

Engineering

Land/Site
Development

Municipal
Infrastructure

Environmental/
Water Resources

Traffic/
Transportation

Recreational

Planning

Land/Site
Development

Planning Application
Management

Municipal Planning

Urban Design

Expert Witness
(LPAT)

Wireless Industry

Landscape Architecture

Streetscapes &
Public Amenities

Open Space, Parks &
Recreation

Community &
Residential

Commercial &
Institutional

Environmental
Restoration

DEMENTIA VILLAGE AND RETIREMENT COMMUNITY

Traffic Impact Study

Prepared for: Chello Building Corp.

**DEMENTIA VILLAGE AND RETIREMENT COMMUNITY
ALMONTE, ONTARIO
TRAFFIC IMPACT STUDY**

Prepared By:

NOVATECH
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario
K2M 1P6

November 2023

Novatech File: 123044
Ref: R-2023-110

November 8, 2023

Municipality of Mississippi Mills
3131 Old Perth Road
Box 400
Almonte, ON K0A 1A0

Attention: Melanie Knight, Senior Planner

**Reference: Dementia Village and Retirement Community
Traffic Impact Study
Our File No.: 123044**

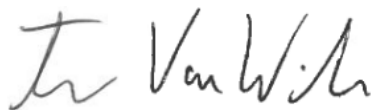
This Traffic Impact Study has been prepared in support of a Community Infrastructure and Housing Accelerator application for a proposed dementia village and retirement community. The subdivision is located at 5400 Appleton Side Road, located on the east side of Appleton Side Road south of Ottawa Street and across from Industrial Drive.

This study determines the traffic impacts of the development. It estimates site generated traffic, and reviews intersection operations and turn lane warrants at the proposed access to Appleton Side Road.

If you have any questions or comments regarding this report, please feel free to contact Brad Byvelds, or the undersigned.

Yours truly,

NOVATECH



Trevor Van Wiechen, M.Eng.
E.I.T. | Transportation

TABLE OF CONTENTS

| | | |
|------------|--|-----------|
| 1.0 | INTRODUCTION | 1 |
| 1.1 | Proposed Development | 2 |
| 1.2 | Analysis Parameters | 2 |
| 1.3 | Analysis Methods..... | 2 |
| 2.0 | EXISTING CONDITIONS | 3 |
| 2.1 | Roadways..... | 3 |
| 2.2 | Intersections | 3 |
| 2.3 | Pedestrian and Cycling Facilities | 4 |
| 2.4 | Transit..... | 5 |
| 2.5 | Existing Traffic Volumes..... | 5 |
| 3.0 | PLANNED CONDITIONS | 5 |
| 4.0 | SITE TRAFFIC | 7 |
| 4.1 | Trip Generation..... | 7 |
| 4.2 | Trip Distribution..... | 8 |
| 4.3 | Trip Assignment..... | 8 |
| 5.0 | BACKGROUND TRAFFIC CONDITIONS | 11 |
| 5.1 | Historic Growth | 11 |
| 5.2 | Other Area Developments..... | 11 |
| 6.0 | INTERSECTION OPERATING CONDITIONS | 19 |
| 6.1 | Existing Traffic Operations | 19 |
| 6.2 | Background Traffic Operations | 19 |
| 6.3 | Total Traffic Operations | 20 |
| 6.3.1 | <i>Ottawa Street/March Road/Appleton Side Road/Ramsay Concession 11A</i> | 20 |
| 6.3.2 | <i>Appleton Side Road/Industrial Drive/Site Access</i> | 20 |
| 7.0 | ON-SITE DESIGN | 21 |
| 7.1 | Site Access..... | 21 |
| 7.2 | Development Design..... | 22 |
| 8.0 | CONCLUSIONS AND RECOMMENDATIONS | 22 |

Figures

Figure 1: View of the Subject Site 1
 Figure 2: Ottawa St/March Rd/Ramsay Concession 11A/Appleton Side Rd Roundabout..... 4
 Figure 3: Existing Traffic Volumes..... 6
 Figure 4: 2025 Site Generated Trips 9
 Figure 5: 2035 Site Generated Trips 10
 Figure 6: 2025 Background Traffic Volumes 13
 Figure 7: 2035 Background Traffic Volumes 14
 Figure 8: 2040 Background Traffic Volumes 15
 Figure 9: 2025 Total Traffic Volumes 16
 Figure 10: 2035 Total Traffic Volumes 17
 Figure 11: 2040 Total Traffic Volumes 18

Tables

Table 1: Comparison of 2022 and 2023 Traffic Counts 5
 Table 2: Trip Generation 8
 Table 3: Phase 6 Mill Run Subdivision Trip Generation..... 11
 Table 4: Analysis Results - Existing Traffic Conditions 19
 Table 5: Analysis Results - Background Traffic Conditions..... 19
 Table 6: Analysis Results - Total Traffic Conditions 20

Appendices

- Appendix A: Proposed Concept Site Plan
- Appendix B: Traffic Count Data
- Appendix C: Background Reports
- Appendix D: Synchro Reports
- Appendix E: Left Turn Lane Graphs
- Appendix F: OTM Signalization Warrants

EXECUTIVE SUMMARY

This Traffic Impact Study (TIS) has been prepared in support of a Community Infrastructure and Housing Accelerator (CIHA) application for the proposed development for a portion of 5400 Appleton Side Road, located on the east side of Appleton Side Road south of Ottawa Street and across from Industrial Drive.

Currently the subject site occupied by vacant lands. The property is zoned as a 'Rural' area in the Municipality of Mississippi Mills Zoning By-law (ZBL) however it is not included within the Municipality of Mississippi Mills Official Plan (OP).

The property, approximately 24.3 ha in size and located in the rural area, is bound by Appleton Side Road and Industrial Drive intersection to the west, undeveloped lands to the south, rural residential lots to the north, and an existing residential estate lot subdivision to the east. Additionally, the Appleton Trail runs adjacent to the northeastern property boundary. A large subdivision, Mill Valley Estates, is proposed south of the subject site off Appleton Side Road.

The proposed development at 5400 Appleton Side Road is anticipated to include a four-storey long-term care facility with 192 beds, a four-storey subsidized senior apartment building with 66 units, a village for seniors living with dementia that will have 84 beds and associated service buildings, and 42 senior bungalow townhouse units. The development proposes one new access that will form the east leg of the Appleton Side Road/Industrial Drive intersection. The development is anticipated to be constructed in phases with the four-storey long-term care facility being built out in 2025 and full buildout occurring in 2035.

The conclusions and recommendations of this TIS can be summarized as follows:

- The proposed development is anticipated to generate 75 trips (39 in, 36 out) in the AM peak and 87 trips (40 in, 47 out) in the PM peak;
- Site traffic is not expected to adversely impact the LOS of either study area intersection as both intersections operate with a LOS B or better under 2040 Total Traffic conditions;
- An auxiliary southbound left turn lane is recommended at the proposed access on Appleton Side Road. The left turn lane will have a 50m parallel length, and a taper length of 105m;
- No auxiliary northbound left turn lane is recommended at the proposed access. It is recommended that the requirements for a northbound left turn lane be reconfirmed as part of future Site Plan or Draft Plan applications;
- Given that the OTM traffic signalization warrant is only 27% met, and the vehicle delays correspond to a LOS B, side street stop-control is recommended at the Appleton Side Road/Industrial Drive/Site Access intersection;
- Sufficient intersection sight distance is available at the access for all turning movements;
- The main east-west local roadway within the development has sidewalks on both sides of the road. A pedestrian crossover is proposed mid-block along the east-west public roadway to provide pedestrian connectivity between the various sites;

- A private loop road is proposed on the northern part of the development area, providing access to the Senior's Bungalow's and the Dementia Village site. The private loop road will have a width of 6m with on-street parking lay-by's in select locations. A sidewalk will be provided on the interior side of the private loop road; and
- As part of the roadway modifications at the Appleton Side Road/Industrial Drive/Site Access intersection a 2m paved shoulder will be provided on the east side of the road. The proposed paved shoulders will provide off-site pedestrian and cyclist connectivity to the area, including the Appleton Trail north of the site.

Based on the foregoing, the proposed development can be recommended from a transportation perspective. The recommended roadway modifications should be undertaken as part of future subdivision site plan applications.

1.0 INTRODUCTION

This Traffic Impact Study (TIS) has been prepared in support of a Community Infrastructure and Housing Accelerator (CIHA) application for the proposed development for a portion of 5400 Appleton Side Road, located on the east side of Appleton Side Road south of Ottawa Street and across from Industrial Drive.

An aerial view of the subject site is provided in **Figure 1**.

Figure 1: View of the Subject Site



Currently the subject site occupied by vacant lands. The property is zoned as a 'Rural' area in the Municipality of Mississippi Mills Zoning By-law (ZBL) however it is not included within the Municipality of Mississippi Mills Official Plan (OP).

The property, approximately 24.3 ha in size and located in the rural area, is bound by Appleton Side Road and Industrial Drive intersection to the west, undeveloped lands to the south, rural residential lots to the north, and an existing residential estate lot subdivision to the east.

Additionally, the Appleton Trail runs adjacent to the northeastern property boundary. A large subdivision, Mill Valley Estates, is proposed south of the subject site off Appleton Side Road.

The scope of this TIS is summarized as follows:

- Review of existing conditions, including intersection capacity analysis, within the study area;
- Estimate traffic generated by the development during peak hours;
- Review of auxiliary lane requirements at the proposed access;
- Complete intersection capacity analysis at the proposed access and study area intersections during the weekday AM and PM peak hours for the four-storey long-term care facility build-out and full site buildout years and recommend the necessity of intersection improvement including traffic signalization; and
- Review existing roadway geometry along Appleton Side Road to accommodate traffic generated by the proposed development and recommend the necessity of widening or turning lanes.

1.1 Proposed Development

The proposed development at 5400 Appleton Side Road is anticipated to include a four-storey long-term care facility with 192 beds, a four-storey subsidized senior apartment building with 66 units, a village for seniors living with dementia that will have 84 beds and associated service buildings, and 42 senior bungalow townhouse units. The development proposes one new access that will form the east leg of the Appleton Side Road/Industrial Drive intersection. The development is anticipated to be constructed in phases with the four-storey long-term care facility being built out in 2025 and full buildout occurring in 2035.

A copy of the concept site plan is included in **Appendix A**.

1.2 Analysis Parameters

The study will include an analysis of the future access to Appleton Side Road at Industrial Drive and the Ottawa Street/March Road/Ramsay Concession 11A/Appleton Side Road intersection for the following years:

- 2025 Initial Phase;
- 2035 Full Buildout; and
- 2040 Horizon Year

1.3 Analysis Methods

Intersection capacity analysis was completed using Rodel software for the roundabout intersection and Synchro 11 software for the access intersections.

Intersection operating conditions are commonly described in terms of a Level of Service (LOS) and volume to capacity (v/c) ratio. LOS is a quality measure of speed, freedom to manoeuvre, interruptions, comfort, and convenience. Letters are assigned to six levels, with LOS 'A' representing optimal operating conditions and LOS 'F' representing failing operating conditions. Vehicle capacity is defined as the maximum number of vehicles that can pass a given point during a specified period under prevailing traffic conditions.

The LOS of an unsignalized intersection is based on average control delay and is defined for individual movements. Control delay includes initial deceleration, queue move-up time, stopped time and final acceleration. For unsignalized intersections, Exhibit 19-1 of the 2010 HCM defines the relationship between control delay and LOS as follows:

| LOS | Delay (sec/veh) |
|-----|-----------------|
| A | <10 |
| B | 10 to 15 |
| C | 15 to 25 |
| D | 25 to 35 |
| E | 35 to 50 |
| F | >50 |

In this study, movements at unsignalized intersections have been evaluated in terms of the LOS as defined in the foregoing table. Mitigation measures will be considered for movements with a LOS of E or F.

2.0 EXISTING CONDITIONS

2.1 Roadways

Appleton Side Road is a north-south collector roadway that is under the County of Lanark's jurisdiction. It has a two-lane undivided rural cross section with paved shoulders and a posted speed limit of 50km/h to the north of the subject site and transition to a posted speed limit of 80km/h along the subject site frontage.

March Road is an east-west arterial roadway that is under the County of Lanark's jurisdiction. It has a two-lane undivided rural cross section with gravel shoulders. The posted speed east of the Ottawa Street/March Road/Ramsay Concession 11A/Appleton Side Road roundabout is 50km/h, changing to 70km/h approximately 300m further east.

Ottawa Street is an east-west roadway that is classified as an arterial street in the Mississippi Mills Transportation Master Plan. West of the Ottawa Street/March Road/Ramsay Concession 11A/Appleton Side Road roundabout, it has a four-lane undivided urban cross section and a posted speed limit of 50km/h.

Ramsay Concession 11A is a north-south roadway. It has a two-lane undivided rural cross section with an unposted regulatory speed limit of 50km/h.

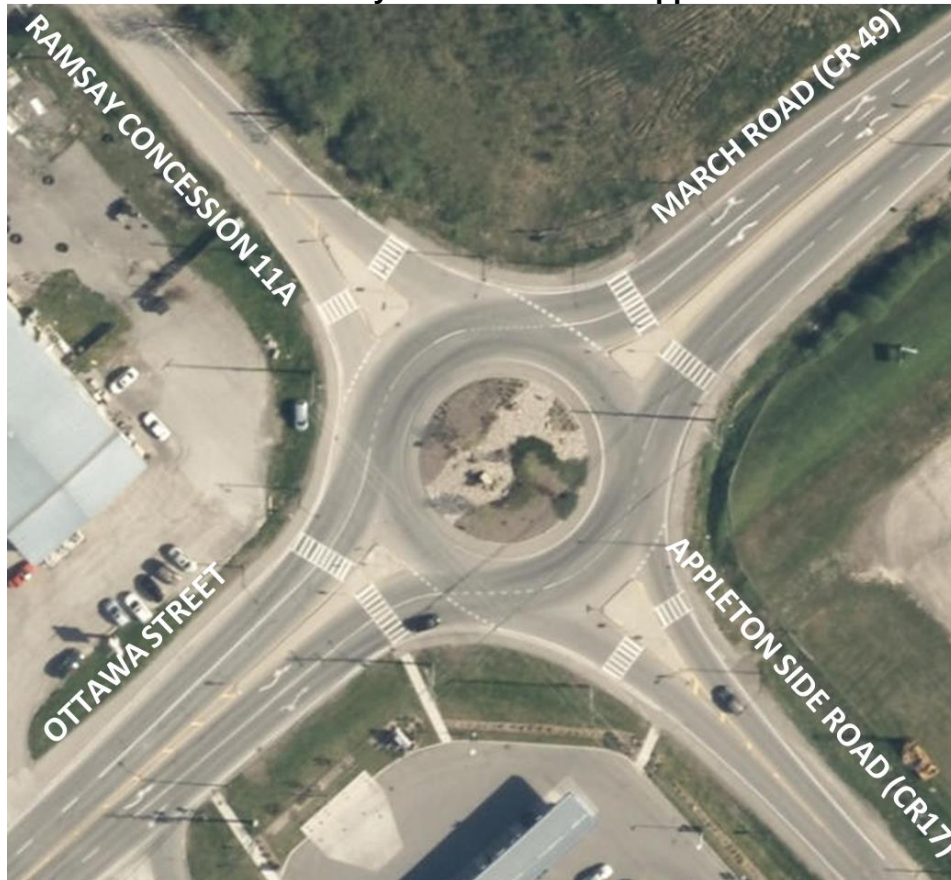
2.2 Intersections

The Ottawa Street/March Road/Ramsay Concession 11A/Appleton Side Road roundabout operates with two east-west approach lanes and single north-south approach lanes. Pedestrian crossover (PXO) Type D is provided on all approaches.

A PXO Type D is also provided where the Appleton Trail intersects with Appleton Side Road mid-block between Industrial Drive and the Ottawa Street/March Road/Ramsay Concession 11A/Appleton Side Road roundabout.

An aerial photo including the Ottawa Street/March Road/Ramsay Concession 11A/Appleton Side Road roundabout is provided in **Figure 2**.

Figure 2: Ottawa St/March Rd/Ramsay Concession 11A/Appleton Side Rd Roundabout



2.3 Pedestrian and Cycling Facilities

The Appleton Trail intersects with Appleton Side Road mid-block between Industrial Drive and the Ottawa Street/March Road/Ramsay Concession 11A/Appleton Side Road roundabout. It is a gravel surface multi-use trail.

Currently there are no sidewalks provided on March Road, Appleton Side Road, Ramsay Concession 11A, or Industrial Drive. There is an asphalt paved sidewalk on the north side of Ottawa Street and paved shoulders on Appleton Side Road. Within the roundabout there are segments of paved asphalt sidewalks connecting all legs of the roundabout. Figure 11.1A of the Municipality of Mississippi Mills Transportation Master Plan (MMTMP) identifies a planned sidewalk extension on the south side of Ottawa Street from the mid-block intersection pedestrian signal to the March Road/Appleton Side Road/Ramsay Concession 11A roundabout, as well as a new sidewalk on the south side of Industrial Drive. Table 34 of the MMTMP identifies the sidewalk on Ottawa Street as high priority, while the sidewalk on Industrial Drive is low priority.

Figure 11.2A of the MMTMP identifies Ottawa Street, March Road, and Appleton Side Road as spine cycling routes.

2.4 Transit

Due to the Covid-19 pandemic Classic Alliance Motorcoach ceased to offer commuter routes between Ottawa and surrounding communities. Classic Alliance Motorcoaches are currently evaluating demand for a return to service. There are no other transit services of note within the area.

2.5 Existing Traffic Volumes

Weekday traffic counts were taken from a TIS for a nearby development that was completed in November 2022. Weekday traffic counts were completed at the Ottawa Street/March Road/Ramsay Concession 11A/Appleton Side Road and the Appleton Side Road/Industrial Drive intersections November 1st 2022 and November 2nd 2022, respectively. The County of Lanark has also conducted two-way vehicular traffic counts in 2023 on Appleton Side Road between Industrial Drive and Ottawa Street/March Road and on Industrial Drive west of Appleton Side Road.

The results from the November 2022 turning movement counts were compared to the September 2023 counts provided by the County to determine if through volume adjustments should be made. Peak hour directional volumes from the 2023 counts were compared to inbound and outbound volumes from the southbound and eastbound legs of the Appleton Side Road/Industrial Drive intersection. The following table summarizes the differences in the counts.

Table 1: Comparison of 2022 and 2023 Traffic Counts

| Year | Northbound | | Southbound | | Eastbound | | Westbound | |
|------|------------|-----|------------|-----|-----------|----|-----------|----|
| | AM | PM | AM | PM | AM | PM | AM | PM |
| 2022 | 92 | 114 | 79 | 133 | 34 | 34 | 41 | 62 |
| 2023 | 78 | 114 | 90 | 123 | 37 | 57 | 53 | 57 |

As the counts from 2022 and 2023 show no discernible pattern or significant growth the turning movements from the 2022 counts were used throughout the analysis and were not factored based on the 2023 counts.

Existing traffic volumes at the study area roundabout are shown in **Figure 3**. Peak hour summary sheets of the above traffic counts are included in **Appendix B**.

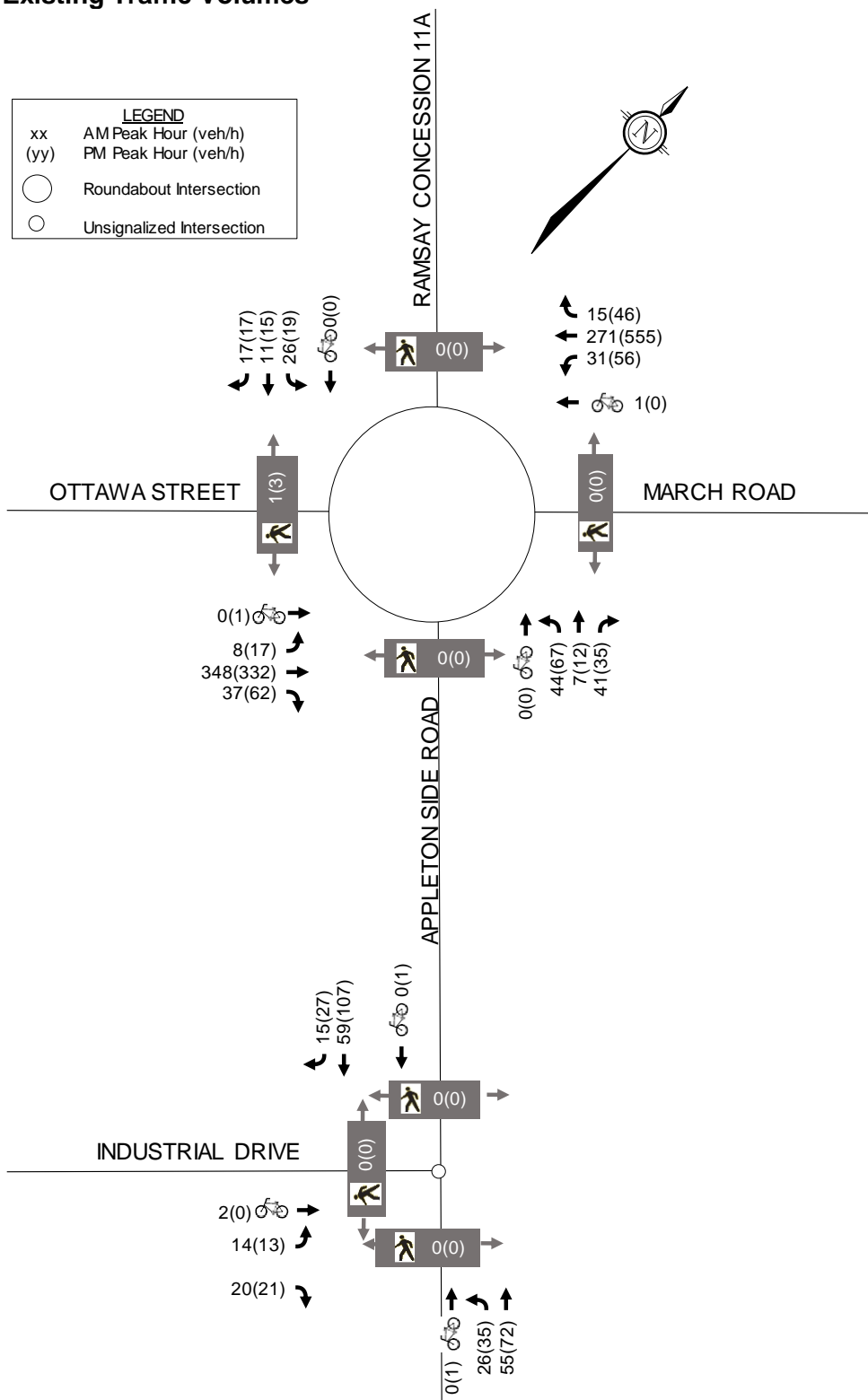
3.0 PLANNED CONDITIONS

Nearby developments by others include the Mill Run Subdivision located west of Ramsay Concession 11A and north of Ottawa Street, the Hannan Hills Subdivision located west of the Mill Run Subdivision, the 430 Ottawa Street mixed-use development located near the Sadler Drive/Ottawa Street intersection and to the south of the Mill Run Subdivision, the Mill Valley Estates located between Old Almonte Road and Appleton Side Road south of the subject site, and the Mill Valley Living seniors housing development to the north of the Mill Valley Estates.

A TIS dated May 2015 was prepared for Phases 2-5 of the Mill Run Subdivision and a Transportation Impact Statement for Phases 7 and 8 was completed February 2023. These reports show that the Mill Run Subdivision in its entirety will have roughly 188 detached single-family homes, 79 semi-detached units, 121 townhouse units, and 72 low-rise apartment units.

A TIS dated May 2021 was prepared for the Hannan Hills Residential development. The development includes 166 townhouse units.

Figure 3: Existing Traffic Volumes



A TIS dated April 2020 was prepared for the 430 Ottawa Street mixed-use development and an addendum to the TIS was completed March 2023. The mixed-use development includes 25,455 ft² of retail and 124 apartment units.

A TIA dated November 2022 was prepared for the Mill Valley Estates subdivision. The development includes 48 apartment units, 104 detached homes, 158 semi-detached homes, and 185 townhomes.

A TIA dated July 2021 was prepared for the Mill Valley Living development. The development includes 45 senior townhouse units and a 4-storey senior apartment building with 48 units.

For the CIHA application, only 8.1 hectares of the property is proposed to be developed as the dementia village and retirement community. The remainder 16.2 hectares of the property (east of the proposed development) are not part of the CIHA application. However, it is good planning to plan for and not preclude future development on the remainder of the property.

Section 1.1 of the Provincial Planning Statement “*Managing and Directing Land Use to Achieve Efficient and Resilient Development and Land Use Patterns*”. Specifically 1.1.1 d) reads:

Healthy, liveable and safe communities are sustained by:

d) avoiding development and land use patterns that would prevent the efficient expansion of settlement areas in those areas which are adjacent or close to settlement areas;

And Section 1.1.3.8 reads:

A planning authority may identify a settlement area or allow the expansion of a settlement area boundary only at the time of a comprehensive review and only where it has been demonstrated that:

b) the infrastructure and public service facilities which are planned or available are suitable for the development over the long term, are financially viable over their life cycle, and protect public health and safety and the natural environment;

There is no proposal for development of the remainder 16.2 hectares of the property. However, the public roadway through the dementia village and retirement community will be protected with a 24m right-of-way (collector roadway) and can be extended into the adjacent lands in the future should the lands be brought into the urban area as part of future comprehensive planning exercises conducted by the Municipality. Furthermore, a secondary/emergency access for the adjacent lands to March Road or Ramsay Concession 12 should be considered by the Municipality as part of future comprehensive planning exercises.

4.0 SITE TRAFFIC

4.1 Trip Generation

Trip generation assumptions are based on the Institute of Transportation Engineers’ (ITE) *Trip Generation Manual* (11th Edition). The proposed residential development was estimated using the ITE code 251 (Senior Adult Housing - Single Family) for the Senior Bungalows, ITE code 252 (Senior Adult Housing - Multifamily) for the Senior Apartments, ITE code 253 (Congregate Care Facility) for the Long Term Care facility, and ITE code 254 (Assisted Living) for the Dementia Village. **Table 2** outlines the trip generation results using the relevant rates for the proposed development.

Table 2: Trip Generation

| Dwelling Type | Land Use Code | ITE Code | Units | AM Peak | | | PM Peak | | |
|-------------------|--------------------------------------|----------|-------|-----------|-----------|-----------|-----------|-----------|-----------|
| | | | | IN | OUT | TOT | IN | OUT | TOT |
| Senior Bungalows | Senior Adult Housing - Single Family | 251 | 42 | 7 | 13 | 20 | 14 | 9 | 23 |
| Senior Apartments | Senior Adult Housing - Multifamily | 252 | 66 | 4 | 9 | 13 | 9 | 8 | 17 |
| Long Term Care | Nursing Home | 620 | 192 | 19 | 8 | 27 | 9 | 18 | 27 |
| Dementia Village | Assisted Living | 254 | 84 | 9 | 6 | 15 | 8 | 12 | 20 |
| Total | | | | 39 | 36 | 75 | 40 | 47 | 87 |

From the previous table, the proposed development is anticipated to generate 75 trips (39 in, 36 out) in the AM peak and 87 trips (40 in, 47 out) in the PM peak.

4.2 Trip Distribution

The distribution of trips has been derived based on the existing traffic patterns and previous studies within the study area and is described as follows:

- 10% to/from the south via Appleton Side Road
- 45% to/from the east via March Road
- 45% to/from the west via Ottawa Street

4.3 Trip Assignment

Based on logical routing assumptions all trips generated by the proposed development have been assigned to the access at Appleton Side Road

Traffic generated by the proposed development for the 2025 initial build-out year and the 2035 full build-out year are shown in **Figures 4 and 5**.

Figure 4: 2025 Site Generated Trips

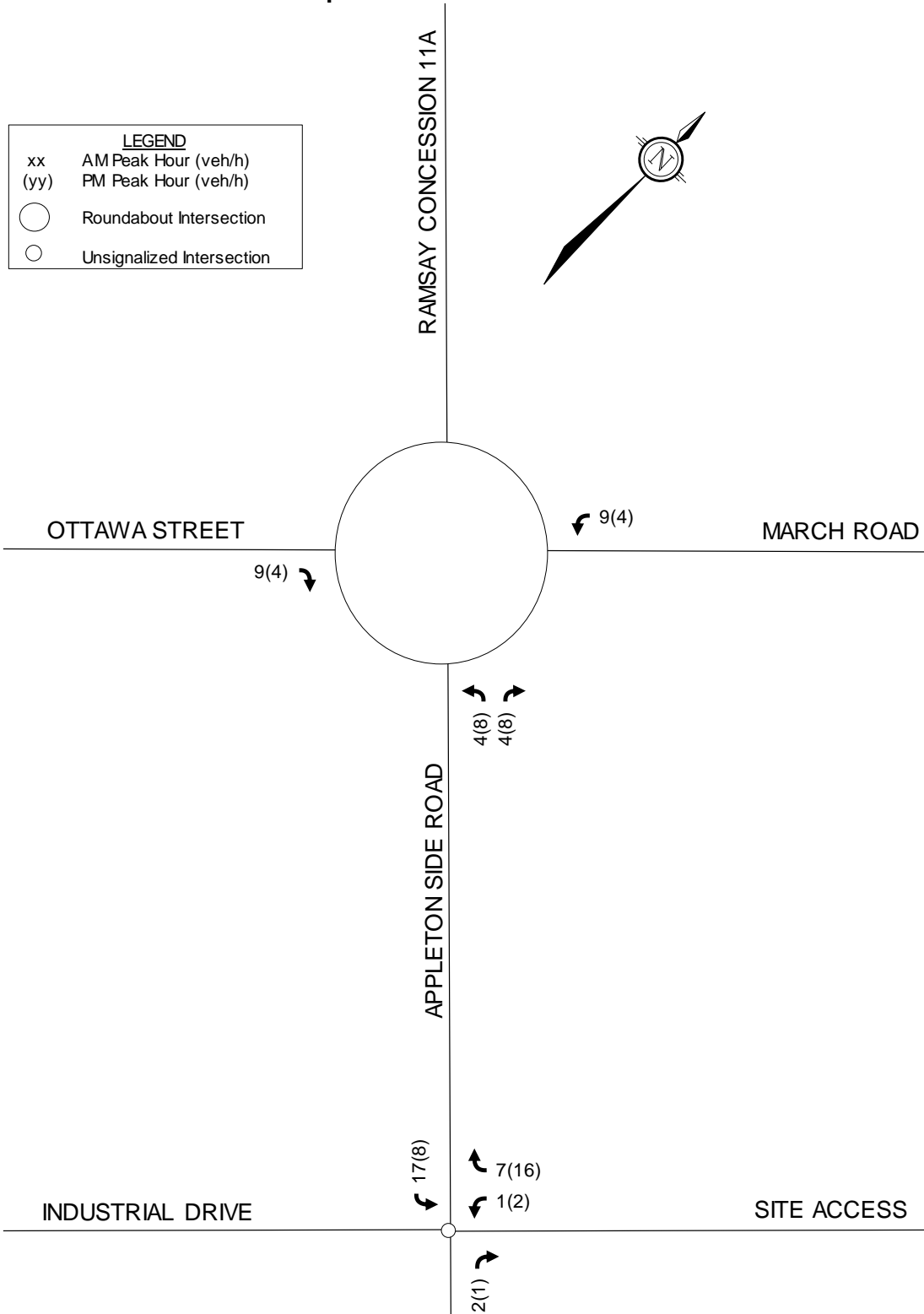
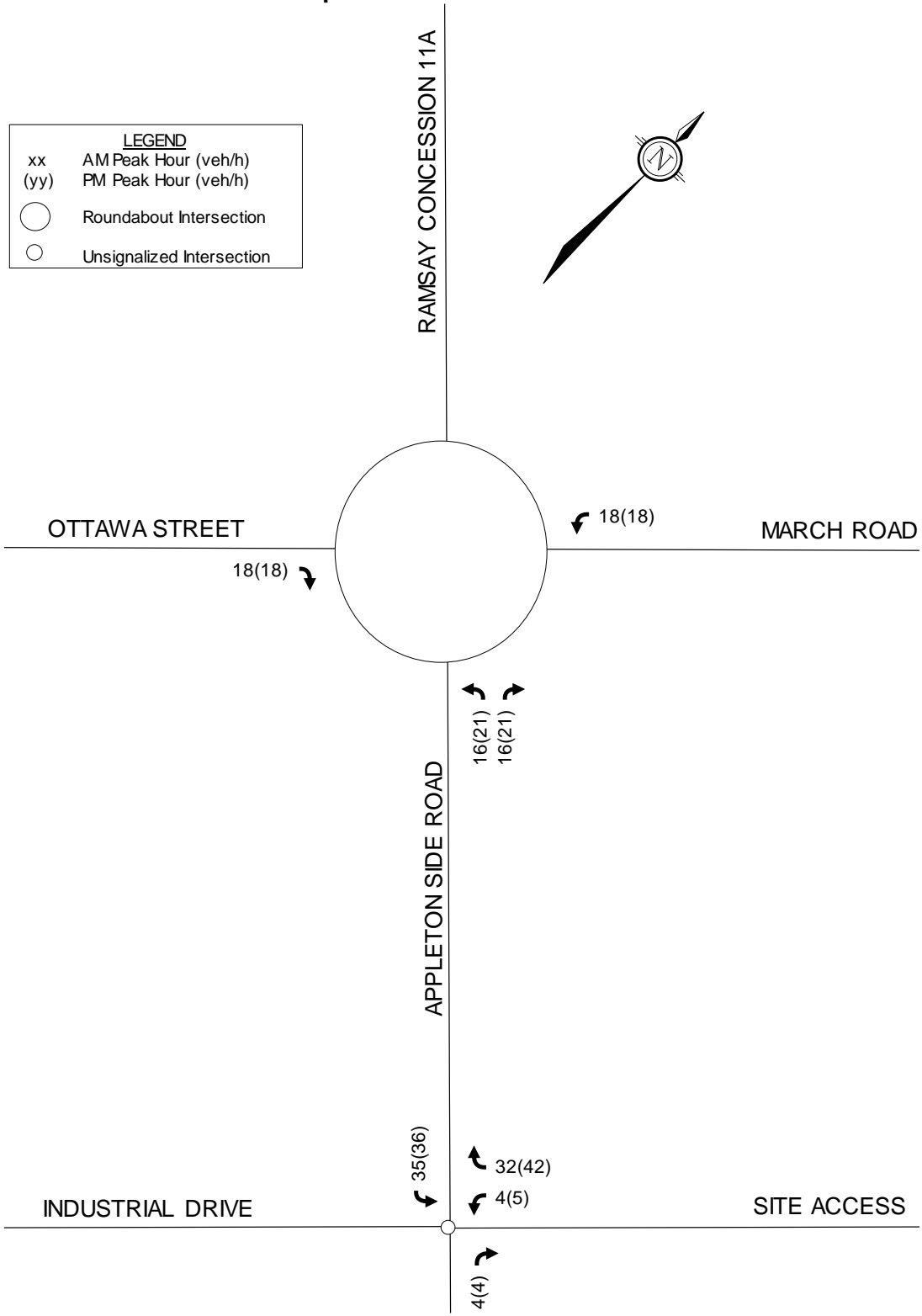


Figure 5: 2035 Site Generated Trips



5.0 BACKGROUND TRAFFIC CONDITIONS

5.1 Historic Growth

To provide a conservative analysis and for consistency with studies of other nearby developments, a growth factor of 2% was applied to traffic along Ottawa Street/March Road and Appleton Side Road during the AM and PM peak hours.

5.2 Other Area Developments

Nearby developments by others include the 430 Ottawa Street mixed-use development, the Mill Run subdivision, the Hannan Hills residential development and the Mill Valley Estates subdivision. Relevant excerpts from background developments are included in **Appendix C**.

Full buildout of the 430 Ottawa Street mixed-use development is expected by 2025 and the trips generated by this development have been included within the 2025 background traffic conditions based on the distribution presented in the TIS.

At the time of the 2022 traffic count, Phases 1-5 of the Mill Run subdivision were occupied and Phase 6 remained to be constructed:

- Phase 6: 45 units (20 single-family homes, 10 semi-detached units, and 15 townhouse units)

Phase 6 will be constructed by 2025. A breakdown of the trips generated by Phase 6 is shown in the following table.

Table 3: Phase 6 Mill Run Subdivision Trip Generation

| Land Use | ITE Code | Dwelling Units | AM Peak (vph) | | | PM Peak (vph) | | |
|--------------------------------|----------|----------------|---------------|-----------|-----------|---------------|-----------|-----------|
| | | | IN | OUT | TOTAL | IN | OUT | TOTAL |
| Single-Family Detached | 210 | 20 | 4 | 13 | 17 | 14 | 8 | 22 |
| Single-Family Attached Housing | 215 | 10 | 1 | 4 | 5 | 3 | 3 | 6 |
| Multi Family Low-Rise | 220 | 15 | 1 | 5 | 6 | 5 | 3 | 8 |
| TOTAL | | | 6 | 22 | 28 | 22 | 14 | 36 |

It is assumed that Phases 7 and 8 will not be fully occupied prior to 2025. Phases 7 and 8 include 47 detached single-family homes, 18 semi-detached units, and 60 townhouse units. Traffic generated by Phases 7 and 8 has been included within the 2035 and 2040 background traffic conditions.

Full buildout of the Hannan Hills residential development is expected in 2027 and the trips generated by this development have been included within the 2035 and 2040 background traffic conditions based on the distribution presented in the TIS.

