**Supporting Document 3-12**

# Transportation Effects Assessment Report

Twin Creeks Environmental Centre Landfill Optimization Project Environmental Assessment

WM Canada

*Watford, Ontario*

May 2026

Prepared by:

HDR
100 York Boulevard Suite 300
Richmond Hill, ON L4B 1JB

## Revision History

| Revision | Date |
|---|---|
| 1 | November 2024 |
| 2 | July 2025 |
| 3 | May 2026 |

# Executive Summary

HDR Corporation was contracted by WM Canada (WM) to prepare this Transportation Effects Assessment Report as part of the Twin Creeks Environmental Centre (TCEC) Landfill Optimization Project Environmental Assessment (EA). The EA is being carried out in accordance with the requirements of the *Environmental Assessment Act* (*EAA*) and the EA Terms of Reference (ToR), which was approved by the Ministry of Environment, Conservation and Parks (MECP) on December 13, 2022. Transportation considers traffic operations, which includes traffic volumes, intersection performance, road safety (i.e., collisions), and sight distance.

The purpose of this Effects Assessment Report is to present the:

- potential environmental effects of the alternative methods on Transportation conditions;
- comparison of the net effects of each alternative method;
- selection of a preferred alternative;
- assessment of the environmental effects of the preferred alternative; and
- commitments and monitoring.

There are approximately 5 years of approved landfill airspace capacity remaining at the TCEC (i.e., capacity will be reached in approximately 2031). The proposed optimization would provide additional airspace of approximately 14.3 million cubic metres ($m^3$), which could extend the site life by approximately 12 years (from 2031 to 2043) and may be achieved through alternative landfill configurations (alternative methods) within the existing 301-hectare TCEC site area. No changes are proposed to the size of the TCEC site area, approved service area, or annual fill rate.

Three alternative methods for carrying out the optimization were developed to a preliminary conceptual design level in the Conceptual Design Report (CDR). There are no noteworthy changes anticipated to the approved service area, annual fill rate, haul routes, origins/destinations of site traffic, employee traffic volumes, or operational hours, which would change the TCEC traffic operations compared to current operations.

The study areas for Transportation are as follows:

- On-site Study Area: the existing TCEC; and
- Off-site Study Area: the intersections that are used by facility vehicles to serve the local and broader areas based on known haul routes and typical origin-destinations for site traffic; specifically, Nauvoo Road intersections with Highway 402 Eastbound Off-ramp Terminal, Highway 402 Westbound Off-ramp Terminal, Confederation Line, Zion Line, the Primary facility entrance on Nauvoo Road, and the new Renewable Natural Gas facility driveway on Confederation Line.

A net effects assessment was carried out for the three alternative methods following the methods outlined in the approved ToR incorporating the information contained in the CDR, and the Transportation Existing Conditions Report. The results of the net effects assessment were used in a comparative evaluation of the three alternative methods.

From a Transportation perspective, the TCEC site will have limited effects for all evaluation criteria and indicators. Under 2032 and 2043 future conditions, TCEC site traffic will remain the same as existing conditions. There is no anticipated change to the daily or hourly trip generation compared to the current conditions. This is because the daily tonnage will not be changed. Rather, the TCEC will continue to operate as it does today.

The traffic analysis component of the Transportation Effects Assessment considered the following scenarios:

- 2032 horizon year without the TCEC in operation (‘Do Nothing’ Alternative);
- 2032 horizon year with the TCEC in operation (optimization proceeds);
- 2043 horizon year without the TCEC in operation (‘Do Nothing’ Alternative); and
- 2043 horizon year with the TCEC in operation (optimization proceeds).

If the Project were to not occur, then site traffic would be removed from the road network; therefore, the ‘Do Nothing’ Alternative was represented by removal of site traffic from the road network. For the future conditions analysis with the Project, the site traffic volumes are added back to the road network and a comparison was made against the ‘Do Nothing’ Alternative to identify impacts.

The alternative methods are equivalent with respect to the Transportation Effects Assessment, as a result of the alternative methods only affecting the TCEC internals which are independent from the traffic conditions. Therefore, there is no substantial difference between the alternatives.

Practically speaking, the TCEC will continue to operate as it does today and will maintain the same peak hour traffic volumes and daily traffic volumes, resulting in no observable changes to the Transportation environment external to the site compared with existing conditions. The Project will have limited impacts on traffic volumes within the On-site and Off-site Study Areas when comparing the background conditions (‘Do Nothing’ Alternative) with the total traffic conditions. The Average Annual Daily Traffic will not change as a result of the Project. The intersections operations will remain the same, excepting typical daily and seasonal fluctuations. The road safety will remain the same given that there are no changes proposed to the design of surrounding roadway facilities within the On-site and Off-site Study Areas, with the exception of intersection improvements at Nauvoo Road and Confederation Line which are expected to improve intersection safety.

A ’Do Nothing’ Alternative scenario was analyzed that reflects the removal of TCEC site traffic from the On-site and Off-site Study Area road network. This is because if

the Project were to not occur, then the TCEC would halt operations. The 'Do Nothing' Alternative was then compared to the scenario where the Project occurs and the operating life is extended. As previously mentioned, practically speaking there will be no changes from existing operations.

Furthermore, collision rates and collision history were analyzed in the Transportation Existing Conditions Report and there were no correlations identified between TCEC vehicle activity and collisions. With the TCEC continuing to operate as it does today, it is expected that there will be no changes to collision rates. The primary TCEC driveway on Nauvoo Road will remain unchanged and will continue to operate as it does today. Sightlines were previously confirmed to be adequate, and these are not expected to change.

From a macro-collision analysis perspective, the future collisions are expected to be consistent with the analyzed collision history and there are no safety concerns specifically associated with the Project.

Based on the observed traffic volumes, there are very few cyclists on Nauvoo Road and within the Off-site Study Area and this is not expected to change substantially. Although there may be growth within the Town of Watford which could result in an increase in cyclist volumes, there are limited destinations surrounding the Town which would result in higher cyclist activity in the vicinity of the TCEC. Despite the low cyclist activity, Nauvoo Road is identified as a cycling route but is not signed in the vicinity of the TCEC.

A new driveway has been developed on Confederation Line to serve the newly-constructed TCEC Renewable Natural Gas (RNG) Facility. Traffic associated with this driveway has been incorporated into the future conditions analysis and a high-level sightline assessment was performed in the general vicinity of the driveway location to confirm that the sightlines should be adequate given that Confederation Line is very straight and flat in the vicinity of the RNG driveway location.

GHG emissions from site traffic will remain the same between existing conditions and future conditions since TCEC site traffic will not change as a result of the Project.

The analysis in this report is based on the historical hourly, daily, seasonal patterns in terms of truck arrivals to the TCEC, and the assumption that the existing scheduling of arrivals will remain unchanged. From a Transportation perspective, the Project commitments are to continue the existing mitigation which includes scheduling of truck arrivals to distribute the truck arrival demand throughout the day.

# Acronyms, Units and Glossary

## Acronyms

| Acronym | Definition |
|---|---|
| AADT | Average Annual Daily Traffic |
| ATR | Automatic Traffic Recorder |
| CAGR | Compound Annual Growth Rate |
| CDR | Conceptual Design Report |
| DHV | Design Hourly Volume |
| EA | Environmental Assessment |
| *EAA* | *Environmental Assessment Act* |
| GHG | Greenhouse Gas |
| HCM | Highway Capacity Manual |
| LFG | Landfill Gas |
| LOS | Level of Service |
| MECP | Ministry of Environment, Conservation and Parks |
| RNG | Renewable Natural Gas |
| SADT | Summer Average Daily Traffic |
| SMV | Single Motor Vehicle |
| TAC | Transportation Association of Canada |
| TCEC | Twin Creeks Environmental Centre |
| TMC | Turning Movement Count |
| ToR | Terms of Reference |
| V/C | Volume-to-Capacity Ratio |
| WM | WM Canada |

## Units

| Unit | Definition |
|---|---|
| ha | hectares |
| kg | kilograms |
| km | kilometre |
| km/h | kilometres per hour |
| m | metre |
| $m^3$ | cubic metres |

## Glossary

| Term | Definition |
|---|---|
| Approval | Permission granted by an authorized individual or organization for a project to proceed. This may be in the form of program approval, certificate of approval or provisional certificate of approval. |
| Capacity (Disposal Volume) | The total volume of air space available for disposal of waste at a landfill site for a particular design (typically in $m^3$); includes both waste and daily cover materials, but excludes the final cover. |
| Channelized | Channelized right-turns have separate turn lanes that diverge from the roadway and allow vehicles to perform the turn at higher speeds rather than coming to a full stop or slowing down to perform the right-turn at the intersection. Channelized right-turns are typically under yield control rather than stop control. |
| Composting | The controlled microbial decomposition of organic matter, such as food and yard wastes, in the presence of oxygen, into finished compost (humus), a soil-like material. Humus can be used in vegetable and flower gardens, hedges, etc. |
| Composting facility | A facility designed to compost organic matter either in the presence of oxygen (aerobic) or absence of oxygen (anaerobic). |
| Delay | Delay is the amount of time, expressed in seconds, that a vehicle is expected to have to wait when traveling through an intersection. Delays are often expressed as Level of Service level grades. |
| Demand Profile | The demand (or activity) experienced over a given time period, including fluctuations depending on time-of-day, day-of-week, or seasonal fluctuations. |
| Environment | As defined by the *Environmental Assessment Act*, environment means:<br>• air, land or water;<br>• plant and animal life, including human life;<br>• the social, economic and cultural conditions that influence the life of humans or a community;<br>• any building, structure, machine or other device or thing made by humans;<br>• any solid, liquid, gas, odour, heat, sound, vibration or radiation resulting directly or indirectly from human activities; or<br>any part or combination of the foregoing and the interrelationships between any two or more of them (ecosystem approach). |
| Environmental Assessment (EA) | A systematic planning process that is conducted in accordance with applicable laws or regulations aimed at assessing the effects of a proposed project on the environment. |
| Evaluation criteria | Evaluation criteria are considerations or factors taken into account in assessing the advantages and disadvantages of various alternatives being considered. |
| Greenhouse gas (GHG) | Any of the gases whose absorption of solar radiation is responsible for the greenhouse effect, including carbon dioxide, methane, ozone, and the fluorocarbons. |
| Indicators | Indicators are specific characteristics of the evaluation criteria that can be measured or determined in some way, as opposed to the actual criteria, which are fairly general. |
| Landfill gas (LFG) | The gases produced from the wastes disposed in a landfill; the main constituents are typically carbon dioxide and methane, with small amounts of other organic and odour-causing compounds. |
| Landfill site | An approved engineered site/facility used for the final disposal of waste. Landfills are waste disposal sites where waste is spread in layers, compacted to the smallest practical volume, and typically covered by soil. |
| Leachate | Liquid that drains from solid waste in a landfill and which contains dissolved, suspended and/or microbial contaminants from the breakdown of this waste. |

## Glossary

| Term | Definition |
|---|---|
| Level of Service (LOS) | Level of Service is a letter grade intended to represent the amount of delay (in seconds) experienced by a traffic movement. Level of Service ranges from 'A' (least delay) to 'F' (most delay). Typically, Level of Service 'A', 'B', and 'C' are considered acceptable, Level of Service 'D' is considered within acceptable range but justifies monitoring, and Level of Service 'E' and 'F' indicate deficiencies. |
| Mitigation | Measures taken to reduce adverse impacts on the environment. |
| Project | Is defined in the *Environmental Assessment Act* as: one or more enterprises or activities or a proposal, plan or program in respect of an enterprise or activity. |
| Proponent | A person who:<br>• carries out or proposes to carry out a project; or<br>• is the owner or person having charge, management or control of a project. |
| Queue | Vehicle queues are expressed in metres. The 95$^{th}$ percentile queue is typically used to determine storage needs, but the 50$^{th}$ percentile queue is also used to understand average queues. |
| Receptor | The person, plant or wildlife species that may be affected due to exposure to a contaminant. |
| Storage and Taper | Exclusive turning lanes for left-turns or right-turns can have two components to the lanes design: storage and taper. The storage is the section for storing vehicles while they wait to perform their turn. The taper is the segment of the left-turn lane where the lane begins to widen until it reaches the storage segment. The taper is intended for vehicles to transition from the adjacent through-lane and decelerate prior to entering the storage area. |
| Terms of Reference (ToR) | A terms of reference is a document that sets out detailed requirements for the preparation of an Environmental Assessment. |
| Volume-to-Capacity Ratio (V/C) | The volume-to-capacity (v/c) ratio is a measure of the degree of capacity utilized at an intersection or for a specific traffic movement. Volume-to-capacity ratios can range from zero (when there is no demand), to 1.00 (when the movement is operating at capacity). If a v/c ratio exceeds 1.00 then the software is either underestimating the capacity for existing conditions, or is predicting that the intersection will not be able to serve the projected demand within the analysis period, resulting in queue buildup. |
| Waste | Refuse from places of human or animal habitation; unwanted materials left over from a manufacturing process. |

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## Tables



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## Appendices

# 1 Introduction

HDR Corporation was contracted by WM Canada (WM) to prepare this Transportation Effects Assessment Report as part of the Twin Creeks Environmental Centre (TCEC) Landfill Optimization Project Environmental Assessment (EA). The EA is being carried out in accordance with the requirements of the *Environmental Assessment Act* (*EAA*) and the EA Terms of Reference (ToR), which was approved by the Ministry of Environment, Conservation and Parks (MECP) on December 13, 2022.

The *EAA* defines the environment in a broad, general sense that comprises physical, biological, and human considerations. In this EA, the environment has been separated broadly into the natural, socio-economic, cultural, and built aspects, with environmental components and evaluation criteria identified within each aspect as listed in **Table 1-1**, consistent with the approved ToR. The organization of the Effects Assessment Reports is also provided in **Table 1-1**.

**Table 1-1. Environmental Aspects, Components, and Evaluation Criteria**

| Environmental Aspect | Environmental Component | Evaluation Criteria | Effects Assessment Report |
|---|---|---|---|
| Natural Environment | Atmospheric Environment | • Air Quality – Dust<br>• Air Quality – Landfill Gas and Combustion By-Products<br>• Air Quality – Blowing Litter<br>• Odour | • Air Quality |
| | | • Noise | • Noise |
| | Hydrogeology | • Groundwater Quality<br>• Groundwater Quantity | • Hydrogeology |
| | Surface Water Environment | • Surface Water Quality | • Surface Water Quality |
| | | • Surface Water Quantity | • Surface Water Quantity |
| | Ecological Environment | • Terrestrial Ecosystems<br>• Aquatic Ecosystems | • Ecological Environment |
| Socio-Economic Environment | Social Environment | • Human Health | • Human Health |
| | | • Effects on Local Community | • Socio-Economic Environment |
| | Economic Environment | • Economic Effects on Local Community | |
| | Visual Landscape | • Visual Impact of Facility | • Visual Landscape |
| Cultural Environment | Cultural Environment | • Cultural Heritage Resources | • Cultural Heritage Resources |
| | | • Archaeological Resources | • Archaeological Resources |
| Built Environment | Transportation | • Traffic Operations | • Transportation |
| | Current and Planned Future Land Use | • Effects on Current and Future Land Uses | • Land Use |

Transportation considers traffic operations including traffic volumes, intersection performance, road safety (i.e., collisions), and sight distance. The purpose of this Effects Assessment Report is to present the potential environmental effects of the alternative methods on Transportation, a comparison of the net effects of each alternative method, the selection of a preferred alternative, the assessment of the environmental effects of the preferred alternative, and commitments and monitoring.

Safety considerations were assessed in the Transportation Existing Conditions Report, including a review of the driveway sightlines and a review of historical collision history. These criteria will not change with the extension of the TCEC operating life.

This Transportation Effects Assessment Report is one component of the EA. The EA Study Report will incorporate the information presented herein as appropriate, and this report will be included with the EA Study Report as a supporting document.

## 1.1 Project and Alternative Methods

There are approximately 5 years of approved landfill airspace capacity remaining at the TCEC (i.e., capacity will be reached in approximately 2031). The proposed landfill optimization would provide additional airspace of approximately 14.3 million cubic metres ($m^3$), which could extend the site life by approximately 12 years (from 2031 to 2043) and may be achieved through alternative landfill configurations (alternative methods) within the existing 301-hectare TCEC site area. No changes are proposed to the size of the TCEC site area, approved service area, haul route, or annual fill rate.

Three alternative methods for carrying out the landfill optimization were developed to a preliminary conceptual design level in the Conceptual Design Report (CDR) and are described below as they are relevant to Transportation.

From a transportation perspective, there are no differences between the designs of Alternative Methods 1, 2 and 3, described below.

This Transportation Effects Assessment Report assesses the effects of the Project on the Traffic Operation portion of the Transportation Environment. Traffic operations will change as a result of general background traffic growth associated with regional growth as well as new nearby developments. Additionally, if the optimization were not to result in an extended lifespan of the TCEC (i.e., the ‘Do Nothing’ Alternative), then vehicular traffic associated with the TCEC would be removed from the road network. Therefore, for the purposes of this analysis, a comparison is made between the ‘Do Nothing’ Alternative (site traffic removed from the network) and the optimization (site traffic is retained).

### 1.1.1 Alternative Method 1

With respect to Transportation, there are no operational changes anticipated as a result of the landfill optimization and the landfill will operate consistent with current conditions with the same daily and annual tonnage limits. There is no proposed change to the effective catchment area for the facility, haul routes, the origin-destination patterns of vehicles travelling to or from the TCEC (including trucks as well as regular

passenger vehicles), or the hourly or daily trips generated. Accordingly, there will be little to no impact to the surrounding road network or along the haul routes with the exception of typical daily or monthly variations.

The landfill optimization will not increase its average daily tonnage received or the daily tonnage limits. The tonnage limits correlate directly to the truck traffic generated by the TCEC. Therefore, traffic conditions are expected to remain the same as they are today.

Weigh scale and turning movement count data was used to project traffic volumes for the TCEC under the following assumptions:

- Employee traffic volumes remain unchanged.
- The origins/destinations of site traffic do not change.
- Haul routes do not change.
- The hourly, daily, and seasonal patterns remain stable.
- The breakdown of vehicle types and average vehicle loads remain stable.

Turning movement counts (TMCs) were collected in November 2022 and validated with landfill weigh scale data. Site traffic was adjusted using the weigh scale information to adjust the site traffic so that it was representative of a peak operating day. On a peak operating day there are typically 47 inbound and 77 outbound trips during the weekday AM peak hour, 44 inbound and 52 outbound trips during the midday peak hour, and 26 inbound and 30 outbound trips during the weekday PM peak hour. These volumes represent the existing condition peak day as well as future conditions consistent with the assumptions listed above.

No off-site road network improvements are required to accommodate the extension of the landfill's operating life to approximately 2043.

Traffic related to landfill construction is not anticipated (e.g., landfill cell preparation in advance of waste placement) as the landfill liner will be fully constructed prior to vertical expansion of the landfill. Current construction traffic and any materials used for landfill cover are captured in the weigh scale data provided for the traffic impact analysis and is therefore included in the projected vehicle trips.

### 1.1.2 Alternative Method 2

The assumptions, traffic and turning movements, and impacts of Alternative Method 2 are the same as Alternative Method 1. Please refer to **Section 1.1.1**.

### 1.1.3 Alternative Method 3

The assumptions, traffic and turning movements, and impacts of Alternative Method 3 are the same as Alternative Method 1. Please refer to **Section 1.1.1**.

# 2 Effects Assessment Methods

Using the evaluation criteria, indicators, rationale and data sources from the approved ToR and the existing conditions from the Transportation Existing Conditions Report, the effects assessment is carried out as follows:

- predict the potential environmental effects for each alternative method (**Section 2.1**);
- identify the preferred alternative based on a comparative evaluation of the potential environmental effects of each alternative method (**Section 2.2**);
- conduct an effects assessment on the preferred alternative, including the identification of mitigation measures and monitoring programs (**Section 2.3**); and
- compare the effects of the preferred alternative to those of the 'Do Nothing' Alternative (i.e., the Expansion Landfill as approved) (**Section 2.4**).

## 2.1 Predict Potential Environmental Effects for Alternative Methods

The potential environmental effects for each alternative method are identified within the study areas based on the application of the evaluation criteria, indicators and data sources in the approved ToR and based on the maximum allowable waste receipt level for the TCEC landfill. The potential effects can be positive or negative, direct or indirect, and short- or long-term. Mitigation measures are identified to minimize or mitigate the potential effects and then the net effects are evaluated taking into consideration the application of mitigation measures. The study areas, evaluation criteria, indicators, data source, and key design considerations and assumptions for Transportation are provided below.

### 2.1.1 Study Areas

The TCEC landfill is located within the Township of Warwick, in the County of Lambton, approximately 1 km north of the Village of Watford. The TCEC is situated south of Highway 402 and southeast of the intersection of Nauvoo Road and Zion Line. The municipal street address of the TCEC is 5768 Nauvoo Road, Watford, Ontario. The area being considered for the landfill optimization is the approved Expansion Landfill footprint located within the northern portion of the 301 ha TCEC site.

The study areas include the existing TCEC site as well as the potentially affected surrounding areas. The On-site and Off-site Study Areas for Transportation identified for the EA in the approved ToR are depicted in **Figure 2-1** and are as follows:

- On-site Study Area: the existing TCEC;
- Off-site Study Area: the lands within the vicinity of the TCEC extending approximately 1 km out from the On-site Study Area.

