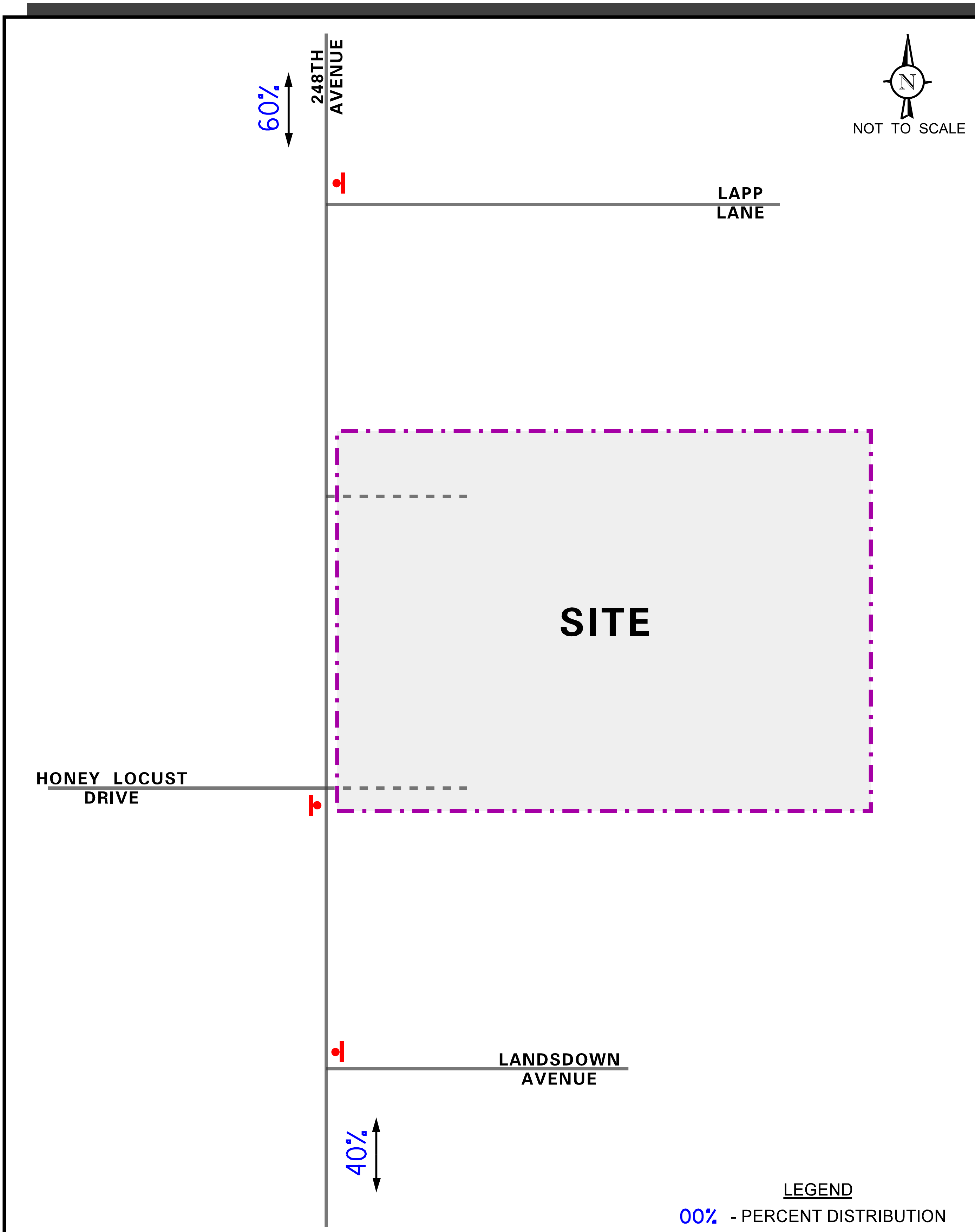
Phase I - Mosque

Daily Prayers: Except for Jumuah Prayer, Ramadan, and Eid, the following five daily prayers will be held Monday through Friday at the mosque and will typically last less than one hour:

- Morning Prayer (Fajr) – Approximate start time of 5:45 A.M.
- Midday Prayer (Dhuhr) – Approximate start time of 1:00 P.M.
- Afternoon Prayer (Asr) – Approximate start time of 4:15 P.M.
- Sunset Prayer (Maghrib) – Approximate start time of 5:45 P.M.
- Night Prayer (Isha) – Approximate start time of 8:00 P.M.

It should be noted that the times of the five daily prayer change slightly throughout the year based on the position of the sun and generally last less than an hour. The attendance at these daily prayers is not required since worshippers can pray at home or at work. These prayers occur at the sanctuary and no other activity or usage of the facility is allowed while the prayers are being conducted. Based on information provided by ICN, typical attendance at these five daily prayers ranges from 50 to 75 people. Previous surveys conducted by KLOA, Inc. at mosques in Westmont and Schaumburg and by Intech Consultants at the existing ICN mosques show that the daily prayers have an average occupancy of 1.4 to 1.5 people per vehicle. As such, each of the daily prayers are expected to generate 35 to 55 trips to and from the mosque. It is important to note that given the starting and ending times of the Morning Prayer (Fajr), the daily prayers generate very limited, if any, traffic during the morning peak hour which occurs between 7:00 and 8:00 A.M. Further, the traffic volumes along 248th Avenue between 6:00 A.M. and 7:00 A.M. are approximately 1/3 lower than the volumes during the morning peak hour (7:00 A.M. to 8:00 A.M.)

Jumuah Prayer: The Jumuah Prayer occurs on Fridays with two prayer services provided (1:00 to 1:40 P.M. and 2:00 to 2:40 P.M.). According to ICN, both prayer services are expected to have an initial attendance of approximately 450 worshippers, increasing to 850 worshippers with the future expansion of the mosque. As such, the two prayer services are projected to generate a maximum of approximately 320 trips to and from the mosque for each service with the initial construction. Ultimately, the two prayer services are projected to generate 580 trips to and from the mosque for each service.



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Directional Distribution

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Figure: 5

Ramadan: Ramadan is the ninth month of the Islamic calendar. Given that the celebration of Ramadan is based on the Islamic lunar calendar, exact days of the holiday cannot be determined. However, Ramadan usually occurs 11 days earlier each year. During the month of Ramadan, additional nightly prayers are held daily with these prayers typically starting after 7:00 P.M. and lasting until 11:00 P.M. However, congregants do not attend the prayer at the same time. Some will attend at the beginning and others will join toward the end and congregants leave at staggered times. As such, the traffic load is spread over a five-hour period. The mosque is expected to have an attendance similar to that of the Friday Jumuah Prayer during the first and last week of Ramadan. Given its holiday nature with families typically arriving from their home, auto occupancy is typically higher than the daily prayers. Further, the services occur in the late evening when area traffic is lower and the area roadways have more available capacity to accommodate the facility-generated traffic.

Eid (Muslim Holiday): Two additional prayers are held on an annual basis to celebrate the Muslim holiday of Eid. The two prayers will occur between 7:00 A.M. and 11:00 A.M. twice a year with a maximum attendance of 1,000 people. The first prayer is held at the end of the month of Ramadan and the second approximately two months later. Given the type of holiday, it attracts many families that carpool, thus reducing the number of trips generated.

Phase II – School

The peak hour traffic volumes that will be generated by the proposed school were estimated based on trip generation rates provided in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*, 10^{th} Edition. Since the school will not be providing any bus service, the Private School (Land-Use Code 534) rates were used to estimate the traffic that will be generated by the 250-student school. It is important to note that the school day will end at noon on Fridays and the traffic generated by the school will generally not overlap with the traffic generated by the Friday prayer services.

In addition, Saturday religious classes will be held at the school from 9:00 A.M. to 2:00 P.M. It is assumed that all of the students will be dropped off and picked up and that carpooling will occur. The volume of traffic to be generated by the religious classes was based on the number of students and staff and an average of 1.5 to 2.0 students per vehicle. As such, the religious education classes are expected to generate 250 to 335 inbound and outbound trips before and after the classes. It is important to note that the religious classes occur on Saturdays when area traffic is lower and the area roadways have more available capacity to accommodate the facility-generated traffic.

Phase III – Multi-Purpose Hall

The multi-purpose room will be used be used for conferences, interfaith events, and wedding receptions. As proposed, the hall will have a maximum capacity of 500 people and will generally be used Friday through Sunday, depending on the activity. Assuming an average auto occupancy of 2.0 to 2.5 people per vehicle, it is estimated that the multi-purpose hall will generate a maximum of 200 to 250 trips to and from the facility. It should be noted that most events will occur during evenings and weekends when area traffic is lower and the area roadways have more available capacity to accommodate the facility-generated traffic. Further, while prayers are being conducted at the mosque, no other activity or usage of the facility is allowed.

Phase IV - Gymnasium

The gymnasium will typically have its highest use in the evening and on weekends after 7:00 P.M. It will also be a resource available to and generally used by those worshippers already attending prayers, but some additional traffic may be generated by those arriving exclusively to utilize the gym. Based on the projected usage as provided by ICN, the gymnasium is estimated to generate 25 to 50 trips to and from the facility. It should be noted that the gymnasium will not be utilized during the month of Ramadan. Further, while prayers are being conducted at the prayer hall, no other activity or usage of the facility is allowed.

Table 1 summarizes the number of peak hour trips estimated to be generated by the proposed facility.

Table 1
TRIP GENERATION ESTIMATES – PEAK HOURS OF THE ROADWAY SYSTEM

Land Use	Weekday Morning Peak Hour		Weekday Afternoon Peak Hour		Weekday Evening Peak Hour	
	In	Out	In	Out	In	Out
Phase I						
Mosque[1, 2, 3]	0	0	320	320	55	55
Total Facility						
Expanded Mosque[1,2, 3]	0	0	580	580	55	55
School[4]	129	106	0	0	30	35
Multi-Purpose Hall[5]	0	0	0	0	50	50
Gymnasium[5]	50	50	0	0	50	50
Total	**179**	**156**	**580**	**580**	**185**	**190**

1 – Afternoon peak hour represents the traffic to be generated between the two Friday prayer services. No other activities are permitted to occur at the facility during the services.
2 – Traffic to be generated by the mosque was determined based on the projected attendance and an average of approximately 1.4 people per vehicle.
3 – Given the starting and ending times of the Morning Prayer (Fajr), the daily prayers will generate very limited, if any, traffic during the morning peak hour which occurs between 7:00 and 8:00 A.M. Further, each daily prayer is expected to generate only 35 to 55 trips to and from the mosque
4 – Traffic to be generated by the school was based on the rates provided in the ITE *Trip Generation Manual*, 10th Edition. It should be noted that the school day will end at noon on Fridays.
5 – Traffic to be generated by the multi-purpose hall and the gymnasium was based on the projected operation of the two facilities.

4. Projected Traffic Conditions

The total projected traffic volumes include the existing traffic volumes, increase in background traffic due to growth, and the traffic estimated to be generated by the proposed subject facility. Per the direction of the City of Naperville, the study examined the first phase of the facility assuming two access alternatives (the north access drive only and both access drives) and the total buildout of the facility assuming both access drives.

Facility Traffic Assignment

The peak hour traffic volumes projected to be generated by the proposed facility were assigned to the area roadways based on the established directional distribution (Figure 5) and illustrated in the following exhibits:

- **Figure 6** shows the assignment of the traffic to be generated by the first phase of the facility assuming a full access drive and a restricted right-turn in/right-turn out access drive on 248th Avenue.

- **Figure 7** shows the assignment of the traffic to be generated by the total buildout of the facility assuming two full access drives on 248th Avenue.

Background Traffic Conditions

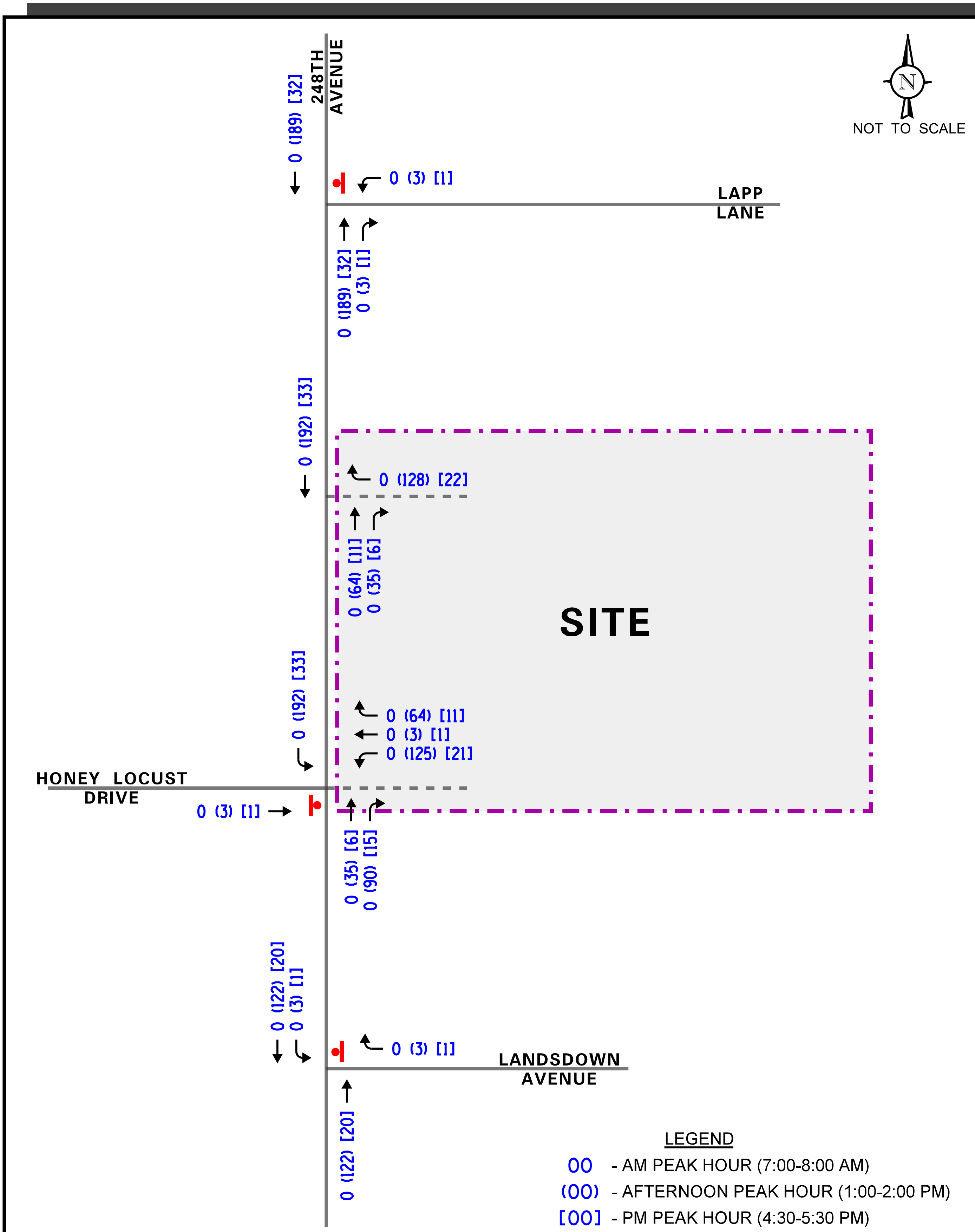
The existing traffic volumes (Figure 4) were increased by a regional growth factor to account for the increase in existing traffic related to regional growth in the area (i.e., not attributable to any particular planned development). Based on Year 2050 Average Daily Traffic (ADT) projections provided by the Chicago Metropolitan Agency for Planning (CMAP), the existing traffic volumes are projected to increase by just less than one percent per year. As such, the existing traffic volumes were increased by five percent to obtain Year 2025 projected background traffic volumes and by 30 percent to obtain Year 2050 projected background traffic volumes. A copy of the CMAP letter is included in the Appendix.

Total Projected Traffic Volumes

Total projected traffic volumes include the existing traffic volumes, background growth, and the traffic to be generated by the proposed facility and are shown in the following figures:

- **Figure 8** shows the Year 2025 projected traffic volumes assuming the first phase of the facility and a full access drive and a restricted right-turn in/right-turn out access drive on 248th Avenue.

- **Figure 9** shows the Year 2050 projected traffic volumes assuming the total buildout of the facility and two full access drives on 248th Avenue.



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Phase I - Site-Generated Traffic Volumes

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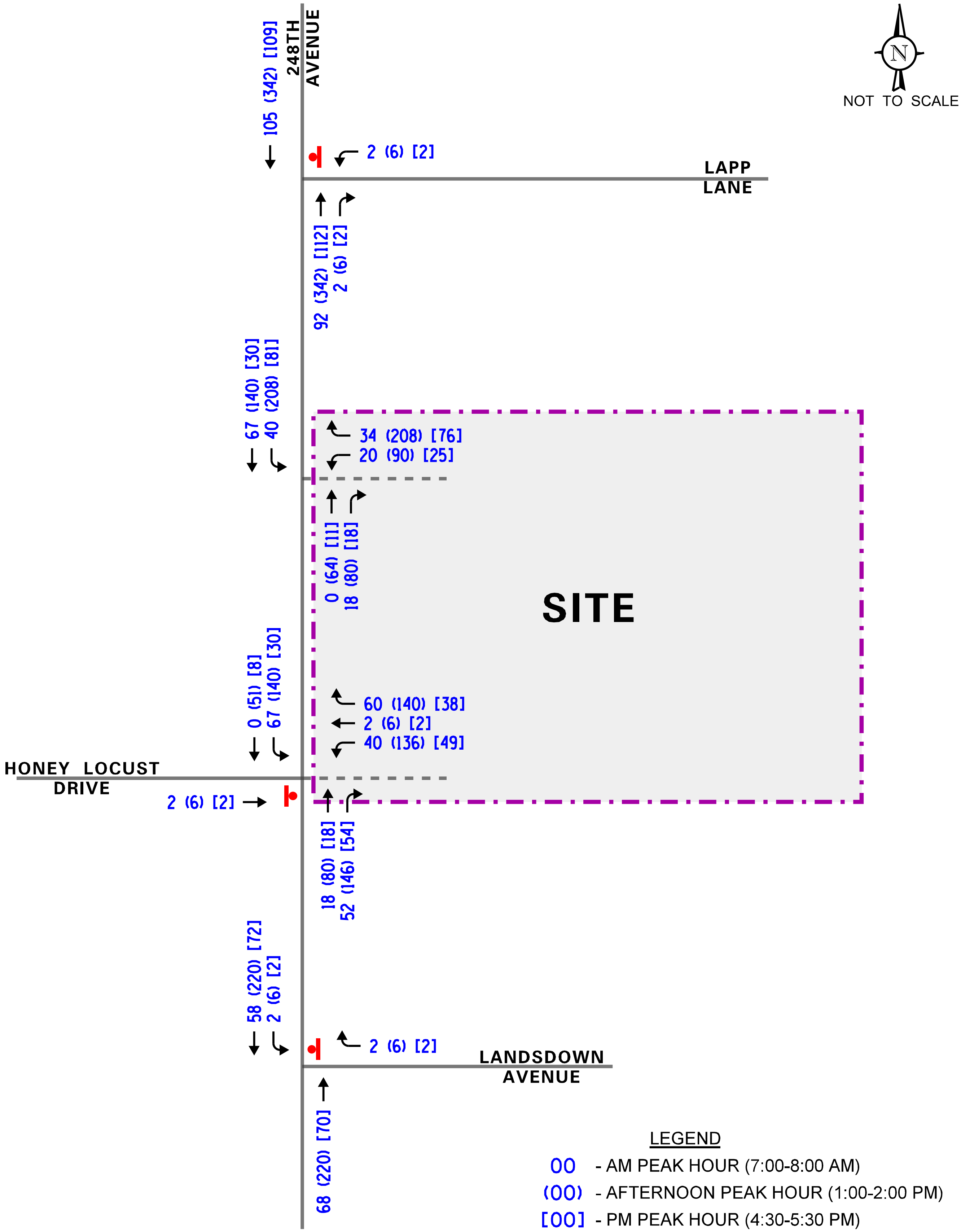
Figure: 6