Full buildout of the Mill Valley Estates Subdivision development is expected in 2027 and the trips generated by this development have been included within the 2035 and 2040 background traffic conditions based on the distribution presented in the TIA. It is understood that the Mill Valley Estates Subdivision will provide a third access to Industrial Drive through the Mill Valley Living property. The traffic impacts of the third access were not captured within the Mill Valley Estates

TIA and has been requested by the County. At the time of this writing the redistribution of site traffic is not available for this development therefore no site traffic has been assigned to Industrial Drive. This approach is assumed to be conservative as it maximises traffic sent to study area intersections.

Full buildout of the Mill Valley Living development is expected in 2023 and the trips generated by this development have been included within the 2025, 2035, and 2040 background traffic conditions based on the distribution presented in the TIA.

Background traffic volumes for the 2025 build out year, the 2035 full build out year, and the 2040 horizon year can be found in **Figures 6, 7, and 8**, respectively.

Total traffic volumes for the 2025 build out year, the 2035 full build out year, and the 2040 horizon year can be found in **Figures 9, 10, and 11**, respectively.

Figure 6: 2025 Background Traffic Volumes

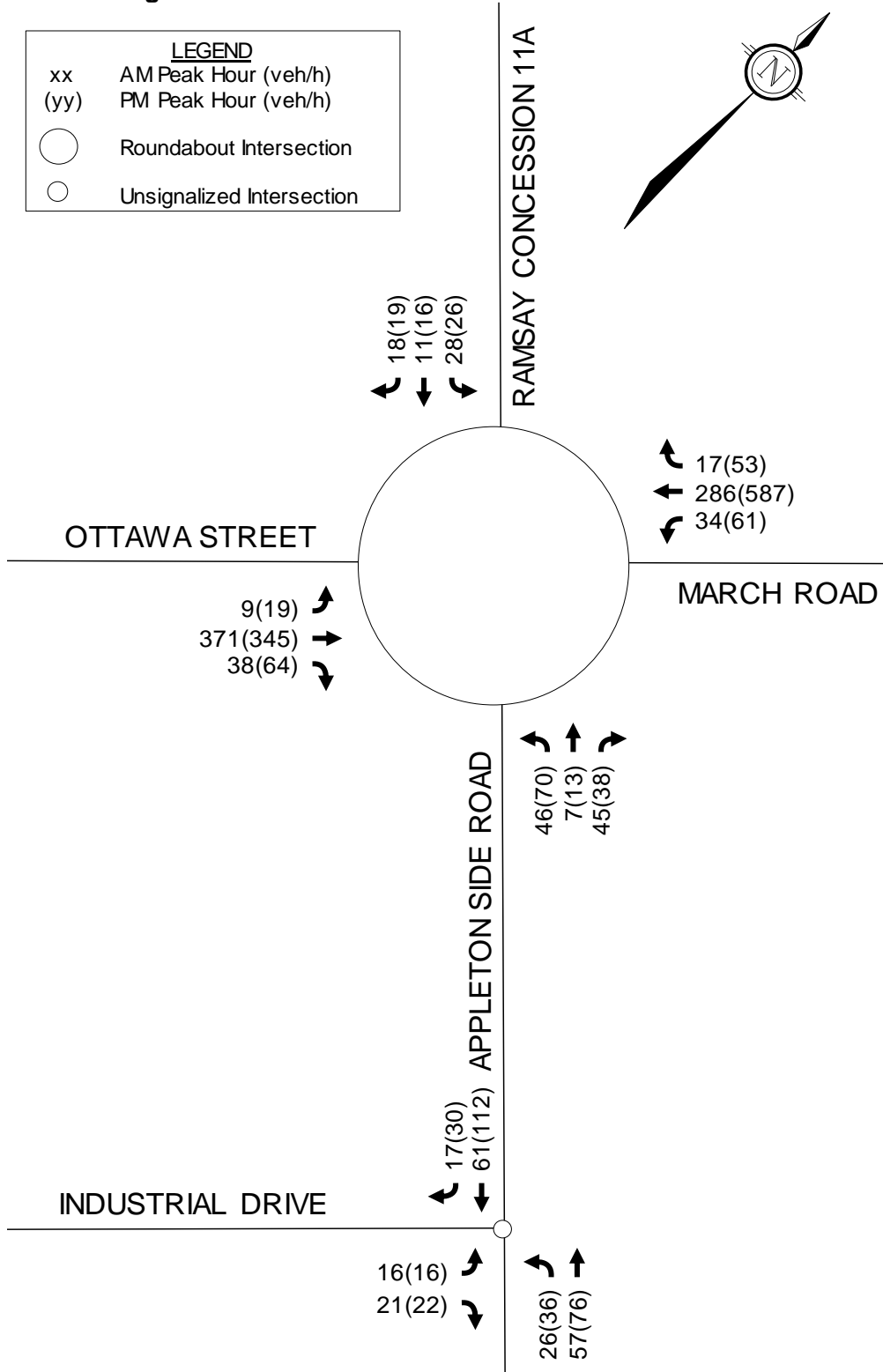


Figure 7: 2035 Background Traffic Volumes

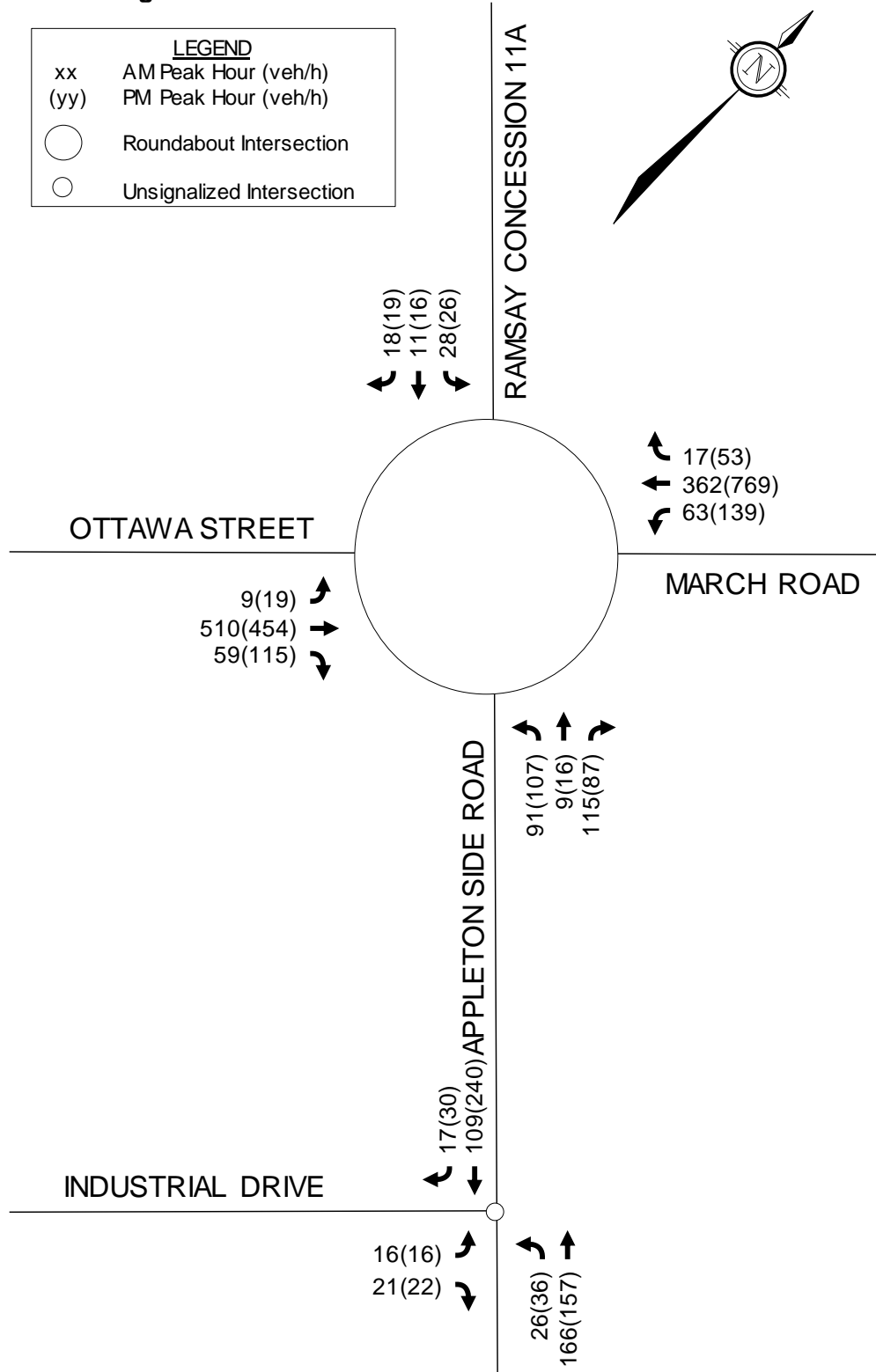


Figure 8: 2040 Background Traffic Volumes

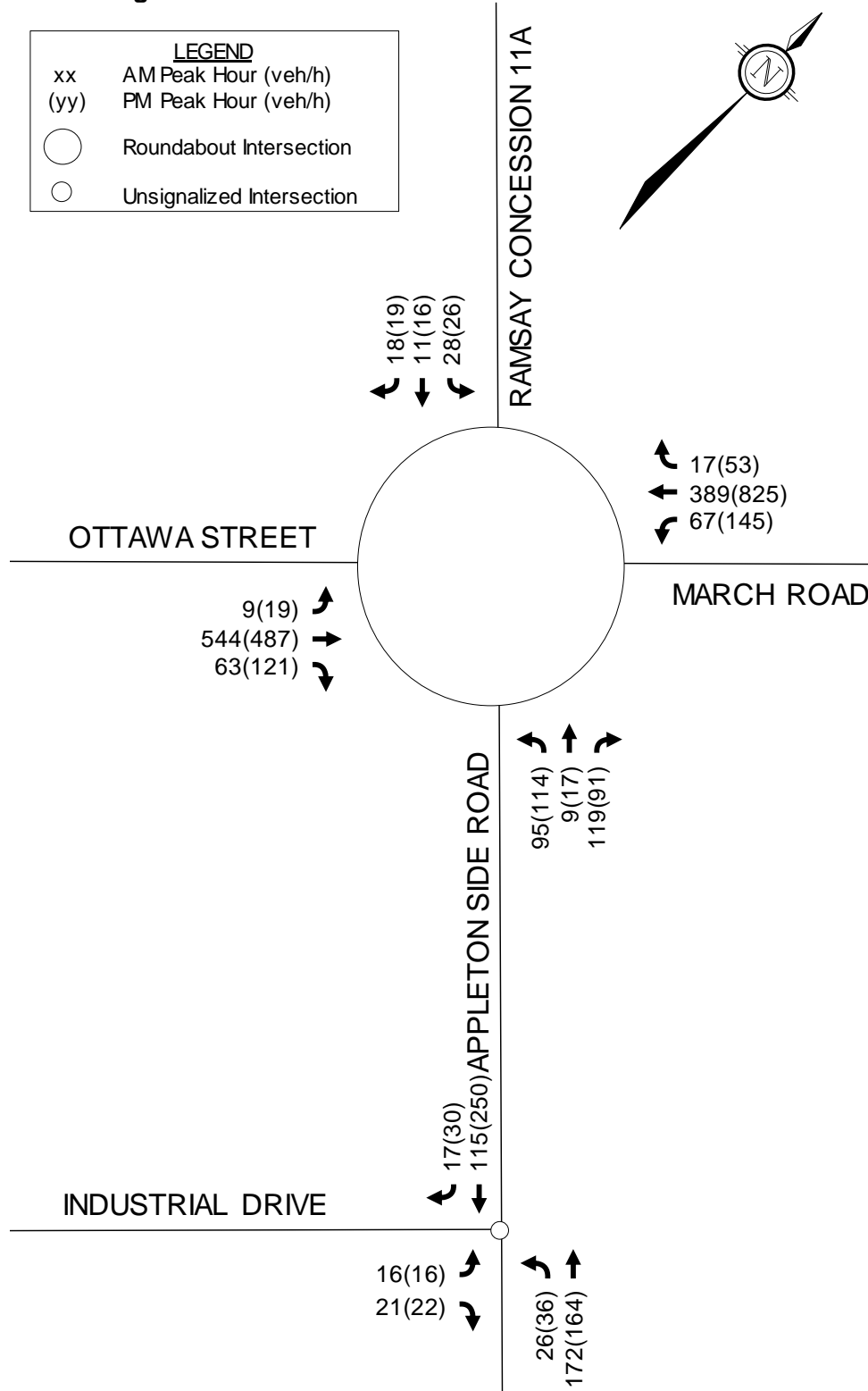


Figure 9: 2025 Total Traffic Volumes

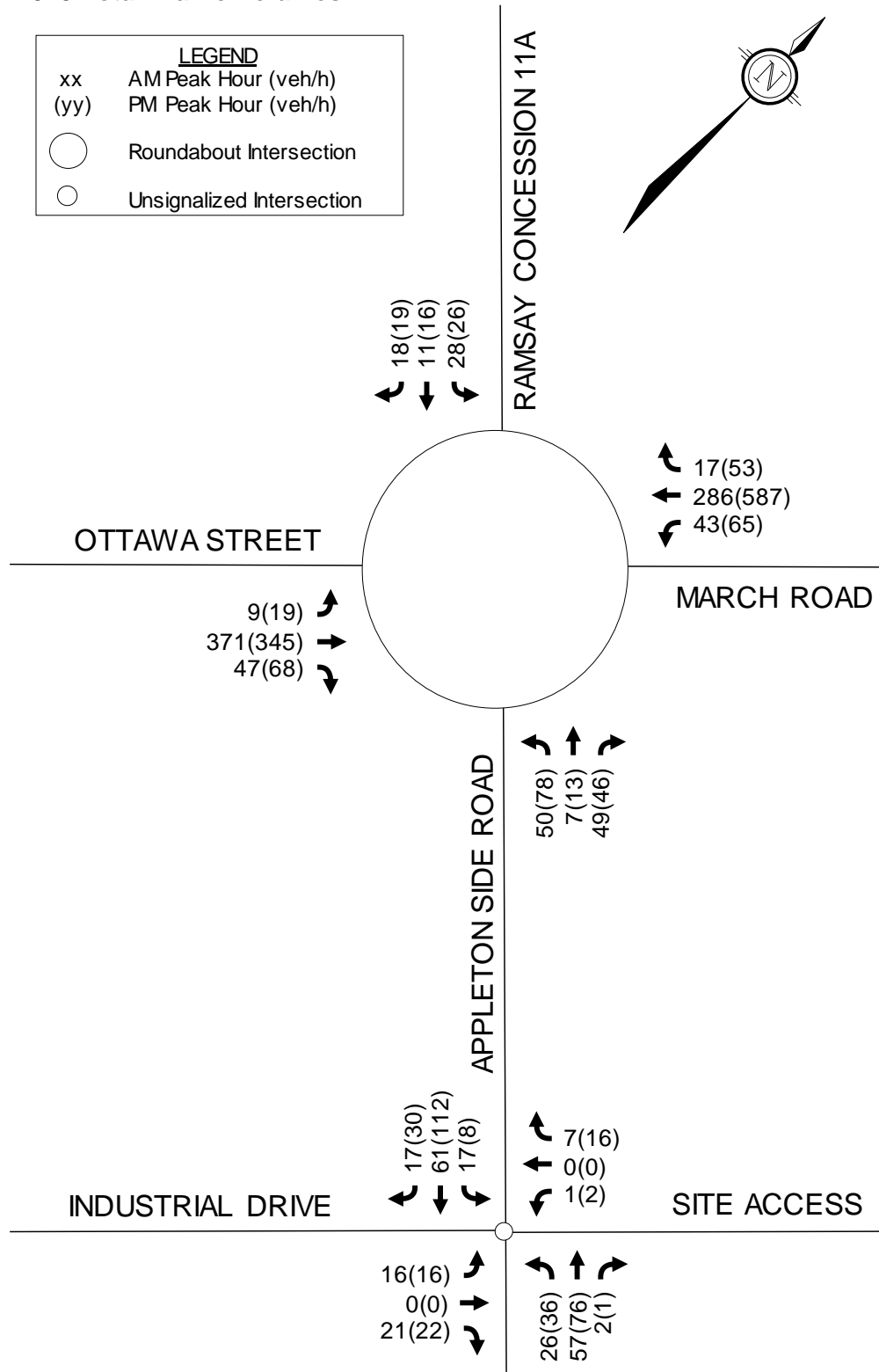


Figure 10: 2035 Total Traffic Volumes

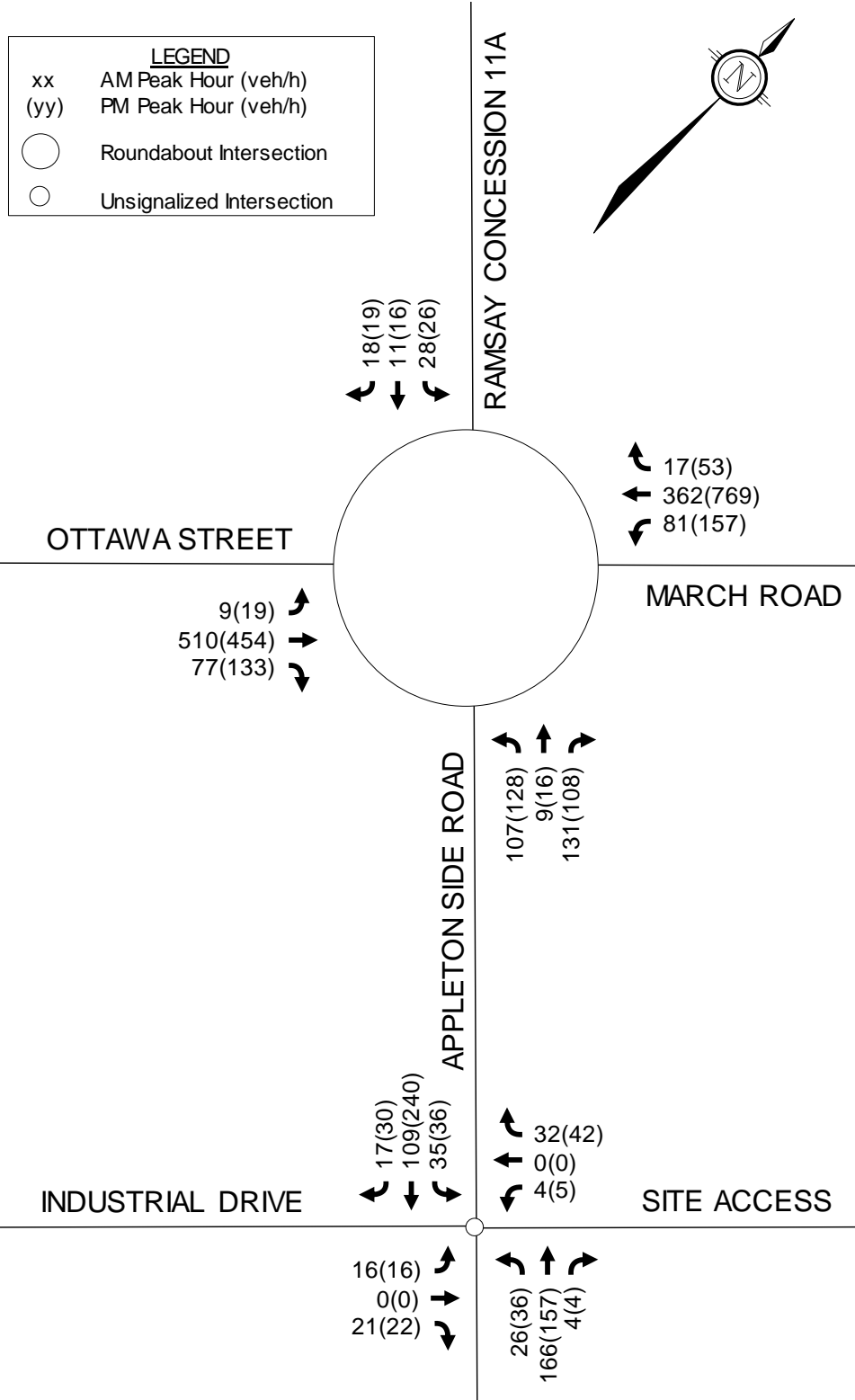
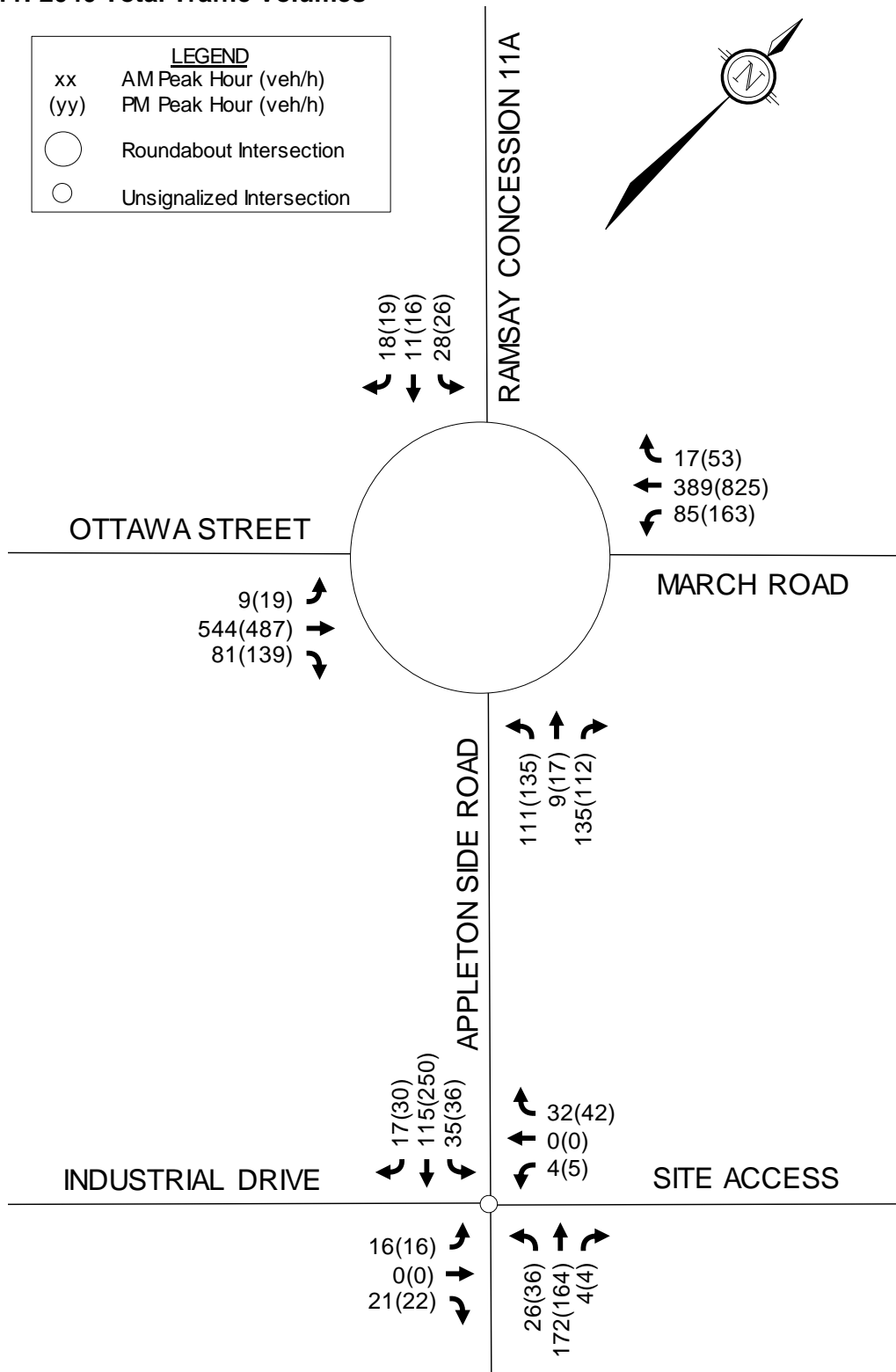


Figure 11: 2040 Total Traffic Volumes



6.0 INTERSECTION OPERATING CONDITIONS

6.1 Existing Traffic Operations

Intersection capacity analysis has been completed for the existing traffic conditions. The results of the analysis are summarized in the following table for the weekday AM and PM peak hours. Detailed reports are included in **Appendix D**.

Table 4: Analysis Results - Existing Traffic Conditions

| Intersection | AM Peak | | | PM Peak | | |
|---|------------|-----|------|------------|-----|------|
| | Max. delay | LOS | Mvmt | Max. delay | LOS | Mvmt |
| Ottawa Street/March Road/Appleton Side Road/Ramsay Concession 11A | 4 sec. | A | NB | 5 sec. | A | SB |
| Appleton Side Road/Industrial Drive | 9 sec. | A | EB | 10 sec. | A | EB |

All movements at study area intersections are currently operating with a LOS A under the AM and PM peak hour conditions.

6.2 Background Traffic Operations

Operating conditions at the study area intersections are summarized in **Table 5** for the 2025, 2035, and 2040 weekday AM and PM peak periods. Detailed reports are included in **Appendix D**.

Table 5: Analysis Results - Background Traffic Conditions

| Intersection | AM Peak | | | PM Peak | | |
|---|------------|-----|------|------------|-----|-------|
| | Max. delay | LOS | Mvmt | Max. delay | LOS | Mvmt |
| <i>2025 Background Traffic</i> | | | | | | |
| Ottawa Street/March Road/Appleton Side Road/Ramsay Concession 11A | 5 sec. | A | NB | 5 sec. | A | NB/SB |
| Appleton Side Road/Industrial Drive | 9 sec. | A | EB | 10 sec. | A | EB |
| <i>2035 Background Traffic</i> | | | | | | |
| Ottawa Street/March Road/Appleton Side Road/Ramsay Concession 11A | 6 sec. | A | NB | 6 sec. | A | NB/SB |
| Appleton Side Road/Industrial Drive | 10 sec. | B | EB | 11 sec. | B | EB |
| <i>2040 Background Traffic</i> | | | | | | |
| Ottawa Street/March Road/Appleton Side Road/Ramsay Concession 11A | 6 sec. | A | NB | 7 sec. | A | SB |
| Appleton Side Road/Industrial Drive | 10 sec. | B | EB | 12 sec. | B | EB |

Both study area intersections are anticipated to operate with acceptable levels of delay during the 2025, 2035, and 2040 background conditions.

A left turn lane warrant analysis was conducted to confirm if a northbound left turn lane would be required under 2035 and 2040 background traffic conditions. Left turn lane warrants are included in **Appendix E**. Based on a design speed of 100km/hr, a northbound left turn lane to Industrial

Drive is not recommended. Under 2040 background traffic conditions the approaching and opposing volumes are approaching levels that would require a left turn lane.

6.3 Total Traffic Operations

Operations at the study area intersections and the proposed access have been evaluated for the 2025, 2035, and 2040 total traffic scenarios, as summarized in the following table. Detailed reports are included in **Appendix D**.

Table 6: Analysis Results - Total Traffic Conditions

| Intersection | AM Peak | | | PM Peak | | |
|---|------------|-----|------|------------|-----|-------|
| | Max. delay | LOS | Mvmt | Max. delay | LOS | Mvmt |
| <i>2025 Total Traffic</i> | | | | | | |
| Ottawa Street/March Road/Appleton Side Road/Ramsay Concession 11A | 5 sec. | A | NB | 5 sec. | A | NB/SB |
| Appleton Side Road/Industrial Drive | 10 sec. | A | EB | 10 sec. | B | EB |
| <i>2035 Total Traffic</i> | | | | | | |
| Ottawa Street/March Road/Appleton Side Road/Ramsay Concession 11A | 6 sec. | A | NB | 7 sec. | A | SB |
| Appleton Side Road/Industrial Drive | 11 sec. | B | EB | 13 sec. | B | EB |
| <i>2040 Total Traffic</i> | | | | | | |
| Ottawa Street/March Road/Appleton Side Road/Ramsay Concession 11A | 7 sec. | A | NB | 7 sec. | A | SB |
| Appleton Side Road/Industrial Drive | 11 sec. | B | EB | 13 sec. | B | EB |

6.3.1 Ottawa Street/March Road/Appleton Side Road/Ramsay Concession 11A

Operating conditions at the Ottawa Street/March Road/Appleton Side Road/Ramsay Concession 11A intersection have been evaluated for the 2025, 2035, and 2040 total traffic scenarios, as shown in **Table 5**. Under 2040 total traffic conditions, the intersection is anticipated to operate at a LOS A during the AM and PM peak hour.

6.3.2 Appleton Side Road/Industrial Drive/Site Access

Operating conditions at the Appleton Side Road/Industrial Drive/Site Access intersection have been evaluated for the 2025, 2035, and 2040 total traffic scenarios, as shown in **Table 5**. Under 2040 total traffic conditions, the intersection is anticipated to operate at a LOS B during the AM and PM peak hour.

A left turn lane warrant analysis was conducted to confirm if a northbound or southbound left turn lane would be required under 2035 and 2040 total traffic conditions. Left turn lane warrants are included in **Appendix E**. Based on a design speed of 100km/hr, a 15m southbound left turn lane to the Appleton Side Road access is recommended.

The northbound left turn lane warrant is met when analyzing 2040 total traffic volumes. A northbound left turn lane is not recommended as part of the initial phases of the proposed development. As the 2040 analysis provides a long-term projection and there will be additional

applications as part of this development, the warrant of a northbound left turn is recommended to be confirmed as part of future Site Plan or Draft Plan applications.

From the TAC Geometric Design Guide, a right-turn taper with auxiliary lanes is required when the volume of decelerating or accelerating vehicles compared with the through traffic volume causes undue hazard. Generally, Novatech recommends a right turn lane should the volumes of right turning vehicles exceed 60vph.

Based on the 2040 Total Traffic scenario, the volume of northbound and southbound right turning vehicles does not meet the requirements for right lanes.

Based on the above analysis a southbound left turn lane with a storage of 15m is recommended at the proposed access. As the posted speed limit in the study area changes to 80km/h to the south of the proposed access a design speed of 100km/h was chosen. From the TAC Geometric Design Guide, a left turn lane with a design speed of 100km/h would require a deceleration length of 80m and a taper of 105m. Assuming the deceleration length occurs over the taper, the TAC recommended geometry includes 95m of parallel length with a 105m taper. As the PXO is roughly 180m away from the centre of the Appleton Side Road/Industrial Drive/Site Access intersection there is not enough distance between the PXO and the study intersection to meet TAC requirements. It is not recommended that the location of the access be shifted to the south as that would create opposing left turns between the access and Industrial Drive. In order to keep the access aligned with Industrial Drive, a parallel length of 50m and a taper length of 105m is recommended for the southbound left turn lane. This is considered acceptable as it is assumed that vehicles will not be travelling at the design speed at the beginning of the left turn taper.

A review of the Ontario Traffic Manual criteria for traffic signalization warrants was conducted for the Appleton Side Road/Industrial Drive/Site Access intersection. The signalization warrant was checked for projected 2040 total traffic volumes, as identified above. Based on the OTM traffic signalization warrant, the Appleton Side Road/Industrial Drive/Site Access intersection is only 27% met. OTM traffic signalization warrants are included in **Appendix F**.

Given that the OTM traffic signalization warrant is only 27% met, and the vehicle delays correspond to a LOS B, side street stop-control is recommended at the Appleton Side Road/Industrial Drive/Site Access intersection.

7.0 ON-SITE DESIGN

7.1 Site Access

Intersection sight distance (ISD) at the proposed accesses have been determined using the Transportation Association of Canada (TAC) *Geometric Design Guidelines for Canadian Roads*. The ISD requirements for the Appleton Side Road access, based on a design speed of 100km/h, is as follows:

- Left Turn from Minor Road 210 metres
- Right Turn from Minor Road 185 metres

As the Appleton Side Road access meets Appleton Side Road at a perpendicular angle and no sightline obstruction have been identified based on a desktop review, available sightlines are within recommended guidelines to allow safe all directional access to the development.

7.2 Development Design

A high-level review of the concept plan has been conducted. However, the details of each phase will be confirmed as the development proceeds with future Site Plan or Draft Plan applications.

The main east-west local roadway within the development has a proposed right-of-way (ROW) of 24m containing a road platform of 8.5m and sidewalks on both sides of the road. A pedestrian crossover is proposed mid-block along the east-west public roadway to provide pedestrian connectivity between the various sites.

A private loop road is proposed on the northern part of the development area, providing access to the Senior's Bungalow's and the Dementia Village site. The private loop road will have a width of 6m with on-street parking lay-by's in select locations. A sidewalk will be provided on the interior side of the private loop road.

As part of the roadway modifications at the Appleton Side Road/Industrial Drive/Site Access intersection a 2m paved shoulder will be provided on the east side of the road. The proposed paved shoulders will provide off-site pedestrian and cyclist connectivity to the area, including the Appleton Trail north of the site.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the foregoing analysis, the main conclusions and recommendations of this report are as follows:

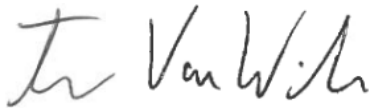
- The proposed development is anticipated to generate 75 trips (39 in, 36 out) in the AM peak and 87 trips (40 in, 47 out) in the PM peak;
- Site traffic is not expected to adversely impact the LOS of either study area intersection as both intersections operate with a LOS B or better under 2040 Total Traffic conditions;
- An auxiliary southbound left turn lane is recommended at the proposed access on Appleton Side Road. The left turn lane will have a 50m parallel length, and a taper length of 105m;
- No auxiliary northbound left turn lane is recommended at the proposed access. It is recommended that the requirements for a northbound left turn lane be reconfirmed as part of future Site Plan or Draft Plan applications;
- Given that the OTM traffic signalization warrant is only 27% met, and the vehicle delays correspond to a LOS B, side street stop-control is recommended at the Appleton Side Road/Industrial Drive/Site Access intersection;
- Sufficient intersection sight distance is available at the access for all turning movements;
- The main east-west local roadway within the development has sidewalks on both sides of the road. A pedestrian crossover is proposed mid-block along the east-west public roadway to provide pedestrian connectivity between the various sites;

- A private loop road is proposed on the northern part of the development area, providing access to the Senior's Bungalow's and the Dementia Village site. The private loop road will have a width of 6m with on-street parking lay-by's in select locations. A sidewalk will be provided on the interior side of the private loop road; and
- As part of the roadway modifications at the Appleton Side Road/Industrial Drive/Site Access intersection a 2m paved shoulder will be provided on the east side of the road. The proposed paved shoulders will provide off-site pedestrian and cyclist connectivity to the area, including the Appleton Trail north of the site.

Based on the foregoing, the proposed development can be recommended from a transportation perspective. The recommended roadway modifications should be undertaken as part of future subdivision site plan applications.

NOVATECH

Prepared by:



Trevor Van Wiechen, M.Eng.
E.I.T. | Transportation

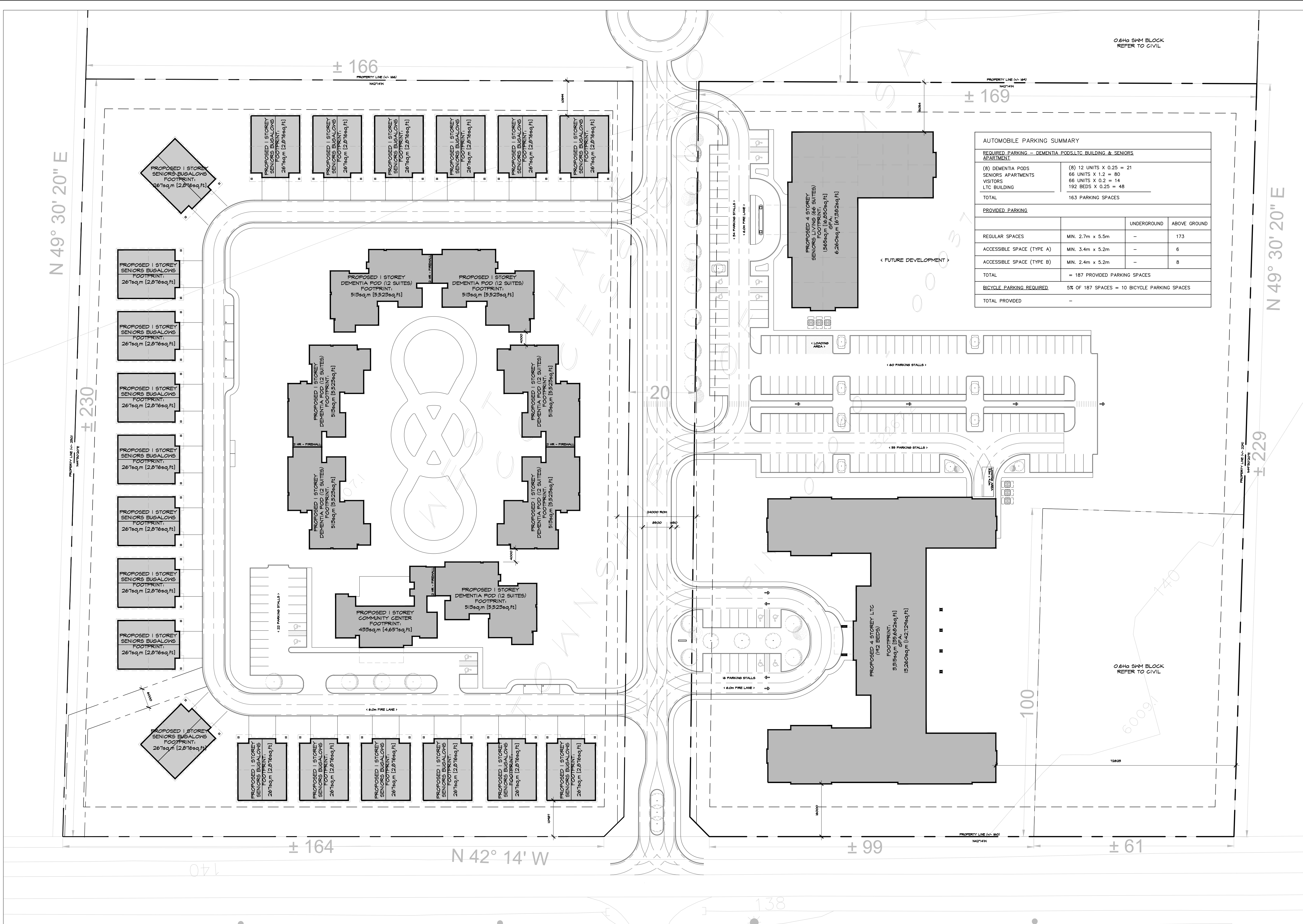
Reviewed by:



Brad Byvelds, P.Eng.
Project Manager | Transportation

APPENDIX A

Proposed Concept Site Plan

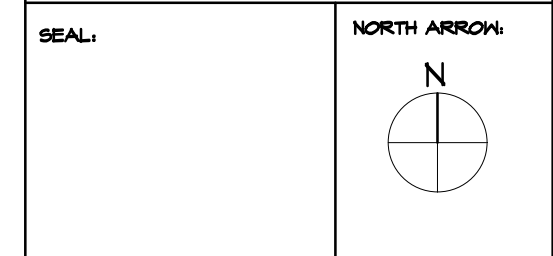


AUTOMOBILE PARKING SUMMARY

| REQUIRED PARKING - DEMENTIA PODS, LTC BUILDING & SENIORS APARTMENT | | | |
|--|--|-------------|--------------------------------------|
| (8) DEMENTIA PODS | (8) 12 UNITS X 0.25 = 21 | | |
| SENIORS APARTMENTS | 66 UNITS X 1.2 = 80 | | |
| VISITORS | 66 UNITS X 0.2 = 14 | | |
| LTC BUILDING | 192 BEDS X 0.25 = 48 | | |
| TOTAL | 163 PARKING SPACES | | |
| PROVIDED PARKING | | | |
| | | UNDERGROUND | ABOVE GROUND |
| REGULAR SPACES | MIN. 2.7m x 5.5m | - | 173 |
| ACCESSIBLE SPACE (TYPE A) | MIN. 3.4m x 5.2m | - | 6 |
| ACCESSIBLE SPACE (TYPE B) | MIN. 2.4m x 5.2m | - | 8 |
| TOTAL | | | = 187 PROVIDED PARKING SPACES |
| BICYCLE PARKING REQUIRED | 5% OF 187 SPACES = 10 BICYCLE PARKING SPACES | | |
| TOTAL PROVIDED | | | - |

CLIENT NAME:
CHELLO BUILDING CORP.