For Transportation, the general Off-site Study Area has been extended to include the intersections that are used by facility vehicles to serve the local and broader areas based on known haul routes and typical origin-destinations for site traffic. These intersections are shown in **Figure 2-2**.

The intersections included in the Transportation scope of work include the following five (5) locations:

1. Highway 402 and Nauvoo Road Eastbound Off-ramp Terminal;
2. Highway 402 and Nauvoo Road Westbound Off-ramp Terminal;
3. Nauvoo Road and Confederation Line;
4. Nauvoo Road and Zion Line; and
5. Primary facility entrance on Nauvoo Road.

An additional site access for the Renewable Natural Gas (RNG) facility at the TCEC site has been developed along Confederation Line and is included in the Transportation Off-site Study Area.

Only local traffic arrives at the TCEC site from the south. The Off-site Study Area for Transportation also extends to the southerly limits of the Village of Watford, approximately 280 m south of Bond Street (the southernmost street) for the purposes of the collision history review while the most southerly Off-site Study Area intersection captured in the operational analysis is Nauvoo Road at Confederation Line as depicted in **Figure 2-2**.

Collision history for the Off-site Study Area was analyzed and discussed in the Transportation Existing Conditions report and the conclusions of that analysis are not expected to change in the future. Additionally, sightline considerations were also assessed for the site driveways and are not revisited in this report as it is not relevant to the effects assessment and is not expected to change in the future.

## Figure 2-1. On-site and Off-site Study Areas for Transportation

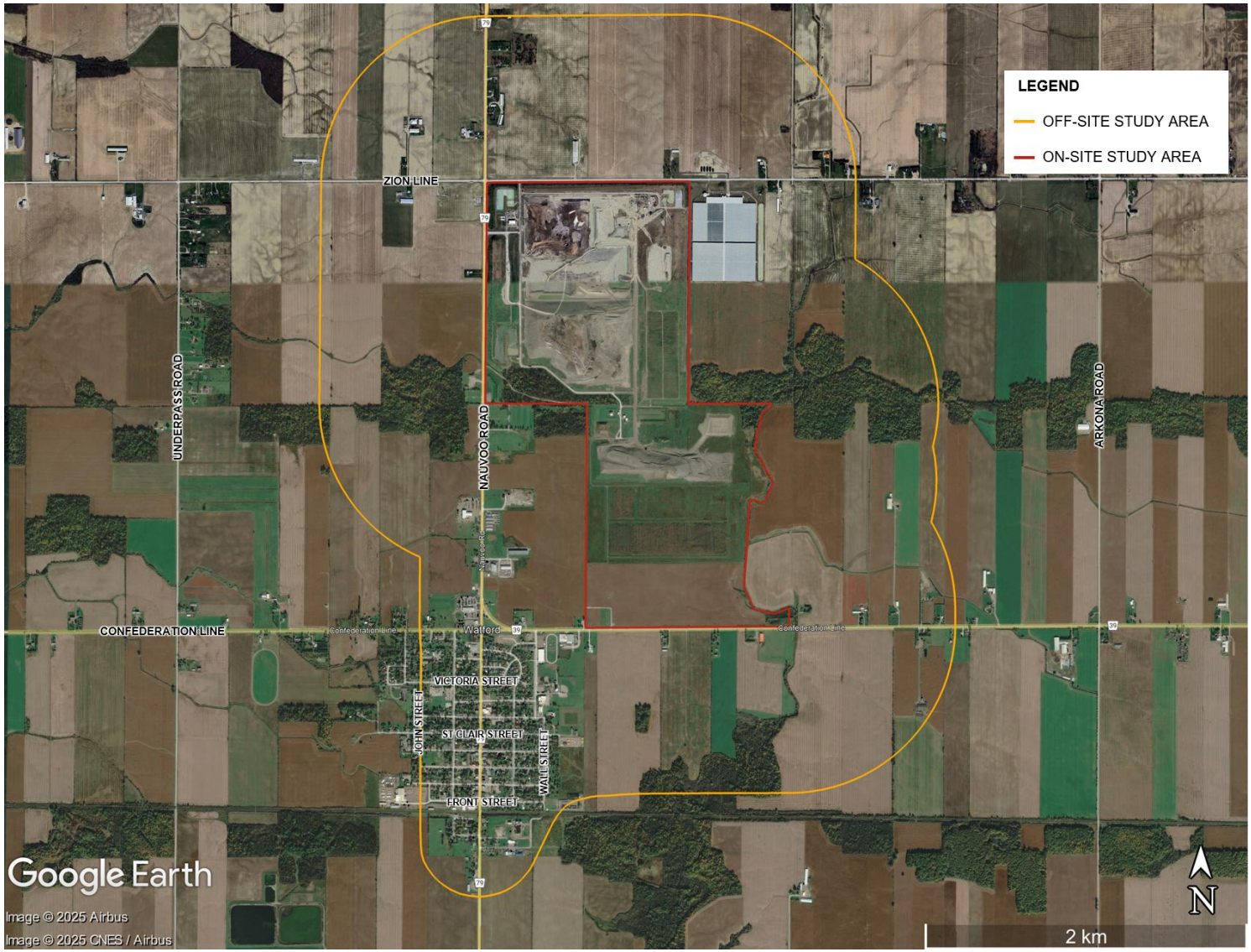
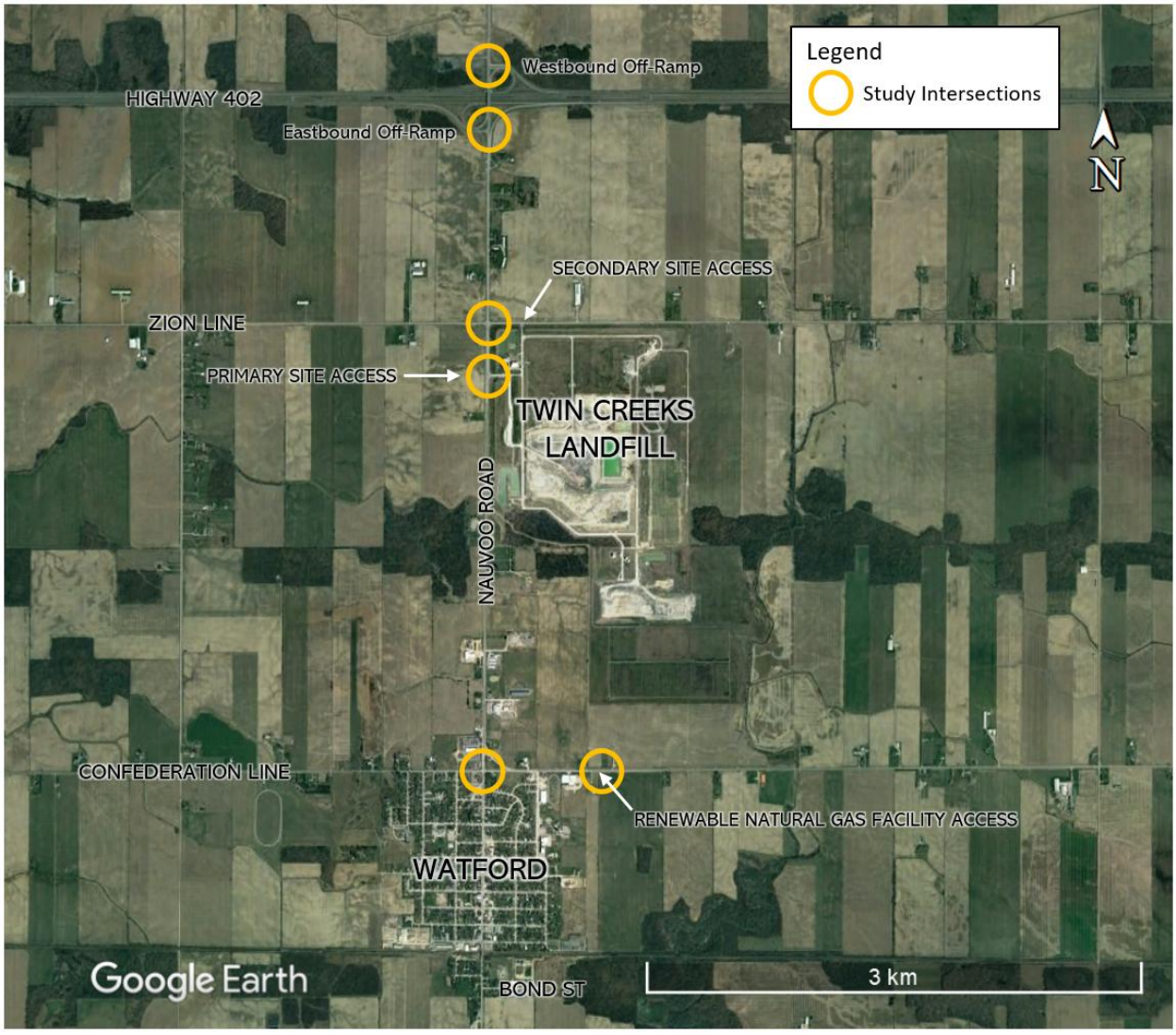


**Figure 2-2. On-site and Off-site Study Areas Intersections**



### 2.1.2 Evaluation Criteria, Indicators, and Data Sources

The evaluation criteria, rationale, indicators, and data sources used for Transportation as per the approved ToR are provided in **Table 2-1**.

**Table 2-1. Evaluation Criteria, Indicators, and Data Sources for Transportation**

| Evaluation Criteria | Rationale | Indicators | Data Sources |
|---|---|---|---|
| ***Built Environment*** | | | |
| **Transportation** | | | |
| Traffic Operations | Truck traffic associated with continued operations of the landfill may adversely affect residents, businesses, institutions and movement of farm vehicles in the site vicinity. | • Change in peak hour and daily truck traffic volume and Average Annual Daily Traffic (AADT) along the Off-site Study Area road segments<br>• Intersection performance – capacity, delay, queues (based on HCM 2000 and generated by Synchro Traffic Signal Coordination Software Version 11) – for the Off-site Study Area intersections<br>• Road safety<br>  • Collisions per million vehicles at all Off-site Study Area intersections (severity, involving pedestrians, cyclists, autos, trucks, school buses, and agricultural vehicles)<br>  • Collisions per million vehicle-km along all Off-site Study Area road segments (severity, involving pedestrians, cyclists, autos, trucks, school buses, and agricultural vehicles)<br>  • Collisions by environmental conditions for segments and intersections<br>• Sight distance at the primary site entrance | • Turning Movement Counts<br>• Traffic Model<br>• Road Safety Assessment<br>  • Collision History<br>  • Aerials<br>  • Land Survey<br>  • Stopping and Turning Sight Distance Review<br>• Field inventory/investigation: Clear Zone, Conflicts, Visual Obstructions, Signage, Pavement Condition, Linework Condition |

As noted, the effects assessment focuses on the transportation intersection performance since the other indicators are expected to remain the same as existing conditions due to the site traffic remaining unchanged. Background traffic growth is expected and has been incorporated into the traffic forecasts for the purposes of the intersection performance analysis and this would be the only factor which could affect the collision rates and traffic volumes within the Off-site Study Area.

### 2.1.3 Key Considerations and Assumptions

The key existing conditions elements, design considerations, and assumptions for the Transportation effects assessment are described below.

#### 2.1.3.1 Key Elements of Existing Conditions

The key elements to the Transportation effects assessment from the Existing Conditions Report are the existing traffic operations and measures of effectiveness, which include: volume-to-capacity ratios, level of service (delays), and queues.

Background information informing intersection selection was extracted from the report entitled Twin Creeks Landfill Annual Fill Rate Increase Traffic Impact Study (February 2017, HDR). Based on knowledge of the site operations, the primary haul routes are to and from Highway 402, with approximately 80% of site truck traffic going to the north to Highway 402 and the remainder of site traffic heading to the south towards Watford. Smaller vehicles are more evenly split between those destined to/from the north and south, which may be due to the employees and visitors living in the immediate area. The same traffic patterns are expected to continue in the future.

Under existing conditions, the surrounding Off-site Study Area study intersections are operating within acceptable thresholds. The intersection characteristics (lane configuration, travel speeds, and traffic volumes) and the existing traffic volumes were used as the basis to forecast and assess future traffic operations.

The Highway 402 interchange includes two stop-controlled intersections (intersections 1 and 2, identified above), as well as free-flow ramps which were not analyzed as there are no controlled movements. The employee-only secondary entrance along Zion Line is closed to facility traffic and was not included in the analysis, although it is acknowledged that this entrance may be used under some rare conditions when the primary entrance on Nauvoo Road is inaccessible.

Despite the existing conditions analysis, the primary comparator to assess the effects of the alternative methods will be the difference between background conditions (which is the ‘Do Nothing’ Alternative that removes site traffic) and total traffic conditions (future operations with site traffic), but practically speaking, there will be no change from existing conditions in terms of the TCEC operations and the TCEC contribution to traffic volumes on the surrounding roadways.

#### 2.1.3.2 Key Design Considerations

It is assumed that the TCEC will continue to operate as it does today with no changes to traffic generated or the origins and destinations of site traffic. There may be general background growth associated with traffic passing through the Off-site Study Area, or growth associated with nearby developments. The daily, seasonal, and hourly vehicle arrival patterns will remain unchanged.

No changes to the approved service area, annual fill rate, haul routes, origins/destinations of site traffic, employee traffic volumes, or operational hours are anticipated from the Project.

No changes or alternatives are being proposed for the current haul route as part of the landfill optimization. Intersections at the interchanges with Kerwood Road and Forest Road were not included since facility-related traffic traveling through these interchanges will be free-flow and will not exit or enter Highway 402 via the interchanges.

There will be improvements to the intersection of Nauvoo Road and Confederation Road which will provide exclusive left-turn lanes for all approaches and will remove the westbound right-turn channelization. There will be no other changes to the existing driveway or surrounding road network within the Off-site Study Area.

From a Transportation perspective, the design of the alternative methods does not impact the above Transportation assumptions.

#### 2.1.3.3 Key Assumptions

The TCEC will continue to operate as it does today and will maintain the same peak hour traffic volumes, daily traffic volumes, seasonal variations, and hourly variations throughout the day.

The traffic analysis component of the Transportation Effects Assessment considered the following scenarios which were approved by review agencies:

- 2032 horizon year without the TCEC in operation ('Do Nothing' Alternative);
- 2032 horizon year with the TCEC in operation (optimization proceeds);
- 2043 horizon year without the TCEC in operation ('Do Nothing' Alternative); and
- 2043 horizon year with the TCEC in operation (optimization proceeds).

The 2032 horizon represents the 10-year horizon from existing conditions and the 2043 horizon year represents the extension of the TCEC operating life to 2043.

On a peak operating day there are typically 47 inbound and 77 outbound trips during the weekday AM peak hour, 44 inbound and 52 outbound trips during the midday peak hour, and 26 inbound and 30 outbound trips during the weekday PM peak hour. These volumes represent the existing condition peak day as well as future conditions.

Project traffic volumes for the TCEC were projected under the following assumptions:

- Employee traffic volumes remain unchanged.
- The origins/destinations of site traffic do not change.
- Haul routes do not change.
- The hourly, daily, and seasonal patterns remain stable.
- The breakdown of vehicle types and average vehicle loads remain stable.

## 2.2 Comparative Evaluation and Identification of the Preferred Alternative

The three alternative methods are comparatively assessed and evaluated using the criteria and indicators to determine the preferred alternative. The differences in the potential environmental effects remaining following the implementation of potential mitigation/management measures (i.e., net effects) are used to identify and compare each alternative method.

The net environmental effects are used to compare the three alternative methods to one another at the criteria and indicator level for each discipline. The following two step methodology was applied to carry out the comparative evaluation for Transportation:

1. Identify the predicted net effect(s) associated with each alternative method for each indicator and assign a preference rating (i.e., Preferred, Not Preferred, No Substantial Difference); and
2. Rate each alternative method at the criteria level (i.e., Preferred, Not Preferred, No Substantial Difference) based on the identified preference rating for each indicator and provide a rationale.

## 2.3 Effects Assessment of the Preferred Alternative

An assessment of the environmental effects of the Preferred Alternative is carried out considering the same criteria, indicators, and data sources, considering potential mitigation/management measures and cumulative effects. The effects assessment of the Preferred Alternative will be compiled and presented in the EA Study Report.

## 2.4 Comparison of the Preferred Alternative against the 'Do Nothing' Alternative

The effects of the Preferred Alternative are compared against the predicted effects of the currently approved Expansion Landfill based on similar environmental criteria and indicators, with the understanding that the criteria and indicators used in the current effects assessment may differ from those used for the effects assessment of the Expansion Landfill. The effects are compared against each other in terms of magnitude, extent, and duration. The advantages and disadvantages of the Preferred Alternative compared to the 'Do Nothing' Alternative are identified. The comparison of the effects of the Preferred Alternative against the 'Do Nothing' Alternative will be compiled and presented in the EA Study Report.

# 3 Net Effects Assessment

To identify the potential effects of the Project on Transportation, the conceptual design of each alternative method for the landfill optimization is examined to determine if it will have an effect on:

- Traffic operations through changes in peak traffic volume and intersection performance (capacity, delay, queues);
- Average Annual Daily Traffic; and
- Collision and safety.

Since the Alternative Methods are equivalent from a Transportation perspective, there is no comparison to be made. The only comparison that can be derived is between the 'Do Nothing' Alternative scenario and the future 2032 and 2043 total traffic conditions. As previously noted, the Average Annual Daily Traffic and the collision history is not expected to be impacted by the Project since the TCEC will continue to operate as it does today and the site access is going to remain as it is today.

The results of the net effects assessment are provided in **Sections 3.1** through **3.3**, below.

## 3.1 Traffic Analysis Methodology

Intersection operations were assessed for the Off-site Study Area intersections using the software program Synchro Traffic Signal Coordination Software Version 11, which employs methodology from the Highway Capacity Manual (HCM 2000) published by the Transportation Research Board National Research Council. Synchro can analyze both signalized and unsignalized intersections in a road corridor or network, taking into account the spacing, interaction, queues, and operations between intersections.

- The intersection analysis considers three separate measures of performance:
  - The capacity of all intersection movements, represented by the volume to capacity (v/c) ratio;
  - The level of service (LOS) for all intersection turning movements as well as for the overall intersection. The overall intersection LOS is based on the average control delay per vehicle (weighted) for the various movements through the intersection; and
  - The forecasted queue lengths (50th and 95th percentile queue lengths).

LOS is an indicator of how long a vehicle must wait to complete a movement and is represented by a letter between 'A' and 'F', with 'F' being the longest delay. The volume to capacity (v/c) ratio is a measure of the degree of capacity utilized at an intersection. HCM definitions are summarized in **Table 3-1**.

**Table 3-1. HCM Level of Service Definitions**

| Level of Service (LOS) | Signalized Control Delay per Vehicle (s) | Unsignalized Control Delay per Vehicle (s) | Description |
|---|---|---|---|
| A | ≤ 10 | ≤ 10 | Ideal |
| B | > 10 and ≤ 20 | > 10 and ≤ 15 | Acceptable |
| C | > 20 and ≤ 35 | > 15 and ≤ 25 | Acceptable |
| D | > 35 and ≤ 55 | > 25 and ≤ 35 | Somewhat undesirable |
| E | > 55 and ≤ 80 | > 35 and ≤ 50 | Undesirable |
| F | > 80 | > 50 | Poor |

In this study, critical operations have been defined as:

- Shared traffic movements with v/c ratios exceeding 0.85;
- Exclusive turning movements with v/c ratios exceeding 1.00;
- Exclusive turning movements where queues exceed available storage or shared movements where queue spillback impacts upstream intersections; and
- Exclusive turn lanes that are inaccessible due to the adjacent queues.

Detailed Synchro intersection operation reports are provided in **Appendix A**. Detailed SimTraffic Queueing reports are provided in **Appendix B**.

## 3.2 Future Baseline Conditions

The Off-site Study Area transportation network will remain unchanged under 2032 and 2043 future conditions. Background traffic growth was applied throughout the Off-site Study Area transportation network. Historic traffic growth was calculated using automatic traffic recorder counts for the years 2015 to 2022 and is presented in **Table 3-2**.

**Table 3-2. Historical ATR counts and Calculated Compounded Growth Rate**

| ATR Station and Description | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Compounded Annual Growth |
|---|---|---|---|---|---|---|---|---|---|
| 133901 - Confederation East of Watford | 1728 | n/a | 1773 | 1751 | n/a | n/a | 1577 | 1866 | 1.10% |
| 147908 - Nauvoo between St. Clair and Victoria | 5147 | n/a | 5600 | 5368 | n/a | n/a | 4756 | 4753 | -1.13% |
| 147909 - Nauvoo South of Highway 402 | 4167 | 3757 | n/a | 4440 | 4350 | n/a | n/a | n/a | 1.08% |
| 147910 - Nauvoo North of Highway 402 | 3272 | 2912 | n/a | 3808 | n/a | n/a | n/a | n/a | 2.19% |

Notes: “n/a” = not available. An Automatic Traffic Recorder count was not available. The Compound annual growth was calculated based on the oldest and most recent available data.

Conservative growth rates were selected and used in the traffic volume forecasting. The north-south volumes on Nauvoo Road were assumed to grow at a compounded annual growth rate (CAGR) of 2.0%, while side streets were assumed to grow at 1.0% CAGR. Site traffic volume in and out of the site was assumed to be the same as existing volume for both 2032 and 2043 future conditions and matches the volumes analyzed in the Transportation Existing Conditions Report.