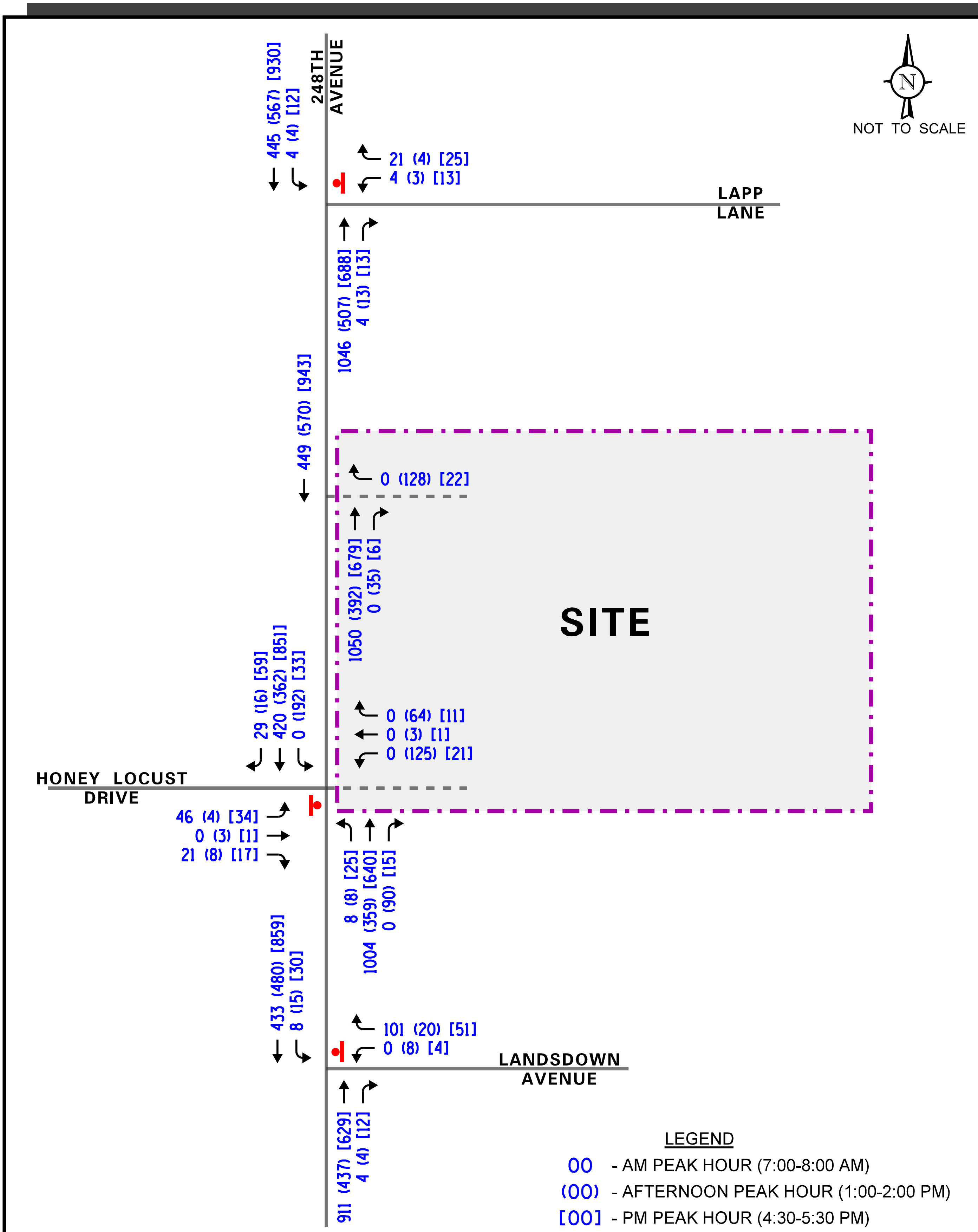
LEGEND

00 - AM PEAK HOUR (7:00-8:00 AM)

(00) - AFTERNOON PEAK HOUR (1:00-2:00 PM)

[00] - PM PEAK HOUR (4:30-5:30 PM)

Islamic Center of Naperville Naperville, Illinois	Total Buildout Site-Generated Traffic Volumes	KLOA Kenig,Lindgren,O'Hara,Aboona,Inc. Job No: 17-293 Figure: 7



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Phase I - Year 2025 Traffic Volumes

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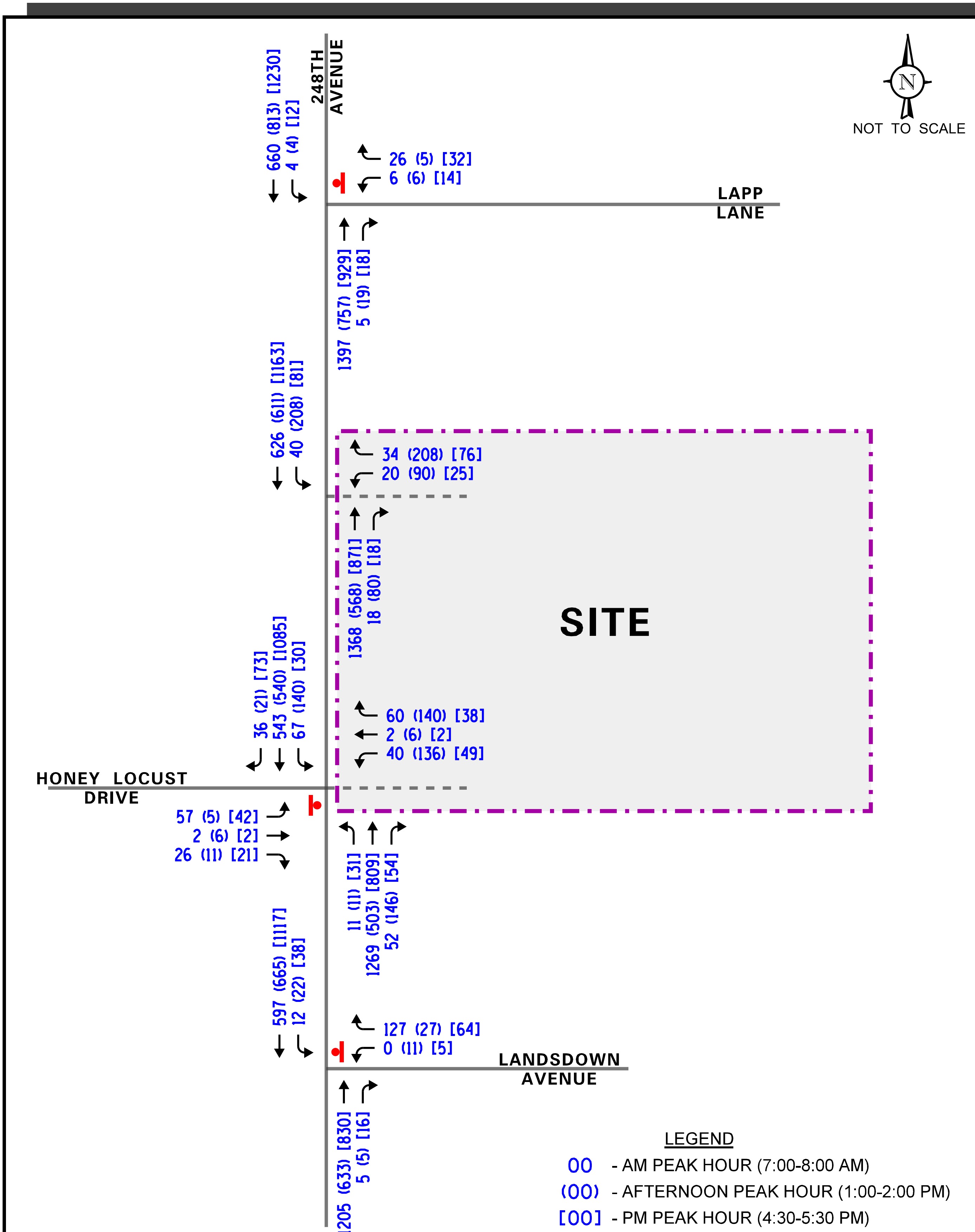
Figure: 8



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Year 2050 Traffic Volumes

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Figure: 9

5. Traffic Analysis and Recommendations

The following provides an evaluation conducted for the weekday morning, weekday afternoon. and weekday evening peak hours. The analysis includes conducting capacity analyses to determine how well the roadway system and access drive are projected to operate and whether any roadway improvements or modifications are required.

Traffic Analyses

Roadway and adjacent or nearby intersection analyses were performed for the weekday morning, weekday afternoon, and weekday evening peak hours for the existing (Year 2020) and future projected (Year 2025 and Year 2050) traffic volumes.

The traffic analyses were performed using the methodologies outlined in the Transportation Research Board's *Highway Capacity Manual (HCM), 2010* and analyzed using the Synchro/SimTraffic 10 software. The analysis for the traffic-signal controlled intersections were accomplished using existing cycle lengths, phasings, and offsets to determine the average overall vehicle delay and levels of service.

The analyses for the unsignalized intersections determine the average control delay to vehicles at an intersection. Control delay is the elapsed time from a vehicle joining the queue at a stop sign (includes the time required to decelerate to a stop) until its departure from the stop sign and resumption of free flow speed. The methodology analyzes each intersection approach controlled by a stop sign and considers traffic volumes on all approaches and lane characteristics.

The ability of an intersection to accommodate traffic flow is expressed in terms of level of service, which is assigned a letter from A to F based on the average control delay experienced by vehicles passing through the intersection. The *Highway Capacity Manual* definitions for levels of service and the corresponding control delay for signalized intersections and unsignalized intersections are included in the Appendix of this report.

Intersection capacity analyses were performed for the following scenarios:

- Existing traffic volumes and existing conditions.
- Year 2025 projected traffic volumes assuming Phase I of the facility with a full access drive (south drive) and a restricted right-turn in/right-turn out access drive (north drive) on 248th Avenue and the existing roadway conditions. This scenario assumes that an exclusive left-turn lane is provided on 248th Avenue serving the south access drive.
- Year 2025 projected traffic volumes assuming Phase I of the facility with a full access drive (south drive) and a restricted right-turn in/right-turn out access drive (north drive) on 248th Avenue and the 248th Avenue roadway improvements. This scenario assumes that 248th Avenue is improved with two through lanes in each direction with exclusive left-turn lanes serving the south access drive and the side roads within the study limits.

- Year 2050 projected traffic volumes assuming the total buildout of the facility and two full access drives on 28th Avenue and the 248th Avenue roadway improvements. This scenario assumes that 248th Avenue is improved with two through lanes in each direction with exclusive left-turn lanes serving each of the access drives and the side roads within the study limits.

Summaries of the traffic analysis results showing the level of service and delay (measured in seconds) are presented in **Tables 2** through **5**. A discussion of the intersections follows. Summary sheets for the capacity analyses are included in the Appendix.

Table 2
CAPACITY ANALYSIS RESULTS – 248TH AVENUE WITH HONEY LOCUST DRIVE AND SOUTH ACCESS DRIVE

	Weekday Morning Peak Hour		Weekday Afternoon Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay	LOS	Delay
Existing Traffic Volumes						
Eastbound Left Turn	C	22.4	B	12.4	C	21.9
Eastbound Right Turn	B	11.3	B	10.5	C	16.1
Northbound Left Turn	A	8.3	A	8.1	A	10.0
Year 2025 Projected Traffic Volumes[1]						
Eastbound Left Turn	D (C)	29.5 (18.2)	F (D)	80.6 (30.4)	D (D)	32.0 (28.2)
Eastbound Thru/Right Turn	B (B)	11.6 (10.1)	C (C)	19.1 (18.3)	C (B)	17.3 (12.8)
Westbound Left Turn	- (-)	- (-)	F (F)	99+ (99+)	D (C)	31.3 (21.9)
Westbound Thru/Right Turn	- (-)	- (-)	B (B)	14.1 (12.3)	B (B)	14.3 (11.9)
Northbound Left Turn	A (A)	8.3 (8.3)	A (A)	8.2 (8.2)	B (B)	10.2 (10.2)
Southbound Left Turn	- (-)	- (-)	B (B)	10.4 (10.4)	A (A)	9.10 (9.1)
Year 2050 Projected Traffic Volumes[1]						
Eastbound Left Turn	(E)	(39.2)	(F)	(85.8)	(E)	(47.0)
Eastbound Thru/Right Turn	(B)	(13.3)	(E)	(42.1)	(C)	(15.5)
Westbound Left Turn	(F)	(55.2)	(F)	(99+)	(E)	(36.0)
Westbound Thru/Right Turn	(C)	(17.3)	(C)	(21.6)	(B)	(13.4)
Northbound Left Turn	(A)	(8.8)	(A)	(8.8)	(B)	(11.7)
Southbound Left Turn	(B)	(13.7)	(B)	(12.0)	(A)	(10.0)

LOS = Level of Service; Delay = Seconds
XX = Results of LOS and delay assuming existing conditions
(XX) = Results of LOS and delay assuming the 248th Avenue improvements
1 – Assumes a southbound left-turn lane will be provided on 248th Avenue serving the access drive under both existing conditions and with the 248th Avenue improvements

Table 3
CAPACITY ANALYSIS RESULTS – 248TH AVENUE WITH NORTH ACCESS DRIVE

	Weekday Morning Peak Hour		Weekday Afternoon Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay	LOS	Delay
Year 2025 Projected Traffic Volumes						
Westbound Right Turn	- (-)	- (-)	B (B)	14.3 (11.7)	B (B)	13.8 (10.8)
Year 2050 Projected Traffic Volumes[1]						
Westbound Left Turn	(E)	(36.0)	(F)	(99+)	(D)	(28.4)
Westbound Right Turn	(C)	(15.8)	(C)	(21.5)	(B)	(12.7)
Southbound Left Turn	(B)	(13.4)	(B)	(13.0)	(B)	(10.5)

LOS = Level of Service; Delay = Seconds
XX = Results of LOS and delay assuming existing conditions
(XX) = Results of LOS and delay assuming the 248th Avenue improvements
1 – Assumes a southbound left-turn lane will be provided on 248th Avenue serving the access drive with the 248th Avenue improvements

Table 4
CAPACITY ANALYSIS RESULTS – 248TH AVENUE WITH LANDSDOWN AVENUE

	Weekday Morning Peak Hour		Weekday Afternoon Peak Hour		Weekday Evening Peak Hour	
	LOS	Delay	LOS	Delay	LOS	Delay
Existing Traffic Volumes						
Westbound Approach	C	20.7	B	12.0	B	14.7
Southbound Left Turn	A	9.8	A	8.1	A	8.7
Year 2025 Projected Traffic Volumes						
Westbound Approach	C (B)	22.5 (13.5)	B (B)	14.5 (11.1)	C (B)	15.8 (11.3)
Southbound Left Turn	B (B)	10.0 (10.0)	A (A)	8.5 (8.6)	A (A)	8.9 (8.9)
Year 2050 Projected Traffic Volumes						
Westbound Approach	(C)	(17.5)	(B)	(13.0)	(B)	(12.9)
Southbound Left Turn	(B)	(11.7)	(A)	(9.4)	(A)	(9.8)

LOS = Level of Service; Delay = Seconds
XX = Results of LOS and delay assuming existing conditions
(XX) = Results of LOS and delay assuming the 248th Avenue improvements

Table 5
CAPACITY ANALYSIS RESULTS – 248TH AVENUE WITH LAPP LANE

	Weekday Morning Peak Hour		Weekday Afternoon Peak Hour		Weekday Evening Peak Hour	
	LOS	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
Existing Traffic Volumes						
Westbound Approach	C	23.2	B	10.2	C	23.0
Southbound Left Turn	B	10.6	A	8.0	A	8.9
Year 2025 Projected Traffic Volumes						
Westbound Approach	D (B)	25.0 (14.7)	C (B)	16.8 (11.8)	D (B)	27.7 (13.6)
Southbound Left Turn	B (B)	10.8 (10.8)	A (A)	8.6 (8.6)	A (A)	9.1 (9.1)
Year 2050 Projected Traffic Volumes						
Westbound Approach	(C)	(20.1)	(C)	(15.3)	(C)	(16.5)
Southbound Left Turn	(B)	(13.2)	(A)	(9.6)	(B)	(10.2)

LOS = Level of Service; Delay = Seconds
XX = Results of LOS and delay assuming existing conditions
(XX) = Results of LOS and delay assuming the 248th Avenue improvements

Discussion and Recommendations

The following summarizes how the intersections are projected to operate and identifies any roadway and traffic control improvements necessary to accommodate the facility-generated traffic.

248^{th} Avenue with Honey Locust Drive and South Access Drive

The south drive will be located opposite Honey Locust Drive and is proposed to be constructed as part of Phase I. The access drive will provide one inbound lane and two outbound lanes separated by a raised median similar to the one provided on Honey Locust Drive. The outbound lanes will be striped for an exclusive left-turn lane and a shared through/right-turn lane and will be under stop sign control. As part of the facility, a 185-foot left-turn lane with 200-foot taper will be provided along southbound 248^{th} Avenue serving the access drive.

Results of Capacity Analyses

Existing Traffic Volumes and Conditions. The critical movements at this intersection are currently operating at LOS C or better during all three peak hours.

Year 2025 Traffic Volumes and Existing Conditions. The critical movements at this intersection are projected to operate at LOS D or better during all three peak hours, except the outbound left-turn movement from the access drive and Honey Locust Drive. During the Jumuah prayer services, which occur on Fridays only, the outbound left-turn movements are projected to operate at LOS F with significant delays along the access drive's left-turn movement assuming no traffic management. However, ICN has committed to use traffic control personnel/police officers at this intersection to assist with the management of traffic and to expedite the movement of traffic to and from the facility and Honey Locust Drive. As such, the critical movements are projected to operate better than the capacity analyses indicate. Further, the Jumuah prayer services only occur once a week and the peak volumes only occur for an approximate 15- to 20-minute period after the two services.

It should be noted that the results of the capacity analyses have shown that the southbound left-turn movement is projected to have a maximum 95^{th} percentile queue of approximately 50 feet which will be able to be accommodated within the 185-foot left-turn lane. Further, given that the ICN has committed to use traffic control personnel/police officers at this intersection during the Jumuah prayer services and other large services/events, the traffic control personnel/police officers will be able to monitor the queue and ensure that it does not exceed the left-turn lane.

Year 2025 Traffic Volumes and the 248th Avenue Improvements. The critical movements at this intersection are projected to operate at LOS D or better during all three peak hours assuming the 248th Avenue improvements, except the outbound left-turn movement from the access drive. During the Jumuah prayer services, which occur on Fridays only, the outbound left-turn movement is projected to operate at LOS F with significant delays assuming no traffic management. However, ICN has committed to use traffic control personnel/police officers at this intersection to assist with the management of traffic and to expedite the movement of traffic to and from the facility and Honey Locust Drive. As such, the critical movements are projected to operate better than the capacity analyses indicate. Further, the Jumuah prayer services only occur once a week and the peak volumes only occur for an approximate 15- to 20-minute period after the two services.

It should be noted that the results of the capacity analyses have shown that the southbound left-turn movement is projected to have a maximum 95th percentile queue of 50 feet which will be able to be accommodated within the 185-foot left-turn lane. Further, given that the ICN has committed to use traffic control personnel/police officers at this intersection during the Jumuah prayer services and other large services/events, the traffic control personnel/police officers will be able to monitor the queue and ensure that it does not exceed the left-turn lane.