NOTES:
1) ALL WORK TO BE IN COMPLIANCE WITH LOCAL BUILDING CODES, REGULATIONS AND BY-LAWS.
2) ADDITIONAL DRAWINGS MAY BE ISSUED FOR CLARIFICATION TO ASSIST PROPER EXECUTION OF WORK. SUCH DRAWINGS WILL HAVE THE SAME HEADING AND INTENT AS IF THEY WERE INCLUDED WITH PLANS IN CONTRACT DOCUMENTS.
3) DO NOT SCALE DRAWINGS.
4) ALL SUB-CONTRACTORS TO TAKE THEIR OWN ON-SITE MEASUREMENTS AND BE RESPONSIBLE FOR THEIR ACCURACY.
5) NOTIFY SHAWN J. LAWRENCE ARCHITECT FOR ANY ERRORS AND/OR OMISSIONS PRIOR TO START OF WORK.



| No. | DATE | REVISION |
|-----|------------|-------------------|
| 05 | 2025.08.22 | ISSUED FOR REVIEW |
| 02 | 2025.07.14 | ISSUED FOR REVIEW |
| 01 | 2025.06.21 | ISSUED FOR REVIEW |

S.J. LAWRENCE ARCHITECT INCORPORATED
18 DEAKIN STREET SUITE 205 OTTAWA, ONTARIO K2E 6B1
T: (613) 794.7710 F: (613) 794.7105 sjl@sjlarchitect.com



THIS DRAWING IS THE SOLE PROPERTY OF S.J. LAWRENCE ARCHITECT INCORPORATED. REPRODUCTION IS NOT PERMITTED.

PROJECT:
APPLETON DEVELOPMENT
9400 APPLETON SIDE ROAD, ALMONTE ON

SHEET TITLE:
CONCEPT SITE PLAN

| | |
|---------------------------|-----------------------------|
| DRAWN BY: B.L. | CHECKED BY: S.L. |
| PLOT DATE: 2025.08.22 | PROJECT DATE: 2025.04.04 |
| JOB NUMBER: SL-1100-23 | SCALE: AS SHOWN |
| SHEET NUMBER: | |

01 PROPOSED SITE PLAN - OPTION 01
SCALE: 1/500

APPLICATION #

APPENDIX B

Traffic Count Data

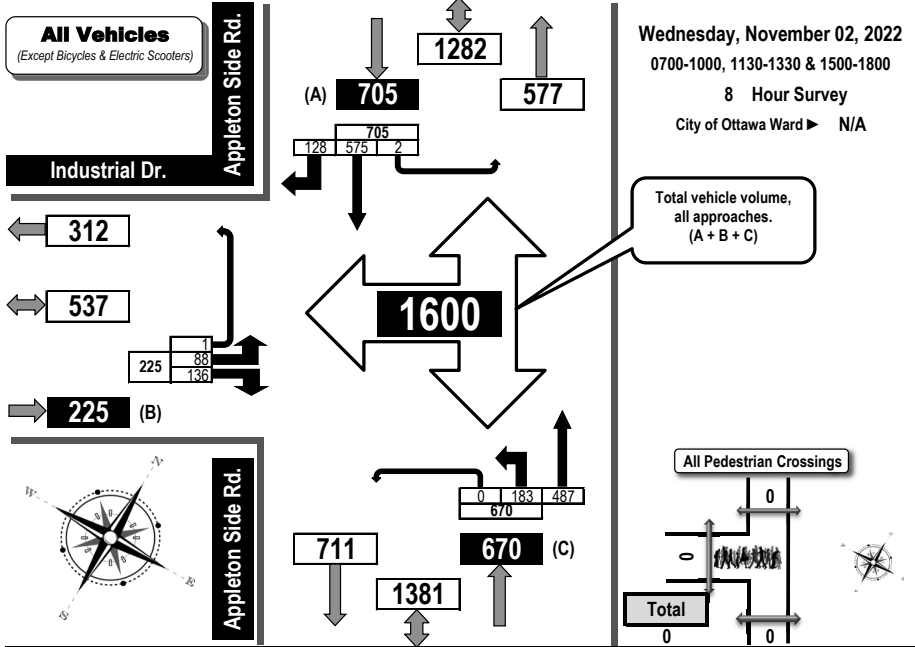


Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams

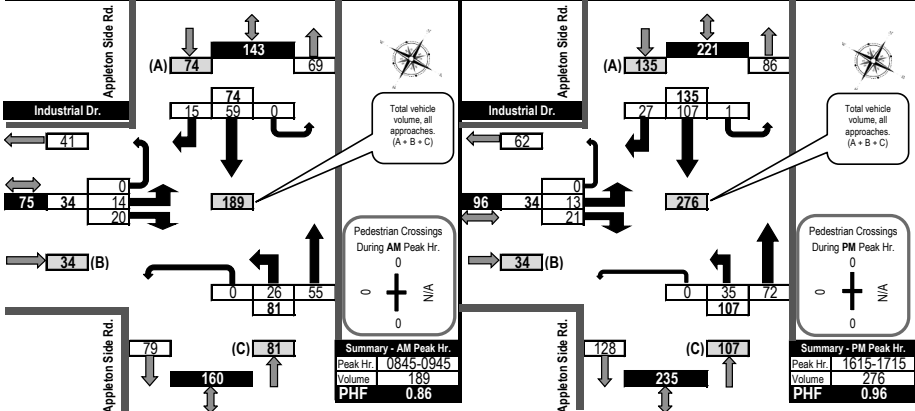
All Vehicles Except Bicycles



Appleton Side Road & Industrial Drive Almonte, ON



AM Peak Hour Flow Diagram PM Peak Hour Flow Diagram

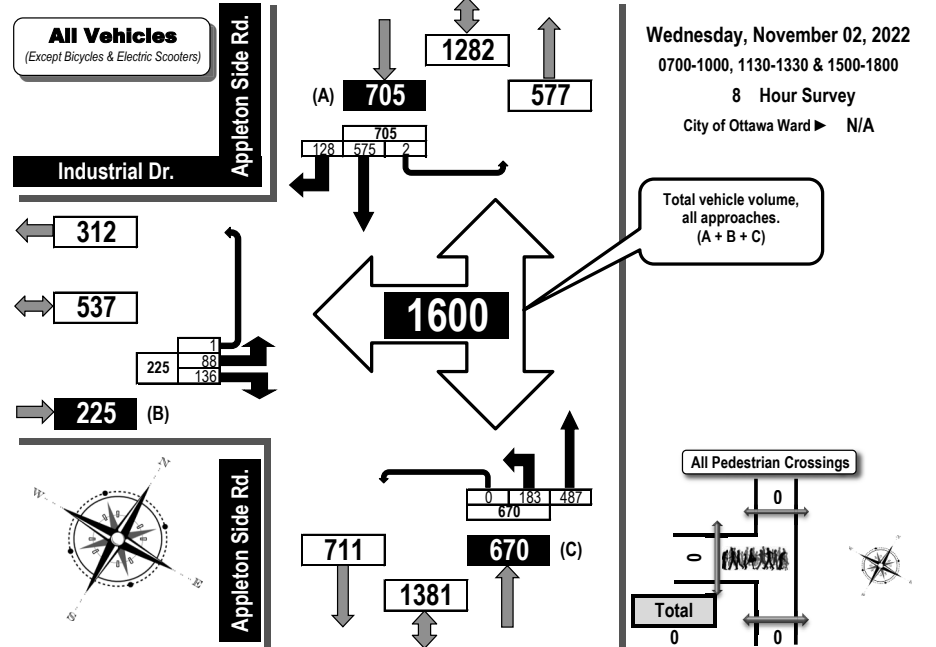


Turning Movement Count Summary, OFF and EVGN Peak Hour Flow Diagrams

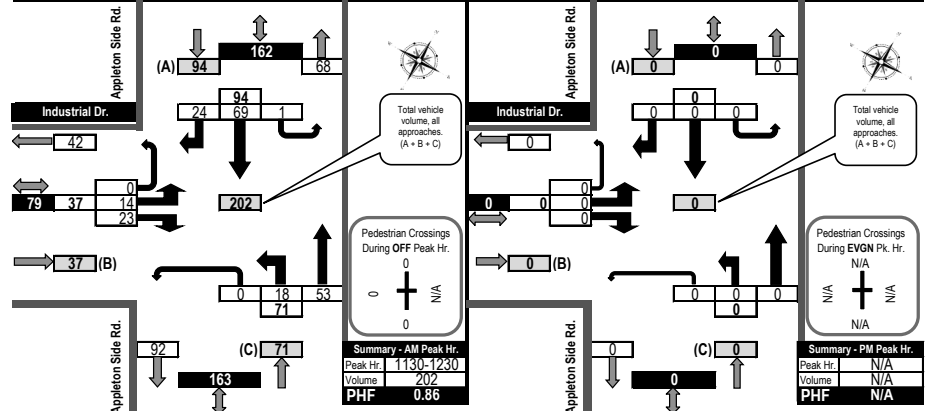
All Vehicles Except Bicycles



Appleton Side Road & Industrial Drive Almonte, ON



OFF Peak Hour Flow Diagram EVENING Peak Hour Flow Diagram





Turning Movement Count Summary Report Including Peak Hours, AADT and Expansion Factors All Vehicles Except Bicycles



Appleton Side Road & Industrial Drive Almonte, ON

Survey Date: Wednesday, November 02, 2022 **Start Time:** 0700 **AADT Factor:** 0.9
Weather AM: Sunny 5° C **Survey Duration:** 8 Hrs. **Survey Hours:** 0700-1000, 1130-1330 & 1500-1800
Weather PM: Sunny 15° C **Surveyor(s):** J. Mousseau

| Time Period | Industrial Dr. | | | | | N/A | | | | | Appleton Side Rd. | | | | | Appleton Side Rd. | | | | | Grand Total | | |
|---------------|----------------|------------|----------|------------|---------|-----------|----|----|----|---------|-------------------|------------|------------|----------|------------|-------------------|----|------------|------------|----------|-------------|--------------|--------------|
| | Eastbound | | | | | Westbound | | | | | Northbound | | | | | Southbound | | | | | | | |
| | LT | ST | RT | UT | E/B Tot | LT | ST | RT | UT | W/B Tot | LT | ST | RT | UT | N/B Tot | LT | ST | RT | UT | S/B Tot | | Street Total | Street Total |
| 0700-0800 | 5 | 12 | 1 | 18 | | | | | | | 18 | 13 | 45 | 0 | 58 | | | 64 | 9 | 0 | 73 | 131 | 149 |
| 0800-0900 | 8 | 15 | 0 | 23 | | | | | | | 23 | 27 | 53 | 0 | 80 | | | 58 | 19 | 0 | 77 | 157 | 180 |
| 0900-1000 | 10 | 15 | 0 | 25 | | | | | | | 25 | 22 | 49 | 0 | 71 | | | 61 | 8 | 0 | 69 | 140 | 165 |
| 1130-1230 | 14 | 23 | 0 | 37 | | | | | | | 37 | 18 | 53 | 0 | 71 | | | 69 | 24 | 1 | 94 | 165 | 202 |
| 1230-1330 | 18 | 6 | 0 | 24 | | | | | | | 24 | 17 | 68 | 0 | 85 | | | 65 | 18 | 0 | 83 | 168 | 192 |
| 1500-1600 | 9 | 26 | 0 | 35 | | | | | | | 35 | 30 | 82 | 0 | 112 | | | 85 | 15 | 0 | 100 | 212 | 247 |
| 1600-1700 | 11 | 19 | 0 | 30 | | | | | | | 30 | 30 | 71 | 0 | 101 | | | 106 | 26 | 0 | 132 | 233 | 263 |
| 1700-1800 | 13 | 20 | 0 | 33 | | | | | | | 33 | 26 | 66 | 0 | 92 | | | 67 | 9 | 1 | 77 | 169 | 202 |
| Totals | 88 | 136 | 1 | 225 | | | | | | | 225 | 183 | 487 | 0 | 670 | | | 575 | 128 | 2 | 705 | 1375 | 1600 |

Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor
Applicable to the Day and Month of the Turning Movement Count
Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts
conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

| Equivalent 12-hour vehicle volumes. These volumes are calculated by multiplying the 8-hour totals by the 8 → 12 expansion factor of 1.39 | | | | | | | | | | | | | | | | | | | | | | | |
|--|-----|---|-----|---|-----|---|---|---|---|---|-----|-----|-----|---|---|-----|---|-----|-----|---|-----|------|------|
| Equ. 12 Hr | 122 | 0 | 189 | 1 | 313 | 0 | 0 | 0 | 0 | 0 | 313 | 254 | 677 | 0 | 0 | 931 | 0 | 799 | 178 | 3 | 980 | 1911 | 2224 |

| Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the equivalent 12-hour totals by the AADT factor of: 0.9 | | | | | | | | | | | | | | | | | | | | | | | |
|---|-----|---|-----|---|-----|---|---|---|---|---|-----|-----|-----|---|---|-----|---|-----|-----|---|-----|------|------|
| AADT 12-hr | 110 | 0 | 170 | 1 | 281 | 0 | 0 | 0 | 0 | 0 | 281 | 229 | 609 | 0 | 0 | 838 | 0 | 719 | 160 | 3 | 882 | 1720 | 2002 |

| 24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 → 24 expansion factor of 1.31 | | | | | | | | | | | | | | | | | | | | | | | |
|---|-----|---|-----|---|-----|---|---|---|---|---|-----|-----|-----|---|---|------|---|-----|-----|---|------|------|------|
| AADT 24 Hr | 144 | 0 | 223 | 2 | 369 | 0 | 0 | 0 | 0 | 0 | 369 | 300 | 798 | 0 | 0 | 1098 | 0 | 942 | 210 | 3 | 1155 | 2253 | 2622 |

AADT and expansion factors provided by the City of Ottawa

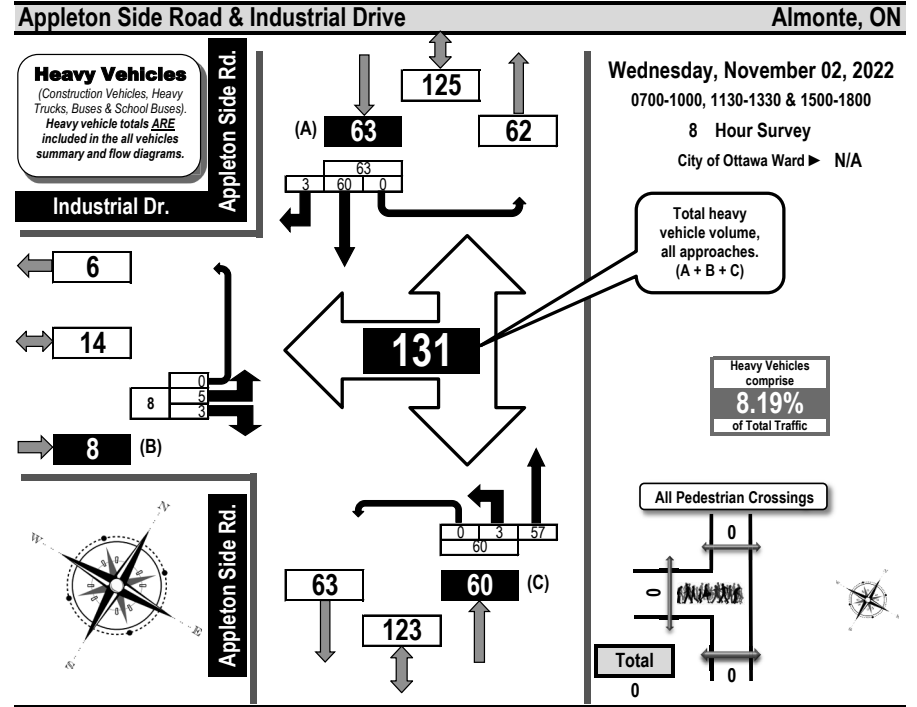
| AM Peak Hour Factor → 0.86 | | | | | Highest Hourly Vehicle Volume Between 0700h & 1000h | | | | | | | | | | | | | | | | | | | | |
|-----------------------------|----|----|----|----|---|-----------|----|----|----|----|-------|-----------|----|----|----|-----|-------|-----------|----|----|-----|-----|-------|-----------|----------|
| AM Peak Hr | LT | ST | RT | UT | Total | Str. Tot. | LT | ST | RT | UT | Total | Str. Tot. | LT | ST | RT | UT | Total | Str. Tot. | LT | ST | RT | UT | Total | Str. Tot. | Gr. Tot. |
| 0845-0945 | 14 | 0 | 20 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 34 | 26 | 55 | 0 | 0 | 81 | 0 | 59 | 15 | 0 | 74 | 155 | 189 | | |
| OFF Peak Hour Factor → 0.81 | | | | | Highest Hourly Vehicle Volume Between 1130h & 1330h | | | | | | | | | | | | | | | | | | | | |
| OFF Peak Hr | LT | ST | RT | UT | Total | Str. Tot. | LT | ST | RT | UT | Total | Str. Tot. | LT | ST | RT | UT | Total | Str. Tot. | LT | ST | RT | UT | Total | Str. Tot. | Gr. Tot. |
| 1130-1230 | 14 | 0 | 23 | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 37 | 18 | 53 | 0 | 0 | 71 | 0 | 69 | 24 | 1 | 94 | 165 | 202 | | |
| PM Peak Hour Factor → 0.96 | | | | | Highest Hourly Vehicle Volume Between 1500h & 1800h | | | | | | | | | | | | | | | | | | | | |
| PM Peak Hr | LT | ST | RT | UT | Total | Str. Tot. | LT | ST | RT | UT | Total | Str. Tot. | LT | ST | RT | UT | Total | Str. Tot. | LT | ST | RT | UT | Total | Str. Tot. | Gr. Tot. |
| 1615-1715 | 13 | 0 | 21 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 34 | 35 | 72 | 0 | 0 | 107 | 0 | 107 | 27 | 1 | 135 | 242 | 276 | | |

Comments:
 School buses comprise 7.63% of the heavy vehicle traffic.

- Notes:**
1. Includes all vehicle types except bicycles, electric bicycles, and electric scooters.
 2. When expansion and AADT factors are applied, the results will differ slightly due to rounding.



Turning Movement Count Heavy Vehicle Summary (FHWA Class 4 to 13) Flow Diagram

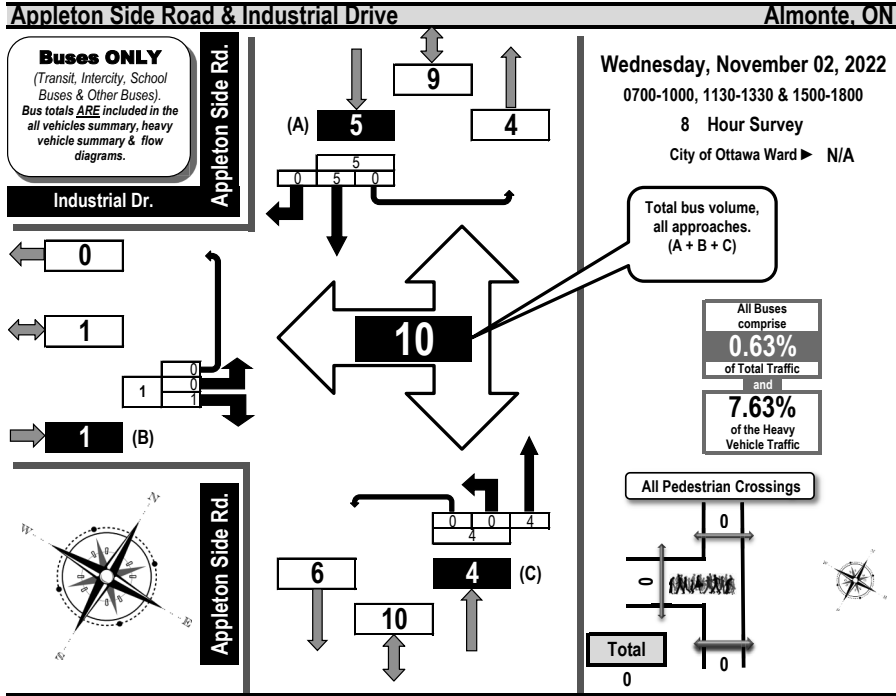


| Time Period | Industrial Dr. | | | | | N/A | | | | | Appleton Side Rd. | | | | | Appleton Side Rd. | | | | | | | | | |
|---------------|----------------|---------|----------|----------|----------|-----------|---------|---------|---------|---------|-------------------|-----------|---------|----------|-----------|-------------------|-----------|----------|----------|-----------|------------|----|----|----|--------|
| | Eastbound | | | | | Westbound | | | | | Northbound | | | | | Southbound | | | | | | | | | |
| | LT | ST | RT | UT | EB Tot | LT | ST | RT | UT | WB Tot | LT | ST | RT | UT | NB Tot | LT | ST | RT | UT | SB Tot | LT | ST | RT | UT | SB Tot |
| 0700-0800 | 1 | | 1 | 0 | 2 | | | | | | 0 | 8 | | 0 | 8 | | 5 | 0 | 0 | 5 | 15 | | | | |
| 0800-0900 | 0 | | 1 | 0 | 1 | | | | | | 0 | 5 | | 0 | 5 | | 6 | 1 | 0 | 7 | 13 | | | | |
| 0900-1000 | 3 | | 0 | 0 | 3 | | | | | | 1 | 5 | | 0 | 6 | | 6 | 0 | 0 | 6 | 15 | | | | |
| 1130-1230 | 0 | | 0 | 0 | 0 | | | | | | 0 | 7 | | 0 | 7 | | 8 | 0 | 0 | 8 | 15 | | | | |
| 1230-1330 | 1 | | 0 | 0 | 1 | | | | | | 1 | 11 | | 0 | 12 | | 9 | 0 | 0 | 9 | 22 | | | | |
| 1500-1600 | 0 | | 0 | 0 | 0 | | | | | | 0 | 14 | | 0 | 14 | | 9 | 0 | 0 | 9 | 23 | | | | |
| 1600-1700 | 0 | | 1 | 0 | 1 | | | | | | 1 | 5 | | 0 | 6 | | 13 | 1 | 0 | 14 | 21 | | | | |
| 1700-1800 | 0 | | 0 | 0 | 0 | | | | | | 0 | 2 | | 0 | 2 | | 4 | 1 | 0 | 5 | 7 | | | | |
| Totals | 5 | | 3 | 0 | 8 | | | | | | 3 | 57 | | 0 | 60 | | 60 | 3 | 0 | 63 | 131 | | | | |

Comments:
 School buses comprise 7.63% of the heavy vehicle traffic.



Turning Movement Count All Buses Summary (FHWA Class 4 ONLY) Flow Diagram

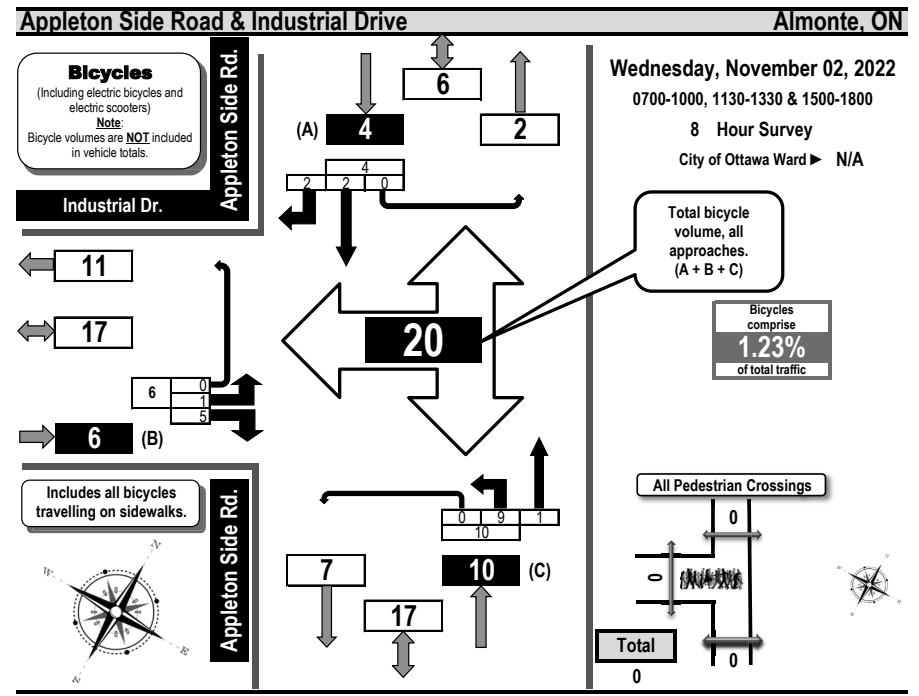


| Time Period | Industrial Dr. | | | | N/A | | | | Appleton Side Rd. | | | | Appleton Side Rd. | | | | GR Tot | | |
|---------------|----------------|----|-----------|----|------------|----|------------|----|-------------------|----|-----------|----|-------------------|----|------------|----|--------|----|----|
| | Eastbound | | Westbound | | Northbound | | Southbound | | Eastbound | | Westbound | | Northbound | | Southbound | | | | |
| | LT | ST | RT | UT | LT | ST | RT | UT | LT | ST | RT | UT | LT | ST | RT | UT | | | |
| 0700-0800 | 0 | | 1 | 0 | 1 | | | | | | | | | | 1 | 0 | 0 | 1 | 2 |
| 0800-0900 | 0 | | 0 | 0 | 0 | | | | | | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 1 | 2 |
| 0900-1000 | 0 | | 0 | 0 | 0 | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1130-1230 | 0 | | 0 | 0 | 0 | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1230-1330 | 0 | | 0 | 0 | 0 | | | | | | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| 1500-1600 | 0 | | 0 | 0 | 0 | | | | | | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 1 |
| 1600-1700 | 0 | | 0 | 0 | 0 | | | | | | 2 | 0 | 2 | 2 | 0 | 0 | 2 | 4 | 4 |
| 1700-1800 | 0 | | 0 | 0 | 0 | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Totals | 0 | | 1 | 0 | 1 | | | | | | 4 | 0 | 4 | 5 | 0 | 0 | 5 | 10 | 10 |

Comments:
School buses comprise 7.63% of the heavy vehicle traffic.



Turning Movement Count Bicycle Summary Flow Diagram



| Time Period | Industrial Dr. | | | | N/A | | | | Appleton Side Rd. | | | | Appleton Side Rd. | | | | GR Tot | | |
|---------------|----------------|----|-----------|----|------------|----|------------|----|-------------------|----|-----------|----|-------------------|----|------------|----|--------|----|----|
| | Eastbound | | Westbound | | Northbound | | Southbound | | Eastbound | | Westbound | | Northbound | | Southbound | | | | |
| | LT | ST | RT | UT | LT | ST | RT | UT | LT | ST | RT | UT | LT | ST | RT | UT | | | |
| 0700-0800 | 0 | | 0 | 0 | 0 | | | | | | | | | | 0 | 0 | 0 | 0 | 0 |
| 0800-0900 | 0 | | 0 | 0 | 0 | | | | | | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 |
| 0900-1000 | 0 | | 2 | 0 | 2 | | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| 1130-1230 | 1 | | 1 | 0 | 2 | | | | | | 2 | 0 | 2 | 0 | 1 | 0 | 1 | 5 | 5 |
| 1230-1330 | 0 | | 0 | 0 | 0 | | | | | | 1 | 0 | 1 | 2 | 0 | 0 | 2 | 3 | 3 |
| 1500-1600 | 0 | | 2 | 0 | 2 | | | | | | 4 | 0 | 4 | 0 | 0 | 0 | 4 | 6 | 6 |
| 1600-1700 | 0 | | 0 | 0 | 0 | | | | | | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 2 | 2 |
| 1700-1800 | 0 | | 0 | 0 | 0 | | | | | | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| Totals | 1 | | 5 | 0 | 6 | | | | | | 9 | 1 | 10 | 2 | 2 | 0 | 4 | 20 | 20 |

Comments:
School buses comprise 7.63% of the heavy vehicle traffic.

Traffic Summary

Station # - FJ199DQZ, Cr 17 017155 on Industrial Dr

Date - September 20, 2023 to September 26, 2023 (6 days of data) Location: 45.233982 N, -76.175745 W

| Volume | | | | | | |
|----------|-------|---------|---------|-----|------|------|
| | Total | Weekday | Weekend | ADT | AWDT | AWET |
| Combined | 4644 | 3772 | 872 | 774 | 943 | 436 |
| North | 2001 | 1646 | 355 | 334 | 412 | 178 |
| South | 2643 | 2126 | 517 | 441 | 532 | 259 |
| Days | 6 | 4 | 2 | 6 | 4 | 2 |

| Speed | | | | |
|--------------|----------|----------|---------|------|
| | All Days | Weekdays | Weekend | |
| Mean speed | 31.4 | 31.1 | 32.6 | km/h |
| Median speed | 32.0 | 31.7 | 33.1 | km/h |
| 85% speed | 37.8 | 37.8 | 38.5 | km/h |

PSL = 60 km/h

| Class | | | | |
|-------------------|----------|-------|----------|---------|
| Class (Scheme F3) | All Days | % | Weekdays | Weekend |
| 1 - CYCLE | 96 | 2.1% | 67 | 29 |
| 2 - PC | 3310 | 71.3% | 2674 | 636 |
| 3 - 2A-4T | 893 | 19.2% | 707 | 186 |
| 4 - BUS | 41 | 0.9% | 41 | 0 |
| 5 - 2A-6T | 127 | 2.7% | 115 | 12 |
| 6 - 3A-SU | 145 | 3.1% | 140 | 5 |
| 7 - 4A-SU | 27 | 0.6% | 23 | 4 |
| 8 - <5A DBL | 0 | 0.0% | 0 | 0 |
| 9 - 5A DBL | 2 | 0.0% | 2 | 0 |
| 10 - >6A DBL | 3 | 0.1% | 3 | 0 |
| 11 - <6A MULTI | 0 | 0.0% | 0 | 0 |
| 12 - 6A MULTI | 0 | 0.0% | 0 | 0 |
| 13 - >6A MULTI | 0 | 0.0% | 0 | 0 |

| Average Daily Volume | | | | | | | |
|----------------------|-----|-----|-----|-----|-----|-----|-----|
| | Mon | Tue | Wed | Thu | Fri | Sat | Sun |
| North | 399 | 0 | 419 | 422 | 406 | 187 | 168 |
| South | 527 | 0 | 558 | 517 | 524 | 287 | 230 |
| Combined | 926 | 0 | 977 | 939 | 930 | 474 | 398 |
| AM Pk North | 34 | - | 34 | 37 | 41 | 17 | 17 |
| PM Pk North | 54 | - | 57 | 48 | 44 | 21 | 17 |
| AM Pk South | 51 | - | 49 | 53 | 50 | 33 | 26 |
| PM Pk South | 69 | - | 57 | 55 | 51 | 33 | 35 |
| Days | 1 | - | 1 | 1 | 1 | 1 | 1 |

Traffic Summary

Station # - FP771PAC, Cr 17 017155A River Road (Co. Rd. #11) to Industrial Drive

Date - September 20, 2023 to September 26, 2023 (6 days of data) Location: 45.218709 N, -76.156311 W

| Volume | | | | | | |
|----------|-------|---------|---------|------|------|------|
| | Total | Weekday | Weekend | ADT | AWDT | AWET |
| Combined | 13468 | 9864 | 3604 | 2245 | 2466 | 1802 |
| North | 6538 | 4790 | 1748 | 1090 | 1198 | 874 |
| South | 6930 | 5074 | 1856 | 1155 | 1269 | 928 |
| Days | 6 | 4 | 2 | 6 | 4 | 2 |

| Speed | | | | |
|--------------|----------|----------|---------|------|
| | All Days | Weekdays | Weekend | |
| Mean speed | 92.2 | 92.4 | 91.8 | km/h |
| Median speed | 92.5 | 92.5 | 92.2 | km/h |
| 85% speed | 102.6 | 102.6 | 102.2 | km/h |

PSL = 60 km/h

| Class | | | | |
|-------------------|----------|-------|----------|---------|
| Class (Scheme F3) | All Days | % | Weekdays | Weekend |
| 1 - CYCLE | 316 | 2.3% | 180 | 136 |
| 2 - PC | 9229 | 68.5% | 6655 | 2574 |
| 3 - 2A-4T | 3094 | 23.0% | 2334 | 760 |
| 4 - BUS | 87 | 0.6% | 79 | 8 |
| 5 - 2A-6T | 473 | 3.5% | 376 | 97 |
| 6 - 3A-SU | 167 | 1.2% | 154 | 13 |
| 7 - 4A-SU | 28 | 0.2% | 20 | 8 |
| 8 - <5A DBL | 5 | 0.0% | 5 | 0 |
| 9 - 5A DBL | 38 | 0.3% | 34 | 4 |
| 10 - >6A DBL | 27 | 0.2% | 26 | 1 |
| 11 - <6A MULTI | 0 | 0.0% | 0 | 0 |
| 12 - 6A MULTI | 0 | 0.0% | 0 | 0 |
| 13 - >6A MULTI | 4 | 0.0% | 1 | 3 |

| Average Daily Volume | | | | | | | |
|----------------------|------|-----|------|------|------|------|------|
| | Mon | Tue | Wed | Thu | Fri | Sat | Sun |
| North | 1105 | 0 | 1232 | 1189 | 1264 | 928 | 820 |
| South | 1196 | 0 | 1285 | 1318 | 1275 | 983 | 873 |
| Combined | 2301 | 0 | 2517 | 2507 | 2539 | 1911 | 1693 |
| AM Pk North | 89 | - | 85 | 99 | 89 | 88 | 71 |
| PM Pk North | 115 | - | 132 | 116 | 131 | 89 | 90 |
| AM Pk South | 95 | - | 89 | 101 | 87 | 80 | 82 |
| PM Pk South | 134 | - | 138 | 132 | 124 | 93 | 101 |
| Days | 1 | - | 1 | 1 | 1 | 1 | 1 |

Traffic Summary

Station # - FJ36QF8X, Cr 17 017155B Industrial Drive to March Road (Co. Rd. #49)

Date - September 20, 2023 to September 26, 2023 (6 days of data) Location: 45.235484 N, -76.177210 W

| Volume | | | | | | |
|----------|-------|---------|---------|------|------|------|
| | Total | Weekday | Weekend | ADT | AWDT | AWET |
| Combined | 12397 | 9060 | 3337 | 2066 | 2265 | 1669 |
| North | 5672 | 4151 | 1521 | 945 | 1038 | 761 |
| South | 6725 | 4909 | 1816 | 1121 | 1227 | 908 |
| Days | 6 | 4 | 2 | 6 | 4 | 2 |

| Speed | | | | |
|--------------|----------|----------|---------|------|
| | All Days | Weekdays | Weekend | |
| Mean speed | 65.3 | 65.4 | 65.3 | km/h |
| Median speed | 65.5 | 65.5 | 65.2 | km/h |
| 85% speed | 75.6 | 75.6 | 75.6 | km/h |

PSL = 60 km/h

| Class | | | | |
|-------------------|----------|-------|----------|---------|
| Class (Scheme F3) | All Days | % | Weekdays | Weekend |
| 1 - CYCLE | 274 | 2.2% | 157 | 117 |
| 2 - PC | 8676 | 70.0% | 6157 | 2519 |
| 3 - 2A-4T | 2797 | 22.6% | 2164 | 633 |
| 4 - BUS | 68 | 0.5% | 62 | 6 |
| 5 - 2A-6T | 244 | 2.0% | 209 | 35 |
| 6 - 3A-SU | 243 | 2.0% | 234 | 9 |
| 7 - 4A-SU | 22 | 0.2% | 12 | 10 |
| 8 - <5A DBL | 2 | 0.0% | 2 | 0 |
| 9 - 5A DBL | 39 | 0.3% | 35 | 4 |
| 10 - >6A DBL | 27 | 0.2% | 26 | 1 |
| 11 - <6A MULTI | 0 | 0.0% | 0 | 0 |
| 12 - 6A MULTI | 0 | 0.0% | 0 | 0 |
| 13 - >6A MULTI | 5 | 0.0% | 2 | 3 |

| Average Daily Volume | | | | | | | |
|----------------------|------|-----|------|------|------|------|------|
| | Mon | Tue | Wed | Thu | Fri | Sat | Sun |
| North | 957 | 0 | 1053 | 1028 | 1113 | 805 | 716 |
| South | 1182 | 0 | 1241 | 1245 | 1241 | 965 | 851 |
| Combined | 2139 | 0 | 2294 | 2273 | 2354 | 1770 | 1567 |
| AM Pk North | 74 | - | 70 | 78 | 70 | 71 | 59 |
| PM Pk North | 88 | - | 114 | 93 | 107 | 77 | 76 |
| AM Pk South | 91 | - | 84 | 90 | 94 | 88 | 85 |
| PM Pk South | 123 | - | 121 | 123 | 120 | 93 | 96 |
| Days | 1 | - | 1 | 1 | 1 | 1 | 1 |

APPENDIX C

Background Reports

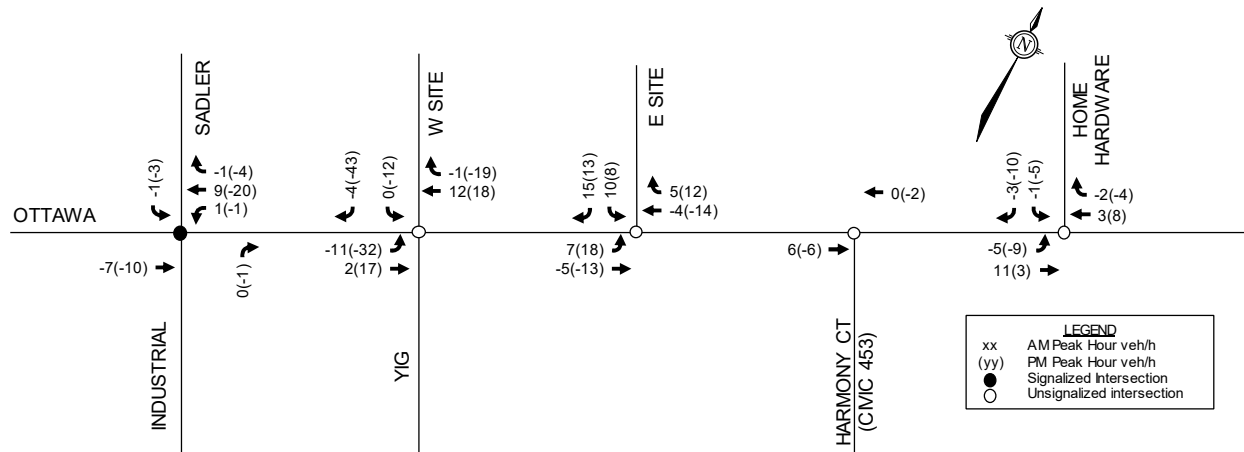
PM pass-by site generated trips were assigned to the roadway network based on directional distribution of counted volumes on Ottawa Street passing the site during the PM peak hour (65% westbound, 35% eastbound).

