

**PROPERTY ADDRESS:
3540 248TH AVENUE
NAPERVILLE, IL 60564**

**P.I.N.
01-09-306-023**

**RETURN TO:
CITY OF NAPERVILLE
CITY CLERK'S OFFICE
400 SOUTH EAGLE STREET
NAPERVILLE, IL 60540**

**OWNER'S ACKNOWLEDGEMENT AND ACCEPTANCE AGREEMENT
FOR THE ISLAMIC CENTER OF NAPERVILLE – 248TH AVENUE**

This Owner's Acknowledgement and Acceptance Agreement for the Islamic Center of Naperville – 248th Avenue ("**Agreement**") located at 3540 248th Avenue, Naperville, IL 60564, is entered into by and between the City of Naperville, a home rule unit of local government under the laws and Constitution of the State of Illinois ("**City**" or "**City of Naperville**"), with an address of 400 South Eagle Street, Naperville, Illinois 60540, and the Islamic Center of Naperville, an Illinois not-for-profit corporation ("**OWNER AND DEVELOPER**"), with offices at 2844 W. Ogden Avenue, Naperville, IL 60540. The City and the OWNER AND DEVELOPER are together hereinafter referred to as the "**Parties**" and sometimes individually as "**Party**".

RECITALS

A. This Agreement pertains to certain real property located within the corporate limits of the City of Naperville with a common address of 3540 248th Avenue, Naperville, IL 60564, having parcel identification number of 01-09-306-023 legally described on **ATTACHMENT 1** and depicted on **ATTACHMENT 2** (hereinafter referred as the "**SUBJECT PROPERTY**"). OWNER AND DEVELOPER is the owner of the SUBJECT PROPERTY.

B. The SUBJECT PROPERTY is subject to the terms and conditions set forth in the following ordinances ("**Annexation Ordinances**"), approved for the SUBJECT PROPERTY by the Naperville City Council on December 19, 2011:

Ordinance 11-191 An ordinance authorizing the execution of an annexation agreement for the property commonly known as Islamic Center of Naperville – 248th Avenue ("**Annexation Agreement**").

- Ordinance 11-192 An ordinance annexing certain property commonly known as Islamic Center of Naperville – 248th Avenue.
- Ordinance 11-193 An ordinance rezoning the property commonly known as 3460 248th Avenue to R1.
- Ordinance 11-194 An ordinance approving the Preliminary/Final Plat of Subdivision for the property located at 3460 248th Avenue.

C. OWNER AND DEVELOPER petitioned the City for approval of an ordinance approving a conditional use for a religious institution in order to develop a religious facility known as the Islamic Center of Naperville on the SUBJECT PROPERTY (hereinafter the “**ICN Development**”) comprised of a mosque, school, multi-purpose hall, and gymnasium to be built in multiple phases (further described in Section 4 below).

D. The SUBJECT PROPERTY shall be subject to the terms and conditions set forth or referenced in this Agreement and to the following ordinance approved for the SUBJECT PROPERTY by the Naperville City Council on _____, 2021 (the “**Conditional Use Ordinance**”). This Agreement is an exhibit to said Ordinance:

- Ordinance 21- An Ordinance Approving a Conditional Use for a Religious Institution in The R1 Zoning District and an Owner’s Acknowledgement and Acceptance Agreement for Islamic Center of Naperville – 248th Avenue.

E. The Annexation Ordinances and Conditional Use Ordinance are hereby collectively referred to as “**ICN Ordinances**”.

F. By entering into this Agreement, the City is acting pursuant to its home rule authority under the laws and Constitution of the State of Illinois.

NOW THEREFORE, in consideration of the mutual promises and agreements set forth herein, the parties agree as follows:

1. **Recitals Incorporated/Attachments Incorporated.** The foregoing Recitals are incorporated herein as though fully set forth in this Section 1. All Attachments attached hereto or referenced herein shall be deemed to be incorporated herein and made part hereof.
2. **Ongoing Compliance.** In the development and operation of the SUBJECT PROPERTY, the OWNER AND DEVELOPER shall be subject to and shall fulfill all conditions set forth or referenced herein associated with the SUBJECT PROPERTY, including but not limited to: (i) the terms of this Agreement; (ii) the terms of the Annexation Agreement; (iii) the provisions of the Naperville Municipal Code (hereinafter also referenced as “**Code**”), as amended from time to time; and (iv) all

ordinances and resolutions passed or adopted by the Naperville City Council related to the SUBJECT PROPERTY, including but not limited to the ICN Ordinances.

3. **Terms and Conditions of Annexation Agreement.** The Annexation Agreement for the SUBJECT PROPERTY approved by the Naperville City Council on December 19, 2011 by Ordinance No. 11-191 and recorded with the Will County Recorder on December 14, 2012 (Will County Recording No. R2012-140000) remains in full force and effect.
4. **Phasing and Occupancy of the ICN Development.** OWNER AND DEVELOPER intends to develop the SUBJECT PROPERTY in five (5) phases in accordance with the Phasing Plan prepared by INTECH Consultants, Inc. dated March 30, 2020, last revised October 26, 2021 (“**Phasing Plan**”) attached hereto as **ATTACHMENT 3**, including a mosque in Phase I, a school in Phase II, a multi-purpose hall in Phase III, a gymnasium in Phase IV, and a mosque expansion in Phase V. Each phase of the Phasing Plan shall be referenced as “**Phase**”. Said Phases shall be constructed in the order set forth above unless modified as provided in Section 4.4 below. The following conditions shall be applicable to the Phasing and occupancy of the ICN Development:
 - 4.1. The number of worshipers in Phases I through IV shall not exceed 457 occupants unless otherwise approved through a major change to the conditional use processed in accordance with Section 6-3-8 of the Naperville Municipal Code then in effect. Notwithstanding the foregoing, a minor increase in the number of worshipers (not to exceed a total of 500) may be administratively approved if it is determined by the City Zoning Administrator and the City Engineer that traffic and on-site parking will not be adversely affected.
 - 4.1.1. Within five (5) days of a written request of the City, OWNER AND DEVELOPER shall promptly provide attendance logs or other evidence to the satisfaction of the City’s Zoning Administrator to confirm said maximum occupancy limitation has been and is being met.
 - 4.2. Expansion of the mosque as proposed by OWNER AND DEVELOPER for Phase V of the ICN Development shall proceed only upon approval of a major change to the Conditional Use Ordinance in accordance with Section 6-3-8 of the Naperville Municipal Code then in effect, any conditions set forth or referenced herein, and as may be provided in any approval of a major change to the conditional use.
 - 4.3. Any Phase of the ICN Development subsequent to Phase II shall proceed only after 248th Avenue has been widened from one through lane in each direction to two through lanes in each direction with dedicated left turn lanes between 95th Street and 103rd Street. The 248th widening improvements described above shall be deemed complete as determined by the City Engineer.

- 4.4. Modifications to the order of the Phasing Plan shall be processed in accordance with the Major Change, Minor Change, and Administrative Adjustment provisions set forth in Section 6-3-8 of the Naperville Municipal Code then in effect, as determined by the Zoning Administrator. Elimination of one or more Phases shall be processed as an administrative adjustment in accordance with Section 6-3-8:5.3 of the Naperville Municipal Code then in effect. Changes to the approved ICN Development shall be processed in accordance with the Naperville Municipal Code then effect, including but not limited to Section 6-3-8.
- 4.5. Unless otherwise provided herein, OWNER AND DEVELOPER shall construct all improvements related to all Phases of the ICN Development at its sole cost.
5. **Phase I Improvements.** OWNER AND DEVELOPER shall construct all improvements related to Phase I of the ICN Development (“**Phase I Improvements**”) in accordance with the Preliminary Engineering Plan for Phase I prepared by INTECH Consultants, Inc. dated March 30, 2020, last revised October 26, 2021 (“**Phase 1 Plan**”), attached hereto as **ATTACHMENT 4**, unless otherwise modified with the written authorization of the City Engineer or Fire Marshal, as applicable. Final plans for the Phase I Improvements, including but not limited to final engineering plans, final landscaping plans, a stormwater management report, building elevations, and a photometric plan (herein “**Final Phase I Plans**”) shall be submitted for review and approval by the City prior to issuance of a site permit for Phase I.
 - 5.1. The Phase I Improvements shall be completed by the OWNER AND DEVELOPER, and approved by the City Engineer, prior to issuance of any temporary or final occupancy permit for Phase I.
 - 5.2. The Fire Department Connection (“**FDC**”) shall be installed as part of the Phase I Improvements within fifty feet (50’) of a fire hydrant as depicted on the Phase I Plan.
 - 5.2.1. The FDC shall be relocated, or a new FDC shall be added, to the northwest corner of the building as expanded with Phase II or Phase III (as determined by the Fire Marshall), or at a different location approved by the Fire Marshall based upon the fire access to the SUBJECT PROPERTY at that time.
 - 5.3. The loading dock, transformer, and Fire Department Turnaround (bulb) on the north side of the building, as depicted on the Phase I Plan, shall be constructed as part of Phase I. The OWNER AND DEVELOPER shall be responsible, at its sole cost, for design and installation of the loading dock and Fire Department Turnaround/bulb. The City shall be responsible for installation of the transformer which OWNER AND DEVELOPER shall pay for in conformance with applicable City of Naperville Electric Utility Service Rules and Polices then in effect.

- 5.3.1. The City Department of Public Utility Electric (DPU-E) and the Fire Department shall have ongoing access to the loading dock, transformer, Fire Department Turnaround (bulb), the FDC connection, and utility meters.
- 5.4. The two driveway entrances shown on the Phase I Plan shall be constructed as part of Phase I. The north driveway entrance shall be a right-in/right-out only entrance.
- 5.5. Final grade along the planned electric utility route per approved final engineering plans for Phase I must be achieved during Phase I construction. Any change in grading thereafter shall be subject to City of Naperville Electric Utility Service Rules and Polices then in effect.
- 5.6. The utility transformer depicted on the Phase I Plan shall be sized according to DPU-E's specifications.
 - 5.6.1. The transformer sizing will be evaluated during the development of subsequent Phases. Upgrades will be made at DPU-E's sole discretion and the cost of the upgrades shall be paid by OWNER AND DEVELOPER.
- 5.7. In addition to the Final Phase I Plans noted above, OWNER AND DEVELOPER shall, at no cost to the City, submit a plat of easement granting the City reasonable and necessary easements subject to the review and approval by the City. Said plat of easement shall be recorded with the Will County Recorder prior to issuance of any occupancy permit for Phase I.
6. **Submission of Plans and Studies for Future Phases.** Prior to issuance of a building or site permit for each Phase of the ICN Development after Phase I, the following plans and/or studies ("**Future Submittals**") shall be submitted by the OWNER AND DEVELOPER for review and approval by the City.
 - i. Final engineering plans;
 - ii. Final landscaping plans
 - iii. Updated Parking study;
 - iv. Updated Traffic study;
 - v. Building elevations;
 - vi. Stormwater management report;
 - vii. Photometric plan; and
 - viii. other plans or studies reasonably requested by the City.
- 6.1. The City will not issue a building or site permit for any Phase until OWNER AND DEVELOPER has addressed the shortcomings identified by the Future Submittals in a manner approved by the City.
 - 6.1.1. In addition to the above requirements, prior to issuance of a building permit for Phase 4, City staff shall present the conditions that will be required to be

satisfied in order for the building permit for Phase 4 to be issued, if any, to City Council for approval.

- 6.2. Changes to building materials depicted on approved building elevations, which approved building elevations are attached hereto as **ATTACHMENT 5**, may be administratively approved by the City's Zoning Administrator if the Zoning Administrator determines that such changes comply with Citywide Building Design Guidelines then in effect.
- 6.3. The Fire Department shall review the Future Submittals for each Phase to ensure that Fire Department vehicles may be efficiently deployed and operated on the SUBJECT PROPERTY and to ensure compliance with all applicable fire and building codes and polices in effect at that time. The Fire Department may require design modifications to accommodate circulation, emergency vehicle access, location of fire lanes, location of fire equipment/connection points, etc. In addition, the Fire Department may require the Fire Department Connection (FDC) installed in Phase I to be relocated as set forth in Section 5.2.1 above.
- 6.4. Concurrent with the submission of the Future Submittals for Phase II, OWNER AND DEVELOPER shall submit a school pick-up plan for the review and approval of the City prior to issuance of a site permit or a building permit for Phase II of the ICN Development. The school drop-off plan that has been submitted, attached hereto as **ATTACHMENT 6**, shall be further reviewed and modified as determined necessary by the City Engineer in conjunction with the school pick-up plan.
7. **Interim Left Turn Lane on 248th Avenue.** OWNER AND DEVELOPER agrees to, at its sole cost, design and construct an interim/temporary left turn lane for south-bound traffic on 248th Avenue to enter into the south entrance of the Subject Property. Design and engineering for the left turn lane shall be included in the final engineering plans for Phase I of the ICN Development to be submitted by the OWNER AND DEVELOPER for review and approval by the City Engineer. The left turn lane shall be fully completed, including but not limited to restoration of the City's right-of-way, as determined by City Engineer, prior to issuance of a temporary or final occupancy permit for Phase I of the ICN Development.
8. **Traffic Signal.** OWNER AND DEVELOPER shall, at its sole cost, design and install a traffic signal and appurtenances at the intersection of Honey Locust Drive and 248th Avenue when it meets traffic signal warrants (hereinafter "**Traffic Signal Improvements**"). When the traffic signal warrants have been met, the City Engineer shall provide the OWNER AND DEVELOPER with written notification requiring design and installation of the Traffic Signal Improvements ("Notice"). Design and engineering for the Traffic Signal Improvements shall be submitted by the OWNER AND DEVELOPER for review and approval by the City Engineer prior to commencement of the installation. The Traffic Signal Improvements shall be fully completed by the OWNER AND DEVELOPER and approved by the City Engineer

within two years of the postmark date of the Notice unless a different timeframe is agreed to in writing by the City Engineer.

The City shall reimburse the OWNER AND DEVELOPER fifty percent (50%) of the actual costs of the design and installation of the Traffic Signal Improvements in accordance with provisions of Section 7-3-6 of the Code then in effect. As provided therein, all costs related to the Traffic Signal Improvements shall be reviewed and approved by the City Engineer prior to design and prior to construction.

In the absence of full completion and approval of the Traffic Signal Improvements as set forth above, the City shall have the right to withhold issuance of any further building or occupancy permits for the SUBJECT PROPERTY.

If the OWNER AND DEVELOPER feels the necessity to expedite any such installation prior to being notified by the City, the OWNER AND DEVELOPER shall also be allowed to request a traffic signal warrant study be completed prior to any notification by the City.

9. Traffic Management.

9.1. **Traffic Study.** OWNER AND DEVELOPER have submitted a traffic study, prepared by KLOA, Inc. and last revised October 12, 2020, attached hereto as **ATTACHMENT 7**.

9.2. **Traffic Management and Pedestrian Crossing Assistance Prior to Expansion of 248th Avenue.** OWNER AND DEVELOPER shall provide traffic management at the south entrance to the SUBJECT PROPERTY in the form of law enforcement personnel before and after Friday afternoon services between noon and 3 p.m. prior to completion of the expansion of the 248th Avenue. OWNER AND DEVELOPER shall also provide a crossing guard to assist pedestrians utilizing the 248th Avenue pedestrian crossing before and after Friday afternoon services between noon and 3 p.m. prior to completion of the expansion of the 248th Avenue.

9.3. **Additional Traffic Management Prior to and After Expansion of 248th Avenue.** In addition to the provisions of 9.1 above, the City may require the OWNER AND DEVELOPER to provide traffic management in the form of law enforcement personnel and/or signage approved by the City Engineer to direct traffic on 248th Avenue into the two entrances of the SUBJECT PROPERTY for large events, school use, and services (including but not limited to Friday services), if the volume of cars exceeds the capacity of the turn lanes into the SUBJECT PROPERTY such that back-ups consistently occur in the through lanes of 248th Avenue. This provision shall apply prior to and after expansion of 248th avenue.

- 9.4. **Enforcement.** Failure to comply with the provisions of this Section 9 may result in the City withholding future building or occupancy permits and taking such other actions as it deems appropriate.

10. Parking Requirements.

- 10.1. OWNER AND DEVELOPER have submitted a parking study attached hereto as **ATTACHMENT 8** (hereinafter "**Parking Study**"). Said Parking Study indicates that the required parking for the mosque shall be provided at a ratio of 1 parking space per 1.4 worshippers, which is in excess of the 1 parking space per 3 worshippers required per the Naperville Municipal Code.
- 10.2. A minimum of 422 parking spaces shall be constructed with Phase I based upon the findings of the Parking Study as it relates to the worship space in the mosque, . to provide parking for the worship space in the mosque at a ratio of 1 parking space per 1.4 worshipers and for the other uses within the remainder of the building based on Code requirements (e.g., offices, kitchen, basement multi-purpose space).
- 10.3. A needs-based parking approach will be used for Phases II through IV which shall require administrative review and approval of parking demand and occupancy prior to the construction of each Phase in order to ensure adequate onsite parking is provided throughout the development. In no event shall the number of parking spaces provided for Phases II through IV fall below Code required parking for all uses.
- 10.4. On-site parking may only occur in legal, striped parking spaces. Parking shall not be located within the 27.5' buffer provided along the southern property line of the SUBJECT PROPERTY unless all of or a portion of said 27.5' buffer has been approved by the City to be converted to on-site parking through approval of a major change to the conditional use for the ICN Development processed in accordance with Section 6-3-8 of the Naperville Municipal Code then in effect.
- 10.5. If, during any Phase of the ICN Development, the City Zoning Administrator determines that the parking demands of the ICN Development cannot be accommodated within the available parking supply on the SUBJECT PROPERTY, OWNER AND DEVELOPER shall promptly take adequate measures to address the identified parking issues, such as prohibiting concurrent use of spaces within the religious facility; adding additional worship services; increasing the gap of time between worship services; amending hours of operation; establishing an overflow parking location off-site; providing shuttling to the SUBJECT PROPERTY; and/or other approaches. Said measures shall be subject to the review and approval of the Zoning Administrator. Failure to respond to the parking issues identified by the Zoning Administrator may result in the City withholding future building or occupancy permits and taking such other actions as it deems appropriate.

11. Fence Requirement. OWNER AND DEVELOPER shall install a six foot (6') tall solid wood fence along the north, east and south property lines of the SUBJECT PROPERTY as depicted on the Preliminary Landscape Plan prepared by Design Perspectives, Inc., dated May 1, 2020 and last revised October 26, 2021, attached hereto as **ATTACHMENT 9 (“Landscape Plan”)**. In addition, OWNER AND DEVELOPER shall install landscaping materials in general compliance with the Landscape Plan for each Phase of the ICN Development, unless modifications are otherwise approved by the Zoning Administrator.

12. Maintenance and Operation of the SUBJECT PROPERTY.

12.1. During all construction time periods, the SUBJECT PROPERTY shall closely adhere to all City requirements for maintenance of construction sites.

12.2. During all non-construction time periods between Phases, all undeveloped or unimproved grounds of the SUBJECT PROPERTY shall be seeded and sodded in a timely fashion as required by the City Engineer and be maintained in a manner consistent with all City requirements.

12.3. No external speaker systems or amplifiers shall be utilized at the SUBJECT PROPERTY.

12.4. The Multi-Purpose Hall and Gymnasium shall not be advertised for, nor be available for, public use or use by non-affiliated for profit organizations, or used for non-affiliated for-profit purposes. Any use shall be initiated by member(s) of ICN, and may include, but not be limited to weddings, dinners, meetings, school or faith based basketball tournaments, clothing/book fairs, seminars, hosting community members during an emergency (tornado), blood drives, girl/boy scout meetings, and other uses commonly occurring within gymnasiums and multi-purpose spaces in other religious facilities within the City of Naperville.

13. Fees Due. OWNER AND DEVELOPER shall pay all fees (which fees shall not be paid under protest or otherwise objected to) set forth herein and required by the Naperville Municipal Code as amended from time to time, including but not limited to the following:

13.1. **Sidewalk Improvement Fee:** \$25,828.14 (662.26 feet at \$39 per linear foot). This fee is due prior to recordation of this Agreement.

13.2. **Infrastructure Availability Charges and User Fees.** Upon a request for connection and service to the City's water or sanitary system, OWNER AND DEVELOPER shall pay for all infrastructure availability charges and user fees in accordance with Title 8 of the Naperville Municipal Code as amended from time to time, as are applicable to that portion of the SUBJECT PROPERTY for which connection and service is requested.

13.3. Facility Installation Charges and User Fees. Upon a request for connection and service to the City of Naperville electric system, the OWNER AND DEVELOPER shall pay for all Facility Installation Charges (FIC) and user fees in accordance with Title 8 of the Naperville Municipal Code as amended from time to time, as are applicable to that portion of the SUBJECT PROPERTY for which connection and service is requested.

14. Financial Surety. Financial surety in a form and from a source acceptable to the City Attorney shall be provided and maintained by the OWNER AND DEVELOPER for 110% of the approved engineer's cost estimate which guarantees the completion of public improvements and soil erosion and sedimentation control for each Phase of the ICN Development ("Public Improvements") unless otherwise agreed to in writing by the City Engineer. Public Improvements shall include but are not limited to the interim left turn lane on 248th Avenue as set forth in Section 7 above (to be completed in Phase I), and the Traffic Signal Improvements to be completed upon warrant as set forth in Section 8 above. Financial surety shall be received and approved prior to issuance of a site development permit for each Phase or the Traffic Signal Improvements. Notwithstanding provision of said surety, until the Public Improvements have been accepted by the City, the OWNER AND DEVELOPER shall remain obligated for completion of said Public Improvements and/or (at the City's sole discretion) to pay any costs for said Public Improvements to the extent that the surety is not sufficient to pay for the costs of the Public Improvements, or in the event of any denial, or partial denial of coverage by the surety, or failure of the surety to timely respond to a demand for payment. Prior to acceptance of the Public Improvements by the City, the OWNER AND DEVELOPER shall provide the City with a maintenance surety for the Public Improvements in a form approved by the City Attorney and in conformity with the Naperville Municipal Code then in effect.

As to any surety, or maintenance surety provided by the OWNER AND DEVELOPER to the City hereunder, the OWNER AND DEVELOPER agrees that: (1) at no time shall the City be liable for attorneys' fees with respect thereto; (2) OWNER AND DEVELOPER shall be liable to pay the City's reasonable attorneys' fees and costs (in-house or outside counsel) in enforcement thereof; and (3) the list of circumstances set forth in such surety (including any exhibit thereto) as bases for default thereunder shall entitle the City to draw on said surety.

15. Building Permits. No building permits shall be issued for the SUBJECT PROPERTY, or any portion thereof, until the City has determined that sufficient improvements have been installed and are functioning to protect the health, safety, and welfare of the public.


16. General Conditions.

- 16.1. **Binding Effect.** City and OWNER AND DEVELOPER acknowledge and agree that the terms contained herein shall be binding upon and inure to the benefit of the City and the OWNER AND DEVELOPER and their respective successors, assigns, and transferees, and any subsidiary, affiliate or parent of the OWNER AND DEVELOPER.
- 16.2. **Severability.** It is mutually understood and agreed that all agreements and covenants herein are severable and that in the event any of them shall be held to be invalid by any court of competent jurisdiction, this Agreement shall be interpreted as if such invalid agreement or covenant were not contained herein.
- 16.3. **Amendment.** The agreements, covenants, terms and conditions herein contained may be modified only through the written mutual consent of the Parties hereto.
- 16.4. **Assignment.** This Agreement may not be assigned by either Party without the written consent of the other Party.
- 16.5. **Choice of Law and Venue.** This Agreement shall in all respects be subject to and construed in accordance with and governed by the laws of the State of Illinois. Venue for any action arising out of the terms or conditions of this Agreement shall be proper only in the Circuit Court for the Eighteenth Judicial Circuit, DuPage County, Illinois.
- 16.6. **Ambiguity.** If any term of this Agreement is ambiguous, it shall not be construed for or against any Party on the basis that the Party did or did not write it.
- 16.7. **Recordation.** This Agreement will be recorded by the City with the office of the DuPage County Recorder.
- 16.8. **Term.** This Agreement shall be effective upon the Effective Date set forth in Section 15.12 hereof and shall terminate, without further action by either Party, forty (40) years thereafter.
- 16.9. **Survival.** The terms and conditions set forth in the following paragraphs of this Agreement shall survive the expiration or termination of this Agreement: 1 through 15 and 16.1, 16.2, 16.5, 16.6 and 16.9.
- 16.10. **Authority to Execute/OWNER AND DEVELOPER.** The undersigned warrants that he/she is the OWNER AND DEVELOPER of the SUBJECT PROPERTY, or is the duly authorized representative of the OWNER AND DEVELOPER of the SUBJECT PROPERTY in the case of a corporation, partnership, trust, or similar ownership form which owns the SUBJECT PROPERTY, and that the undersigned has full power and authority to sign this Agreement and voluntarily agrees to the provisions set forth herein.

16.11. **Effective Date.** The effective date of this Agreement (“**Effective Date**”) shall be the date upon which it is fully executed by both Parties hereto.

/SIGNATURES ON FOLLOWING PAGES/

OWNER AND DEVELOPER/ISLAMIC CENTER OF NAPERVILLE


[Signature]

Kashif Fakhruddin
[Printed name]

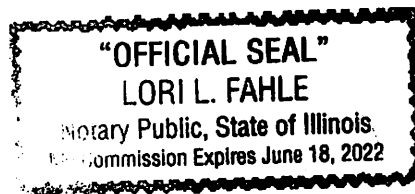
President
[Title]

State of Illinois)
) ss
County of DuPage)

The foregoing instrument was acknowledged before me by Kashif Fakhruddin
this 10th day of November 2021.


Notary Public

Lori L. Fahle
Print Name



Given under my hand and official seal this _____ day of _____, 2021.