Year 2050 Traffic Volumes and the 248th Avenue Improvements. Assuming that the access drive and Honey Locust Drive are under stop sign control, the critical movements at this intersection are projected to generally operate at LOS D or better during all three peak hours, except the left-turn movements from the access drive and Honey Locust Drive as summarized below:

- During the weekday morning and evening peaks hours, the outbound left-turn movements from the access drive and Honey Locust Drive are projected to operate at LOS E or F. This traffic will be able to exit onto 248th Avenue but may experience some additional delay during the peak periods. This is common for stop sign controlled approaches along higher volume roadways such as 248th Avenue.

- During the Jumuah prayer services, which occur on Fridays only, the outbound left-turn movements from the access drive and Honey Locust Drive are projected to operate at LOS F with significant delays along the access drive's left-turn movement. However, ICN has committed to use traffic control personnel/police officers at this intersection to assist with the management of traffic and to expedite the movement of traffic to and from the facility and Honey Locust Drive. As such, the critical movements are projected to operate better than the capacity analyses indicate.

As part of this study, a traffic signal warrant study was performed at this intersection and presented in the next chapter. The results of the study have shown that if the 2050 traffic volumes are realized, a traffic signal will likely be warranted at this intersection. With a traffic signal, all of the movements at this intersection are projected to operate at a good level of service.

It should be noted that the results of the capacity analyses assuming the existing stop sign control have shown that the southbound left-turn movement is projected to have a maximum 95th percentile queue of approximately 75 feet which will be able to be accommodated within the future left-turn lane. Further, given that the ICN has committed to use traffic control personnel/police officers at this intersection during the Jumuah prayer services and other large services/events, the traffic control personnel/police officers will be able to monitor the queue and ensure that it does not exceed the left-turn lane.

248th Avenue with North Access Drive

The north access drive will be located approximately 440 feet north of the Honey Locust Drive and will provide restricted right-turn in/right-turn out access to the facility. As proposed, the access drive will provide one inbound lane and one outbound lane channelized and striped to prohibit left-turn movements. The outbound lane will be under stop sign control.

With the future development of the other phases of the facility and the 248th Avenue improvements, the north access drive is proposed to be converted from a restricted right-turn in/right-turn out to a full access drive. The full access drive will provide one inbound lane and two outbound lanes striped for an exclusive left-turn lane and an exclusive right-turn lane with outbound movements under stop sign control. In addition, a left-turn lane will be provided along southbound 248th Avenue serving the access drive. It should be noted that in order to convert the north access drive to a full access drive, the following modifications to the transportation system will be required:

- The length of the proposed 248th Avenue left-turn lane and/or taper serving the south access drive will need to be reduced by approximately 50 feet as the end of the left-turn lane taper will encroach on the location of the north full access drive.

- To accommodate a southbound left-turn lane serving the north access drive, the Tall Grass Greenway trail at-grade crossing with 248th Avenue will need to be relocated further north. It is our understanding that the Phase I Study for the 248th Avenue improvements is examining various alternatives for the location and design of the at-grade crossing.

Results of Capacity Analyses

Year 2025 Traffic Volumes and Existing Conditions. The westbound right-turn movement at this intersection is projected to operate at LOS C or better during all three peak hours.

Year 2025 Traffic Volumes and the 248th Avenue Improvements. The westbound right-turn movement at this intersection is projected to operate at LOS C or better during all three peak hours.

Year 2050 Traffic Volumes and the 248th Avenue Improvements. The critical movements at this intersection are projected to operate at LOS D or better during all three peak hours, except the outbound left-turn movement from the access drive as summarized below:

- During the weekday morning peak hour, the outbound left-turn movement is projected to operate on the threshold of LOS D/E during the morning peak hour. This traffic will be able to exit onto 248th Avenue but may experience some additional delay during the peak periods. This is common for stop sign controlled approaches along higher volume roadways such as 248th Avenue.

- During the Friday prayer services, the outbound left-turn movement is projected to operate at LOS F with significant delay assuming no traffic management. However, ICN has committed to use traffic control personnel/police officers at this intersection to assist with the management of traffic and to expedite the movement of traffic to and from the facility and Honey Locust Drive. As such, the critical movements are projected to operate better than the capacity analyses indicate.

It should be noted that the results of the capacity analyses have shown that the southbound left-turn movement is projected to have a maximum 95th percentile queue of approximately 75 feet. Further, given that the ICN has committed to use traffic control personnel/police officers at this intersection during the Jumuah prayer services and other large services/events, the traffic control personnel/police officers will be able to monitor the queue and ensure that it does not exceed the left-turn lane.

248th Avenue with Landsdown Avenue

Existing Traffic Volumes and Conditions. The critical movements at this intersection are currently operating at LOS C or better during all three peak hours.

Year 2025 Traffic Volumes.

- Assuming the existing conditions, the critical movements at this intersection are projected to continue to operate at LOS C or better during all three peak hours.

- Assuming the 248th Avenue improvements, the critical movements at this intersection are projected to operate at LOS B or better during all three peak hours.

Year 2050 Traffic Volumes with the 248th Avenue Improvements. The critical movements at this intersection are projected to operate at LOS C or better during all three peak hours.

As such, this intersection has sufficient reserve capacity to accommodate the projected traffic volumes and no additional roadway improvements are required.

248th Avenue with Lapp Lane

Existing Traffic Volumes and Conditions. The critical movements at this intersection are currently operating at LOS C or better during all three peak hours.

Year 2025 Traffic Volumes.

- Assuming the existing conditions, the critical movements at this intersection are projected to operate at LOS D or better during all three peak hours.

- Assuming the 248th Avenue improvements, the critical movements at this intersection are projected to operate at LOS B or better during all three peak hours.

Year 2050 Traffic Volumes with the 248th Avenue Improvements. The critical movements at this intersection are projected to operate at LOS C or better during all three peak hours.

As such, this intersection has sufficient reserve capacity to accommodate the projected traffic volumes and no additional roadway improvements are required.

Impact on Tall Grass Greenway Trail 248th Avenue Crossing

Under Phase 1 of the facility, the results of the capacity analyses have shown that the maximum queue for the southbound left-turn lane at the south access drive will be approximately 50 feet (see **Table 6**), which can be accommodated within the 185-foot left-turn lane. Further, given that the ICN has committed to use traffic control personnel/police officers at this intersection during the Jumuah prayer services and during other large services/functions, the traffic control personnel/police officers will be able to monitor the queue and ensure that it does not exceed the left-turn lane. As such, the proposed first phase of the facility is anticipated to have limited, if any, impact on the Tall Grass Greenway Trail 248th Avenue crossing.

Table 6
MAXIMUM LEFT-TURN LANE QUEUES

Scenario	Projected Maximum Queue	
	South Access Drive Left-Turn Lane	North Access Drive Left-Turn Lane
2025 Volumes & Existing Conditions	50 feet	n.a
2025 Volumes & 248th Avenue Improvements	50 feet	n.a
2050 Volumes & 248th Avenue Improvements	50 feet	75 feet

With the future development of the other phases of the facility and the 248th Avenue improvements, the north access drive is proposed to be converted from a restricted right-turn in/right-turn out to a full access drive. To accommodate a southbound left-turn lane serving the north access drive, the Tall Grass Greenway trail at-grade crossing with 248th Avenue will need to be relocated further north. It is our understanding that the Phase I study for the 248th Avenue improvements is examining various alternatives for the location and design of the at-grade crossing.

6. Traffic Signal Warrant Evaluation

Per the request of the City of Naperville, a traffic signal warrant analysis was conducted to determine whether a traffic signal will be warranted at the intersection of 248th Avenue with Honey Locust Drive and the proposed south access drive. The installation of a traffic signal requires the satisfaction of one or more of the nine warrants from the Federal Highway Administration's *Manual on Uniform Traffic Control Devices for Streets and Highways* (MUTCD), 2009. For the purpose of this analyses, the following volume warrants were evaluated.

Warrant 1 – Eight-Hour Vehicular Volume – Condition A
Warrant 1 – Eight-Hour Vehicular Volume – Condition B
Warrant 1 – Eight-Hour Vehicular Volume – Conditions A and B
Warrant 2 – Four-Hour Volume
Warrant 3 – Peak-Hour Volume

Traffic Signal Warrant Analyses - Existing Conditions

A traffic signal warrant analysis was performed at the subject intersection assuming the existing conditions as summarized below.

Existing Conditions

As discussed previously, 248th Avenue has one lane in each direction with a posted speed limit of 45 mph. Further, 248th Avenue is proposed to be widened to provide two lanes in each direction divided by a median. The Honey Locust Drive approach provides two lanes at its intersection with 248th Avenue that are striped for an exclusive left-turn lane and an exclusive right-turn lane. Daily traffic counts performed at the intersection of 248th Avenue and Honey Locust Drive on April 16, 2019 were obtained from the City of Naperville. **Table 7** illustrates the existing hourly traffic volumes for the hours between 6:00 A.M. and 8:00 P.M.

Summary Traffic Signal Warrant Analyses

Table 8 summarizes the existing two-way traffic volumes on 248th Avenue (major road) and the existing hourly traffic volumes on the Honey Locust Drive approach (minor road). The table also highlights which hours of the day satisfy the volume warrants. Per the MUTCD guidelines and the existing intersection characteristics, the 70 percent factored, "1 lane and 2 lanes" volumes were used for each of the warrants. The following summarizes the results of the warrant study:

- Warrant 1A is not met for any hour when eight hours are required
- Warrant 1B is met for one hour when eight hours are required
- Warrant 1A/B is not met for any hour when eight hours are required
- Warrant 2 is met for one hour when four hours are required
- Warrant 3 is not met for any hour when one hour is required

As such, a traffic signal is not warranted at the subject intersection based on the existing conditions.

Table 7
EXISTING HOURLY TRAFFIC VOLUMES
248TH AVENUE WITH HONEY LOCUST DRIVE

	248th Avenue Southbound		248th Avenue Northbound		Honey Locust Drive Eastbound	
Hour	**Through**	**Right**	**Left**	**Through**	**Left**	**Right**
6:00 A.M.	253	12	8	518	38	5
7:00 A.M.	456	20	12	762	45	20
8:00 A.M.	314	22	14	552	80	27
9:00 A.M.	262	37	18	332	34	15
10:00 A.M.	238	18	5	291	16	9
11:00 A.M.	282	20	8	292	24	5
12:00 P.M.	265	21	12	273	23	11
1:00 P.M.	317	18	8	303	12	5
2:00 P.M.	414	35	17	278	12	4
3:00 P.M.	592	40	18	467	31	12
4:00 P.M	789	39	21	480	27	25
5:00 P.M.	799	86	41	435	39	21
6:00 P.M.	574	74	25	410	36	23
7:00 P.M.	478	59	17	338	30	10

Table 8
TRAFFIC SIGNAL WARRANT ANALYSIS
248TH AVENUE WITH HONEY LOCUST DRIVE
EXISTING CONDITIONS

Hour	248th Ave. Two-Way Volume (Major)	Honey Locust Dr. Volume (Minor)	Access Drive Volume (Minor)	Warrant Analyses				
				Warrant 1A	Warrant 1B	Warrant 1A/B	Warrant 2	Warrant 3
6:00 A.M.	791	43	n.a.	No	No	No	No	No
7:00 A.M.	1,250	65	n.a.	No	No	No	No	No
8:00 A.M.	902	107	n.a.	No	Yes	No	Yes	No
9:00 A.M.	649	49	n.a.	No	No	No	No	No
10:00 A.M.	552	25	n.a.	No	No	No	No	No
11:00 A.M.	602	29	n.a.	No	No	No	No	No
12:00 P.M.	571	34	n.a.	No	No	No	No	No
1:00 P.M.	646	17	n.a.	No	No	No	No	No
2:00 P.M.	744	16	n.a.	No	No	No	No	No
3:00 P.M.	1,117	43	n.a.	No	No	No	No	No
4:00 P.M	1,329	52	n.a.	No	No	No	No	No
5:00 P.M.	1,361	60	n.a.	No	No	No	No	No
6:00 P.M.	1,083	59	n.a.	No	No	No	No	No
7:00 P.M.	892	40	n.a.	No	No	No	No	No
Number of Hours that Meet Warrant				**0**	**1**	**0**	**1**	**0**
Volumes Meet Warrant				**No**	**No**	**No**	**No**	**No**

Traffic Signal Warrant Analyses – Phase I of the Facility

A traffic signal warrant analysis was performed at the subject intersection assuming the first phase of the facility as summarized below.

Projected Conditions

Access to the first phase of the facility is to be provided via a full access drive on 248th Avenue opposite Honey Locust Drive and a restricted right-turn in and right-turn out access drive on 248th Avenue at the north end of the site. The access dive located opposite Honey Locust Drive will provide one inbound lane and two outbound lanes striped for an exclusive left-turn lane and a shared through/right-turn lane. In addition, the exclusive right-turn lane on Honey Locust Drive will be restriped as a shared through/right-turn lane.

Phase I of the facility is proposed to consist of a 26,219 square-foot mosque that will provide worship space for approximately 300 men and 150 women. In accordance with the Muslim faith, the mosque will primary be used for services including the five daily prayers, the Jumuah Prayer (Friday afternoon – two prayer services), Ramadan, and Eid (Muslim holiday). In addition, other religious activities will occur at the facility such as weddings, funerals, and special observances throughout the week.

The five daily prayer are the only services/activities that will occur on a daily basis at the mosque and typically last less than an hour. As discussed previously, each of the five prayer services is projected to generate 35 to 55 trips to and from the mosque. The Jumuah prayer services occurs on Fridays only with two prayer services provided (1:00 to 1:40 P.M. and 2:00 to 2:40 P.M.). It is estimated that the two Jumuah prayer services will generate a maximum of approximately 320 trips to and from the mosque for each service.

Summary Traffic Signal Warrant Analyses
Five Daily Prayer Services Only (Mondays through Thursdays)

Table 9 summarizes the projected two-way traffic volumes on 248th Avenue (major road) and the projected hourly traffic volumes on Honey Locust Drive and the access drive approaches (minor roads) for the five daily prayer services only (Mondays through Thursdays). The table also highlights which hours of the day satisfy the volume warrants. Per the MUTCD guidelines and the existing intersection characteristics, the 70 percent factored, "1 lane and 2 lanes" volumes were used for each of the warrants. The following summarizes the results of the warrant study:

- Warrant 1A is not met for any hour when eight hours are required
- Warrant 1B is met for one hour when eight hours are required
- Warrant 1A/B is not met for any hour when eight hours are required
- Warrant 2 is met for one hour when four hours are required
- Warrant 3 is not met for any hour when one hour is required

Table 9
TRAFFIC SIGNAL WARRANT ANALYSIS
248TH AVENUE WITH HONEY LOCUST DRIVE
PHASE I – FIVE DAILY PRAYER SERVICES ONLY (MONDAYS – THURSDAYS)

Hour	248th Ave. Two-Way Volume (Major)	Honey Locust Dr. Volume (Minor)	Access Drive Volume (Minor)	Warrant Analyses				
				Warrant 1A	Warrant 1B	Warrant 1A/B	Warrant 2	Warrant 3
6:00 A.M.	791	43	33	No	No	No	No	No
7:00 A.M.	1,250	65	0	No	No	No	No	No
8:00 A.M.	902	107	0	No	Yes	No	Yes	No
9:00 A.M.	649	49	0	No	No	No	No	No
10:00 A.M.	552	25	0	No	No	No	No	No
11:00 A.M.	602	29	0	No	No	No	No	No
12:00 P.M.	626	34	0	No	No	No	No	No
1:00 P.M.	646	17	33	No	No	No	No	No
2:00 P.M.	744	16	0	No	No	No	No	No
3:00 P.M.	1,117	43	0	No	No	No	No	No
4:00 P.M	1,384	52	0	No	No	No	No	No
5:00 P.M.	1,416	60	33	No	No	No	No	No
6:00 P.M.	1,083	59	33	No	No	No	No	No
7:00 P.M.	947	40	0	No	No	No	No	No
Number of Hours that Meet Warrant				**0**	**1**	**0**	**1**	**0**
Volumes Meet Warrant				**No**	**No**	**No**	**No**	**No**

As such, a traffic signal is not warranted at the subject intersection assuming Phase I of the facility during Mondays through Thursdays when generally only the five daily prayer services occur at the facility.

Summary Traffic Signal Warrant Analyses
Five Daily Prayer Services and the Jumuah Prayer Services (Fridays)

Table 10 summarizes the projected two-way traffic volumes on 248th Avenue (major road) and the projected hourly traffic volumes on Honey Locust Drive and the access drive approaches (minor roads) for the five daily prayer services and the Jumuah prayer services which only occur on Fridays. The table also highlights which hours of the day satisfy the volume warrants. Per the MUTCD guidelines and the existing intersection characteristics, the 70 percent factored, "1 lane and 2 lanes" volumes were used for each of the warrants. The following summarizes the results of the warrant study:

- Warrant 1A is met for two hours when eight hours are required
- Warrant 1B is met for three hours when eight hours are required
- Warrant 1A/B is met for two hours when eight hours are required
- Warrant 2 is met for three hours when four hours are required
- Warrant 3 is met for two hours when one hour is required

While Warrant 3 (Peak Hour Volume) is met at the subject intersection assuming Phase I of the facility when the five daily prayer services and the Jumuah prayer services occur at the facility, it is important to note the following:

- The Jumuah prayer services only occur on Friday afternoons and Warrant 3 is only met at the end of the two services, which is similar to other large religious facilities that generate a higher volumes of traffic for several hours during one day of the week at the end of their main religious services.

- Warrant 3 is only met for two hours at the end of the two services and will only meet Warrant 3 for one hour when 248th Avenue is widened to two lanes in each direction.

- Similar to their other facilities, ICN has committed to use traffic control personnel and/or police officers within the facility and at the intersections of 248th Avenue with the access drives to assist with the management of traffic and to expedite the movement of traffic to and from the facility and Honey Locust Drive during the high traffic generating services at the mosque, including Friday prayer services, Ramadan, Eid, and other large functions. It is important to note that most of the other activities at the facility will not require the need for traffic control personnel.

Table 10
TRAFFIC SIGNAL WARRANT ANALYSIS
248TH AVENUE WITH HONEY LOCUST DRIVE
PHASE I – FIVE DAILY PARYER SERVICES AND THE JUMUAH PRAYER SERVICES (FRIDAYS)

Hour	248th Ave. Two-Way Volume (Major)	Honey Locust Dr. Volume (Minor)	Access Drive Volume (Minor)	Warrant Analyses				
				Warrant 1A	Warrant 1B	Warrant 1A/B	Warrant 2	Warrant 3
6:00 A.M.	791	43	33	No	No	No	No	No
7:00 A.M.	1,250	65	0	No	No	No	No	No
8:00 A.M.	902	107	0	No	Yes	No	Yes	No
9:00 A.M.	649	49	0	No	No	No	No	No
10:00 A.M.	552	25	0	No	No	No	No	No
11:00 A.M.	602	29	0	No	No	No	No	No
12:00 P.M.	891	34	0	No	No	No	No	No
1:00 P.M.	966	17	192	Yes	Yes	Yes	Yes	Yes
2:00 P.M.	744	16	192	Yes	Yes	Yes	Yes	Yes
3:00 P.M.	1,117	43	0	No	No	No	No	No
4:00 P.M	1,384	52	0	No	No	No	No	No
5:00 P.M.	1,416	60	33	No	No	No	No	No
6:00 P.M.	1,083	59	33	No	No	No	No	No
7:00 P.M.	947	40	0	No	No	No	No	No
Number of Hours that Meet Warrant				**2**	**3**	**2**	**3**	**2**
Volumes Meet Warrant				**No**	**No**	**No**	**No**	**Yes**

Traffic Signal Warrant Analyses – Buildout of the Facility

A traffic signal warrant analysis was performed at the subject intersection assuming the Year 2050 projected traffic volumes and the buildout of the facility.