It is expected based on the lot layout and driveway configurations that the majority (about 80%) of retail trips will use the west driveway while the majority (about 80%) of residential trips will use the east driveway.

Traffic volumes generated by site redevelopment have been assigned to the study area intersections and are shown in **Figure 5**.

Since there is projected to be a net reduction in site trips during the PM peak hour, as well as different directional distributions for the proposed site's retail and residential development, there is expected to be a reduction in traffic volume for several movements with site redevelopment.

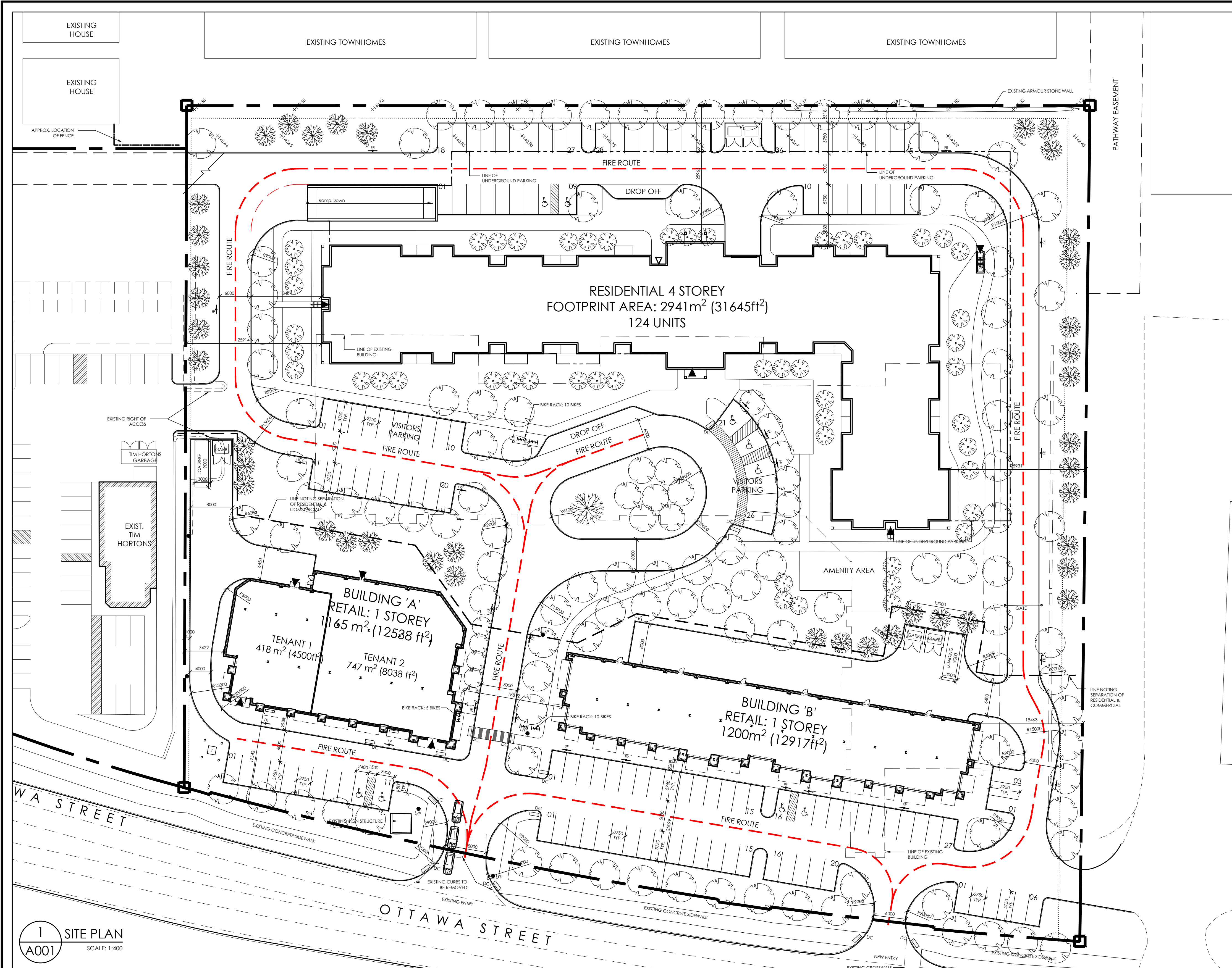
Figure 5: Site Generated Traffic Volumes



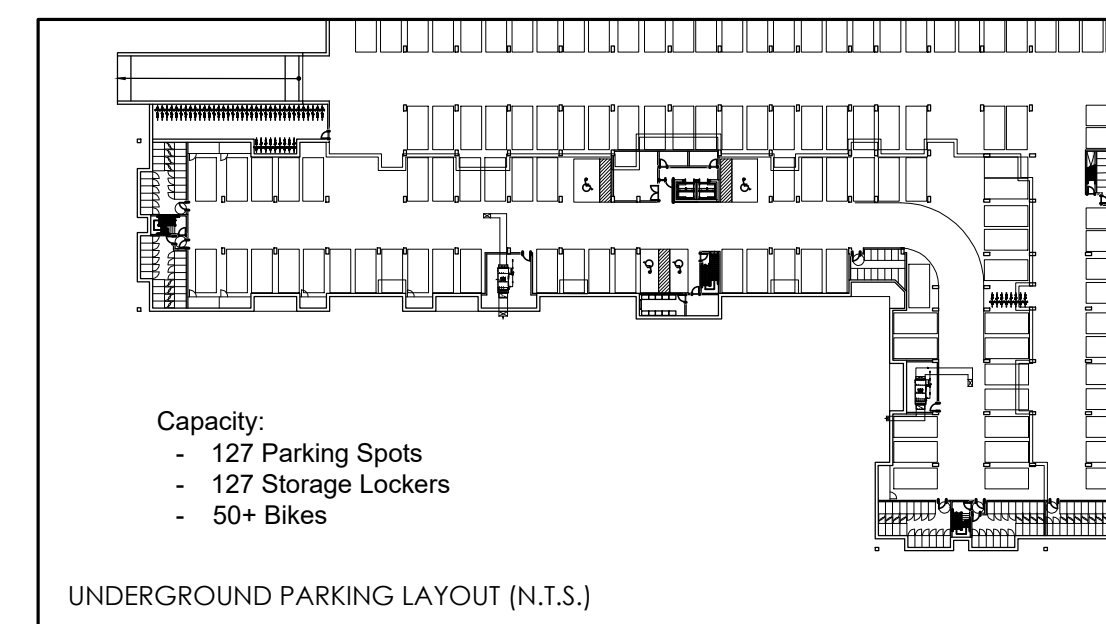
4.3 Total Traffic Volumes with Site Generated Trips

Site generated traffic volumes (**Figure 5**) have been added to the 2022 and 2027 Future Background Traffic Volumes (**Figures 3 and 4**, respectively) to obtain the 2022 and 2027 Total Traffic Volumes (**Figures 6 and 7**, respectively).

Intersection analysis of future background and total traffic volumes is included in **Section 5.1**.



1 SITE PLAN
A001 SCALE: 1:400



SITE STATISTICS
EXISTING ZONE: C4-4H SHOPPING CENTRE COMMERCIAL
AREAS (m²):
SITE: 25,445 (100%)

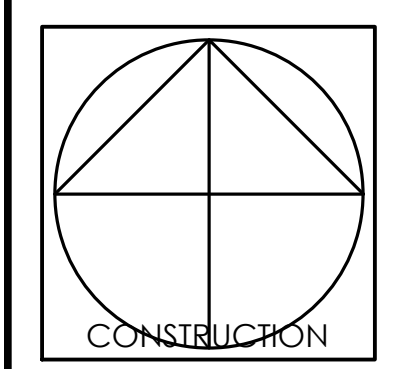
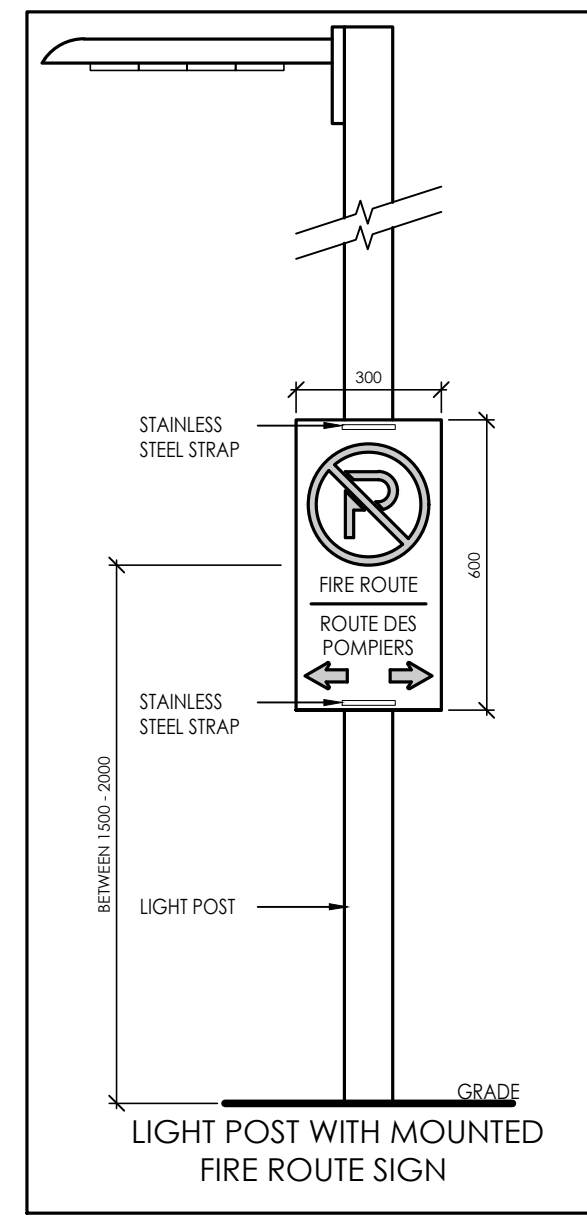
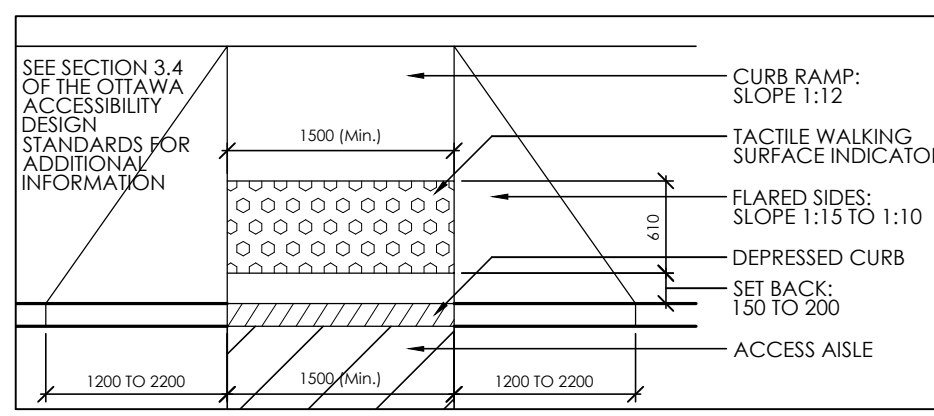
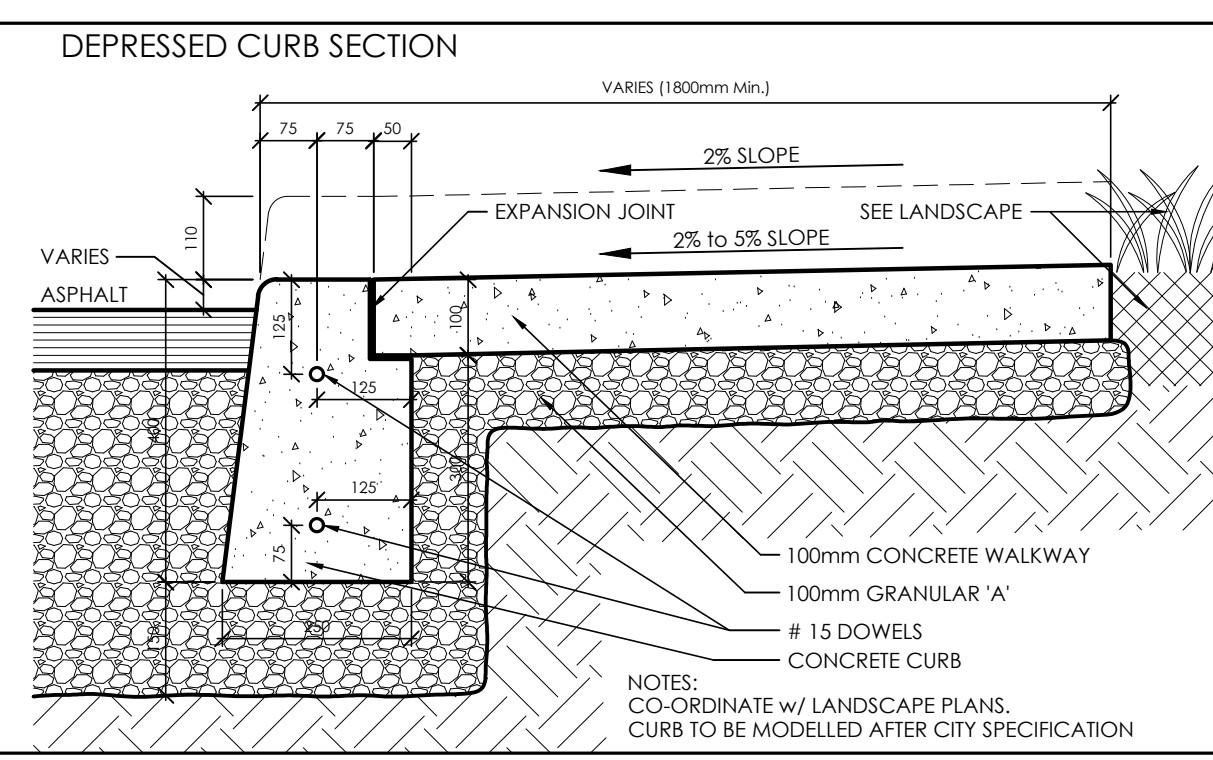
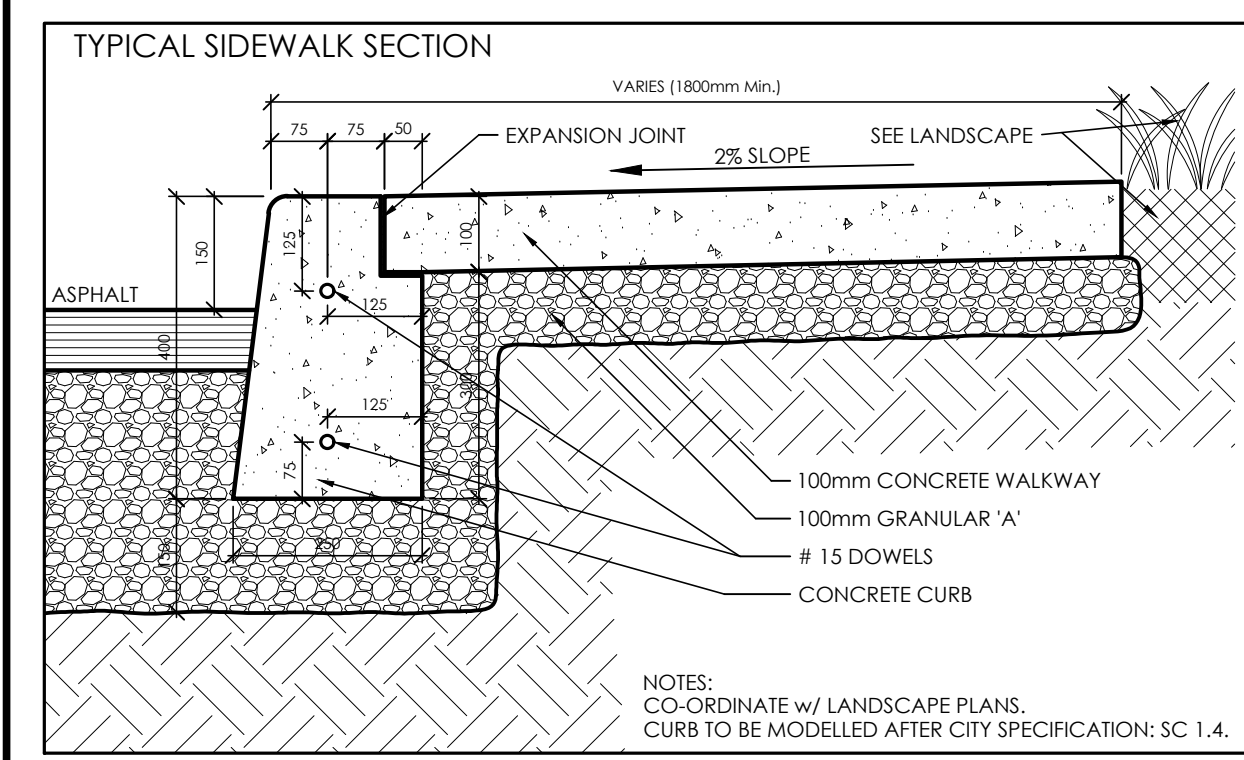
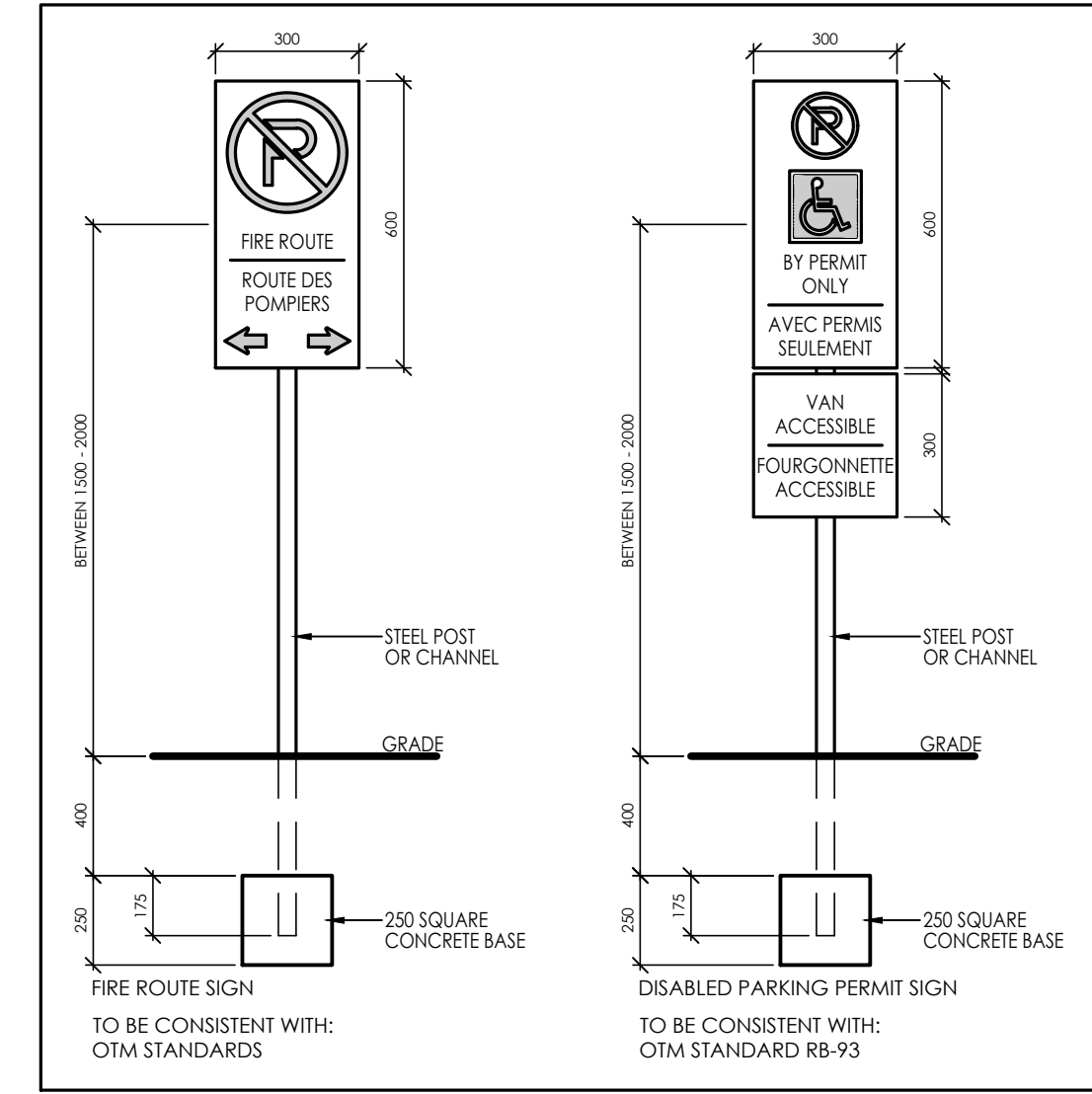
| MECHANISM | REQUIRED/PERMITTED IN C4-4H ZONE | PROVIDED |
|----------------------------|----------------------------------|---|
| LOT AREA | 25445m ² | 25445m ² |
| LANDSCAPE | 10% | 11643 (45.75%) |
| FRONTAGE | | 172m |
| MINIMUM REAR YARD SETBACK | 26m | 25.9m |
| MINIMUM FRONT YARD SETBACK | 15m | 18m |
| MINIMUM SIDE YARD SETBACK | 3m | WEST (BLDG A) = 8.9m EAST (BLDG B) = 19.4m |
| NO. OF RESIDENTIAL UNITS | | 124 UNITS |

PARKING CALCULATIONS:

| NEW BUILDING: | OCCUPANCY: | PARKING RATE: | PARKING REQUIRED: | PROVIDED |
|--------------------------|-------------------------------------|--|--|-------------|
| RETAIL: | VEHICLES: 2.5/100m ² gfa | 2319m ² /100m ² x 2.5 = 58 | | 67 |
| | BICYCLES: 1/250m ² gfa | 2319m ² /250m ² = 9.28 | | 10 |
| RESIDENTIAL APARTMENTS: | VEHICLES: 1.4 per unit | 124 units x 1.4/unit = 173.6 | visitors at bldg, front: 26 surface parking at rear: 44 below grade garage: 127 197 | |
| | BICYCLES: 0.5 per unit | 124 units x 0.5/unit = 62 | above grade: 25 below grade: 45 | |
| PARKING SPACE: | 2.75m X 5.75m | | | 2.75 x 5.75 |
| ACCESSIBLE PARKING SPACE | 4% REQ'D (BY AODA): 10.2 | 5: TYPE A: 3.4 x 5.75 5: TYPE B: 2.4 x 5.75 | | 5 5 |
| MIN AISLE WIDTH | | 6.0m | | 6.0m |

| NO. | REVISION | DATE |
|-----|----------------------------------|------------|
| 6 | ISSUED FOR REVIEW | 2023-03-01 |
| 7 | ISSUED FOR REVIEW | 2023-03-06 |
| 8 | ISSUED FOR REVIEW | 2023-03-14 |
| 9 | ISSUED FOR REVIEW | 2023-03-15 |
| 10 | ISSUED FOR SITE PLAN APPLICATION | 2023-03-24 |

- LEGEND**
- MH MANHOLE: SANITARY AND STORM (SEE CIVIL) (E DENOTES EXISTING)
 - CB CATCH-BASIN (SEE CIVIL) (E DENOTES EXISTING)
 - FH FIRE HYDRANT (SEE CIVIL) (E DENOTES EXISTING)
 - L/P LIGHT POLE (E DENOTES EXISTING)
 - ▲ DENOTES BUILDING EXIT
 - △ DENOTES ALTERNATE EXIT
 - TYPICAL CURB (REFER: CITY OF OTTAWA STANDARDS)
 - - - DEPRESSED CURB (REFER: CITY OF OTTAWA STANDARDS)
 - - - PROPERTY LINE
 - ♿ DESIGNATED BARRIER FREE PARKING SPACE
 - EV ELECTRIC VEHICLE CHARGING STATION
 - BF BARRIER FREE PARKING SIGN
 - FR FIRE ROUTE SIGN
 - NP NO PARKING SIGN
 - FR LIGHT STANDARD W/ STRAP ON FIRE ROUTE SIGN (SEE ELEC.)
 - FR LIGHT POST (SEE ELEC.)
 - W WALL SCONCE (SEE ELEC.)
 - B BOLLARD LIGHT (SEE ELEC.)
 - SC SIAMSE CONNECTION
 - T TACTILE WALKING SURFACE INDICATOR (TWSI)
 - D DIAGONAL PAINTED LINES
 - T TRANSFORMER W/ BOLLARD (SEE ELEC.)
 - SITE FENCING (SEE LANDSCAPE)



Vandenberg & Wildeboer
A.R.C.H.I.T.E.C.T.S

PROJECT TITLE
ALMONTE OTTAWA ST. DEVELOPMENT

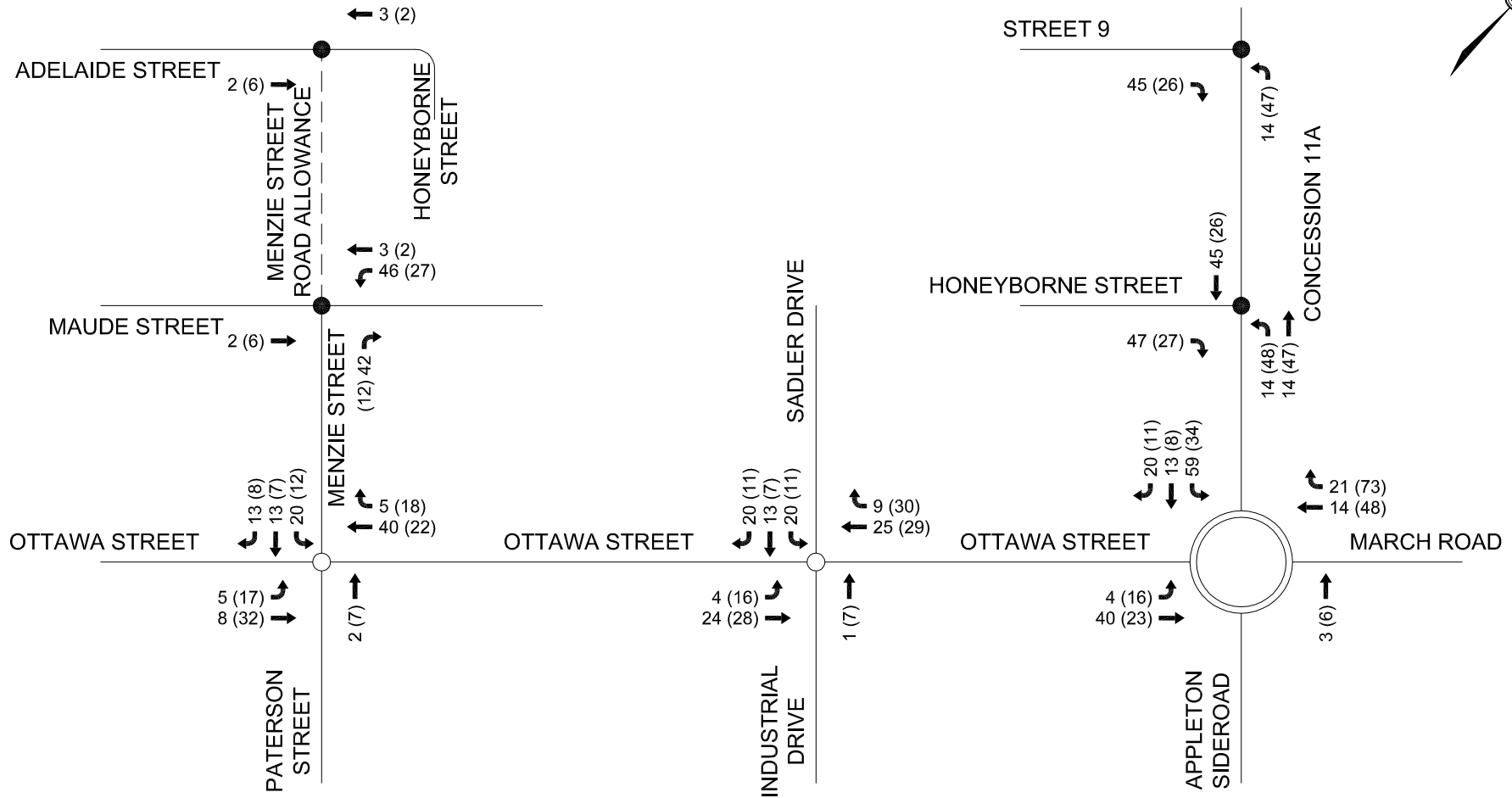
DRAWING TITLE
SITE PLAN

DESIGNED BY: RY
DRAWN BY: JN/DV
START DATE: 2019
SCALE: As Noted
PROJECT NO: 1922

A001

PLOT DATE: March 24, 2023

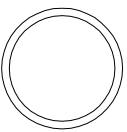
M:\2010\10046\CAD\Design\Figures\Traffic\2014 Nov\Figures.dwg, FIG 6-2014, May 11, 2015 - 4:05pm, bbyvelids



Engineers, Planners & Landscape Architects
 Suite 200, 240 Michael Cowpland Drive
 Ottawa, Ontario, Canada K2M 1P6

Telephone (613) 254-9643
 Facsimile (613) 254-5867
 Website www.novatech-eng.com

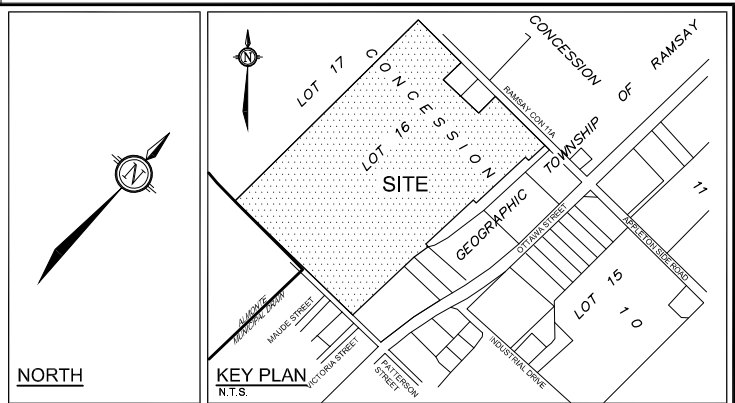
LEGEND

- Unsignalized Intersection
- Signalized Intersection
-  Roundabout
- xx VPH AM Peak Hour
- (xx) VPH PM Peak Hour

**MILL RUN AT ALMONTE
 SITE GENERATED
 TRAFFIC VOLUMES
 (PHASE 2-5)**

| | | |
|----------|--------|----------|
| MAY 2015 | 110046 | FIGURE 6 |
|----------|--------|----------|

M:\2010\110046\CAD\Design\Figures\Phase 2-5\110046-Fig2.dwg, FIG-3, May 12, 2015 - 11:03am, cvsser



- LEGEND:**
- 38' WIDE MODELS
 - 42' WIDE MODELS
 - 50' WIDE MODELS
 - SEMI DETACHED
 - FREEHOLD BUNGALOW TOWNHOUSES
 - FREEHOLD STREET TOWNHOUSES (TWO STOREY)
 - MEDIUM DENSITY (APARTMENTS)
 - STORMWATER MANAGEMENT POND
 - PARKLAND
 - PATHWAY
 - BUFFER

| | YIELD | | | | | | | TOTAL | |
|-----------------------|-----------|-----------|-----------|-----------|------------|-----------|-----------|--------|------------|
| | PHASE 1A | PHASE 1B | PHASE 1C | PHASE 2 | PHASE 3 | PHASE 4 | PHASE 5 | (m) | (ft) |
| Road Length (m) | 470.7 | 716.9 | 360.0 | 714.0 | 821.1 | 706.3 | 741.2 | 4330.2 | 14206.7 |
| Saleable Frontage (m) | 654.0 | 564.8 | 244.9 | 952.8 | 795.3 | 815.4 | 997.3 | 5054.5 | 16583.0 |
| 38' Units | 0 | 0 | 0 | 25 | 22 | 26 | 35 | | 108 |
| 42' Units | 15 | 16 | 0 | 22 | 15 | 20 | 20 | | 111 |
| 50' Units | 9 | 7 | 0 | 0 | 0 | 0 | 0 | | 16 |
| Semi Detached | 16 | 0 | 10 | 0 | 18 | 12 | 0 | | 56 |
| Street Townhouses | 12 | 27 | 14 | 38 | 6 | 18 | 31 | | 146 |
| Medium Density | 0 | 0 | 0 | 0 | 72 | 0 | 0 | | 72 |
| Total Units | 52 | 50 | 24 | 85 | 136 | 76 | 86 | | 509 |
| Park (Ha) | 1.67 | | | | | | | 1.67 | |
| SWM (Ha) | 1.15 | | | | | | | 1.15 | |

ZONING

| | R1E,R2D,R3E |
|----------------------------------|-------------|
| Interior Side Yard Setback (min) | 1.0m |
| External Side Yard Setback (min) | 3.0m |
| Front yard Setback (min) | 6.0m |
| Rear Yard Setback (min) | 7.5m |



Engineers, Planners & Landscape Architects
 Suite 200, 240 Michael Cowpland Drive
 Ottawa, Ontario, Canada K2M 1P6

Telephone (613) 254-9643
 Facsimile (613) 254-5867
 Website www.novatech-eng.com

**TOWN OF MISSISSIPPI MILLS
 MILL RUN AT ALMONTE
 CONCEPT PLAN OF SUBDIVISION**

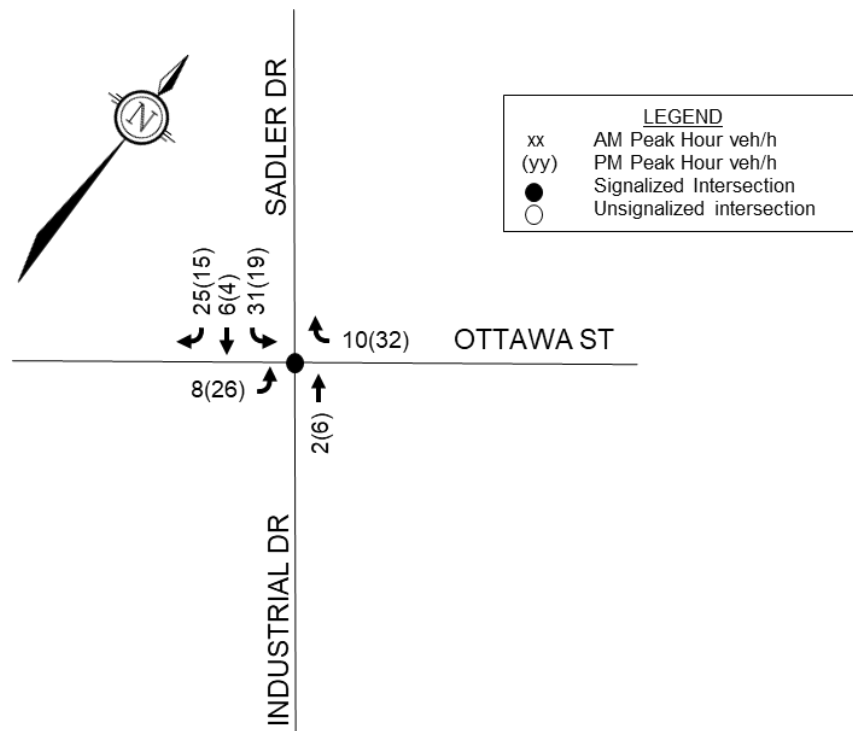
MAY 2015 110046 FIGURE 2

The assumed distribution of trips generated by the proposed development has been estimated based on the local and commuter traffic patterns. The trip distribution assumptions for trips generated by the proposed development are as follows:

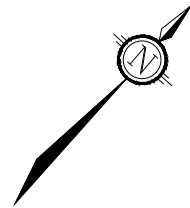
- 50% to/from the east
- 10% to/from the south
- 40% to/from the west

Using the trips generated and the assumed trip distribution the following **Figure 3** was created to show the generated turning movements at the Sadler Drive/Ottawa Street/Industrial Drive intersection. Total traffic volumes at this intersection are shown in **Figure 4**.