The inbound weigh scale processing time is assumed to be the same under future conditions.

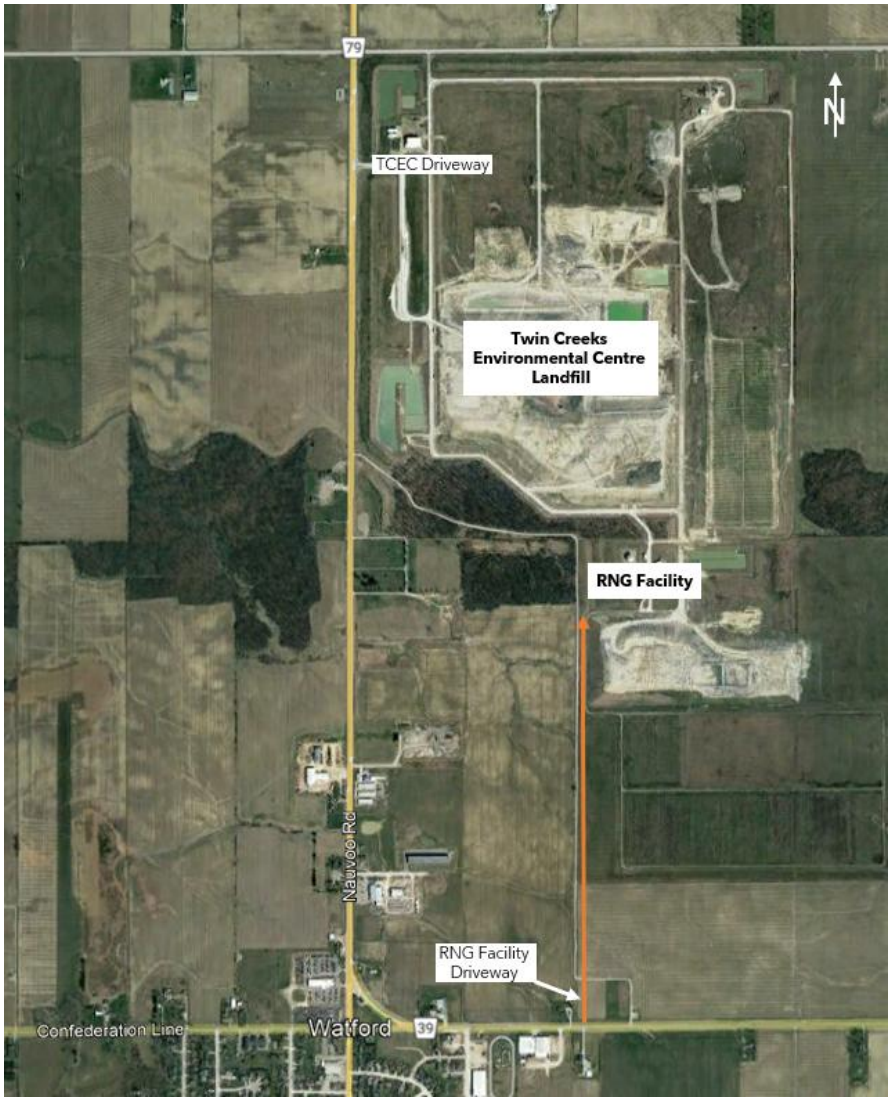
### 3.2.1 Renewable Natural Gas Facility

The RNG Facility will be located south of the existing Twin Creeks landfill near the existing landfill gas facility. A new access point to the RNG Facility has been constructed on Confederation Line between the existing Twin Creeks dog park, and the landfill western property line. The general location of the proposed RNG Facility in the context of the landfill and dog park is shown in **Figure 3-1**. Traffic to the TCEC will continue to use the existing entrance on Nauvoo Road while RNG Facility related traffic will use the new driveway on Confederation Line.

Construction of the RNG Facility will be completed by 2025, in advance of the 2032 and 2043 future horizon years. Once operational, the RNG Facility will have approximately 6-10 employees on site who will operate the facility and these

employees are expected to arrive or leave the site outside the peak periods. Despite the expectation that RNG Facility-related trips will occur outside of the peak periods, it has been assumed that there will be 10 inbound trips during the morning peak hour, and 10 outbound trips during the PM peak hour.

**Figure 3-1. RNG Facility Location**



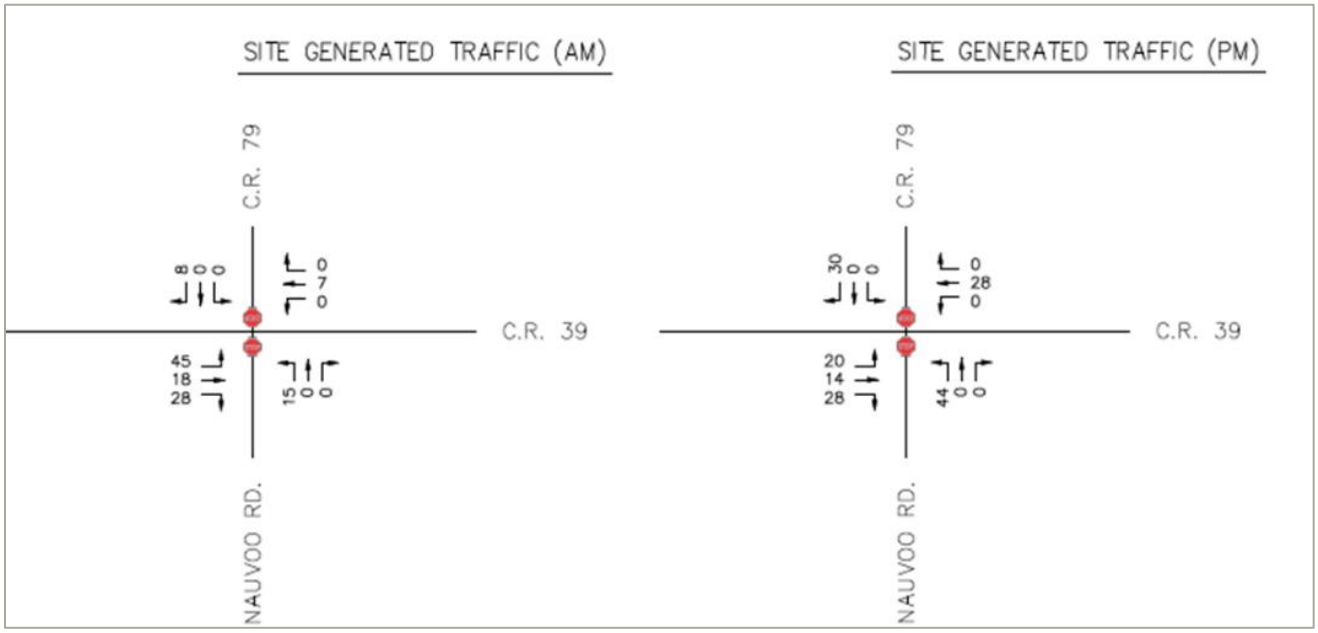

## 3.2.2 Background Developments

One background development has been identified within the Off-site Study Area. A residential subdivision development is proposed for the lands situated on the north side of Confederation Line, across from the intersection with John Street and Sunset Avenue. **Figure 3-2** illustrates the location of the background development. **Figure 3-3** shows the site traffic generated by the background development extracted from the Traffic Impact Study for that development. This background development site traffic was also distributed along Off-site Study Area intersections. 80% of background development traffic was assumed to/from east on Highway 402. The remaining 20% of background development traffic was assumed to/from west on Highway 402.

**Figure 3-2. Background Development Location (Heritage Creek Subdivision)**


Source: Heritage Creek Subdivision, Watford ON, Traffic Impact Study (RC Spencer Associates Inc., November 2020)

**Figure 3-3. Background Development Traffic (Heritage Creek Subdivision)**




Source: Heritage Creek Subdivision, Watford ON, Traffic Impact Study (RC Spencer Associates Inc., November 2020)

## 3.2.3 Future Lane Configuration

RC Spencer & Associates conducted an Intersection Improvement Study entitled “C.R. 79 / C.R.39 Watford, ON Intersection Improvement Study” dated June 2022 for the intersection of Confederation Line and Nauvoo Road. The study examined the appropriate lane configuration that should be adopted under 2025 conditions.

The study concluded that the intersection should remain under east-west stop-control but should be improved to provide exclusive left turn lanes on all approaches with shared through-right turn lanes. This would entail the removal of the northbound right-turn lane as well as the channelized westbound right turn lane.

**Figure 3-7** illustrates the recommended lane configuration for Confederation Line and Nauvoo Road. This proposed lane configuration was adopted for traffic analyses under 2032 and 2043 future conditions.

The study recommended that operations be monitored for potential conversion to a traffic signal, when warranted. However, the mode of control within this study has been assumed to remain stop-controlled.

## 3.2.4 Future Background Traffic Operations

### 3.2.4.1 Traffic Volumes – Future Background Conditions

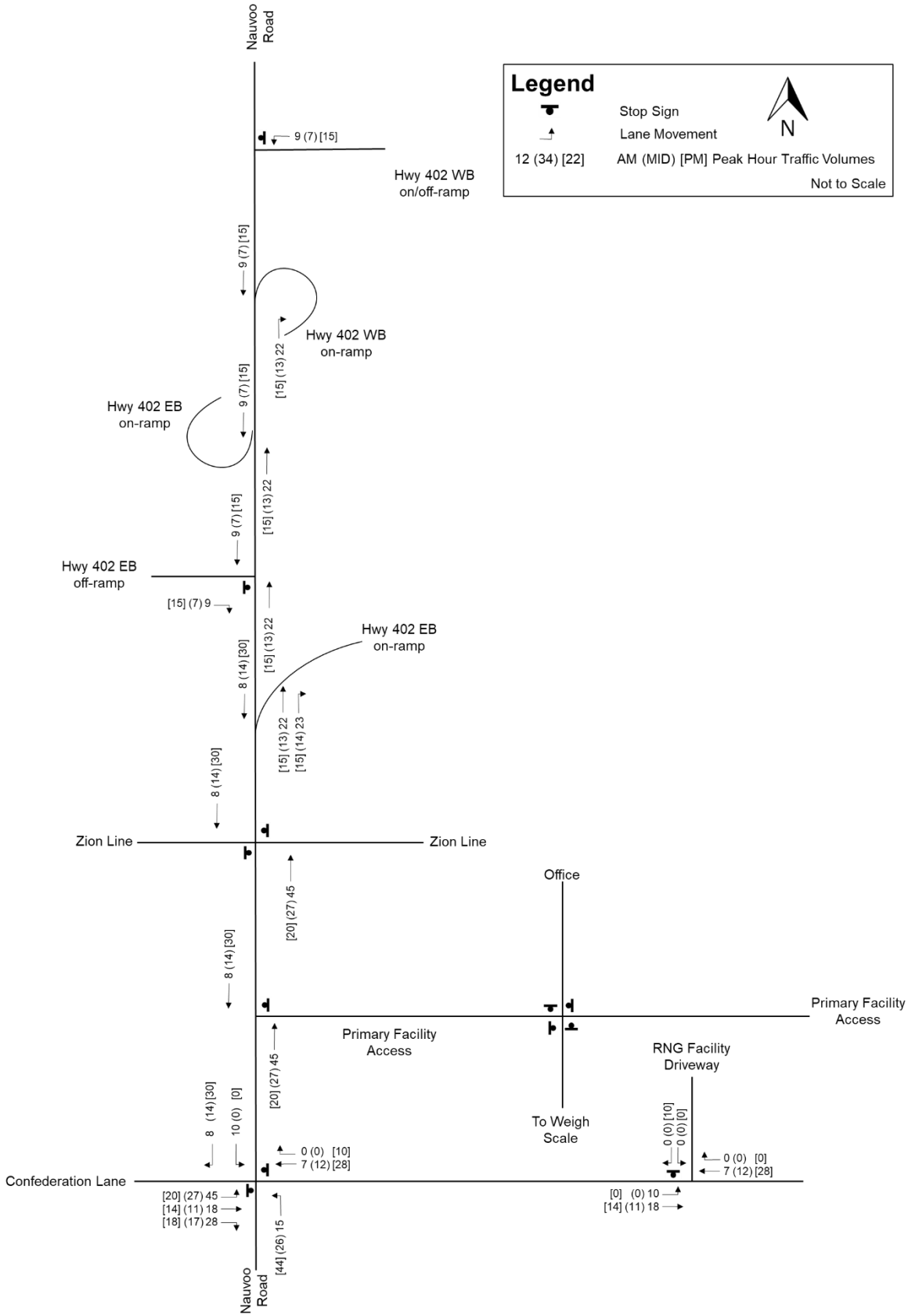
Existing traffic volumes are presented in the Transportation Existing Conditions report. Future background traffic volumes for the 2032 and 2043 horizon years were

developed by applying a compound annual growth rate (CAGR) to the existing traffic volumes.

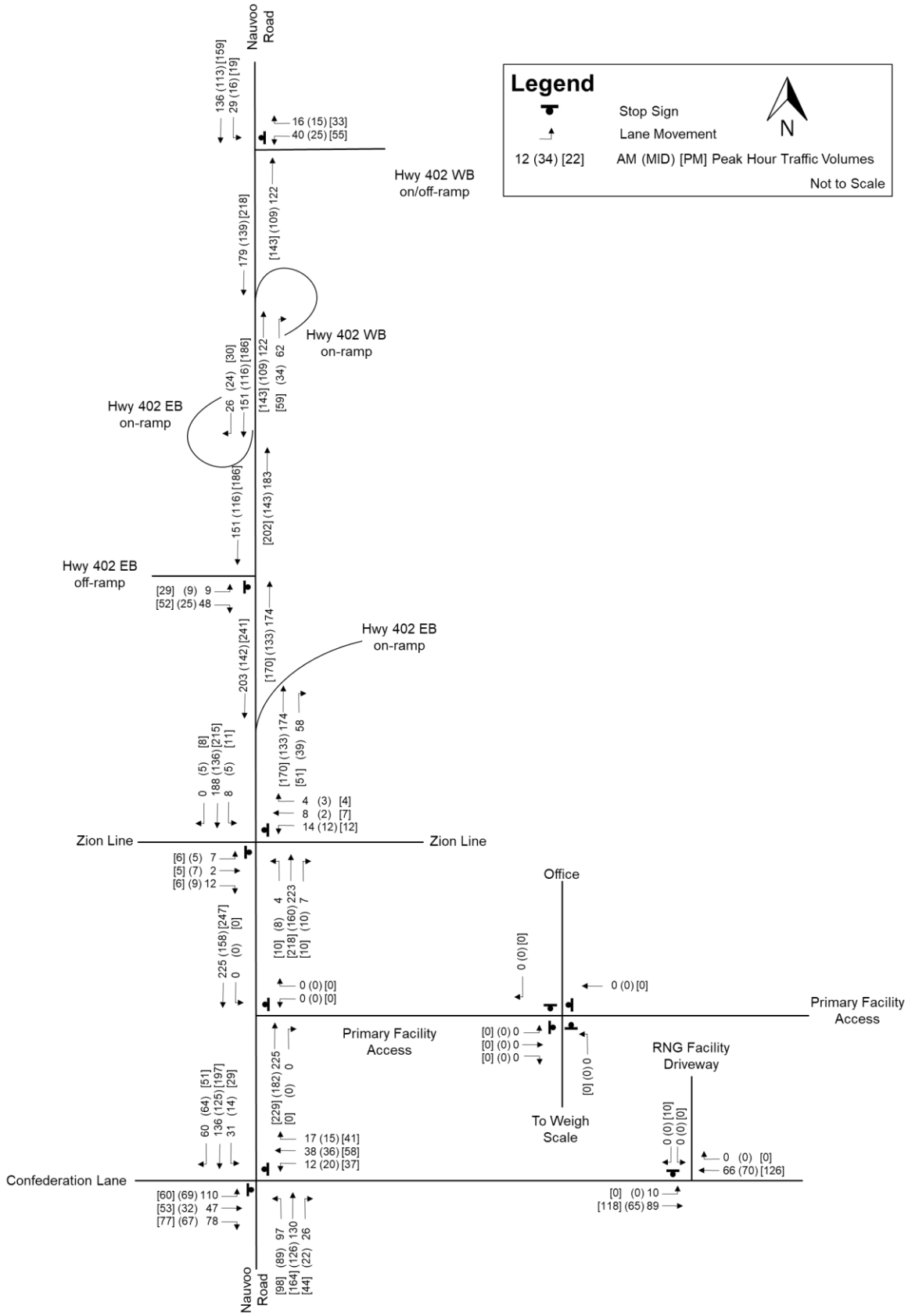
As mentioned in **Section 3.2**, north-south volumes along Nauvoo Road were grown at 2.0% CAGR, while side streets volumes were grown at 1.0% CAGR. In addition, site traffic for one background development was included in the forecasts (**Figure 3-3**), and the RNG Facility employee traffic was also added onto Off-site Study Area intersections. Background development traffic on Off-site Study Area intersections is shown in **Figure 3-4**.

Site traffic from TCEC were removed in future background analyses, so that traffic impacts associated with TCEC traffic can be measured when they are re-introduced in total future conditions analyses. Future background traffic volumes for 2032 and 2043 horizon years are shown in **Figure 3-5** and **Figure 3-6**, respectively.

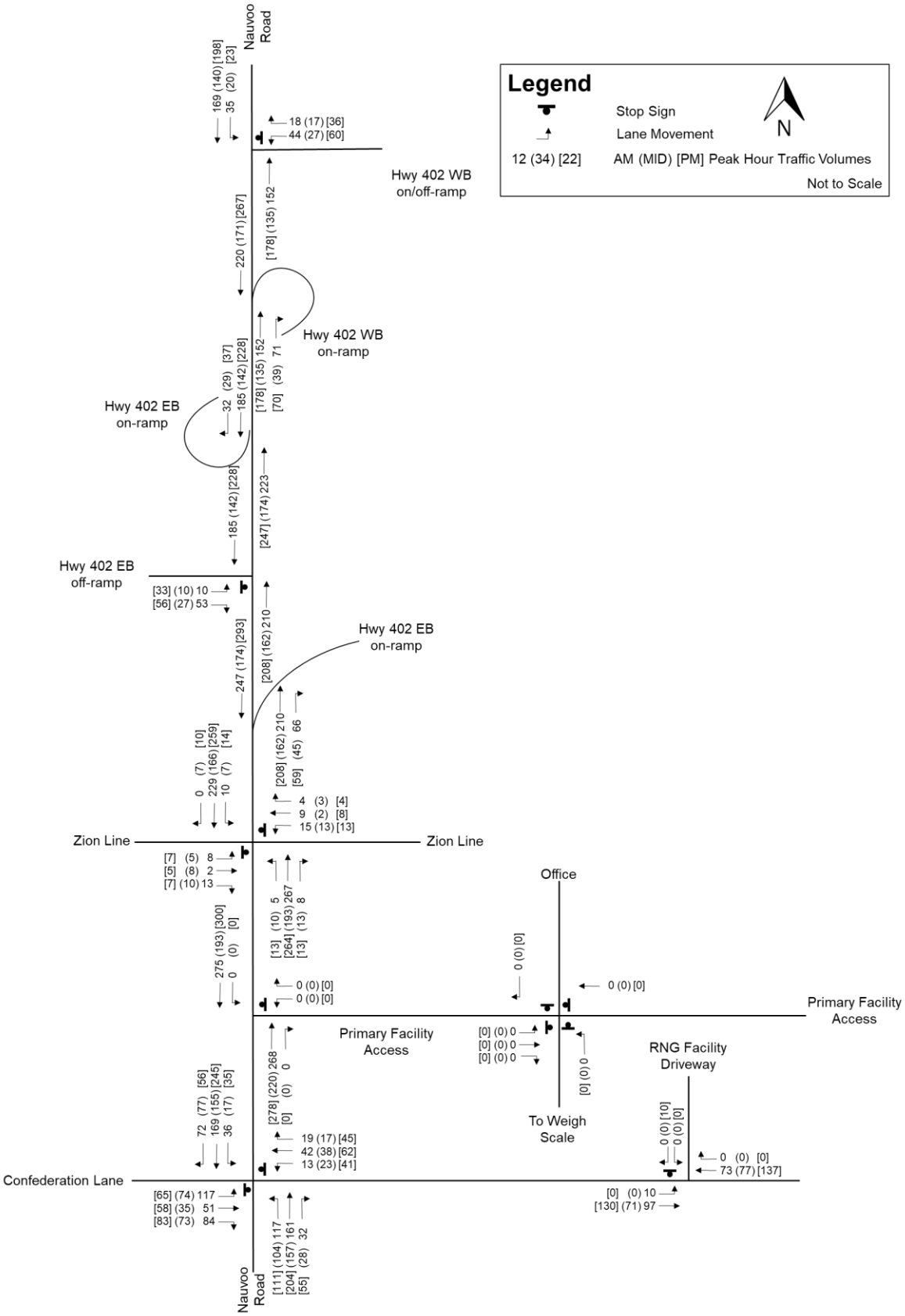
## Figure 3-4. Background Development Traffic



## Figure 3-5. 2032 Future Background Traffic Volumes



## Figure 3-6. 2043 Future Background Traffic Volumes



### 3.2.4.2 2032 Future Background Traffic Operations

Traffic operations and queues for the 2032 future background horizon are summarized in **Table 3-3**, and **Table 3-4**, respectively.