Projected Conditions

Access to the buildout of the facility is to be provided via the full access drive on 248th Avenue opposite Honey Locust Drive and the conversion of the north access drive to a full access drive. The access drive located opposite Honey Locust Drive will provide one inbound lane and two outbound lanes with the outbound lanes striped for an exclusive left-turn lane and a shared through/right-turn lane. In addition, the exclusive right-turn lane on Honey Locust Drive will be restriped as a shared through/right-turn lane. Further, it is assumed that the 248th Avenue improvements will be completed. The Year 2050 traffic volumes consist of the existing traffic volumes increased by 30 percent to account for background growth and the buildout of the proposed facility. Figure 9 illustrates the Year 2050 peak hour traffic volumes.

Summary Traffic Signal Warrant Analyses

A review of the projected peak hour volumes and the traffic signal warrants shows the following:

- Warrant 3 (Peak Hour Volume) will be met for at least one hour during Mondays through Fridays and for several hours on Fridays when the Jumuah prayer services occur.

- Warrant 2 (Four Hour Volume) will likely be met on all five weekdays.

As such, if the Year 2050 traffic volumes are realized, a traffic signal will likely be warranted at the subject intersection.

7. Conclusion

Based on the preceding analyses and recommendations, the following conclusions have been made:

- 248^{th} Avenue is proposed to be improved between 95^{th} Street and 103^{rd} Street, which is likely to include the widening of the road to provide two lanes in each direction separated by a landscaped median. Exclusive left-turn lanes will be provided at most intersections and access drives. According to the City of Naperville web site, "construction is expected to begin in 2024 and last for approximately 12 months".

- The proposed ICN will be located on the east side of 248^{th} Avenue at Honey Locust Drive. As proposed the facility will be developed in five phases over 30 years that will include a mosque (Phase I), school (Phase II), multi-purpose hall (Phase III), a gymnasium (Phase IV), and the mosque expansion (Phase V).

- Access to the first phase of the facility is proposed to be provided via two access drives on 248^{th} Avenue as follows:

  - The south access drive will be located opposite Honey Locust Drive and is proposed to be and will provide full access to the facility. The access drive will provide one inbound lane and two outbound lanes separated by a raised median similar to the one provided on Honey Locust Drive. The outbound lanes will be striped for an exclusive left-turn lane and a shared through/right-turn lane and will be under stop sign control. As part of the facility, a 185-foot left-turn lane with 200-foot taper will be provided along southbound 248^{th} Avenue serving the access drive.

  - The north access drive will be located approximately 440 feet north of the Honey Locust Drive and will provide restricted right-turn in/right-turn out access to the facility. As proposed, the access drive will provide one inbound lane and one outbound lane channelized and striped to prohibit left-turn movements. The outbound lane will be under stop sign control.

- With the future development of the facility's other phases and the 248^{th} Avenue improvements, the north access drive is proposed to be converted from a restricted right-turn in/right-turn out to a full access drive. The full access drive will provide one inbound lane and two outbound lanes striped for an exclusive left-turn lane and an exclusive right-turn lane with outbound movements under stop sign control. In addition, a left-turn lane will be provided along southbound 248^{th} Avenue serving the access drive. It should be noted that in order to convert the north access drive to a full access drive, the following modifications to the transportation system will be required:

  - The length of the proposed 248^{th} Avenue left-turn lane and/or taper serving the south access drive will need to be reduced by approximately 50 feet as the end of the left-turn lane taper will encroach on the location of the north full access drive.

- To accommodate a southbound left-turn lane serving the north access drive, the Tall Grass Greenway trail at-grade crossing with 248th Avenue will need to be relocated further north. It is our understanding that the Phase I study for the 248th Avenue improvements is examining various alternatives for the location and design of the at-grade crossing.

- The results of the capacity analyses show that the critical movements at the 248th Avenue/Honey Locust/south access drive are projected to operate at LOS D or better, except the outbound left-turn movements from the access drive and Honey Locust Drive. During the morning and evening peak hours, the outbound left-turn movements are projected to operate at LOS E or F assuming the Year 2050 projected traffic volumes. This traffic will be able to exit onto 248th Avenue but may experience some additional delay during the peak periods. This is common for stop sign controlled approaches along higher volume roadways such as 248th Avenue. During the Jumuah prayer services, which occur on Fridays only, the outbound left-turn movements are projected to operate at LOS F assuming no traffic management. However, ICN has committed to use traffic control personnel/police officers at this intersection to assist with the management of traffic and to expedite the movement of traffic to and from the facility and Honey Locust Drive.

- A traffic signal warrant study performed at the 248th Avenue/Honey Locust/south access drive shows that a traffic signal is not warranted assuming Phase I of the facility when the daily prayer services are occurring at the facility (Mondays through Thursday). While Warrant 3 (Peak Hour Volume) is met at the subject intersection assuming Phase I of the facility when the five daily prayer services and the Jumuah prayer services occur at the facility, it is important to note the following:

  - The Jumuah prayer services only occur on Friday afternoons and Warrant 3 is only met at the end of the two services, which is similar to other religious facilities that generate a large volume of traffic for several hours during one day of the week at the end of their main religious services.

  - Warrant 3 is only met for two hours at the end of the two services and will only meet Warrant 3 for one hour when 248th Avenue is widened to two lanes in each direction.

  - Similar to their other facilities, ICN has committed to use traffic control personnel and/or police officers within the facility and at the intersections of 248th Avenue with the access drives to assist with the management of traffic and to expedite the movement of traffic to and from the facility and Honey Locust Drive during the high traffic generating services at the mosque, including Friday prayer services, Ramadan, Eid, and other large functions.

- Assuming the right-turn in/right-turn out access drive, the westbound right-turn movements at the 248th Avenue/north access drive intersection is projected to operate at LOS B or better during all three peak hours. With the conversion of the access drive to a full access drive and assuming the Year 2050 projected traffic volumes, all of the critical movements are projected to operate at LOS D or better except the outbound left-turn movement. During the morning peak hour, the outbound left-turn movement is projected to operate at LOS E. This traffic will be able to exit onto 248th Avenue but may experience some additional delay during the peak periods. This is common for stop sign controlled approaches along higher volume roadways such as 248th Avenue. During the Jumuah prayer services, which occur on Fridays only, the outbound left-turn movement is projected to operate at LOS F with significant delay assuming no traffic management. However, ICN has committed to use traffic control personnel/police officers at this intersection to assist with the management of traffic and to expedite the movement of traffic to and from the facility and Honey Locust Drive.

- All the critical movements at the intersections of 248th Avenue/Lapp Lane and 248th Avenue/Landsdown Avenue are projected to operate at LOS D or better assuming the projected traffic volumes and the existing conditions. The operation of the critical movements is projected to improve with the proposed 248th Avenue improvements. As such, these two intersections have sufficient reserve capacity to accommodate the projected traffic volumes and no additional roadway improvements are required.

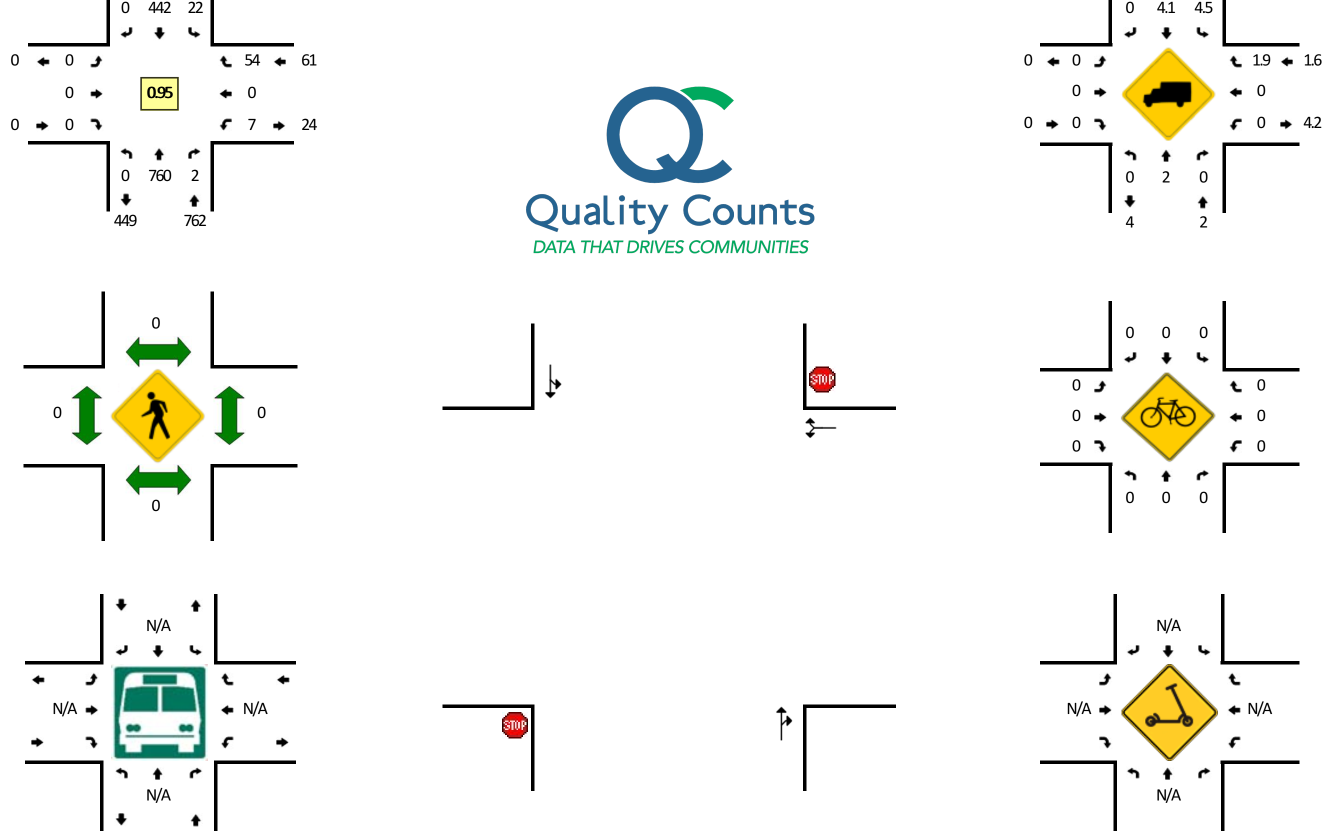
Appendix

Traffic Count Summary Sheets
Site Plans
CMAP Letter
Level of Service Table
Capacity Analysis Summary Sheets

Traffic Count Summary Sheets

LOCATION: 248th Ave -- Landsdown Ave | **QC JOB #:** 15158507
CITY/STATE: Naperville, IL | **DATE:** Tue, Jan 14 2020

Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:00 AM -- 7:15 AM



15-Min Count Period Beginning At	248th Ave (Northbound)				248th Ave (Southbound)				Landsdown Ave (Eastbound)				Landsdown Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	209	0	0	2	103	0	0	0	0	0	0	0	0	24	0	338	
7:15 AM	0	181	0	0	7	121	0	0	0	0	0	0	2	0	7	0	318	
7:30 AM	0	175	1	0	5	116	0	0	0	0	0	0	3	0	13	0	313	
7:45 AM	0	195	1	0	8	102	0	0	0	0	0	0	2	0	10	0	318	1287
8:00 AM	0	148	0	0	4	73	0	0	0	0	0	0	2	0	5	0	232	1181
8:15 AM	0	115	1	0	4	86	0	0	0	0	0	0	4	0	7	0	217	1080
8:30 AM	0	140	2	0	1	80	0	0	0	0	0	0	2	0	6	0	231	998
8:45 AM	0	131	1	0	6	77	0	0	0	0	0	0	0	0	7	0	222	902

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	836	0	0	8	412	0	0	0	0	0	0	0	0	96	0	1352
Heavy Trucks	0	4	0		4	16	0		0	0	0		0	0	0		24
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 1/17/2020 10:01 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

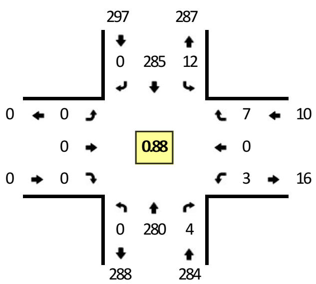
Method for determining peak hour: Total Entering Volume

LOCATION: 248th Ave -- Landsdown Ave

CITY/STATE: Naperville, IL

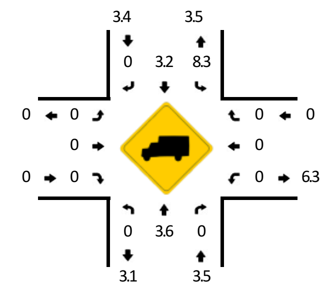
QC JOB #: 15158508

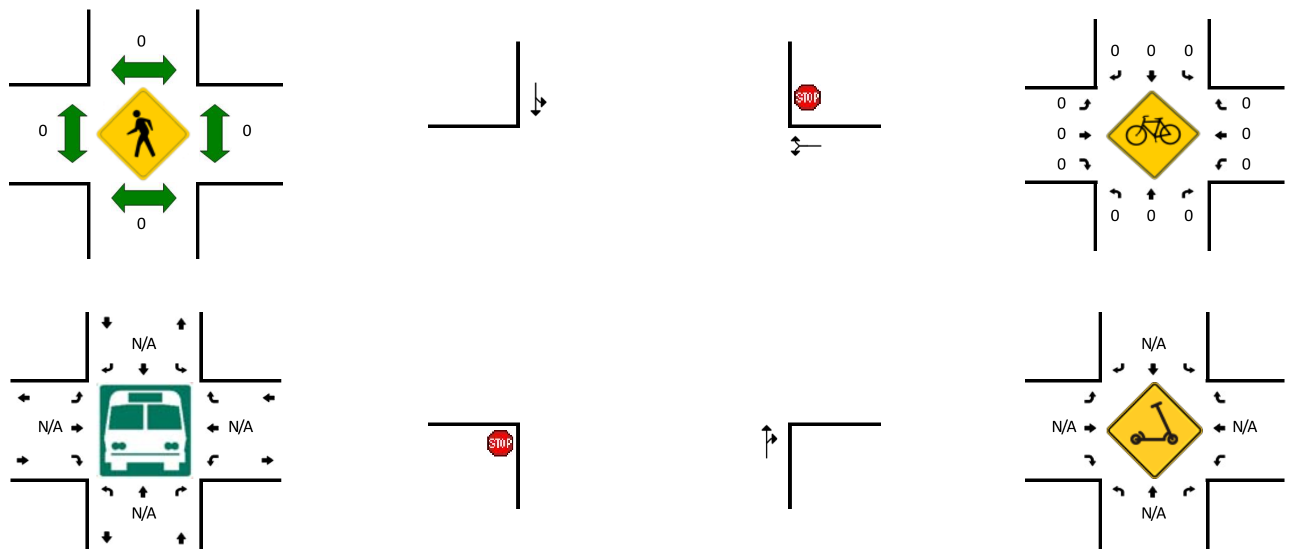
DATE: Tue, Jan 14 2020



Peak-Hour: 1:00 PM -- 2:00 PM

Peak 15-Min: 1:45 PM -- 2:00 PM





15-Min Count Period Beginning At	248th Ave (Northbound)				248th Ave (Southbound)				Landsdown Ave (Eastbound)				Landsdown Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	0	81	1	0	0	71	0	0	0	0	0	0	1	0	2	0	156	
12:15 PM	0	79	2	0	4	58	0	0	0	0	0	0	1	0	2	0	146	
12:30 PM	0	57	0	0	3	58	0	0	0	0	0	0	1	0	1	0	120	
12:45 PM	0	75	0	0	3	68	0	0	0	0	0	0	0	0	4	0	150	572
1:00 PM	0	75	0	0	5	67	0	0	0	0	0	0	1	0	2	0	150	566
1:15 PM	0	70	2	0	2	68	0	0	0	0	0	0	0	0	0	0	142	562
1:30 PM	0	60	1	0	2	67	0	0	0	0	0	0	0	0	1	0	131	573
1:45 PM	0	75	1	0	3	83	0	0	0	0	0	0	2	0	4	0	168	591

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	300	4	0	12	332	0	0	0	0	0	0	8	0	16	0	672
Heavy Trucks	0	16	0		0	16	0		0	0	0		0	0	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 1/17/2020 10:01 AM

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

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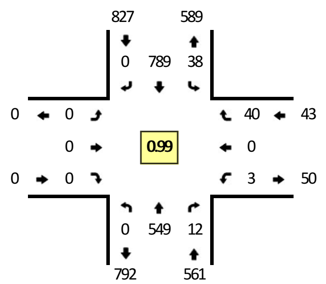
CITY/STATE: Naperville, IL **DATE:** Tue, Jan 14 2020



Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

Quality Counts
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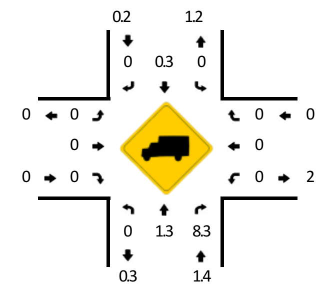

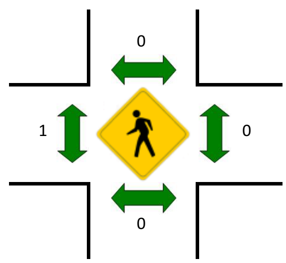

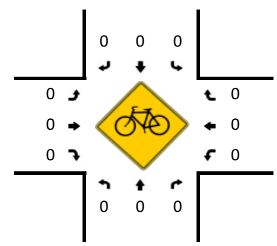

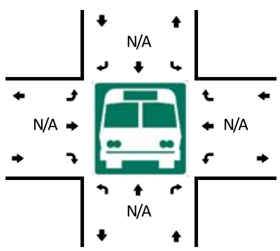

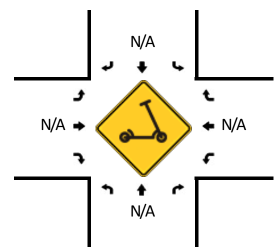

15-Min Count Period Beginning At	248th Ave (Northbound)				248th Ave (Southbound)				Landsdown Ave (Eastbound)				Landsdown Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	132	2	0	5	191	0	0	0	0	0	0	1	0	9	0	340	
4:15 PM	0	126	1	0	5	182	0	0	0	0	0	0	2	0	16	0	332	
4:30 PM	0	126	2	0	10	206	0	0	0	0	0	0	1	0	13	0	358	
4:45 PM	0	127	6	0	5	201	0	0	0	0	0	0	1	0	9	0	349	1379
5:00 PM	0	141	3	0	7	199	0	0	0	0	0	0	1	0	12	0	363	1402
5:15 PM	0	155	1	0	16	183	0	0	0	0	0	0	0	0	6	0	361	1431
5:30 PM	0	112	6	0	5	144	0	0	0	0	0	0	0	0	9	0	276	1349
5:45 PM	0	113	2	0	10	175	0	0	0	0	0	0	1	0	10	0	311	1311

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	564	12	0	28	796	0	0	0	0	0	0	4	0	48	0	1452
Heavy Trucks	0	4	0		0	0	0		0	0	0		0	0	0		4
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 1/17/2020 10:01 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

LOCATION: 248th Ave -- Honey Locust Dr
CITY/STATE: Naperville, IL
QC JOB #: 15158504
DATE: Tue, Jan 14 2020

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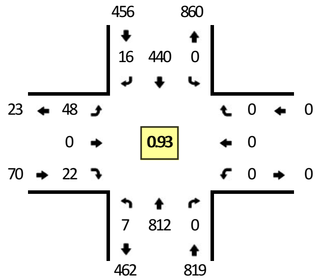
Peak 15-Min: 7:00 AM -- 7:15 AM



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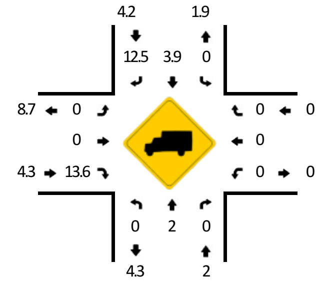