-Seal-

Notary Public
My Commission Expires: _____

CITY OF NAPERVILLE

By: _____
Douglas A. Krieger
City Manager

ATTEST:

By: _____
Pam Gallahue, Ph.D.
City Clerk

Date: _____

**Islamic Center of Naperville
248th Avenue**

Legal Description

LOT 1 OF ISLAMIC CENTER OF NAPERVILLE 248TH AVENUE SUBDIVISION, BEING A SUBDIVISION OF PART OF THE SOUTHWEST 1/4 OF SECTION 9, TOWNSHIP 37 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN, ACCORDING TO THE PLAT THEREOF RECORDED DECEMBER 14, 2012 AS DOCUMENT NUMBER R2012140005 IN WILL COUNTY, ILLINOIS

PIN: 01-09-306-023

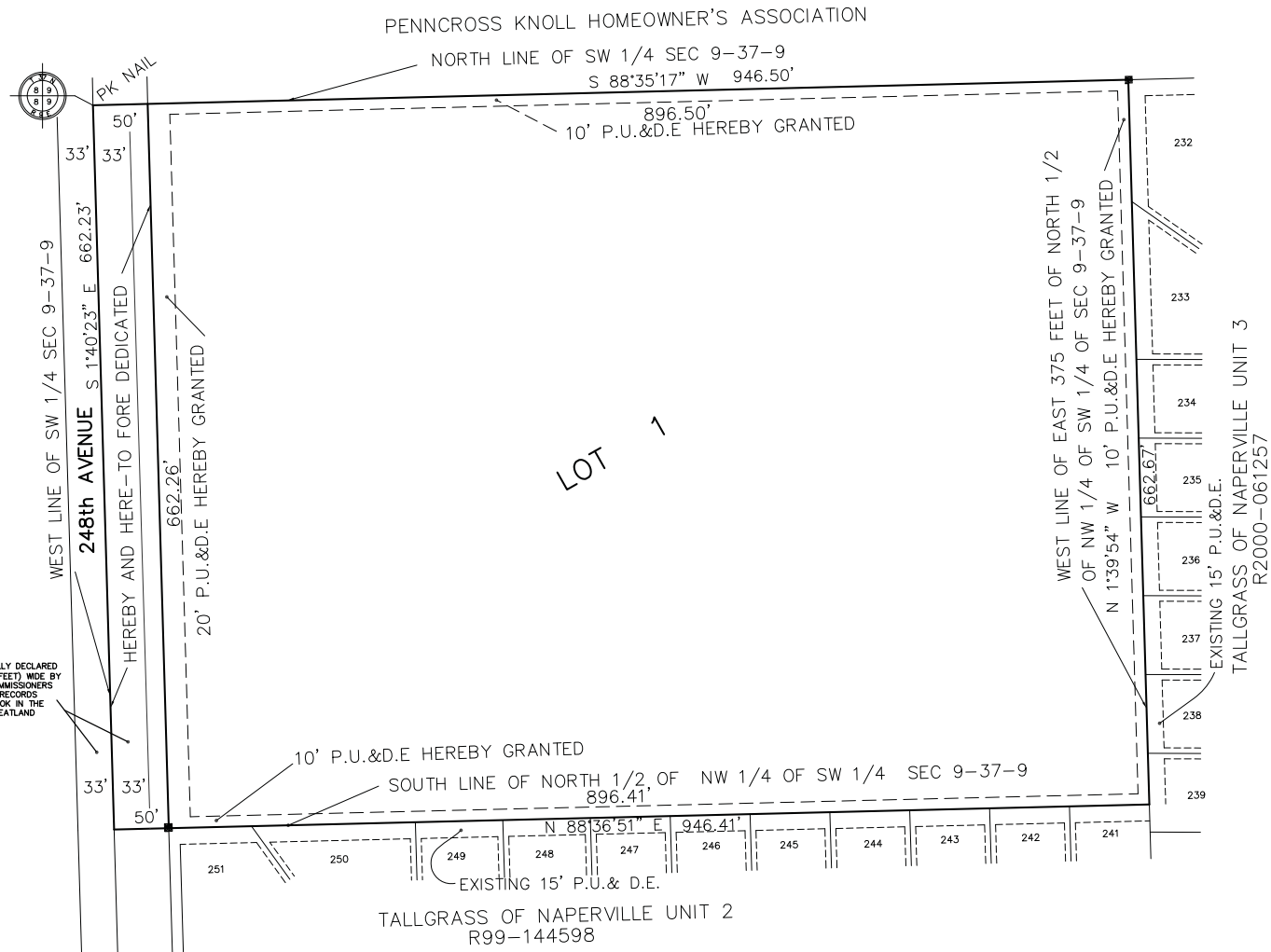
Address: 3540 248th Avenue, Naperville, IL

PRELIMINARY/FINAL SUBDIVISION PLAT

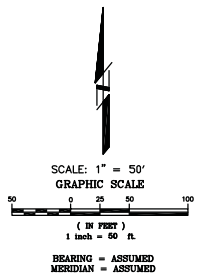
ISLAMIC CENTER OF NAPERVILLE 248th AVENUE SUBDIVISION

BEING A SUBDIVISION OF PART OF THE SOUTHWEST 1/4 OF SECTION 9,
TOWNSHIP 37 NORTH, RANGE 9 EAST OF THE THIRD PRINCIPAL MERIDIAN,
IN WILL COUNTY, ILLINOIS.

THIS PLAT HAS BEEN SUBMITTED FOR RECORDING BY AND RETURN TO:
NAME: NAPERVILLE CITY CLERK
ADDRESS: 400 S. EAGLE STREET
NAPERVILLE, ILLINOIS
60540



248TH AVENUE, A PUBLIC ROAD FORMALLY DECLARED TO BE A PUBLIC HIGHWAY 4 RODS (66 FEET) WIDE BY THE WHEATLAND TOWNSHIP HIGHWAY COMMISSIONERS SEPTEMBER 6, 1851 PURSUANT TO THE RECORDS THEREOF CONTAINED IN THE RECORD BOOK IN THE OFFICE OF THE TOWNSHIP CLERK OF WHEATLAND TOWNSHIP, NAPERVILLE, ILLINOIS.



- LEGEND**
- CONCRETE MONUMENT SET
 - EASEMENT LINE
 - _____ PROPERTY LINE
 - _____ SUBDIVISION BOUNDARY LINE
- ABBREVIATIONS**
- N = NORTH
 - S = SOUTH
 - E = EAST
 - W = WEST
 - R = RADIUS
 - PU & DE = PUBLIC UTILITIES & DRAINAGE EASEMENT



LOCATION MAP
NOT TO SCALE

LOT AREA SUMMARY		
LOT #	AREA	ACRES
TOTAL AREA LOT 1	593,857 S.F.	13.633
ROADWAY DEDICATION	33,112 S.F.	= 0.760
TOTAL AREA IN SUBDIVISION	14.393 ACRES	

- NOTES:**
1. IRON PIPES ARE AT ALL LOT CORNERS.
 2. ALL EASEMENTS ARE HEREBY GRANTED UNLESS OTHERWISE NOTED.
 3. ALL EASEMENTS DEPICTED ON THE PLAT ARE FOR PUBLIC UTILITIES AND DRAINAGE PURPOSES UNLESS OTHERWISE NOTED. REFER TO THE PUBLIC UTILITIES AND DRAINAGE EASEMENT PROVISIONS STATEMENT ON SHEET 2 OF 2 FOR SPECIFIC TERMS AND CONDITIONS.
 4. ALL MEASUREMENTS AND DISTANCES ARE SHOWN IN FEET AND DECIMAL PARTS THEREOF.
 5. ALL STREET RIGHTS-OF-WAY NOTED ON THE PLAT AS "HEREBY AND HERETOFORE DEDICATED" ARE HEREBY DEDICATED, CONVEYED AND TRANSFERRED TO THE CITY OF NAPERVILLE FOR PUBLIC RIGHT-OF-WAY PURPOSES.

CITY OF NAPERVILLE STREET CLASSIFICATION
ALL STREETS WITHIN THIS SUBDIVISION SHALL BE CLASSIFIED MINOR ATERIAL.

ALL PARKWAY TREE REQUIREMENTS SHALL BE MET PURSUANT TO THE CITY OF NAPERVILLE ORDINANCE AS AMENDED

DEVELOPER/OWNER:
ISLAMIC CENTER OF NAPERVILLE
450 OLESON DRIVE
NAPERVILLE, ILLINOIS 60540
TEL 630-209-2777
E-MAIL: ARAHMAN@BURNSMCD.COM

CITY OF NAPERVILLE PROJECT #11-10000138

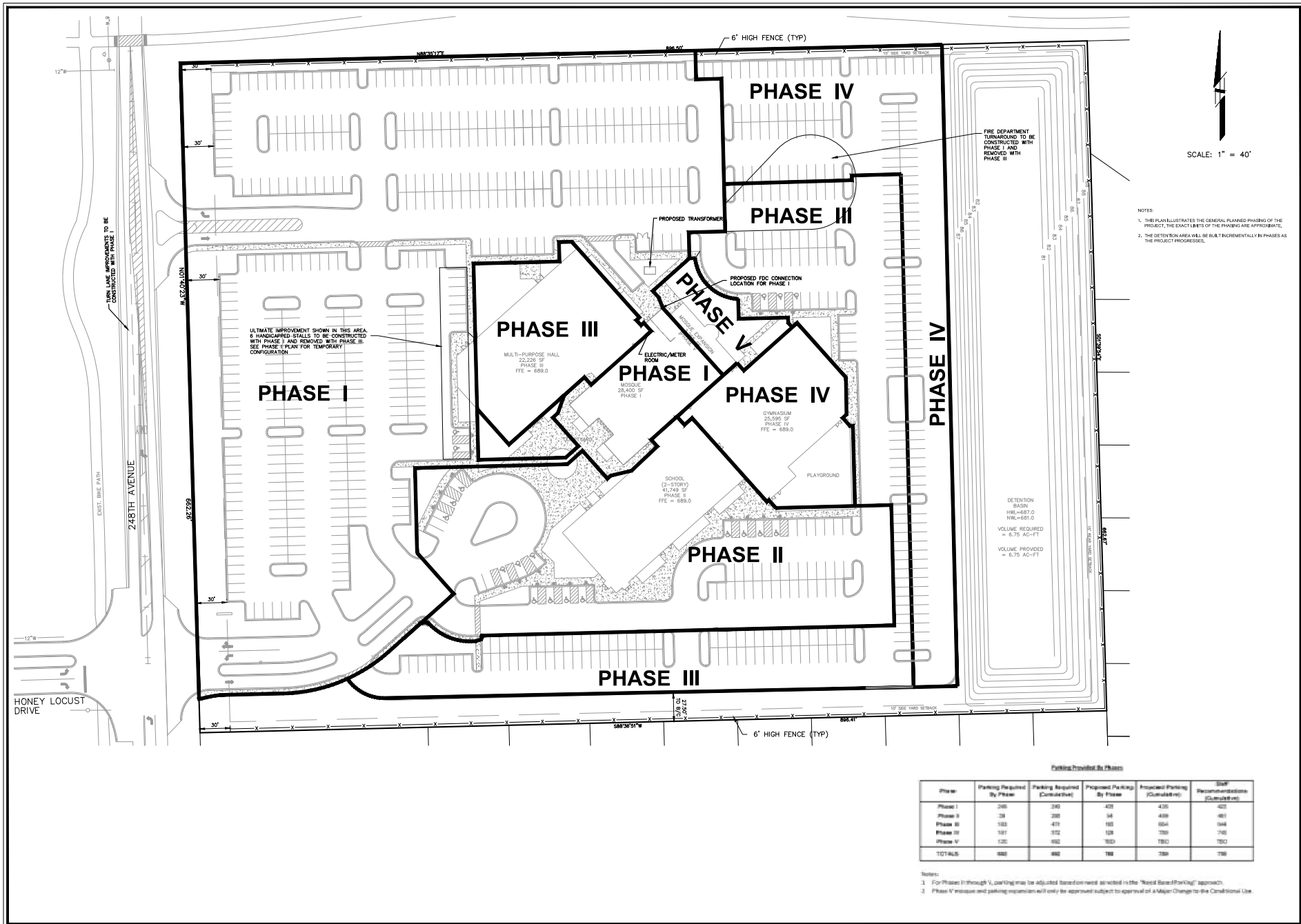
INTECH CONSULTANTS, INC.
ENGINEERS / SURVEYORS
1989 UNIVERSITY LANE, SUITE D - LISLE, ILLINOIS
TEL: (630) 964-5656 FAX: (630) 964-5052
E-MAIL: CAD@INTECHCONSULTANTS.COM
ILLINOIS REGISTRATION NO. 184-001040

REVISED 11-15-2011 CON REVIEW OF 11-9-2011
REVISED 10-16-2011 CON REVIEW OF 10-13-2011
PREPARED: 9-27-11

SHEET No. 1 of 2 JOB No.: 2011-016

I:\CAD\Projects\2011\11-10000138\FINAL PLAT.dwg SUB-1 11/15/2011 1:55:27 PM SSP

ISLAMIC CENTER OF NAPERVILLE - 248TH AVENUE PRELIMINARY/FINAL PLAT OF SUBDIVISION



NOTES:
 1. THE PLAN ILLUSTRATES THE GENERAL PLANNED PHASING OF THE PROJECT, THE EXACT LIMITS OF THE PHASING ARE APPROXIMATE.
 2. THE DETENTION AREA WILL BE BUILT INCREMENTALLY IN PHASES AS THE PROJECT PROGRESSES.

FIRE DEPARTMENT TURNAROUND TO BE CONSTRUCTED WITH PHASE I AND REMOVED WITH PHASE II

ULTIMATE IMPROVEMENT SHOWN IN THIS AREA 6 HANDICAPPED STALLS TO BE CONSTRUCTED WITH PHASE I AND REMOVED WITH PHASE III. SEE PHASE I PLAN FOR TEMPORARY CONFIGURATION.

DETONATION BASIN
 HWL=687.0
 HML=681.0
 VOLUME REQUIRED = 6.75 AC-FT
 VOLUME PROVIDED = 6.75 AC-FT

Parking Provided By Phases

Phase	Parking Required By Phase	Parking Required (Cumulative)	Proposed Parking By Phase	Proposed Parking (Cumulative)	Staff Recommendations (Cumulative)
Phase I	240	240	420	420	420
Phase II	38	278	54	474	458
Phase III	153	431	165	639	544
Phase IV	181	612	128	767	742
Phase V	122	734	750	1517	750
TOTALS	634	734	767	1517	750

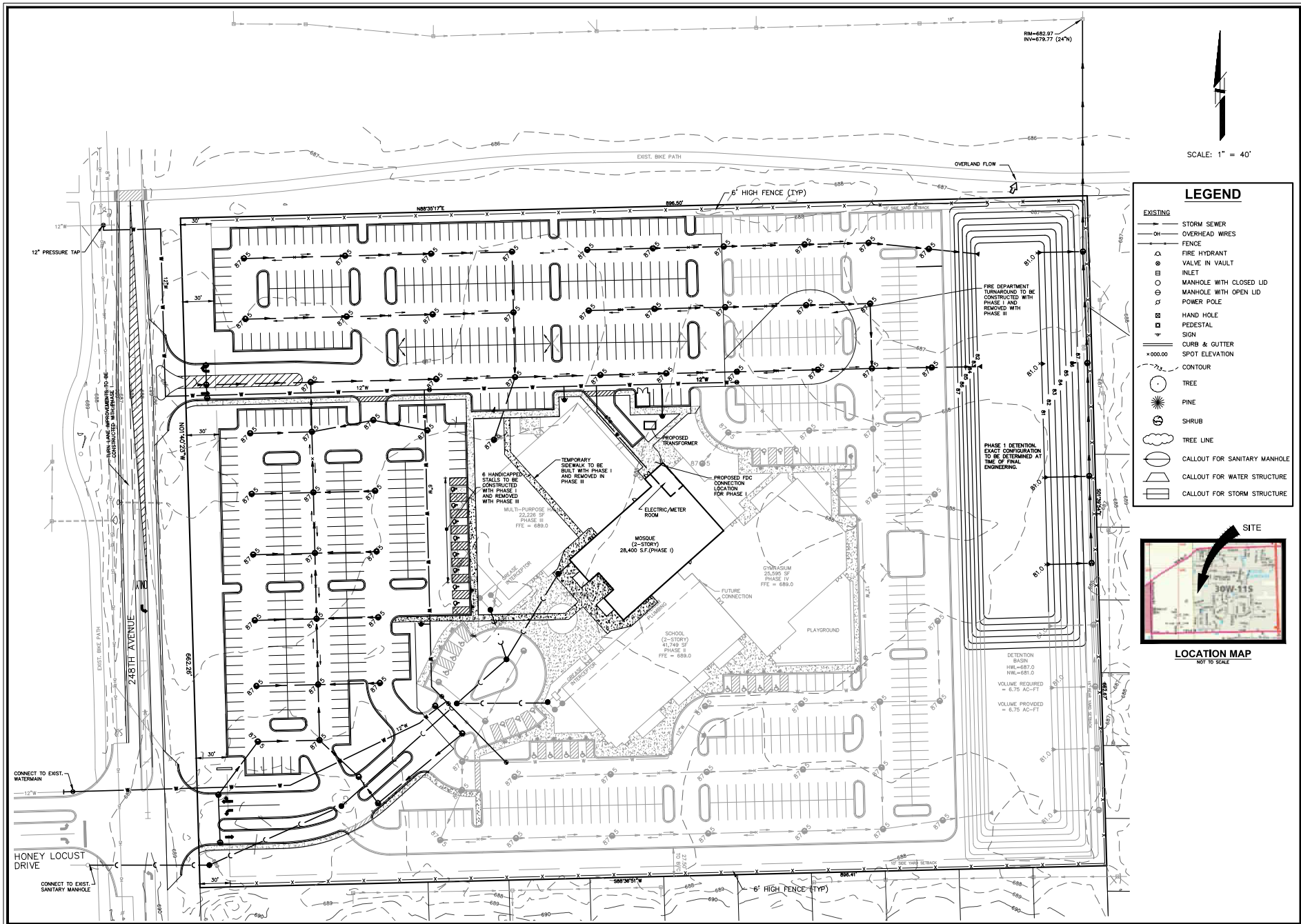
Notes:
 1. For Phase I through V, parking may be adjusted based on new arrival in the "Need Based Parking" approach.
 2. Phase V mission and parking expansion will only be approved subject to approval of a Major Change to the Conditional Use.

INTECH CONSULTANTS, INC.
 1880 UNIVERSITY LAKE, SUITE D
 LIBLE, ILLINOIS 60532
 PHONE: 630-368-0566
 FAX: 630-368-0566

ISLAMIC CENTER OF NAPERVILLE
 248TH AVENUE SITE
 NAPERVILLE, ILLINOIS

PHASING PLAN

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



LEGEND

EXISTING	
—	STORM SEWER
—	OVERHEAD WIRES
—	FENCE
⊠	FIRE HYDRANT
⊞	VALVE IN VAULT
⊞	INLET
⊞	MANHOLE WITH CLOSED LID
⊞	MANHOLE WITH OPEN LID
⊞	POWER POLE
⊞	HAND HOLE
⊞	PEDESTAL
⊞	SIGN
⊞	CURB & GUTTER
⊞	SPOT ELEVATION
—	CONTOUR
⊞	TREE
⊞	PINE
⊞	SHRUB
⊞	TREE LINE
⊞	CALLOUT FOR SANITARY MANHOLE
⊞	CALLOUT FOR WATER STRUCTURE
⊞	CALLOUT FOR STORM STRUCTURE



SCALE: 1" = 40'

PREPARED BY CHECKED BY DATE DRAWN BY PROJECT NO. SHEET NO.	INTECH CONSULTANTS, INC. ENGINEERS - SURVEYORS 1888 UNIVERSITY LANE, SUITE D NAPERVILLE, ILLINOIS 60563 PHONE: 630-364-0566 FAX: 630-364-0566
PROJECT NO. SHEET NO.	ISLAMIC CENTER OF NAPERVILLE 248TH AVENUE SITE NAPERVILLE, ILLINOIS
SCALE: 1"=40' DATE: 3-30-20 DRAWN: BC PREPARED: EFS	PRELIMINARY ENGINEERING PLAN PHASE 1
PROJECT NO. SHEET NO.	2011-016B 1 OF 1

I hereby certify that these drawings/documents were prepared under my direct supervision and to the best of my knowledge conform to the applicable building and zoning codes of the City of Naperville, State of Illinois.
 Jamshid Jahedi:

Expires: 11/31/2020

REVISIONS:

NO.	DESCRIPTION	DATE

DESIGN: Designer
 DRAW: Author
 CHECK: Jamshid Jahedi

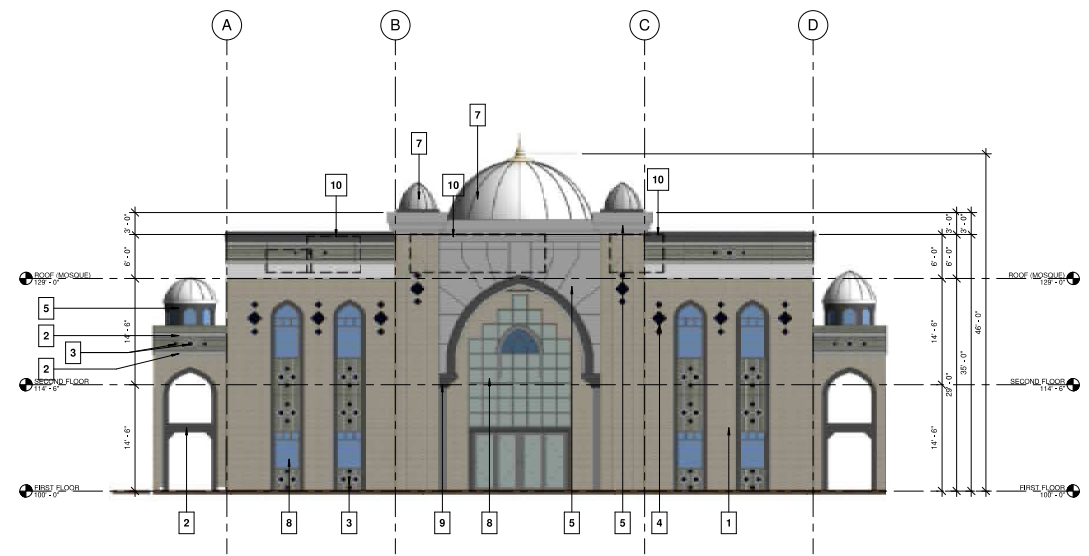
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 FILE NO: .

SHEET TITLE:
MOSQUE ELEVATION-1 (PHASE I)

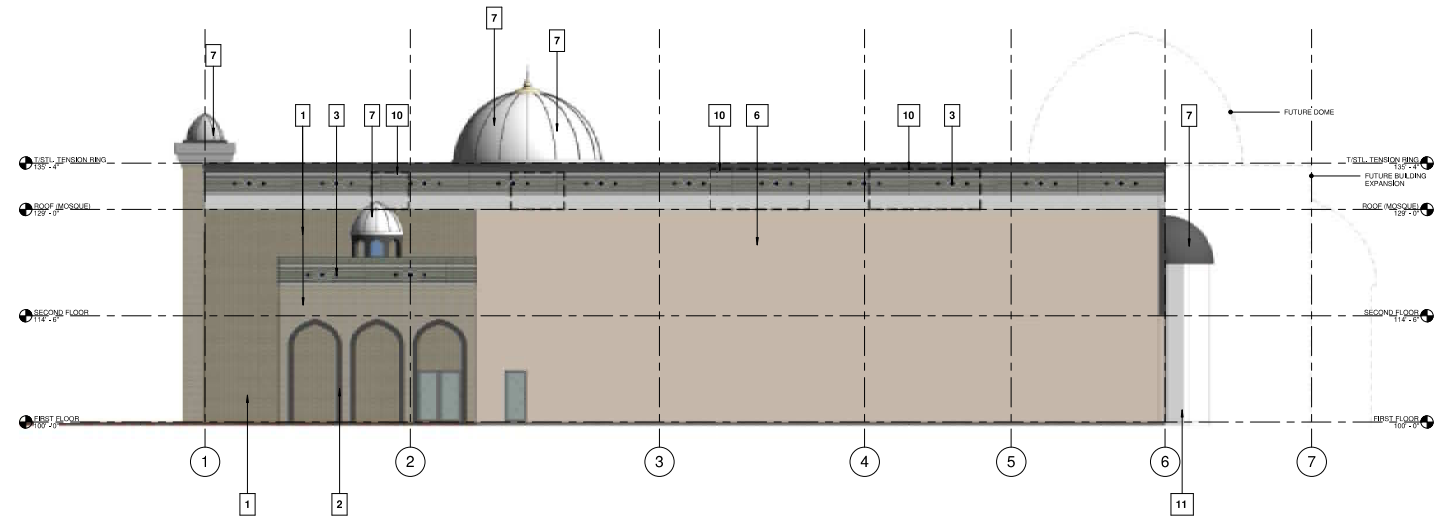
SHEET No:
A2-1.0

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- 1 PRECAST CONCRETE BRICK FORM-LINER, WHITE BRICK PAINT (SW7596, ONLY NATURAL)
- 2 PRECAST CONCRETE TRIM WORK PATTERN, GRAY
- 3 GLAZED TILE MEDALINE IN-LAY, TONE OF GRAY, BLUE, GREEN
- 4 GLAZED TILE MEDALINE IN-LAY, BLUE, GREEN
- 5 STUCCO FLAT WORK, GRAY TONES, STUCCO (SW7667 ZIRCON)
- 6 PRECAST CONCRETE PLAIN PANEL, WHITE BRICK PAINT (SW7596, ONLY NATURAL)
- 7 STANDING SEAM METAL ROOF, COLOR (SW 7557 SUMMER WHITE)
- 8 METAL WINDOW, CURTAIN WALL OR STORE FRONT, GRAY TONES
- 9 DECORATIVE COLUMNS W/BASE & CAPITAL, FIBER GLASS & STUCCO (SW7667 ZIRCON)
- 10 ROOF TOP UNIT (RTU)

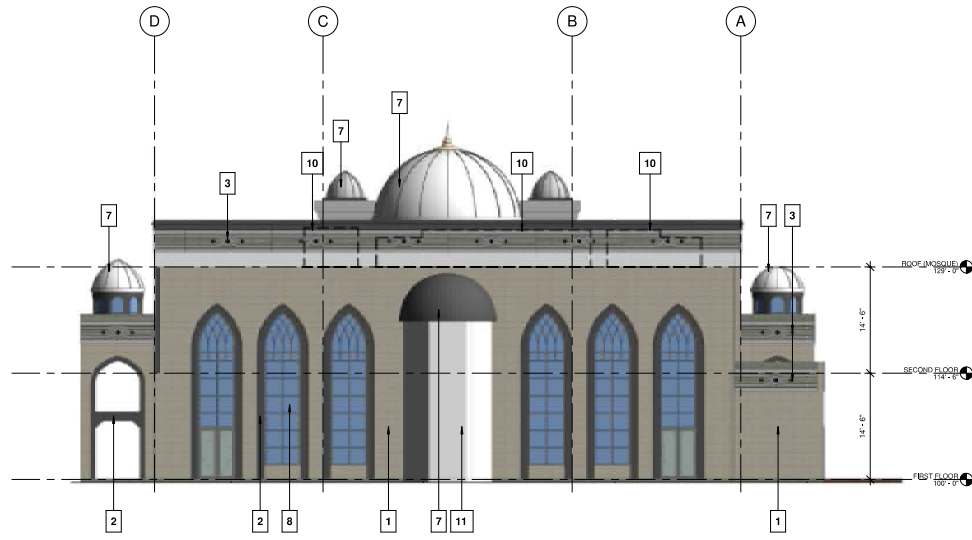


1 MOSQUE FRONT ELEVATION(COLOR)
 1/8" = 1'-0"



2 MOSQUE SIDE ELEVATION-1(COLOR)
 1/8" = 1'-0"

- 1 PRECAST CONCRETE BRICK FORM-LINER, WHITE BRICK PAINT (SW7596, ONLY NATURAL)
- 2 PRECAST CONCRETE TRIM WORK PATTERN, GRAY
- 3 GLAZED TILE MEDALINE IN-LAY, TONE OF GRAY, BLUE, GREEN
- 4 GLAZED TILE MEDALINE IN-LAY, BLUE, GREEN
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- 8 METAL WINDOW, CURTAIN WALL OR STORE FRONT, GRAY TONES
- 9 DECORATIVE COLUMNS W/BASE & CAPITAL, FIBER GLASS & STUCCO (SW7667 ZIRCON)
- 10 ROOF TOP UNIT (RTU)
- 11 PRECAST CONCRETE WHITE PAINTING



1 MOSQUE BACK ELEVATION(COLOR)
 1/8" = 1'-0"

I hereby certify that these drawings/documents were prepared under my direct supervision and to the best of my knowledge conform to the applicable building and zoning codes of the City of Naperville, State of Illinois.
 Jamshid Jahedi:

Expires: 11/31/2020

REVISIONS:

NO.	DESCRIPTION	DATE

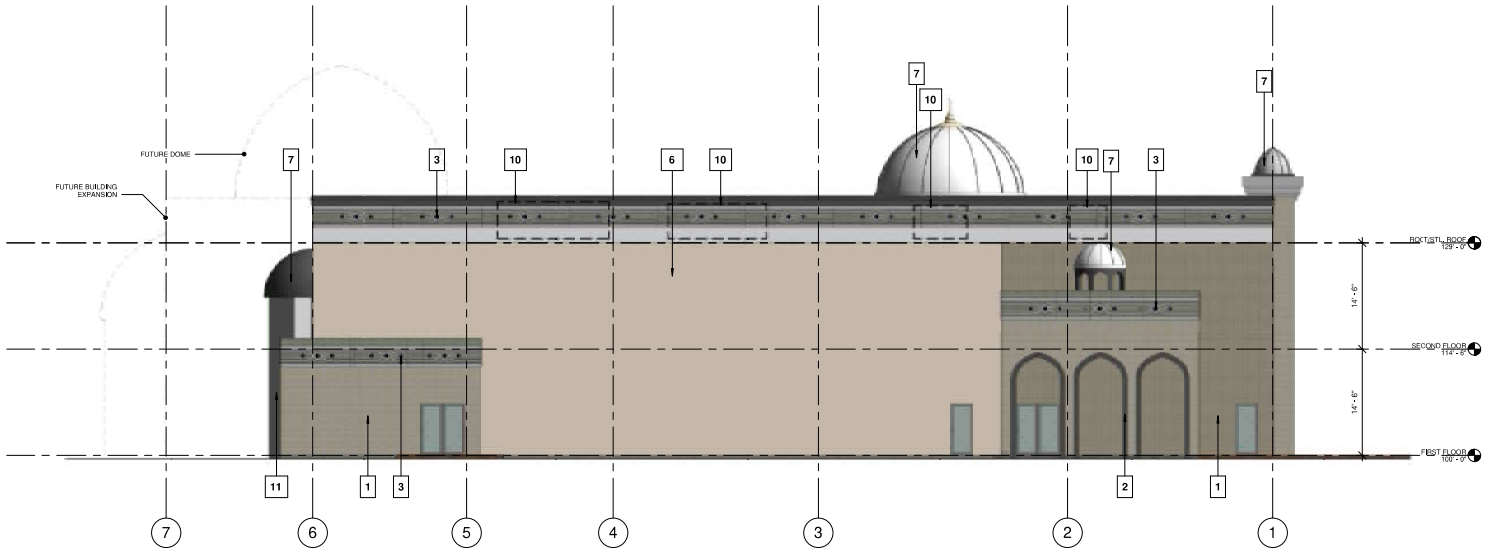
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 DRAW: Author
 CHECK: Jamshid Jahedi

DATE: 07/09/20
 SCALE: 1/8" = 1'-0"
 FILE No: .