Figure 3: Site Generated Traffic

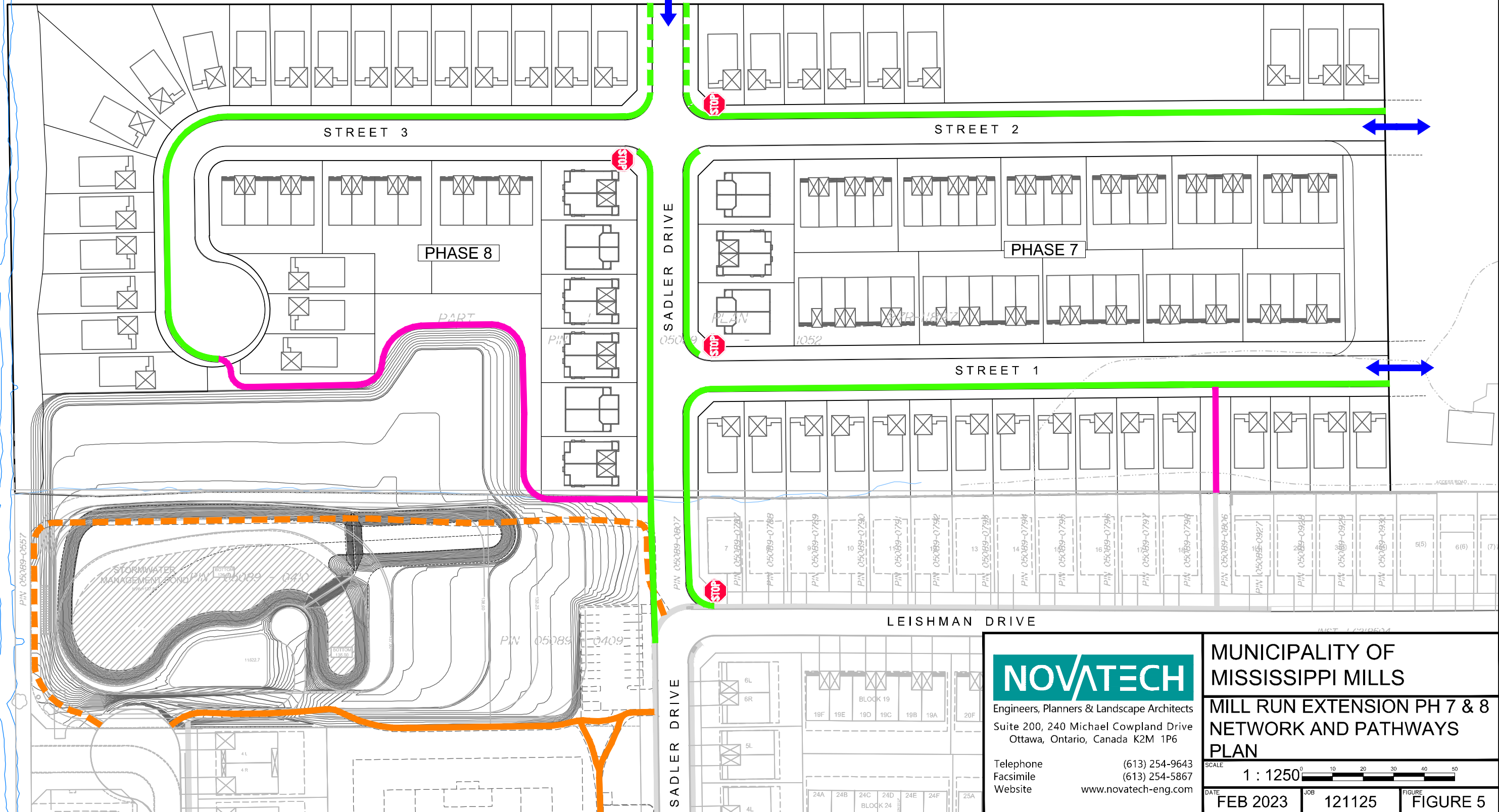


M:\2021\121125\CAD\Design\Figures\Traffic\121125-NPP.dwg, NPP, Feb 08, 2023 - 3:29pm, smatthews



LEGEND

-  PROPOSED CONCRETE SIDEWALK
-  PROPOSED FUTURE CONCRETE SIDEWALK
-  EXISTING PARK PATHWAYS
-  EXISTING PARK PATHWAYS TO BE REMOVED
-  PROPOSED PATHWAYS
-  VEHICLE CONNECTIONS TO FUTURE DEVELOPMENT LANDS
-  PROPOSED STOP SIGNS



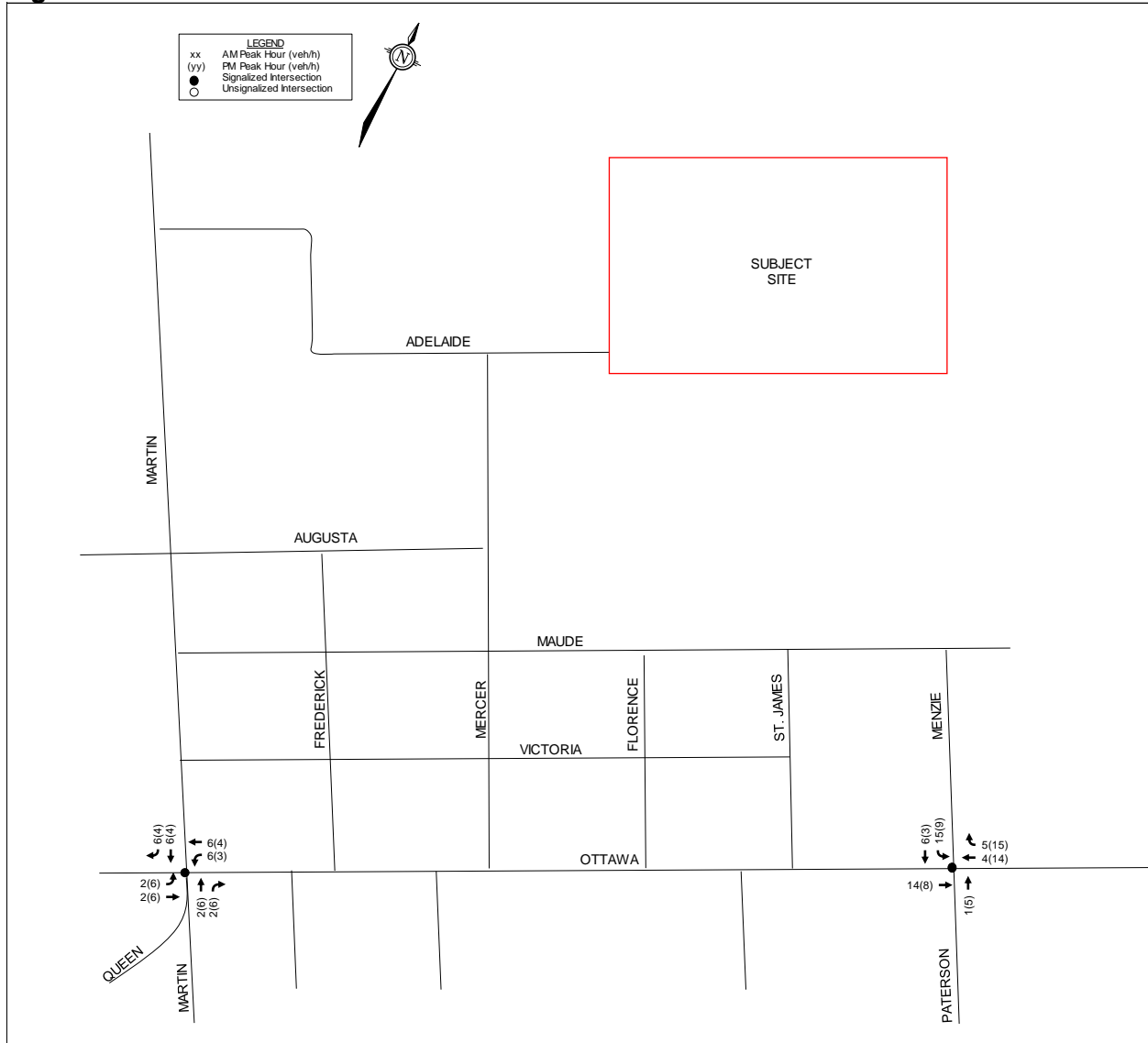
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6

Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

MUNICIPALITY OF MISSISSIPPI MILLS
MILL RUN EXTENSION PH 7 & 8
NETWORK AND PATHWAYS
PLAN

| | | |
|--------|----------|------------|
| SCALE | 1 : 1250 | |
| DATE | FEB 2023 | JOB 121125 |
| FIGURE | FIGURE 5 | |

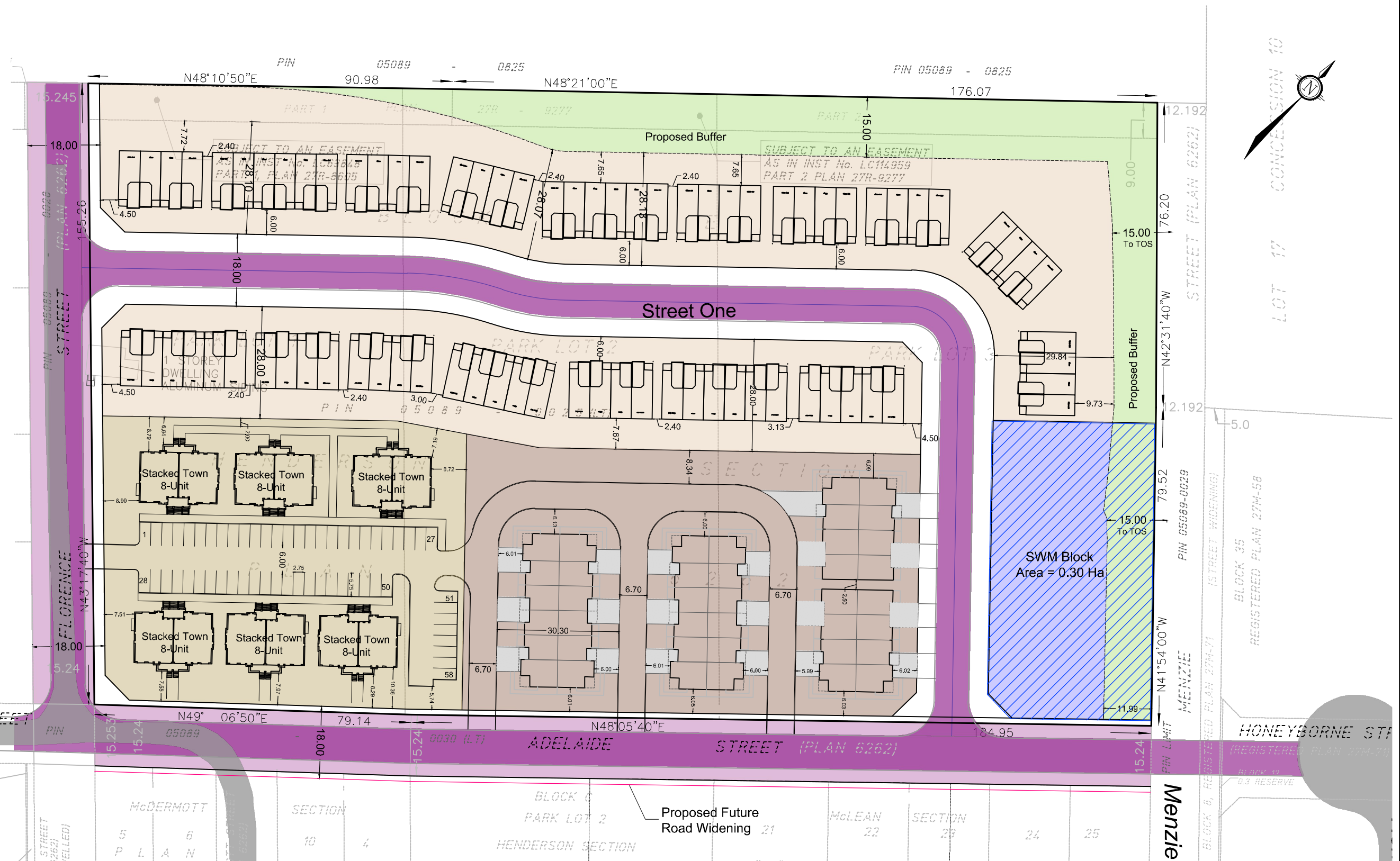
Figure 6: Site Generated Traffic Volumes



LEGEND

- Town Owned ROW
- SWM Block
- Proposed Buffer
- Proposed Roadway
- Existing Roadway

| UNIT COUNT | |
|---------------|-----|
| Unit Type | |
| 2-Storey Town | 78 |
| Stacked Town | 48 |
| Back-to-Back | 40 |
| TOTAL | 166 |



M:\2018\118201\CAD\Planning\Concept Plans\118201-CP9.dwg, 11x17 landscape, May 10, 2021 - 1:04pm, wslloss

NOVATECH
 Engineers, Planners & Landscape Architects
 Suite 200, 240 Michael Cowpland Drive
 Ottawa, Ontario, Canada K2M 1P6

Telephone (613) 254-9643
 Facsimile (613) 254-5867
 Website www.novatech-eng.com

HANNAN HILLS

CONCEPT PLAN 9

SCALE 1 : 1000

DATE MAY 2021 JOB 118201 FIGURE CP9

Using the above vehicle trip rate equations, the total vehicle trip generation during the weekday AM peak hour and weekday PM peak hour are summarized in Table 3. Given that the proposed development consists of only residential uses and this analysis is for full occupancy of the subject development, all trips are considered primary, and no synergy effects or pass-by trips have been considered.

Table 3: Vehicle Site Trip Generation

| Land Use | Units | AM Peak (veh/hr) | | | PM Peak (veh/hr) | | |
|--------------------------------|-------|------------------|------------|------------|------------------|------------|------------|
| | | In | Out | Total | In | Out | Total |
| Single Family Detached | 104 | 20 | 57 | 77 | 65 | 38 | 103 |
| Single Family Attached | 158 | 24 | 52 | 76 | 52 | 39 | 91 |
| Multifamily Housing (Low-Rise) | 185 | 19 | 61 | 80 | 63 | 37 | 100 |
| Multifamily Housing (Mid-Rise) | 48 | 2 | 8 | 10 | 12 | 7 | 19 |
| Total | | 65 | 178 | 243 | 192 | 121 | 313 |

As shown above, a total of 243 AM and 313 PM new peak hour two-way vehicle trips are projected as a result of proposed development.

3.2 Vehicle Traffic Distribution and Assignment

Traffic distribution was based on the existing volume splits at Study Area intersections and a knowledge of the area travel. Based on these factors, new site-generated trips were assigned to Study Area intersections, which is illustrated in Figure 9. Section 5.2 provides further information regarding proposed access configurations.

Figure 9: New Site-Generated Traffic Volumes

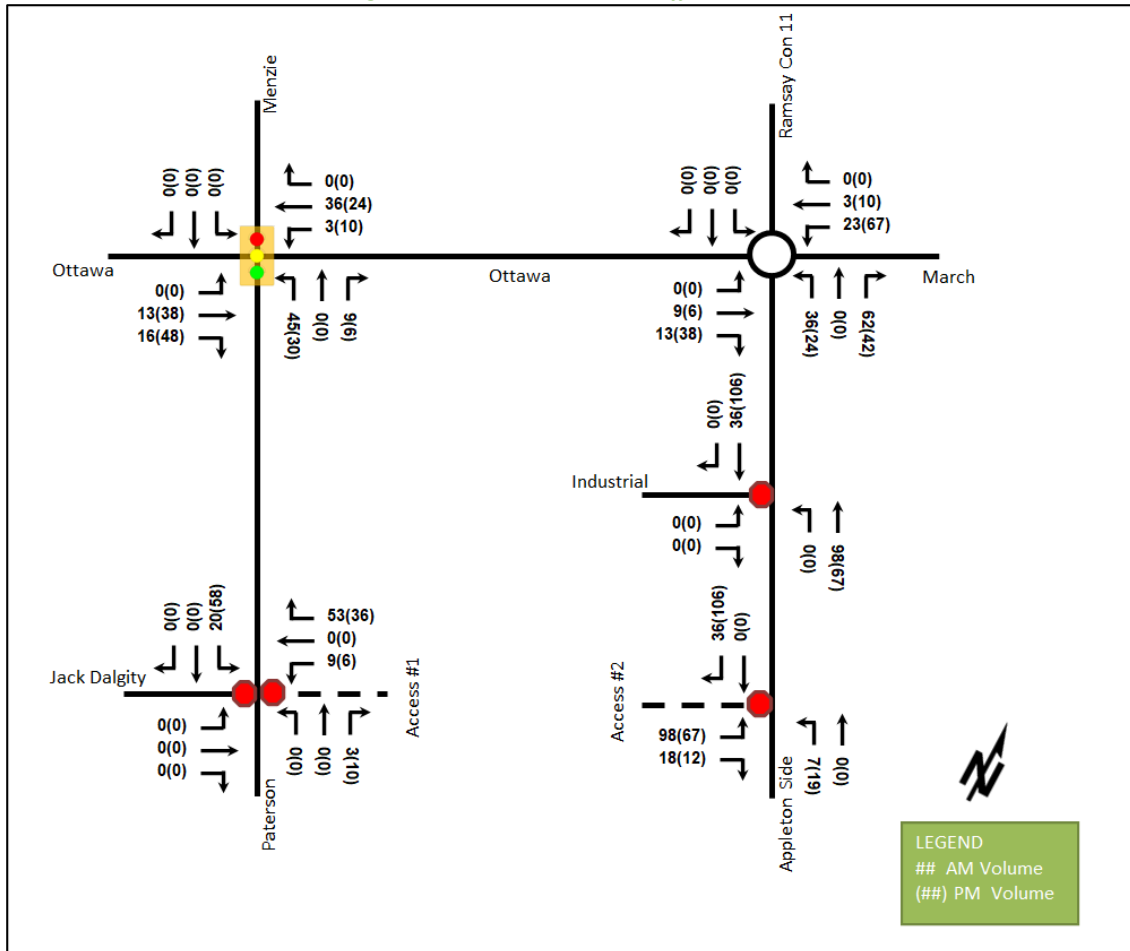


Figure 2: Concept Plan



SITE INFORMATION

ZONING: Development (D)*
 *to be rezoned as per planning rationale.

SITE AREA
 Total Site Area: 33.599ha
 Net Site Area: 15.936ha

DENSITY
 Maximum: 25units/ha
 Low Density Target: 60%
 Medium Density Target: 40%

DEVELOPMENT STATISTICS

| | |
|-------------------------|-----|
| Single Detached (35ft): | 34 |
| Single Detached (42ft): | 73 |
| Single Detached (45ft): | 72 |
| Semi Detached: | 78 |
| Townhouses: | 166 |
| Apartments: | 48 |

SUMMARY OF UNITS
 Houses: 423
 Apartments: 48
 Total: 471

DENSITIES
 Maximum: 25 units/net ha
 Provided: 29.5 units/net ha

PARKLAND DEDICATION
 Required: 75,629m² x 2% + 260,358m² x 5%
 Provided: 14,350m² 929m²

STREETS' TOTAL LENGTH
 Total length (center line): -3,750m



LEGEND

- SINGLE DETACHED (35FT / 10.65M)
- SINGLE DETACHED HOUSES (42FT / 12.8M)
- SINGLE DETACHED HOUSES (45FT / 13.72M)
- SEMI DETACHED HOUSES
- TOWNHOUSES
- APARTMENT BUILDING
- BUSINESS PARK
- PARKLAND DEDICATION
- AMENITY SPACE
- RESIDENTIAL - COMMUNITY FACILITY ZONE (OP)
- PROPERTY BOUNDARY
- SETBACKS



| No. | REVISION | DATE | BY |
|-----|------------------|------------|----|
| 7 | REVISIONS | 2022.11.10 | TS |
| 6 | REVISIONS | 2022.10.20 | TS |
| 5 | REVISIONS | 2022.10.18 | TS |
| 4 | REVISIONS | 2021.10.07 | RJ |
| 4 | REVISIONS | 2021.09.28 | TS |
| 2 | REVISIONS | 2021.06.21 | TS |
| 2 | REVISIONS | 2021.06.21 | TS |
| 1 | SUBDIVISION PLAN | 2021.06.13 | TS |
| 0 | BASE PLAN | 2022.06.06 | RP |

CLIENT

MILL VALLEY ESTATES

FOTENN

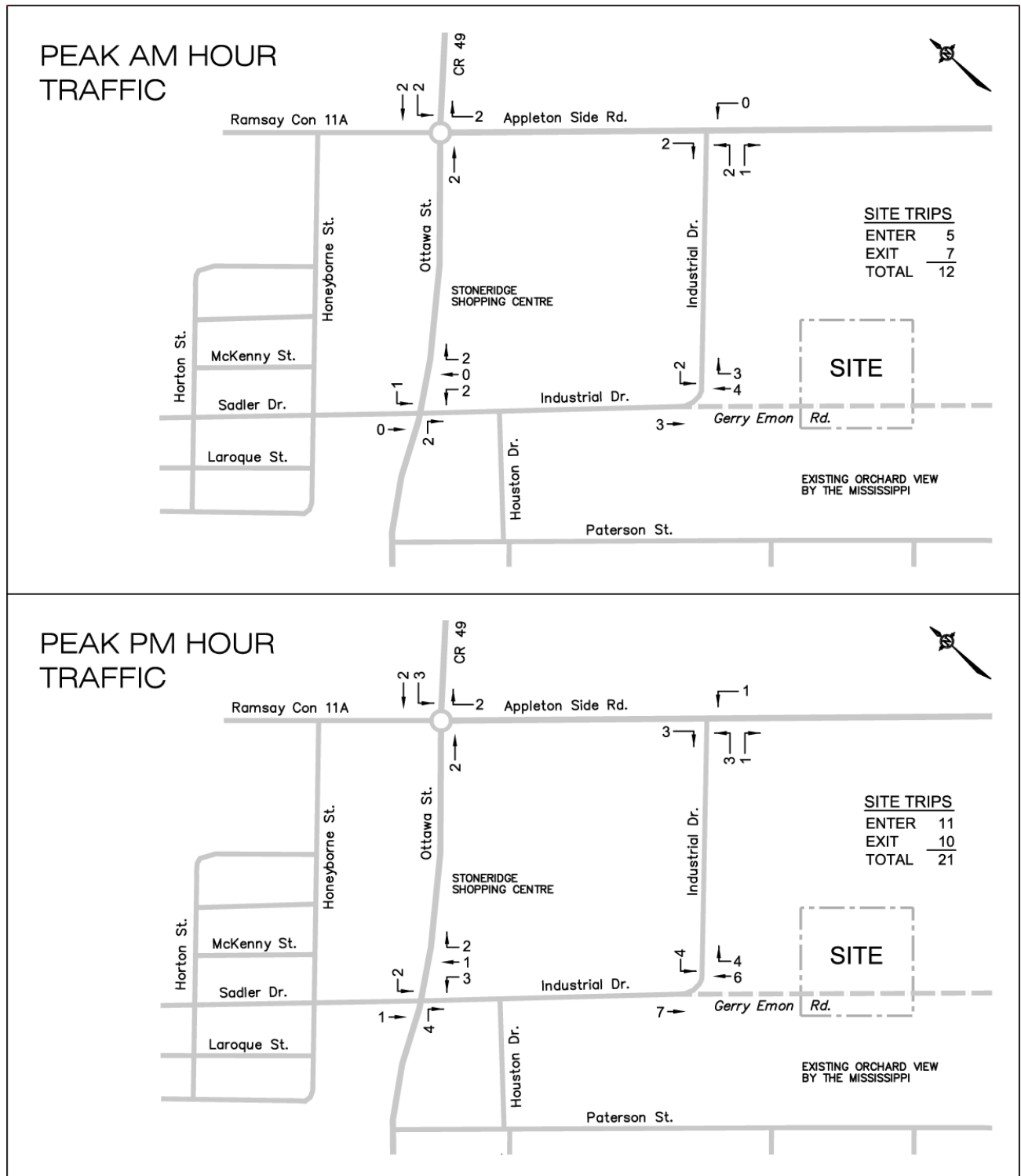
Planning + Design

396 Cooper Street, Suite 300, Ottawa ON K2P 2H7
 613.730.5709 www.fotenn.com

| | |
|----------|------------|
| DESIGNED | TS |
| REVIEWED | RP |
| DATE | 2022.06.06 |

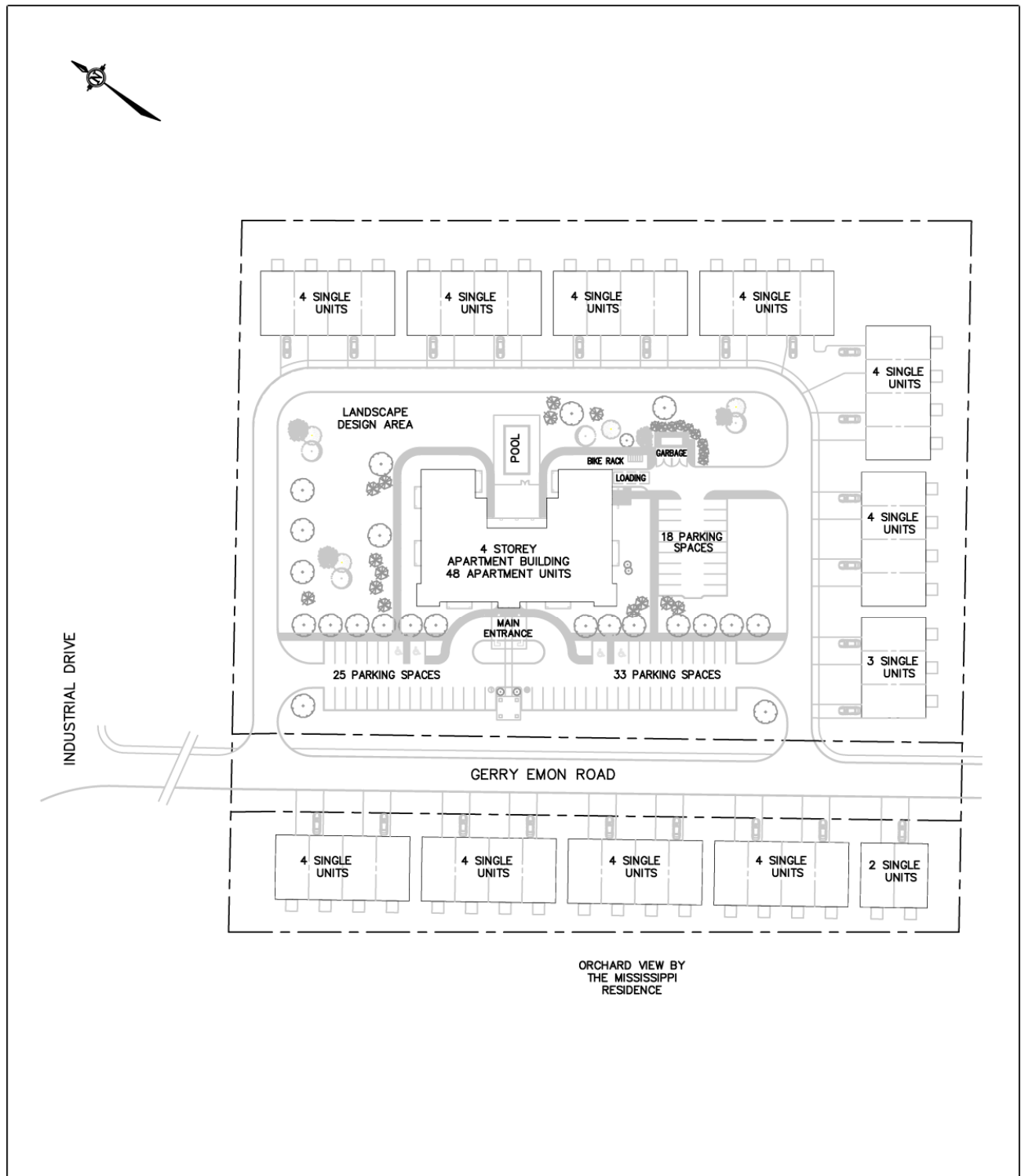
P1

**FIGURE 4.1
 PEAK AM AND PM HOUR SITE GENERATED TRIPS**



NOT TO SCALE

**FIGURE 3.1
CONCEPTUAL SITE PLAN**



NOT TO SCALE

APPENDIX D

Synchro Reports

Operational Data

Main Geometry (m)

Approach and Entry Geometry

| Leg | Leg Names | Approach Bearing (deg) | Grade Separation G | Half Width V | Approach Lanes n | Entry Width E | Entry Lanes n | Flare Length L' | Entry Radius R | Entry Angle Phi |
|-----|------------------|------------------------|--------------------|--------------|------------------|---------------|---------------|-----------------|----------------|-----------------|
| 1 | Ramsay Conc | 0 | 0 | 3.40 | 1 | 4.80 | 1 | 20.00 | 32.00 | 20.00 |
| 2 | Ottawa St | 90 | 0 | 6.60 | 2 | 8.54 | 2 | 14.70 | 31.00 | 20.00 |
| 3 | Appleton Side Rd | 180 | 0 | 3.40 | 1 | 5.40 | 1 | 22.00 | 36.50 | 20.00 |
| 4 | March Rd | 270 | 0 | 6.80 | 2 | 8.54 | 2 | 14.70 | 27.00 | 20.00 |

Circulating and Exit Geometry

| Leg | Leg Names | Inscribed Diameter D | Circulating Width C | Circulating Lanes nc | Exit Width Ex | Exit Lanes nex | Exit Half Width Vx | Exit Half Width Lanes nvx |
|-----|------------------|----------------------|---------------------|----------------------|---------------|----------------|--------------------|---------------------------|
| 1 | Ramsay Conc | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 2 | Ottawa St | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |
| 3 | Appleton Side Rd | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 4 | March Rd | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |

Capacity Modifiers and Capacity Calibration (veh/hr)

| Leg | Leg Names | Entry Capacity | | Entry Calibration | | Approach Road | | | Exit Road | | |
|-----|------------------|-----------------|--------------|-------------------|--------------|---------------|------------------|----------------|-----------|------------------|----------------|
| | | Capacity + or - | XWalk Factor | Intercept + or - | Slope Factor | V (m) | Default Capacity | Calib Capacity | V (m) | Default Capacity | Calib Capacity |
| 1 | Ramsay Conc | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 2 | Ottawa St | 0 | 1.000 | 0 | 1.000 | 6.00 | 3234 | 0 | 6.50 | 3185 | 0 |
| 3 | Appleton Side Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 4 | March Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 3332 | 0 | 6.50 | 3185 | 0 |

Traffic Flow Data (veh/hr)

2023 AM Peak Peak Hour Flows

| Leg | Leg Names | Turning Flows | | | | | Flow Modifiers | | |
|-----|------------------|---------------|--------|--------|--------|--------|----------------|-------------|------------------|
| | | U-Turn | Exit-3 | Exit-2 | Exit-1 | Bypass | Trucks % | Flow Factor | Peak Hour Factor |
| 1 | Ramsay Conc | 0 | 26 | 11 | 17 | 0 | 4.0 | 1.00 | 0.900 |
| 2 | Ottawa St | 3 | 5 | 348 | 37 | 0 | 6.0 | 1.00 | 0.900 |
| 3 | Appleton Side Rd | 0 | 44 | 7 | 41 | 0 | 6.0 | 1.00 | 0.900 |
| 4 | March Rd | 1 | 30 | 271 | 15 | 0 | 5.0 | 1.00 | 0.900 |

Operational Results

2023 AM Peak - 60 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 54 | | 349 | | 27 | 917 | | 0.0589 | |
| 2 | Ottawa St | None | 393 | | 68 | | 335 | 2007 | | 0.1958 | |
| 3 | Appleton Side Rd | None | 92 | | 383 | | 78 | 874 | | 0.1052 | |
| 4 | March Rd | None | 317 | | 59 | | 416 | 2071 | | 0.1530 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 4.17 | | 4.17 | 0.19 | | A | | A |
| 2 | Ottawa St | None | 2.27 | | 2.27 | 0.75 | | A | | A |
| 3 | Appleton Side Rd | None | 4.49 | | 4.49 | 0.35 | | A | | A |
| 4 | March Rd | None | 2.13 | | 2.13 | 0.57 | | A | | A |

2023 AM Peak - 15 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 60 | | 388 | | 30 | 901 | | 0.0666 | |
| 2 | Ottawa St | None | 437 | | 76 | | 372 | 1999 | | 0.2184 | |
| 3 | Appleton Side Rd | None | 102 | | 425 | | 87 | 858 | | 0.1192 | |
| 4 | March Rd | None | 352 | | 66 | | 462 | 2065 | | 0.1706 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 4.11 | | 4.11 | 0.19 | | A | | A |
| 2 | Ottawa St | None | 2.25 | | 2.25 | 0.75 | | A | | A |
| 3 | Appleton Side Rd | None | 4.46 | | 4.46 | 0.35 | | A | | A |
| 4 | March Rd | None | 2.11 | | 2.11 | 0.57 | | A | | A |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 14 | 20 | 26 | 55 | 59 | 15 |
| Future Volume (Veh/h) | 14 | 20 | 26 | 55 | 59 | 15 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 16 | 22 | 29 | 61 | 66 | 17 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage (veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 194 | 74 | 83 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 194 | 74 | 83 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 98 | 98 | 98 | | | |
| cM capacity (veh/h) | 780 | 987 | 1514 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 38 | 90 | 83 | | | |
| Volume Left | 16 | 29 | 0 | | | |
| Volume Right | 22 | 0 | 17 | | | |
| cSH | 888 | 1514 | 1700 | | | |
| Volume to Capacity | 0.04 | 0.02 | 0.05 | | | |
| Queue Length 95th (m) | 1.0 | 0.4 | 0.0 | | | |
| Control Delay (s) | 9.2 | 2.5 | 0.0 | | | |
| Lane LOS | A | A | | | | |
| Approach Delay (s) | 9.2 | 2.5 | 0.0 | | | |
| Approach LOS | A | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 2.7 | | | |
| Intersection Capacity Utilization | | | 21.2% | ICU Level of Service | A | |
| Analysis Period (min) | | | 15 | | | |

Operational Data

Main Geometry (m)

Approach and Entry Geometry

| Leg | Leg Names | Approach Bearing (deg) | Grade Separation G | Half Width V | Approach Lanes n | Entry Width E | Entry Lanes n | Flare Length L' | Entry Radius R | Entry Angle Phi |
|-----|------------------|------------------------|--------------------|--------------|------------------|---------------|---------------|-----------------|----------------|-----------------|
| 1 | Ramsay Conc | 0 | 0 | 3.40 | 1 | 4.80 | 1 | 20.00 | 32.00 | 20.00 |
| 2 | Ottawa St | 90 | 0 | 6.60 | 2 | 8.54 | 2 | 14.70 | 31.00 | 20.00 |
| 3 | Appleton Side Rd | 180 | 0 | 3.40 | 1 | 5.40 | 1 | 22.00 | 36.50 | 20.00 |
| 4 | March Rd | 270 | 0 | 6.80 | 2 | 8.54 | 2 | 14.70 | 27.00 | 20.00 |

Circulating and Exit Geometry

| Leg | Leg Names | Inscribed Diameter D | Circulating Width C | Circulating Lanes nc | Exit Width Ex | Exit Lanes nex | Exit Half Width Vx | Exit Half Width Lanes nvx |
|-----|------------------|----------------------|---------------------|----------------------|---------------|----------------|--------------------|---------------------------|
| 1 | Ramsay Conc | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 2 | Ottawa St | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |
| 3 | Appleton Side Rd | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 4 | March Rd | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |