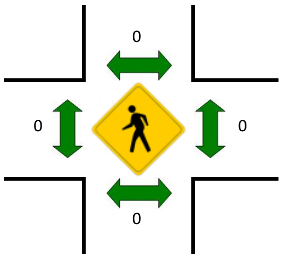

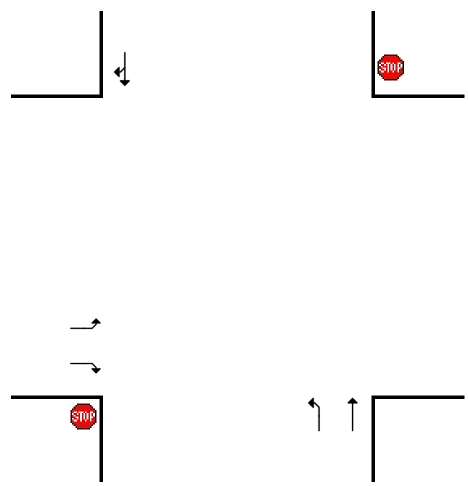

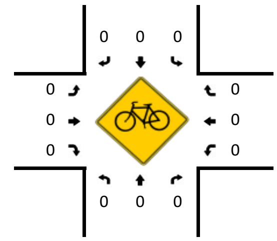

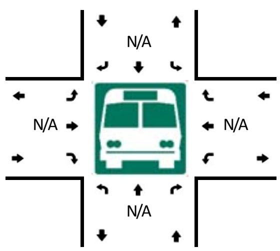

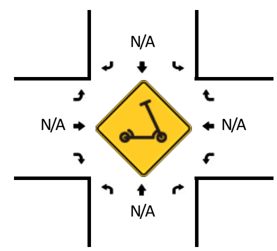

15-Min Count Period Beginning At	248th Ave (Northbound)				248th Ave (Southbound)				Honey Locust Dr (Eastbound)				Honey Locust Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	235	0	0	0	100	7	0	11	0	5	0	0	0	0	0	360	
7:15 AM	0	181	0	0	0	123	4	0	8	0	3	0	0	0	0	0	319	
7:30 AM	0	194	0	0	0	111	3	0	12	0	10	0	0	0	0	0	330	
7:45 AM	5	202	0	0	0	106	2	0	17	0	4	0	0	0	0	0	336	1345
8:00 AM	2	151	0	0	0	76	6	0	10	0	3	0	0	0	0	0	248	1233
8:15 AM	1	124	0	0	0	81	1	0	9	0	7	0	0	0	0	0	223	1137
8:30 AM	4	142	0	0	0	76	11	0	12	0	6	0	0	0	0	0	251	1058
8:45 AM	1	137	0	0	0	77	3	0	27	0	5	0	0	0	0	0	250	972

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	8	940	0	0	0	400	28	0	44	0	20	0	0	0	0	0	1440
Heavy Trucks	0	4	0		0	16	0		0	0	4		0	0	0		24
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 1/17/2020 10:01 AM

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

LOCATION: 248th Ave -- Honey Locust Dr
CITY/STATE: Naperville, IL

QC JOB #: 15158505
DATE: Tue, Jan 14 2020

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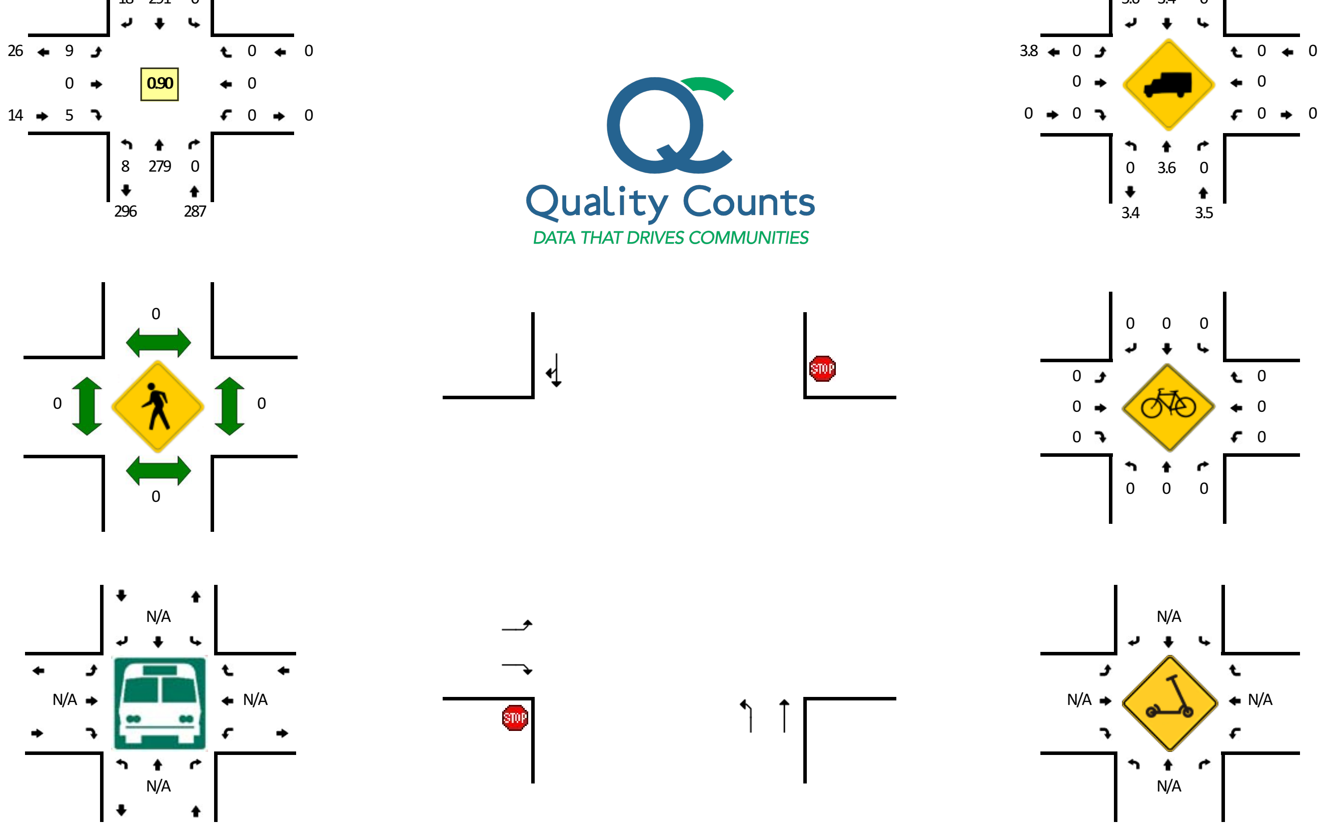
Peak 15-Min: 1:45 PM -- 2:00 PM



15-Min Count Period Beginning At	248th Ave (Northbound) Left	Thru	Right	U	248th Ave (Southbound) Left	Thru	Right	U	Honey Locust Dr (Eastbound) Left	Thru	Right	U	Honey Locust Dr (Westbound) Left	Thru	Right	U	Total	Hourly Totals
12:00 PM	1	82	0	0	0	70	3	0	5	0	1	0	0	0	0	0	162	
12:15 PM	0	80	0	0	0	58	5	0	1	0	4	0	0	0	0	0	148	
12:30 PM	0	57	0	0	0	62	0	0	7	0	0	0	0	0	0	0	126	
12:45 PM	2	78	0	0	0	68	3	0	2	0	2	0	0	0	0	0	155	591
1:00 PM	3	75	0	0	0	69	4	0	4	0	2	0	0	0	0	0	157	586
1:15 PM	2	67	0	0	0	72	7	0	2	0	0	0	0	0	0	0	150	588
1:30 PM	1	61	0	0	0	66	3	0	2	0	1	0	0	0	0	0	134	596
1:45 PM	2	76	0	0	0	84	4	0	1	0	2	0	0	0	0	0	169	610

Peak 15-Min Flowrates	Northbound Left	Thru	Right	U	Southbound Left	Thru	Right	U	Eastbound Left	Thru	Right	U	Westbound Left	Thru	Right	U	Total
All Vehicles	8	304	0	0	0	336	16	0	4	0	8	0	0	0	0	0	676
Heavy Trucks	0	20	0		0	16	0		0	0	0		0	0	0		36
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

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

LOCATION: 248th Ave -- Honey Locust Dr | **QC JOB #:** 15158506
CITY/STATE: Naperville, IL | **DATE:** Tue, Jan 14 2020

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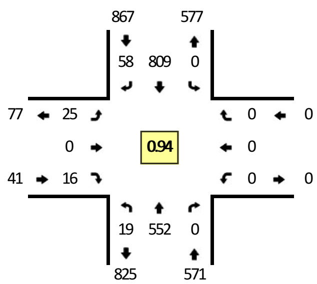
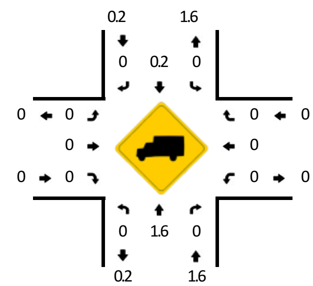
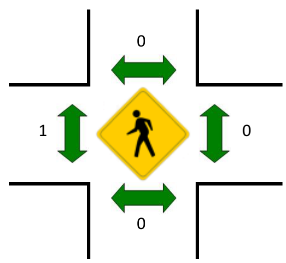
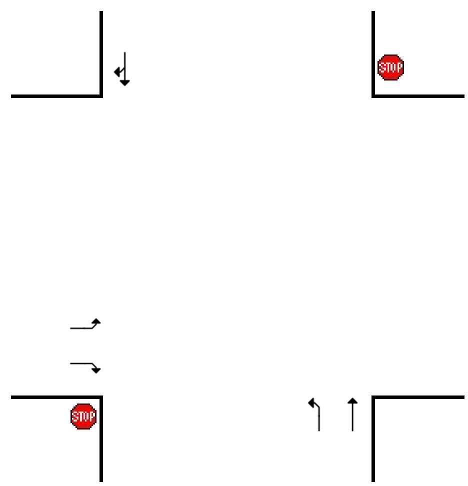
Peak 15-Min: 5:15 PM -- 5:30 PM

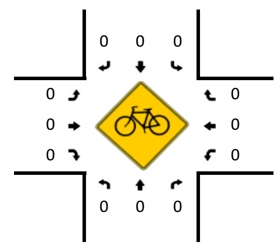


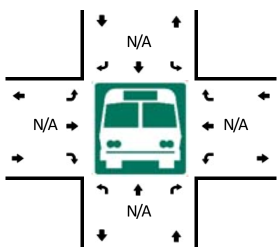
Quality Counts
DATA THAT DRIVES COMMUNITIES

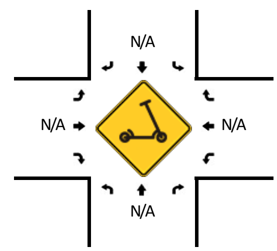












15-Min Count Period Beginning At	248th Ave (Northbound)				248th Ave (Southbound)				Honey Locust Dr (Eastbound)				Honey Locust Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	135	0	0	0	189	8	0	7	0	7	0	0	0	0	0	351	
4:15 PM	2	142	0	0	0	192	7	0	10	0	3	0	0	0	0	0	356	
4:30 PM	4	137	0	0	0	205	12	0	7	0	5	0	0	0	0	0	370	
4:45 PM	6	128	0	0	0	203	15	0	6	0	3	0	0	0	0	0	361	1438
5:00 PM	3	136	0	0	0	190	17	0	4	0	4	0	0	0	0	0	354	1441
5:15 PM	6	151	0	0	0	211	14	0	8	0	4	0	0	0	0	0	394	1479
5:30 PM	6	113	0	0	0	141	7	0	5	0	2	0	0	0	0	0	274	1383
5:45 PM	7	118	0	0	0	174	14	0	11	0	9	0	0	0	0	0	333	1355

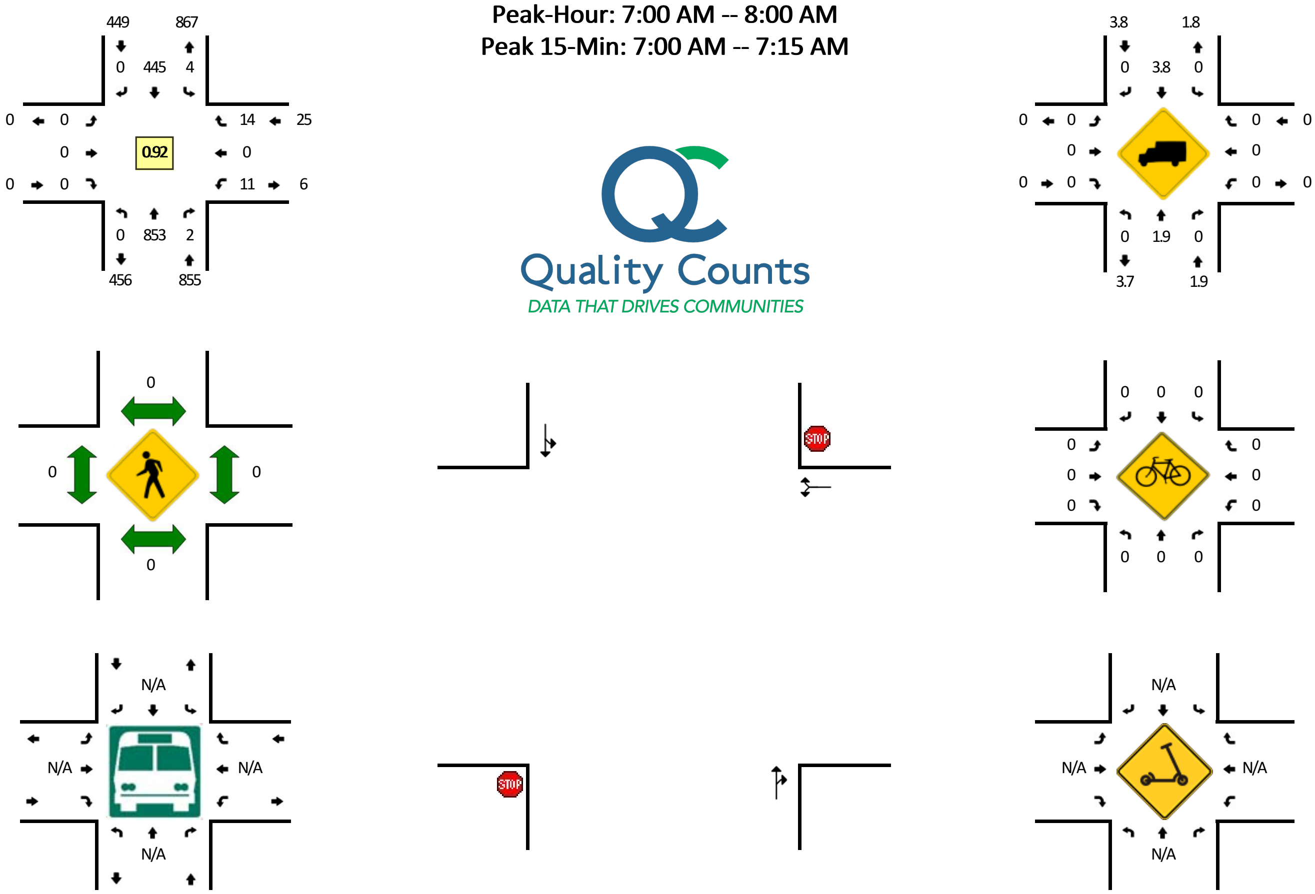
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	24	604	0	0	0	844	56	0	32	0	16	0	0	0	0	0	1576
Heavy Trucks	0	4	0		0	8	0		0	0	0		0	0	0		12
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 1/17/2020 10:01 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

LOCATION: 248th Ave -- Lapp Ln | **QC JOB #:** 15158501
CITY/STATE: Naperville, IL | **DATE:** Tue, Jan 14 2020

Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:00 AM -- 7:15 AM



15-Min Count Period Beginning At	248th Ave (Northbound)				248th Ave (Southbound)				Lapp Ln (Eastbound)				Lapp Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	249	0	0	1	105	0	0	0	0	0	0	1	0	5	0	361	
7:15 AM	0	189	0	0	2	131	0	0	0	0	0	0	1	0	2	0	325	
7:30 AM	0	207	1	0	0	106	0	0	0	0	0	0	3	0	2	0	319	
7:45 AM	0	208	1	0	1	103	0	0	0	0	0	0	6	0	5	0	324	1329
8:00 AM	0	169	1	0	1	81	0	0	0	0	0	0	0	0	6	0	258	1226
8:15 AM	0	133	1	0	1	84	0	0	0	0	0	0	0	0	2	0	221	1122
8:30 AM	0	149	1	0	0	86	0	0	0	0	0	0	1	0	2	0	239	1042
8:45 AM	0	162	1	0	4	77	0	0	0	0	0	0	1	0	5	0	250	968

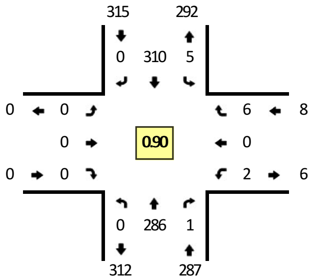
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	996	0	0	4	420	0	0	0	0	0	0	4	0	20	0	1444
Heavy Trucks	0	4	0		0	16	0		0	0	0		0	0	0		20
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

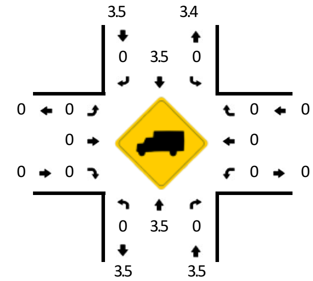
Report generated on 1/17/2020 10:01 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

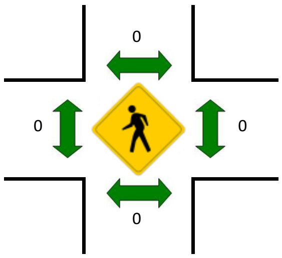
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

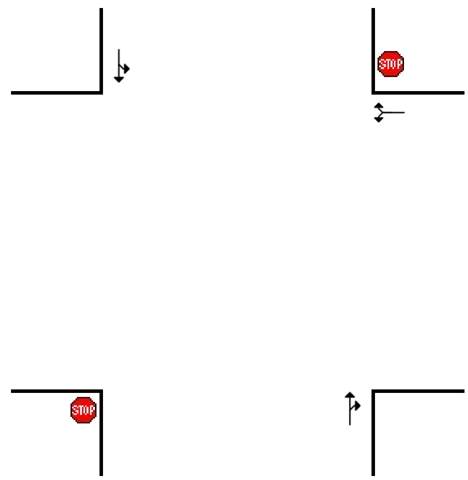
LOCATION: 248th Ave -- Lapp Ln | **QC JOB #:** 15158502
CITY/STATE: Naperville, IL | **DATE:** Tue, Jan 14 2020

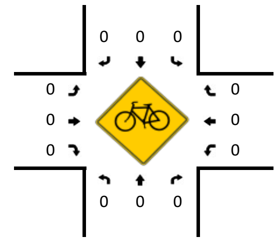


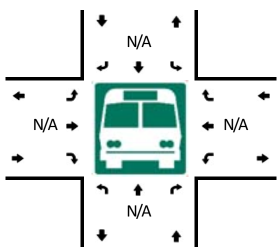
Peak-Hour: 1:00 PM -- 2:00 PM
Peak 15-Min: 1:45 PM -- 2:00 PM