SHEET TITLE:
MOSQUE ELEVATION-2 (PHASE 1)

SHEET No:
 A2-2.0

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2 MOSQUE SIDE ELEVATION-2(COLOR)
 1/8" = 1'-0"

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 Jamshid Jahedi:

Expires: 11/31/2020

REVISIONS:

NO.	DESCRIPTION	DATE

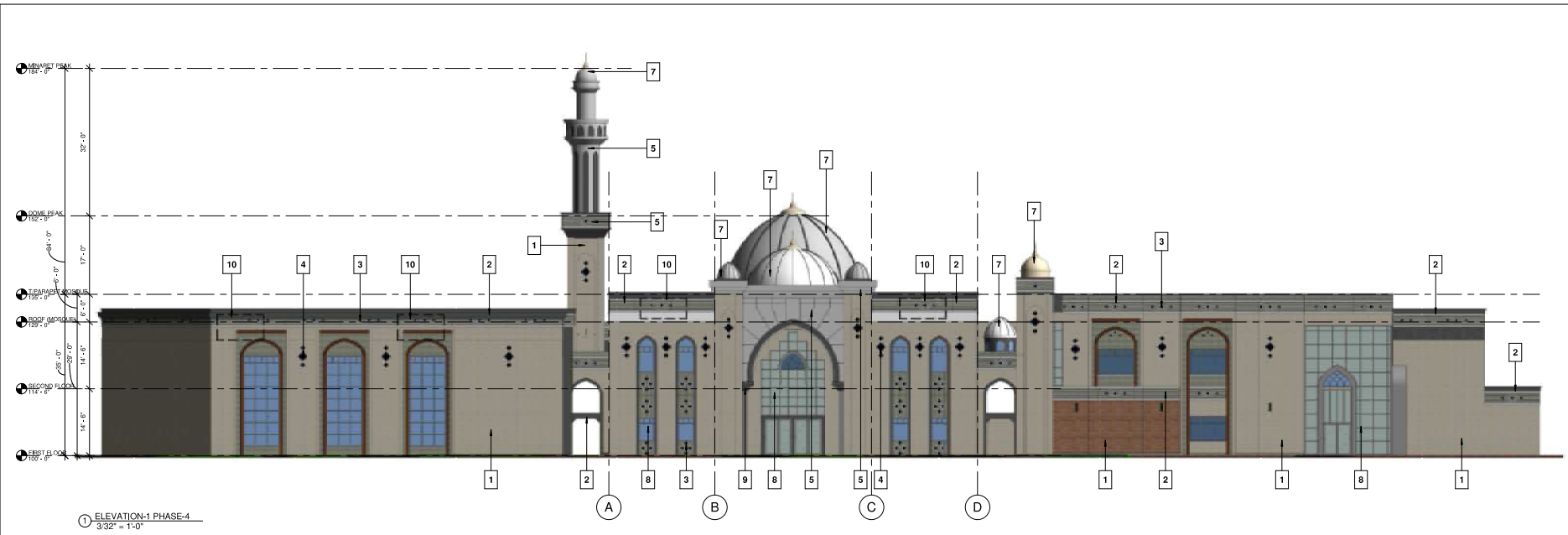
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 DRAW: Author
 CHECK: Jamshid Jahedi

DATE: 10/17/19
 SCALE: 3/32" = 1'-0"
 FILE NO: .

SHEET TITLE:
**ELEVATIONS-1
 (PHASE-4)**

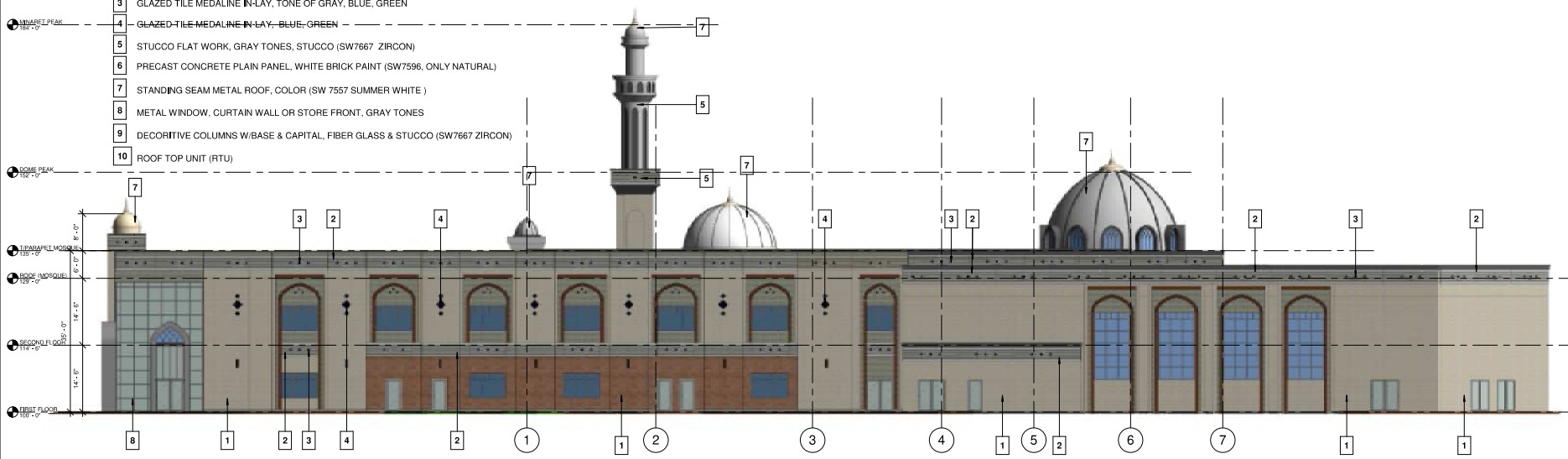
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 A5-2.1

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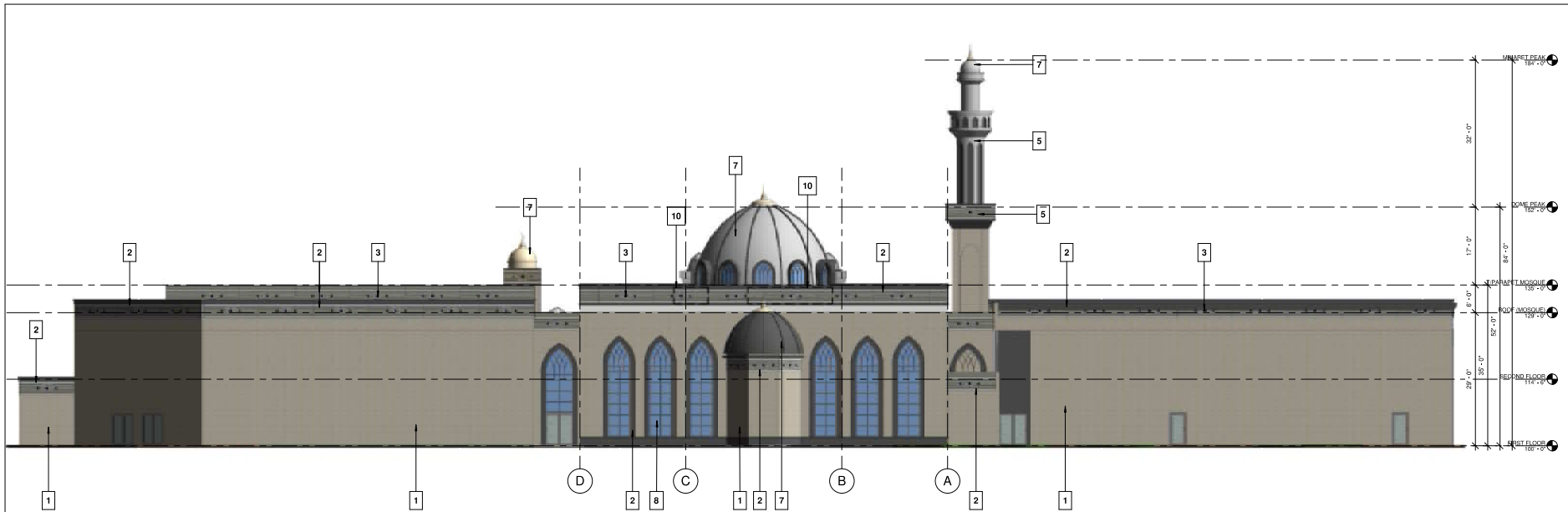


① ELEVATION-1 PHASE-4
 3/32" = 1'-0"

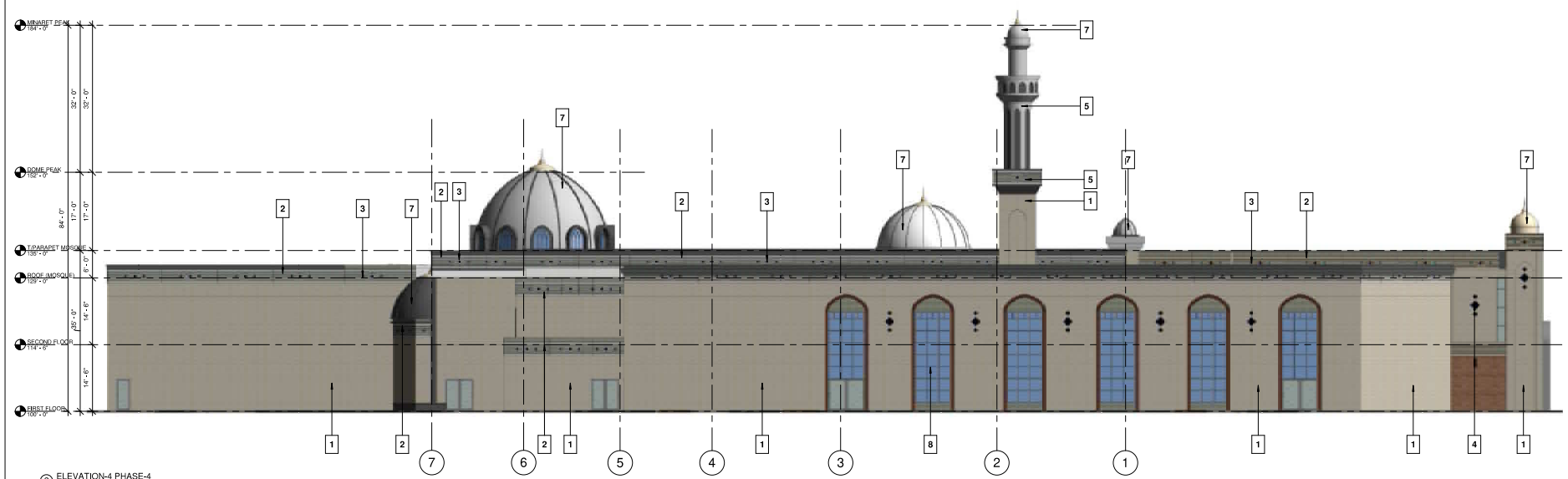
- 1 PRECAST CONCRETE BRICK FORM-LINER, WHITE BRICK PAINT (SW7596, ONLY NATURAL)
- 2 PRECAST CONCRETE TRIM WORK PATTERN, GRAY
- 3 GLAZED TILE MEDALINE IN-LAY, TONE OF GRAY, BLUE, GREEN
- 4 GLAZED-TILE-MEDALINE IN-LAY- BLUE-GREEN
- 5 STUCCO FLAT WORK, GRAY TONES, STUCCO (SW7667 ZIRCON)
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- 9 DECORATIVE COLUMNS W/BASE & CAPITAL, FIBER GLASS & STUCCO (SW7667 ZIRCON)
- 10 ROOF TOP UNIT (RTU)



② ELEVATION-2 PHASE-4
 3/32" = 1'-0"



① ELEVATION-3 PHASE-4
3/32" = 1'-0"



② ELEVATION-4 PHASE-4
3/32" = 1'-0"

DOME STRUCTURAL ENGINEERS
 CHICAGO, ILL. (815) 454-8849 WWW.DOMEDSIGNERS.COM

PROJECT: ICN NEW MOSQUE 246 AVE. NAPERVILLE, IL

I hereby certify that these drawings/documents were prepared under my direct supervision and to the best of my knowledge conform to the applicable building and zoning codes of the City of Naperville, State of Illinois.

Jamshid Jahedi:

Expires: 11/31/2020

REVISIONS:

NO.	DESCRIPTION	DATE

DESIGN: Designer
 DRAW: Author
 CHECK: Jamshid Jahedi

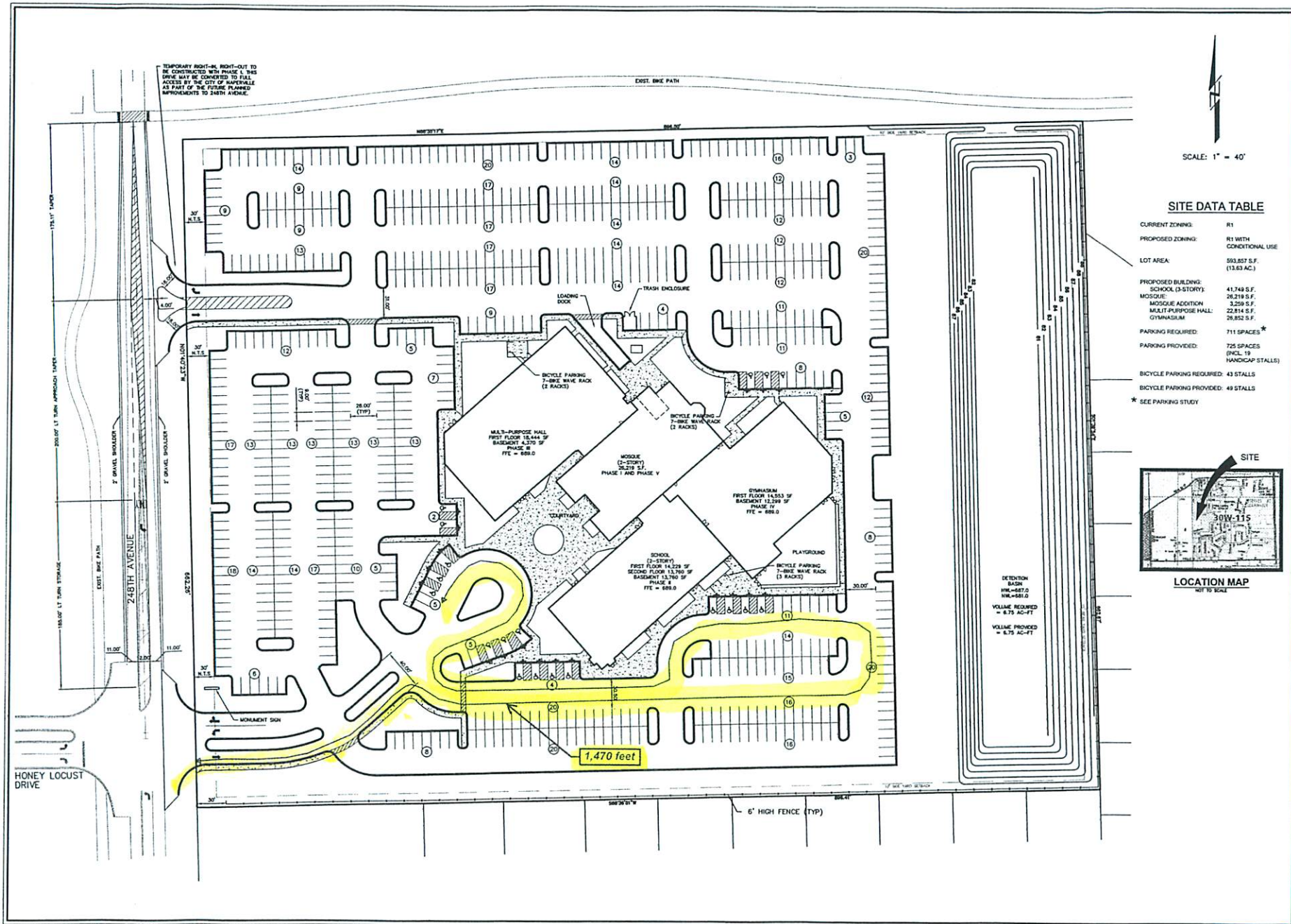
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 FILE NO: .

SHEET TITLE:
**ELEVATION-2
 (PHASE-4)**

SHEET No:
 A5-2.2

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#CADD: 7/26/2011 10:11:42 AM P:\2011\2011-0166B\2011-0166B.dwg PLOTTER: MTE PLT, 7/26/2011 10:42:20 AM, PL



SITE DATA TABLE

CURRENT ZONING:	R1
PROPOSED ZONING:	R1 WITH CONDITIONAL USE
LOT AREA:	593,857 S.F. (13.63 AC.)
PROPOSED BUILDING:	41,749 S.F.
SCHOOL (3-STORY):	26,218 S.F.
MOOSQUE:	3,259 S.F.
MULTI-PURPOSE HALL:	22,814 S.F.
GYMNASIUM:	29,452 S.F.
PARKING REQUIRED:	711 SPACES*
PARKING PROVIDED:	725 SPACES (INCL. 19 HANDICAP STALLS)
BICYCLE PARKING REQUIRED:	43 STALLS
BICYCLE PARKING PROVIDED:	49 STALLS
* SEE PARKING STUDY	



DETENTION
 BASIN
 VOLUME REQUIRED
 = 6.75 AC-FT
 VOLUME PROVIDED
 = 6.75 AC-FT

<p>INTECH CONSULTANTS, INC. 1000 N. WILSON AVENUE, SUITE 100 NAPERVILLE, ILLINOIS 60563 PHONE: (331) 994-8855</p>	<p>ENGINEERS - SURVEYORS LICENSE REGISTRATION NO. 14620049</p>
<p>ISLAMIC CENTER OF NAPERVILLE</p>	
<p>ISLAMIC CENTER OF NAPERVILLE 248TH AVENUE SITE NAPERVILLE, ILLINOIS</p>	
<p>SCHOOL DROPOFF PLAN</p>	
SCALE:	1"=40'
DATE:	7-26-21
DRAWN:	BC
DESIGNED:	EFS
PROJECT NO.:	2011-016B
SHEET:	1 OF 1

ICN 248th Avenue

School Drop Off Summary

In approximately ten (10) years, ICN intends to construct a school in Phase II of the development. The school will offer both full-time instruction (Monday-Friday) and also a weekend religious education program on Saturdays.

The anticipated enrollment for the full-time school is 250 students: and for the weekend school 500 students. The full-time school will operate during “traditional” school hours. The weekend school will operate from approximately 9:00am to 1:45 on Saturdays. The weekend school will have a staggered start time with approximately a quarter of the students starting at 9:00 am, and the balance of students starting at 10am. All students would depart at approximately 1:45pm.

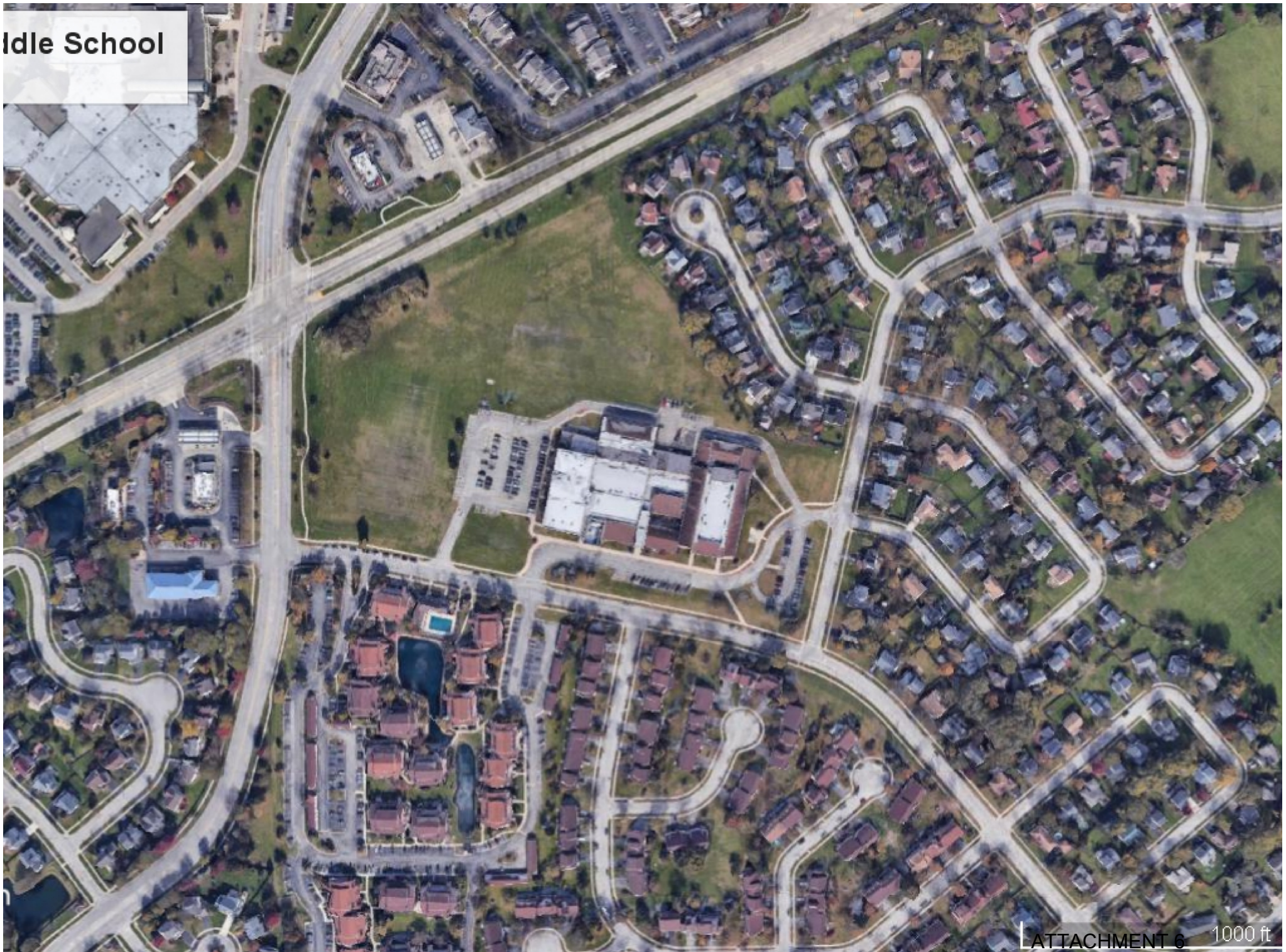
ICN currently operates their weekend school at Fischer Middle School in Aurora, with more students than what will be enrolled in the 248th Avenue school (this is because in the last several years the religious schools for the Wheaton, Bolingbrook and Plainfield Mosques have expanded their religious teaching facilities, which will take away students that were going to ICN in the pre-Covid period).

It is critical to note that in operating their school at Fischer, ICN has never received any complaint or notice of traffic/parking issues.

Attached, is an aerial view of Fischer Middle School showing its approximately 800 foot driveway. In contrast, as can be seen on the attached site plan for Phase I and II of ICN, in addition to approximately 465 feet of primary driveway and drop off stacking area; as dictated by traffic patterns, either by signage, or staff direction, traffic will be diverted to pass through the Phase II parking area thus providing approximately 1,470 feet of stacking area.

With ICN’s many years of operating a school with no traffic issues at Fischer Middle School with less driveway and stacking area, the proposed traffic/stacking/drop off area for the 248th Avenue school will be easily accommodate the proposed school with no interference with 248th Avenue.