Capacity Modifiers and Capacity Calibration (veh/hr)

| Leg | Leg Names | Entry Capacity | | Entry Calibration | | Approach Road | | | Exit Road | | |
|-----|------------------|-----------------|--------------|-------------------|--------------|---------------|------------------|----------------|-----------|------------------|----------------|
| | | Capacity + or - | XWalk Factor | Intercept + or - | Slope Factor | V (m) | Default Capacity | Calib Capacity | V (m) | Default Capacity | Calib Capacity |
| 1 | Ramsay Conc | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 2 | Ottawa St | 0 | 1.000 | 0 | 1.000 | 6.00 | 3234 | 0 | 6.50 | 3185 | 0 |
| 3 | Appleton Side Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 4 | March Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 3332 | 0 | 6.50 | 3185 | 0 |

Traffic Flow Data (veh/hr)

2023 PM Peak Peak Hour Flows

| Leg | Leg Names | Turning Flows | | | | | Flow Modifiers | | |
|-----|------------------|---------------|--------|--------|--------|--------|----------------|-------------|------------------|
| | | U-Turn | Exit-3 | Exit-2 | Exit-1 | Bypass | Trucks % | Flow Factor | Peak Hour Factor |
| 1 | Ramsay Conc | 0 | 19 | 15 | 17 | 0 | 4.0 | 1.00 | 0.900 |
| 2 | Ottawa St | 6 | 11 | 332 | 62 | 0 | 6.0 | 1.00 | 0.900 |
| 3 | Appleton Side Rd | 0 | 67 | 12 | 35 | 0 | 6.0 | 1.00 | 0.900 |
| 4 | March Rd | 0 | 56 | 555 | 46 | 0 | 5.0 | 1.00 | 0.900 |

Operational Results

2023 PM Peak - 60 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 51 | | 684 | | 69 | 782 | | 0.0652 | |
| 2 | Ottawa St | None | 411 | | 90 | | 645 | 1984 | | 0.2071 | |
| 3 | Appleton Side Rd | None | 114 | | 368 | | 133 | 880 | | 0.1295 | |
| 4 | March Rd | None | 657 | | 96 | | 386 | 2033 | | 0.3232 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 4.92 | | 4.92 | 0.22 | | A | | A |
| 2 | Ottawa St | None | 2.48 | | 2.48 | 0.86 | | A | | A |
| 3 | Appleton Side Rd | None | 4.57 | | 4.57 | 0.44 | | A | | A |
| 4 | March Rd | None | 2.64 | | 2.64 | 1.49 | | A | | A |

2023 PM Peak - 15 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 57 | | 760 | | 77 | 751 | | 0.0754 | |
| 2 | Ottawa St | None | 457 | | 100 | | 716 | 1974 | | 0.2313 | |
| 3 | Appleton Side Rd | None | 127 | | 409 | | 148 | 864 | | 0.1466 | |
| 4 | March Rd | None | 730 | | 107 | | 429 | 2022 | | 0.3611 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 4.94 | | 4.94 | 0.22 | | A | | A |
| 2 | Ottawa St | None | 2.46 | | 2.46 | 0.86 | | A | | A |
| 3 | Appleton Side Rd | None | 4.55 | | 4.55 | 0.44 | | A | | A |
| 4 | March Rd | None | 2.67 | | 2.67 | 1.49 | | A | | A |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 13 | 21 | 35 | 72 | 107 | 27 |
| Future Volume (Veh/h) | 13 | 21 | 35 | 72 | 107 | 27 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 14 | 23 | 39 | 80 | 119 | 30 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage (veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 292 | 134 | 149 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 292 | 134 | 149 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 98 | 97 | 97 | | | |
| cM capacity (veh/h) | 680 | 915 | 1432 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 37 | 119 | 149 | | | |
| Volume Left | 14 | 39 | 0 | | | |
| Volume Right | 23 | 0 | 30 | | | |
| cSH | 809 | 1432 | 1700 | | | |
| Volume to Capacity | 0.05 | 0.03 | 0.09 | | | |
| Queue Length 95th (m) | 1.1 | 0.6 | 0.0 | | | |
| Control Delay (s) | 9.7 | 2.6 | 0.0 | | | |
| Lane LOS | A | A | | | | |
| Approach Delay (s) | 9.7 | 2.6 | 0.0 | | | |
| Approach LOS | A | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 2.2 | | | |
| Intersection Capacity Utilization | | | 27.1% | ICU Level of Service | A | |
| Analysis Period (min) | | | 15 | | | |

Operational Data

Main Geometry (m)

Approach and Entry Geometry

| Leg | Leg Names | Approach Bearing (deg) | Grade Separation G | Half Width V | Approach Lanes n | Entry Width E | Entry Lanes n | Flare Length L' | Entry Radius R | Entry Angle Phi |
|-----|------------------|------------------------|--------------------|--------------|------------------|---------------|---------------|-----------------|----------------|-----------------|
| 1 | Ramsay Conc | 0 | 0 | 3.40 | 1 | 4.80 | 1 | 20.00 | 32.00 | 20.00 |
| 2 | Ottawa St | 90 | 0 | 6.60 | 2 | 8.54 | 2 | 14.70 | 31.00 | 20.00 |
| 3 | Appleton Side Rd | 180 | 0 | 3.40 | 1 | 5.40 | 1 | 22.00 | 36.50 | 20.00 |
| 4 | March Rd | 270 | 0 | 6.80 | 2 | 8.54 | 2 | 14.70 | 27.00 | 20.00 |

Circulating and Exit Geometry

| Leg | Leg Names | Inscribed Diameter D | Circulating Width C | Circulating Lanes nc | Exit Width Ex | Exit Lanes nex | Exit Half Width Vx | Exit Half Width Lanes nvx |
|-----|------------------|----------------------|---------------------|----------------------|---------------|----------------|--------------------|---------------------------|
| 1 | Ramsay Conc | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 2 | Ottawa St | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |
| 3 | Appleton Side Rd | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 4 | March Rd | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |

Capacity Modifiers and Capacity Calibration (veh/hr)

| Leg | Leg Names | Entry Capacity | | Entry Calibration | | Approach Road | | | Exit Road | | |
|-----|------------------|-----------------|--------------|-------------------|--------------|---------------|------------------|----------------|-----------|------------------|----------------|
| | | Capacity + or - | XWalk Factor | Intercept + or - | Slope Factor | V (m) | Default Capacity | Calib Capacity | V (m) | Default Capacity | Calib Capacity |
| 1 | Ramsay Conc | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 2 | Ottawa St | 0 | 1.000 | 0 | 1.000 | 6.00 | 3234 | 0 | 6.50 | 3185 | 0 |
| 3 | Appleton Side Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 4 | March Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 3332 | 0 | 6.50 | 3185 | 0 |

Traffic Flow Data (veh/hr)

2025 AM Peak Peak Hour Flows

| Leg | Leg Names | Turning Flows | | | | | Flow Modifiers | | |
|-----|------------------|---------------|--------|--------|--------|--------|----------------|-------------|------------------|
| | | U-Turn | Exit-3 | Exit-2 | Exit-1 | Bypass | Trucks % | Flow Factor | Peak Hour Factor |
| 1 | Ramsay Conc | 0 | 28 | 11 | 18 | 0 | 4.0 | 1.00 | 0.900 |
| 2 | Ottawa St | 0 | 9 | 371 | 38 | 0 | 6.0 | 1.00 | 0.900 |
| 3 | Appleton Side Rd | 0 | 46 | 7 | 45 | 0 | 6.0 | 1.00 | 0.900 |
| 4 | March Rd | 0 | 34 | 286 | 17 | 0 | 5.0 | 1.00 | 0.900 |

Operational Results

2025 AM Peak - 60 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 57 | | 366 | | 33 | 910 | | 0.0627 | |
| 2 | Ottawa St | None | 418 | | 73 | | 350 | 2002 | | 0.2088 | |
| 3 | Appleton Side Rd | None | 98 | | 408 | | 83 | 865 | | 0.1133 | |
| 4 | March Rd | None | 337 | | 62 | | 444 | 2068 | | 0.1629 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 4.21 | | 4.21 | 0.20 | | A | | A |
| 2 | Ottawa St | None | 2.30 | | 2.30 | 0.81 | | A | | A |
| 3 | Appleton Side Rd | None | 4.58 | | 4.58 | 0.38 | | A | | A |
| 4 | March Rd | None | 2.16 | | 2.16 | 0.61 | | A | | A |

2025 AM Peak - 15 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 63 | | 407 | | 37 | 893 | | 0.0709 | |
| 2 | Ottawa St | None | 464 | | 81 | | 389 | 1993 | | 0.2330 | |
| 3 | Appleton Side Rd | None | 109 | | 453 | | 92 | 847 | | 0.1286 | |
| 4 | March Rd | None | 374 | | 69 | | 493 | 2061 | | 0.1817 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 4.17 | | 4.17 | 0.20 | | A | | A |
| 2 | Ottawa St | None | 2.29 | | 2.29 | 0.81 | | A | | A |
| 3 | Appleton Side Rd | None | 4.55 | | 4.55 | 0.38 | | A | | A |
| 4 | March Rd | None | 2.14 | | 2.14 | 0.61 | | A | | A |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 16 | 21 | 26 | 57 | 61 | 17 |
| Future Volume (Veh/h) | 16 | 21 | 26 | 57 | 61 | 17 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 18 | 23 | 29 | 63 | 68 | 19 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage (veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 198 | 78 | 87 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 198 | 78 | 87 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 98 | 98 | 98 | | | |
| cM capacity (veh/h) | 775 | 983 | 1509 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 41 | 92 | 87 | | | |
| Volume Left | 18 | 29 | 0 | | | |
| Volume Right | 23 | 0 | 19 | | | |
| cSH | 880 | 1509 | 1700 | | | |
| Volume to Capacity | 0.05 | 0.02 | 0.05 | | | |
| Queue Length 95th (m) | 1.1 | 0.4 | 0.0 | | | |
| Control Delay (s) | 9.3 | 2.4 | 0.0 | | | |
| Lane LOS | A | A | | | | |
| Approach Delay (s) | 9.3 | 2.4 | 0.0 | | | |
| Approach LOS | A | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 2.8 | | | |
| Intersection Capacity Utilization | | | 21.4% | ICU Level of Service | A | |
| Analysis Period (min) | | | 15 | | | |

Operational Data

Main Geometry (m)

Approach and Entry Geometry

| Leg | Leg Names | Approach Bearing (deg) | Grade Separation G | Half Width V | Approach Lanes n | Entry Width E | Entry Lanes n | Flare Length L' | Entry Radius R | Entry Angle Phi |
|-----|------------------|------------------------|--------------------|--------------|------------------|---------------|---------------|-----------------|----------------|-----------------|
| 1 | Ramsay Conc | 0 | 0 | 3.40 | 1 | 4.80 | 1 | 20.00 | 32.00 | 20.00 |
| 2 | Ottawa St | 90 | 0 | 6.60 | 2 | 8.54 | 2 | 14.70 | 31.00 | 20.00 |
| 3 | Appleton Side Rd | 180 | 0 | 3.40 | 1 | 5.40 | 1 | 22.00 | 36.50 | 20.00 |
| 4 | March Rd | 270 | 0 | 6.80 | 2 | 8.54 | 2 | 14.70 | 27.00 | 20.00 |

Circulating and Exit Geometry

| Leg | Leg Names | Inscribed Diameter D | Circulating Width C | Circulating Lanes nc | Exit Width Ex | Exit Lanes nex | Exit Half Width Vx | Exit Half Width Lanes nvx |
|-----|------------------|----------------------|---------------------|----------------------|---------------|----------------|--------------------|---------------------------|
| 1 | Ramsay Conc | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 2 | Ottawa St | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |
| 3 | Appleton Side Rd | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 4 | March Rd | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |

Capacity Modifiers and Capacity Calibration (veh/hr)

| Leg | Leg Names | Entry Capacity | | Entry Calibration | | Approach Road | | | Exit Road | | |
|-----|------------------|-----------------|--------------|-------------------|--------------|---------------|------------------|----------------|-----------|------------------|----------------|
| | | Capacity + or - | XWalk Factor | Intercept + or - | Slope Factor | V (m) | Default Capacity | Calib Capacity | V (m) | Default Capacity | Calib Capacity |
| 1 | Ramsay Conc | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 2 | Ottawa St | 0 | 1.000 | 0 | 1.000 | 6.00 | 3234 | 0 | 6.50 | 3185 | 0 |
| 3 | Appleton Side Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 4 | March Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 3332 | 0 | 6.50 | 3185 | 0 |

Traffic Flow Data (veh/hr)

2025 PM Peak Peak Hour Flows

| Leg | Leg Names | Turning Flows | | | | | Flow Modifiers | | |
|-----|------------------|---------------|--------|--------|--------|--------|----------------|-------------|------------------|
| | | U-Turn | Exit-3 | Exit-2 | Exit-1 | Bypass | Trucks % | Flow Factor | Peak Hour Factor |
| 1 | Ramsay Conc | 0 | 26 | 16 | 19 | 0 | 4.0 | 1.00 | 0.900 |
| 2 | Ottawa St | 0 | 19 | 345 | 64 | 0 | 6.0 | 1.00 | 0.900 |
| 3 | Appleton Side Rd | 0 | 70 | 13 | 38 | 0 | 6.0 | 1.00 | 0.900 |
| 4 | March Rd | 0 | 61 | 587 | 53 | 0 | 5.0 | 1.00 | 0.900 |

Operational Results

2025 PM Peak - 60 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 61 | | 718 | | 85 | 768 | | 0.0794 | |
| 2 | Ottawa St | None | 428 | | 103 | | 676 | 1971 | | 0.2171 | |
| 3 | Appleton Side Rd | None | 121 | | 390 | | 141 | 872 | | 0.1388 | |
| 4 | March Rd | None | 701 | | 102 | | 409 | 2027 | | 0.3459 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 5.08 | | 5.08 | 0.27 | | A | | A |
| 2 | Ottawa St | None | 2.52 | | 2.52 | 0.91 | | A | | A |
| 3 | Appleton Side Rd | None | 4.66 | | 4.66 | 0.48 | | A | | A |
| 4 | March Rd | None | 2.74 | | 2.74 | 1.65 | | A | | A |

2025 PM Peak - 15 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 68 | | 798 | | 94 | 736 | | 0.0921 | |
| 2 | Ottawa St | None | 476 | | 114 | | 751 | 1960 | | 0.2427 | |
| 3 | Appleton Side Rd | None | 134 | | 433 | | 157 | 855 | | 0.1573 | |
| 4 | March Rd | None | 779 | | 113 | | 454 | 2015 | | 0.3866 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 5.12 | | 5.12 | 0.27 | | A | | A |
| 2 | Ottawa St | None | 2.51 | | 2.51 | 0.91 | | A | | A |
| 3 | Appleton Side Rd | None | 4.65 | | 4.65 | 0.48 | | A | | A |
| 4 | March Rd | None | 2.78 | | 2.78 | 1.65 | | A | | A |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 16 | 22 | 36 | 76 | 112 | 30 |
| Future Volume (Veh/h) | 16 | 22 | 36 | 76 | 112 | 30 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 18 | 24 | 40 | 84 | 124 | 33 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 304 | 140 | 157 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 304 | 140 | 157 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 97 | 97 | 97 | | | |
| cM capacity (veh/h) | 668 | 907 | 1423 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 42 | 124 | 157 | | | |
| Volume Left | 18 | 40 | 0 | | | |
| Volume Right | 24 | 0 | 33 | | | |
| cSH | 787 | 1423 | 1700 | | | |
| Volume to Capacity | 0.05 | 0.03 | 0.09 | | | |
| Queue Length 95th (m) | 1.3 | 0.7 | 0.0 | | | |
| Control Delay (s) | 9.8 | 2.6 | 0.0 | | | |
| Lane LOS | A | A | | | | |
| Approach Delay (s) | 9.8 | 2.6 | 0.0 | | | |
| Approach LOS | A | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 2.3 | | | |
| Intersection Capacity Utilization | | | 27.8% | ICU Level of Service | A | |
| Analysis Period (min) | | | 15 | | | |

Operational Data

Main Geometry (m)

Approach and Entry Geometry

| Leg | Leg Names | Approach Bearing (deg) | Grade Separation G | Half Width V | Approach Lanes n | Entry Width E | Entry Lanes n | Flare Length L' | Entry Radius R | Entry Angle Phi |
|-----|------------------|------------------------|--------------------|--------------|------------------|---------------|---------------|-----------------|----------------|-----------------|
| 1 | Ramsay Conc | 0 | 0 | 3.40 | 1 | 4.80 | 1 | 20.00 | 32.00 | 20.00 |
| 2 | Ottawa St | 90 | 0 | 6.60 | 2 | 8.54 | 2 | 14.70 | 31.00 | 20.00 |
| 3 | Appleton Side Rd | 180 | 0 | 3.40 | 1 | 5.40 | 1 | 22.00 | 36.50 | 20.00 |
| 4 | March Rd | 270 | 0 | 6.80 | 2 | 8.54 | 2 | 14.70 | 27.00 | 20.00 |

Circulating and Exit Geometry

| Leg | Leg Names | Inscribed Diameter D | Circulating Width C | Circulating Lanes nc | Exit Width Ex | Exit Lanes nex | Exit Half Width Vx | Exit Half Width Lanes nvx |
|-----|------------------|----------------------|---------------------|----------------------|---------------|----------------|--------------------|---------------------------|
| 1 | Ramsay Conc | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 2 | Ottawa St | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |
| 3 | Appleton Side Rd | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 4 | March Rd | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |

Capacity Modifiers and Capacity Calibration (veh/hr)

| Leg | Leg Names | Entry Capacity | | Entry Calibration | | Approach Road | | | Exit Road | | |
|-----|------------------|-----------------|--------------|-------------------|--------------|---------------|------------------|----------------|-----------|------------------|----------------|
| | | Capacity + or - | XWalk Factor | Intercept + or - | Slope Factor | V (m) | Default Capacity | Calib Capacity | V (m) | Default Capacity | Calib Capacity |
| 1 | Ramsay Conc | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 2 | Ottawa St | 0 | 1.000 | 0 | 1.000 | 6.00 | 3234 | 0 | 6.50 | 3185 | 0 |
| 3 | Appleton Side Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 4 | March Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 3332 | 0 | 6.50 | 3185 | 0 |

Traffic Flow Data (veh/hr)

2035 AM Peak Peak Hour Flows

| Leg | Leg Names | Turning Flows | | | | | Flow Modifiers | | |
|-----|------------------|---------------|--------|--------|--------|--------|----------------|-------------|------------------|
| | | U-Turn | Exit-3 | Exit-2 | Exit-1 | Bypass | Trucks % | Flow Factor | Peak Hour Factor |
| 1 | Ramsay Conc | 0 | 28 | 11 | 18 | 0 | 4.0 | 1.00 | 0.900 |
| 2 | Ottawa St | 0 | 9 | 510 | 59 | 0 | 6.0 | 1.00 | 0.900 |
| 3 | Appleton Side Rd | 0 | 91 | 9 | 115 | 0 | 6.0 | 1.00 | 0.900 |
| 4 | March Rd | 0 | 63 | 362 | 17 | 0 | 5.0 | 1.00 | 0.900 |

Operational Results

2035 AM Peak - 60 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 57 | | 516 | | 35 | 849 | | 0.0671 | |
| 2 | Ottawa St | None | 578 | | 102 | | 471 | 1972 | | 0.2931 | |
| 3 | Appleton Side Rd | None | 215 | | 547 | | 133 | 810 | | 0.2654 | |
| 4 | March Rd | None | 442 | | 109 | | 653 | 2019 | | 0.2189 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 4.53 | | 4.53 | 0.22 | | A | | A |
| 2 | Ottawa St | None | 2.62 | | 2.62 | 1.29 | | A | | A |
| 3 | Appleton Side Rd | None | 5.82 | | 5.82 | 1.09 | | A | | A |
| 4 | March Rd | None | 2.48 | | 2.48 | 0.93 | | A | | A |

2035 AM Peak - 15 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 63 | | 573 | | 39 | 826 | | 0.0767 | |
| 2 | Ottawa St | None | 642 | | 113 | | 523 | 1961 | | 0.3275 | |
| 3 | Appleton Side Rd | None | 239 | | 608 | | 148 | 786 | | 0.3038 | |
| 4 | March Rd | None | 491 | | 121 | | 725 | 2007 | | 0.2447 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 4.51 | | 4.51 | 0.22 | | A | | A |
| 2 | Ottawa St | None | 2.64 | | 2.64 | 1.29 | | A | | A |
| 3 | Appleton Side Rd | None | 5.94 | | 5.94 | 1.09 | | A | | A |
| 4 | March Rd | None | 2.47 | | 2.47 | 0.93 | | A | | A |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 16 | 21 | 26 | 166 | 109 | 17 |
| Future Volume (Veh/h) | 16 | 21 | 26 | 166 | 109 | 17 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 18 | 23 | 29 | 184 | 121 | 19 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage (veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 372 | 130 | 140 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 372 | 130 | 140 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 97 | 97 | 98 | | | |
| cM capacity (veh/h) | 616 | 919 | 1443 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 41 | 213 | 140 | | | |
| Volume Left | 18 | 29 | 0 | | | |
| Volume Right | 23 | 0 | 19 | | | |
| cSH | 756 | 1443 | 1700 | | | |
| Volume to Capacity | 0.05 | 0.02 | 0.08 | | | |
| Queue Length 95th (m) | 1.3 | 0.5 | 0.0 | | | |
| Control Delay (s) | 10.0 | 1.2 | 0.0 | | | |
| Lane LOS | B | A | | | | |
| Approach Delay (s) | 10.0 | 1.2 | 0.0 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 1.7 | | | |
| Intersection Capacity Utilization | | | 31.2% | ICU Level of Service | A | |
| Analysis Period (min) | | | 15 | | | |

Operational Data

Main Geometry (m)

Approach and Entry Geometry

| Leg | Leg Names | Approach Bearing (deg) | Grade Separation G | Half Width V | Approach Lanes n | Entry Width E | Entry Lanes n | Flare Length L' | Entry Radius R | Entry Angle Phi |
|-----|------------------|------------------------|--------------------|--------------|------------------|---------------|---------------|-----------------|----------------|-----------------|
| 1 | Ramsay Conc | 0 | 0 | 3.40 | 1 | 4.80 | 1 | 20.00 | 32.00 | 20.00 |
| 2 | Ottawa St | 90 | 0 | 6.60 | 2 | 8.54 | 2 | 14.70 | 31.00 | 20.00 |
| 3 | Appleton Side Rd | 180 | 0 | 3.40 | 1 | 5.40 | 1 | 22.00 | 36.50 | 20.00 |
| 4 | March Rd | 270 | 0 | 6.80 | 2 | 8.54 | 2 | 14.70 | 27.00 | 20.00 |

Circulating and Exit Geometry

| Leg | Leg Names | Inscribed Diameter D | Circulating Width C | Circulating Lanes nc | Exit Width Ex | Exit Lanes nex | Exit Half Width Vx | Exit Half Width Lanes nvx |
|-----|------------------|----------------------|---------------------|----------------------|---------------|----------------|--------------------|---------------------------|
| 1 | Ramsay Conc | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 2 | Ottawa St | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |
| 3 | Appleton Side Rd | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 4 | March Rd | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |

Capacity Modifiers and Capacity Calibration (veh/hr)

| Leg | Leg Names | Entry Capacity | | Entry Calibration | | Approach Road | | | Exit Road | | |
|-----|------------------|-----------------|--------------|-------------------|--------------|---------------|------------------|----------------|-----------|------------------|----------------|
| | | Capacity + or - | XWalk Factor | Intercept + or - | Slope Factor | V (m) | Default Capacity | Calib Capacity | V (m) | Default Capacity | Calib Capacity |
| 1 | Ramsay Conc | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 2 | Ottawa St | 0 | 1.000 | 0 | 1.000 | 6.00 | 3234 | 0 | 6.50 | 3185 | 0 |
| 3 | Appleton Side Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 4 | March Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 3332 | 0 | 6.50 | 3185 | 0 |

Traffic Flow Data (veh/hr)

2035 PM Peak Peak Hour Flows

| Leg | Leg Names | Turning Flows | | | | | Flow Modifiers | | |
|-----|------------------|---------------|--------|--------|--------|--------|----------------|-------------|------------------|
| | | U-Turn | Exit-3 | Exit-2 | Exit-1 | Bypass | Trucks % | Flow Factor | Peak Hour Factor |
| 1 | Ramsay Conc | 0 | 26 | 16 | 19 | 0 | 4.0 | 1.00 | 0.900 |
| 2 | Ottawa St | 0 | 19 | 454 | 115 | 0 | 6.0 | 1.00 | 0.900 |
| 3 | Appleton Side Rd | 0 | 107 | 16 | 87 | 0 | 6.0 | 1.00 | 0.900 |
| 4 | March Rd | 0 | 139 | 769 | 53 | 0 | 5.0 | 1.00 | 0.900 |

Operational Results

2035 PM Peak - 60 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 61 | | 1015 | | 88 | 648 | | 0.0941 | |
| 2 | Ottawa St | None | 588 | | 181 | | 895 | 1892 | | 0.3107 | |
| 3 | Appleton Side Rd | None | 210 | | 499 | | 270 | 829 | | 0.2533 | |
| 4 | March Rd | None | 961 | | 142 | | 567 | 1985 | | 0.4842 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 6.11 | | 6.11 | 0.33 | | A | | A |
| 2 | Ottawa St | None | 3.12 | | 3.12 | 1.58 | | A | | A |
| 3 | Appleton Side Rd | None | 5.60 | | 5.60 | 1.02 | | A | | A |
| 4 | March Rd | None | 3.72 | | 3.72 | 3.16 | | A | | A |

2035 PM Peak - 15 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 68 | | 1127 | | 98 | 603 | | 0.1124 | |
| 2 | Ottawa St | None | 653 | | 201 | | 994 | 1872 | | 0.3490 | |
| 3 | Appleton Side Rd | None | 233 | | 554 | | 300 | 807 | | 0.2891 | |
| 4 | March Rd | None | 1068 | | 158 | | 630 | 1968 | | 0.5425 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 6.30 | | 6.30 | 0.33 | | A | | A |
| 2 | Ottawa St | None | 3.17 | | 3.17 | 1.58 | | A | | A |
| 3 | Appleton Side Rd | None | 5.69 | | 5.69 | 1.02 | | A | | A |
| 4 | March Rd | None | 3.89 | | 3.89 | 3.16 | | A | | A |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 16 | 22 | 36 | 157 | 240 | 30 |
| Future Volume (Veh/h) | 16 | 22 | 36 | 157 | 240 | 30 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 18 | 24 | 40 | 174 | 267 | 33 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage (veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 538 | 284 | 300 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 538 | 284 | 300 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 96 | 97 | 97 | | | |
| cM capacity (veh/h) | 488 | 755 | 1261 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 42 | 214 | 300 | | | |
| Volume Left | 18 | 40 | 0 | | | |
| Volume Right | 24 | 0 | 33 | | | |
| cSH | 612 | 1261 | 1700 | | | |
| Volume to Capacity | 0.07 | 0.03 | 0.18 | | | |
| Queue Length 95th (m) | 1.7 | 0.7 | 0.0 | | | |
| Control Delay (s) | 11.3 | 1.7 | 0.0 | | | |
| Lane LOS | B | A | | | | |
| Approach Delay (s) | 11.3 | 1.7 | 0.0 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 1.5 | | | |
| Intersection Capacity Utilization | | | 39.4% | ICU Level of Service | A | |
| Analysis Period (min) | | | 15 | | | |

Operational Data

Main Geometry (m)

Approach and Entry Geometry

| Leg | Leg Names | Approach Bearing (deg) | Grade Separation G | Half Width V | Approach Lanes n | Entry Width E | Entry Lanes n | Flare Length L' | Entry Radius R | Entry Angle Phi |
|-----|------------------|------------------------|--------------------|--------------|------------------|---------------|---------------|-----------------|----------------|-----------------|
| 1 | Ramsay Conc | 0 | 0 | 3.40 | 1 | 4.80 | 1 | 20.00 | 32.00 | 20.00 |
| 2 | Ottawa St | 90 | 0 | 6.60 | 2 | 8.54 | 2 | 14.70 | 31.00 | 20.00 |
| 3 | Appleton Side Rd | 180 | 0 | 3.40 | 1 | 5.40 | 1 | 22.00 | 36.50 | 20.00 |
| 4 | March Rd | 270 | 0 | 6.80 | 2 | 8.54 | 2 | 14.70 | 27.00 | 20.00 |

Circulating and Exit Geometry

| Leg | Leg Names | Inscribed Diameter D | Circulating Width C | Circulating Lanes nc | Exit Width Ex | Exit Lanes nex | Exit Half Width Vx | Exit Half Width Lanes nvx |
|-----|------------------|----------------------|---------------------|----------------------|---------------|----------------|--------------------|---------------------------|
| 1 | Ramsay Conc | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 2 | Ottawa St | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |
| 3 | Appleton Side Rd | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 4 | March Rd | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |

Capacity Modifiers and Capacity Calibration (veh/hr)

| Leg | Leg Names | Entry Capacity | | Entry Calibration | | Approach Road | | | Exit Road | | |
|-----|------------------|-----------------|--------------|-------------------|--------------|---------------|------------------|----------------|-----------|------------------|----------------|
| | | Capacity + or - | XWalk Factor | Intercept + or - | Slope Factor | V (m) | Default Capacity | Calib Capacity | V (m) | Default Capacity | Calib Capacity |
| 1 | Ramsay Conc | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 2 | Ottawa St | 0 | 1.000 | 0 | 1.000 | 6.00 | 3234 | 0 | 6.50 | 3185 | 0 |
| 3 | Appleton Side Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 4 | March Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 3332 | 0 | 6.50 | 3185 | 0 |

Traffic Flow Data (veh/hr)

2040 AM Peak Peak Hour Flows

| Leg | Leg Names | Turning Flows | | | | | Flow Modifiers | | |
|-----|------------------|---------------|--------|--------|--------|--------|----------------|-------------|------------------|
| | | U-Turn | Exit-3 | Exit-2 | Exit-1 | Bypass | Trucks % | Flow Factor | Peak Hour Factor |
| 1 | Ramsay Conc | 0 | 28 | 11 | 18 | 0 | 4.0 | 1.00 | 0.900 |
| 2 | Ottawa St | 0 | 9 | 544 | 63 | 0 | 6.0 | 1.00 | 0.900 |
| 3 | Appleton Side Rd | 0 | 95 | 9 | 119 | 0 | 6.0 | 1.00 | 0.900 |
| 4 | March Rd | 0 | 67 | 389 | 17 | 0 | 5.0 | 1.00 | 0.900 |

Operational Results

2040 AM Peak - 60 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 57 | | 551 | | 35 | 835 | | 0.0683 | |
| 2 | Ottawa St | None | 616 | | 106 | | 502 | 1968 | | 0.3130 | |
| 3 | Appleton Side Rd | None | 223 | | 581 | | 141 | 797 | | 0.2799 | |
| 4 | March Rd | None | 473 | | 113 | | 691 | 2015 | | 0.2347 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 4.62 | | 4.62 | 0.22 | | A | | A |
| 2 | Ottawa St | None | 2.70 | | 2.70 | 1.42 | | A | | A |
| 3 | Appleton Side Rd | None | 6.02 | | 6.02 | 1.18 | | A | | A |
| 4 | March Rd | None | 2.53 | | 2.53 | 1.01 | | A | | A |

2040 AM Peak - 15 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 63 | | 612 | | 39 | 810 | | 0.0781 | |
| 2 | Ottawa St | None | 684 | | 118 | | 558 | 1956 | | 0.3499 | |
| 3 | Appleton Side Rd | None | 248 | | 645 | | 157 | 771 | | 0.3212 | |
| 4 | March Rd | None | 526 | | 125 | | 767 | 2002 | | 0.2625 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 4.60 | | 4.60 | 0.22 | | A | | A |
| 2 | Ottawa St | None | 2.73 | | 2.73 | 1.42 | | A | | A |
| 3 | Appleton Side Rd | None | 6.18 | | 6.18 | 1.18 | | A | | A |
| 4 | March Rd | None | 2.53 | | 2.53 | 1.01 | | A | | A |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 16 | 21 | 26 | 172 | 115 | 17 |
| Future Volume (Veh/h) | 16 | 21 | 26 | 172 | 115 | 17 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 18 | 23 | 29 | 191 | 128 | 19 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage (veh) | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 386 | 138 | 147 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 386 | 138 | 147 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 97 | 97 | 98 | | | |
| cM capacity (veh/h) | 604 | 911 | 1435 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 41 | 220 | 147 | | | |
| Volume Left | 18 | 29 | 0 | | | |
| Volume Right | 23 | 0 | 19 | | | |
| cSH | 745 | 1435 | 1700 | | | |
| Volume to Capacity | 0.06 | 0.02 | 0.09 | | | |
| Queue Length 95th (m) | 1.3 | 0.5 | 0.0 | | | |
| Control Delay (s) | 10.1 | 1.1 | 0.0 | | | |
| Lane LOS | B | A | | | | |
| Approach Delay (s) | 10.1 | 1.1 | 0.0 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 1.6 | | | |
| Intersection Capacity Utilization | | | 31.9% | ICU Level of Service | A | |
| Analysis Period (min) | | | 15 | | | |

Operational Data

Main Geometry (m)

Approach and Entry Geometry

| Leg | Leg Names | Approach Bearing (deg) | Grade Separation G | Half Width V | Approach Lanes n | Entry Width E | Entry Lanes n | Flare Length L' | Entry Radius R | Entry Angle Phi |
|-----|------------------|------------------------|--------------------|--------------|------------------|---------------|---------------|-----------------|----------------|-----------------|
| 1 | Ramsay Conc | 0 | 0 | 3.40 | 1 | 4.80 | 1 | 20.00 | 32.00 | 20.00 |
| 2 | Ottawa St | 90 | 0 | 6.60 | 2 | 8.54 | 2 | 14.70 | 31.00 | 20.00 |
| 3 | Appleton Side Rd | 180 | 0 | 3.40 | 1 | 5.40 | 1 | 22.00 | 36.50 | 20.00 |
| 4 | March Rd | 270 | 0 | 6.80 | 2 | 8.54 | 2 | 14.70 | 27.00 | 20.00 |

Circulating and Exit Geometry

| Leg | Leg Names | Inscribed Diameter D | Circulating Width C | Circulating Lanes nc | Exit Width Ex | Exit Lanes nex | Exit Half Width Vx | Exit Half Width Lanes nvx |
|-----|------------------|----------------------|---------------------|----------------------|---------------|----------------|--------------------|---------------------------|
| 1 | Ramsay Conc | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 2 | Ottawa St | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |
| 3 | Appleton Side Rd | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 4 | March Rd | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |

Capacity Modifiers and Capacity Calibration (veh/hr)

| Leg | Leg Names | Entry Capacity | | Entry Calibration | | Approach Road | | | Exit Road | | |
|-----|------------------|-----------------|--------------|-------------------|--------------|---------------|------------------|----------------|-----------|------------------|----------------|
| | | Capacity + or - | XWalk Factor | Intercept + or - | Slope Factor | V (m) | Default Capacity | Calib Capacity | V (m) | Default Capacity | Calib Capacity |
| 1 | Ramsay Conc | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 2 | Ottawa St | 0 | 1.000 | 0 | 1.000 | 6.00 | 3234 | 0 | 6.50 | 3185 | 0 |
| 3 | Appleton Side Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 4 | March Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 3332 | 0 | 6.50 | 3185 | 0 |

Traffic Flow Data (veh/hr)

2040 PM Peak Peak Hour Flows

| Leg | Leg Names | Turning Flows | | | | | Flow Modifiers | | |
|-----|------------------|---------------|--------|--------|--------|--------|----------------|-------------|------------------|
| | | U-Turn | Exit-3 | Exit-2 | Exit-1 | Bypass | Trucks % | Flow Factor | Peak Hour Factor |
| 1 | Ramsay Conc | 0 | 26 | 16 | 19 | 0 | 4.0 | 1.00 | 0.900 |
| 2 | Ottawa St | 0 | 19 | 487 | 121 | 0 | 6.0 | 1.00 | 0.900 |
| 3 | Appleton Side Rd | 0 | 114 | 17 | 91 | 0 | 6.0 | 1.00 | 0.900 |
| 4 | March Rd | 0 | 145 | 825 | 53 | 0 | 5.0 | 1.00 | 0.900 |

Operational Results

2040 PM Peak - 60 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 61 | | 1084 | | 89 | 621 | | 0.0983 | |
| 2 | Ottawa St | None | 627 | | 187 | | 958 | 1886 | | 0.3324 | |
| 3 | Appleton Side Rd | None | 222 | | 532 | | 282 | 816 | | 0.2721 | |
| 4 | March Rd | None | 1023 | | 150 | | 604 | 1976 | | 0.5176 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 6.42 | | 6.42 | 0.35 | | A | | A |
| 2 | Ottawa St | None | 3.21 | | 3.21 | 1.74 | | A | | A |
| 3 | Appleton Side Rd | None | 5.82 | | 5.82 | 1.13 | | A | | A |
| 4 | March Rd | None | 3.95 | | 3.95 | 3.61 | | A | | A |