**Table 3-3. 2032 Future Background Traffic Operation**

| Intersection and Movement | Weekday AM Peak Hour | | Weekday Midday Peak Hour | | Weekday PM Peak Hour | |
|---|---|---|---|---|---|---|
| | LOS | v/c | LOS | v/c | LOS | v/c |
| ***Nauvoo Road at Highway 402 Eastbound Off-Ramp*** | | | | | | |
| Eastbound Approach | A | 0.07 | A | 0.05 | B | 0.12 |
| Northbound Through | - | 0.11 | - | 0.09 | - | 0.11 |
| Southbound Through | - | 0.09 | - | 0.08 | - | 0.12 |
| ***Nauvoo Road at Highway 402 Westbound Off-Ramp*** | | | | | | |
| Westbound Approach | B | 0.09 | B | 0.07 | B | 0.15 |
| Northbound Through | - | 0.08 | - | 0.07 | - | 0.10 |
| Southbound Left-turn | A | 0.02 | A | 0.01 | A | 0.02 |
| Southbound Through | - | 0.09 | - | 0.08 | - | 0.11 |
| ***Nauvoo Road at Confederation Line*** | | | | | | |
| Eastbound Left | C | 0.37 | C | 0.22 | D | 0.34 |
| Eastbound Through-Right | B | 0.24 | B | 0.18 | C | 0.33 |
| Westbound Left | C | 0.05 | C | 0.07 | D | 0.23 |
| Westbound Through-Right | B | 0.14 | B | 0.13 | C | 0.29 |
| Northbound Left | A | 0.08 | A | 0.07 | A | 0.09 |
| Northbound Through-Right | - | 0.10 | - | 0.1 | - | 0.14 |
| Southbound Left-turn | A | 0.02 | A | 0.01 | A | 0.02 |
| Southbound Through-Right | - | 0.12 | - | 0.12 | - | 0.17 |
| ***Nauvoo Road at Zion Line*** | | | | | | |
| Eastbound Approach | B | 0.03 | B | 0.03 | B | 0.04 |
| Westbound Approach | B | 0.05 | B | 0.03 | B | 0.06 |
| Northbound Approach | A | 0.00 | A | 0.01 | A | 0.01 |
| Southbound Approach | A | 0.01 | A | 0.00 | A | 0.01 |
| ***Nauvoo Road at TCEC Entrance*** | | | | | | |
| Westbound Approach | - | - | - | - | - | - |
| Northbound Through | - | 0.14 | - | 0.12 | - | 0.14 |
| Northbound Right-turn | - | - | - | - | - | - |
| Southbound Left-turn | - | - | - | - | - | - |
| Southbound Through | - | 0.14 | - | 0.1 | - | 0.16 |

Notes: Critical movements include exclusive turning movements with v/c ratios exceeding 1.00 and shared movements with v/c exceeding 0.85, or movements with LOS 'E' or 'F'. Critical movements are highlighted in red.

**Table 3-4. 2032 Future Background Queues**

| Intersection and Movement | Storage | 95th Percentile Queue (m) | | |
|---|---|---|---|---|
| | | Weekday AM Peak Hour | Weekday Midday | Weekday PM Peak Hour |
| ***Nauvoo Road at Highway 402 Eastbound Off-Ramp*** | | | | |
| Eastbound Approach | - | < 5 | < 5 | < 5 |
| Northbound Through | - | < 5 | < 5 | < 5 |
| Southbound Through | - | < 5 | < 5 | < 5 |
| ***Nauvoo Road at Highway 402 Westbound Off-Ramp*** | | | | |
| Westbound Approach | - | < 5 | < 5 | < 5 |
| Northbound Through | - | < 5 | < 5 | < 5 |
| Southbound Left-turn | - | < 5 | < 5 | < 5 |
| Southbound Through | - | < 5 | < 5 | < 5 |
| ***Nauvoo Road at Confederation Line*** | | | | |
| Eastbound Left | 30 | 13 | 6 | 11 |
| Eastbound Through-Right | - | 7 | 5 | 11 |
| Westbound Left | 30 | < 5 | < 5 | 7 |
| Westbound Through-Right | - | < 5 | < 5 | 9 |
| Northbound Left | 30 | < 5 | < 5 | < 5 |
| Northbound Through-Right | - | < 5 | < 5 | < 5 |
| Southbound Left-turn | 30 | < 5 | < 5 | < 5 |
| Southbound Through-Right | - | < 5 | < 5 | < 5 |
| ***Nauvoo Road at Zion Line*** | | | | |
| Eastbound Approach | - | < 5 | < 5 | < 5 |
| Westbound Approach | - | < 5 | < 5 | < 5 |
| Northbound Approach | - | < 5 | < 5 | < 5 |
| Southbound Approach | - | < 5 | < 5 | < 5 |
| ***Nauvoo Road at TCEC Entrance*** | | | | |
| Westbound Approach | 100 | < 5 | < 5 | < 5 |
| Northbound Through | - | < 5 | < 5 | < 5 |
| Northbound Right-turn | 65 | < 5 | < 5 | < 5 |
| Southbound Left-turn | - | < 5 | < 5 | < 5 |
| Southbound Through | - | < 5 | < 5 | < 5 |

All movements operate at LOS C or better except for the eastbound and westbound movements at Confederation Line and Nauvoo Road. Eastbound and westbound left is anticipated to operate at LOS D during the PM peak hour. All movements at all intersections and for all periods have sufficient residual capacity.

95th percentile queues for eastbound and westbound movements at Confederation Line and Nauvoo Road are not expected to exceed 12 metres (m). 95th percentile queues for all other movements are not expected to exceed 5 m for all periods.

### 3.2.4.3 2043 Future Background Traffic Operations

Traffic operations and queues for the 2043 future background horizon are summarized in **Table 3-5**, and **Table 3-6**, respectively.

**Table 3-5. 2043 Future Background Traffic Operations**

| Intersection and Movement | Weekday AM Peak Hour | | Weekday Midday Peak Hour | | Weekday PM Peak Hour | |
|---|---|---|---|---|---|---|
| | LOS | v/c | LOS | v/c | LOS | v/c |
| ***Nauvoo Road at Highway 402 Eastbound Off-Ramp*** | | | | | | |
| Eastbound Approach | B | 0.08 | A | 0.05 | B | 0.15 |
| Northbound Through | - | 0.13 | - | 0.11 | - | 0.14 |
| Southbound Through | - | 0.11 | - | 0.09 | - | 0.15 |
| ***Nauvoo Road at Highway 402 Westbound Off-Ramp*** | | | | | | |
| Westbound Approach | B | 0.12 | B | 0.08 | B | 0.18 |
| Northbound Through | - | 0.10 | - | 0.09 | - | 0.12 |
| Southbound Left-turn | A | 0.03 | A | 0.02 | A | 0.02 |
| Southbound Through | - | 0.11 | - | 0.09 | - | 0.13 |
| ***Nauvoo Road at Confederation Line*** | | | | | | |
| Eastbound Left | D | 0.52 | C | 0.29 | **F** | 0.53 |
| Eastbound Through-Right | C | 0.30 | B | 0.22 | C | 0.44 |
| Westbound Left | D | 0.07 | C | 0.10 | **E** | 0.37 |
| Westbound Through-Right | C | 0.18 | C | 0.16 | C | 0.39 |
| Northbound Left | A | 0.10 | A | 0.09 | A | 0.11 |
| Northbound Through-Right | - | 0.12 | - | 0.12 | - | 0.17 |
| Southbound Left-turn | A | 0.03 | A | 0.01 | A | 0.03 |
| Southbound Through-Right | - | 0.15 | - | 0.15 | - | 0.20 |
| ***Nauvoo Road at Zion Line*** | | | | | | |
| Eastbound Approach | B | 0.04 | B | 0.04 | B | 0.05 |
| Westbound Approach | B | 0.06 | B | 0.03 | C | 0.08 |
| Northbound Approach | A | 0.00 | A | 0.01 | A | 0.01 |
| Southbound Approach | A | 0.01 | A | 0.01 | A | 0.01 |
| ***Nauvoo Road at TCEC Entrance*** | | | | | | |
| Westbound Approach | - | - | - | - | - | - |
| Northbound Through | - | 0.17 | - | 0.14 | - | 0.18 |
| Northbound Right-turn | - | - | - | - | - | - |
| Southbound Left-turn | - | - | - | - | - | - |

### Table 3-5. 2043 Future Background Traffic Operations

| Intersection and Movement | Weekday AM Peak Hour | | Weekday Midday Peak Hour | | Weekday PM Peak Hour | |
|---|---|---|---|---|---|---|
| | LOS | v/c | LOS | v/c | LOS | v/c |
| Southbound Through | - | 0.17 | - | 0.13 | - | 0.19 |

Notes: Critical movements include exclusive turning movements with v/c ratios exceeding 1.00 and shared movements with v/c exceeding 0.85, or movements with LOS 'E' or 'F'. Critical movements are highlighted in red.

### Table 3-6. 2043 Future Background Queues

| Intersection and Movement | Storage | 95th Percentile Queue (m) | | |
|---|---|---|---|---|
| | | Weekday AM Peak Hour | Weekday Midday | Weekday PM Peak Hour |
| ***Nauvoo Road at Highway 402 Eastbound Off-Ramp*** | | | | |
| Eastbound Approach | - | < 5 | < 5 | < 5 |
| Northbound Through | - | < 5 | < 5 | < 5 |
| Southbound Through | - | < 5 | < 5 | < 5 |
| ***Nauvoo Road at Highway 402 Westbound Off-Ramp*** | | | | |
| Westbound Approach | - | < 5 | < 5 | 5 |
| Northbound Through | - | < 5 | < 5 | < 5 |
| Southbound Left-turn | - | < 5 | < 5 | < 5 |
| Southbound Through | - | < 5 | < 5 | < 5 |
| ***Nauvoo Road at Confederation Line*** | | | | |
| Eastbound Left | 30 | 21 | 9 | 20 |
| Eastbound Through-Right | - | 10 | 6 | 17 |
| Westbound Left | 30 | < 5 | < 5 | 12 |
| Westbound Through-Right | - | 5 | < 5 | 13 |
| Northbound Left | 30 | < 5 | < 5 | < 5 |
| Northbound Through-Right | - | < 5 | < 5 | < 5 |
| Southbound Left-turn | 30 | < 5 | < 5 | < 5 |
| Southbound Through-Right | - | < 5 | < 5 | < 5 |
| ***Nauvoo Road at Zion Line*** | | | | |
| Eastbound Approach | - | < 5 | < 5 | < 5 |
| Westbound Approach | - | < 5 | < 5 | < 5 |
| Northbound Approach | - | < 5 | < 5 | < 5 |
| Southbound Approach | - | < 5 | < 5 | < 5 |
| ***Nauvoo Road at TCEC Entrance*** | | | | |
| Westbound Approach | 100 | < 5 | < 5 | < 5 |

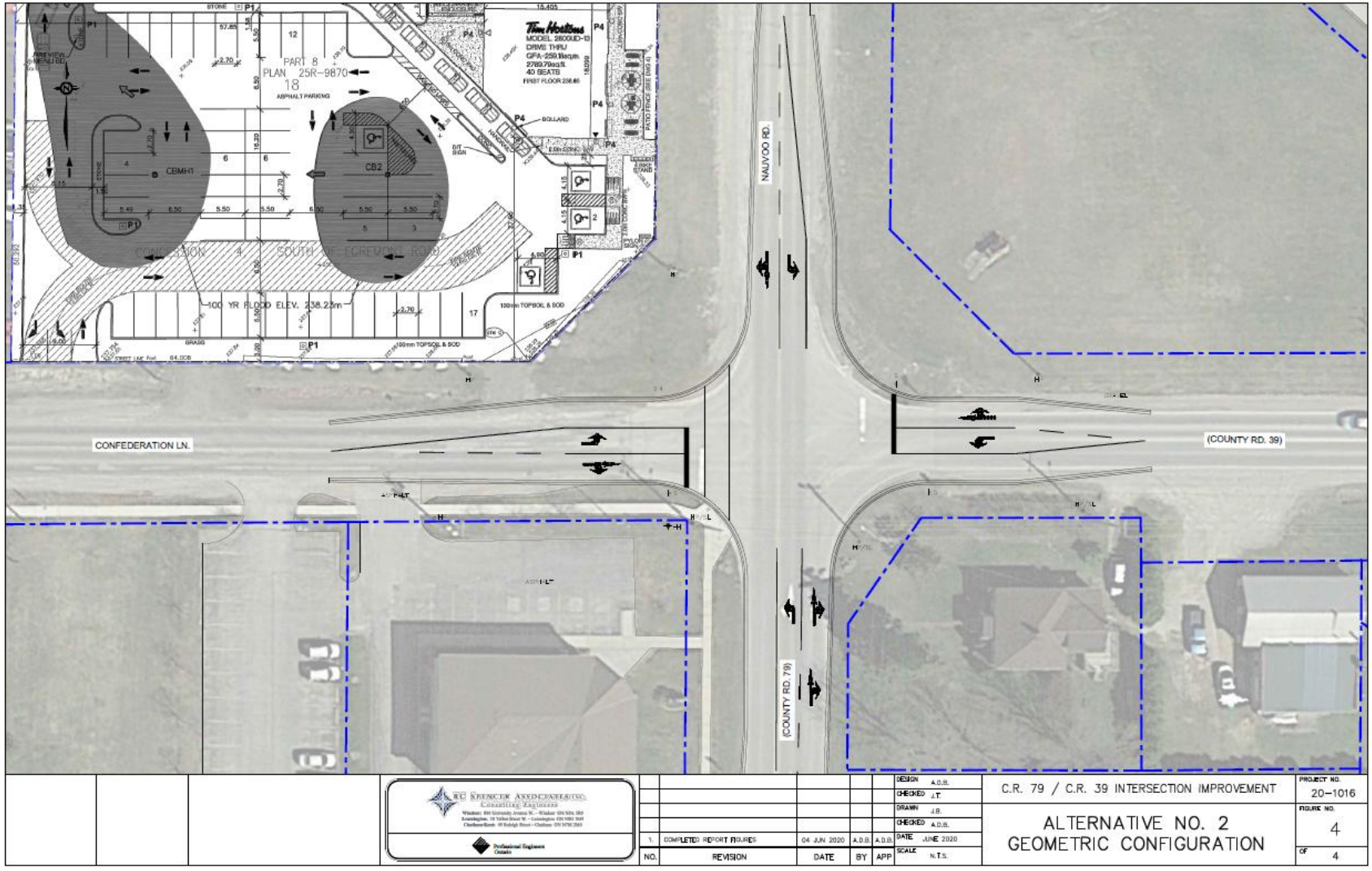
**Table 3-6. 2043 Future Background Queues**

| Intersection and Movement | Storage | 95th Percentile Queue (m) | | |
|---|---|---|---|---|
| | | Weekday AM Peak Hour | Weekday Midday | Weekday PM Peak Hour |
| Northbound Through | - | < 5 | < 5 | < 5 |
| Northbound Right-turn | 65 | < 5 | < 5 | < 5 |
| Southbound Left-turn | - | < 5 | < 5 | < 5 |
| Southbound Through | - | < 5 | < 5 | < 5 |

Two critical movements are identified for the 2043 future background horizon. The eastbound left-turn at Confederation Line and Nauvoo Road is expected to operate at LOS F during the PM peak hour. During the PM peak hour, westbound left is expected to operate at LOS E. Despite the delays, all other movements will operate with residual capacity during all periods. A signal warrant is presented in **Section 3.3.1.4**.

95th percentile queues on the eastbound and westbound approaches at Confederation Line and Nauvoo Road are expected to be less than 20 m. 95th percentile queues for all other movements are expected to be 5 m or less for all periods. The Township of Warwick and County of Lambton are currently coordinating upgrades to this intersection. These planned improvements are expected to address existing operational constraints and are independent of the Project.

## Figure 3-7. Proposed Lane Configuration at Confederation Line and Nauvoo Road




Source: C.R. 79 / C.R. 39 Watford, ON – Intersection Improvement Study (RC Spencer Associates Inc., June 202)

## 3.3 Alternative Method 1

The assessment of effects for Alternative Method 1 is described below for the environmental criteria and indicators of Transportation in **Section 3.3.1** to **Section 3.3.4**.

### 3.3.1 Total Future Traffic Operations

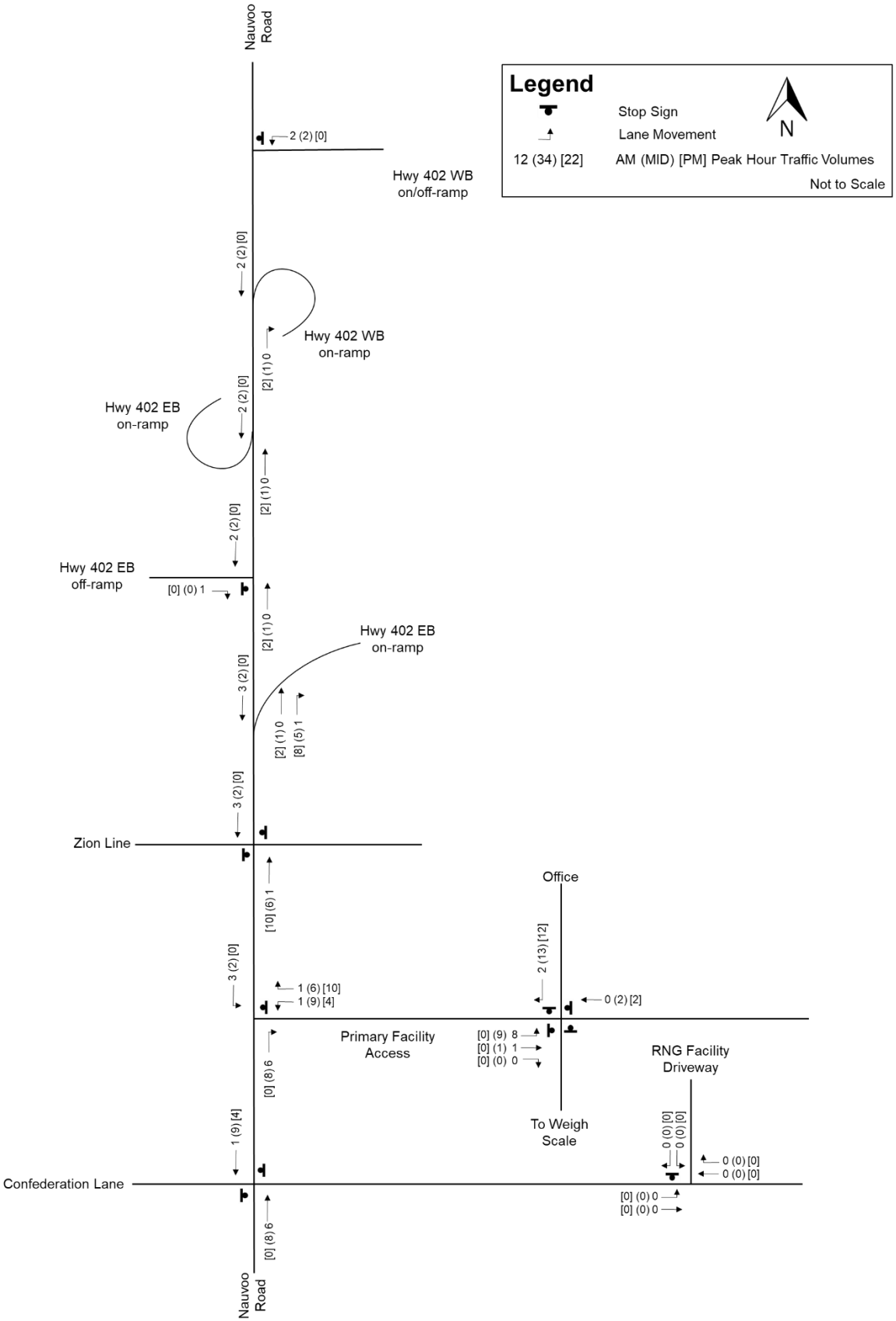
Traffic operations under 2032 and 2043 total future conditions are detailed in the subsequent subsections. In addition, anticipated queue lengths at the inbound weigh scale are discussed. The traffic analysis methodology is described in **Section 3.1**.