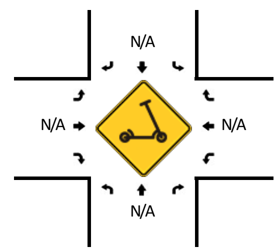












15-Min Count Period Beginning At	248th Ave (Northbound)				248th Ave (Southbound)				Lapp Ln (Eastbound)				Lapp Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	0	86	2	0	2	71	0	0	0	0	0	0	1	0	1	0	163	
12:15 PM	0	79	2	0	3	60	0	0	0	0	0	0	3	0	1	0	148	
12:30 PM	0	63	0	0	3	64	0	0	0	0	0	0	2	0	0	0	132	
12:45 PM	0	80	0	0	3	67	0	0	0	0	0	0	1	0	1	0	152	595
1:00 PM	0	80	0	0	1	73	0	0	0	0	0	0	0	0	3	0	157	589
1:15 PM	0	68	0	0	1	78	0	0	0	0	0	0	1	0	0	0	148	589
1:30 PM	0	60	1	0	2	69	0	0	0	0	0	0	0	0	3	0	135	592
1:45 PM	0	78	0	0	1	90	0	0	0	0	0	0	1	0	0	0	170	610

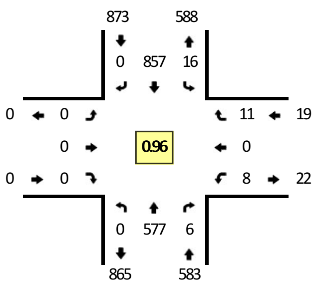
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	312	0	0	4	360	0	0	0	0	0	0	4	0	0	0	680
Heavy Trucks	0	16	0		0	16	0		0	0	0		0	0	0		32
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

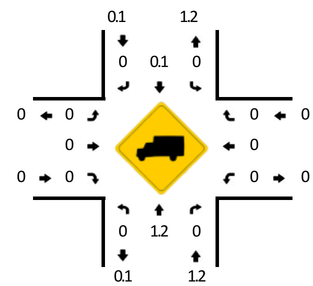
Comments:

Report generated on 1/17/2020 10:01 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

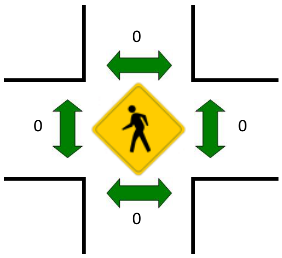
LOCATION: 248th Ave -- Lapp Ln
QC JOB #: 15158503
CITY/STATE: Naperville, IL
DATE: Tue, Jan 14 2020

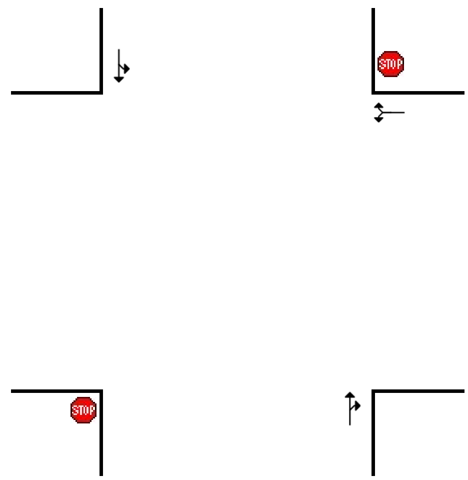
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

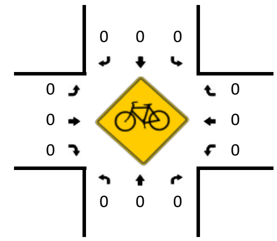


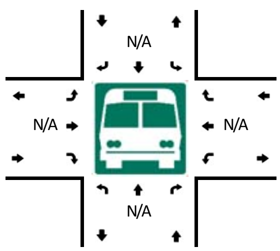


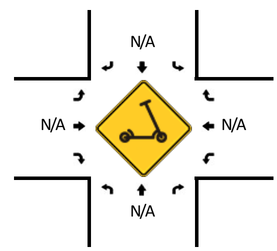
Quality Counts
DATA THAT DRIVES COMMUNITIES











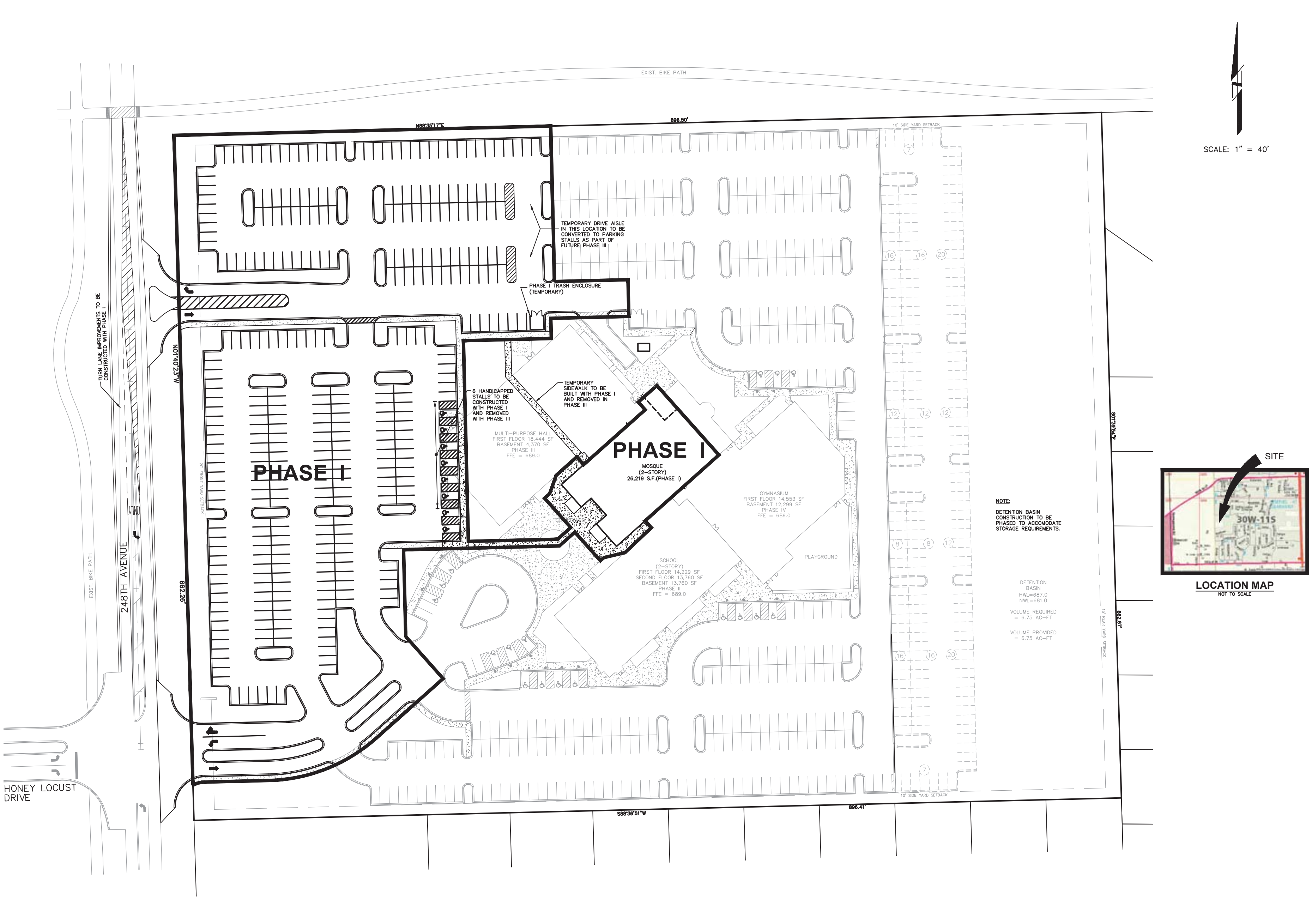
15-Min Count Period Beginning At	248th Ave (Northbound)				248th Ave (Southbound)				Lapp Ln (Eastbound)				Lapp Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	138	2	0	2	198	0	0	0	0	0	0	1	0	6	0	347	
4:15 PM	0	145	2	0	4	199	0	0	0	0	0	0	1	0	4	0	355	
4:30 PM	0	146	1	0	3	211	0	0	0	0	0	0	2	0	1	0	364	
4:45 PM	0	133	0	0	6	220	0	0	0	0	0	0	1	0	0	0	360	1426
5:00 PM	0	143	2	0	4	212	0	0	0	0	0	0	2	0	4	0	367	1446
5:15 PM	0	155	3	0	3	214	0	0	0	0	0	0	3	0	6	0	384	1475
5:30 PM	0	122	1	0	2	146	0	0	0	0	0	0	0	0	4	0	275	1386
5:45 PM	0	128	4	0	4	186	0	0	0	0	0	0	3	0	4	0	329	1355

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	620	12	0	12	856	0	0	0	0	0	0	12	0	24	0	1536
Heavy Trucks	0	0	0		0	4	0		0	0	0		0	0	0		4
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 1/17/2020 10:01 AM
SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Site Plans



DATE	NO.	REVISION	BY
8-27-20	2	PER CITY REVIEW	BC
4-27-20	1	PER CLIENT REVIEW	

INTECH CONSULTANTS, INC.

ENGINEERS – SURVEYORS

1989 UNIVERSITY LANE, SUITE D
LISLE, ILLINOIS 60532
PHONE: 630-964-5656

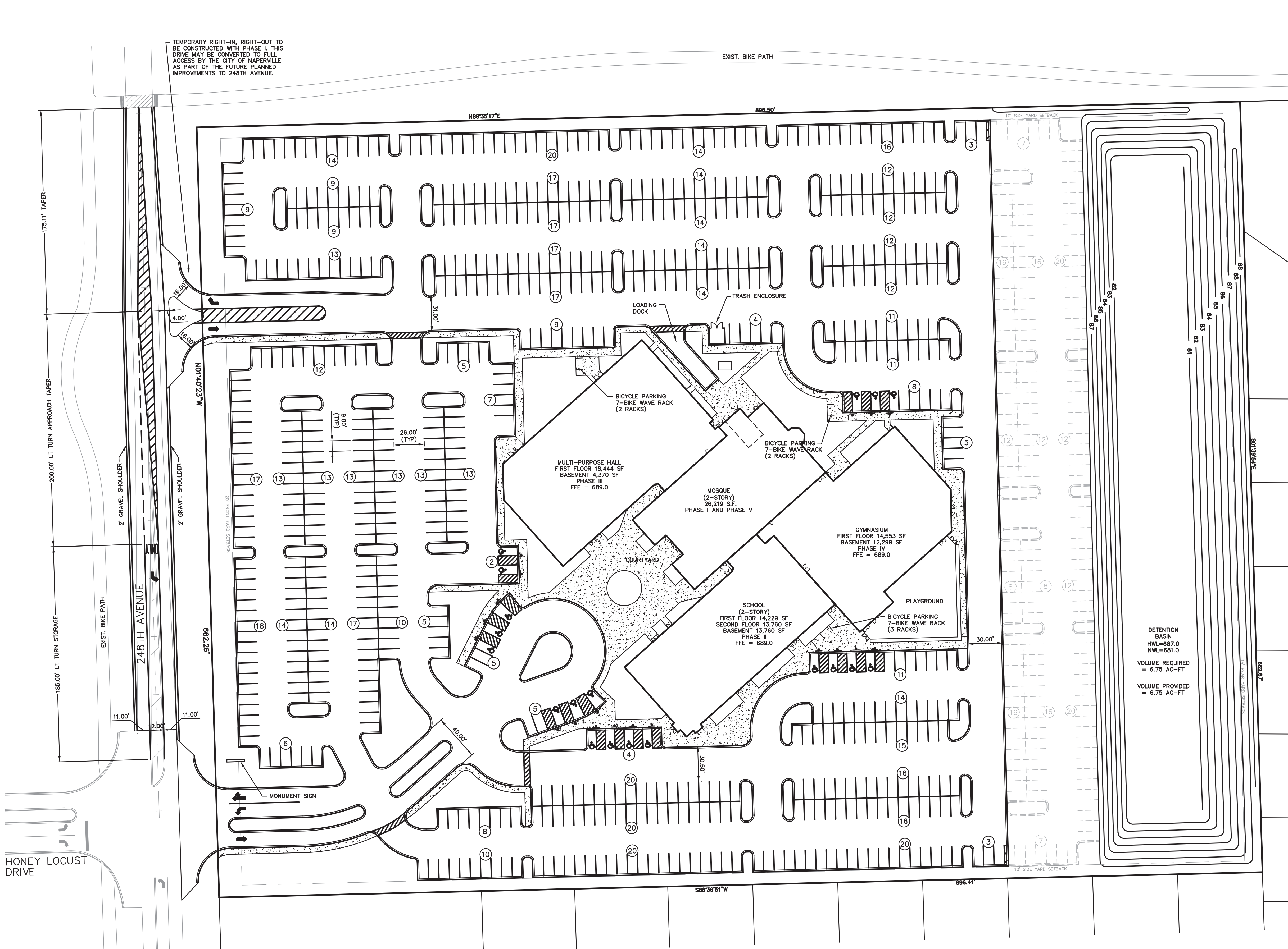
ILLINOIS REGISTRATION No. 184-001040

ISLAMIC CENTER OF NAPERVILLE

ISLAMIC CENTER OF NAPERVILLE
248TH AVENUE SITE
NAPERVILLE, ILLINOIS

PHASE I PLAN

SCALE 1"=40'
DATE 3-30-20
DRAWN BC
DESIGNED EFS
PROJECT NO. 2011-016B
SHEET 1 OF 1



SCALE: 1" = 40'

SITE DATA TABLE

CURRENT ZONING:	R1
PROPOSED ZONING:	R1 WITH CONDITIONAL USE
LOT AREA:	593,857 S.F. (13.63 AC.)
PROPOSED BUILDING:	
SCHOOL (3-STORY):	41,749 S.F.
MOSQUE:	26,219 S.F.
MOSQUE ADDITION	3,259 S.F.
MULIT-PURPOSE HALL:	22,814 S.F.
GYMNASIUM:	26,852 S.F.
PARKING REQUIRED:	711 SPACES *
PARKING PROVIDED:	719 PLANNED (INCL. 19 HANDICAP STALLS) 182 FUTURE PARKING IF NECESSARY
BICYCLE PARKING REQUIRED:	43 STALLS
BICYCLE PARKING PROVIDED:	49 STALLS

* SEE PARKING STUDY

LOCATION MAP

NOT TO SCALE

DATE	NO.	REVISION	BY
8-27-20	2	PER CITY REVIEW	
4-27-20	1	PER CLIENT REVIEW	BC

INTECH CONSULTANTS, INC.
ENGINEERS – SURVEYORS
1989 UNIVERSITY LANE, SUITE D
LISLE, ILLINOIS 60532
PHONE: 630-964-5656
ILLINOIS REGISTRATION No. 184-001040

ISLAMIC CENTER OF NAPERVILLE

ISLAMIC CENTER OF NAPERVILLE
248TH AVENUE SITE
NAPERVILLE, ILLINOIS

MASTER SITE PLAN

SCALE 1"=40'
DATE 3-30-20
DRAWN BC
DESIGNED EFS
PROJECT NO. **2011-016B**
SHEET 1 OF 1

CMAP Letter

Chicago Metropolitan Agency for Planning

233 South Wacker Drive
Suite 800
Chicago, Illinois 60606

312 454 0400
www.cmap.illinois.gov

December 2, 2019

Hon. Steve Chirico
Mayor
City of Naperville
400 South Eagle Street
Naperville, IL 60540

Subject: 248th Avenue from 103rd Street to 95th Street – Macrane Revision
City of Naperville

Dear Mayor Chirico:

In response to a request made on your behalf and dated November 15, 2019, we have developed year 2050 average daily traffic (ADT) projections for the subject location. Please see the table on the next page for projections.

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.

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

Sincerely,

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

cc: Tibble (Civiltech)
S:\AdminGroups\ResearchAnalysis\2019_ForecastsTraffic\Naperville\wi-28-19\wi-28-19.docx

Table: Year 2050 ADT, Build (Conformity October 2019) and No-Build Scenario, 248th Street from 103rd Street to 95th Street

ROAD SEGMENT	Current Volume	Year 2050 ADT	Year 2050 No-Build ADT
248th Ave N of 103rd	13,000	17,500	16,200
248th Ave S of 103rd	13,200	18,900	18,100
103rd St E of 248th	4,300	6,100	6,200
103rd St W of 248th	1,900	2,500	2,700
248th Ave N of Arrowwood	12,900	17,200	15,900
248th Ave S of Arrowwood	13,000	17,500	16,200
Arrowwood Rd W of 248th	100	150	150
248th Ave N of Landsdown Ave	13,400	17,800	16,500
248th Ave S of Landsdown Ave	12,900	17,200	15,900
Landsdown Ave E of 248th	800	1,050	1,050
248th Ave N of Honey Locust	14,300	18,800	17,500
248th Ave S of Honey Locust	13,400	17,800	16,200
Honey Locust Dr W of 248th	1,300	1,700	1,700
248th Ave N of Lapp Lane	14,900	19,600	18,300
248th Ave S of Lapp Lane	14,300	18,800	17,500
Lapp Lane E of 248th	600	800	800
248th Ave N of Trumpet	11,900	16,800	14,500
248th Ave S of Trumpet	14,900	19,600	18,300
Trumpet Ave W of 248th	4,100	6,500	6,200
248th Ave N of Grassmere	12,300	17,000	14,700
248th Ave S of Grassmere	11,900	16,800	14,500
Grassmere Rd E of 248th	800	1,000	1,000
Macrane St N of 95th	2,700	2,900	2,900
248th St S of 95th	12,300	17,000	14,700
95th St E of 248th	20,500	29,000	28,800
95th St W of 248th	16,200	21,000	22,000

Finalized by CMAP, November 18, 2019 *with exception of Macrane Street-Revised December 2, 2019*

Level of Service Table

LEVEL OF SERVICE CRITERIA

Signalized Intersections		
Level of Service	Interpretation	Average Control Delay (seconds per vehicle)
A	Favorable progression. Most vehicles arrive during the green indication and travel through the intersection without stopping.	≤10
B	Good progression, with more vehicles stopping than for Level of Service A.	>10 - 20
C	Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear. Number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.	>20 - 35
D	The volume-to-capacity ratio is high and either progression is ineffective or the cycle length is too long. Many vehicles stop and individual cycle failures are noticeable.	>35 - 55
E	Progression is unfavorable. The volume-to-capacity ratio is high and the cycle length is long. Individual cycle failures are frequent.	>55 - 80
F	The volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.	>80.0

Unsignalized Intersections	
Level of Service	Average Total Delay (SEC/VEH)
A	0 - 10
B	> 10 - 15
C	> 15 - 25
D	> 25 - 35
E	> 35 - 50
F	> 50

Source: *Highway Capacity Manual*, 2010.