2040 PM Peak - 15 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 68 | | 1204 | | 99 | 572 | | 0.1184 | |
| 2 | Ottawa St | None | 697 | | 208 | | 1064 | 1865 | | 0.3735 | |
| 3 | Appleton Side Rd | None | 247 | | 591 | | 313 | 793 | | 0.3111 | |
| 4 | March Rd | None | 1137 | | 167 | | 671 | 1959 | | 0.5802 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 6.66 | | 6.66 | 0.35 | | A | | A |
| 2 | Ottawa St | None | 3.27 | | 3.27 | 1.74 | | A | | A |
| 3 | Appleton Side Rd | None | 5.95 | | 5.95 | 1.13 | | A | | A |
| 4 | March Rd | None | 4.18 | | 4.18 | 3.61 | | A | | A |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|-----------------------------------|-------------|-------------|-------------|----------------------|------|------|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 16 | 22 | 36 | 164 | 250 | 30 |
| Future Volume (Veh/h) | 16 | 22 | 36 | 164 | 250 | 30 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 18 | 24 | 40 | 182 | 278 | 33 |
| Pedestrians | | | | | | |
| Lane Width (m) | | | | | | |
| Walking Speed (m/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | None | None | |
| Median storage veh | | | | | | |
| Upstream signal (m) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 556 | 294 | 311 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 556 | 294 | 311 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 96 | 97 | 97 | | | |
| cM capacity (veh/h) | 476 | 745 | 1249 | | | |
| Direction, Lane # | EB 1 | NB 1 | SB 1 | | | |
| Volume Total | 42 | 222 | 311 | | | |
| Volume Left | 18 | 40 | 0 | | | |
| Volume Right | 24 | 0 | 33 | | | |
| cSH | 600 | 1249 | 1700 | | | |
| Volume to Capacity | 0.07 | 0.03 | 0.18 | | | |
| Queue Length 95th (m) | 1.7 | 0.8 | 0.0 | | | |
| Control Delay (s) | 11.5 | 1.7 | 0.0 | | | |
| Lane LOS | B | A | | | | |
| Approach Delay (s) | 11.5 | 1.7 | 0.0 | | | |
| Approach LOS | B | | | | | |
| Intersection Summary | | | | | | |
| Average Delay | | | 1.5 | | | |
| Intersection Capacity Utilization | | | 40.4% | ICU Level of Service | A | |
| Analysis Period (min) | | | 15 | | | |

Operational Data

Main Geometry (m)

Approach and Entry Geometry

| Leg | Leg Names | Approach Bearing (deg) | Grade Separation G | Half Width V | Approach Lanes n | Entry Width E | Entry Lanes n | Flare Length L' | Entry Radius R | Entry Angle Phi |
|-----|------------------|------------------------|--------------------|--------------|------------------|---------------|---------------|-----------------|----------------|-----------------|
| 1 | Ramsay Conc | 0 | 0 | 3.40 | 1 | 4.80 | 1 | 20.00 | 32.00 | 20.00 |
| 2 | Ottawa St | 90 | 0 | 6.60 | 2 | 8.54 | 2 | 14.70 | 31.00 | 20.00 |
| 3 | Appleton Side Rd | 180 | 0 | 3.40 | 1 | 5.40 | 1 | 22.00 | 36.50 | 20.00 |
| 4 | March Rd | 270 | 0 | 6.80 | 2 | 8.54 | 2 | 14.70 | 27.00 | 20.00 |

Circulating and Exit Geometry

| Leg | Leg Names | Inscribed Diameter D | Circulating Width C | Circulating Lanes nc | Exit Width Ex | Exit Lanes nex | Exit Half Width Vx | Exit Half Width Lanes nvx |
|-----|------------------|----------------------|---------------------|----------------------|---------------|----------------|--------------------|---------------------------|
| 1 | Ramsay Conc | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 2 | Ottawa St | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |
| 3 | Appleton Side Rd | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 4 | March Rd | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |

Capacity Modifiers and Capacity Calibration (veh/hr)

| Leg | Leg Names | Entry Capacity | | Entry Calibration | | Approach Road | | | Exit Road | | |
|-----|------------------|-----------------|--------------|-------------------|--------------|---------------|------------------|----------------|-----------|------------------|----------------|
| | | Capacity + or - | XWalk Factor | Intercept + or - | Slope Factor | V (m) | Default Capacity | Calib Capacity | V (m) | Default Capacity | Calib Capacity |
| 1 | Ramsay Conc | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 2 | Ottawa St | 0 | 1.000 | 0 | 1.000 | 6.00 | 3234 | 0 | 6.50 | 3185 | 0 |
| 3 | Appleton Side Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 4 | March Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 3332 | 0 | 6.50 | 3185 | 0 |

Traffic Flow Data (veh/hr)

2025 AM Peak Peak Hour Flows

| Leg | Leg Names | Turning Flows | | | | | Flow Modifiers | | |
|-----|------------------|---------------|--------|--------|--------|--------|----------------|-------------|------------------|
| | | U-Turn | Exit-3 | Exit-2 | Exit-1 | Bypass | Trucks % | Flow Factor | Peak Hour Factor |
| 1 | Ramsay Conc | 0 | 28 | 11 | 18 | 0 | 4.0 | 1.00 | 0.900 |
| 2 | Ottawa St | 0 | 9 | 371 | 47 | 0 | 6.0 | 1.00 | 0.900 |
| 3 | Appleton Side Rd | 0 | 50 | 7 | 49 | 0 | 6.0 | 1.00 | 0.900 |
| 4 | March Rd | 0 | 43 | 286 | 17 | 0 | 5.0 | 1.00 | 0.900 |

Operational Results

2025 AM Peak - 60 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 57 | | 379 | | 33 | 904 | | 0.0630 | |
| 2 | Ottawa St | None | 427 | | 82 | | 354 | 1993 | | 0.2143 | |
| 3 | Appleton Side Rd | None | 106 | | 408 | | 101 | 865 | | 0.1226 | |
| 4 | March Rd | None | 346 | | 66 | | 448 | 2064 | | 0.1676 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 4.24 | | 4.24 | 0.20 | | A | | A |
| 2 | Ottawa St | None | 2.37 | | 2.37 | 0.85 | | A | | A |
| 3 | Appleton Side Rd | None | 4.62 | | 4.62 | 0.42 | | A | | A |
| 4 | March Rd | None | 2.24 | | 2.24 | 0.65 | | A | | A |

2025 AM Peak - 15 minutes

Flows and Capacity



















| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 63 | | 421 | | 37 | 888 | | 0.0714 | |
| 2 | Ottawa St | None | 474 | | 91 | | 393 | 1983 | | 0.2392 | |
| 3 | Appleton Side Rd | None | 118 | | 453 | | 112 | 847 | | 0.1391 | |
| 4 | March Rd | None | 384 | | 73 | | 498 | 2056 | | 0.1869 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 4.19 | | 4.19 | 0.20 | | A | | A |
| 2 | Ottawa St | None | 2.36 | | 2.36 | 0.85 | | A | | A |
| 3 | Appleton Side Rd | None | 4.60 | | 4.60 | 0.42 | | A | | A |
| 4 | March Rd | None | 2.21 | | 2.21 | 0.65 | | A | | A |

4: Appleton Side Road & Industrial Drive
2025 Total AM

5400 Appleton Side Road

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | |  |  |  |
| Traffic Volume (veh/h) | 16 | 0 | 21 | 1 | 0 | 7 | 26 | 57 | 2 | 17 | 61 | 15 |
| Future Volume (Veh/h) | 16 | 0 | 21 | 1 | 0 | 7 | 26 | 57 | 2 | 17 | 61 | 15 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 18 | 0 | 23 | 1 | 0 | 8 | 29 | 63 | 2 | 19 | 68 | 17 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 244 | 238 | 76 | 251 | 245 | 64 | 85 | | | 65 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 244 | 238 | 76 | 251 | 245 | 64 | 85 | | | 65 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 97 | 100 | 98 | 100 | 100 | 99 | 98 | | | 99 | | |
| cM capacity (veh/h) | 687 | 643 | 985 | 670 | 636 | 1000 | 1512 | | | 1537 | | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | SB 2 | | | | | | | |
| Volume Total | 41 | 9 | 94 | 19 | 85 | | | | | | | |
| Volume Left | 18 | 1 | 29 | 19 | 0 | | | | | | | |
| Volume Right | 23 | 8 | 2 | 0 | 17 | | | | | | | |
| cSH | 827 | 948 | 1512 | 1537 | 1700 | | | | | | | |
| Volume to Capacity | 0.05 | 0.01 | 0.02 | 0.01 | 0.05 | | | | | | | |
| Queue Length 95th (m) | 1.2 | 0.2 | 0.4 | 0.3 | 0.0 | | | | | | | |
| Control Delay (s) | 9.6 | 8.8 | 2.4 | 7.4 | 0.0 | | | | | | | |
| Lane LOS | A | A | A | A | | | | | | | | |
| Approach Delay (s) | 9.6 | 8.8 | 2.4 | 1.3 | | | | | | | | |
| Approach LOS | A | A | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 3.4 | | | | | | | | | |
| Intersection Capacity Utilization | | | 24.0% | | ICU Level of Service | | | | | A | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Operational Data

Main Geometry (m)

Approach and Entry Geometry

| Leg | Leg Names | Approach Bearing (deg) | Grade Separation G | Half Width V | Approach Lanes n | Entry Width E | Entry Lanes n | Flare Length L' | Entry Radius R | Entry Angle Phi |
|-----|------------------|------------------------|--------------------|--------------|------------------|---------------|---------------|-----------------|----------------|-----------------|
| 1 | Ramsay Conc | 0 | 0 | 3.40 | 1 | 4.80 | 1 | 20.00 | 32.00 | 20.00 |
| 2 | Ottawa St | 90 | 0 | 6.60 | 2 | 8.54 | 2 | 14.70 | 31.00 | 20.00 |
| 3 | Appleton Side Rd | 180 | 0 | 3.40 | 1 | 5.40 | 1 | 22.00 | 36.50 | 20.00 |
| 4 | March Rd | 270 | 0 | 6.80 | 2 | 8.54 | 2 | 14.70 | 27.00 | 20.00 |

Circulating and Exit Geometry

| Leg | Leg Names | Inscribed Diameter D | Circulating Width C | Circulating Lanes nc | Exit Width Ex | Exit Lanes nex | Exit Half Width Vx | Exit Half Width Lanes nvx |
|-----|------------------|----------------------|---------------------|----------------------|---------------|----------------|--------------------|---------------------------|
| 1 | Ramsay Conc | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 2 | Ottawa St | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |
| 3 | Appleton Side Rd | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 4 | March Rd | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |

Capacity Modifiers and Capacity Calibration (veh/hr)

| Leg | Leg Names | Entry Capacity | | Entry Calibration | | Approach Road | | | Exit Road | | |
|-----|------------------|-----------------|--------------|-------------------|--------------|---------------|------------------|----------------|-----------|------------------|----------------|
| | | Capacity + or - | XWalk Factor | Intercept + or - | Slope Factor | V (m) | Default Capacity | Calib Capacity | V (m) | Default Capacity | Calib Capacity |
| 1 | Ramsay Conc | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 2 | Ottawa St | 0 | 1.000 | 0 | 1.000 | 6.00 | 3234 | 0 | 6.50 | 3185 | 0 |
| 3 | Appleton Side Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 4 | March Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 3332 | 0 | 6.50 | 3185 | 0 |

Traffic Flow Data (veh/hr)

2025 PM Peak Peak Hour Flows

| Leg | Leg Names | Turning Flows | | | | | Flow Modifiers | | |
|-----|------------------|---------------|--------|--------|--------|--------|----------------|-------------|------------------|
| | | U-Turn | Exit-3 | Exit-2 | Exit-1 | Bypass | Trucks % | Flow Factor | Peak Hour Factor |
| 1 | Ramsay Conc | 0 | 26 | 16 | 19 | 0 | 4.0 | 1.00 | 0.900 |
| 2 | Ottawa St | 0 | 19 | 345 | 68 | 0 | 6.0 | 1.00 | 0.900 |
| 3 | Appleton Side Rd | 0 | 78 | 13 | 46 | 0 | 6.0 | 1.00 | 0.900 |
| 4 | March Rd | 0 | 65 | 587 | 53 | 0 | 5.0 | 1.00 | 0.900 |

Operational Results

2025 PM Peak - 60 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 61 | | 730 | | 85 | 763 | | 0.0799 | |
| 2 | Ottawa St | None | 432 | | 107 | | 684 | 1967 | | 0.2196 | |
| 3 | Appleton Side Rd | None | 137 | | 390 | | 149 | 872 | | 0.1572 | |
| 4 | March Rd | None | 705 | | 110 | | 417 | 2018 | | 0.3493 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 5.11 | | 5.11 | 0.27 | | A | | A |
| 2 | Ottawa St | None | 2.56 | | 2.56 | 0.93 | | A | | A |
| 3 | Appleton Side Rd | None | 4.76 | | 4.76 | 0.56 | | A | | A |
| 4 | March Rd | None | 2.78 | | 2.78 | 1.69 | | A | | A |

2025 PM Peak - 15 minutes

Flows and Capacity



















| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 68 | | 811 | | 94 | 731 | | 0.0928 | |
| 2 | Ottawa St | None | 480 | | 119 | | 760 | 1955 | | 0.2455 | |
| 3 | Appleton Side Rd | None | 152 | | 433 | | 166 | 855 | | 0.1781 | |
| 4 | March Rd | None | 783 | | 122 | | 463 | 2005 | | 0.3906 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 5.16 | | 5.16 | 0.27 | | A | | A |
| 2 | Ottawa St | None | 2.55 | | 2.55 | 0.93 | | A | | A |
| 3 | Appleton Side Rd | None | 4.75 | | 4.75 | 0.56 | | A | | A |
| 4 | March Rd | None | 2.83 | | 2.83 | 1.69 | | A | | A |

4: Appleton Side Road & Industrial Drive
2025 Total PM

5400 Appleton Side Road

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | |  |  |  |
| Traffic Volume (veh/h) | 16 | 0 | 22 | 2 | 0 | 16 | 36 | 76 | 1 | 8 | 112 | 30 |
| Future Volume (Veh/h) | 16 | 0 | 22 | 2 | 0 | 16 | 36 | 76 | 1 | 8 | 112 | 30 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 18 | 0 | 24 | 2 | 0 | 18 | 40 | 84 | 1 | 9 | 124 | 33 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 341 | 324 | 140 | 330 | 340 | 84 | 157 | | | 85 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 341 | 324 | 140 | 330 | 340 | 84 | 157 | | | 85 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 97 | 100 | 97 | 100 | 100 | 98 | 97 | | | 99 | | |
| cM capacity (veh/h) | 586 | 574 | 907 | 591 | 562 | 975 | 1423 | | | 1512 | | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | SB 2 | | | | | | | |
| Volume Total | 42 | 20 | 125 | 9 | 157 | | | | | | | |
| Volume Left | 18 | 2 | 40 | 9 | 0 | | | | | | | |
| Volume Right | 24 | 18 | 1 | 0 | 33 | | | | | | | |
| cSH | 735 | 915 | 1423 | 1512 | 1700 | | | | | | | |
| Volume to Capacity | 0.06 | 0.02 | 0.03 | 0.01 | 0.09 | | | | | | | |
| Queue Length 95th (m) | 1.4 | 0.5 | 0.7 | 0.1 | 0.0 | | | | | | | |
| Control Delay (s) | 10.2 | 9.0 | 2.6 | 7.4 | 0.0 | | | | | | | |
| Lane LOS | B | A | A | A | | | | | | | | |
| Approach Delay (s) | 10.2 | 9.0 | 2.6 | 0.4 | | | | | | | | |
| Approach LOS | B | A | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 2.8 | | | | | | | | | |
| Intersection Capacity Utilization | | | 30.8% | | ICU Level of Service | | | | | A | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Operational Data

Main Geometry (m)

Approach and Entry Geometry

| Leg | Leg Names | Approach Bearing (deg) | Grade Separation G | Half Width V | Approach Lanes n | Entry Width E | Entry Lanes n | Flare Length L' | Entry Radius R | Entry Angle Phi |
|-----|------------------|------------------------|--------------------|--------------|------------------|---------------|---------------|-----------------|----------------|-----------------|
| 1 | Ramsay Conc | 0 | 0 | 3.40 | 1 | 4.80 | 1 | 20.00 | 32.00 | 20.00 |
| 2 | Ottawa St | 90 | 0 | 6.60 | 2 | 8.54 | 2 | 14.70 | 31.00 | 20.00 |
| 3 | Appleton Side Rd | 180 | 0 | 3.40 | 1 | 5.40 | 1 | 22.00 | 36.50 | 20.00 |
| 4 | March Rd | 270 | 0 | 6.80 | 2 | 8.54 | 2 | 14.70 | 27.00 | 20.00 |

Circulating and Exit Geometry

| Leg | Leg Names | Inscribed Diameter D | Circulating Width C | Circulating Lanes nc | Exit Width Ex | Exit Lanes nex | Exit Half Width Vx | Exit Half Width Lanes nvx |
|-----|------------------|----------------------|---------------------|----------------------|---------------|----------------|--------------------|---------------------------|
| 1 | Ramsay Conc | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 2 | Ottawa St | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |
| 3 | Appleton Side Rd | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 4 | March Rd | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |

Capacity Modifiers and Capacity Calibration (veh/hr)

| Leg | Leg Names | Entry Capacity | | Entry Calibration | | Approach Road | | | Exit Road | | |
|-----|------------------|-----------------|--------------|-------------------|--------------|---------------|------------------|----------------|-----------|------------------|----------------|
| | | Capacity + or - | XWalk Factor | Intercept + or - | Slope Factor | V (m) | Default Capacity | Calib Capacity | V (m) | Default Capacity | Calib Capacity |
| 1 | Ramsay Conc | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 2 | Ottawa St | 0 | 1.000 | 0 | 1.000 | 6.00 | 3234 | 0 | 6.50 | 3185 | 0 |
| 3 | Appleton Side Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 4 | March Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 3332 | 0 | 6.50 | 3185 | 0 |

Traffic Flow Data (veh/hr)

2035 AM Peak Peak Hour Flows

| Leg | Leg Names | Turning Flows | | | | | Flow Modifiers | | |
|-----|------------------|---------------|--------|--------|--------|--------|----------------|-------------|------------------|
| | | U-Turn | Exit-3 | Exit-2 | Exit-1 | Bypass | Trucks % | Flow Factor | Peak Hour Factor |
| 1 | Ramsay Conc | 0 | 28 | 11 | 18 | 0 | 4.0 | 1.00 | 0.900 |
| 2 | Ottawa St | 0 | 9 | 510 | 77 | 0 | 6.0 | 1.00 | 0.900 |
| 3 | Appleton Side Rd | 0 | 107 | 9 | 131 | 0 | 6.0 | 1.00 | 0.900 |
| 4 | March Rd | 0 | 81 | 362 | 17 | 0 | 5.0 | 1.00 | 0.900 |

Operational Results

2035 AM Peak - 60 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 57 | | 550 | | 35 | 835 | | 0.0682 | |
| 2 | Ottawa St | None | 596 | | 120 | | 487 | 1954 | | 0.3050 | |
| 3 | Appleton Side Rd | None | 247 | | 547 | | 169 | 810 | | 0.3049 | |
| 4 | March Rd | None | 460 | | 125 | | 669 | 2003 | | 0.2297 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 4.61 | | 4.61 | 0.22 | | A | | A |
| 2 | Ottawa St | None | 2.77 | | 2.77 | 1.41 | | A | | A |
| 3 | Appleton Side Rd | None | 6.12 | | 6.12 | 1.33 | | A | | A |
| 4 | March Rd | None | 2.63 | | 2.63 | 1.03 | | A | | A |



















2035 AM Peak - 15 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 63 | | 611 | | 39 | 811 | | 0.0781 | |
| 2 | Ottawa St | None | 662 | | 133 | | 541 | 1941 | | 0.3412 | |
| 3 | Appleton Side Rd | None | 274 | | 608 | | 188 | 786 | | 0.3490 | |
| 4 | March Rd | None | 511 | | 139 | | 743 | 1988 | | 0.2571 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 4.60 | | 4.60 | 0.22 | | A | | A |
| 2 | Ottawa St | None | 2.80 | | 2.80 | 1.41 | | A | | A |
| 3 | Appleton Side Rd | None | 6.29 | | 6.29 | 1.33 | | A | | A |
| 4 | March Rd | None | 2.63 | | 2.63 | 1.03 | | A | | A |

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | |  |  |  |
| Traffic Volume (veh/h) | 16 | 0 | 21 | 4 | 0 | 32 | 26 | 166 | 4 | 35 | 109 | 17 |
| Future Volume (Veh/h) | 16 | 0 | 21 | 4 | 0 | 32 | 26 | 166 | 4 | 35 | 109 | 17 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 18 | 0 | 23 | 4 | 0 | 36 | 29 | 184 | 4 | 39 | 121 | 19 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 488 | 454 | 130 | 466 | 462 | 186 | 140 | | | 188 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 488 | 454 | 130 | 466 | 462 | 186 | 140 | | | 188 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 96 | 100 | 97 | 99 | 100 | 96 | 98 | | | 97 | | |
| cM capacity (veh/h) | 452 | 478 | 919 | 476 | 473 | 856 | 1443 | | | 1386 | | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | SB 2 | | | | | | | |
| Volume Total | 41 | 40 | 217 | 39 | 140 | | | | | | | |
| Volume Left | 18 | 4 | 29 | 39 | 0 | | | | | | | |
| Volume Right | 23 | 36 | 4 | 0 | 19 | | | | | | | |
| cSH | 632 | 793 | 1443 | 1386 | 1700 | | | | | | | |
| Volume to Capacity | 0.06 | 0.05 | 0.02 | 0.03 | 0.08 | | | | | | | |
| Queue Length 95th (m) | 1.6 | 1.2 | 0.5 | 0.7 | 0.0 | | | | | | | |
| Control Delay (s) | 11.1 | 9.8 | 1.2 | 7.7 | 0.0 | | | | | | | |
| Lane LOS | B | A | A | A | | | | | | | | |
| Approach Delay (s) | 11.1 | 9.8 | 1.2 | 1.7 | | | | | | | | |
| Approach LOS | B | A | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 2.9 | | | | | | | | | |
| Intersection Capacity Utilization | | | 34.4% | | ICU Level of Service | | | | | A | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Operational Data

Main Geometry (m)

Approach and Entry Geometry

| Leg | Leg Names | Approach Bearing (deg) | Grade Separation G | Half Width V | Approach Lanes n | Entry Width E | Entry Lanes n | Flare Length L' | Entry Radius R | Entry Angle Phi |
|-----|------------------|------------------------|--------------------|--------------|------------------|---------------|---------------|-----------------|----------------|-----------------|
| 1 | Ramsay Conc | 0 | 0 | 3.40 | 1 | 4.80 | 1 | 20.00 | 32.00 | 20.00 |
| 2 | Ottawa St | 90 | 0 | 6.60 | 2 | 8.54 | 2 | 14.70 | 31.00 | 20.00 |
| 3 | Appleton Side Rd | 180 | 0 | 3.40 | 1 | 5.40 | 1 | 22.00 | 36.50 | 20.00 |
| 4 | March Rd | 270 | 0 | 6.80 | 2 | 8.54 | 2 | 14.70 | 27.00 | 20.00 |

Circulating and Exit Geometry

| Leg | Leg Names | Inscribed Diameter D | Circulating Width C | Circulating Lanes nc | Exit Width Ex | Exit Lanes nex | Exit Half Width Vx | Exit Half Width Lanes nvx |
|-----|------------------|----------------------|---------------------|----------------------|---------------|----------------|--------------------|---------------------------|
| 1 | Ramsay Conc | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 2 | Ottawa St | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |
| 3 | Appleton Side Rd | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 4 | March Rd | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |

Capacity Modifiers and Capacity Calibration (veh/hr)

| Leg | Leg Names | Entry Capacity | | Entry Calibration | | Approach Road | | | Exit Road | | |
|-----|------------------|-----------------|--------------|-------------------|--------------|---------------|------------------|----------------|-----------|------------------|----------------|
| | | Capacity + or - | XWalk Factor | Intercept + or - | Slope Factor | V (m) | Default Capacity | Calib Capacity | V (m) | Default Capacity | Calib Capacity |
| 1 | Ramsay Conc | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 2 | Ottawa St | 0 | 1.000 | 0 | 1.000 | 6.00 | 3234 | 0 | 6.50 | 3185 | 0 |
| 3 | Appleton Side Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 4 | March Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 3332 | 0 | 6.50 | 3185 | 0 |

Traffic Flow Data (veh/hr)

2035 PM Peak Peak Hour Flows

| Leg | Leg Names | Turning Flows | | | | | Flow Modifiers | | |
|-----|------------------|---------------|--------|--------|--------|--------|----------------|-------------|------------------|
| | | U-Turn | Exit-3 | Exit-2 | Exit-1 | Bypass | Trucks % | Flow Factor | Peak Hour Factor |
| 1 | Ramsay Conc | 0 | 26 | 16 | 19 | 0 | 4.0 | 1.00 | 0.900 |
| 2 | Ottawa St | 0 | 19 | 454 | 133 | 0 | 6.0 | 1.00 | 0.900 |
| 3 | Appleton Side Rd | 0 | 128 | 16 | 108 | 0 | 6.0 | 1.00 | 0.900 |
| 4 | March Rd | 0 | 157 | 769 | 53 | 0 | 5.0 | 1.00 | 0.900 |

Operational Results

2035 PM Peak - 60 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 61 | | 1054 | | 88 | 633 | | 0.0964 | |
| 2 | Ottawa St | None | 606 | | 199 | | 916 | 1874 | | 0.3234 | |
| 3 | Appleton Side Rd | None | 252 | | 499 | | 306 | 829 | | 0.3040 | |
| 4 | March Rd | None | 979 | | 163 | | 588 | 1963 | | 0.4988 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 6.28 | | 6.28 | 0.34 | | A | | A |
| 2 | Ottawa St | None | 3.31 | | 3.31 | 1.73 | | A | | A |
| 3 | Appleton Side Rd | None | 5.97 | | 5.97 | 1.32 | | A | | A |
| 4 | March Rd | None | 3.93 | | 3.93 | 3.42 | | A | | A |

2035 PM Peak - 15 minutes

Flows and Capacity



















| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 68 | | 1170 | | 98 | 586 | | 0.1157 | |
| 2 | Ottawa St | None | 673 | | 221 | | 1017 | 1852 | | 0.3636 | |
| 3 | Appleton Side Rd | None | 280 | | 554 | | 340 | 807 | | 0.3469 | |
| 4 | March Rd | None | 1088 | | 181 | | 653 | 1944 | | 0.5595 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 6.50 | | 6.50 | 0.34 | | A | | A |
| 2 | Ottawa St | None | 3.36 | | 3.36 | 1.73 | | A | | A |
| 3 | Appleton Side Rd | None | 6.12 | | 6.12 | 1.32 | | A | | A |
| 4 | March Rd | None | 4.14 | | 4.14 | 3.42 | | A | | A |

4: Appleton Side Road & Industrial Drive
2035 Total PM

5400 Appleton Side Road

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | |  |  |  |
| Traffic Volume (veh/h) | 16 | 0 | 22 | 5 | 0 | 42 | 36 | 157 | 4 | 36 | 240 | 30 |
| Future Volume (Veh/h) | 16 | 0 | 22 | 5 | 0 | 42 | 36 | 157 | 4 | 36 | 240 | 30 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 18 | 0 | 24 | 6 | 0 | 47 | 40 | 174 | 4 | 40 | 267 | 33 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 666 | 622 | 284 | 627 | 636 | 176 | 300 | | | 178 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 666 | 622 | 284 | 627 | 636 | 176 | 300 | | | 178 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 95 | 100 | 97 | 98 | 100 | 95 | 97 | | | 97 | | |
| cM capacity (veh/h) | 336 | 379 | 755 | 366 | 372 | 867 | 1261 | | | 1398 | | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | SB 2 | | | | | | | |
| Volume Total | 42 | 53 | 218 | 40 | 300 | | | | | | | |
| Volume Left | 18 | 6 | 40 | 40 | 0 | | | | | | | |
| Volume Right | 24 | 47 | 4 | 0 | 33 | | | | | | | |
| cSH | 493 | 751 | 1261 | 1398 | 1700 | | | | | | | |
| Volume to Capacity | 0.09 | 0.07 | 0.03 | 0.03 | 0.18 | | | | | | | |
| Queue Length 95th (m) | 2.1 | 1.7 | 0.7 | 0.7 | 0.0 | | | | | | | |
| Control Delay (s) | 13.0 | 10.2 | 1.7 | 7.7 | 0.0 | | | | | | | |
| Lane LOS | B | B | A | A | | | | | | | | |
| Approach Delay (s) | 13.0 | 10.2 | 1.7 | 0.9 | | | | | | | | |
| Approach LOS | B | B | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 2.7 | | | | | | | | | |
| Intersection Capacity Utilization | | | 42.8% | | ICU Level of Service | | | | | A | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Operational Data

Main Geometry (m)

Approach and Entry Geometry

| Leg | Leg Names | Approach Bearing (deg) | Grade Separation G | Half Width V | Approach Lanes n | Entry Width E | Entry Lanes n | Flare Length L' | Entry Radius R | Entry Angle Phi |
|-----|------------------|------------------------|--------------------|--------------|------------------|---------------|---------------|-----------------|----------------|-----------------|
| 1 | Ramsay Conc | 0 | 0 | 3.40 | 1 | 4.80 | 1 | 20.00 | 32.00 | 20.00 |
| 2 | Ottawa St | 90 | 0 | 6.60 | 2 | 8.54 | 2 | 14.70 | 31.00 | 20.00 |
| 3 | Appleton Side Rd | 180 | 0 | 3.40 | 1 | 5.40 | 1 | 22.00 | 36.50 | 20.00 |
| 4 | March Rd | 270 | 0 | 6.80 | 2 | 8.54 | 2 | 14.70 | 27.00 | 20.00 |

Circulating and Exit Geometry

| Leg | Leg Names | Inscribed Diameter D | Circulating Width C | Circulating Lanes nc | Exit Width Ex | Exit Lanes nex | Exit Half Width Vx | Exit Half Width Lanes nvx |
|-----|------------------|----------------------|---------------------|----------------------|---------------|----------------|--------------------|---------------------------|
| 1 | Ramsay Conc | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 2 | Ottawa St | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |
| 3 | Appleton Side Rd | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 4 | March Rd | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |

Capacity Modifiers and Capacity Calibration (veh/hr)

| Leg | Leg Names | Entry Capacity | | Entry Calibration | | Approach Road | | | Exit Road | | |
|-----|------------------|-----------------|--------------|-------------------|--------------|---------------|------------------|----------------|-----------|------------------|----------------|
| | | Capacity + or - | XWalk Factor | Intercept + or - | Slope Factor | V (m) | Default Capacity | Calib Capacity | V (m) | Default Capacity | Calib Capacity |
| 1 | Ramsay Conc | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 2 | Ottawa St | 0 | 1.000 | 0 | 1.000 | 6.00 | 3234 | 0 | 6.50 | 3185 | 0 |
| 3 | Appleton Side Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 4 | March Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 3332 | 0 | 6.50 | 3185 | 0 |

Traffic Flow Data (veh/hr)

2040 AM Peak Peak Hour Flows

| Leg | Leg Names | Turning Flows | | | | | Flow Modifiers | | |
|-----|------------------|---------------|--------|--------|--------|--------|----------------|-------------|------------------|
| | | U-Turn | Exit-3 | Exit-2 | Exit-1 | Bypass | Trucks % | Flow Factor | Peak Hour Factor |
| 1 | Ramsay Conc | 0 | 28 | 11 | 18 | 0 | 4.0 | 1.00 | 0.900 |
| 2 | Ottawa St | 0 | 9 | 544 | 81 | 0 | 6.0 | 1.00 | 0.900 |
| 3 | Appleton Side Rd | 0 | 111 | 9 | 135 | 0 | 6.0 | 1.00 | 0.900 |
| 4 | March Rd | 0 | 85 | 389 | 17 | 0 | 5.0 | 1.00 | 0.900 |

Operational Results

2040 AM Peak - 60 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 57 | | 585 | | 35 | 821 | | 0.0694 | |
| 2 | Ottawa St | None | 634 | | 124 | | 518 | 1950 | | 0.3251 | |
| 3 | Appleton Side Rd | None | 255 | | 581 | | 177 | 797 | | 0.3201 | |
| 4 | March Rd | None | 491 | | 129 | | 707 | 1998 | | 0.2457 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 4.70 | | 4.70 | 0.23 | | A | | A |
| 2 | Ottawa St | None | 2.85 | | 2.85 | 1.55 | | A | | A |
| 3 | Appleton Side Rd | None | 6.35 | | 6.35 | 1.44 | | A | | A |
| 4 | March Rd | None | 2.68 | | 2.68 | 1.12 | | A | | A |

2040 AM Peak - 15 minutes

Flows and Capacity



















| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 63 | | 650 | | 39 | 795 | | 0.0796 | |
| 2 | Ottawa St | None | 704 | | 138 | | 575 | 1936 | | 0.3638 | |
| 3 | Appleton Side Rd | None | 283 | | 645 | | 197 | 771 | | 0.3673 | |
| 4 | March Rd | None | 546 | | 143 | | 785 | 1984 | | 0.2750 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 4.70 | | 4.70 | 0.23 | | A | | A |
| 2 | Ottawa St | None | 2.89 | | 2.89 | 1.55 | | A | | A |
| 3 | Appleton Side Rd | None | 6.56 | | 6.56 | 1.44 | | A | | A |
| 4 | March Rd | None | 2.69 | | 2.69 | 1.12 | | A | | A |

4: Appleton Side Road & Industrial Drive
2040 Total AM

5400 Appleton Side Road

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | |  |  |  |
| Traffic Volume (veh/h) | 16 | 0 | 21 | 4 | 0 | 32 | 26 | 172 | 4 | 35 | 115 | 17 |
| Future Volume (Veh/h) | 16 | 0 | 21 | 4 | 0 | 32 | 26 | 172 | 4 | 35 | 115 | 17 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 18 | 0 | 23 | 4 | 0 | 36 | 29 | 191 | 4 | 39 | 128 | 19 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 502 | 468 | 138 | 480 | 476 | 193 | 147 | | | 195 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 502 | 468 | 138 | 480 | 476 | 193 | 147 | | | 195 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 96 | 100 | 97 | 99 | 100 | 96 | 98 | | | 97 | | |
| cM capacity (veh/h) | 442 | 469 | 911 | 466 | 464 | 849 | 1435 | | | 1378 | | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | SB 2 | | | | | | | |
| Volume Total | 41 | 40 | 224 | 39 | 147 | | | | | | | |
| Volume Left | 18 | 4 | 29 | 39 | 0 | | | | | | | |
| Volume Right | 23 | 36 | 4 | 0 | 19 | | | | | | | |
| cSH | 622 | 784 | 1435 | 1378 | 1700 | | | | | | | |
| Volume to Capacity | 0.07 | 0.05 | 0.02 | 0.03 | 0.09 | | | | | | | |
| Queue Length 95th (m) | 1.6 | 1.2 | 0.5 | 0.7 | 0.0 | | | | | | | |
| Control Delay (s) | 11.2 | 9.8 | 1.1 | 7.7 | 0.0 | | | | | | | |
| Lane LOS | B | A | A | A | | | | | | | | |
| Approach Delay (s) | 11.2 | 9.8 | 1.1 | 1.6 | | | | | | | | |
| Approach LOS | B | A | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 2.9 | | | | | | | | | |
| Intersection Capacity Utilization | | | 35.0% | | ICU Level of Service | | | | | A | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

Operational Data

Main Geometry (m)

Approach and Entry Geometry

| Leg | Leg Names | Approach Bearing (deg) | Grade Separation G | Half Width V | Approach Lanes n | Entry Width E | Entry Lanes n | Flare Length L' | Entry Radius R | Entry Angle Phi |
|-----|------------------|------------------------|--------------------|--------------|------------------|---------------|---------------|-----------------|----------------|-----------------|
| 1 | Ramsay Conc | 0 | 0 | 3.40 | 1 | 4.80 | 1 | 20.00 | 32.00 | 20.00 |
| 2 | Ottawa St | 90 | 0 | 6.60 | 2 | 8.54 | 2 | 14.70 | 31.00 | 20.00 |
| 3 | Appleton Side Rd | 180 | 0 | 3.40 | 1 | 5.40 | 1 | 22.00 | 36.50 | 20.00 |
| 4 | March Rd | 270 | 0 | 6.80 | 2 | 8.54 | 2 | 14.70 | 27.00 | 20.00 |

Circulating and Exit Geometry

| Leg | Leg Names | Inscribed Diameter D | Circulating Width C | Circulating Lanes nc | Exit Width Ex | Exit Lanes nex | Exit Half Width Vx | Exit Half Width Lanes nvx |
|-----|------------------|----------------------|---------------------|----------------------|---------------|----------------|--------------------|---------------------------|
| 1 | Ramsay Conc | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 2 | Ottawa St | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |
| 3 | Appleton Side Rd | 50.00 | 10.00 | 2 | 6.00 | 1 | 3.30 | 1 |
| 4 | March Rd | 50.00 | 6.50 | 1 | 9.00 | 2 | 6.50 | 2 |

Capacity Modifiers and Capacity Calibration (veh/hr)

| Leg | Leg Names | Entry Capacity | | Entry Calibration | | Approach Road | | | Exit Road | | |
|-----|------------------|-----------------|--------------|-------------------|--------------|---------------|------------------|----------------|-----------|------------------|----------------|
| | | Capacity + or - | XWalk Factor | Intercept + or - | Slope Factor | V (m) | Default Capacity | Calib Capacity | V (m) | Default Capacity | Calib Capacity |
| 1 | Ramsay Conc | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 2 | Ottawa St | 0 | 1.000 | 0 | 1.000 | 6.00 | 3234 | 0 | 6.50 | 3185 | 0 |
| 3 | Appleton Side Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 1666 | 0 | 3.30 | 1617 | 0 |
| 4 | March Rd | 0 | 1.000 | 0 | 1.000 | 6.00 | 3332 | 0 | 6.50 | 3185 | 0 |

Traffic Flow Data (veh/hr)