#### 3.3.1.1 Traffic Volumes – Total Future Conditions

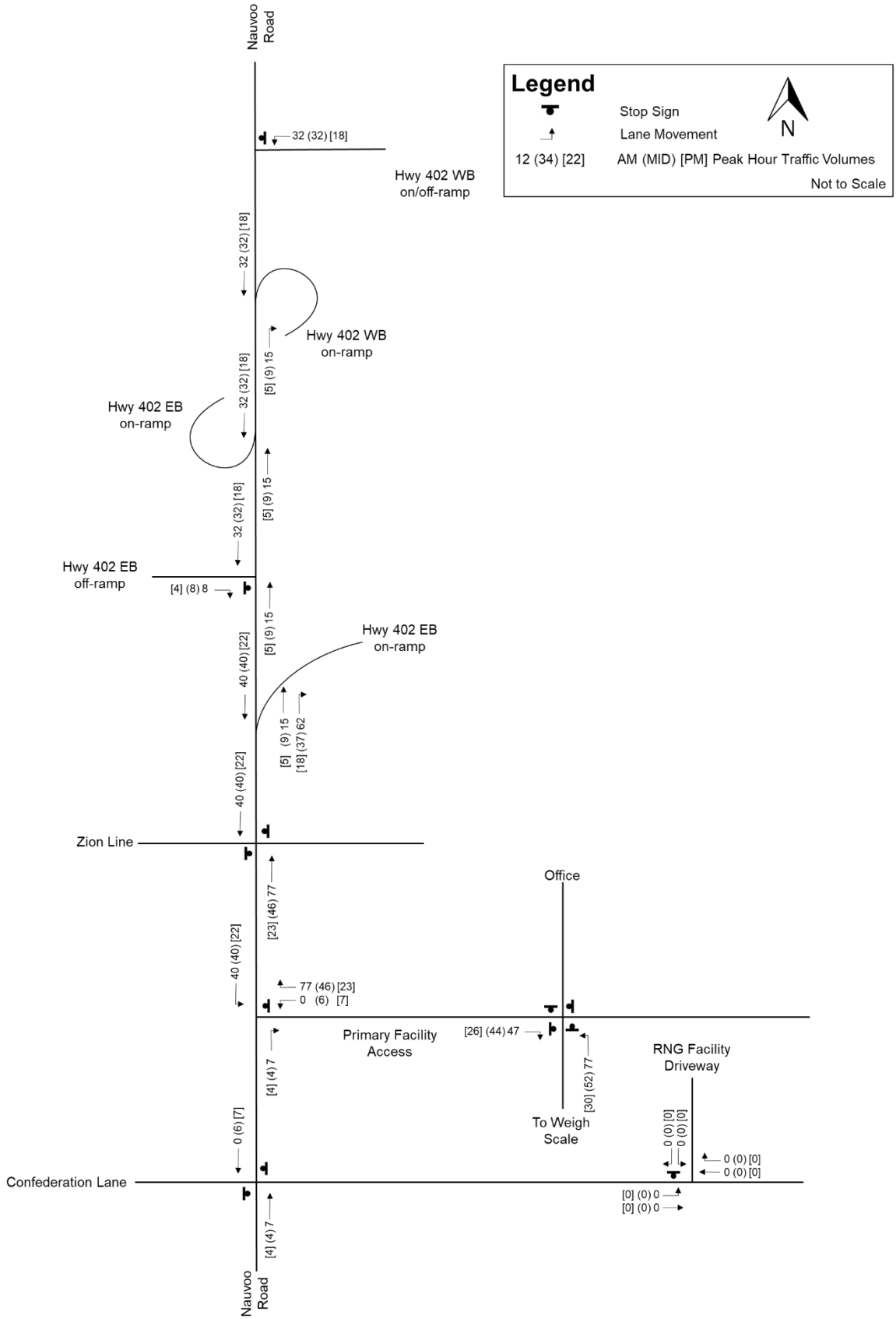
Traffic volumes under total future conditions takes future background volume as a base and then adds on TCEC site traffic on top of the background traffic. By doing so, traffic operations from total future conditions can be compared with traffic operations from future background conditions to quantify impacts of TCEC optimization.

TCEC site traffic by car and trucks are shown in **Figure 3-8** and **Figure 3-9**. Truck site traffic were adjusted to peak conditions using weigh scale data. For more details on adjustment of site traffic, please refer to the Transportation Existing Conditions report. TCEC site traffic is shown in **Figure 3-10**. 2032 and 2043 total future condition traffic volumes are shown in **Figure 3-11** and **Figure 3-12**, respectively.

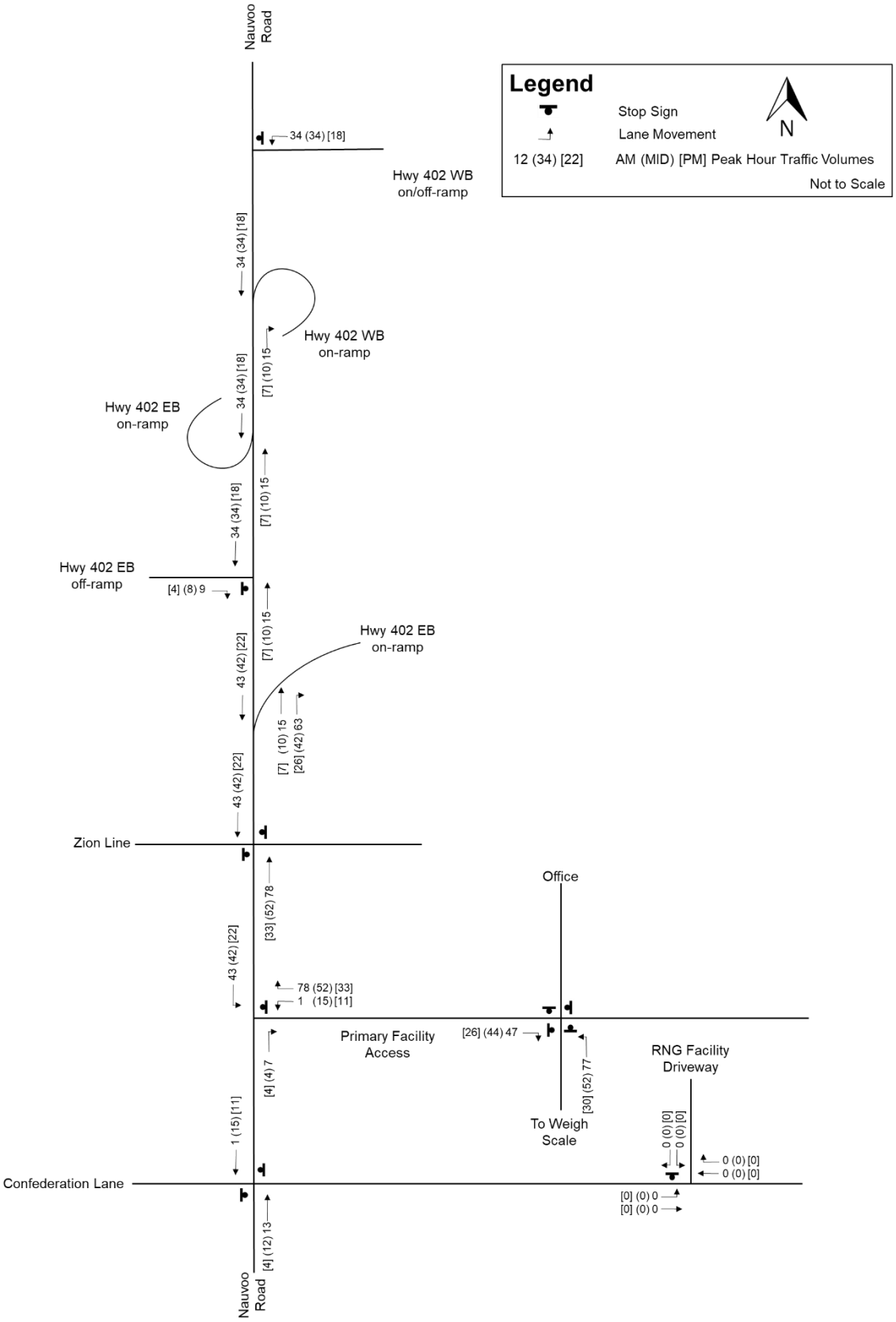
## Figure 3-8. TCEC Site Traffic (Cars)



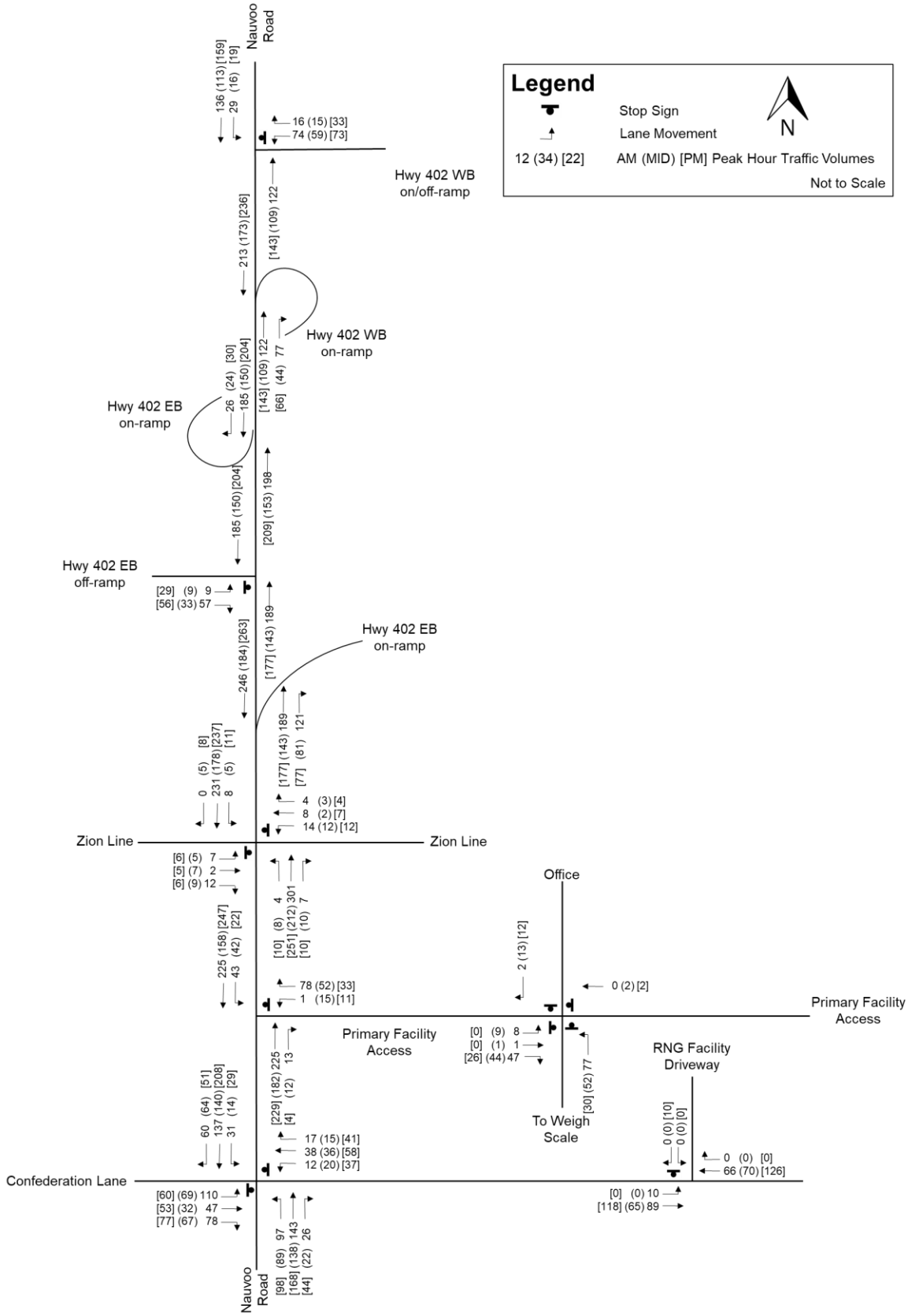
## Figure 3-9. TCEC Site Traffic (Trucks Adjusted to Peak Conditions)



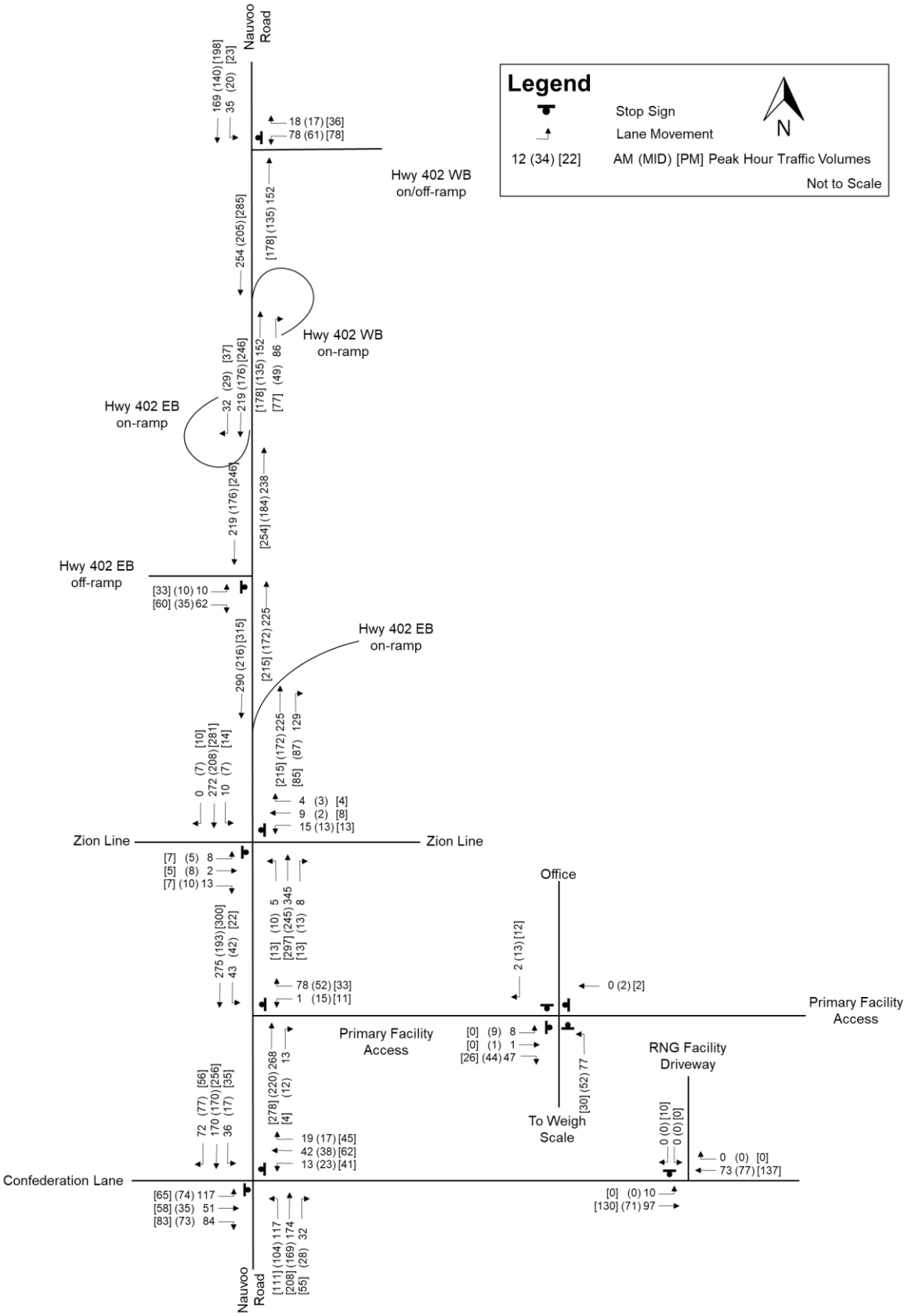
## Figure 3-10. TCEC Total Site Traffic (Adjusted)



## Figure 3-11. 2032 Total Future Traffic Volumes



## Figure 3-12. 2043 Total Future Traffic Volumes



### 3.3.1.2 2032 Total Future Traffic Operations

**Table 3-7** summarizes traffic operations at Off-site Study Area intersections for the 2032 horizon year.

**Table 3-7. 2032 Total Future Traffic Operations**

| Intersection and Movement | Weekday AM Peak Hour | | Weekday Midday Peak Hour | | Weekday PM Peak Hour | |
|---|---|---|---|---|---|---|
| | LOS | v/c | LOS | v/c | LOS | v/c |
| ***Nauvoo Road at Highway 402 Eastbound Off-Ramp*** | | | | | | |
| Eastbound Approach | B | 0.09 | A | 0.06 | B | 0.13 |
| Northbound Through | - | 0.12 | - | 0.09 | - | 0.11 |
| Southbound Through | - | 0.11 | - | 0.10 | - | 0.13 |
| ***Nauvoo Road at Highway 402 Westbound Off-Ramp*** | | | | | | |
| Westbound Approach | B | 0.16 | B | 0.14 | B | 0.18 |
| Northbound Through | - | 0.08 | - | 0.07 | - | 0.10 |
| Southbound Left-turn | A | 0.02 | A | 0.01 | A | 0.02 |
| Southbound Through | - | 0.09 | - | 0.08 | - | 0.11 |
| ***Nauvoo Road at Confederation Line*** | | | | | | |
| Eastbound Left | C | 0.36 | C | 0.23 | D | 0.36 |
| Eastbound Through-Right | B | 0.24 | B | 0.18 | C | 0.34 |
| Westbound Left | C | 0.05 | C | 0.07 | D | 0.24 |
| Westbound Through-Right | B | 0.14 | B | 0.13 | C | 0.30 |
| Northbound Left | A | 0.08 | A | 0.07 | A | 0.09 |
| Northbound Through-Right | - | 0.11 | - | 0.10 | - | 0.14 |
| Southbound Left-turn | A | 0.02 | A | 0.01 | A | 0.02 |
| Southbound Through-Right | - | 0.12 | - | 0.13 | - | 0.18 |
| ***Nauvoo Road at Zion Line*** | | | | | | |
| Eastbound Approach | B | 0.04 | B | 0.04 | B | 0.05 |
| Westbound Approach | B | 0.06 | B | 0.03 | B | 0.07 |
| Northbound Approach | A | 0.00 | A | 0.01 | A | 0.01 |
| Southbound Approach | A | 0.01 | A | 0.00 | A | 0.01 |
| ***Nauvoo Road at TCEC Entrance*** | | | | | | |
| Westbound Approach | B | 0.14 | B | 0.12 | B | 0.07 |
| Northbound Through | - | 0.14 | - | 0.12 | - | 0.14 |
| Northbound Right-turn | - | 0.01 | - | 0.01 | - | 0.00 |
| Southbound Left-turn | A | 0.05 | A | 0.05 | A | 0.02 |
| Southbound Through | - | 0.14 | - | 0.10 | - | 0.16 |

**Table 3-7. 2032 Total Future Traffic Operations**

| Intersection and Movement | Weekday AM Peak Hour | | Weekday Midday Peak Hour | | Weekday PM Peak Hour | |
|---|---|---|---|---|---|---|
| | LOS | v/c | LOS | v/c | LOS | v/c |
| ***Nauvoo Road at RNG Facility Driveway*** | | | | | | |
| Eastbound Through-Left | A | 0.01 | A | 0.00 | A | 0.00 |
| Southbound Approach | A | 0.01 | A | 0.01 | A | 0.01 |

Notes: Critical movements include exclusive turning movements with v/c ratios exceeding 1.00 and shared movements with v/c exceeding 0.85, or movements with LOS 'E' or 'F'.

Compared with background conditions, all intersection approach or movement level of service values will remain the same. There are nominal increases to the volume to capacity ratios, however, these increases are small, and all movements are expected to continue operating within acceptable thresholds.

**Table 3-8** summarizes the expected queues under 2032 total future conditions.

**Table 3-8. 2032 Total Future Queues**

| Intersection and Movement | Storage | 95th Percentile Queue (m) | | |
|---|---|---|---|---|
| | | Weekday AM Peak Hour | Weekday Midday | Weekday PM Peak Hour |
| ***Nauvoo Road at Highway 402 Eastbound Off-Ramp*** | | | | |
| Eastbound Approach | - | < 5 | < 5 | < 5 |
| Northbound Through | - | < 5 | < 5 | < 5 |
| Southbound Through | - | < 5 | < 5 | < 5 |
| ***Nauvoo Road at Highway 402 Westbound Off-Ramp*** | | | | |
| Westbound Approach | - | < 5 | < 5 | 5 |
| Northbound Through | - | < 5 | < 5 | < 5 |
| Southbound Left-turn | - | < 5 | < 5 | < 5 |
| Southbound Through | - | < 5 | < 5 | < 5 |
| ***Nauvoo Road at Confederation Line*** | | | | |
| Eastbound Left | 30 | 12 | 7 | 12 |
| Eastbound Through-Right | - | 7 | 5 | 11 |
| Westbound Left | 30 | < 5 | < 5 | 7 |
| Westbound Through-Right | - | < 5 | < 5 | 9 |
| Northbound Left | 30 | < 5 | < 5 | < 5 |
| Northbound Through-Right | - | < 5 | < 5 | < 5 |
| Southbound Left-turn | 30 | < 5 | < 5 | < 5 |
| Southbound Through-Right | - | < 5 | < 5 | < 5 |
| ***Nauvoo Road at Zion Line*** | | | | |
| Eastbound Approach | - | < 5 | < 5 | < 5 |

**Table 3-8. 2032 Total Future Queues**

| Intersection and Movement | Storage | 95th Percentile Queue (m) | | |
|---|---|---|---|---|
| | | Weekday AM Peak Hour | Weekday Midday | Weekday PM Peak Hour |
| Westbound Approach | - | < 5 | < 5 | < 5 |
| Northbound Approach | - | < 5 | < 5 | < 5 |
| Southbound Approach | - | < 5 | < 5 | < 5 |
| ***Nauvoo Road at TCEC Entrance*** | | | | |
| Westbound Approach | 100 | < 5 | < 5 | < 5 |
| Northbound Through | - | < 5 | < 5 | < 5 |
| Northbound Right-turn | 65 | < 5 | < 5 | < 5 |
| Southbound Left-turn | 140 | < 5 | < 5 | < 5 |
| Southbound Through | - | < 5 | < 5 | < 5 |
| ***Nauvoo Road at RNG Facility Driveway*** | | | | |
| Eastbound Through-Left | 635 | < 5 | < 5 | < 5 |
| Southbound Approach | >100 | < 5 | < 5 | < 5 |
| ***Inbound Weigh Scale*** | | | | |
| Weigh Scale Queue[1] | 280 | 310 | 301 | 100 |

Notes: Storage length is shown for exclusive turning lanes or is based on the upstream link length. Exact queue lengths are only shown when the queue length is greater than 5 m or approximately one vehicle. Queues exceeding storage are highlighted in red.