Idle School



Traffic Impact Study Islamic Center of Naperville

Naperville, Illinois



Prepared For:

The Islamic Center of Naperville



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

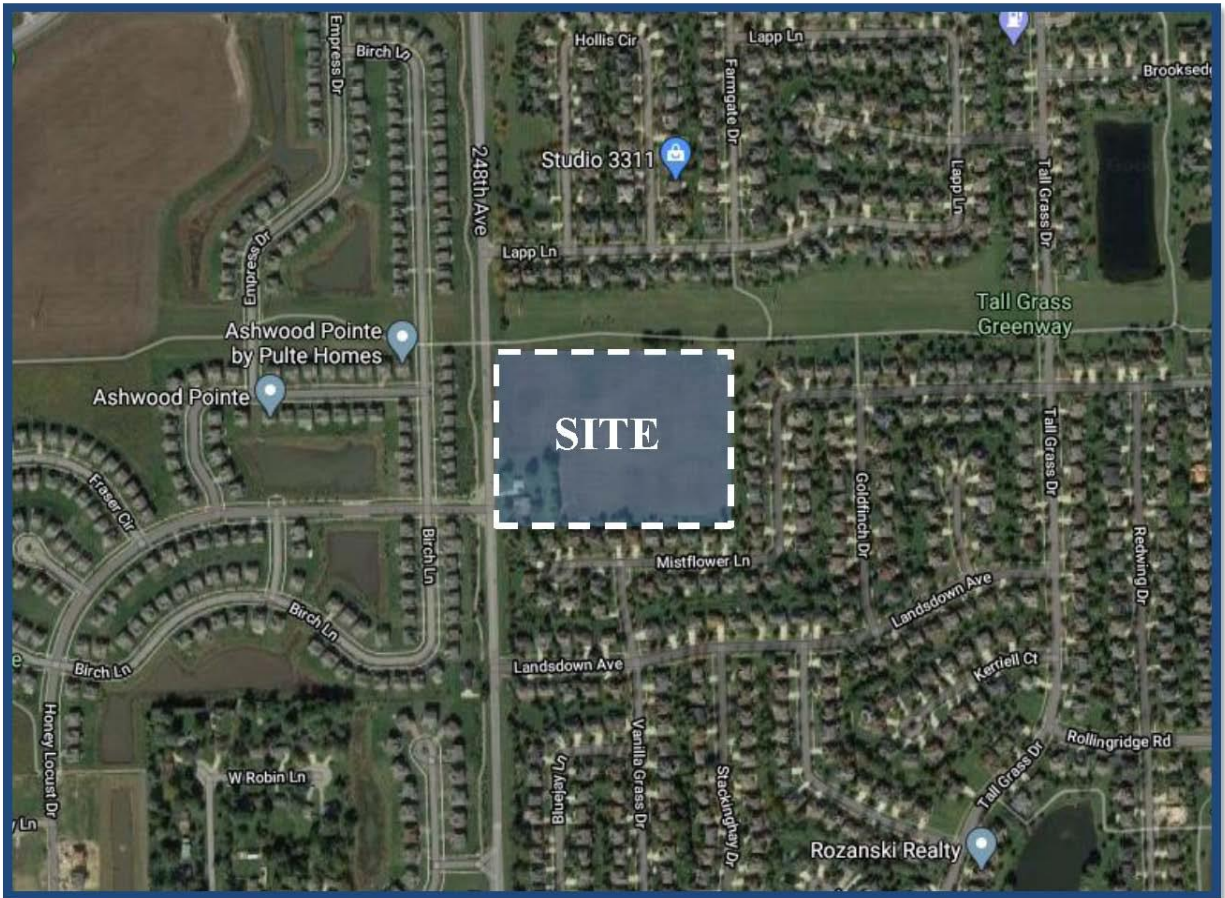
Traffic capacity analyses were conducted for the weekday morning, afternoon, and evening peak hours for the following conditions:

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**.

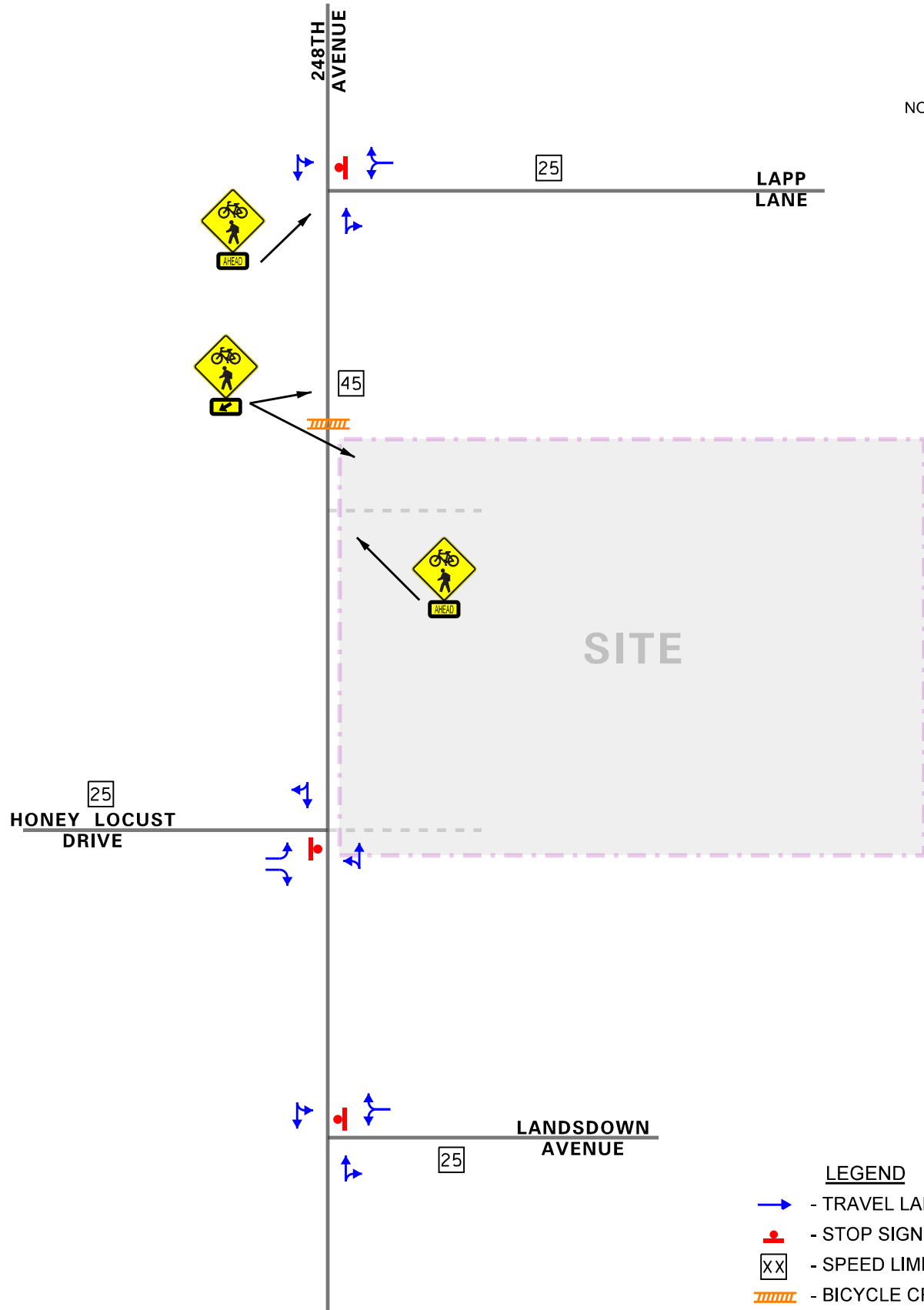
248th Avenue is a north-south, minor arterial roadway that extends from 95th Street south to its terminus at 127th Street. Between 95th Street and 103rd Street, 248th Avenue has one lane in each direction. At its unsignalized intersection with Honey Locust Drive, 248th Avenue has an exclusive left-turn lane and a through lane on the northbound approach and a shared through/right-turn lane on the southbound approach. At its 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.



NOT TO SCALE



- LEGEND**
- TRAVEL LANE
 - STOP SIGN
 - SPEED LIMIT
 - BICYCLE CROSSING

Islamic Center of Naperville
Naperville, Illinois

Existing Roadway Characteristics

KLOA
Kenig, Lindgren, O'Hara, Aboona, Inc.
Job No: 17-293 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.

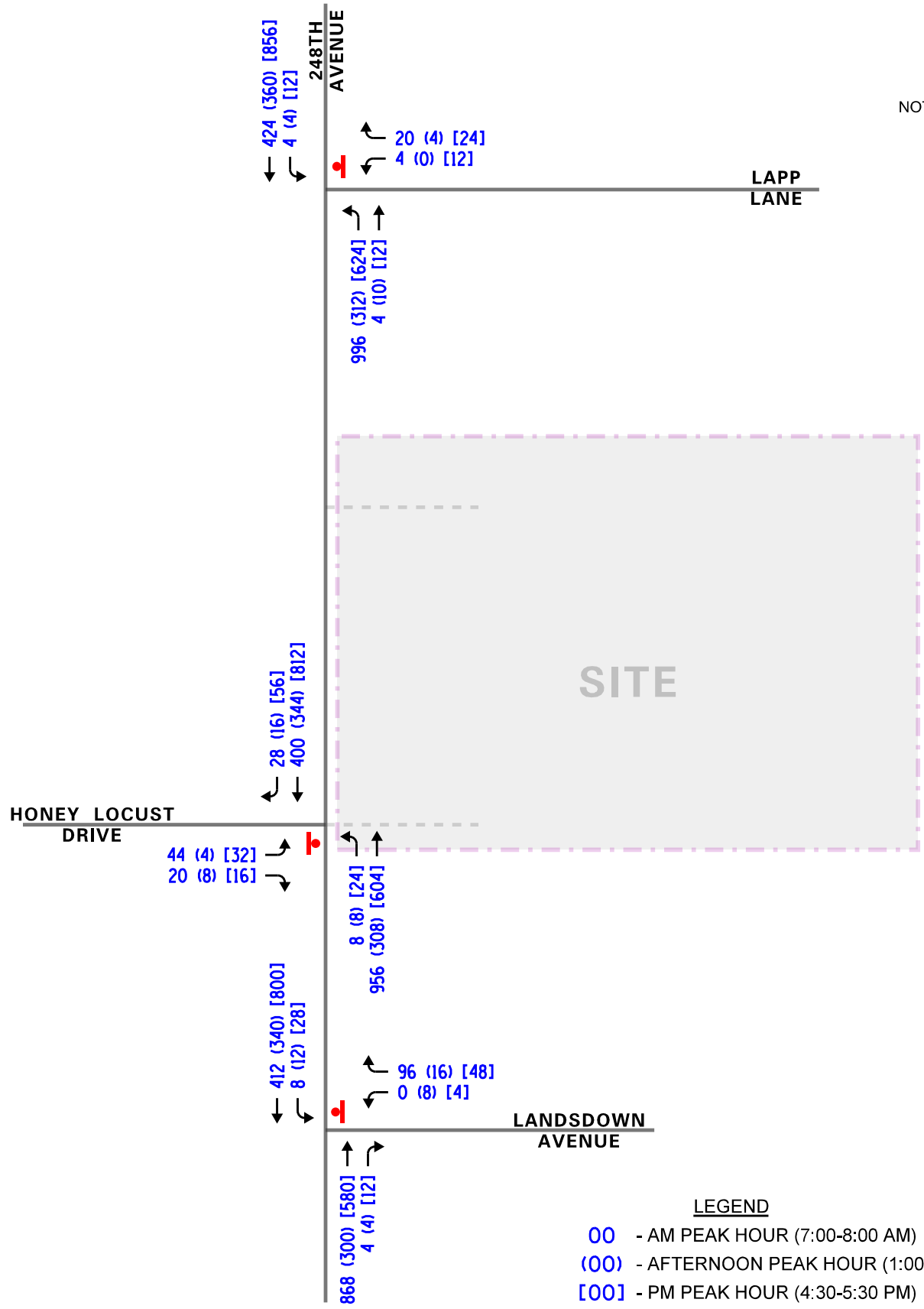
Crash Analysis

KLOA, Inc. obtained crash data¹ 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.



NOT TO SCALE



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

Existing Traffic Volumes

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

Job No: 17-293 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.)

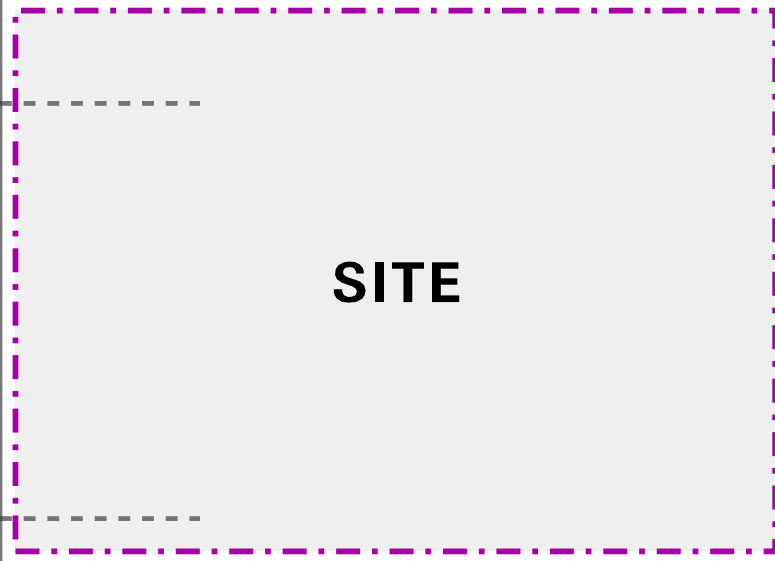
Jumuah Prayer: The Jumuah Prayer occurs on Fridays with two prayer services provided (1:00 to 1:40 P.M. and 2:00 to 2:40 P.M.). According to ICN, both prayer services are expected to have an initial attendance of approximately 450 worshippers, increasing to 850 worshippers with the future expansion of 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.



NOT TO SCALE

60%
248TH AVENUE

LAPP LANE



SITE

HONEY LOCUST DRIVE

LANDSDOWN AVENUE

40%

LEGEND

00% - PERCENT DISTRIBUTION

Islamic Center of Naperville
Naperville, Illinois

Directional Distribution



Job No: 17-293 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 Jum'ah 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*, 10th 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 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	<u>50</u>	<u>50</u>	<u>0</u>	<u>0</u>	<u>50</u>	<u>50</u>
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 <i>Trip Generation Manual</i> , 10 th 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.

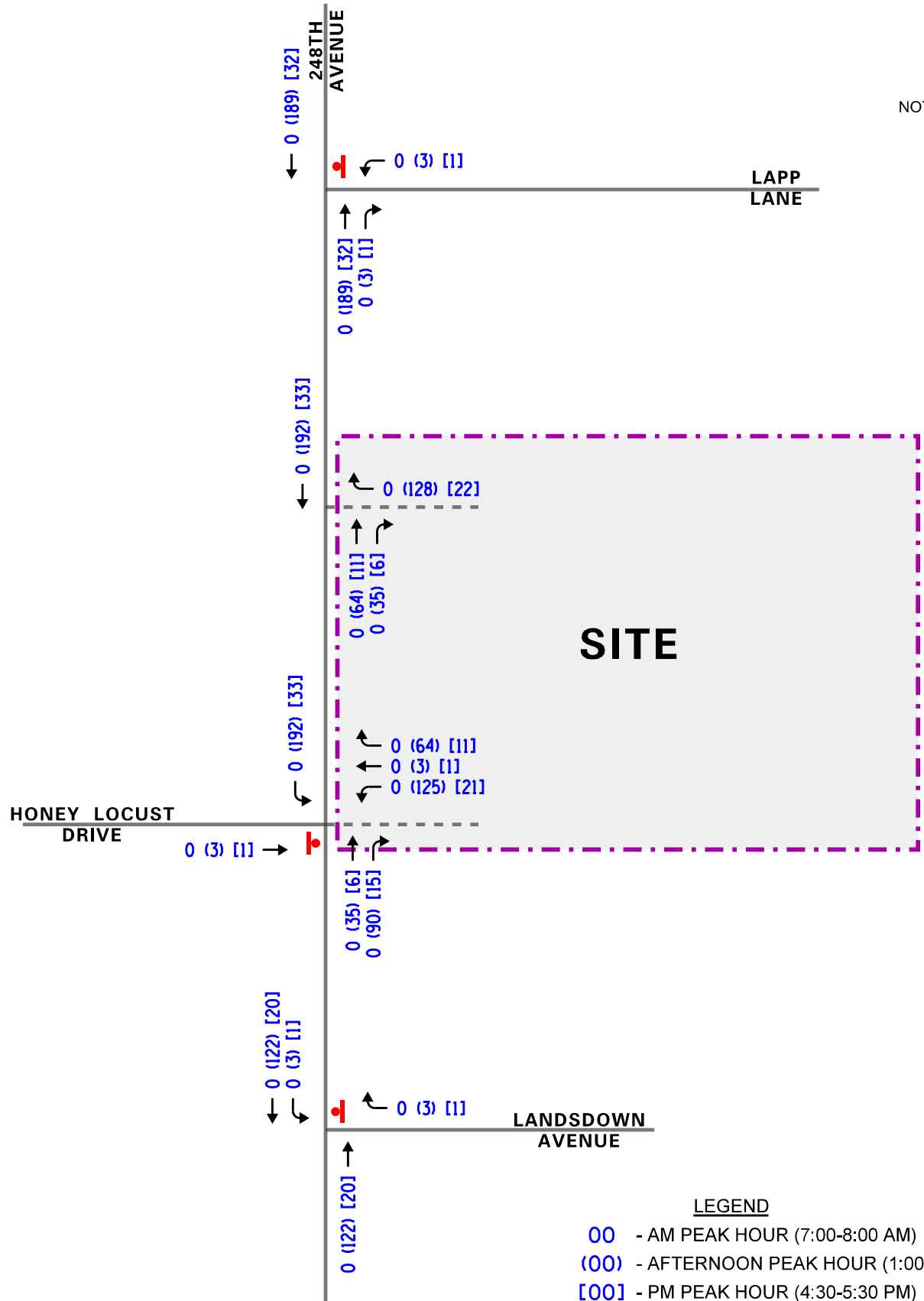
Total Projected Traffic Volumes

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.



NOT TO SCALE



Islamic Center of Naperville
Naperville, Illinois

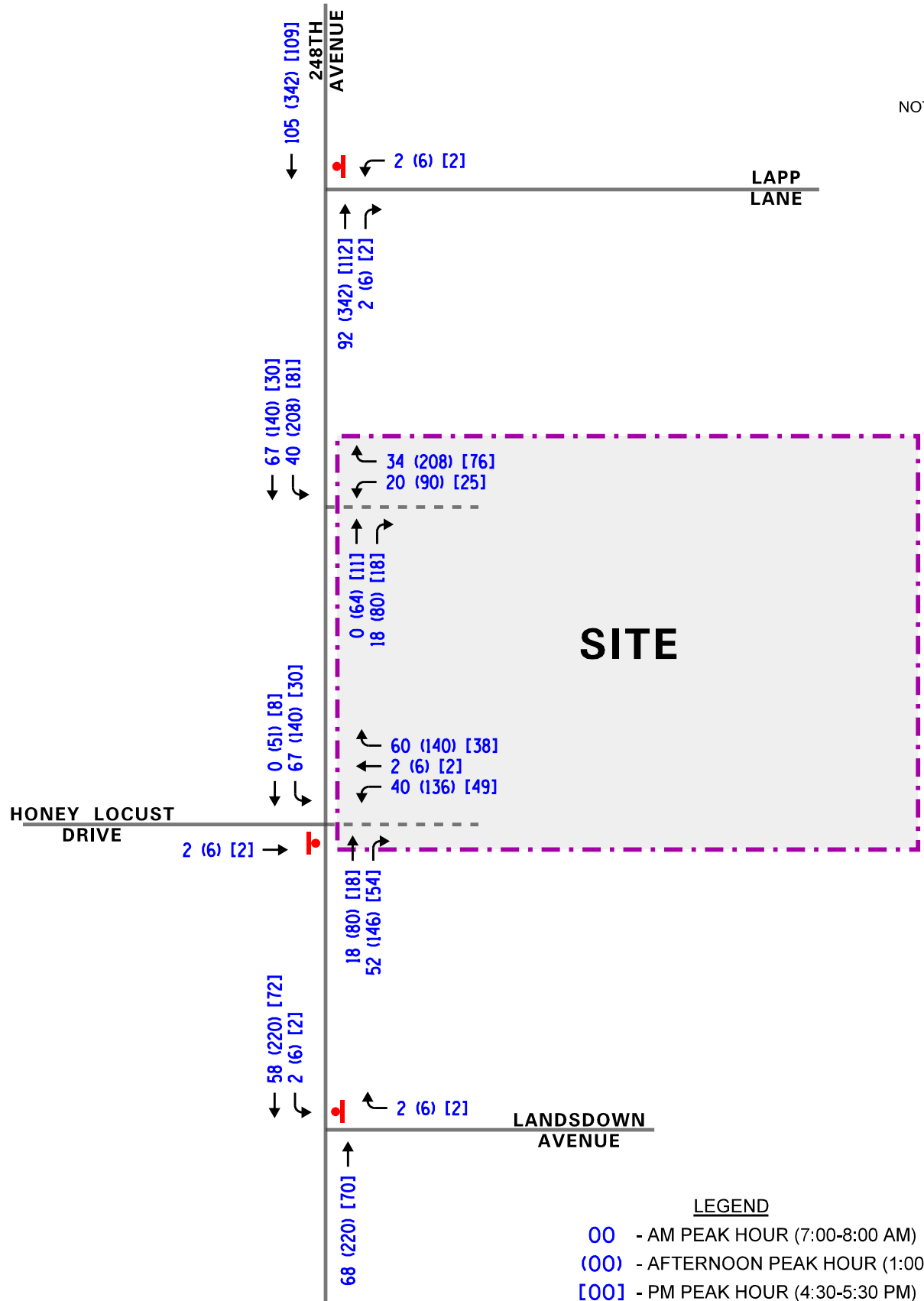
Phase I - Site-Generated Traffic Volumes



Job No: 17-293 Figure: 6



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Naperville, Illinois

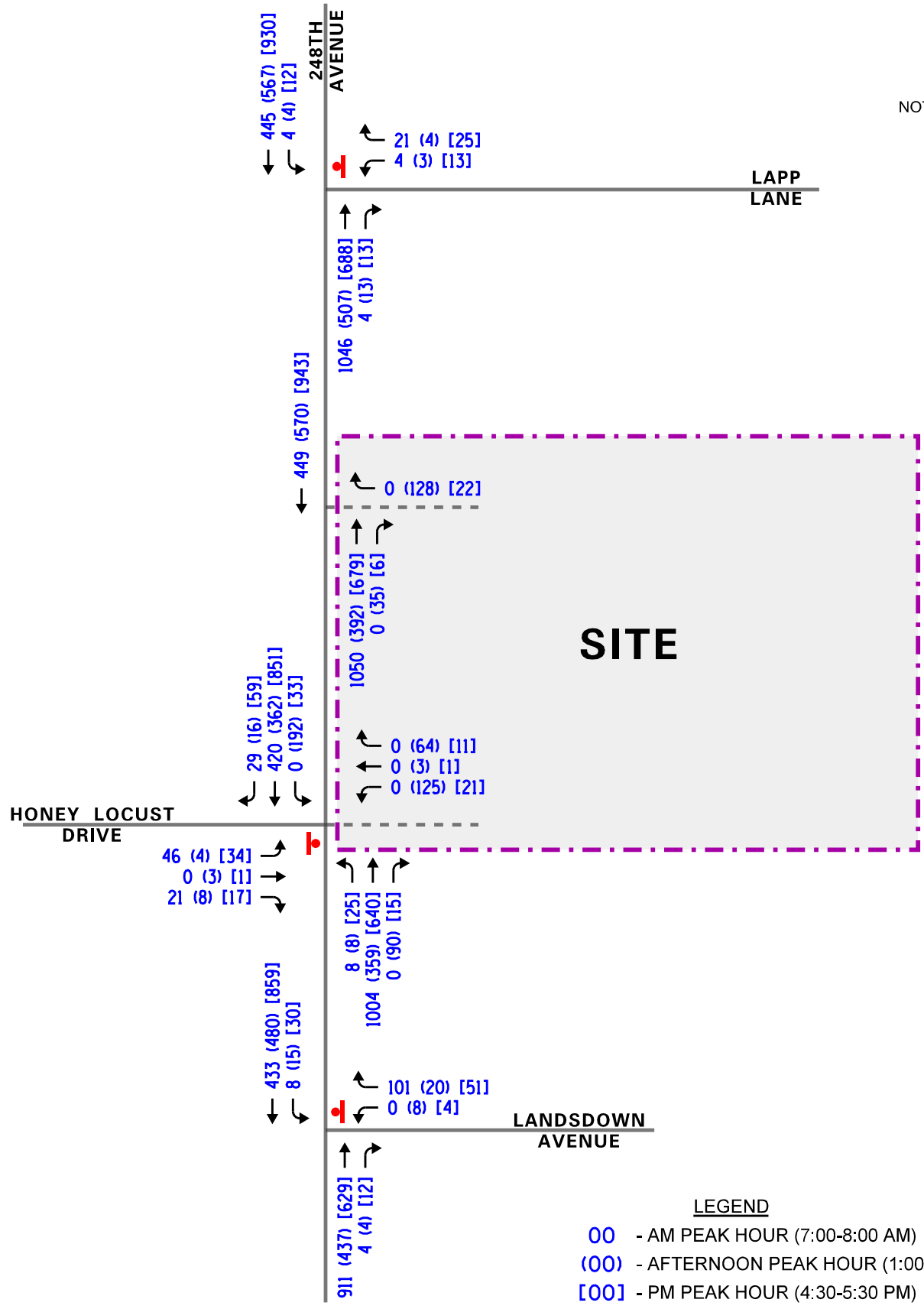
Total Buildout
Site-Generated Traffic Volumes



Job No: 17-293 Figure: 7



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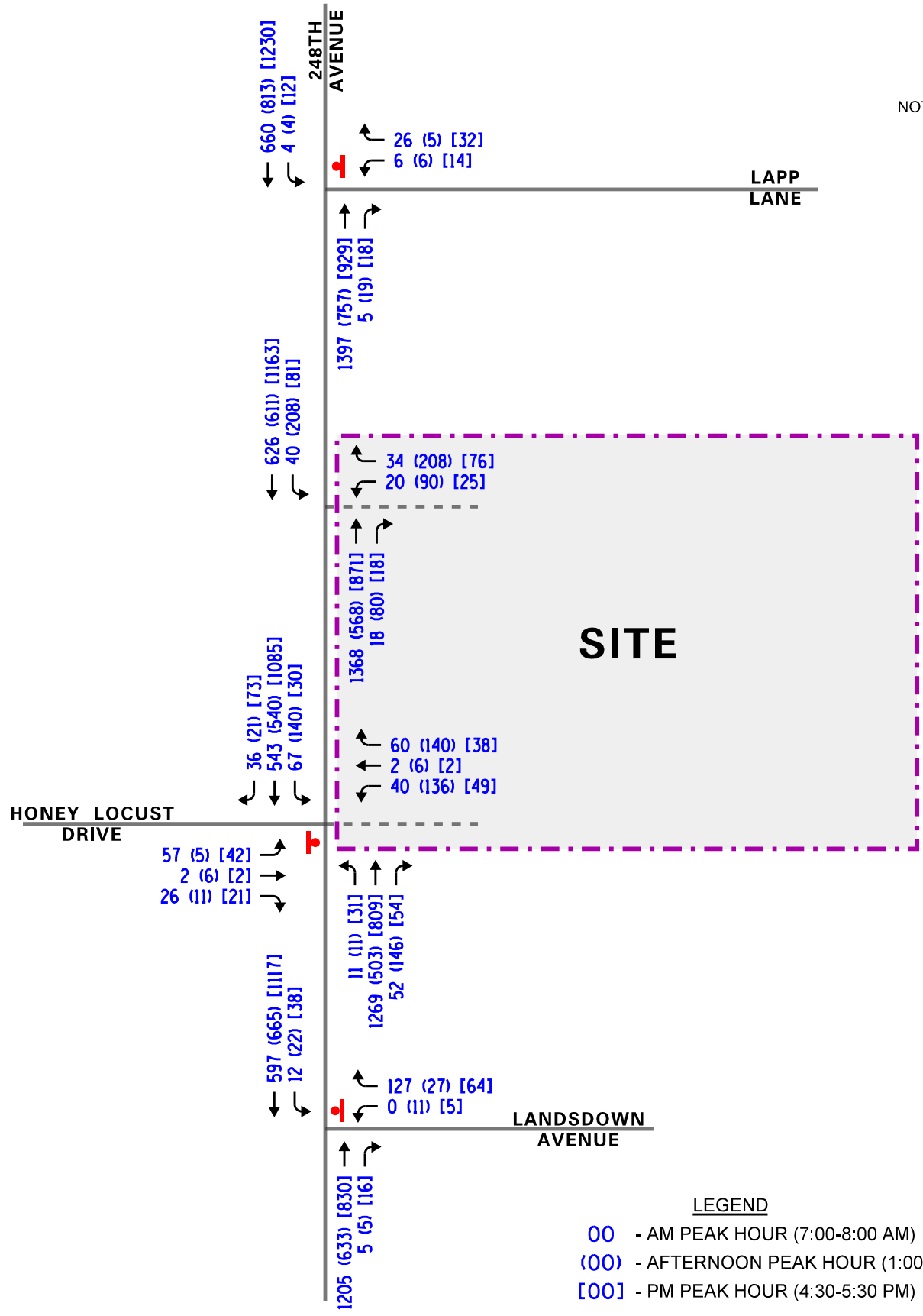
Islamic Center of Naperville
Naperville, Illinois

Phase I - Year 2025 Traffic Volumes

Job No: 17-293 Figure: 8



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Naperville, Illinois

Year 2050 Traffic Volumes

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

Job No: 17-293 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 Volumes¹						
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 Volumes¹						
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 248 th Avenue improvements						
1 – Assumes a southbound left-turn lane will be provided on 248 th Avenue serving the access drive under both existing conditions and with the 248 th 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 Volumes¹						
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 248 th Avenue improvements 1 – Assumes a southbound left-turn lane will be provided on 248 th Avenue serving the access drive with the 248 th 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 248 th 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 248 th 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.