Capacity Analysis Summary Sheets

Weekday Morning Peak Hour – Existing Conditions

Intersection						
Int Delay, s/veh	0.4					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	20	996	4	4	424
Future Vol, veh/h	4	20	996	4	4	424
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	0	4
Mvmt Flow	4	22	1083	4	4	461

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1554	1085	0	0	1087	0
Stage 1	1085	-	-	-	-	-
Stage 2	469	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	126	266	-	-	649	-
Stage 1	327	-	-	-	-	-
Stage 2	634	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	125	266	-	-	649	-
Mov Cap-2 Maneuver	125	-	-	-	-	-
Stage 1	324	-	-	-	-	-
Stage 2	634	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s	23.2		0		0.1	
HCM LOS	C					

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	224	649	-
HCM Lane V/C Ratio	-	-	0.116	0.007	-
HCM Control Delay (s)	-	-	23.2	10.6	0
HCM Lane LOS	-	-	C	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	44	20	8	956	400	28
Future Vol, veh/h	44	20	8	956	400	28
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	185	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	14	0	2	4	12
Mvmt Flow	47	22	9	1028	430	30

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1491	445	460	0	-	0
Stage 1	445	-	-	-	-	-
Stage 2	1046	-	-	-	-	-
Critical Hdwy	6.4	6.34	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.426	2.2	-	-	-
Pot Cap-1 Maneuver	138	589	1112	-	-	-
Stage 1	650	-	-	-	-	-
Stage 2	341	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	137	589	1112	-	-	-
Mov Cap-2 Maneuver	254	-	-	-	-	-
Stage 1	645	-	-	-	-	-
Stage 2	341	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.9	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1112	-	254	589	-	-
HCM Lane V/C Ratio	0.008	-	0.186	0.037	-	-
HCM Control Delay (s)	8.3	-	22.4	11.3	-	-
HCM Lane LOS	A	-	C	B	-	-
HCM 95th %tile Q(veh)	0	-	0.7	0.1	-	-

HCM 6th TWSC
3: 248th Avenue & Landsdown Avenue 04/01/2020

Intersection						
Int Delay, s/veh	1.5					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	96	868	4	8	412
Future Vol, veh/h	0	96	868	4	8	412
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	2	0	0	4
Mvmt Flow	0	101	914	4	8	434

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1366	916	0	0	918	0
Stage 1	916	-	-	-	-	-
Stage 2	450	-	-	-	-	-
Critical Hdwy	6.4	6.22	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.318	-	-	2.2	-
Pot Cap-1 Maneuver	164	330	-	-	752	-
Stage 1	393	-	-	-	-	-
Stage 2	647	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	162	330	-	-	752	-
Mov Cap-2 Maneuver	162	-	-	-	-	-
Stage 1	387	-	-	-	-	-
Stage 2	647	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	20.7	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	330	752	-
HCM Lane V/C Ratio	-	-	0.306	0.011	-
HCM Control Delay (s)	-	-	20.7	9.8	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	1.3	0	-

Capacity Analysis Summary Sheets

Weekday Afternoon Peak Hour – Existing Conditions

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	4	312	0	4	360
Future Vol, veh/h	0	4	312	0	4	360
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	4	0	0	4
Mvmt Flow	0	4	347	0	4	400

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	755	347	0	0	347	0
Stage 1	347	-	-	-	-	-
Stage 2	408	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	379	701	-	-	1223	-
Stage 1	720	-	-	-	-	-
Stage 2	676	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	377	701	-	-	1223	-
Mov Cap-2 Maneuver	377	-	-	-	-	-
Stage 1	717	-	-	-	-	-
Stage 2	676	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.2	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	701	1223	-
HCM Lane V/C Ratio	-	-	0.006	0.004	-
HCM Control Delay (s)	-	-	10.2	8	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	8	8	308	344	16
Future Vol, veh/h	4	8	8	308	344	16
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	185	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	0	4	3	6
Mvmt Flow	4	9	9	342	382	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	751	391	400	0	-	0
Stage 1	391	-	-	-	-	-
Stage 2	360	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	381	662	1170	-	-	-
Stage 1	688	-	-	-	-	-
Stage 2	710	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	378	662	1170	-	-	-
Mov Cap-2 Maneuver	488	-	-	-	-	-
Stage 1	682	-	-	-	-	-
Stage 2	710	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.1	0.2	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	1170	-	488	662	-	-
HCM Lane V/C Ratio	0.008	-	0.009	0.013	-	-
HCM Control Delay (s)	8.1	-	12.4	10.5	-	-
HCM Lane LOS	A	-	B	B	-	-
HCM 95th %tile Q(veh)	0	-	0	0	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	16	300	4	12	340
Future Vol, veh/h	8	16	300	4	12	340
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	4	0	8	3
Mvmt Flow	9	18	341	5	14	386

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	758	344	0	0	346	0
Stage 1	344	-	-	-	-	-
Stage 2	414	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.18	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.272	-
Pot Cap-1 Maneuver	378	703	-	-	1180	-
Stage 1	722	-	-	-	-	-
Stage 2	671	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	372	703	-	-	1180	-
Mov Cap-2 Maneuver	372	-	-	-	-	-
Stage 1	711	-	-	-	-	-
Stage 2	671	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	542	1180	-
HCM Lane V/C Ratio	-	-	0.05	0.012	-
HCM Control Delay (s)	-	-	12	8.1	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Capacity Analysis Summary Sheets

Weekday Evening Peak Hour – Existing Conditions

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	12	24	624	12	12	856
Future Vol, veh/h	12	24	624	12	12	856
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	13	25	650	13	13	892

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1575	657	0	0	663	0
Stage 1	657	-	-	-	-	-
Stage 2	918	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	122	468	-	-	935	-
Stage 1	519	-	-	-	-	-
Stage 2	392	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	119	468	-	-	935	-
Mov Cap-2 Maneuver	119	-	-	-	-	-
Stage 1	504	-	-	-	-	-
Stage 2	392	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	237	935	-
HCM Lane V/C Ratio	-	-	0.158	0.013	-
HCM Control Delay (s)	-	-	23	8.9	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.6	0	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	32	16	24	604	812	56
Future Vol, veh/h	32	16	24	604	812	56
Conflicting Peds, #/hr	0	0	1	0	0	1
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	185	-	-	-
Veh in Median Storage, #	1	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	2	0	0
Mvmt Flow	34	17	26	643	864	60

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1590	895	925	0	-	0
Stage 1	895	-	-	-	-	-
Stage 2	695	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	120	342	747	-	-	-
Stage 1	402	-	-	-	-	-
Stage 2	499	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	116	342	746	-	-	-
Mov Cap-2 Maneuver	247	-	-	-	-	-
Stage 1	388	-	-	-	-	-
Stage 2	499	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	746	-	247	342	-	-
HCM Lane V/C Ratio	0.034	-	0.138	0.05	-	-
HCM Control Delay (s)	10	-	21.9	16.1	-	-
HCM Lane LOS	A	-	C	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.5	0.2	-	-

Intersection						
Int Delay, s/veh	0.7					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	48	580	12	28	800
Future Vol, veh/h	4	48	580	12	28	800
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	0	0	1	8	0	0
Mvmt Flow	4	48	586	12	28	808

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1456	592	0	0	598	0
Stage 1	592	-	-	-	-	-
Stage 2	864	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	144	510	-	-	989	-
Stage 1	557	-	-	-	-	-
Stage 2	416	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	137	510	-	-	989	-
Mov Cap-2 Maneuver	137	-	-	-	-	-
Stage 1	529	-	-	-	-	-
Stage 2	416	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.7	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	422	989	-
HCM Lane V/C Ratio	-	-	0.124	0.029	-
HCM Control Delay (s)	-	-	14.7	8.7	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1	-

Capacity Analysis Summary Sheets

Weekday Morning Peak Hour – Year 2025 Traffic with Existing Roadway Conditions

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	21	1046	4	4	445
Future Vol, veh/h	4	21	1046	4	4	445
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	0	4
Mvmt Flow	4	23	1137	4	4	484

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1631	1139	0	0	1141	0
Stage 1	1139	-	-	-	-	-
Stage 2	492	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	113	247	-	-	620	-
Stage 1	308	-	-	-	-	-
Stage 2	619	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	112	247	-	-	620	-
Mov Cap-2 Maneuver	112	-	-	-	-	-
Stage 1	305	-	-	-	-	-
Stage 2	619	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	207	620	-
HCM Lane V/C Ratio	-	-	0.131	0.007	-
HCM Control Delay (s)	-	-	25	10.8	0
HCM Lane LOS	-	-	D	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	46	0	21	0	0	0	8	1004	0	0	420	29
Future Vol, veh/h	46	0	21	0	0	0	8	1004	0	0	420	29
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	-	-	0	-	-	185	-	-	215	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	14	0	0	0	0	2	0	0	4	12
Mvmt Flow	49	0	23	0	0	0	9	1080	0	0	452	31

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1566	1566	468	1577	1581	1080	483	0	-	1080	0	0
Stage 1	468	468	-	1098	1098	-	-	-	-	-	-	-
Stage 2	1098	1098	-	479	483	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.34	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.426	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	91	112	571	90	110	268	1090	-	0	653	-	-
Stage 1	579	565	-	260	291	-	-	-	0	-	-	-
Stage 2	260	291	-	571	556	-	-	-	0	-	-	-
Platoon blocked, %								-			-	-
Mov Cap-1 Maneuver	90	111	571	86	109	268	1090	-	-	653	-	-
Mov Cap-2 Maneuver	196	218	-	192	216	-	-	-	-	-	-	-
Stage 1	574	565	-	258	289	-	-	-	-	-	-	-
Stage 2	258	289	-	548	556	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.9	0	0.1	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1090	-	196	571	-	-	653	-	-
HCM Lane V/C Ratio	0.008	-	0.252	0.04	-	-	-	-	-
HCM Control Delay (s)	8.3	-	29.5	11.6	0	0	0	-	-
HCM Lane LOS	A	-	D	B	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	1	0.1	-	-	0	-	-

Intersection						
Int Delay, s/veh	1.6					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	101	911	4	8	433
Future Vol, veh/h	0	101	911	4	8	433
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	2	0	0	4
Mvmt Flow	0	106	959	4	8	456

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1433	961	0	0	963	0
Stage 1	961	-	-	-	-	-
Stage 2	472	-	-	-	-	-
Critical Hdwy	6.4	6.22	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.318	-	-	2.2	-
Pot Cap-1 Maneuver	149	311	-	-	723	-
Stage 1	374	-	-	-	-	-
Stage 2	632	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	147	311	-	-	723	-
Mov Cap-2 Maneuver	147	-	-	-	-	-
Stage 1	368	-	-	-	-	-
Stage 2	632	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.5	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	311	723	-
HCM Lane V/C Ratio	-	-	0.342	0.012	-
HCM Control Delay (s)	-	-	22.5	10	0
HCM Lane LOS	-	-	C	B	A
HCM 95th %tile Q(veh)	-	-	1.5	0	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1050	0	0	449
Future Vol, veh/h	0	0	1050	0	0	449
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	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	2	0	0	4
Mvmt Flow	0	0	1105	0	0	473

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	1105	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	259	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	259	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

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

Capacity Analysis Summary Sheets

Weekday Afternoon Peak Hour – Year 2025 Traffic with
Existing Roadway Conditions

Intersection						
Int Delay, s/veh	0.2					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	4	507	13	4	567
Future Vol, veh/h	3	4	507	13	4	567
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	4	0	0	4
Mvmt Flow	3	4	563	14	4	630

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1208	570	0	0	577	0
Stage 1	570	-	-	-	-	-
Stage 2	638	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	204	525	-	-	1006	-
Stage 1	570	-	-	-	-	-
Stage 2	530	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	203	525	-	-	1006	-
Mov Cap-2 Maneuver	203	-	-	-	-	-
Stage 1	567	-	-	-	-	-
Stage 2	530	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.8	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	313	1006	-
HCM Lane V/C Ratio	-	-	0.025	0.004	-
HCM Control Delay (s)	-	-	16.8	8.6	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	63.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	3	8	125	3	64	8	359	90	192	362	16
Future Vol, veh/h	4	3	8	125	3	64	8	359	90	192	362	16
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	-	-	0	-	-	185	-	-	215	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	55	55	55	90	90	55	55	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	6
Mvmt Flow	4	3	9	227	5	116	9	399	164	349	402	18

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1669	1690	411	1614	1617	481	420	0	0	563	0	0
Stage 1	1109	1109	-	499	499	-	-	-	-	-	-	-
Stage 2	560	581	-	1115	1118	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	77	94	645	~ 85	105	589	1150	-	-	1019	-	-
Stage 1	257	288	-	557	547	-	-	-	-	-	-	-
Stage 2	516	503	-	255	285	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	44	61	645	~ 60	69	589	1150	-	-	1019	-	-
Mov Cap-2 Maneuver	52	104	-	~ 126	145	-	-	-	-	-	-	-
Stage 1	255	190	-	553	543	-	-	-	-	-	-	-
Stage 2	407	499	-	~ 162	188	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	35.5	298.4	0.1	4.7
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1150	-	-	52	267	126	518	1019	-	-
HCM Lane V/C Ratio	0.008	-	-	0.085	0.046	1.804	0.235	0.343	-	-
HCM Control Delay (s)	8.2	-	-	80.6	19.1	$ 450.8	14.1	10.4	-	-
HCM Lane LOS	A	-	-	F	C	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.1	17.5	0.9	1.5	-	-

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

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	20	437	4	15	480
Future Vol, veh/h	8	20	437	4	15	480
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	4	0	8	3
Mvmt Flow	9	23	497	5	17	545

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1079	500	0	0	502	0
Stage 1	500	-	-	-	-	-
Stage 2	579	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.18	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.272	-
Pot Cap-1 Maneuver	244	575	-	-	1032	-
Stage 1	613	-	-	-	-	-
Stage 2	564	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	238	575	-	-	1032	-
Mov Cap-2 Maneuver	238	-	-	-	-	-
Stage 1	598	-	-	-	-	-
Stage 2	564	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s	14.5		0		0.3	
HCM LOS	B					

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	409	1032	-
HCM Lane V/C Ratio	-	-	0.078	0.017	-
HCM Control Delay (s)	-	-	14.5	8.5	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-

Intersection						
Int Delay, s/veh	2.5					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	128	392	35	0	570
Future Vol, veh/h	0	128	392	35	0	570
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	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	50	55	95	55	50	95
Heavy Vehicles, %	0	0	4	0	0	4
Mvmt Flow	0	233	413	64	0	600

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	445	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	617	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	617	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	617	-
HCM Lane V/C Ratio	-	-	0.377	-
HCM Control Delay (s)	-	-	14.3	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	1.8	-

Capacity Analysis Summary Sheets

Weekday Evening Peak Hour – Year 2025 Traffic with Existing Roadway Conditions

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	25	688	13	12	930
Future Vol, veh/h	13	25	688	13	12	930
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	14	26	717	14	13	969

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1719	724	0	0	731	0
Stage 1	724	-	-	-	-	-
Stage 2	995	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	100	429	-	-	883	-
Stage 1	484	-	-	-	-	-
Stage 2	361	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	97	429	-	-	883	-
Mov Cap-2 Maneuver	97	-	-	-	-	-
Stage 1	469	-	-	-	-	-
Stage 2	361	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	27.7	0	0.1
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	198	883	-
HCM Lane V/C Ratio	-	-	0.2	0.014	-
HCM Control Delay (s)	-	-	27.7	9.1	0
HCM Lane LOS	-	-	D	A	A
HCM 95th %tile Q(veh)	-	-	0.7	0	-

Intersection	
Int Delay, s/veh	1.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	1	17	21	1	11	25	640	15	33	851	59
Future Vol, veh/h	34	1	17	21	1	11	25	640	15	33	851	59
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	185	-	-	215	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	0	0
Mvmt Flow	36	1	18	22	1	12	27	681	16	35	905	63

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1758	1759	938	1759	1782	689	969	0	0	697	0	0
Stage 1	1008	1008	-	743	743	-	-	-	-	-	-	-
Stage 2	750	751	-	1016	1039	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	67	86	323	67	83	449	719	-	-	909	-	-
Stage 1	292	321	-	410	425	-	-	-	-	-	-	-
Stage 2	407	421	-	289	310	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	61	79	323	59	77	449	718	-	-	909	-	-
Mov Cap-2 Maneuver	169	189	-	159	182	-	-	-	-	-	-	-
Stage 1	281	308	-	394	409	-	-	-	-	-	-	-
Stage 2	380	405	-	261	298	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	26.9	25.1	0.4	0.3
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	718	-	-	169	311	159	400	909	-	-
HCM Lane V/C Ratio	0.037	-	-	0.214	0.062	0.141	0.032	0.039	-	-
HCM Control Delay (s)	10.2	-	-	32	17.3	31.3	14.3	9.1	-	-
HCM Lane LOS	B	-	-	D	C	D	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	0.2	0.5	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	51	629	12	30	859
Future Vol, veh/h	4	51	629	12	30	859
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	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	0	0	1	8	0	0
Mvmt Flow	4	52	635	12	30	868

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1569	641	0	0	647	0
Stage 1	641	-	-	-	-	-
Stage 2	928	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	123	478	-	-	948	-
Stage 1	528	-	-	-	-	-
Stage 2	388	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	115	478	-	-	948	-
Mov Cap-2 Maneuver	115	-	-	-	-	-
Stage 1	496	-	-	-	-	-
Stage 2	388	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.8	0	0.3
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	389	948	-
HCM Lane V/C Ratio	-	-	0.143	0.032	-
HCM Control Delay (s)	-	-	15.8	8.9	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	22	679	6	0	943
Future Vol, veh/h	0	22	679	6	0	943
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	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	0	23	715	6	0	993

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	718	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.2	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	432	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	432	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	432	-
HCM Lane V/C Ratio	-	-	0.054	-
HCM Control Delay (s)	-	-	13.8	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.2	-

Capacity Analysis Summary Sheets

Weekday Morning Peak Hour – Year 2025 Traffic with 248th Avenue Improvements

Intersection						
Int Delay, s/veh	0.3					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	21	1046	4	4	445
Future Vol, veh/h	4	21	1046	4	4	445
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	-	-	-	215	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	0	4
Mvmt Flow	4	23	1137	4	4	484

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1389	571	0	0	1141	0
Stage 1	1139	-	-	-	-	-
Stage 2	250	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	136	469	-	-	620	-
Stage 1	272	-	-	-	-	-
Stage 2	774	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	135	469	-	-	620	-
Mov Cap-2 Maneuver	225	-	-	-	-	-
Stage 1	270	-	-	-	-	-
Stage 2	774	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s	14.7		0		0.1	
HCM LOS	B					

Minor Lane/Major Mvmt		NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)		-	-	400	620	-
HCM Lane V/C Ratio		-	-	0.068	0.007	-
HCM Control Delay (s)		-	-	14.7	10.8	-
HCM Lane LOS		-	-	B	B	-
HCM 95th %tile Q(veh)		-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	46	0	21	0	0	0	8	1004	0	0	420	29
Future Vol, veh/h	46	0	21	0	0	0	8	1004	0	0	420	29
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	-	-	0	-	-	185	-	-	215	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	14	0	0	0	0	2	0	0	4	12
Mvmt Flow	49	0	23	0	0	0	9	1080	0	0	452	31

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1026	1566	242	1324	1581	540	483	0	0	1080	0	0
Stage 1	468	468	-	1098	1098	-	-	-	-	-	-	-
Stage 2	558	1098	-	226	483	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7.18	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.44	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	192	112	723	116	110	491	1090	-	-	653	-	-
Stage 1	550	565	-	230	291	-	-	-	-	-	-	-
Stage 2	487	291	-	762	556	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	191	111	723	112	109	491	1090	-	-	653	-	-
Mov Cap-2 Maneuver	321	218	-	191	216	-	-	-	-	-	-	-
Stage 1	546	565	-	228	289	-	-	-	-	-	-	-
Stage 2	483	289	-	738	556	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.7	0	0.1	0
HCM LOS	C	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1090	-	-	321	723	-	-	653	-	-
HCM Lane V/C Ratio	0.008	-	-	0.154	0.031	-	-	-	-	-
HCM Control Delay (s)	8.3	-	-	18.2	10.1	0	0	0	-	-
HCM Lane LOS	A	-	-	C	B	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.5	0.1	-	-	0	-	-

Intersection						
Int Delay, s/veh	1					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	101	911	4	8	433
Future Vol, veh/h	0	101	911	4	8	433
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	-	-	-	215	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	2	0	0	4
Mvmt Flow	0	106	959	4	8	456

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1205	482	0	0	963	0
Stage 1	961	-	-	-	-	-
Stage 2	244	-	-	-	-	-
Critical Hdwy	6.8	6.94	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.32	-	-	2.2	-
Pot Cap-1 Maneuver	179	530	-	-	723	-
Stage 1	337	-	-	-	-	-
Stage 2	780	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	177	530	-	-	723	-
Mov Cap-2 Maneuver	274	-	-	-	-	-
Stage 1	333	-	-	-	-	-
Stage 2	780	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.5	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	530	723	-
HCM Lane V/C Ratio	-	-	0.201	0.012	-
HCM Control Delay (s)	-	-	13.5	10	-
HCM Lane LOS	-	-	B	B	-
HCM 95th %tile Q(veh)	-	-	0.7	0	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	1050	0	0	449
Future Vol, veh/h	0	0	1050	0	0	449
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	-	-	-	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	2	0	0	4
Mvmt Flow	0	0	1105	0	0	473