1) Queues at the Weigh scale were determined using SimTraffic maximum queues. This queue is the summation of each link leading up to the weigh scale (southbound at weigh scale, eastbound right at first internal intersection leading up to weigh scale, and southbound left at Nauvoo Road and Primary Facility Driveway). There are two inbound queue lanes leading into the site up to the first internal intersection. As the inbound queue turns southbound towards the inbound scale, the lanes merge into a single lane on approach to the inbound weigh scale. Only one inbound scale queue was modeled in SimTraffic on approach to the inbound weigh scale, and a post-processing adjustment has been made to determine the location of the back-end of queue, as discussed below.

95th percentile queues under total future conditions are nearly identical to future background conditions. In short, TCEC site traffic is anticipated to have negligible impact on queues at all Off-site Study Area intersections except at the TCEC site entrance. Queues, particularly southbound left and northbound right, at Nauvoo Road and TCEC site entrance will be affected by the inbound weigh scale. Queues resulting from the inbound weigh scale were determined using SimTraffic.

The modelling of the inbound queues approaching the weigh scales reflects two inbound lanes within the driveway throat from Nauvoo Road to the first internal four-leg intersection where traffic splits to the offices, the scales, or into the landfill. This distance is approximately 110 m. Traffic destined to/from the main offices uses the north leg, while traffic destined to/from the scales uses the south leg. The south leg was modeled as a single lane approach to the inbound scales with a total distance of approximately 155 m. When activity is low, trucks form a single queue towards the inbound scale. However, when activity is high and there are a large number of trucks

arriving simultaneously, the trucks may queue side-by-side and form two queues which merge as trucks enter the weigh scale.

With a single queue lane approaching the inbound weigh scale, queues are expected to exceed available storage length during the AM peak hour. The maximum anticipated weigh scale queue during the AM and Midday peak hour is approximately 310 m and 301 m, respectively. If this queue were a single line of trucks, then it would spill onto Nauvoo Road by approximately 30 m into either the exclusive southbound left or northbound right turn lanes.

However, as noted above, trucks may stack side-by-side on approach to the inbound weigh scale, which provides an additional 155 m of storage space with the parallel lane. Therefore, this means that during the AM peak hour, there would be 125 m of additional queueing space before the inbound queue reaches Nauvoo Road. Moreover, the inbound queue would be accommodated within the roadway leading up to the first intersection which provides access to the TCEC offices and would not block that internal intersection.

Although side-by-side queueing will prevent truck queues from extending onto Nauvoo Road or blocking the first internal intersection, there are additional mitigation that could be considered to help reduce and manage queues during peak times. During times when there is very high demand, an employee could be positioned within the driveway to direct trucks to stack side-by-side. This will facilitate equal stacking in each of the inbound lanes in advance of the inbound scale. Additionally, staff should direct trucks so that the next truck which enters the inbound scale oscillates between each of those lanes so that trucks are allowed to enter based on the order in which they entered the site.

Additionally, decreasing the average inbound scale processing time through technology improvements would also reduce the queue length. A secondary inbound scale is not required, based on the forecast queues.

It should be reiterated that these maximum queues are based on site traffic for a peak (worst case) day and would be experienced only for a very limited number of times throughout the year. This peak demand analyzed in this report is the theoretical limit that can be accommodated while managing the queues on-site and matches a peak day.

#### 3.3.1.3 2043 Total Future Traffic Operations

**Table 3-9** summarizes 2032 total future traffic operations.

**Table 3-9. 2043 Total Future Traffic Operations**

| Intersection and Movement | Weekday AM Peak Hour | | Weekday Midday Peak Hour | | Weekday PM Peak Hour | |
|---|---|---|---|---|---|---|
| | LOS | v/c | LOS | v/c | LOS | v/c |
| ***Nauvoo Road at Highway 402 Eastbound Off-Ramp*** | | | | | | |
| Eastbound Approach | B | 0.10 | B | 0.07 | B | 0.16 |

**Table 3-9. 2043 Total Future Traffic Operations**

| Intersection and Movement | Weekday AM Peak Hour | | Weekday Midday Peak Hour | | Weekday PM Peak Hour | |
|---|---|---|---|---|---|---|
| | LOS | v/c | LOS | v/c | LOS | v/c |
| Northbound Through | - | 0.14 | - | 0.11 | - | 0.14 |
| Southbound Through | - | 0.13 | - | 0.12 | - | 0.17 |
| ***Nauvoo Road at Highway 402 Westbound Off-Ramp*** | | | | | | |
| Westbound Approach | B | 0.19 | B | 0.16 | B | 0.22 |
| Northbound Through | - | 0.10 | - | 0.09 | - | 0.12 |
| Southbound Left-turn | A | 0.03 | A | 0.02 | A | 0.02 |
| Southbound Through | - | 0.11 | - | 0.09 | - | 0.13 |
| ***Nauvoo Road at Confederation Line*** | | | | | | |
| Eastbound Left | **E** | 0.53 | C | 0.31 | **F** | 0.55 |
| Eastbound Through-Right | C | 0.31 | B | 0.23 | C | 0.45 |
| Westbound Left | D | 0.08 | C | 0.11 | **F** | 0.39 |
| Westbound Through-Right | C | 0.19 | C | 0.16 | C | 0.39 |
| Northbound Left | A | 0.10 | A | 0.09 | A | 0.11 |
| Northbound Through-Right | - | 0.13 | - | 0.13 | - | 0.18 |
| Southbound Left-turn | A | 0.03 | A | 0.01 | A | 0.03 |
| Southbound Through-Right | - | 0.15 | - | 0.16 | - | 0.21 |
| ***Nauvoo Road at Zion Line*** | | | | | | |
| Eastbound Approach | B | 0.05 | B | 0.04 | C | 0.06 |
| Westbound Approach | C | 0.07 | B | 0.04 | C | 0.08 |
| Northbound Approach | A | 0.00 | A | 0.01 | A | 0.01 |
| Southbound Approach | A | 0.01 | A | 0.01 | A | 0.01 |
| ***Nauvoo Road at TCEC Entrance*** | | | | | | |
| Westbound Approach | B | 0.15 | B | 0.13 | B | 0.08 |
| Northbound Through | - | 0.17 | - | 0.14 | - | 0.18 |
| Northbound Right-turn | - | 0.01 | - | 0.01 | - | 0.00 |
| Southbound Left-turn | A | 0.05 | A | 0.05 | A | 0.02 |
| Southbound Through | - | 0.17 | - | 0.13 | - | 0.19 |
| ***Nauvoo Road at RNG Facility Driveway*** | | | | | | |
| Eastbound Through-Left | A | 0.01 | A | 0.00 | A | 0.00 |
| Southbound Approach | A | 0.01 | A | 0.01 | A | 0.01 |

Notes: Critical movements include exclusive turning movements with v/c ratios exceeding 1.00 and shared movements with v/c exceeding 0.85, or movements with LOS 'E' or 'F'. Critical movements are highlighted in red.

Compared with background conditions, most turning movements will operate with similar level of service under future total conditions. However, there are two

movements: the westbound left-turn at Nauvoo Road and Confederation Line which would increase to level of service F from E, as well as the eastbound left-turn which would increase to level of service E from D. There are nominal increases to the volume to capacity ratios, however, the increases are small, and all movements are expected to operate within acceptable thresholds. A signal warrant was also conducted at this intersection and is summarized in **Section 3.3.1.4**.

**Table 3-10** summarizes the expected queues of the Off-site Study Area intersections, as well as at the inbound scale, under 2043 total future conditions.

**Table 3-10. 2043 Total Future Queues**

| Intersection and Movement | Storage | 95th Percentile Queue (m) | | |
|---|---|---|---|---|
| | | Weekday AM Peak Hour | Weekday Midday | Weekday PM Peak Hour |
| ***Nauvoo Road at Highway 402 Eastbound Off-Ramp*** | | | | |
| Eastbound Approach | - | < 5 | < 5 | < 5 |
| Northbound Through | - | < 5 | < 5 | < 5 |
| Southbound Through | - | < 5 | < 5 | < 5 |
| ***Nauvoo Road at Highway 402 Westbound Off-Ramp*** | | | | |
| Westbound Approach | - | < 5 | < 5 | 6 |
| Northbound Through | - | < 5 | < 5 | < 5 |
| Southbound Left-turn | - | < 5 | < 5 | < 5 |
| Southbound Through | - | < 5 | < 5 | < 5 |
| ***Nauvoo Road at Confederation Line*** | | | | |
| Eastbound Left | 30 | 21 | 10 | 21 |
| Eastbound Through-Right | - | 10 | 7 | 17 |
| Westbound Left | 30 | < 5 | < 5 | 12 |
| Westbound Through-Right | - | 5 | < 5 | 14 |
| Northbound Left | 30 | < 5 | < 5 | < 5 |
| Northbound Through-Right | - | < 5 | < 5 | < 5 |
| Southbound Left-turn | 30 | < 5 | < 5 | < 5 |
| Southbound Through-Right | - | < 5 | < 5 | < 5 |
| ***Nauvoo Road at Zion Line*** | | | | |
| Eastbound Approach | - | < 5 | < 5 | < 5 |
| Westbound Approach | - | < 5 | < 5 | < 5 |
| Northbound Approach | - | < 5 | < 5 | < 5 |
| Southbound Approach | - | < 5 | < 5 | < 5 |
| ***Nauvoo Road at TCEC Entrance*** | | | | |
| Westbound Approach | 100 | < 5 | < 5 | < 5 |
| Northbound Through | - | < 5 | < 5 | < 5 |
| Northbound Right-turn | 65 | < 5 | < 5 | < 5 |

**Table 3-10. 2043 Total Future Queues**

| Intersection and Movement | Storage | 95th Percentile Queue (m) | | |
|---|---|---|---|---|
| | | Weekday AM Peak Hour | Weekday Midday | Weekday PM Peak Hour |
| Southbound Left-turn | - | < 5 | < 5 | < 5 |
| Southbound Through | - | < 5 | < 5 | < 5 |
| ***Nauvoo Road at RNG Facility Driveway*** | | | | |
| Eastbound Through-Left | 635 | < 5 | < 5 | < 5 |
| Southbound Approach | >100 | < 5 | < 5 | < 5 |
| ***Inbound Weigh Scale*** | | | | |
| Weigh Scale Queue[1] | 280 | 286 | 281 | 104 |

Notes: Storage length is shown for exclusive turning lanes or is based on the upstream link length. Exact queue lengths are only shown when the queue length is greater than 5 m or approximately one vehicle. Queues exceeding storage are highlighted in red.

1) Queues at the Weigh scale was determined using SimTraffic maximum queues. This queue is the summation of each link leading up to the weigh scale (southbound at weigh scale, eastbound right at first internal intersection leading up to weigh scale, and southbound left at Nauvoo Road and Primary Facility Driveway). There are two inbound queue lanes leading into the site up to the first internal intersection. As the inbound queue turns southbound towards the inbound scale, the lanes merge into a single lane on approach to the inbound weigh scale. Only one inbound scale queue was modeled in SimTraffic on approach to the inbound weigh scale, and a post-processing adjustment has been made to determine the location of the back-end of queue, as discussed below.

95th percentile queues under total future conditions are nearly identical to future background conditions.

Similar to 2032 total future conditions, the inbound weigh scale maximum queue during AM and Midday peak hour is expected to exceed available storage and spill onto the southbound left turn lane at Nauvoo Road and TCEC site entrance. The maximum inbound weigh scale queue is expected to be approximately 286 m, which exceeds available storage by 6 m. The excess queue will likely be on the exclusive southbound left turn lane at Nauvoo Road and TCEC site entrance. The excess queue will not utilize the full storage within the southbound left turn lane.

However, as previously noted, the modeling of the inbound queues approaching the weigh scales reflects two inbound lanes within the driveway throat from Nauvoo Road to the first internal four-leg intersection where traffic splits to the offices, the scales, or into the TCEC. This distance is approximately 110 m. Traffic destined to/from the main offices uses the north leg, while traffic destined to/from the scales uses the south leg.

The south leg was modeled as a single lane approach to the inbound scales with a total distance of approximately 155 m. When activity is low, trucks form a single queue towards the inbound scale. However, when activity is high and there are a large number of trucks arriving simultaneously, the trucks may queue side-by-side and form two queues which merge as trucks enter the weigh scale. This is discussed in greater detail in the previous section.

The improved queue compared to 2032 conditions is likely a result of the SimTraffic model random arrivals since it is a dynamic model, but this does demonstrate that the range of queues can vary by at least 30 m.

This analysis confirms that the existing (and future) peak activity can be accommodated within the driveway without spilling back onto Nauvoo Road.

#### 3.3.1.4 Traffic Signal Warrant at Confederation Line and Nauvoo Road

A signal warrant analysis was conducted for Confederation Line and Nauvoo Road using methodology in the Ontario Traffic Manual (OTM) Book 12. The warrant analysis was undertaken using “Justification 7: Projected Volumes” for the projected 2043 traffic volumes which has elevated volume thresholds compared to a warrant conducted using existing/observed traffic data. A traffic signal warrant was conducted for 2043 only because if a traffic signal is not warranted in 2043, then it would also not be warranted in 2032. The peak hours used for the warrant are the AM and PM peak hours since these are the time periods with the poorest level of service. The existing intersection layout (4-leg intersection) under a ‘rural’ environment was used as input.

The signal warrant analysis determined that signalization is not warranted for Confederation Line and Nauvoo Road under 2043 traffic conditions. Justification 1A and 1B resulted in sectional percentages of 80% and 100%, respectively. Warrant 1 is not satisfied since both Justifications 1A and 1B have sectional percentages of 80% or higher. Likewise, the sectional percentages for Justification 2A and 2B are 58% and 100%, respectively, hence Warrant 2 is not satisfied. Since both Warrant 1 and Warrant 2 are not satisfied independently and both do not have at least 80% compliance, a signalized intersection is not warranted at Confederation Line and Nauvoo Road.

The limiting factor for the signal warrant is the low side street (eastbound and westbound) minor street approach volumes. Despite the delays, the volume is low and does not warrant a traffic signal by 2043. Therefore, the same conclusion (not warranted) can be drawn for the earlier horizon year of 2032. Details of the traffic signal warrant analysis are provided in **Appendix C**.

### 3.3.2 Change in Peak Hour Traffic

The TCEC site traffic will not change under 2032 and 2043 future conditions and thus will have no additional effect to the surrounding transportation network traffic volumes. The growth of traffic volume within the Off-site Study Area is attributed to background growth and background developments.

### 3.3.3 Road Safety

Cycling volumes are very low within the study area, and there were no collisions with cyclists identified. Furthermore, there were no indications that cycling safety is a concern nor indications that traffic associated with the TCEC would generate safety concerns for cyclists.

Pedestrian volumes crossing Nauvoo Road are relatively low within the study area and no pedestrians were observed north of Confederation Line. There were no collisions with pedestrians identified. Furthermore, there were no indications that pedestrian safety is a concern nor indications that traffic associated with the TCEC would generate safety concerns for pedestrians.

Collision rates are not expected to change as a result of the TCEC site optimization, compared with existing conditions. Furthermore, there is no incremental safety concern for cyclists due to TCEC operations since site traffic will remain the same as existing conditions.

The Transportation Existing Conditions Report did not identify any relation between truck traffic generated by the TCEC and collisions occurring within the Off-site Study Area . Background traffic volumes are expected to increase, which may affect collision rates, but this is not expected to be related to the TCEC optimization.

The designation of Nauvoo Road as a cycling route is a decision under the jurisdiction of the Township of Warwick and/or the County of Lambton. It is understood that Nauvoo Road was selected as a cycling route as it is the only crossing of Highway 402 within the vicinity and with a direct connection to Watford which is the primary population centre, which makes alternative north-south routes to the west and the east undesirable as the travel distances are much longer.

### 3.3.4 Sightlines

The TCEC site entrance on Nauvoo Road is expected to remain unchanged from existing conditions. The Transportation Existing Conditions Report confirmed that the sight distances at the driveway are adequate and that there are no apparent concerns with the driveway functional, and this will remain the same under future conditions.

The southbound left-turn lane at the TCEC driveway, which includes the parallel, the taper, and the deceleration portion of the southbound left-turn lane extends back to the north approximately 40 m south of Zion Line which means the southbound left-turn lane is close to its functional maximum length.

The southbound left-turn lane design could be impacted by increases in background traffic. The MTO Design Supplement (April 2020) for the Transportation Association of Canada Geometric Design Guide for Canadian Roads (June 2017) includes volume warrants for left-turn lanes. The warrants take into consideration the total traffic volume traveling in both directions, as well as the percentage of left-turns as a component of the total advancing volume. In this case, increases in background traffic would increase the advancing and opposing volume, which could trigger extension of the left-turn storage lane. However, the increase in background traffic would reduce the percentage of left-turns in the advancing volume, which in turn reduces the storage requirement. Only substantial changes in advancing or opposing volumes would trigger a change to the required left-turn storage length. Regardless of the potential increases in background traffic, the southbound left-turn lane nearly extends to Zion Line and it would not be recommended to change the design of this lane by extending it since it would then spill back into the intersection of Zion Line and Nauvoo Road.

The northbound right-turn lane is approximately 145 m long inclusive of the parallel, deceleration, and taper. The design of this lane would not be impacted by changes in background traffic volumes.

### 3.3.5 Summary

A summary of the effects assessment of Alternative Method 1 is summarized below in **Table 3-11**.

## Table 3-11. Net Effects Assessment – Alternative Method 1

| Evaluation Criteria | Indicator | Key Design Considerations and Assumptions | Potential Effects | Mitigation Measures | Net Effects |
|---|---|---|---|---|---|
| Traffic Operations | Change in peak hour and daily truck traffic volume and Average Annual Daily Traffic (AADT) along the Off-site Study Area road segments | • Changes in traffic volumes within Off-site Study Area is the result of background growth and background developments.<br>• TCEC site traffic will not change under 2032 and 2043 future conditions | • No changes as a result of TCEC optimization under future conditions. As a result, TCEC will not have any effects on Off-site Study Area in 2032 and 2043 future conditions | • No mitigation measures required in 2032 and 2043 future conditions | • No effects predicted |
| | Intersection performance – capacity, delay, queues (based on HCM 2000 and generated by Synchro Traffic Signal Coordination Software Version 11) – for the Off-site Study Area intersections | • Exclusive left turn lanes with shared through-right lanes at Confederation Line and Nauvoo Road are assumed to be in place by the 2032 horizon year | • No changes as a result of TCEC optimization under future conditions. As a result, TCEC will not have any effects on Off-site Study Area in 2032 and 2043 future conditions | • No mitigation measures required in 2032 and 2043 future conditions | • No effects predicted |
| | Road safety<br>• Collisions per million vehicles at all Off-site Study Area intersections (severity, involving pedestrians, cyclists, autos, trucks, school buses, and agricultural vehicles)<br>• Collisions per million vehicle-km along all Off-site Study Area road segments (severity, involving pedestrians, cyclists, autos, trucks, school buses, and agricultural vehicles)<br>• Collisions by environmental conditions for segments and intersections | • TCEC site traffic will not change under 2032 and 2043 future conditions | • No changes as a result of TCEC optimization under future conditions. As a result, TCEC will not have any effects on Off-site Study Area in 2032 and 2043 future conditions | • No mitigation measures required in 2032 and 2043 future conditions | • No effects predicted |
| | Sight distance at the primary site entrance | • TCEC site driveway will remain unchanged compared to existing conditions. | • No changes from TCEC site under future conditions. As a result, there are no impacts to consider. | • No mitigation measures required in 2032 and 2043 future conditions | • No effects predicted |

## 3.4 Alternative Method 2

The design of the Alternative Methods do not impact the Transportation assumptions previously described. The design changes within the TCEC are independent from the traffic conditions. The assessment of Transportation effects for Alternative Method 2 are consistent with those for Alternative Method 1. Please refer to **Section 3.3.1** to **Section 3.3.5**.

## 3.5 Alternative Method 3

The design of the Alternative Methods do not impact the Transportation assumptions previously described. The design changes within the TCEC are independent from the traffic conditions. The assessment of Transportation effects for Alternative Method 3 are consistent with those for Alternative Method 1. Please refer to **Section 3.3.1** to **Section 3.3.5**.

# 4 Comparative Evaluation of Net Effects and Identification of the Preferred Alternative

The comparative evaluation of the net effects of each alternative method and the identification of a Preferred Alternative are carried out in accordance with the methods described in **Section 2.2**. The three alternative methods are comparatively assessed and evaluated using the criteria and indicators to determine the Preferred Alternative. The differences in the potential environmental effects remaining following the implementation of potential mitigation/management measures (i.e., net effects) are used to identify and compare each alternative method. The comparative evaluation of the alternative methods for Transportation is provided in **Table 4-1**, below.

None of the alternative methods will result in a net effect on Transportation. There is no substantial difference between the alternative methods from a Transportation perspective, and no Preferred Alternative is identified.