248th 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 248th 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 Jumuaah 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 Jumuaah 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 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 Jumuaah 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 Jumuaah 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 & 248 th Avenue Improvements	50 feet	n.a
2050 Volumes & 248 th 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

Hour	248 th Avenue Southbound		248 th Avenue Northbound		Honey Locust Drive Eastbound	
	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	248 th 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 drive 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 primarily be used for services including the five daily prayers, the Jumua 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 Jumua 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 Jumua 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	248 th 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	248 th 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:

- 248th Avenue is proposed to be improved between 95th Street and 103rd 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 248th 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 248th 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 248th 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 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.
- 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 Jum'ah 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.

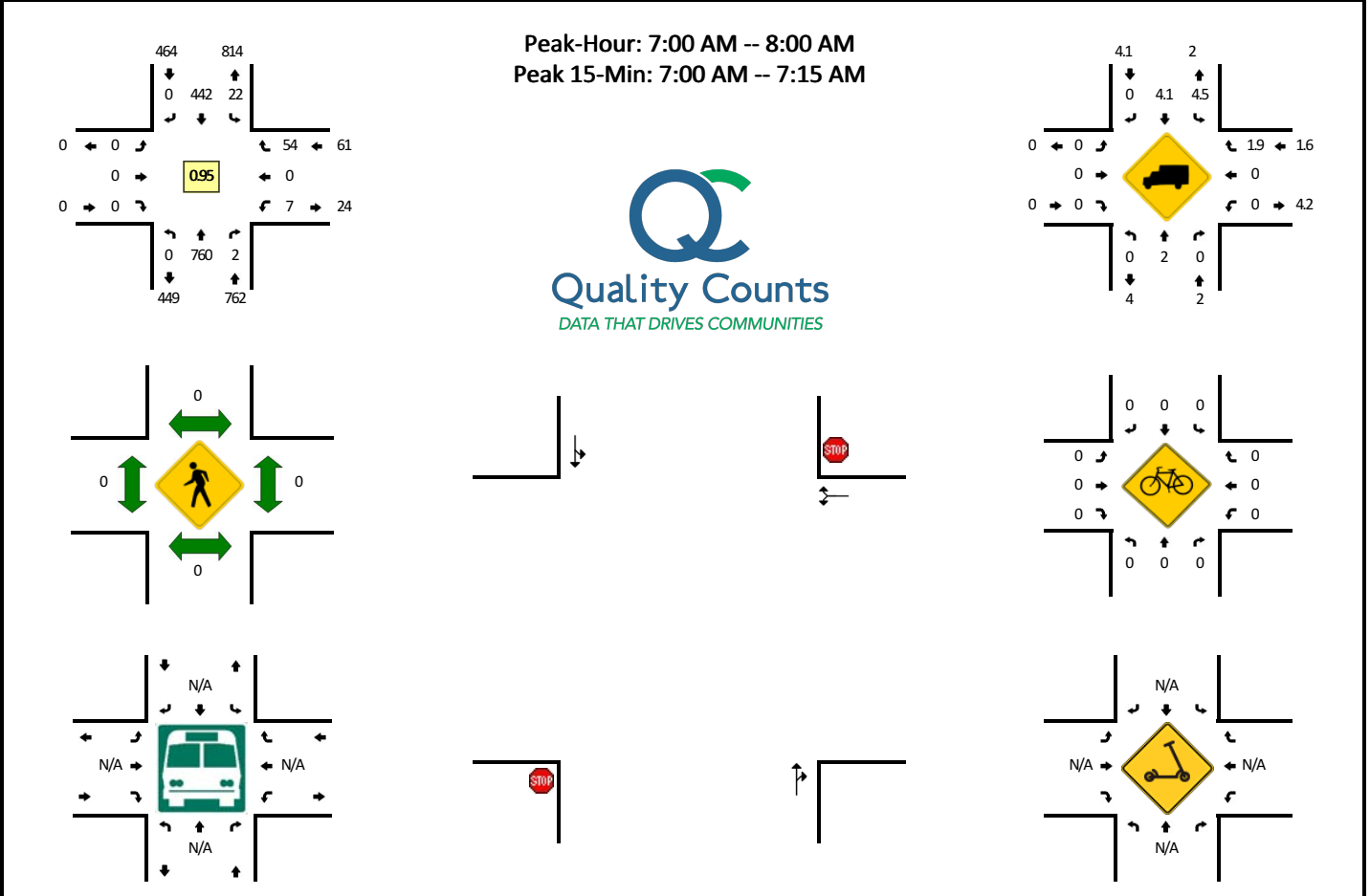
Appendix

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
CITY/STATE: Naperville, IL

QC JOB #: 15158507
DATE: Tue, Jan 14 2020

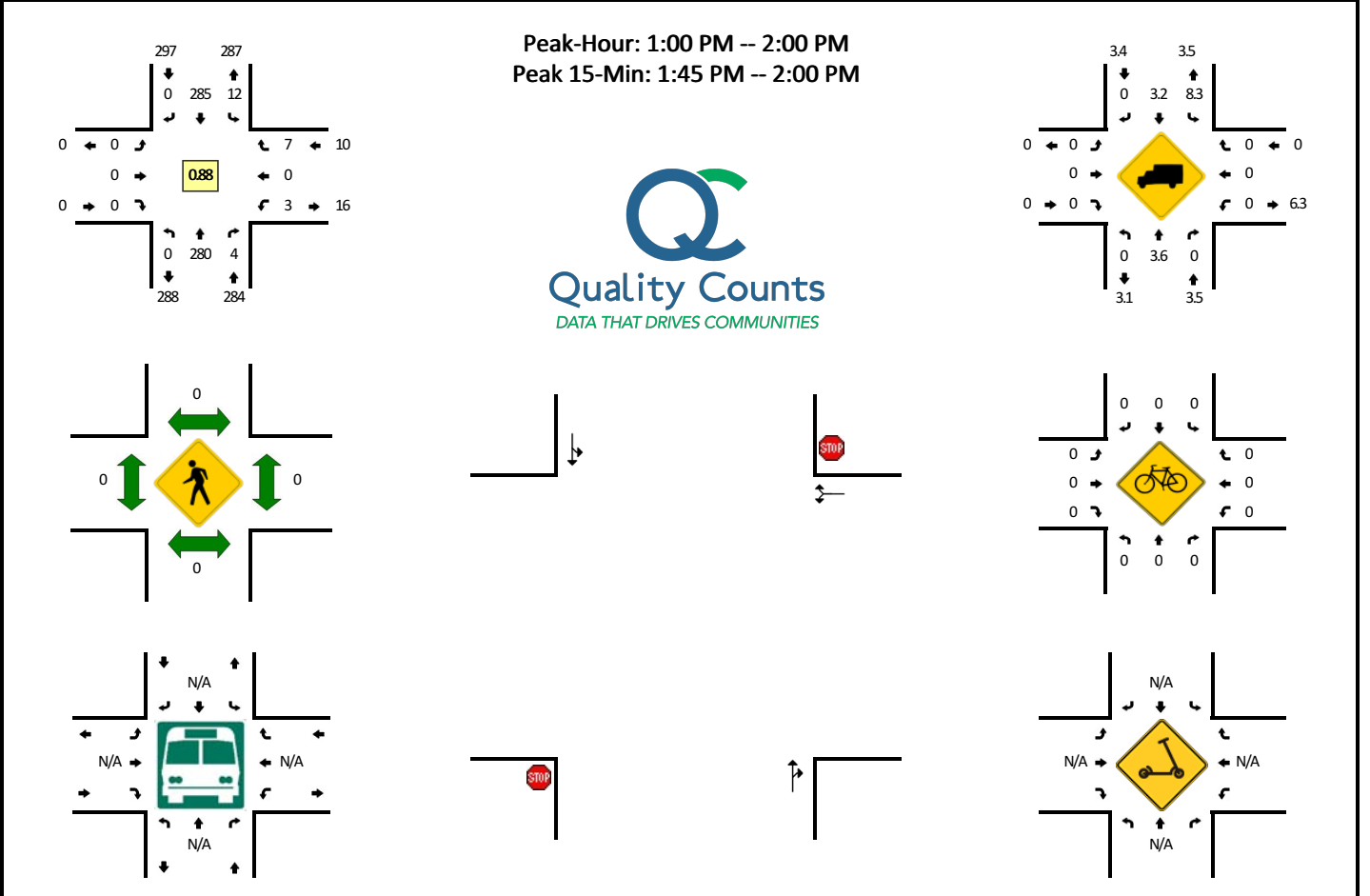


15-Min Count Period Beginning At	248th Ave (Northbound)				248th Ave (Southbound)				Landsdown Ave (Eastbound)				Landsdown Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	209	0	0	2	103	0	0	0	0	0	0	0	0	24	0	338	
7:15 AM	0	181	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	0	4	16	0	0	0	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	
Scoters																		

Comments:

LOCATION: 248th Ave -- Landsdown Ave
CITY/STATE: Naperville, IL

QC JOB #: 15158508
DATE: Tue, Jan 14 2020



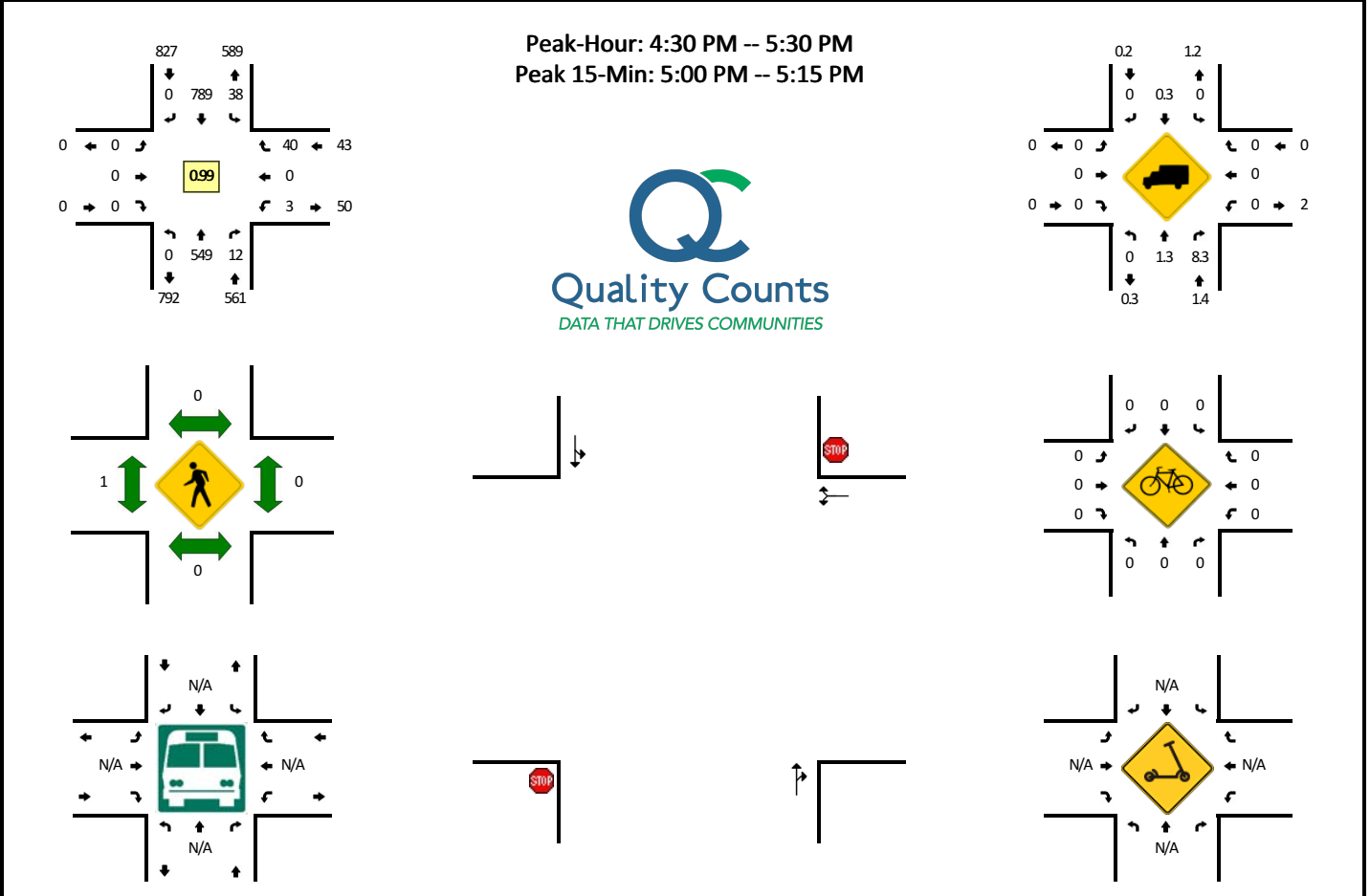
15-Min Count Period Beginning At	248th Ave (Northbound)				248th Ave (Southbound)				Landsdown Ave (Eastbound)				Landsdown Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	0	81	1	0	0	71	0	0	0	0	0	0	1	0	2	0	156	
12:15 PM	0	79	2	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:

LOCATION: 248th Ave -- Landsdown Ave
CITY/STATE: Naperville, IL

QC JOB #: 15158509
DATE: Tue, Jan 14 2020

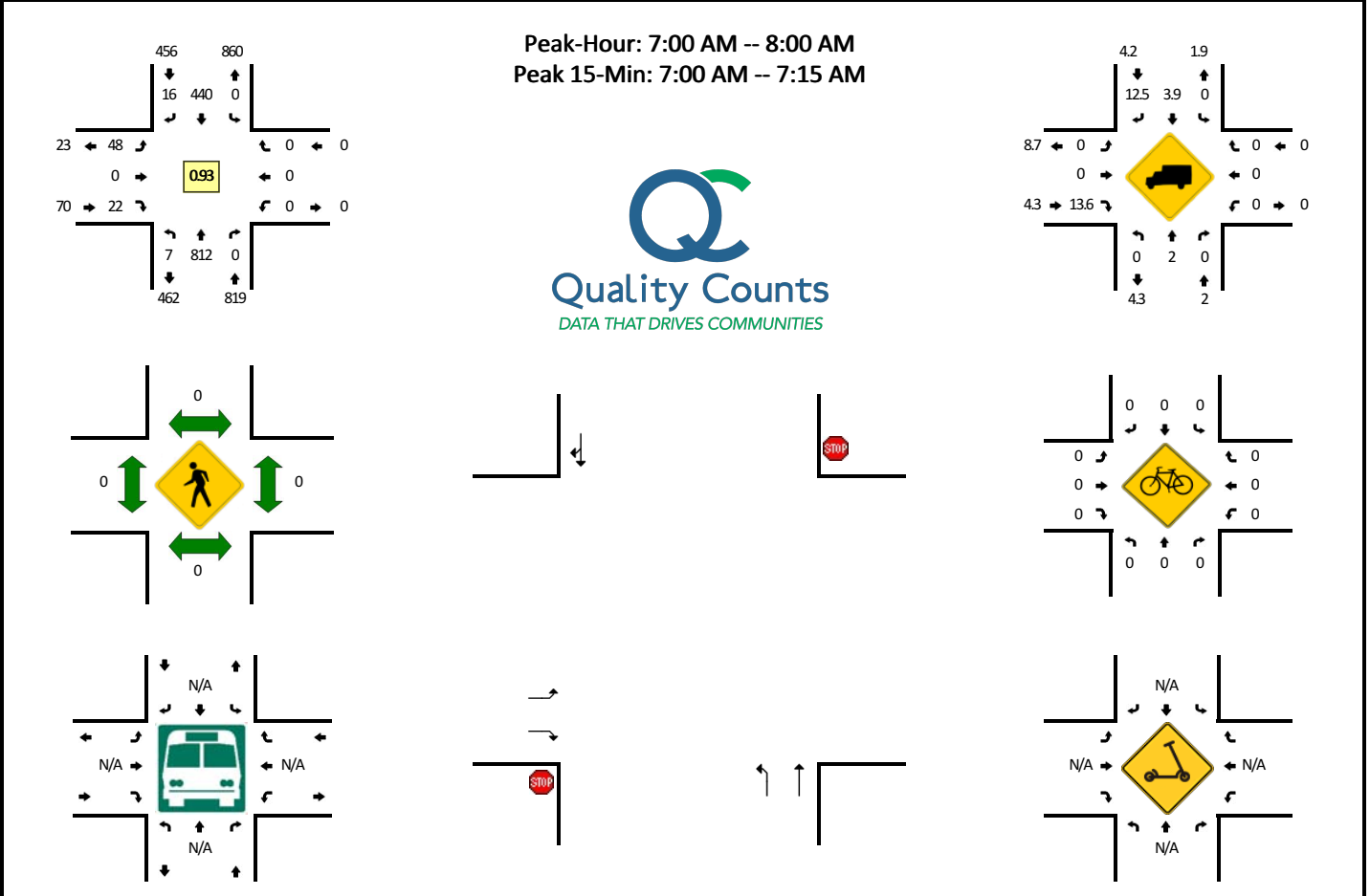


15-Min Count Period Beginning At	248th Ave (Northbound)				248th Ave (Southbound)				Landsdown Ave (Eastbound)				Landsdown Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	132	2	0	5	191	0	0	0	0	0	0	1	0	9	0	340	
4:15 PM	0	126	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																	0	
Pedestrians		0				0				0				0			0	
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0	
Scoters																	0	

Comments:

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

QC JOB #: 15158504
DATE: Tue, Jan 14 2020



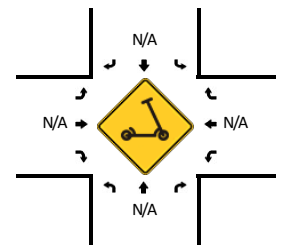
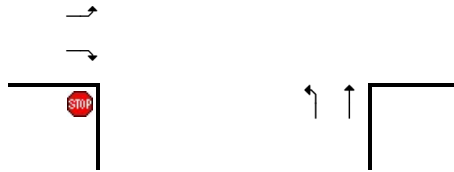
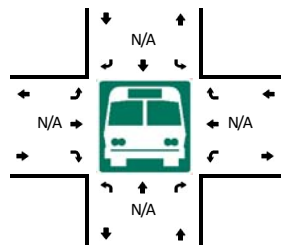
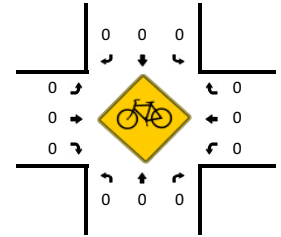
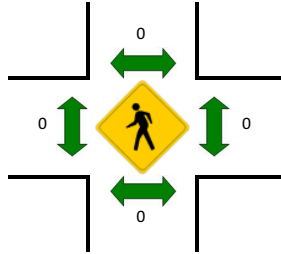
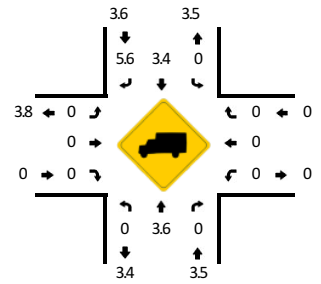
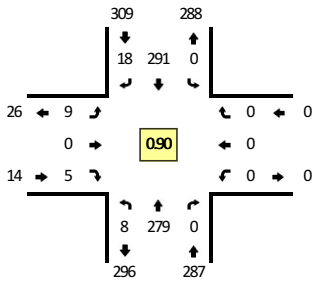
15-Min Count Period Beginning At	248th Ave (Northbound)				248th Ave (Southbound)				Honey Locust Dr (Eastbound)				Honey Locust Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	2	235	0	0	0	100	7	0	11	0	5	0	0	0	0	0	360	
7:15 AM	0	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	0	16	0	0	0	0	4	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	
Scoters																		

Comments:

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

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

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



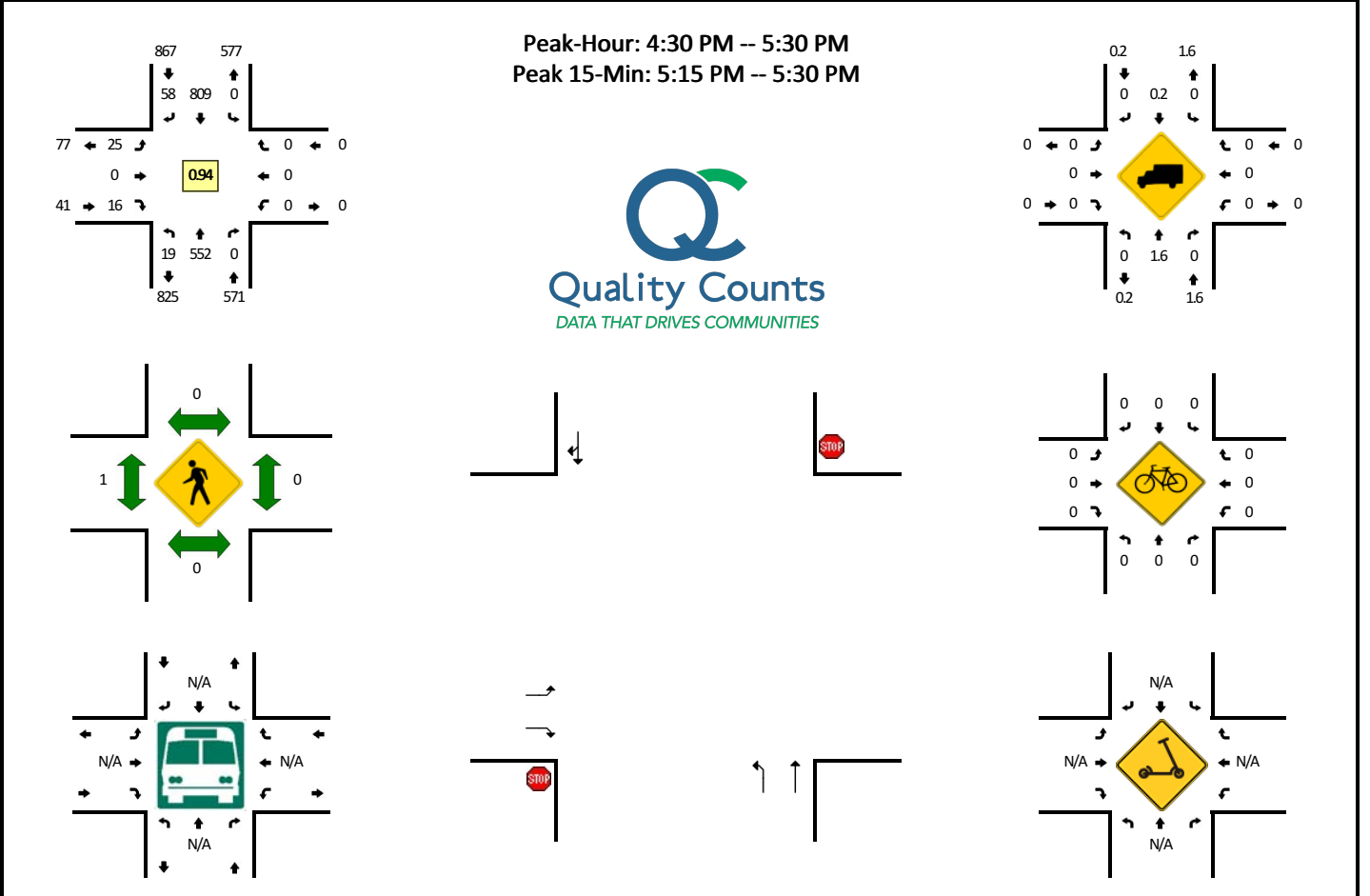
15-Min Count Period Beginning At	248th Ave (Northbound)				248th Ave (Southbound)				Honey Locust Dr (Eastbound)				Honey Locust Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	1	82	0	0	0	70	3	0	5	0	1	0	0	0	0	0	162	
12:15 PM	0	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				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
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	0	16	0	0	0	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:

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

QC JOB #: 15158506
DATE: Tue, Jan 14 2020



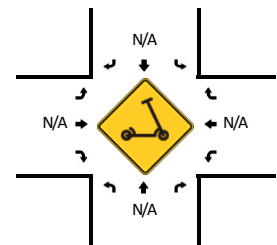
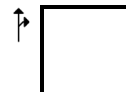
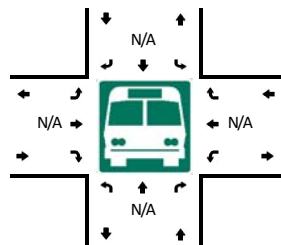
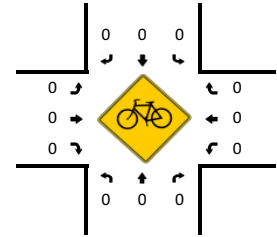
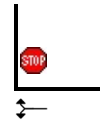
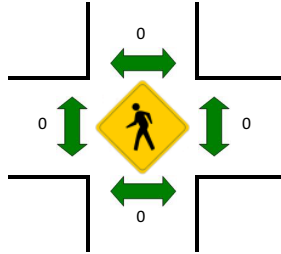
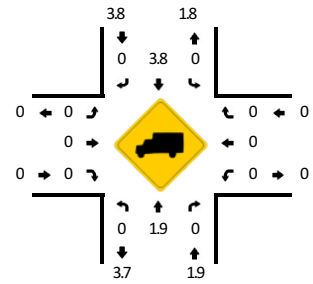
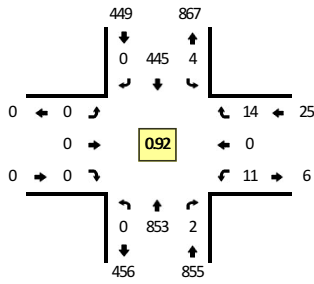
15-Min Count Period Beginning At	248th Ave (Northbound)				248th Ave (Southbound)				Honey Locust Dr (Eastbound)				Honey Locust Dr (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	5	135	0	0	0	189	8	0	7	0	7	0	0	0	0	0	351	
4:15 PM	2	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	0	8	0	0	0	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	
Scoters																		

Comments:

LOCATION: 248th Ave -- Lapp Ln
CITY/STATE: Naperville, IL

QC JOB #: 15158501
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

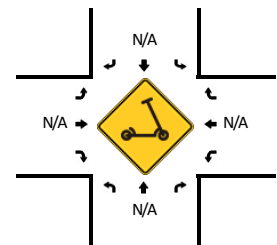
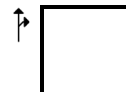
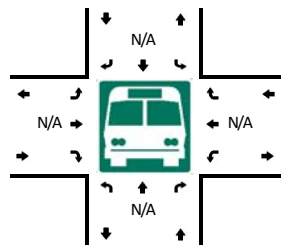
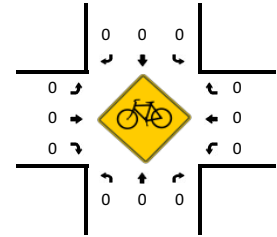
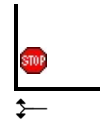
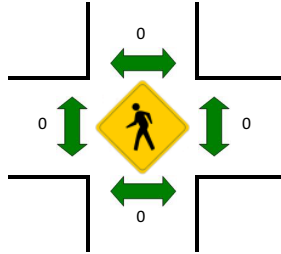
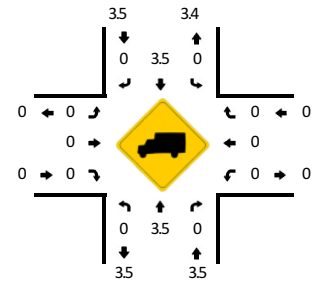
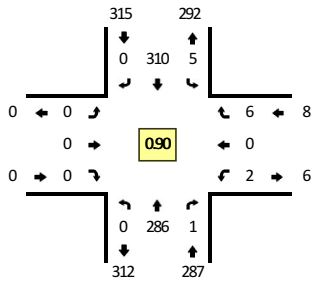
Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total	
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
All Vehicles	0	996	0	0	4	420	0	0	0	0	0	0	4	0	20	0	1444	
Heavy Trucks	0	4	0		0	16	0		0	0	0		0	0	0		20	
Buses																		
Pedestrians		0		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

Comments:

LOCATION: 248th Ave -- Lapp Ln
CITY/STATE: Naperville, IL

QC JOB #: 15158502
DATE: Tue, Jan 14 2020

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



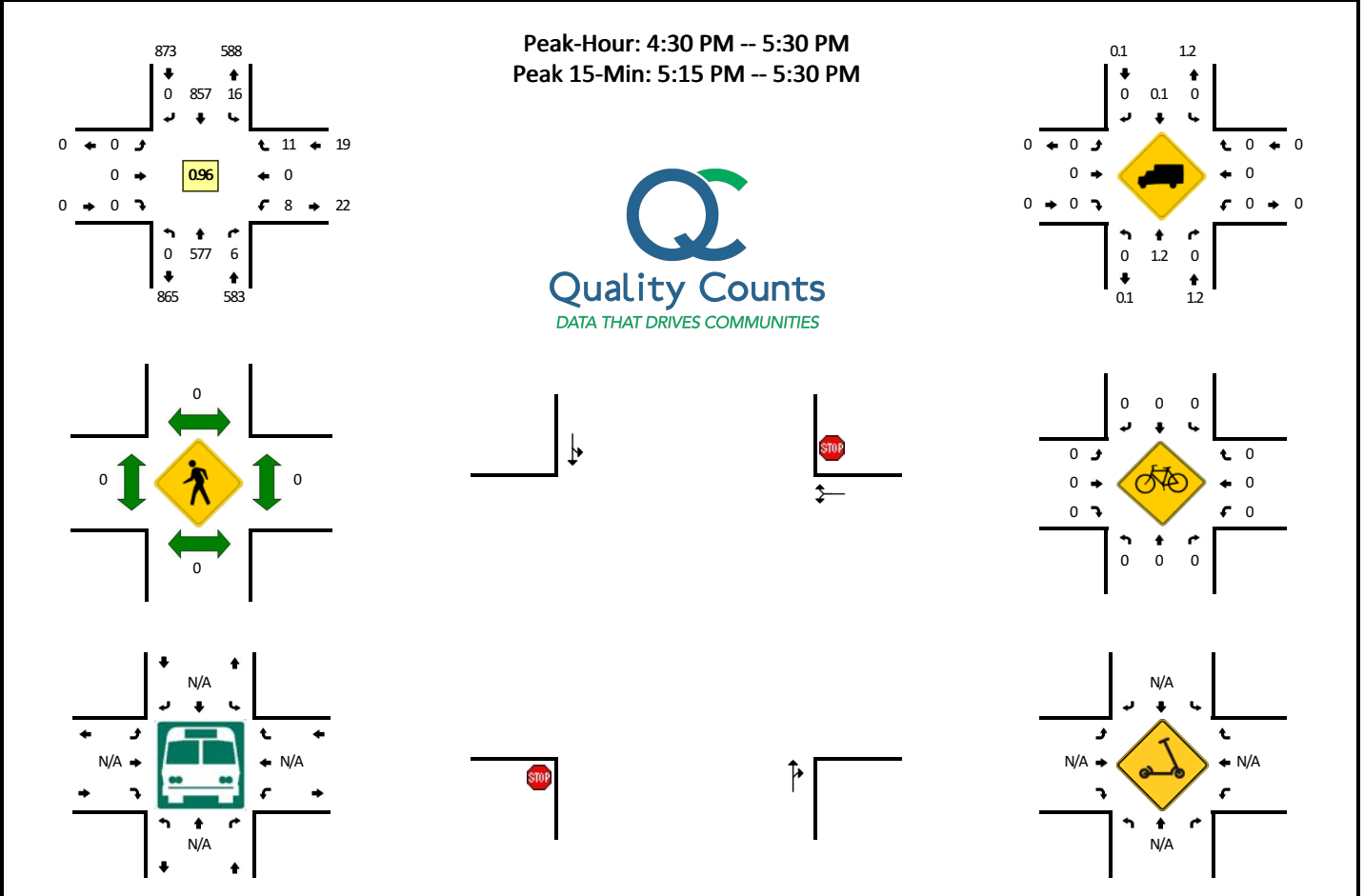
15-Min Count Period Beginning At	248th Ave (Northbound)				248th Ave (Southbound)				Lapp Ln (Eastbound)				Lapp Ln (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
12:00 PM	0	86	2	0	2	71	0	0	0	0	0	0	1	0	1	0	163	
12:15 PM	0	79	2	0	3	60	0	0	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	0	16	0	0	0	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
Scoters																	

Comments:

LOCATION: 248th Ave -- Lapp Ln
CITY/STATE: Naperville, IL

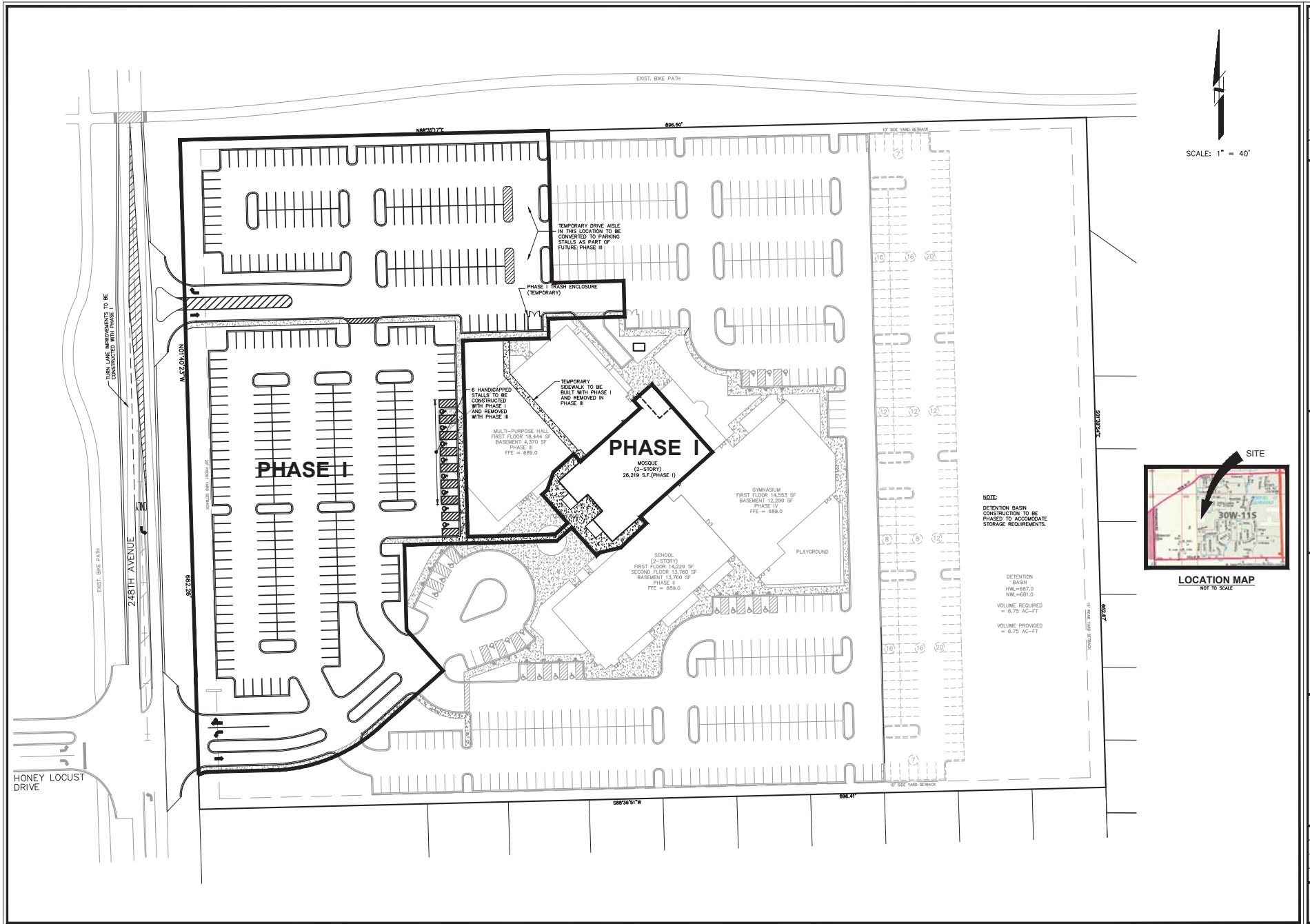
QC JOB #: 15158503
DATE: Tue, Jan 14 2020



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	1426
4:45 PM	0	133	0	0	6	220	0	0	0	0	0	0	1	0	0	0	360	1446
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	
Scoters																		

Comments:

Site Plans



INTECH CONSULTANTS, INC. 1808 UNIVERSITY AVENUE, SUITE D ENGINEERS - SURVEYORS LESLIE, ILLINOIS 60532 PHONE: (630) 964-5956 LICENSE REGISTRATION NO.: 18409340	
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

TEMPORARY RIGHT-IN, RIGHT-OUT TO BE CONSTRUCTED WITH PHASE I. THIS DRIVE MAY BE CONVERTED TO FULL ACCESS BY THE CITY OF NAPERVILLE AS PART OF THE FUTURE PLANNED IMPROVEMENTS TO 248TH AVENUE.

EXIST. BIKE PATH

SCALE: 1" = 40'

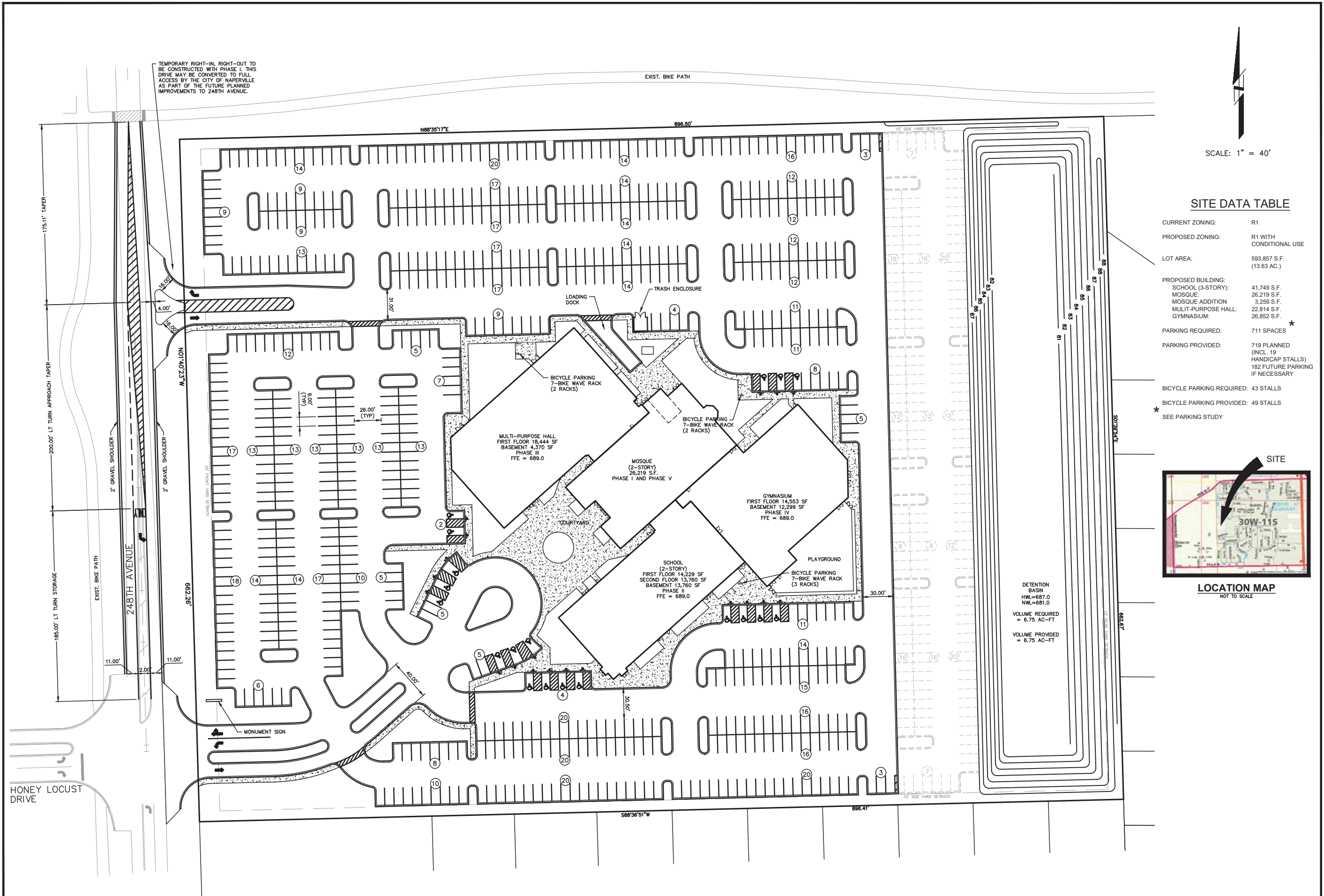
SITE DATA TABLE

CURRENT ZONING:	R1
PROPOSED ZONING:	R1 WITH CONDITIONAL USE
LOT AREA:	593,857 S.F. (13.63 AC.)
PROPOSED BUILDING:	41,749 S.F.
SCHOOL (3-STORY):	26,219 S.F.
MOSQUE:	3,259 S.F.
MULTI-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

DETENTION BASIN
HWL=687.0
NWL=681.0
VOLUME REQUIRED = 6.75 AC-FT
VOLUME PROVIDED = 6.75 AC-FT



BC
BY

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

INTECH CONSULTANTS, INC.

ENGINEERS - SURVEYORS
1989 UNIVERSITY LANE, SUITE D
LISLE, ILLINOIS 60532
ILLINOIS REGISTRATION NO. 184-01040
PHONE: 630-964-5656

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 7 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,

A handwritten signature in black ink, appearing to read "Jose Rodriguez".

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

HCM 6th TWSC
1: 248th Avenue & Lapp Avenue

04/01/2020

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	T
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	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	224	649
HCM Lane V/C Ratio	-	-	0.116	0.007
HCM Control Delay (s)	-	-	23.2	10.6
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	0.4	0

HCM 6th TWSC
2: 248th Avenue & Honey Locust Drive

04/01/2020

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	W		T			T
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	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	330	752
HCM Lane V/C Ratio	-	-	0.306	0.011
HCM Control Delay (s)	-	-	20.7	9.8
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	1.3	0

Capacity Analysis Summary Sheets
Weekday Afternoon Peak Hour – Existing Conditions

HCM 6th TWSC
1: 248th Avenue & Lapp Avenue

04/01/2020

Intersection						
Int Delay, s/veh	0.1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
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	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	701	1223
HCM Lane V/C Ratio	-	-	0.006	0.004
HCM Control Delay (s)	-	-	10.2	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0	0

HCM 6th TWSC
2: 248th Avenue & Honey Locust Drive

04/01/2020

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	-	-

HCM 6th TWSC
3: 248th Avenue & Landsdown Avenue

04/01/2020

Intersection						
Int Delay, s/veh	0.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	WT		BT			BT
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	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	542	1180
HCM Lane V/C Ratio	-	-	0.05	0.012
HCM Control Delay (s)	-	-	12	8.1
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.2	0

Capacity Analysis Summary Sheets
Weekday Evening Peak Hour – Existing Conditions

HCM 6th TWSC
1: 248th Avenue & Lapp Avenue

04/01/2020

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	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	237	935
HCM Lane V/C Ratio	-	-	0.158	0.013
HCM Control Delay (s)	-	-	23	8.9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.6	0

HCM 6th TWSC
2: 248th Avenue & Honey Locust Drive

04/01/2020

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	-	-

HCM 6th TWSC
3: 248th Avenue & Landsdown Avenue

04/01/2020

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	T
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
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	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	422	989
HCM Lane V/C Ratio	-	-	0.124	0.029
HCM Control Delay (s)	-	-	14.7	8.7
HCM Lane LOS	-	-	B	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

HCM 6th TWSC
1: 248th Avenue & Lapp Avenue

10/13/2020

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	T
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
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	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	207	620
HCM Lane V/C Ratio	-	-	0.131	0.007
HCM Control Delay (s)	-	-	25	10.8
HCM Lane LOS	-	-	D	B
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	-	-

HCM 6th TWSC
3: 248th Avenue & Landsdown Avenue

10/13/2020

Intersection						
Int Delay, s/veh	1.6					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
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	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	311	723
HCM Lane V/C Ratio	-	-	0.342	0.012
HCM Control Delay (s)	-	-	22.5	10
HCM Lane LOS	-	-	C	B
HCM 95th %tile Q(veh)	-	-	1.5	0

HCM 6th TWSC
 4: 248th Avenue & Proposed North Access Drive

10/13/2020

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	NBRWBLn1	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

HCM 6th TWSC
1: 248th Avenue & Lapp Avenue

10/13/2020

Intersection						
Int Delay, s/veh	0.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	R	T	R	L	T
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	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	313	1006
HCM Lane V/C Ratio	-	-	0.025	0.004
HCM Control Delay (s)	-	-	16.8	8.6
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.1	0

HCM 6th TWSC

2: 248th Avenue & Honey Locust Drive/Proposed South Access Drive

10/13/2020

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

HCM 6th TWSC
3: 248th Avenue & Landsdown Avenue

10/13/2020

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	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	409	1032
HCM Lane V/C Ratio	-	-	0.078	0.017
HCM Control Delay (s)	-	-	14.5	8.5
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.3	0.1

HCM 6th TWSC
 4: 248th Avenue & Proposed North Access Drive

10/13/2020

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	NBRWBLn1	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

HCM 6th TWSC
1: 248th Avenue & Lapp Avenue

10/13/2020

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	T	T
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	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	198	883
HCM Lane V/C Ratio	-	-	0.2	0.014
HCM Control Delay (s)	-	-	27.7	9.1
HCM Lane LOS	-	-	D	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	-	-

HCM 6th TWSC
3: 248th Avenue & Landsdown Avenue

10/13/2020

Intersection						
Int Delay, s/veh	0.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	T	T
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	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	389	948
HCM Lane V/C Ratio	-	-	0.143	0.032
HCM Control Delay (s)	-	-	15.8	8.9
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.5	0.1

HCM 6th TWSC
 4: 248th Avenue & Proposed North Access Drive

10/13/2020

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	NBRWBLn1	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

HCM 6th TWSC
1: 248th Avenue & Lapp Avenue

10/13/2020

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
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	NBRWBLn1	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	-	-

HCM 6th TWSC
3: 248th Avenue & Landsdown Avenue

10/13/2020

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
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	NBRWBLn1	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

HCM 6th TWSC
 4: 248th Avenue & Proposed North Access Drive

10/13/2020

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	NBRWBLn1	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

HCM 6th TWSC
1: 248th Avenue & Lapp Avenue

10/13/2020

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	NBRWBLn1	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

HCM 6th TWSC

2: 248th Avenue & Honey Locust Drive/Proposed South Access Drive

10/13/2020

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

HCM 6th TWSC
3: 248th Avenue & Landsdown Avenue

10/13/2020

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	NBRWBLn1	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

HCM 6th TWSC
 4: 248th Avenue & Proposed North Access Drive

10/13/2020

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	NBRWBLn1	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

HCM 6th TWSC
1: 248th Avenue & Lapp Avenue

10/13/2020

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
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	NBRWBLn1	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

HCM 6th TWSC

2: 248th Avenue & Honey Locust Drive/Proposed South Access Drive

10/13/2020

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	-	-

HCM 6th TWSC
3: 248th Avenue & Landsdown Avenue

10/13/2020

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	NBRWBLn1	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

HCM 6th TWSC
 4: 248th Avenue & Proposed North Access Drive

10/13/2020

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	NBRWBLn1	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

HCM 6th TWSC
1: 248th Avenue & Lapp Avenue

04/27/2020

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
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	NBRWBLn1	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

HCM 6th TWSC

2: 248th Avenue & Honey Locust Drive/Proposed South Access Drive

04/27/2020

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

HCM 6th TWSC
3: 248th Avenue & Landsdown Avenue

04/27/2020

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
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	NBRWBLn1	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

HCM 6th TWSC
 4: 248th Avenue & Proposed North Access Drive

04/27/2020

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	NBRWBLn1	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

HCM 6th TWSC
1: 248th Avenue & Lapp Avenue

04/27/2020

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
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	NBRWBLn1	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

HCM 6th TWSC

2: 248th Avenue & Honey Locust Drive/Proposed South Access Drive

04/27/2020

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

HCM 6th TWSC
3: 248th Avenue & Landsdown Avenue

04/27/2020

Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		↑↑		Y	↑↑
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
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	NBRWBLn1	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

HCM 6th TWSC
 4: 248th Avenue & Proposed North Access Drive

04/27/2020

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
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	NBRWBLn1WBLn2	SBL	SBT
Capacity (veh/h)	-	-	+ 625	862
HCM Lane V/C Ratio	-	-	0.666	0.483
HCM Control Delay (s)	-	-	2.9	21.5
HCM Lane LOS	-	-	A	C
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

HCM 6th TWSC
1: 248th Avenue & Lapp Avenue

04/27/2020

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	NBRWBLn1	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

HCM 6th TWSC

2: 248th Avenue & Honey Locust Drive/Proposed South Access Drive

04/27/2020

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	-	-

HCM 6th TWSC
3: 248th Avenue & Landsdown Avenue

04/27/2020

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
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	NBRWBLn1	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

HCM 6th TWSC
4: 248th Avenue & Proposed North Access Drive

04/27/2020

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
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	NBRWBLn1	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

Parking Study

for



Islamic Center of Naperville

248th Avenue Campus

Naperville, Illinois

May 20, 2020

Revised July 15, 2021

Revised July 26, 2021

Intech Consultants, Inc.
1989 University Drive, Suite D
Lisle, Illinois 60532

PURPOSE OF THE STUDY

This parking study has been requested by the City of Naperville as a means of establishing the amount of parking that will likely be necessary for the new religious campus proposed by the Islamic Center of Naperville, to be located on the east side of 248th Avenue between 95th Street and 103rd Street in Naperville, Illinois.

Since the proposed campus will contain multiple uses (mosque, school, multi-purpose hall, and gymnasium), it was felt by the City of Naperville that a more in-depth analysis of the parking demands for this proposed site would be warranted rather than just a simple recitation of the zoning code requirements.

To this end, this report describes the project and its various land uses in some detail, outlines the zoning code requirements of the City, presents actual parking counts taken on various days during the week of January 20, 2020 at the other three ICN facilities in the area, and presents a series of projections of the likely parking demand at the new campus upon full build out.

DESCRIPTION OF PROJECT

The Islamic Center of Naperville (ICN) is the owner of a 13.63 acre site located on the east side of 248th Avenue between 95th and 103rd Streets in the City of Naperville, Illinois.

The Islamic Center desires to develop this site in accordance with their attached Master Plan to accommodate school, mosque, multi-purpose hall, and gymnasium uses. The site will be built in five (5) phases over the next 40 years, one phase for each of the uses.

Each of the intended uses and its operations are more fully described in the sections below.

Mosque (Phase I, Initial Construction 2020)

The mosque planned for the ICN campus is to be constructed in two phases. The initial Phase I construction will encompass the majority of the ultimate building, and many of the uses ultimately planned for this facility. The worship space in the mosque is planned to be enlarged as part of Phase V of the overall campus construction, and is more fully described in the Phase V narrative that follows.

The initial mosque construction proposed as part of Phase I is to be a two story building consisting of approximately 28,400 square feet which will initially provide worship space for 300 men and 157 women. It will also include space for offices, conference rooms, storage, multipurpose spaces, washrooms, and the like.

In addition to the times of worship, the mosque will also be used for the religious requirements of weddings, funerals, and special observances throughout the week as necessary.