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	553	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	482	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	482	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

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

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

Capacity Analysis Summary Sheets

Weekday Afternoon Peak Hour – Year 2025 Traffic with 248th Avenue Improvements

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	4	507	13	4	567
Future Vol, veh/h	3	4	507	13	4	567
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	-	-	-	215	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	4	0	0	4
Mvmt Flow	3	4	563	14	4	630

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	893	289	0	0	577	0
Stage 1	570	-	-	-	-	-
Stage 2	323	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	285	714	-	-	1006	-
Stage 1	535	-	-	-	-	-
Stage 2	712	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	284	714	-	-	1006	-
Mov Cap-2 Maneuver	402	-	-	-	-	-
Stage 1	533	-	-	-	-	-
Stage 2	712	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.8	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	536	1006	-
HCM Lane V/C Ratio	-	-	0.015	0.004	-
HCM Control Delay (s)	-	-	11.8	8.6	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	46.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	3	8	125	3	64	8	359	90	192	362	16
Future Vol, veh/h	4	3	8	125	3	64	8	359	90	192	362	16
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	-	-	0	-	-	185	-	-	215	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	90	90	55	55	55	90	90	55	55	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	6
Mvmt Flow	4	3	9	227	5	116	9	399	164	349	402	18

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1329	1690	210	1400	1617	282	420	0	0	563	0	0
Stage 1	1109	1109	-	499	499	-	-	-	-	-	-	-
Stage 2	220	581	-	901	1118	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	115	94	802	~ 102	105	721	1150	-	-	1019	-	-
Stage 1	227	288	-	527	547	-	-	-	-	-	-	-
Stage 2	768	503	-	303	285	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	69	61	802	~ 72	69	721	1150	-	-	1019	-	-
Mov Cap-2 Maneuver	146	104	-	~ 148	145	-	-	-	-	-	-	-
Stage 1	225	190	-	523	543	-	-	-	-	-	-	-
Stage 2	633	499	-	~ 194	188	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.5	217.1	0.1	4.7
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	1150	-	-	146	283	148	612	1019	-	-
HCM Lane V/C Ratio	0.008	-	-	0.03	0.043	1.536	0.199	0.343	-	-
HCM Control Delay (s)	8.2	-	-	30.4	18.3	$ 326.9	12.3	10.4	-	-
HCM Lane LOS	A	-	-	D	C	F	B	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.1	15.4	0.7	1.5	-	-

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

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	8	20	437	4	15	480
Future Vol, veh/h	8	20	437	4	15	480
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	-	-	-	215	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	4	0	8	3
Mvmt Flow	9	23	497	5	17	545

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	807	251	0	0	502	0
Stage 1	500	-	-	-	-	-
Stage 2	307	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.26	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.28	-
Pot Cap-1 Maneuver	323	755	-	-	1018	-
Stage 1	580	-	-	-	-	-
Stage 2	725	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	318	755	-	-	1018	-
Mov Cap-2 Maneuver	430	-	-	-	-	-
Stage 1	570	-	-	-	-	-
Stage 2	725	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s	11.1		0		0.3	
HCM LOS	B					

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	621	1018	-
HCM Lane V/C Ratio	-	-	0.051	0.017	-
HCM Control Delay (s)	-	-	11.1	8.6	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	-

Intersection	
Int Delay, s/veh	2.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	128	392	35	0	570
Future Vol, veh/h	0	128	392	35	0	570
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	-	-	-	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	50	55	95	55	50	95
Heavy Vehicles, %	0	0	4	0	0	4
Mvmt Flow	0	233	413	64	0	600

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	239	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	768	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	768	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	768	-
HCM Lane V/C Ratio	-	-	0.303	-
HCM Control Delay (s)	-	-	11.7	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	1.3	-

Capacity Analysis Summary Sheets

Weekday Evening Peak Hour – Year 2025 Traffic with 248th Avenue Improvements

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	13	25	688	13	12	930
Future Vol, veh/h	13	25	688	13	12	930
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	-	-	-	215	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	14	26	717	14	13	969

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1235	366	0	0	731	0
Stage 1	724	-	-	-	-	-
Stage 2	511	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	171	637	-	-	883	-
Stage 1	446	-	-	-	-	-
Stage 2	573	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	168	637	-	-	883	-
Mov Cap-2 Maneuver	300	-	-	-	-	-
Stage 1	439	-	-	-	-	-
Stage 2	573	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s	13.6		0		0.1	
HCM LOS	B					

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	460	883	-
HCM Lane V/C Ratio	-	-	0.086	0.014	-
HCM Control Delay (s)	-	-	13.6	9.1	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	34	1	17	21	1	11	25	640	15	33	851	59
Future Vol, veh/h	34	1	17	21	1	11	25	640	15	33	851	59
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	185	-	-	215	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	0	0
Mvmt Flow	36	1	18	22	1	12	27	681	16	35	905	63

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1403	1759	485	1266	1782	349	969	0	0	697	0	0
Stage 1	1008	1008	-	743	743	-	-	-	-	-	-	-
Stage 2	395	751	-	523	1039	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	101	86	533	128	83	653	719	-	-	909	-	-
Stage 1	261	321	-	378	425	-	-	-	-	-	-	-
Stage 2	607	421	-	510	310	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	93	79	532	116	77	653	718	-	-	909	-	-
Mov Cap-2 Maneuver	191	189	-	235	182	-	-	-	-	-	-	-
Stage 1	251	308	-	364	409	-	-	-	-	-	-	-
Stage 2	572	405	-	472	298	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.9	18.3	0.4	0.3
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	718	-	-	191	483	235	537	909	-	-
HCM Lane V/C Ratio	0.037	-	-	0.189	0.04	0.095	0.024	0.039	-	-
HCM Control Delay (s)	10.2	-	-	28.2	12.8	21.9	11.9	9.1	-	-
HCM Lane LOS	B	-	-	D	B	C	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0.1	0.3	0.1	0.1	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	51	629	12	30	859
Future Vol, veh/h	4	51	629	12	30	859
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, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	0	0	1	8	0	0
Mvmt Flow	4	52	635	12	30	868

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1135	324	0	0	647	0
Stage 1	641	-	-	-	-	-
Stage 2	494	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	199	678	-	-	948	-
Stage 1	492	-	-	-	-	-
Stage 2	584	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	193	678	-	-	948	-
Mov Cap-2 Maneuver	321	-	-	-	-	-
Stage 1	476	-	-	-	-	-
Stage 2	584	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s	11.3		0		0.3	
HCM LOS	B					

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	627	948	-
HCM Lane V/C Ratio	-	-	0.089	0.032	-
HCM Control Delay (s)	-	-	11.3	8.9	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	22	679	6	0	943
Future Vol, veh/h	0	22	679	6	0	943
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	-	-	-	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	0	23	715	6	0	993

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	-	361	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.9	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.3	-	-	-	-
Pot Cap-1 Maneuver	0	641	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	641	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	10.8	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBT
Capacity (veh/h)	-	-	641	-
HCM Lane V/C Ratio	-	-	0.036	-
HCM Control Delay (s)	-	-	10.8	-
HCM Lane LOS	-	-	B	-
HCM 95th %tile Q(veh)	-	-	0.1	-

Capacity Analysis Summary Sheets

Weekday Morning Peak Hour – Year 2050 Traffic with 248th Avenue Improvements

Intersection	
Int Delay, s/veh	0.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	26	1397	5	5	660
Future Vol, veh/h	6	26	1397	5	5	660
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	-	-	-	215	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	2	0	0	4
Mvmt Flow	7	28	1518	5	5	717

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1890	762	0	0	1523	0
Stage 1	1521	-	-	-	-	-
Stage 2	369	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	63	352	-	-	444	-
Stage 1	170	-	-	-	-	-
Stage 2	675	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	62	352	-	-	444	-
Mov Cap-2 Maneuver	139	-	-	-	-	-
Stage 1	168	-	-	-	-	-
Stage 2	675	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s	20.1		0		0.1	
HCM LOS	C					

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	273	444	-
HCM Lane V/C Ratio	-	-	0.127	0.012	-
HCM Control Delay (s)	-	-	20.1	13.2	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	0.4	0	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	57	2	26	40	2	60	11	1269	52	67	543	36
Future Vol, veh/h	57	2	26	40	2	60	11	1269	52	67	543	36
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	-	-	0	-	-	185	-	-	215	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	0	14	0	0	0	0	2	0	0	4	12
Mvmt Flow	61	2	28	43	2	65	12	1365	56	72	584	39

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1456	2193	312	1854	2184	711	623	0	0	1421	0	0
Stage 1	748	748	-	1417	1417	-	-	-	-	-	-	-
Stage 2	708	1445	-	437	767	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	7.18	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.44	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	93	46	650	47	46	380	968	-	-	485	-	-
Stage 1	375	423	-	147	205	-	-	-	-	-	-	-
Stage 2	396	199	-	574	414	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	67	39	650	~ 39	39	380	968	-	-	485	-	-
Mov Cap-2 Maneuver	165	98	-	113	133	-	-	-	-	-	-	-
Stage 1	371	360	-	145	203	-	-	-	-	-	-	-
Stage 2	321	197	-	465	353	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	30.7	32.2	0.1	1.4
HCM LOS	D	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	968	-	-	165	464	113	359	485	-	-
HCM Lane V/C Ratio	0.012	-	-	0.371	0.065	0.381	0.186	0.149	-	-
HCM Control Delay (s)	8.8	-	-	39.2	13.3	55.2	17.3	13.7	-	-
HCM Lane LOS	A	-	-	E	B	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	1.6	0.2	1.6	0.7	0.5	-	-

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

Intersection						
Int Delay, s/veh	1.2					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	127	1205	5	12	597
Future Vol, veh/h	0	127	1205	5	12	597
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	-	-	-	215	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	2	2	0	0	4
Mvmt Flow	0	134	1268	5	13	628

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1611	637	0	0	1273	0
Stage 1	1271	-	-	-	-	-
Stage 2	340	-	-	-	-	-
Critical Hdwy	6.8	6.94	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.32	-	-	2.2	-
Pot Cap-1 Maneuver	97	420	-	-	552	-
Stage 1	231	-	-	-	-	-
Stage 2	698	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	95	420	-	-	552	-
Mov Cap-2 Maneuver	184	-	-	-	-	-
Stage 1	225	-	-	-	-	-
Stage 2	698	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	17.5	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	420	552	-
HCM Lane V/C Ratio	-	-	0.318	0.023	-
HCM Control Delay (s)	-	-	17.5	11.7	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	1.4	0.1	-

Intersection	
Int Delay, s/veh	0.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	20	34	1368	18	40	626
Future Vol, veh/h	20	34	1368	18	40	626
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	-	-	215	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	2	0	0	4
Mvmt Flow	21	36	1440	19	42	659

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1864	730	0	0	1459	0
Stage 1	1450	-	-	-	-	-
Stage 2	414	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	66	369	-	-	469	-
Stage 1	186	-	-	-	-	-
Stage 2	641	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	60	369	-	-	469	-
Mov Cap-2 Maneuver	137	-	-	-	-	-
Stage 1	169	-	-	-	-	-
Stage 2	641	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	23.3	0	0.8
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	137	369	469	-
HCM Lane V/C Ratio	-	-	0.154	0.097	0.09	-
HCM Control Delay (s)	-	-	36	15.8	13.4	-
HCM Lane LOS	-	-	E	C	B	-
HCM 95th %tile Q(veh)	-	-	0.5	0.3	0.3	-

Capacity Analysis Summary Sheets

Weekday Afternoon Peak Hour – Year 2050 Traffic with 248th Avenue Improvements

Intersection						
Int Delay, s/veh	0.2					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	5	757	19	5	813
Future Vol, veh/h	6	5	757	19	5	813
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	-	-	-	215	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	4	0	0	4
Mvmt Flow	7	6	841	21	6	903

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1316	431	0	0	862	0
Stage 1	852	-	-	-	-	-
Stage 2	464	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	152	578	-	-	789	-
Stage 1	383	-	-	-	-	-
Stage 2	605	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	151	578	-	-	789	-
Mov Cap-2 Maneuver	276	-	-	-	-	-
Stage 1	380	-	-	-	-	-
Stage 2	605	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.3	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	362	789	-
HCM Lane V/C Ratio	-	-	0.034	0.007	-
HCM Control Delay (s)	-	-	15.3	9.6	-
HCM Lane LOS	-	-	C	A	-
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	72.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	6	11	136	6	140	11	503	146	140	540	21
Future Vol, veh/h	5	6	11	136	6	140	11	503	146	140	540	21
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	-	-	0	-	-	185	-	-	215	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	90	50	90	50	50	50	90	90	50	50	90	90
Heavy Vehicles, %	0	0	0	0	0	0	0	4	0	0	3	6
Mvmt Flow	6	12	12	272	12	280	12	559	292	280	600	23

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1482	2047	312	1595	1912	426	623	0	0	851	0	0
Stage 1	1172	1172	-	729	729	-	-	-	-	-	-	-
Stage 2	310	875	-	866	1183	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	89	57	690	~ 73	69	582	968	-	-	796	-	-
Stage 1	208	269	-	385	431	-	-	-	-	-	-	-
Stage 2	681	370	-	319	265	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	31	36	690	~ 45	44	582	968	-	-	796	-	-
Mov Cap-2 Maneuver	50	66	-	~ 128	121	-	-	-	-	-	-	-
Stage 1	206	174	-	380	426	-	-	-	-	-	-	-
Stage 2	339	366	-	~ 189	172	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	50.3	294.7	0.1	3.7
HCM LOS	F	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	968	-	-	50	121	128	503	796	-	-
HCM Lane V/C Ratio	0.013	-	-	0.111	0.2	2.125	0.581	0.352	-	-
HCM Control Delay (s)	8.8	-	-	85.8	42.1	$ 587.9	21.6	12	-	-
HCM Lane LOS	A	-	-	F	E	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.7	22.5	3.6	1.6	-	-

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

Intersection	
Int Delay, s/veh	0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	11	27	633	5	22	665
Future Vol, veh/h	11	27	633	5	22	665
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	-	-	-	215	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	0	0	4	0	8	3
Mvmt Flow	13	31	719	6	25	756

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1150	363	0	0	725	0
Stage 1	722	-	-	-	-	-
Stage 2	428	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.26	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.28	-
Pot Cap-1 Maneuver	195	640	-	-	835	-
Stage 1	447	-	-	-	-	-
Stage 2	631	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	189	640	-	-	835	-
Mov Cap-2 Maneuver	314	-	-	-	-	-
Stage 1	434	-	-	-	-	-
Stage 2	631	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	492	835	-
HCM Lane V/C Ratio	-	-	0.088	0.03	-
HCM Control Delay (s)	-	-	13	9.4	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.1	-

Intersection	
Int Delay, s/veh	6.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	90	208	568	80	208	611
Future Vol, veh/h	90	208	568	80	208	611
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	-	-	215	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	50	50	95	50	50	95
Heavy Vehicles, %	0	0	4	0	0	4
Mvmt Flow	180	416	598	160	416	643

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1832	379	0	0	758	0
Stage 1	678	-	-	-	-	-
Stage 2	1154	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	~ 69	625	-	-	862	-
Stage 1	471	-	-	-	-	-
Stage 2	267	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 36	625	-	-	862	-
Mov Cap-2 Maneuver	~ -1498	-	-	-	-	-
Stage 1	244	-	-	-	-	-
Stage 2	267	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.9	0	5.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	+	625	862	-
HCM Lane V/C Ratio	-	-	-	0.666	0.483	-
HCM Control Delay (s)	-	-	2.9	21.5	13	-
HCM Lane LOS	-	-	A	C	B	-
HCM 95th %tile Q(veh)	-	-	-	5	2.7	-

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

Capacity Analysis Summary Sheets

Weekday Evening Peak Hour – Year 2050 Traffic with 248th Avenue Improvements

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	14	32	929	18	16	1230
Future Vol, veh/h	14	32	929	18	16	1230
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	-	-	-	215	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	15	33	968	19	17	1281

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1653	494	0	0	987	0
Stage 1	978	-	-	-	-	-
Stage 2	675	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	91	526	-	-	708	-
Stage 1	330	-	-	-	-	-
Stage 2	473	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	89	526	-	-	708	-
Mov Cap-2 Maneuver	211	-	-	-	-	-
Stage 1	322	-	-	-	-	-
Stage 2	473	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.5	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	362	708	-
HCM Lane V/C Ratio	-	-	0.132	0.024	-
HCM Control Delay (s)	-	-	16.5	10.2	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	0.5	0.1	-

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	42	2	21	49	2	38	31	809	54	30	1085	73
Future Vol, veh/h	42	2	21	49	2	38	31	809	54	30	1085	73
Conflicting Peds, #/hr	0	0	0	0	0	0	1	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	0	-	-	0	-	-	185	-	-	215	-	-
Veh in Median Storage, #	-	1	-	-	1	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	0	0
Mvmt Flow	45	2	22	52	2	40	33	861	57	32	1154	78

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1756	2242	617	1598	2253	459	1233	0	0	918	0	0
Stage 1	1258	1258	-	956	956	-	-	-	-	-	-	-
Stage 2	498	984	-	642	1297	-	-	-	-	-	-	-
Critical Hdwy	7.5	6.5	6.9	7.5	6.5	6.9	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.5	5.5	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	55	43	438	73	42	554	572	-	-	752	-	-
Stage 1	184	245	-	281	339	-	-	-	-	-	-	-
Stage 2	528	329	-	434	234	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	47	39	438	63	38	554	571	-	-	752	-	-
Mov Cap-2 Maneuver	129	134	-	167	125	-	-	-	-	-	-	-
Stage 1	173	234	-	265	319	-	-	-	-	-	-	-
Stage 2	458	310	-	391	224	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	35.9	25.8	0.4	0.3
HCM LOS	E	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	571	-	-	129	366	167	473	752	-	-
HCM Lane V/C Ratio	0.058	-	-	0.346	0.067	0.312	0.09	0.042	-	-
HCM Control Delay (s)	11.7	-	-	47	15.5	36	13.4	10	-	-
HCM Lane LOS	B	-	-	E	C	E	B	A	-	-
HCM 95th %tile Q(veh)	0.2	-	-	1.4	0.2	1.3	0.3	0.1	-	-

Intersection	
Int Delay, s/veh	0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	5	64	830	16	38	1117
Future Vol, veh/h	5	64	830	16	38	1117
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, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	0	0	1	8	0	0
Mvmt Flow	5	65	838	16	38	1128

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1486	427	0	0	854	0
Stage 1	846	-	-	-	-	-
Stage 2	640	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	117	582	-	-	794	-
Stage 1	386	-	-	-	-	-
Stage 2	493	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	111	582	-	-	794	-
Mov Cap-2 Maneuver	235	-	-	-	-	-
Stage 1	367	-	-	-	-	-
Stage 2	493	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	526	794	-
HCM Lane V/C Ratio	-	-	0.133	0.048	-
HCM Control Delay (s)	-	-	12.9	9.8	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.2	-

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	25	76	871	18	81	1163
Future Vol, veh/h	25	76	871	18	81	1163
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	-	-	215	-
Veh in Median Storage, #	1	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	0	0	0
Mvmt Flow	26	80	917	19	85	1224

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1709	468	0	0	936	0
Stage 1	927	-	-	-	-	-
Stage 2	782	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.1	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	84	547	-	-	740	-
Stage 1	351	-	-	-	-	-
Stage 2	417	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	74	547	-	-	740	-
Mov Cap-2 Maneuver	180	-	-	-	-	-
Stage 1	311	-	-	-	-	-
Stage 2	417	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	16.6	0	0.7
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	180	547	740	-
HCM Lane V/C Ratio	-	-	0.146	0.146	0.115	-
HCM Control Delay (s)	-	-	28.4	12.7	10.5	-
HCM Lane LOS	-	-	D	B	B	-
HCM 95th %tile Q(veh)	-	-	0.5	0.5	0.4	-