2040 PM Peak Peak Hour Flows

| Leg | Leg Names | Turning Flows | | | | | Flow Modifiers | | |
|-----|------------------|---------------|--------|--------|--------|--------|----------------|-------------|------------------|
| | | U-Turn | Exit-3 | Exit-2 | Exit-1 | Bypass | Trucks % | Flow Factor | Peak Hour Factor |
| 1 | Ramsay Conc | 0 | 26 | 16 | 19 | 0 | 4.0 | 1.00 | 0.900 |
| 2 | Ottawa St | 0 | 19 | 487 | 139 | 0 | 6.0 | 1.00 | 0.900 |
| 3 | Appleton Side Rd | 0 | 135 | 17 | 112 | 0 | 6.0 | 1.00 | 0.900 |
| 4 | March Rd | 0 | 163 | 825 | 53 | 0 | 5.0 | 1.00 | 0.900 |

Operational Results

2040 PM Peak - 60 minutes

Flows and Capacity

| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 61 | | 1123 | | 89 | 605 | | 0.1009 | |
| 2 | Ottawa St | None | 645 | | 205 | | 979 | 1868 | | 0.3453 | |
| 3 | Appleton Side Rd | None | 264 | | 532 | | 318 | 816 | | 0.3235 | |
| 4 | March Rd | None | 1041 | | 171 | | 625 | 1955 | | 0.5326 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 6.60 | | 6.60 | 0.37 | | A | | A |
| 2 | Ottawa St | None | 3.40 | | 3.40 | 1.89 | | A | | A |
| 3 | Appleton Side Rd | None | 6.23 | | 6.23 | 1.45 | | A | | A |
| 4 | March Rd | None | 4.19 | | 4.19 | 3.92 | | A | | A |

2040 PM Peak - 15 minutes

Flows and Capacity



















| Leg | Leg Names | Bypass Type | Flows (veh/hr) | | | | | Capacity (veh/hr) | | | |
|-----|------------------|-------------|----------------|--------|---------------|--------|-----------|-------------------|--------|-------------|--------|
| | | | Arrival Flow | | Opposing Flow | | Exit Flow | Capacity | | Average VCR | |
| | | | Entry | Bypass | Entry | Bypass | | Entry | Bypass | Entry | Bypass |
| 1 | Ramsay Conc | None | 68 | | 1247 | | 99 | 555 | | 0.1221 | |
| 2 | Ottawa St | None | 717 | | 228 | | 1087 | 1845 | | 0.3884 | |
| 3 | Appleton Side Rd | None | 293 | | 591 | | 353 | 793 | | 0.3700 | |
| 4 | March Rd | None | 1157 | | 190 | | 694 | 1935 | | 0.5978 | |

Delays, Queues and Level of Service

| Leg | Leg Names | Bypass Type | Average Delay (sec) | | | 95% Queue (veh) | | Level of Service | | |
|-----|------------------|-------------|---------------------|--------|------|-----------------|--------|------------------|--------|-----|
| | | | Entry | Bypass | Leg | Entry | Bypass | Entry | Bypass | Leg |
| 1 | Ramsay Conc | None | 6.88 | | 6.88 | 0.37 | | A | | A |
| 2 | Ottawa St | None | 3.47 | | 3.47 | 1.89 | | A | | A |
| 3 | Appleton Side Rd | None | 6.42 | | 6.42 | 1.45 | | A | | A |
| 4 | March Rd | None | 4.46 | | 4.46 | 3.92 | | A | | A |

4: Appleton Side Road & Industrial Drive
2040 Total PM

5400 Appleton Side Road

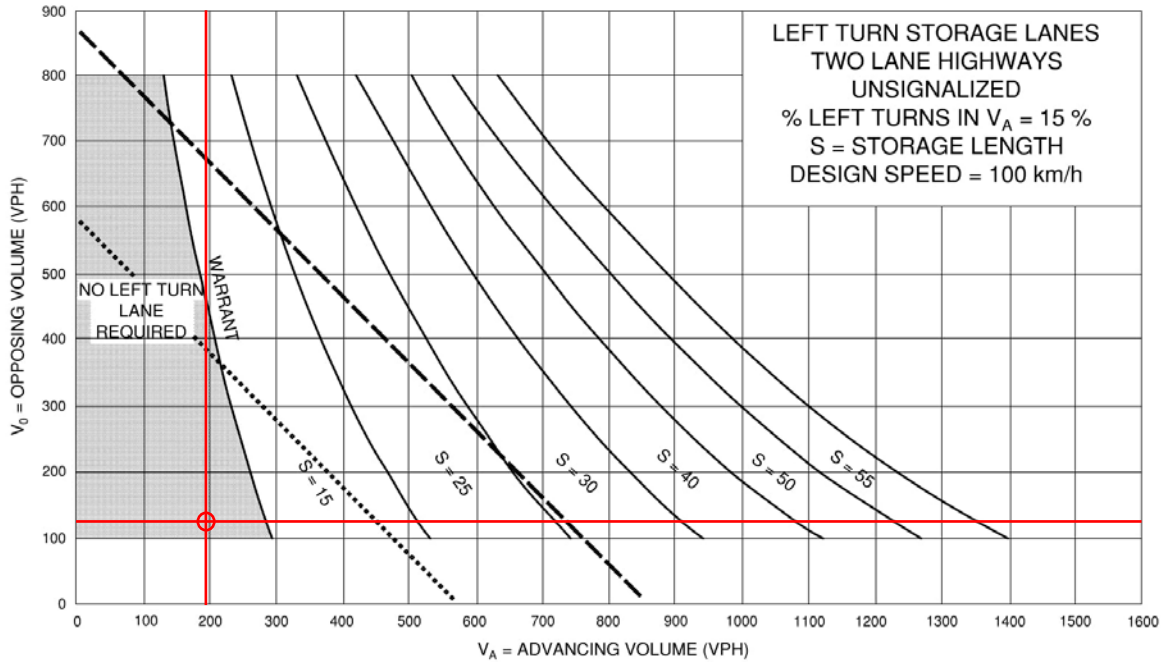
| |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | |  |  |  |
| Traffic Volume (veh/h) | 16 | 0 | 22 | 5 | 0 | 42 | 36 | 164 | 4 | 36 | 250 | 30 |
| Future Volume (Veh/h) | 16 | 0 | 22 | 5 | 0 | 42 | 36 | 164 | 4 | 36 | 250 | 30 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 18 | 0 | 24 | 6 | 0 | 47 | 40 | 182 | 4 | 40 | 278 | 33 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (m) | | | | | | | | | | | | |
| Walking Speed (m/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage (veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 686 | 640 | 294 | 646 | 655 | 184 | 311 | | | 186 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 686 | 640 | 294 | 646 | 655 | 184 | 311 | | | 186 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 94 | 100 | 97 | 98 | 100 | 95 | 97 | | | 97 | | |
| cM capacity (veh/h) | 326 | 370 | 745 | 355 | 363 | 858 | 1249 | | | 1388 | | |
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 | SB 2 | | | | | | | |
| Volume Total | 42 | 53 | 226 | 40 | 311 | | | | | | | |
| Volume Left | 18 | 6 | 40 | 40 | 0 | | | | | | | |
| Volume Right | 24 | 47 | 4 | 0 | 33 | | | | | | | |
| cSH | 481 | 740 | 1249 | 1388 | 1700 | | | | | | | |
| Volume to Capacity | 0.09 | 0.07 | 0.03 | 0.03 | 0.18 | | | | | | | |
| Queue Length 95th (m) | 2.2 | 1.8 | 0.8 | 0.7 | 0.0 | | | | | | | |
| Control Delay (s) | 13.2 | 10.2 | 1.6 | 7.7 | 0.0 | | | | | | | |
| Lane LOS | B | B | A | A | | | | | | | | |
| Approach Delay (s) | 13.2 | 10.2 | 1.6 | 0.9 | | | | | | | | |
| Approach LOS | B | B | | | | | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| Average Delay | | | 2.6 | | | | | | | | | |
| Intersection Capacity Utilization | | | 43.7% | | ICU Level of Service | | | | | A | | |
| Analysis Period (min) | | | 15 | | | | | | | | | |

APPENDIX E

Left Turn Lane Graphs

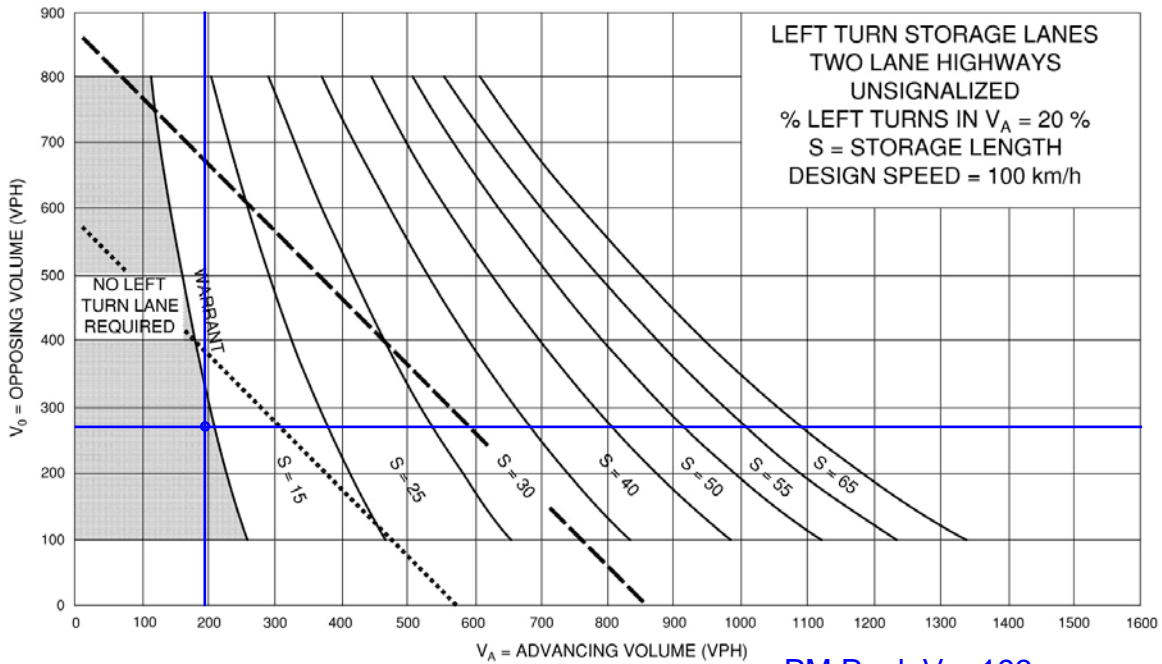
2035 Background Volumes AM and PM Peak Hour Northbound Left

Exhibit 9A-24



**AM Peak V_A : 192
 V_0 : 126**

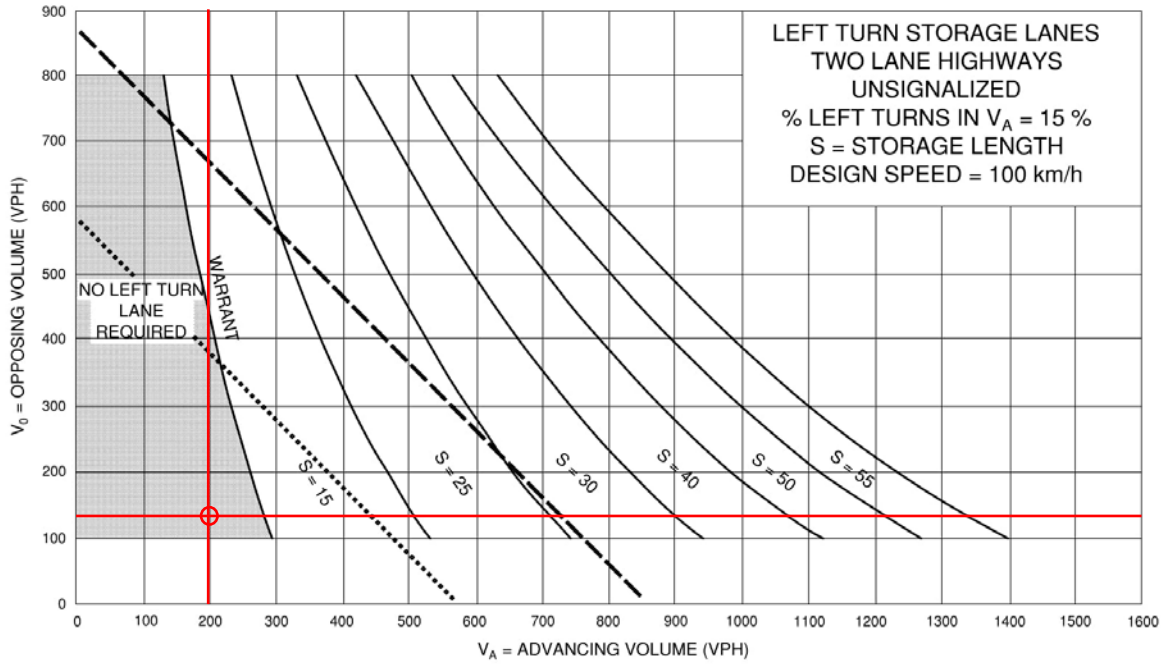
- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS



**PM Peak V_A : 193
 V_0 : 270**

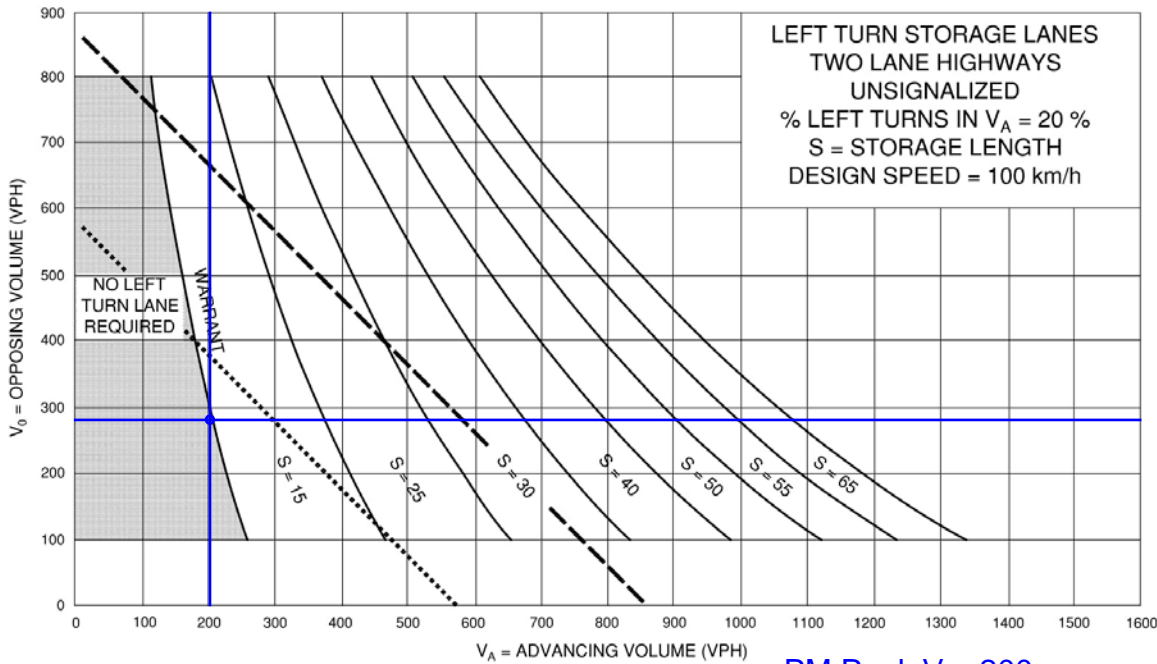
2040 Background Volumes AM and PM Peak Hour Northbound Left

Exhibit 9A-24



AM Peak V_a : 198
 V_o : 132

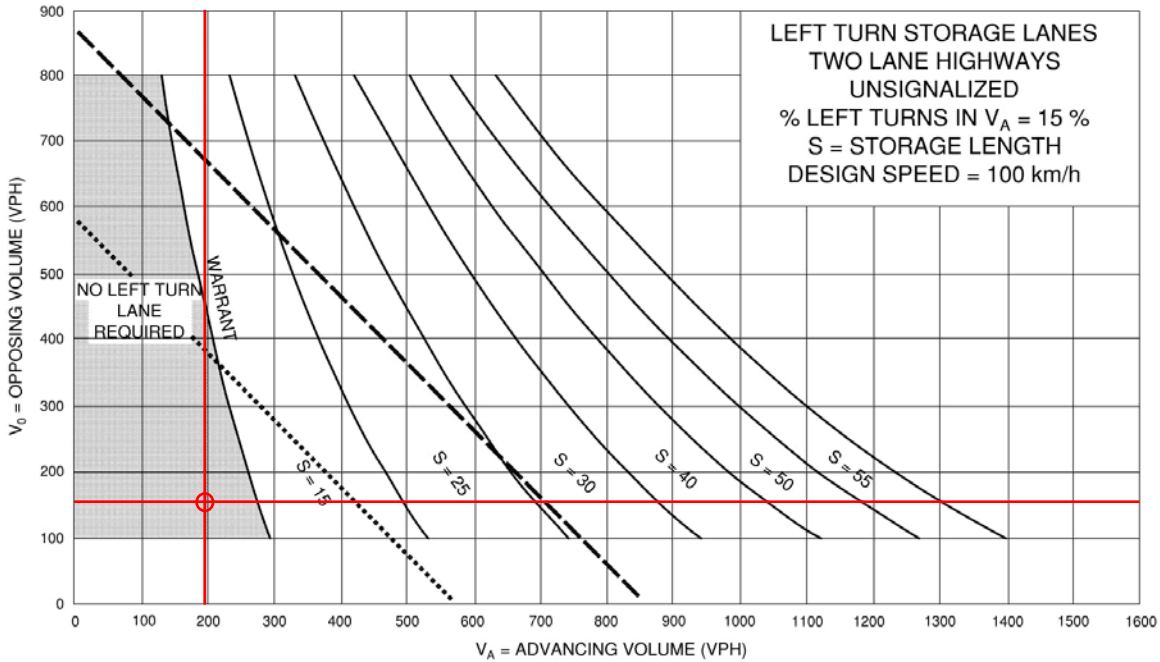
- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS



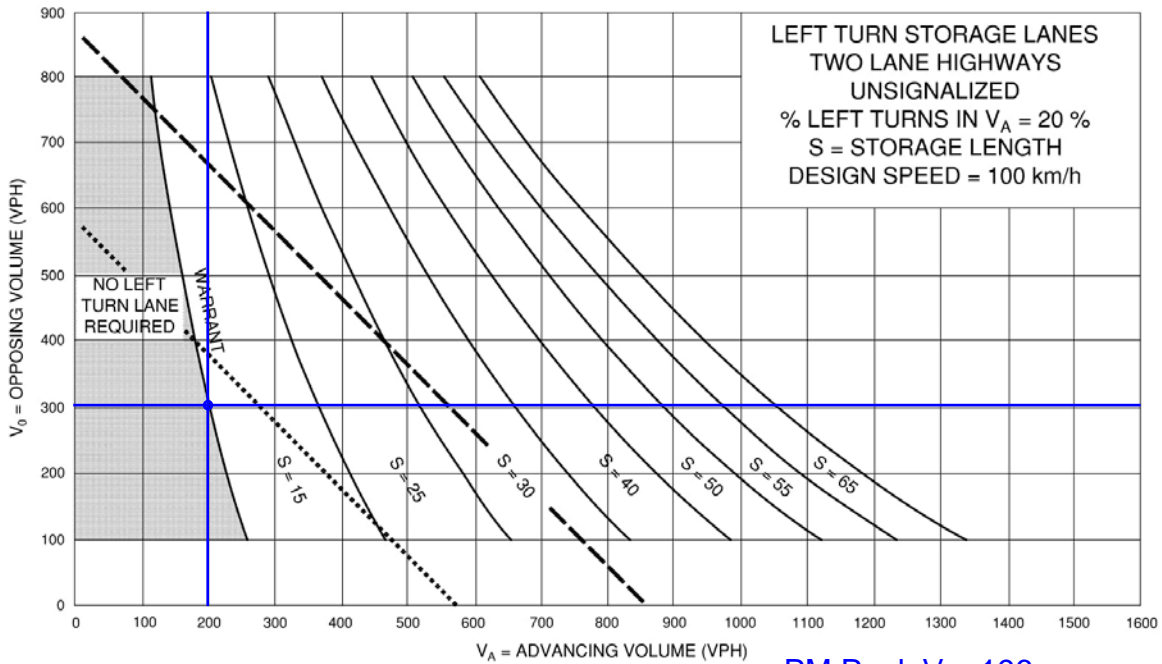
PM Peak V_a : 200
 V_o : 280

2035 Total Volumes AM and PM Peak Hour Northbound Left

Exhibit 9A-24



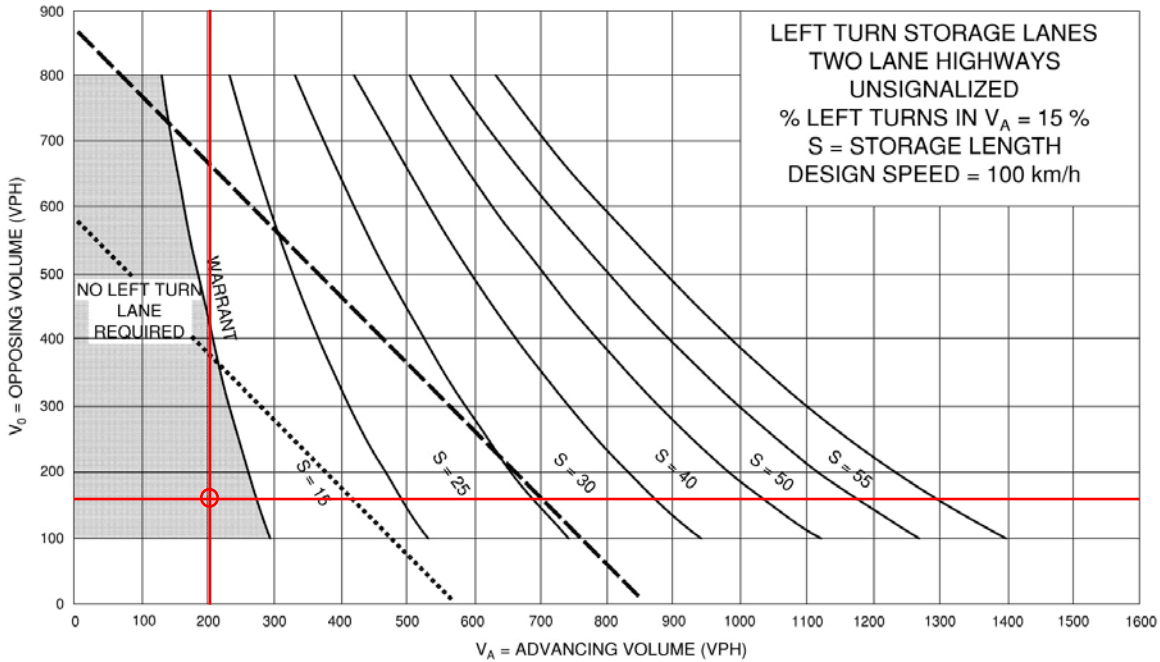
**AM Peak V_A : 196
 V_0 : 159**



**PM Peak V_A : 196
 V_0 : 303**

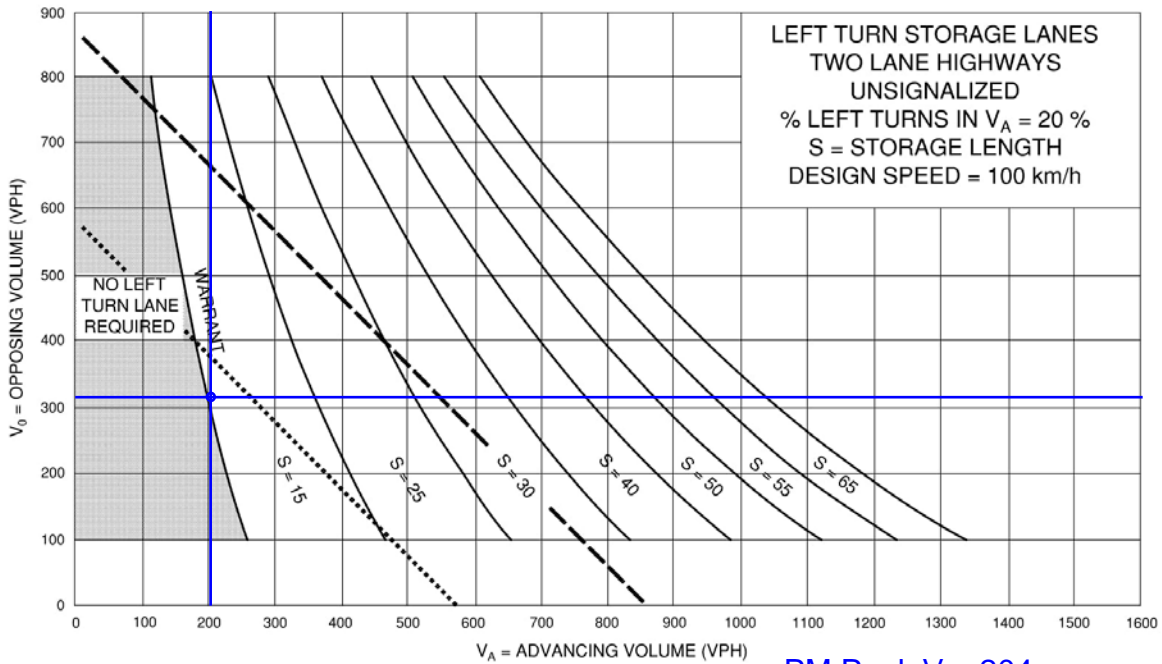
2040 Total Volumes AM and PM Peak Hour Northbound Left

Exhibit 9A-24



**AM Peak V_A : 202
 V_0 : 167**

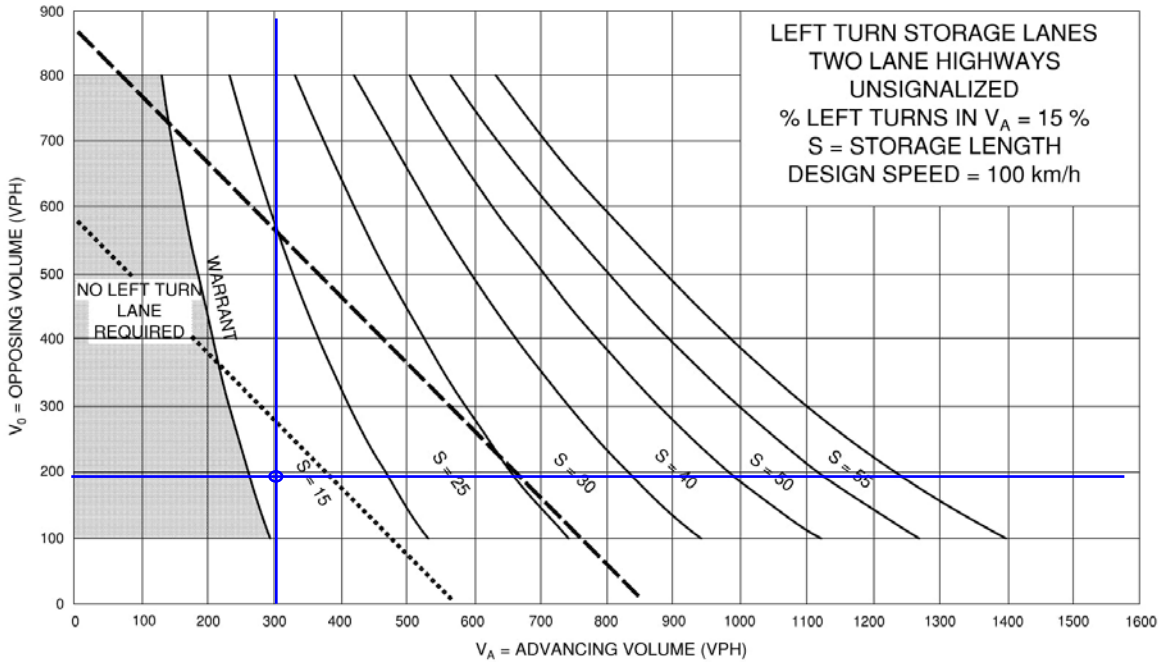
- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS



**PM Peak V_A : 204
 V_0 : 316**

2035 Total Volumes AM and PM Peak Hour
Southbound Left

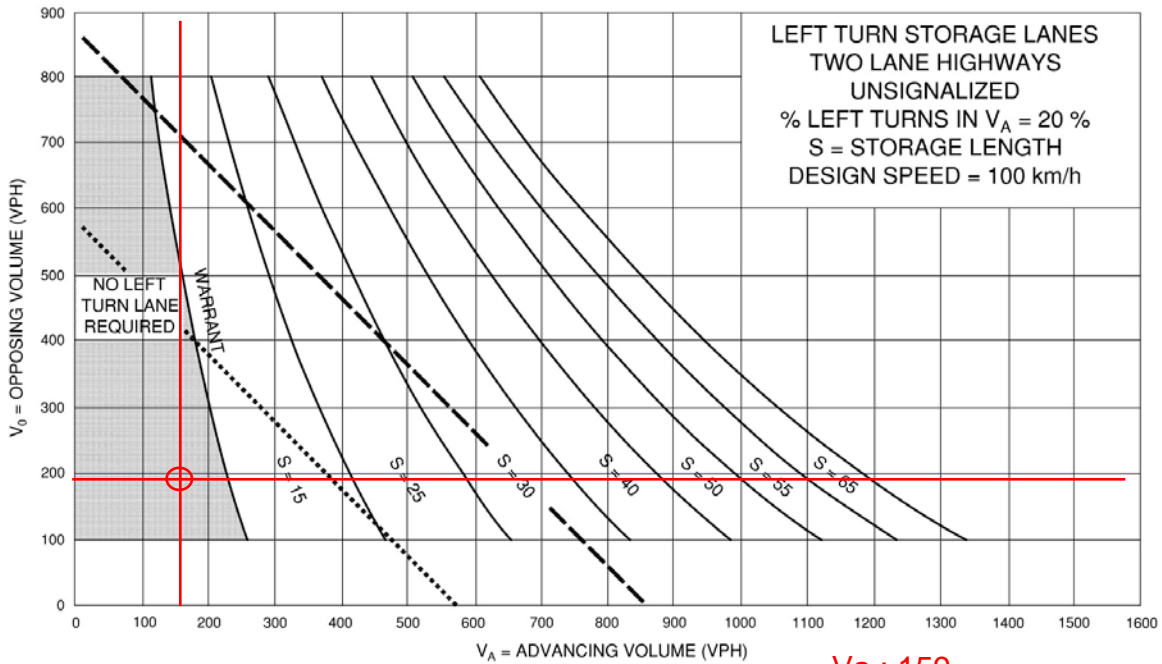
PM Peak
Exhibit 9A-24



- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

Va : 303
Vo : 196

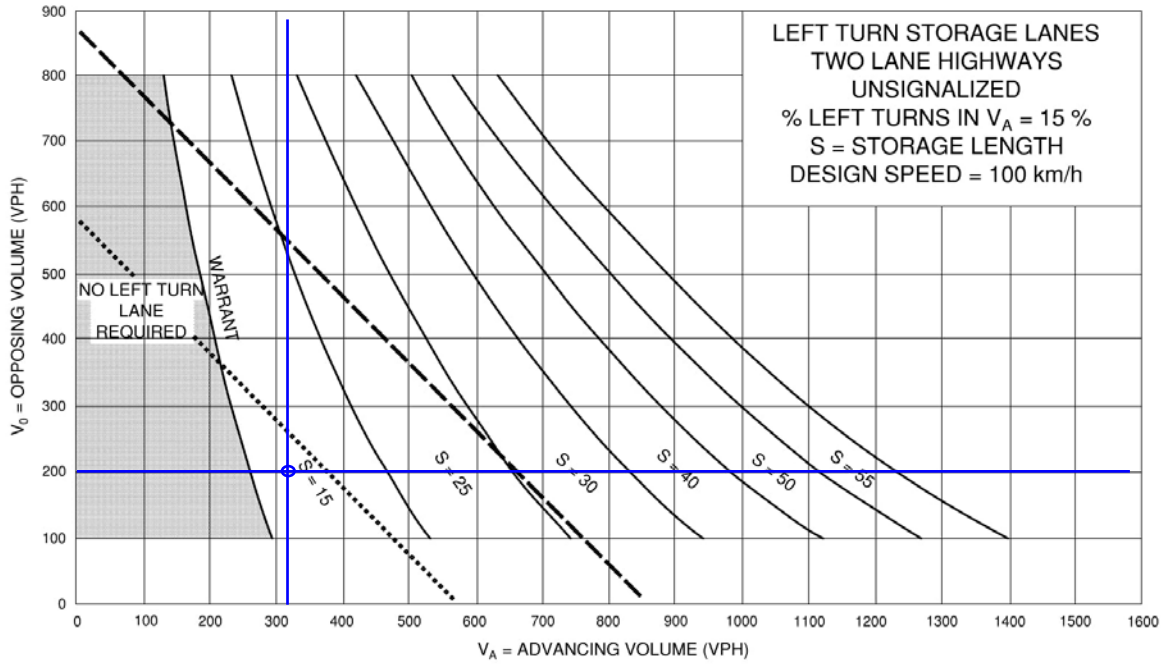
AM Peak



Va : 159
Vo : 196

2040 Total Volumes AM and PM Peak Hour Southbound Left

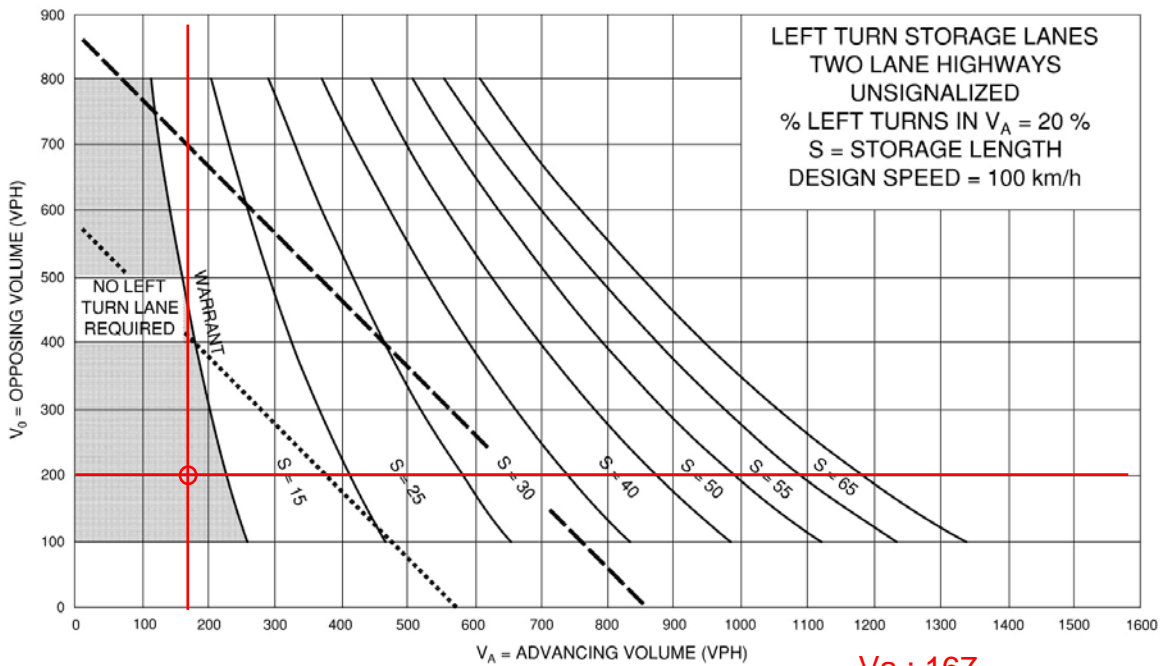
PM Peak Exhibit 9A-24



- TRAFFIC SIGNALS MAY BE WARRANTED IN RURAL AREAS OR URBAN AREAS WITH RESTRICTED FLOW
- TRAFFIC SIGNALS MAY BE WARRANTED IN "FREE FLOW" URBAN AREAS

$V_a : 316$
 $V_o : 204$

AM Peak



$V_a : 167$
 $V_o : 202$

APPENDIX F

OTM Signalization Warrant



Engineers, Planners & Landscape Architects

**TRAFFIC SIGNAL JUSTIFICATION
USING PROJECTED VOLUMES**

LOCATION: Appleton Side Rd at Industrial Dr/Site Access

YEAR: 2040

| JUSTIFICATION | DESCRIPTION | MINIMUM REQUIREMENT | | COMPLIANCE | | |
|-------------------------------------|---|--------------------------------------|---------------------------------------|------------|---------|-------------------------|
| | | FREE FLOW | RESTRICTED FLOW | SECTIONAL | | ENTIRE % ⁽²⁾ |
| | | OPERATING SPEED $\geq 70\text{KM/H}$ | OPERATING SPEED $< 70\text{ KM/H}$ | NUMERICAL | PERCENT | |
| 1. MINIMUM VEHICULAR WARRANT | A. Vehicle volume, all approaches (average hour) | 576 720 (2 or more lane approach) | 864 1080 (2 or more lane approach) | 262 | 45% | 27% |
| | B. Vehicle volume along minor street (average hour) | 144 216 (tee intersection) | 204 306 (tee intersection) | 40 | 27% | |
| 2. DELAY TO CROSS TRAFFIC | A. Vehicle volume along major street (average hour) | 576 720 (2 or more lane approach) | 864 1080 (2 or more lane approach) | 209 | 36% | 17% |
| | B ⁽¹⁾ . Combined vehicle and pedestrian volume <u>crossing</u> the major street (average hour) | 60 | 90 | 10 | 17% | |

NOTES

- 1) For definition of crossing volume refer to the Ontario Traffic Manual Book 12, Section 4.5 (Nov. 2007).
- 2) The lowest sectional percentage governs the entire Justification.
- 3) Average hourly volumes estimated from peak hour volumes, $AHV = PM / 2$ or $AHV = (AM + PM) / 4$.