The Islamic religion requires worship five times a day, seven days a week, not necessarily in a Mosque. The worship times are generally held before dawn, in the early afternoon, late afternoon, early evening, and late evening. Except for the Friday early afternoon services, attendance at prayer times is light, amounting to perhaps no more than 50-100 individuals at any one time. These prayer times are generally one hour or less.

Two prayer services are planned for Friday early afternoon between 12 PM and 3 PM, and are the most heavily attended services. Attendance at the first service in Phase 1 is expected to attract approximately 300 men and 150 women. The 2 PM service will have a somewhat smaller attendance.

In addition to the standard worship times, there will also be other services and activities held throughout the month-long observance of Ramadan. Ramadan occurs at different times each year, as the observance is based on the lunar calendar. Ramadan gatherings and prayers generally are held daily throughout the month after sunset (avg. 8 PM -12 AM) with attendance approximating that of Friday afternoon services for the first and last week, with reduced attendance in between.

School (Phase II, Initial Construction 2030)

The school will be a two story building consisting of approximately 41,749 square feet, and will contain 25 classrooms and space for support activities such as offices, storage, multipurpose room, mechanical spaces, staff lounge, nurse's office and the like.

The school is intended to provide full-time schooling for up to approximately 250 students from grades K-5. A preschool is also planned. Day care facilities are not proposed.

The school will operate during the normal school day on Monday through Friday as a full time school. On weekends, religious classes will be held between 9 AM – 2 PM on Saturday, with up to 500 children attending. On occasion, adult classes may also be held as need or demand dictates. These would occur mainly during evenings and weekends.

Multi-Purpose Hall (Phase III, Initial Construction 2040)

The Multi-Purpose Hall is a one story building consisting of approximately 22,226 square feet that will be used for conferences, interfaith events, and wedding receptions. The Hall will have a full-service kitchen and seating for 500. Use of the Hall is planned for Fridays – Sundays, with actual use depending on demand.

Gymnasium (Phase IV, Initial Construction 2050)

The gymnasium is a one story building consisting of approximately 25,595 square feet. It will provide the congregation with space for indoor physical activities including possible league play for volleyball, basketball, and badminton, "open gym" use times, and other uses such as Scouting activities. Use of the gymnasium will occur mostly in evenings and on weekends.

Mosque Expansion (Phase V, Initial Construction 2060)

The expansion of the mosque will enlarge the worship space of the facility by 3,265 square feet and increase the worship occupancy from the Phase I capacity of 300 men and 157 women to 461 men and 355 women.

TEMPORARY RIGHT-IN, RIGHT-OUT TO BE CONSTRUCTED WITH PHASE I. THIS DRIVE MAY BE CONVERTED TO FULL ACCESS BY THE CITY OF NAPERVILLE AS PART OF THE FUTURE PLANNED IMPROVEMENTS TO 248TH AVENUE.

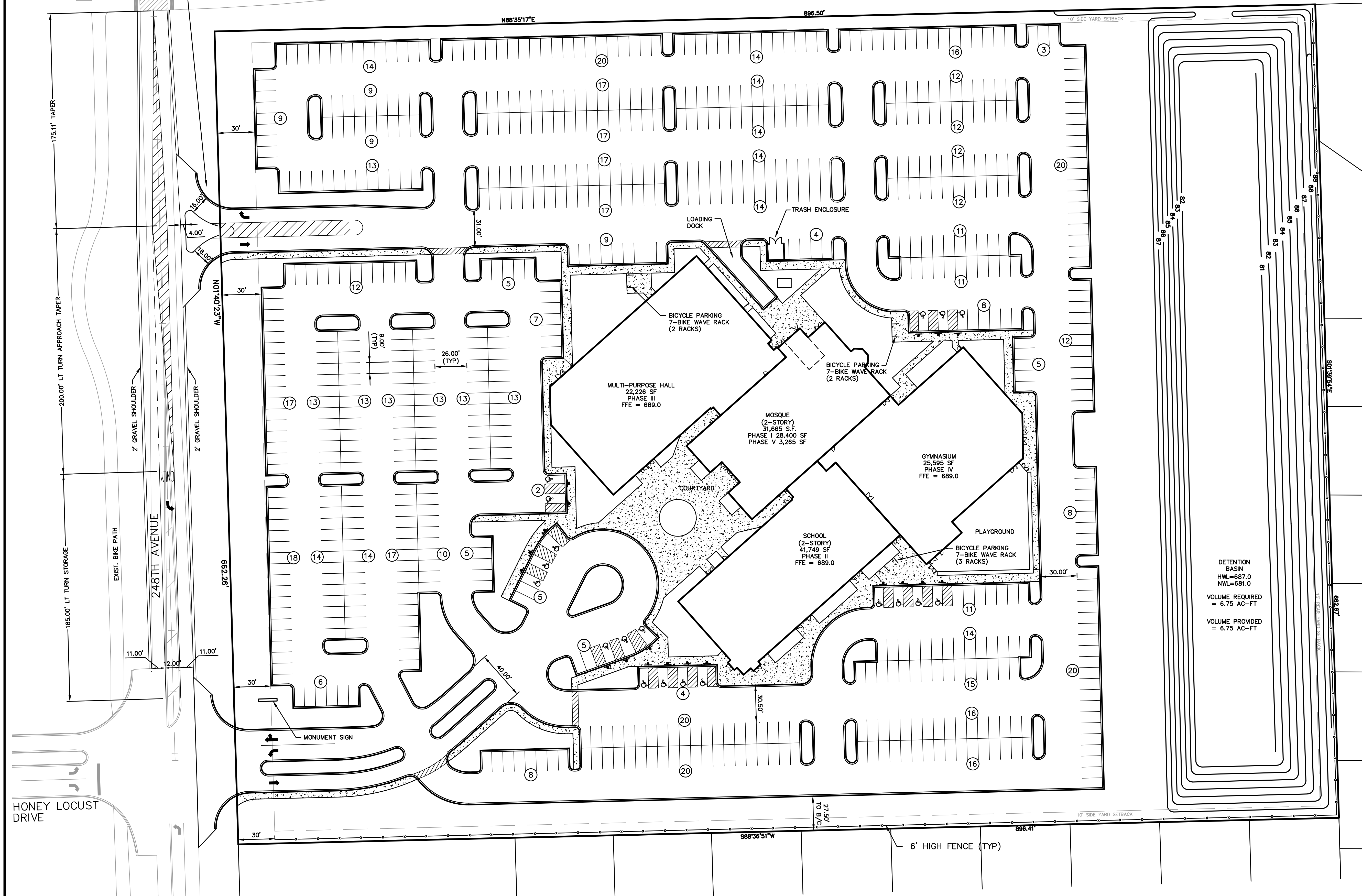
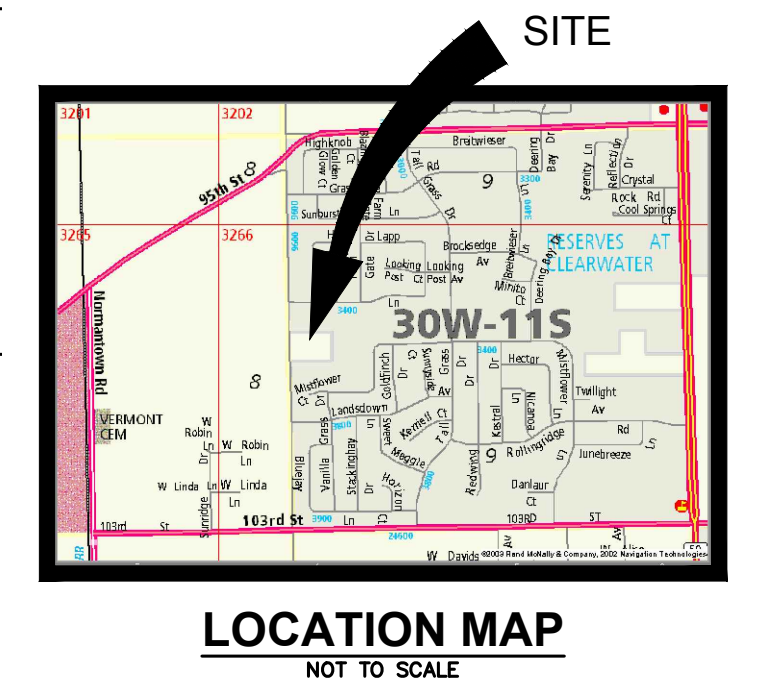
EXIST. BIKE PATH

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	28,400 S.F.
MOSQUE ADDITION	3,265 S.F.
MULTI-PURPOSE HALL	22,226 S.F.
GYMNASIUM:	25,595 S.F.
PARKING REQUIRED:	711 SPACES *
PARKING PROVIDED:	726 SPACES (INCL. 19 HANDICAP STALLS)
BICYCLE PARKING REQUIRED:	43 STALLS
BICYCLE PARKING PROVIDED:	49 STALLS

* SEE PARKING STUDY



DETENTION BASIN
HWL=687.0
NWL=681.0
VOLUME REQUIRED
= 6.75 AC-FT
VOLUME PROVIDED
= 6.75 AC-FT

INTECH CONSULTANTS, INC.
1888 UNIVERSITY LANE, SUITE D
LISLE, ILLINOIS 60532
PHONE: 630-964-5656
ILLINOIS REGISTRATION NO. 184-007040

DATE	NO.	REVISION	BY
7-26-21	4	PER CITY REVIEW	BC
7-27-21	3	PER CLIENT	BC
8-27-20	2	PER CITY REVIEW	BC
4-27-20	1	PER CLIENT REVIEW	BC

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

CITY OF NAPERVILLE PARKING REQUIREMENTS

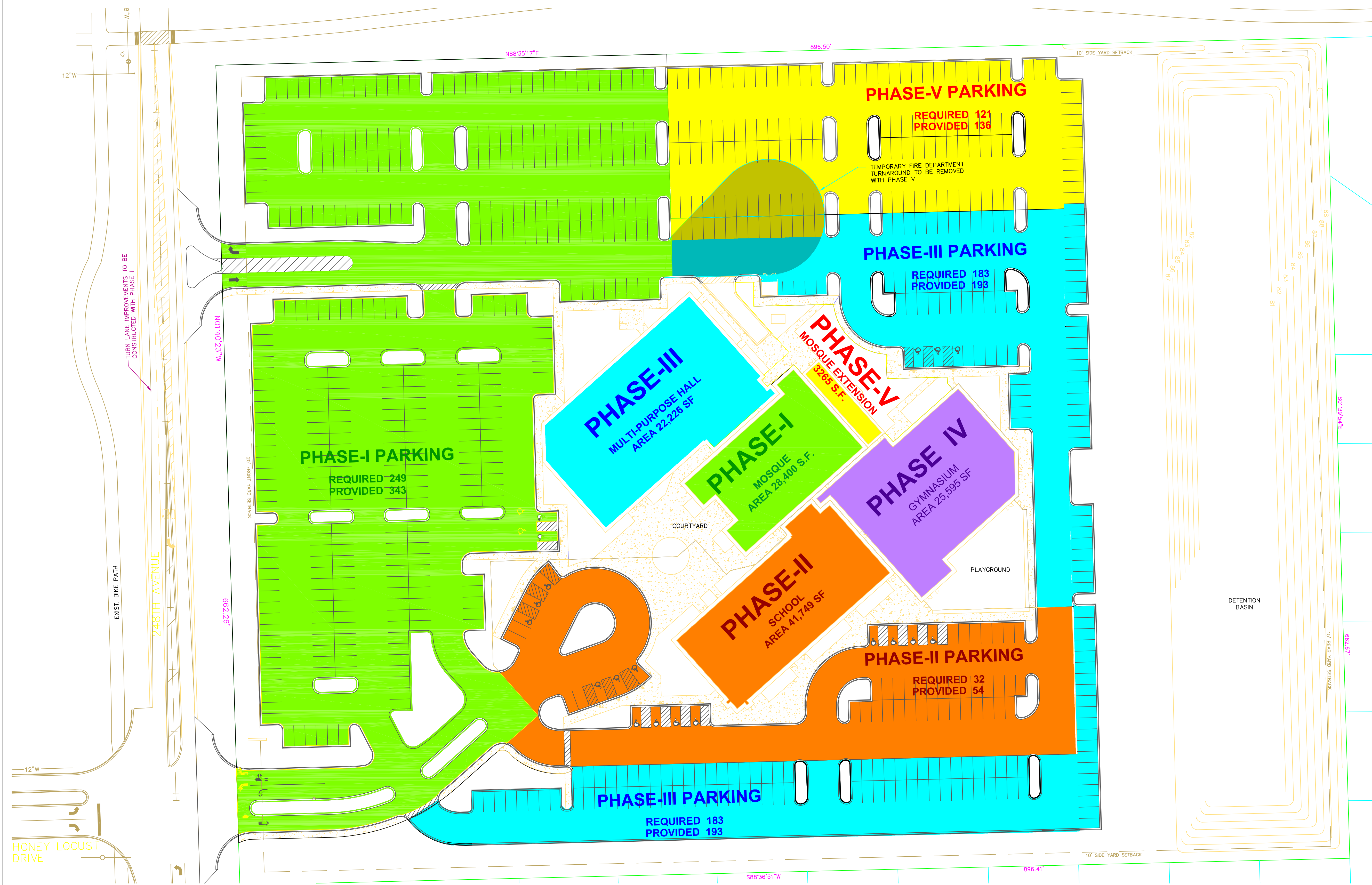
Parking requirements as mandated by the City of Naperville's Municipal Code are dependent on upon the actual usage of proposed properties. Depending on the usage proposed, the required parking is arrived at by applying specified rates of parking required for each of the classifications of land and/or building usage that may be present in a particular project.

A detailed breakdown of the City's parking requirements as applied to the various uses contained in the enclosed Master Plan for the entire 248th Avenue campus that has been prepared by the project architect, Dome Structural Engineers, is included in this section of this report.

The City's requirements for the planned uses of the built-out campus generate a required total parking count of 726 cars, which is summarized as follows:

Phase I - Initial Mosque Construction	249 spaces required
Phase II – School	32 spaces required
Phase III – Multipurpose Hall	183 spaces required
Phase IV – Gymnasium	126 spaces required
Phase V – Mosque Expansion	<u>121 spaces required</u>
Total	711 spaces required

The Master Plan for the Islamic Center of Naperville's 248th Avenue campus totals 726 cars, and is therefore in compliance with the parking requirements of the City.



SCALE: 1" = 40'

I hereby certify that these drawings/documents were prepared under my direct supervision and to the best of my knowledge conform to the applicable building and zoning codes of the City of Naperville, State of IL.
 Jamshid Jahedi:
 Expires: 11/30/2021

REVISIONS:

DESCRIPTION	DATE

DESIGN: Jin Liu
 DRAW: Jin Liu
 CHECK: Jamshid Jahedi

DATE: 7/27/2021
 SCALE: 1"=40'
 FILE No: PC1706605-4

SHEET TITLE:
MASTER SITE PHASING PLAN

SHEET No:
PZC-1.0

PHASE-I
 MOSQUE AREA 28,400 S.F.

PARKING	REQUIRED	PROVIDED
PHASE I	249	343
TOTAL	249	343

PARKING	OCCUPANT	REQUIRED	CRITERIA
PRAYER HALLS (3,200SF) 75SF/OCCUPANT (NET)	457	153	1 SPACE/ 3 SEAT
ADMIN. 2890 SF (GROSS)	10	3.3	3.3 SPACE/ 1000 SF
BASEMENT(MULTI-PURPOSE FUTURE) 8197 SF(GROSS)		82	10 SPACE/ 1000 SF
FUTURE KITCHEN 203 SF	4 EMPLOYEE	4	1 SPACE/EMPLOYEE
TOTAL		249	

PHASE-II
 SCHOOL 41,749 SF

PARKING	REQUIRED	PROVIDED
PHASE II	32	54
TOTAL	281	397

PARKING	AREA	REQUIRED	CRITERIA
OFFICE	678 SF	3	3.3 SPACE/1000 SF
PRE SCHOOL	2941SF	5	2SPACE/1000 SF
ELEMENTARY/JUNIOR HIGH	2941SF	22	1SPACE/EMPLOYEE
KITCHEN	263SF	2	1SPACE/EMPLOYEE
TOTAL		32	

PHASE-III
 MULTI-PURPOSE HALL 22,226 SF

PARKING	REQUIRED	PROVIDED
PHASE III	183	193
TOTAL	464	590

PARKING	AREA	REQUIRED	CRITERIA
FIRST FLOOR	17,768 SF	178	10 SPACE/1000 SF
BASEMENT	4,458 SF	5	1 SPACE/1000 SF
TOTAL	22,226 SF	183	

PHASE-IV
 GYMNASIUM 25,595 SF

PARKING	REQUIRED	PROVIDED
PHASE IV	126	0
TOTAL	590	590

PARKING	AREA	REQUIRED	CRITERIA
GYMNASIUM	24,889 SF	125	5 SPACE/1000 SF
STORAGE	706 SF	1	1 SPACE/1000 SF
TOTAL	25,595 SF	126	

PHASE-V
 MOSQUE EXPANSION 3,265 SF

PARKING	REQUIRED	PROVIDED
PHASE V	121	136
TOTAL	711	726

PARKING	OCCUPANT	REQUIRED	CRITERIA
PRAYER HALLS (2,513SF) 75SF/OCCUPANT (NET)	359	121	5 SPACE/ 3SEAT
TOTAL		121	

* Required parking for the worship space in the mosque per the Municipal Code is one stall per three worshippers. Includes the basement area per code.
 ** Actual parking needs for the worship space in the mosque during Friday services established by vehicle counts at other ICN facilities is one stall per 1.4 worshippers. Does not include the basement area since the basement area will not be used during Friday service

Note: Phase III parking includes the loss of 6 HC stalls and gain of 1 regular stall from Phase I, as well as a net increase of 16 stalls in the Phase I area when the temporary aisle is removed with Phase III construction, and a net gain of 1 stall when the temporary trash enclosure is moved to its permanent location during Phase III construction.

PARKING COUNTS AT OTHER ICN FACILITIES

The City of Naperville has requested that a series of parking counts be conducted at the other facilities of the Islamic Center of Naperville in the area.

The purpose of these counts is to determine the actual parking usage of these facilities so that the parking needs of the 248th Avenue campus can be projected based on actual usage elsewhere.

During the week of January 12-18, 2020, a series of counts were taken at ICN's three other locations:

- **Oleson Drive** – a converted single family residence with 19 parking spaces on site. Additional parking is accommodated on the streets in the adjacent residential areas.
- **75th Street** – a recently acquired site originally developed as a church with 140 parking spaces in the site's parking lot. Offsite parking is not available in the area.
- **Ogden Avenue** – a stand alone facility containing a mosque and gymnasium with 285 parking spaces in the site's parking lot. Offsite parking is also available in the commercial parking lot on the north side of Ogden Avenue.

The counts were taken at each site on Wednesday, Thursday, Friday, and Saturday of that week, at 8:00 AM, 10:00 AM, Noon, 1:00 PM, and 4:00 PM on each day. At the Ogden Avenue site, an additional count was taken at 2:00 PM on Friday to more accurately depict the actual usage of the site during the two worship services that occur at that location on Friday afternoons. Also, at each site counts were also taken not only on the individual sites, but also in the offsite areas mentioned above.

The counts that were obtained are displayed in the three tables contained in this section of the report.

For the majority of the time, the parking demand at each site was substantially less than the parking available on the site itself. However, on Friday afternoons during the most heavily attended worship time of the week, the parking demand was greater than the available site parking.

At the Oleson Drive site, once the onsite parking was filled the additional cars were double parked in the aisle in the lot, and on the streets in the adjacent residential areas. At the 75th Street site, the additional cars were double parked in the aisles in the lot. At the Ogden Avenue site, the additional cars were double parked in the aisle in the lot, and in the commercial parking lot on the north side of Ogden Avenue.

During the course of the counting of the cars at each of the sites, those individuals counting the cars made efforts to determine how many persons were in each vehicle. While it was not possible to conduct a comprehensive accounting of the occupants for each vehicle, it was clear that the majority of cars were occupied by a single person, especially during the peak Friday worship times. Of those cars where the number of occupants were observed, informal tallies averaged out to a vehicle occupancy rate of approximately 1.4 occupants per vehicle.

This occupancy rate differs markedly from the 3.0 rate assumed by the Naperville Municipal Code. Most such codes are based on experiences with other religions where the peak worship time is held on weekends when families have the opportunity to carpool to a great extent.

However, the peak worship time for the Islamic religion is held during the work week, and many of those attending services are coming from work, and will be returning to work after the services are over. As a result, a much greater number of individuals arrive by themselves, and the actual number of vehicles is greater than assumed by the Code.

In the next section of this report, the actual vehicle occupancy rate of 1.4 occupants per vehicle that was observed will be used to project the parking need during worship times for the proposed 248th Avenue campus.

Islamic Center of Naperville - Oleson Drive Site

Parking Counts - January 15, 16, 17, 18, 2020

Parking Facilities On Site = 19 spaces

Wednesday, January 15, 2020

<u>Time</u>	<u>On Site</u>	<u>Off Site</u>
8:00 AM	0	0
10:00 AM	2	0
Noon	3	0
1:00 PM	12	0
4:00 PM	0	0

Thursday, January 16, 2020

<u>Time</u>	<u>On Site</u>	<u>Off Site</u>
8:00 AM	0	0
10:00 AM	2	0
Noon	3	0
1:00 PM	10	0
4:00 PM	0	0

Friday, January 17, 2020

<u>Time</u>	<u>On Site</u>	<u>Off Site</u>
8:00 AM	0	0
10:00 AM	2	0
Noon	5	0
1:00 PM	22	117
4:00 PM	3	0

Saturday, January 18, 2020

<u>Time</u>	<u>On Site</u>	<u>Off Site</u>
8:00 AM	0	0
10:00 AM	0	0
Noon	0	0
1:00 PM	0	0
4:00 PM	0	0

Islamic Center of Naperville - 75th Street Site

Parking Counts - January 15, 16, 17, 18, 2020

Parking Facilities On Site = 140 spaces

Wednesday, January 15, 2020

<u>Time</u>	<u>On Site</u>	<u>Off Site</u>
8:00 AM	1	0
10:00 AM	4	0
Noon	3	0
1:00 PM	3	0
4:00 PM	2	0

Thursday, January 16, 2020

<u>Time</u>	<u>On Site</u>	<u>Off Site</u>
8:00 AM	1	0
10:00 AM	4	0
Noon	7	0
1:00 PM	4	0
4:00 PM	5	0

Friday, January 17, 2020

<u>Time</u>	<u>On Site</u>	<u>Off Site</u>
8:00 AM	3	0
10:00 AM	3	0
Noon	153	0
1:00 PM	21	0
4:00 PM	4	0

Saturday, January 18, 2020

<u>Time</u>	<u>On Site</u>	<u>Off Site</u>
8:00 AM	1	0
10:00 AM	2	0
Noon	1	0
1:00 PM	1	0
4:00 PM	2	0

Islamic Center of Naperville - Ogden Ave. Site

Parking Counts - January 15, 16, 17, 18, 2020

Parking Facilities On Site = 285 spaces

Wednesday, January 15, 2020

<u>Time</u>	<u>Cars in Lot</u>	<u>Offsite</u>
8:00 AM	12	0
10:00 AM	16	0
Noon	17	0
1:00 PM	56	0
4:00 PM	9	0

Thursday, January 16, 2020

<u>Time</u>	<u>Cars in Lot</u>	<u>Offsite</u>
8:00 AM	12	0
10:00 AM	17	0
Noon	34	0
1:00 PM	76	0
4:00 PM	10	0

Friday, January 17, 2020

<u>Time</u>	<u>Cars in Lot</u>	<u>Offsite</u>
8:00 AM	11	0
10:00 AM	36	0
Noon	333	15
1:00 PM	382	27
2:00 PM	65	0
4:00 PM	10	0

Saturday, January 18, 2020

<u>Time</u>	<u>Cars in Lot</u>	<u>Offsite</u>
8:00 AM	26	0
10:00 AM	5	0
Noon	5	0
1:00 PM	36	0
4:00 PM	6	0

PHASED PARKING PROJECTIONS FOR NEW 248TH AVENUE CAMPUS

It was seen in an earlier section of this report that when fully developed, the proposed parking for the Islamic Center of Naperville's new religious campus on 248th Avenue fully meets the parking requirements of the City of Naperville's Municipal Code.

It has also been determined through the parking counts obtained at the Islamic Center of Naperville's other three facilities in the area that each of these facilities has a high parking demand during the peak Friday worship times, primarily due to a low vehicle occupancy rate.

Since the campus will be constructed in five (5) separate phases over time, it is important to ensure that adequate parking is provided during all of the phases of development, and that the parking not only meets the Code requirements, but also the actual needs.

As noted earlier, the phasing of the campus is planned to occur as follows:

Phase I - Initial Mosque Construction

Phase II – School

Phase III – Multipurpose Hall

Phase IV – Gymnasium

Phase V – Mosque Expansion

The Islamic Center of Naperville and their design team has carefully considered numerous ways of phasing the project, and developed the attached Phasing Plan to guide the future development of the overall campus. Numerous factors were considered during the planning, with the foremost being to ensure that adequate parking would be available at all times.

Not only would each phase have to meet the code parking requirements, but the parking for the peak worship times would have to meet or exceed the necessary parking as established by the vehicle occupancy rate arrived as a result of the parking count survey conducted at the other ICN facilities in the area.

The parking to be provided in each Phase is summarized in the following chart. In each Phase, the parking to be provided not only meets the Naperville code requirements, it also meets the parking needs for the peak worship times using the vehicle occupancy rate.

ISLAMIC CENTER OF NAPERVILLE

PARKING BY PHASES

	<u>PHASE I</u>		<u>PHASE II</u>		<u>PHASE III</u>		<u>PHASE IV</u>		<u>PHASE V</u>		
	REQUIRED BY CODE*	NEEDED BY USE**	PARKING PROVIDED***	REQUIRED BY CODE	PARKING PROVIDED	REQUIRED BY CODE	PARKING PROVIDED	REQUIRED BY CODE	PARKING PROVIDED	REQUIRED BY CODE	PARKING PROVIDED
BASE MOSQUE	249	336	343	249	343	249	343	249	343	249	343
SCHOOL				32	54	32	54	32	54	32	54
MULT-PURPOSE HALL				183	193	183	193	183	193	183	193
GYMNASIUM						126	0	126	0	126	0
MOSQUE EXPANSION											
CUMULATIVE TOTALS	249	336	343	281	397	464	590	590	590	711	726

TOTAL PARKING AVAILABLE 726

* Required parking for the worship space in the mosque per the Municipal Code is one stall per three worshippers. Includes the basement area per code.