## Table 4-1. Comparative Evaluation of the Net Effects of the Alternative Methods for Transportation

| Evaluation Criteria | Indicator | Net Effects of Alternative Methods | | |
|---|---|---|---|---|
| | | **Alternative Method 1** | **Alternative Method 2** | **Alternative Method 3** |
| Traffic Operations | Change in peak hour and daily truck traffic volume and Average Annual Daily Traffic (AADT) along the Off-site Study Area road segments | • No net effect on traffic volumes.<br><br>**No Substantial Difference** | • No net effect on traffic volumes.<br><br>**No Substantial Difference** | • No net effect on traffic volumes.<br><br>**No Substantial Difference** |
| | Intersection performance – capacity, delay, queues (based on HCM 2000 and generated by Synchro Traffic Signal Coordination Software Version 11) – for the Off-site Study Area intersections | • No net effect on intersection performance.<br><br>**No Substantial Difference** | • No net effect on intersection performance.<br><br>**No Substantial Difference** | • No net effect on intersection performance.<br><br>**No Substantial Difference** |
| | • Road safety<br>  • Collisions per million vehicles at all Off-site Study Area intersections (severity, involving pedestrians, cyclists, autos, trucks, school buses, and agricultural vehicles)<br>  • Collisions per million vehicle-km along all Off-site Study Area road segments (severity, involving pedestrians, cyclists, autos, trucks, school buses, and agricultural vehicles)<br>  • Collisions by environmental conditions for segments and intersections | • No net effects on road safety.<br><br>**No Substantial Difference** | • No net effects on road safety.<br><br>**No Substantial Difference** | • No net effects on road safety.<br><br>**No Substantial Difference** |
| | Sight distance at the primary site entrance | • No net effect on sight distance.<br><br>**No Substantial Difference** | • No net effect on sight distance.<br><br>**No Substantial Difference** | • No net effect on sight distance.<br><br>**No Substantial Difference** |
| | ***Criteria Rating & Rationale*** | ***There is no substantial difference between the alternative methods for Traffic Operations.***<br><br>None of the alternative methods will result in net effects to Traffic Operations. | | |
| **Preferred Alternative:** All three alternatives are equivalent from the perspective of Transportation, and no Preferred Alternative is identified. | | | | |

# 5 Effects Assessment of the Preferred Alternative

**Section 3.2** examined a future background condition without the TCEC site traffic, since this would be the case if the TCEC optimization was not to extend the operating life. Therefore, TCEC site traffic impacts can be quantified when reintroduced in future total conditions in **Section 3.3.1**. However, in reality, there will be no change in traffic conditions between existing conditions and future conditions with the TCEC optimization which allows for the site to continue operating.

A comparison of future background and total future conditions revealed that the TCEC site has minimal impacts on the surrounding Off-site Study Area intersections. However, compared with existing conditions the TCEC optimization will have no effects within the Off-site Study Area since site traffic is present under existing conditions and will remain the same in 2032 and 2043 horizon years.

**Section 3.3.2** to **Section 3.3.4** outlines the transportation effects of TCEC on the Off-site Study Area traffic, road safety, and sightlines. There are no effects on the Off-site Study Area traffic, road safety, and sightlines because nothing changes at the TCEC site from a transportation perspective.

## 5.1 Climate Change Considerations

There are no effects on GHG emissions under future conditions since traffic volume in/out of the TCEC remains the same as existing conditions. GHG emissions from vehicle traffic and climate change considerations are considered under the Air Quality net effects assessment.

# 6 Comparison of the Preferred Alternative against the ‘Do Nothing’ Alternative

The effects of the Preferred Alternative are compared against the predicted effects of the currently approved Expansion Landfill based on similar environmental criteria and indicators, with the understanding that the criteria and indicators used in the current effects assessment may differ from those used for the effects assessment of the Expansion Landfill. The effects are compared against each other in terms of magnitude, extent, and duration below. The advantages and disadvantages of the Preferred Alternative compared to the ‘Do Nothing’ Alternative are identified.

## 6.1 Effects of the 'Do Nothing' Alternative

The following bullet points summarize the impacts of the 'Do Nothing' Alternative with respect to the indicators:

- Change in peak hour and daily truck traffic volumes, and Average Annual Daily Traffic – there would be a reduction in traffic volume resulting from the removal of the TCEC with the 'Do Nothing' Alternative scenario compared to the scenario if the Project were to proceed, and this is demonstrated when comparing the background traffic volumes to the total traffic volumes. Site traffic is a small component of the total traffic volumes, and background traffic represents a much larger portion of the traffic on the surrounding off-site road network. For reference, the site traffic volumes approaching the TCEC driveway on Nauvoo Road from the north represent 7% to 22% of total traffic during the 2043 horizon year, while TCEC site traffic approaching the TCEC driveway form the south represent 1% to 5% of total traffic. The TCEC has the largest contribution to traffic volumes during operating hours.
- Intersection performance – it should be expected that the reduction in traffic volume resulting from the removal of the TCEC associated traffic will improve traffic operations compared to the scenario if the Project is to proceed and this is demonstrated in the comparison of 'Do Nothing' Alternative operations against the 'Total Traffic' operations which indicates that site traffic only increases the volume-to-capacity ratio by less than 0.05, which is marginal. A similar impact is also seen when comparing the delays and queues experienced by vehicles at external intersections within the Off-site Study Area. These impacts are more pronounced at the site driveway since the driveway would be removed in the 'Do Nothing' Alternative scenario, and less pronounced at external intersections. Site traffic is a small component of the total traffic volumes, and background traffic represents a much larger portion of the traffic on the surrounding off-site road network. As a result, the 'Do Nothing' Alternative operations are only marginally better.
- Road safety – Frequency of collisions is generally tied to the overall traffic volumes. However, collisions tend to occur at consistent rates unless there are other factors that cause more collisions. The collision analysis contained in the Existing Transportation Conditions report did not identify any correlations between TCEC site traffic and collision causes or locations. Therefore, with the removal of TCEC site traffic, a change in the collision rates would not be expected. Removal of the TCEC driveway on Nauvoo Road would eliminate one potential location for intersection-related collisions.
- Sight distance – since the driveway to the TCEC would be removed under the 'Do Nothing' Alternative scenario, the sightline considerations are not applicable to the 'Do Nothing' Alternative scenario. If the Project were to proceed, then the sight distances would remain unchanged and the driveway would continue to operate as it currently does.

## 6.2 Comparison of the Preferred Alternative against the 'Do Nothing' Alternative

The following bullet points summarize the impacts of the Preferred Alternative against the 'Do Nothing' Alternative, with respect to the indicators:

- Change in peak hour and daily truck traffic volumes, and Average Annual Daily Traffic – compared to the 'Do Nothing' Alternative scenario, all alternative methods would result in higher traffic volumes, and this is demonstrated when comparing the background traffic volumes to the total traffic volumes. Site traffic is a small component of the total traffic volumes, and background traffic represents a much larger portion of the traffic on the surrounding off-site road network. For reference, the site traffic volumes approaching the TCEC driveway on Nauvoo Road from the north represent 7% to 22% of total traffic during the 2043 horizon year, while TCEC site traffic approaching the TCEC driveway form the south represent 1% to 5% of total traffic. Landfill traffic would continue to operate as it does today until 2043, resulting in no apparent changes. However, compared to the 'Do Nothing' Alternative scenario, the Project would result in marginally higher traffic volumes on the surrounding off-site road network.
- Intersection performance – it should be expected that the traffic volumes on the surrounding off-site road network will be higher than the 'Do Nothing' Alternative, resulting in more demand on the road network and marginally worse operations, and this is demonstrated in the comparison of 'Do Nothing' Alternative operations against the 'Total Traffic' operations which indicates that site traffic only increases the volume-to-capacity ratio by less than 0.05, which is marginal. A similar impact is also seen when comparing the delays and queues experienced by vehicles at external intersections within the Off-site Study Area. These impacts are more pronounced at the site driveway since the driveway would be removed in the 'Do Nothing' Alternative scenario, and less pronounced at external intersections. Site traffic is a small component of the total traffic volumes, and background traffic represents a much larger portion of the traffic on the surrounding off-site road network. As a result, the alternative methods' operations are only marginally worse but still within generally acceptable thresholds. The most noteworthy impacts of the Project (all alternative methods) compared to the 'Do Nothing' Alternative are observed at Nauvoo Road and Confederation Line, where background traffic represents a much higher proportion of overall traffic volumes and the marginal increase of traffic generated by the TCEC passing through this intersection raises the eastbound left-turn level of service (delay) from 'D' to 'E'.
- Road safety – Frequency of collisions is generally tied to the overall traffic volumes. However, collisions tend to occur at consistent rates unless there are other factors that cause more collisions. The collision analysis contained in the Existing Transportation Conditions report did not identify any correlations between TCEC site traffic and collision causes or locations. Therefore, for all of the alternative methods, a change in the collision rates would not be expected.

- Sight distance – the existing driveway on Nauvoo Road would remain unchanged under all future alternative methods from a design perspective and would therefore be the same as existing conditions. Compared to the 'Do Nothing' Alternative, the alternative methods maintain the existing driveway.

## 6.3 Advantages and Disadvantages of the Preferred Alternative

The differences in net effects between the Preferred Alternative and the 'Do Nothing' Alternative are used to determine the advantages and disadvantages of the Preferred Alternative. The advantages and disadvantages of the Preferred Alternative are listed in **Table 6-1**.

**Table 6-1. Advantages and Disadvantages of the Preferred Alternative**

| Evaluation Criteria | Advantages | Disadvantages |
|---|---|---|
| **Traffic Operations** | • No advantages identified. | • Marginally higher traffic volumes on the surrounding off-site road network.<br>• Intersection performance is marginally lower but within generally acceptable thresholds.<br>• The driveway on Nauvoo Road will remain and will continue to operate as it does today and will remain a potential conflict point.<br>• Sight distance at the primary driveway on Nauvoo Road will remain unchanged but will remain a consideration.<br>• Site traffic will continue to remain on the surrounding road network, resulting in potential for vehicle conflicts or collisions. |

The disadvantages are directly related to the presence of site traffic on the surrounding off-site road network as a result of the Project. If the Project were not to occur, then site traffic would be removed and the site driveway would be removed, resulting in an overall improvement to the Transportation environment.

# 7 Commitments and Monitoring

There is no monitoring required since there are no changes proposed to the operations of the TCEC. The TCEC commitments regarding traffic-related mitigation measures are listed in **Section 7.1**.

## 7.1 Transportation Commitments

The transportation commitments are for the TCEC to continue adhering to schedule arrivals of trucks to distribute them throughout the day. This will lessen the traffic

impacts on the external road network by reducing the proportion of TCEC-related traffic on the Off-site Study Area road network as a percentage of total traffic volumes.

## 7.2 Environmental Effects Monitoring for Transportation

Monitoring plans are developed as part of the detailed effects assessments carried out for the Preferred Alternative to confirm:

- the net effects are as predicted;
- unanticipated negative effects are addressed; and
- the effectiveness of the proposed mitigation measures.

**Section 7.3** contains the environmental effects monitoring for the Preferred Alternative.

## 7.3 Transportation Compliance Monitoring

There is no Transportation monitoring required for any of the alternative methods.

# 8 Transportation Approvals

No Transportation approvals are required for the Project.

# 9 References

HDR Corporation
2026 Waste Management Twin Creeks – Existing Transportation Conditions Report.

HDR Corporation
2023 Traffic Brief in Support of Site Plan Approval for Proposed Renewable Natural Gas (RNG) Facility.

RC Spencer Associates Inc.
2020 C.R. 79 / C.R. 39 Watford, ON – Intersection Improvement Study.

RC Spencer Associates Inc.
2020 Heritage Creek Subdivision, Watford ON, Traffic Impact Study.

# A

# Detailed Synchro Reports

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 9 | 48 | 0 | 174 | 151 | 0 |
| Future Volume (Veh/h) | 9 | 48 | 0 | 174 | 151 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 9 | 50 | 0 | 181 | 157 | 0 |
| 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 | 338 | 157 | 157 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 338 | 157 | 157 | | | |
| tC, single (s) | 6.5 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.6 | 3.4 | 2.2 | | | |
| p0 queue free % | 99 | 94 | 100 | | | |
| cM capacity (veh/h) | 636 | 865 | 1423 | | | |

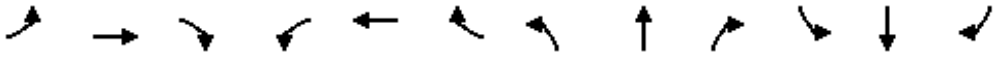
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 59 | 181 | 157 |
| Volume Left | 9 | 0 | 0 |
| Volume Right | 50 | 0 | 0 |
| cSH | 820 | 1700 | 1700 |
| Volume to Capacity | 0.07 | 0.11 | 0.09 |
| Queue Length 95th (m) | 1.8 | 0.0 | 0.0 |
| Control Delay (s) | 9.7 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 9.7 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.4 | | |
| Intersection Capacity Utilization | 19.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 40 | 16 | 122 | 0 | 29 | 136 |
| Future Volume (Veh/h) | 40 | 16 | 122 | 0 | 29 | 136 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 43 | 17 | 133 | 0 | 32 | 148 |
| 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 | 345 | 133 | | | 133 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 345 | 133 | | | 133 | |
| tC, single (s) | 6.7 | 6.2 | | | 4.3 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.8 | 3.3 | | | 2.4 | |
| p0 queue free % | 93 | 98 | | | 98 | |
| cM capacity (veh/h) | 580 | 922 | | | 1364 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 60 | 133 | 32 | 148 |
| Volume Left | 43 | 0 | 32 | 0 |
| Volume Right | 17 | 0 | 0 | 0 |
| cSH | 648 | 1700 | 1364 | 1700 |
| Volume to Capacity | 0.09 | 0.08 | 0.02 | 0.09 |
| Queue Length 95th (m) | 2.3 | 0.0 | 0.5 | 0.0 |
| Control Delay (s) | 11.1 | 0.0 | 7.7 | 0.0 |
| Lane LOS | B | | A | |
| Approach Delay (s) | 11.1 | 0.0 | 1.4 | |
| Approach LOS | B | | | |

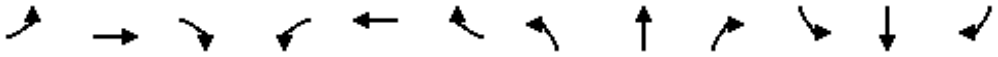
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.5 | | |
| Intersection Capacity Utilization | 23.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 110 | 47 | 78 | 12 | 38 | 17 | 97 | 130 | 26 | 31 | 136 | 60 |
| Future Volume (Veh/h) | 110 | 47 | 78 | 12 | 38 | 17 | 97 | 130 | 26 | 31 | 136 | 60 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 118 | 51 | 84 | 13 | 41 | 18 | 104 | 140 | 28 | 33 | 146 | 65 |
| Pedestrians | | 2 | | | | | | | | | | |
| Lane Width (m) | | 3.7 | | | | | | | | | | |
| Walking Speed (m/s) | | 1.1 | | | | | | | | | | |
| Percent Blockage | | 0 | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 633 | 622 | 180 | 684 | 641 | 154 | 213 | | | 168 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 633 | 622 | 180 | 684 | 641 | 154 | 213 | | | 168 | | |
| tC, single (s) | 7.1 | 6.6 | 6.2 | 7.3 | 6.5 | 6.2 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.1 | 3.3 | 3.7 | 4.0 | 3.3 | 2.2 | | | 2.3 | | |
| p0 queue free % | 63 | 86 | 90 | 95 | 88 | 98 | 92 | | | 98 | | |
| cM capacity (veh/h) | 319 | 355 | 855 | 252 | 351 | 897 | 1343 | | | 1386 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 118 | 135 | 13 | 59 | 104 | 168 | 33 | 211 |
| Volume Left | 118 | 0 | 13 | 0 | 104 | 0 | 33 | 0 |
| Volume Right | 0 | 84 | 0 | 18 | 0 | 28 | 0 | 65 |
| cSH | 319 | 558 | 252 | 431 | 1343 | 1700 | 1386 | 1700 |
| Volume to Capacity | 0.37 | 0.24 | 0.05 | 0.14 | 0.08 | 0.10 | 0.02 | 0.12 |
| Queue Length 95th (m) | 12.5 | 7.1 | 1.2 | 3.6 | 1.9 | 0.0 | 0.6 | 0.0 |
| Control Delay (s) | 22.7 | 13.5 | 20.1 | 14.7 | 7.9 | 0.0 | 7.7 | 0.0 |
| Lane LOS | C | B | C | B | A | | A | |
| Approach Delay (s) | 17.8 | | 15.6 | | 3.0 | | 1.0 | |
| Approach LOS | C | | C | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 8.0 | | | |
| Intersection Capacity Utilization | 39.2% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 7 | 2 | 12 | 14 | 8 | 4 | 4 | 223 | 7 | 8 | 188 | 0 |
| Future Volume (Veh/h) | 7 | 2 | 12 | 14 | 8 | 4 | 4 | 223 | 7 | 8 | 188 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Hourly flow rate (vph) | 7 | 2 | 12 | 14 | 8 | 4 | 4 | 228 | 7 | 8 | 192 | 0 |
| 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 | 456 | 451 | 192 | 460 | 448 | 232 | 192 | | | 235 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 456 | 451 | 192 | 460 | 448 | 232 | 192 | | | 235 | | |
| tC, single (s) | 7.1 | 6.5 | 6.3 | 7.2 | 6.5 | 6.2 | 4.1 | | | 4.6 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.4 | 3.6 | 4.0 | 3.3 | 2.2 | | | 2.7 | | |
| p0 queue free % | 99 | 100 | 99 | 97 | 98 | 100 | 100 | | | 99 | | |
| cM capacity (veh/h) | 506 | 502 | 830 | 489 | 504 | 813 | 1394 | | | 1096 | | |

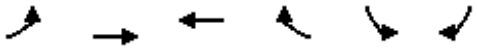
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 21 | 26 | 239 | 200 |
| Volume Left | 7 | 14 | 4 | 8 |
| Volume Right | 12 | 4 | 7 | 0 |
| cSH | 650 | 526 | 1394 | 1096 |
| Volume to Capacity | 0.03 | 0.05 | 0.00 | 0.01 |
| Queue Length 95th (m) | 0.8 | 1.2 | 0.1 | 0.2 |
| Control Delay (s) | 10.7 | 12.2 | 0.2 | 0.4 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 10.7 | 12.2 | 0.2 | 0.4 |
| Approach LOS | B | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1.4 | | | |
| Intersection Capacity Utilization | 24.3% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 225 | 0 | 0 | 225 |
| Future Volume (Veh/h) | 0 | 0 | 225 | 0 | 0 | 225 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 0 | 0 | 239 | 0 | 0 | 239 |
| 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 | 478 | 239 | | | 239 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 478 | 239 | | | 239 | |
| tC, single (s) | 6.4 | 7.2 | | | 4.9 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 4.2 | | | 2.9 | |
| p0 queue free % | 100 | 100 | | | 100 | |
| cM capacity (veh/h) | 550 | 615 | | | 980 | |

| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 0 | 239 | 0 | 0 | 239 |
| Volume Left | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 | 0 | 0 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.07 | 0.14 | 0.00 | 0.00 | 0.14 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | | | |
| Approach Delay (s) | 0.0 | 0.0 | | 0.0 | |
| Approach LOS | A | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 15.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 10 | 89 | 66 | 0 | 0 | 0 |
| Future Volume (Veh/h) | 10 | 89 | 66 | 0 | 0 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 11 | 97 | 72 | 0 | 0 | 0 |
| 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 | 72 | | | | 191 | 72 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 72 | | | | 191 | 72 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 99 | | | | 100 | 100 |
| cM capacity (veh/h) | 1528 | | | | 792 | 990 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 108 | 72 | 0 |
| Volume Left | 11 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1528 | 1700 | 1700 |
| Volume to Capacity | 0.01 | 0.04 | 0.00 |
| Queue Length 95th (m) | 0.2 | 0.0 | 0.0 |
| Control Delay (s) | 0.8 | 0.0 | 0.0 |
| Lane LOS | A | | A |
| Approach Delay (s) | 0.8 | 0.0 | 0.0 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.5 | | |
| Intersection Capacity Utilization | 15.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 9 | 25 | 0 | 133 | 116 | 0 |
| Future Volume (Veh/h) | 9 | 25 | 0 | 133 | 116 | 0 |
| 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) | 10 | 28 | 0 | 148 | 129 | 0 |
| 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 | 277 | 129 | 129 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 277 | 129 | 129 | | | |
| tC, single (s) | 6.6 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 3.3 | 2.2 | | | |
| p0 queue free % | 98 | 97 | 100 | | | |
| cM capacity (veh/h) | 666 | 913 | 1457 | | | |