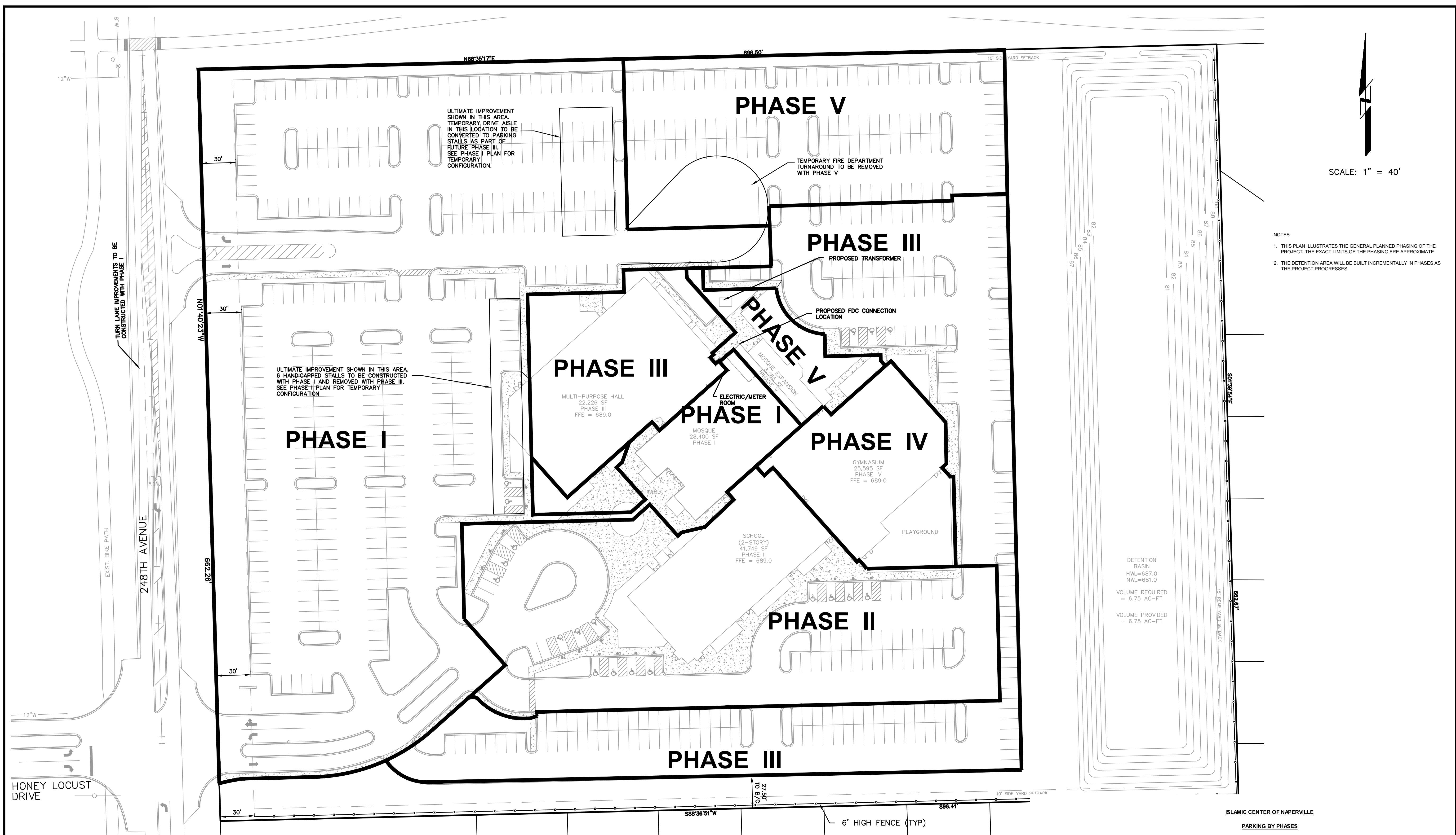
** Actual parking needs for the worship space in the mosque during Friday services established by vehicle counts at other ICN facilities is one stall per 1.4 worshippers. Does not include the basement area since the basement area will not be used during Friday services.

Note: Phase III parking includes the loss of 6 HC stalls and gain of 1 regular stall from Phase I, as well as a net increase of 16 stalls in the Phase I area when the temporary aisle is removed with Phase III construction, and a net gain of 1 stall when the temporary trash enclosure is moved to its permanent location during Phase III construction.

For example, in Phase I the parking required by the Municipal Code totals 249 stalls. However, based on the planned 457 parishioners (300 men and 157 women) and a vehicle occupancy rate of 1.4, the needed parking for the peak worship periods on Friday afternoons amounts to 326 parking spaces. Phase I is providing 343 parking spaces, and therefore should be considered adequate.

It should be noted that only some, but not all, of the various uses at this campus will occur concurrently, which will be discussed in the next section of this report. As a result, in addition to the required parking for each of the different uses within the campus, when a use is active it will have the benefit of being able to also use the parking for the other uses that are not active at that time. As a result, the parking that will be provided at any time will be more than adequate to handle the parking demand.

Friday afternoon worship generates by far the greatest parking demand. However, since none of the other uses are allowed to be active during the Friday services, there will be far more parking than is necessary to meet the demand. Even after buildout when the mosque expansion has increased the worship space to a capacity of 816 persons (461 men, 355 women), the parking that is needed based on the vehicle occupancy rate will be 583 cars, which is significantly less than the 726 spaces that will be present on the campus.



NOTES:
 1. THIS PLAN ILLUSTRATES THE GENERAL PLANNED PHASING OF THE PROJECT. THE EXACT LIMITS OF THE PHASING ARE APPROXIMATE.
 2. THE DETENTION AREA WILL BE BUILT INCREMENTALLY IN PHASES AS THE PROJECT PROGRESSES.

DETECTION BASIN
 HWL=687.0
 NWL=681.0
 VOLUME REQUIRED = 6.75 AC-FT
 VOLUME PROVIDED = 6.75 AC-FT

ISLAMIC CENTER OF NAPERVILLE

PARKING BY PHASES

	PHASE I			PHASE II		PHASE III		PHASE IV		PHASE V	
	REQUIRED BY CODE*	NEEDED BY USE**	PARKING PROVIDED**	REQUIRED BY CODE	PROVIDED	REQUIRED BY CODE	PROVIDED	REQUIRED BY CODE	PROVIDED	REQUIRED BY CODE	PROVIDED
BASE MOSQUE	249	336	343	249	343	249	343	249	343	249	343
SCHOOL				32	54	32	54	32	54	32	54
MULTI-PURPOSE HALL						183	193	183	193	183	193
GYMNASIUM								126	0	126	0
MOSQUE EXPANSION										121	136
CUMULATIVE TOTALS	249	336	343	281	397	464	590	590	590	711	726

TOTAL PARKING AVAILABLE 726

* Required parking for the worship space in the mosque per the Municipal Code is one stall per three worshippers. Includes the basement area per code.
 ** Actual parking needs for the worship space in the mosque during Friday services established by vehicle counts at other ICN facilities is one stall per 1.4 worshippers. Does not include the basement area since the basement area will not be used during Friday services.
 Note: Phase III parking includes the loss of 6 HC stalls and gain of 1 regular stall from Phase I, as well as a net increase of 16 stalls in the Phase I area when the temporary aisle is removed with Phase III construction, and a net gain of 1 stall when the temporary trash enclosure is moved to its permanent location during Phase III construction.

PHASING PLAN

ISLAMIC CENTER OF NAPERVILLE
 248TH AVENUE SITE
 NAPERVILLE, ILLINOIS

INTECH CONSULTANTS, INC.
 1889 UNIVERSITY LANE, SUITE D
 LISLE, ILLINOIS 60532
 PHONE: 630-964-5656

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

DATE	NO.	REVISION	BY
7-26-21	5	PER CITY REVIEW	BC
11-30-20	3	PER CITY REVIEW	BC
8-27-20	2	PER CITY REVIEW	BC
4-27-20	1	PER CLIENT REVIEW	BC

Projected Actual Campus Parking Usage

Earlier in this report, it was seen that the total parking that is to be provided for each of the land uses within the campus at ultimate buildout as well as during each of the planned five (5) Phases of construction will meet the parking requirements of the City of Naperville.

In addition, the parking to be provided will meet the actual parking needs during peak Friday worship times using the vehicle occupancy rate that was determined as part of the parking counts that were taken at the other ICN facilities in the area.

However, these analyses only address the requirements and needs at peak times. They do not provide any insight as to when the various uses within the campus will actually be used, and what the likely parking loads will be under those circumstances.

To illustrate this, ICN and their design team mapped out the planned times and expected utilization of each of the buildings not only during normal weekly operations, but also during the month of Ramadan, when the timing of usages differs from the other 11 months of the year.

Because the expected use of the facilities varies throughout the week and is also different during Ramadan, it was found that there are eight different usage patterns that will occur. These are as follows:

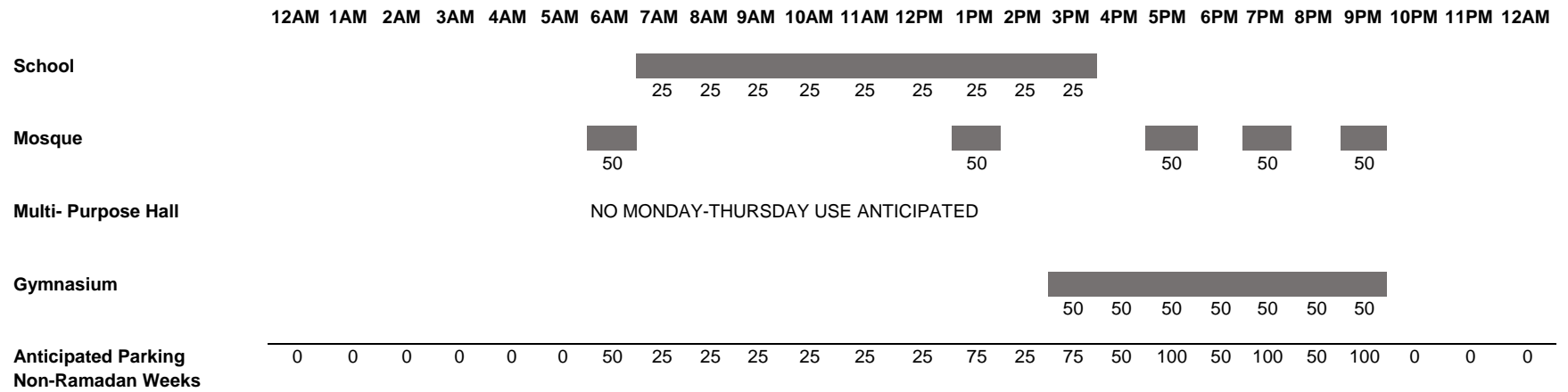
- Monday – Thursday, Non Ramadan Weeks
- Monday – Thursday, Ramadan Weeks
- Friday, Non Ramadan Weeks
- Friday, Ramadan Weeks
- Saturday, Non Ramadan Weeks
- Saturday, Ramadan Weeks
- Sunday, Non Ramadan Weeks
- Sunday, Ramadan Weeks

The projected campus usage of the parking facilities is presented in the tables that follow. Several things can be seen clearly when examining these tables:

1. While several uses are planned to potentially occur concurrently, the attendance levels are such that the parking facilities are vacant much of the time.
2. Because the other uses are not allowed to operate during the peak worship times on Friday afternoons, there will be more than adequate parking at all times for the peak worship traffic.
3. Even if it was decided to expand the operations of the school, multipurpose hall, or the gymnasium, there would still be more than adequate parking available at all times for those expanded operations.

**Islamic Center of Naperville
Site Use and Parking Projections**

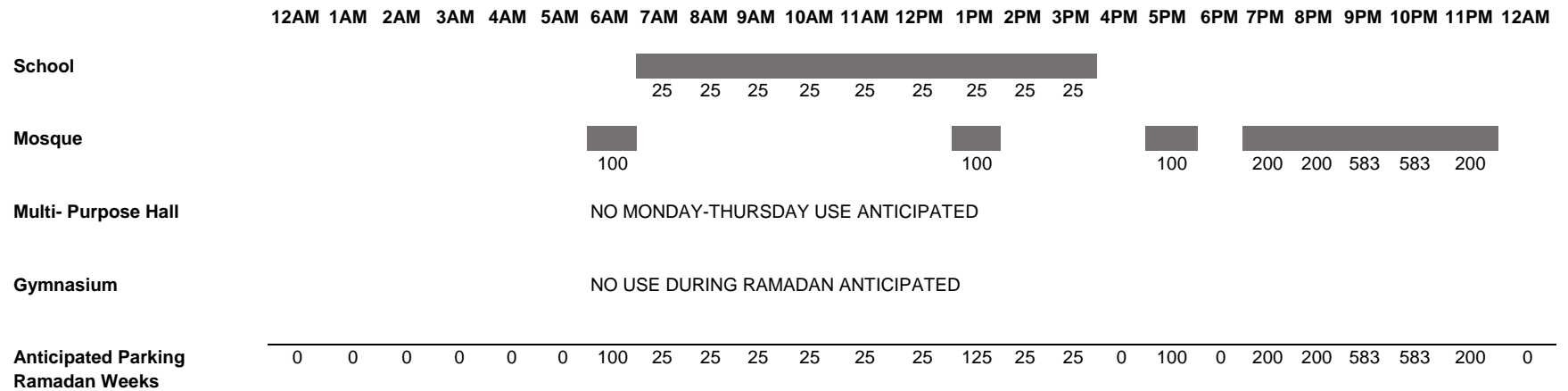
Monday - Thursday, Non-Ramadan Weeks



Usage times and anticipated number of vehicles provided by ICN.

**Islamic Center of Naperville
Site Use and Parking Projections**

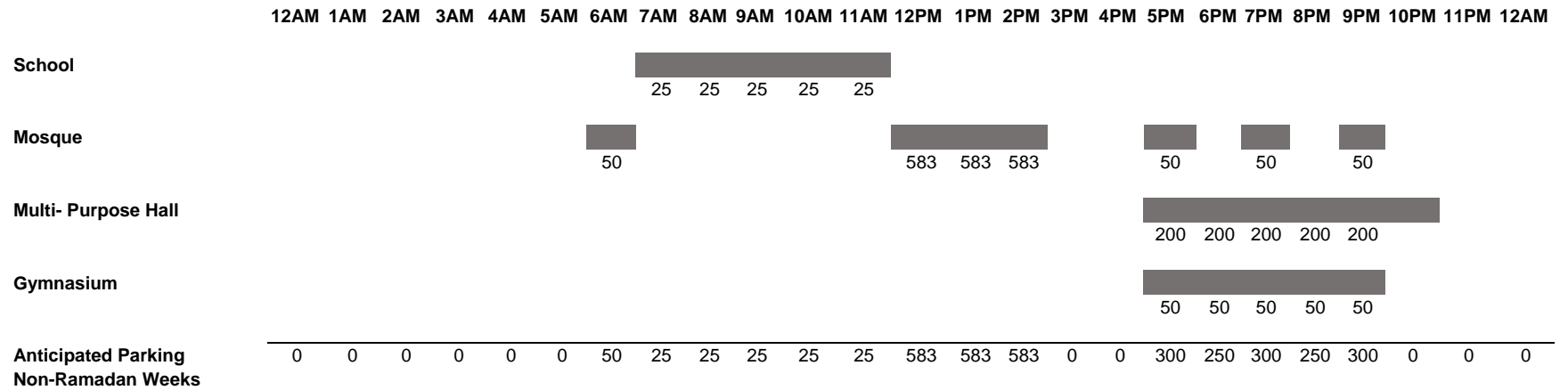
Monday - Thursday, Ramadan Weeks



1. Usage times and anticipated number of vehicles provided by ICN.
2. Numbers shown for the mosque include both Phase I and Phase V usage for the first week and last week of Ramadan.

**Islamic Center of Naperville
Site Use and Parking Projections**

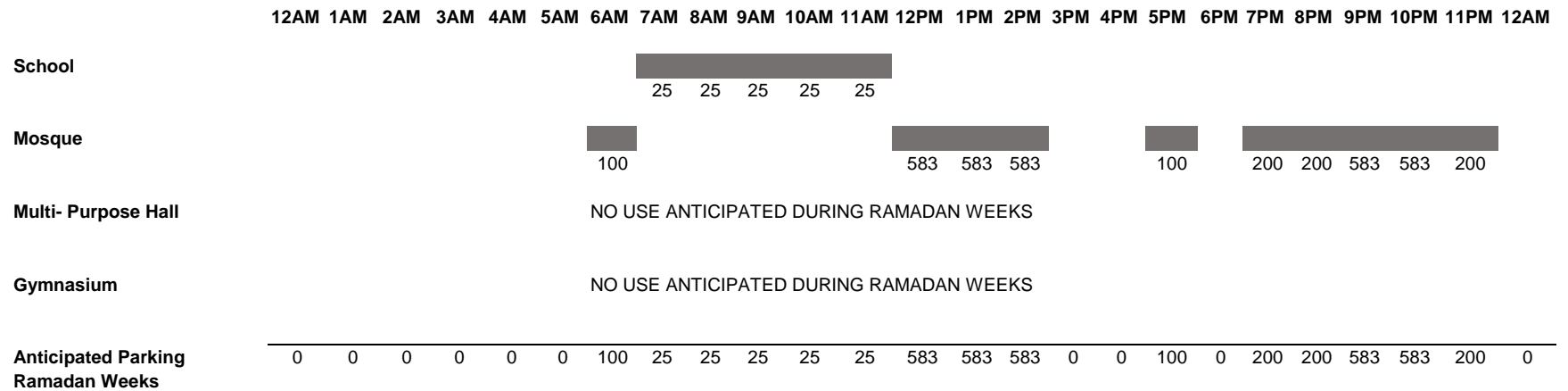
Friday, Non-Ramadan Weeks



1. Usage times and anticipated number of vehicles provided by ICN.

**Islamic Center of Naperville
Site Use and Parking Projections**

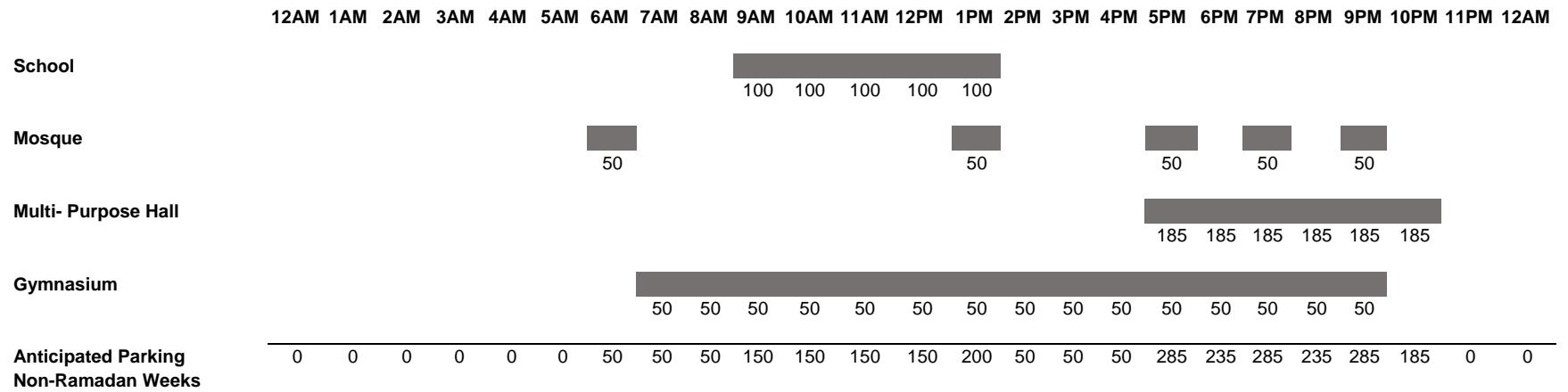
Friday, Ramadan Weeks



1. Usage times and anticipated number of vehicles provided by ICN.
2. Numbers shown for the mosque include both Phase I and Phase V usage for the first week and last week of Ramadan.

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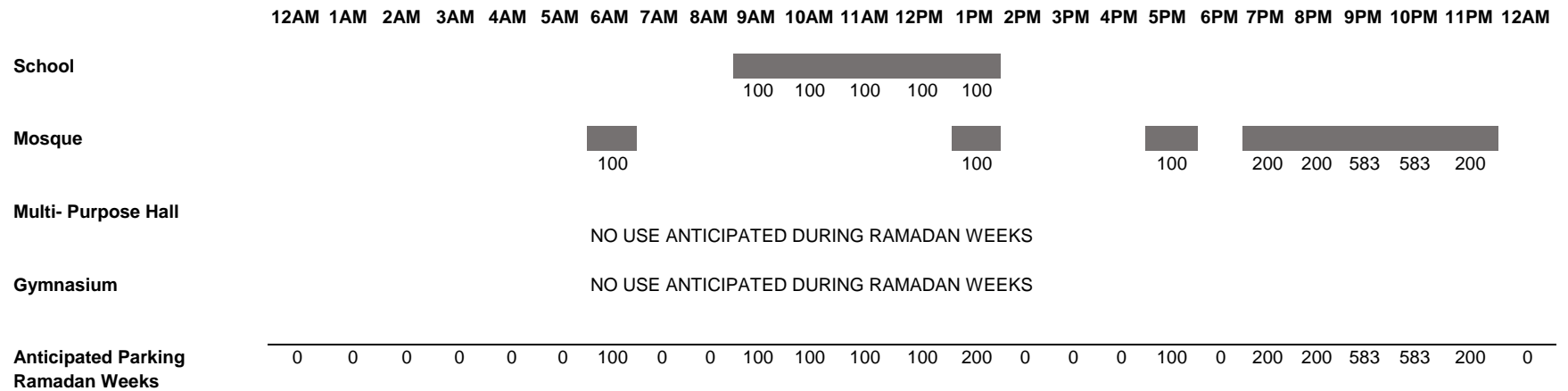
Saturday, Non-Ramadan Weeks



Usage times and anticipated number of vehicles provided by ICN.

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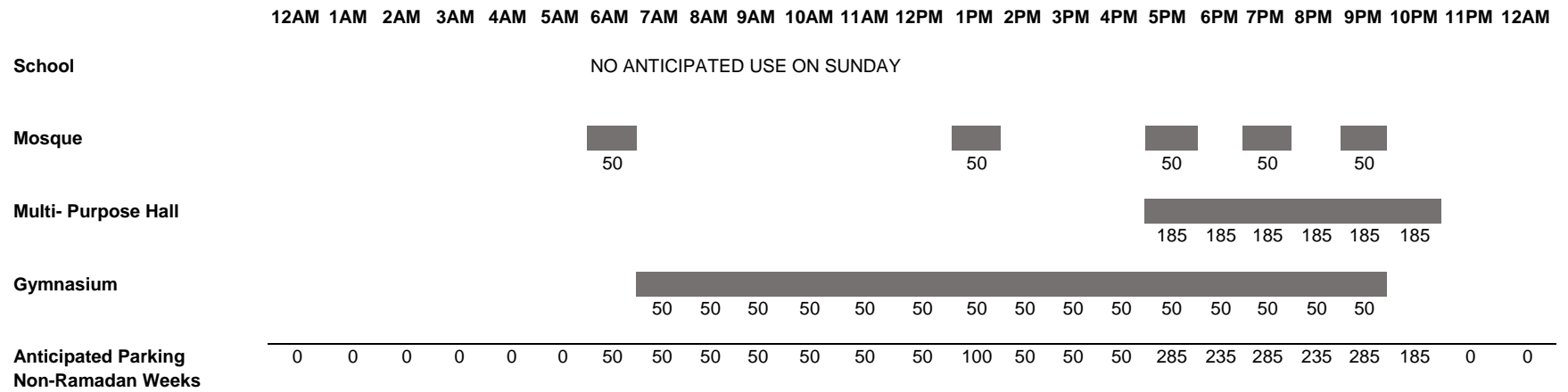
Saturday, Ramadan Weeks



1. Usage times and anticipated number of vehicles provided by ICN.
2. Numbers shown for the mosque include both Phase I and Phase V usage for the first week and last week of Ramadan.

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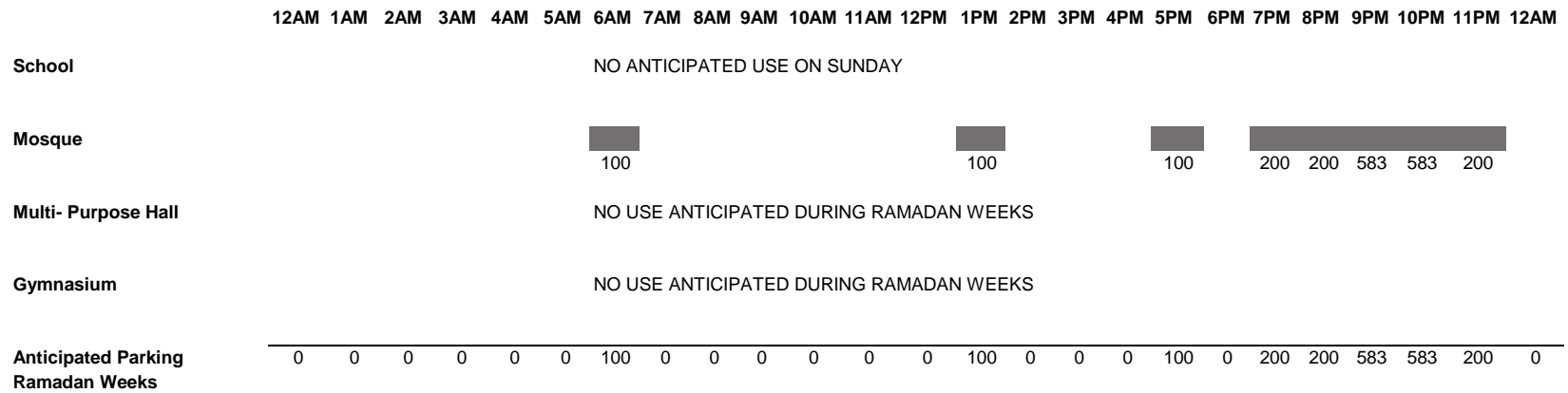
Sunday, Non-Ramadan Weeks



Usage times and anticipated number of vehicles provided by ICN.

**Islamic Center of Naperville
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Sunday, Ramadan Weeks



1. Usage times and anticipated number of vehicles provided by ICN.
2. Numbers shown for the mosque include both Phase I and Phase V usage for the first week and last week of Ramadan.

CONCLUSIONS

The Islamic Center desires to develop this site in accordance with their Master Plan to accommodate school, mosque, multi-purpose hall, and gymnasium uses. The site will be built in five (5) phases over the next 40 years, one phase for each of the uses plus a future expansion of the mosque.

Each of these uses is substantial, and will need to accommodate the necessary parking for those that will participate in the many activities that are planned.

In this report, it has been shown that:

- The parking being provided for the campus meets or exceeds the requirements of the City of Naperville's Municipal Code, not only at the time of ultimate buildout, but at all stages of the phased construction that is planned.
- The parking that is to be provided during peak worship times on Fridays is in excess of what is to be expected using the lower vehicle occupancy rates identified as part of the parking counts taken at the other three ICN facilities in the area.
- While concurrent usage of some of the facilities is planned to occur, the anticipated parking needs are far less than the parking that will be available.
- If it was decided in the future to expand the operations of the school, multipurpose hall, or the gymnasium, there would still be more than adequate parking available at all times for those expanded operations, since they cannot occur during the peak worship periods on Friday afternoons.

Given the above, it is apparent that the parking that will be provided for the Islamic Center of Naperville's new religious campus on 248th Avenue will be more than adequate to accommodate all of the uses and the activities that are planned.