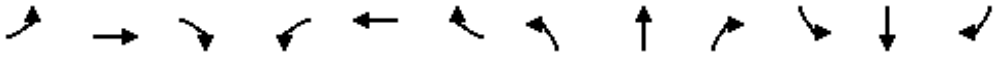
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 38 | 148 | 129 |
| Volume Left | 10 | 0 | 0 |
| Volume Right | 28 | 0 | 0 |
| cSH | 832 | 1700 | 1700 |
| Volume to Capacity | 0.05 | 0.09 | 0.08 |
| Queue Length 95th (m) | 1.1 | 0.0 | 0.0 |
| Control Delay (s) | 9.5 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 9.5 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.2 | | |
| Intersection Capacity Utilization | 17.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 25 | 15 | 109 | 0 | 16 | 113 |
| Future Volume (Veh/h) | 25 | 15 | 109 | 0 | 16 | 113 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 29 | 17 | 125 | 0 | 18 | 130 |
| 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 | 291 | 125 | | | 125 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 291 | 125 | | | 125 | |
| tC, single (s) | 7.0 | 6.6 | | | 4.5 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 4.0 | 3.6 | | | 2.5 | |
| p0 queue free % | 95 | 98 | | | 99 | |
| cM capacity (veh/h) | 586 | 837 | | | 1266 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 46 | 125 | 18 | 130 |
| Volume Left | 29 | 0 | 18 | 0 |
| Volume Right | 17 | 0 | 0 | 0 |
| cSH | 659 | 1700 | 1266 | 1700 |
| Volume to Capacity | 0.07 | 0.07 | 0.01 | 0.08 |
| Queue Length 95th (m) | 1.7 | 0.0 | 0.3 | 0.0 |
| Control Delay (s) | 10.9 | 0.0 | 7.9 | 0.0 |
| Lane LOS | B | | A | |
| Approach Delay (s) | 10.9 | 0.0 | 1.0 | |
| Approach LOS | B | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.0 | | |
| Intersection Capacity Utilization | 17.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 69 | 32 | 67 | 20 | 36 | 15 | 89 | 126 | 22 | 14 | 125 | 64 |
| Future Volume (Veh/h) | 69 | 32 | 67 | 20 | 36 | 15 | 89 | 126 | 22 | 14 | 125 | 64 |
| 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) | 77 | 36 | 74 | 22 | 40 | 17 | 99 | 140 | 24 | 16 | 139 | 71 |
| Pedestrians | | 2 | | | | | | | | | | |
| Lane Width (m) | | 3.7 | | | | | | | | | | |
| Walking Speed (m/s) | | 1.1 | | | | | | | | | | |
| Percent Blockage | | 0 | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 584 | 570 | 176 | 613 | 594 | 152 | 212 | | | 164 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 584 | 570 | 176 | 613 | 594 | 152 | 212 | | | 164 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.2 | 6.5 | 6.4 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.6 | 4.0 | 3.4 | 2.2 | | | 2.3 | | |
| p0 queue free % | 78 | 91 | 91 | 93 | 89 | 98 | 93 | | | 99 | | |
| cM capacity (veh/h) | 352 | 390 | 870 | 317 | 378 | 861 | 1344 | | | 1373 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 77 | 110 | 22 | 57 | 99 | 164 | 16 | 210 |
| Volume Left | 77 | 0 | 22 | 0 | 99 | 0 | 16 | 0 |
| Volume Right | 0 | 74 | 0 | 17 | 0 | 24 | 0 | 71 |
| cSH | 352 | 620 | 317 | 454 | 1344 | 1700 | 1373 | 1700 |
| Volume to Capacity | 0.22 | 0.18 | 0.07 | 0.13 | 0.07 | 0.10 | 0.01 | 0.12 |
| Queue Length 95th (m) | 6.2 | 4.9 | 1.7 | 3.2 | 1.8 | 0.0 | 0.3 | 0.0 |
| Control Delay (s) | 18.1 | 12.0 | 17.2 | 14.1 | 7.9 | 0.0 | 7.7 | 0.0 |
| Lane LOS | C | B | C | B | A | | A | |
| Approach Delay (s) | 14.5 | | 14.9 | | 3.0 | | 0.5 | |
| Approach LOS | B | | B | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 6.4 | | | |
| Intersection Capacity Utilization | 36.2% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 5 | 7 | 9 | 12 | 2 | 3 | 8 | 160 | 10 | 5 | 136 | 5 |
| Future Volume (Veh/h) | 5 | 7 | 9 | 12 | 2 | 3 | 8 | 160 | 10 | 5 | 136 | 5 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Hourly flow rate (vph) | 5 | 7 | 9 | 12 | 2 | 3 | 8 | 165 | 10 | 5 | 140 | 5 |
| 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 | 342 | 344 | 142 | 351 | 341 | 170 | 145 | | | 175 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 342 | 344 | 142 | 351 | 341 | 170 | 145 | | | 175 | | |
| tC, single (s) | 7.3 | 6.8 | 6.7 | 7.2 | 7.5 | 6.7 | 4.3 | | | 4.3 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.7 | 4.3 | 3.8 | 3.6 | 4.9 | 3.8 | 2.4 | | | 2.4 | | |
| p0 queue free % | 99 | 99 | 99 | 98 | 100 | 100 | 99 | | | 100 | | |
| cM capacity (veh/h) | 562 | 527 | 792 | 572 | 447 | 763 | 1350 | | | 1274 | | |

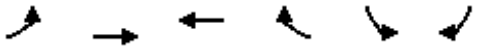
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 21 | 17 | 183 | 150 |
| Volume Left | 5 | 12 | 8 | 5 |
| Volume Right | 9 | 3 | 10 | 5 |
| cSH | 626 | 579 | 1350 | 1274 |
| Volume to Capacity | 0.03 | 0.03 | 0.01 | 0.00 |
| Queue Length 95th (m) | 0.8 | 0.7 | 0.1 | 0.1 |
| Control Delay (s) | 10.9 | 11.4 | 0.4 | 0.3 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 10.9 | 11.4 | 0.4 | 0.3 |
| Approach LOS | B | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1.5 | | | |
| Intersection Capacity Utilization | 22.3% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 182 | 0 | 0 | 158 |
| Future Volume (Veh/h) | 0 | 0 | 182 | 0 | 0 | 158 |
| 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) | 0 | 0 | 202 | 0 | 0 | 176 |
| 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 | 378 | 202 | | | 202 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 378 | 202 | | | 202 | |
| tC, single (s) | 6.6 | 7.0 | | | 5.0 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 4.0 | | | 3.0 | |
| p0 queue free % | 100 | 100 | | | 100 | |
| cM capacity (veh/h) | 581 | 675 | | | 979 | |

| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 0 | 202 | 0 | 0 | 176 |
| Volume Left | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 | 0 | 0 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.07 | 0.12 | 0.00 | 0.00 | 0.10 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | | | |
| Approach Delay (s) | 0.0 | 0.0 | | 0.0 | |
| Approach LOS | A | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 12.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 65 | 70 | 0 | 0 | 0 |
| Future Volume (Veh/h) | 0 | 65 | 70 | 0 | 0 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 71 | 76 | 0 | 0 | 0 |
| 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 | 76 | | | | 147 | 76 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 76 | | | | 147 | 76 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 100 | 100 |
| cM capacity (veh/h) | 1523 | | | | 845 | 985 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 71 | 76 | 0 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1523 | 1700 | 1700 |
| Volume to Capacity | 0.00 | 0.04 | 0.00 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | | | A |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 7.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 29 | 52 | 0 | 170 | 186 | 0 |
| Future Volume (Veh/h) | 29 | 52 | 0 | 170 | 186 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 32 | 57 | 0 | 187 | 204 | 0 |
| 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 | 391 | 204 | 204 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 391 | 204 | 204 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 95 | 93 | 100 | | | |
| cM capacity (veh/h) | 609 | 834 | 1368 | | | |

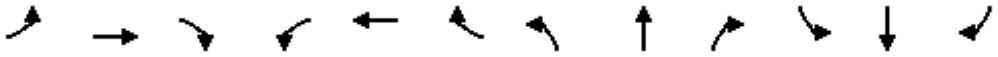
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 89 | 187 | 204 |
| Volume Left | 32 | 0 | 0 |
| Volume Right | 57 | 0 | 0 |
| cSH | 736 | 1700 | 1700 |
| Volume to Capacity | 0.12 | 0.11 | 0.12 |
| Queue Length 95th (m) | 3.1 | 0.0 | 0.0 |
| Control Delay (s) | 10.6 | 0.0 | 0.0 |
| Lane LOS | B | | |
| Approach Delay (s) | 10.6 | 0.0 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.0 | | |
| Intersection Capacity Utilization | 21.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 55 | 33 | 143 | 0 | 19 | 159 |
| Future Volume (Veh/h) | 55 | 33 | 143 | 0 | 19 | 159 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 62 | 38 | 162 | 0 | 22 | 181 |
| 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 | 387 | 162 | | | 162 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 387 | 162 | | | 162 | |
| tC, single (s) | 6.4 | 6.3 | | | 4.2 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.4 | | | 2.3 | |
| p0 queue free % | 90 | 96 | | | 98 | |
| cM capacity (veh/h) | 604 | 862 | | | 1353 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 100 | 162 | 22 | 181 |
| Volume Left | 62 | 0 | 22 | 0 |
| Volume Right | 38 | 0 | 0 | 0 |
| cSH | 682 | 1700 | 1353 | 1700 |
| Volume to Capacity | 0.15 | 0.10 | 0.02 | 0.11 |
| Queue Length 95th (m) | 3.9 | 0.0 | 0.4 | 0.0 |
| Control Delay (s) | 11.2 | 0.0 | 7.7 | 0.0 |
| Lane LOS | B | | A | |
| Approach Delay (s) | 11.2 | 0.0 | 0.8 | |
| Approach LOS | B | | | |

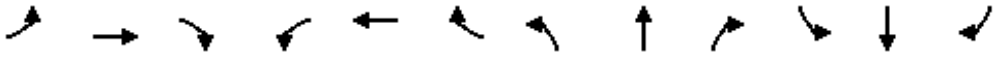
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.8 | | |
| Intersection Capacity Utilization | 25.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 60 | 53 | 77 | 37 | 58 | 41 | 98 | 164 | 44 | 29 | 197 | 51 |
| Future Volume (Veh/h) | 60 | 53 | 77 | 37 | 58 | 41 | 98 | 164 | 44 | 29 | 197 | 51 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 69 | 61 | 89 | 43 | 67 | 47 | 113 | 189 | 51 | 33 | 226 | 59 |
| Pedestrians | | 7 | | | | | | 2 | | | | |
| Lane Width (m) | | 3.7 | | | | | | 3.7 | | | | |
| Walking Speed (m/s) | | 1.1 | | | | | | 1.1 | | | | |
| Percent Blockage | | 1 | | | | | | 0 | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 824 | 794 | 264 | 854 | 798 | 214 | 292 | | | 240 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 824 | 794 | 264 | 854 | 798 | 214 | 292 | | | 240 | | |
| tC, single (s) | 7.2 | 6.6 | 6.2 | 7.2 | 6.5 | 6.3 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.6 | 4.1 | 3.3 | 3.6 | 4.0 | 3.4 | 2.2 | | | 2.2 | | |
| p0 queue free % | 66 | 78 | 88 | 77 | 76 | 94 | 91 | | | 98 | | |
| cM capacity (veh/h) | 201 | 279 | 767 | 184 | 283 | 813 | 1261 | | | 1339 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 69 | 150 | 43 | 114 | 113 | 240 | 33 | 285 |
| Volume Left | 69 | 0 | 43 | 0 | 113 | 0 | 33 | 0 |
| Volume Right | 0 | 89 | 0 | 47 | 0 | 51 | 0 | 59 |
| cSH | 201 | 448 | 184 | 387 | 1261 | 1700 | 1339 | 1700 |
| Volume to Capacity | 0.34 | 0.33 | 0.23 | 0.29 | 0.09 | 0.14 | 0.02 | 0.17 |
| Queue Length 95th (m) | 11.0 | 11.1 | 6.6 | 9.2 | 2.2 | 0.0 | 0.6 | 0.0 |
| Control Delay (s) | 32.0 | 17.0 | 30.5 | 18.1 | 8.1 | 0.0 | 7.8 | 0.0 |
| Lane LOS | D | C | D | C | A | | A | |
| Approach Delay (s) | 21.8 | | 21.5 | | 2.6 | | 0.8 | |
| Approach LOS | C | | C | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 8.9 | | | |
| Intersection Capacity Utilization | 43.7% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 6 | 5 | 6 | 12 | 7 | 4 | 10 | 218 | 10 | 11 | 215 | 8 |
| Future Volume (Veh/h) | 6 | 5 | 6 | 12 | 7 | 4 | 10 | 218 | 10 | 11 | 215 | 8 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Hourly flow rate (vph) | 7 | 6 | 7 | 14 | 8 | 5 | 12 | 256 | 12 | 13 | 253 | 9 |
| 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 | 578 | 576 | 258 | 580 | 574 | 262 | 262 | | | 268 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 578 | 576 | 258 | 580 | 574 | 262 | 262 | | | 268 | | |
| tC, single (s) | 7.3 | 6.5 | 6.4 | 7.1 | 6.5 | 6.5 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.7 | 4.0 | 3.5 | 3.5 | 4.0 | 3.6 | 2.2 | | | 2.3 | | |
| p0 queue free % | 98 | 99 | 99 | 97 | 98 | 99 | 99 | | | 99 | | |
| cM capacity (veh/h) | 387 | 423 | 739 | 414 | 423 | 707 | 1314 | | | 1245 | | |

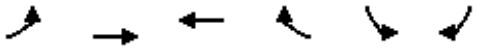
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 20 | 27 | 280 | 275 |
| Volume Left | 7 | 14 | 12 | 13 |
| Volume Right | 7 | 5 | 12 | 9 |
| cSH | 479 | 452 | 1314 | 1245 |
| Volume to Capacity | 0.04 | 0.06 | 0.01 | 0.01 |
| Queue Length 95th (m) | 1.0 | 1.4 | 0.2 | 0.2 |
| Control Delay (s) | 12.8 | 13.5 | 0.4 | 0.5 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 12.8 | 13.5 | 0.4 | 0.5 |
| Approach LOS | B | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1.4 | | | |
| Intersection Capacity Utilization | 25.9% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 229 | 0 | 0 | 247 |
| Future Volume (Veh/h) | 0 | 0 | 229 | 0 | 0 | 247 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 0 | 0 | 246 | 0 | 0 | 266 |
| 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 | 512 | 246 | | | 246 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 512 | 246 | | | 246 | |
| tC, single (s) | 6.6 | 6.4 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 3.5 | | | 2.2 | |
| p0 queue free % | 100 | 100 | | | 100 | |
| cM capacity (veh/h) | 491 | 744 | | | 1332 | |

| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 0 | 246 | 0 | 0 | 266 |
| Volume Left | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 | 0 | 0 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.07 | 0.14 | 0.00 | 0.00 | 0.16 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | | | |
| Approach Delay (s) | 0.0 | 0.0 | | 0.0 | |
| Approach LOS | A | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 16.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 118 | 126 | 0 | 10 | 0 |
| Future Volume (Veh/h) | 0 | 118 | 126 | 0 | 10 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 128 | 137 | 0 | 11 | 0 |
| 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 | 137 | | | | 265 | 137 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 137 | | | | 265 | 137 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 98 | 100 |
| cM capacity (veh/h) | 1447 | | | | 724 | 911 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 128 | 137 | 11 |
| Volume Left | 0 | 0 | 11 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1447 | 1700 | 724 |
| Volume to Capacity | 0.00 | 0.08 | 0.02 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.4 |
| Control Delay (s) | 0.0 | 0.0 | 10.0 |
| Lane LOS | | | B |
| Approach Delay (s) | 0.0 | 0.0 | 10.0 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.4 | | |
| Intersection Capacity Utilization | 16.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 9 | 57 | 0 | 189 | 185 | 0 |
| Future Volume (Veh/h) | 9 | 57 | 0 | 189 | 185 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 9 | 59 | 0 | 197 | 193 | 0 |
| 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 | 390 | 193 | 193 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 390 | 193 | 193 | | | |
| tC, single (s) | 6.5 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.6 | 3.4 | 2.2 | | | |
| p0 queue free % | 98 | 93 | 100 | | | |
| cM capacity (veh/h) | 593 | 826 | 1380 | | | |

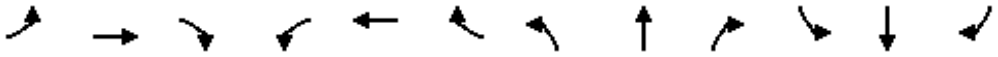
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 68 | 197 | 193 |
| Volume Left | 9 | 0 | 0 |
| Volume Right | 59 | 0 | 0 |
| cSH | 785 | 1700 | 1700 |
| Volume to Capacity | 0.09 | 0.12 | 0.11 |
| Queue Length 95th (m) | 2.2 | 0.0 | 0.0 |
| Control Delay (s) | 10.0 | 0.0 | 0.0 |
| Lane LOS | B | | |
| Approach Delay (s) | 10.0 | 0.0 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.5 | | |
| Intersection Capacity Utilization | 20.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 74 | 16 | 122 | 0 | 29 | 136 |
| Future Volume (Veh/h) | 74 | 16 | 122 | 0 | 29 | 136 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 80 | 17 | 133 | 0 | 32 | 148 |
| 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 | 345 | 133 | | | 133 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 345 | 133 | | | 133 | |
| tC, single (s) | 6.7 | 6.2 | | | 4.3 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.8 | 3.3 | | | 2.4 | |
| p0 queue free % | 86 | 98 | | | 98 | |
| cM capacity (veh/h) | 580 | 922 | | | 1364 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 97 | 133 | 32 | 148 |
| Volume Left | 80 | 0 | 32 | 0 |
| Volume Right | 17 | 0 | 0 | 0 |
| cSH | 620 | 1700 | 1364 | 1700 |
| Volume to Capacity | 0.16 | 0.08 | 0.02 | 0.09 |
| Queue Length 95th (m) | 4.2 | 0.0 | 0.5 | 0.0 |
| Control Delay (s) | 11.9 | 0.0 | 7.7 | 0.0 |
| Lane LOS | B | | A | |
| Approach Delay (s) | 11.9 | 0.0 | 1.4 | |
| Approach LOS | B | | | |

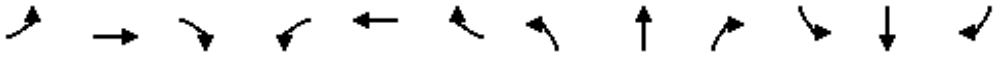
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.4 | | |
| Intersection Capacity Utilization | 24.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 110 | 47 | 78 | 12 | 38 | 17 | 97 | 143 | 26 | 21 | 137 | 60 |
| Future Volume (Veh/h) | 110 | 47 | 78 | 12 | 38 | 17 | 97 | 143 | 26 | 21 | 137 | 60 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 118 | 51 | 84 | 13 | 41 | 18 | 104 | 154 | 28 | 23 | 147 | 65 |
| Pedestrians | | 2 | | | | | | | | | | |
| Lane Width (m) | | 3.7 | | | | | | | | | | |
| Walking Speed (m/s) | | 1.1 | | | | | | | | | | |
| Percent Blockage | | 0 | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 628 | 618 | 182 | 678 | 636 | 168 | 214 | | | 182 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 628 | 618 | 182 | 678 | 636 | 168 | 214 | | | 182 | | |
| tC, single (s) | 7.1 | 6.6 | 6.2 | 7.3 | 6.5 | 6.2 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.1 | 3.3 | 3.7 | 4.0 | 3.3 | 2.2 | | | 2.3 | | |
| p0 queue free % | 64 | 86 | 90 | 95 | 88 | 98 | 92 | | | 98 | | |
| cM capacity (veh/h) | 324 | 360 | 854 | 256 | 356 | 881 | 1342 | | | 1369 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 118 | 135 | 13 | 59 | 104 | 182 | 23 | 212 |
| Volume Left | 118 | 0 | 13 | 0 | 104 | 0 | 23 | 0 |
| Volume Right | 0 | 84 | 0 | 18 | 0 | 28 | 0 | 65 |
| cSH | 324 | 562 | 256 | 435 | 1342 | 1700 | 1369 | 1700 |
| Volume to Capacity | 0.36 | 0.24 | 0.05 | 0.14 | 0.08 | 0.11 | 0.02 | 0.12 |
| Queue Length 95th (m) | 12.3 | 7.1 | 1.2 | 3.5 | 1.9 | 0.0 | 0.4 | 0.0 |
| Control Delay (s) | 22.4 | 13.4 | 19.8 | 14.6 | 7.9 | 0.0 | 7.7 | 0.0 |
| Lane LOS | C | B | C | B | A | | A | |
| Approach Delay (s) | 17.6 | | 15.5 | | 2.9 | | 0.8 | |
| Approach LOS | C | | C | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 7.8 | | | |
| Intersection Capacity Utilization | 39.2% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 7 | 2 | 12 | 14 | 8 | 4 | 4 | 301 | 7 | 8 | 231 | 0 |
| Future Volume (Veh/h) | 7 | 2 | 12 | 14 | 8 | 4 | 4 | 301 | 7 | 8 | 231 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Hourly flow rate (vph) | 7 | 2 | 12 | 14 | 8 | 4 | 4 | 307 | 7 | 8 | 236 | 0 |
| 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 | 578 | 574 | 236 | 584 | 570 | 310 | 236 | | | 314 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 578 | 574 | 236 | 584 | 570 | 310 | 236 | | | 314 | | |
| tC, single (s) | 7.1 | 6.5 | 6.3 | 7.2 | 6.5 | 6.2 | 4.1 | | | 4.6 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.4 | 3.6 | 4.0 | 3.3 | 2.2 | | | 2.7 | | |
| p0 queue free % | 98 | 100 | 98 | 97 | 98 | 99 | 100 | | | 99 | | |
| cM capacity (veh/h) | 418 | 427 | 784 | 403 | 429 | 734 | 1343 | | | 1019 | | |

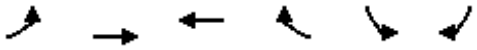
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 21 | 26 | 318 | 244 |
| Volume Left | 7 | 14 | 4 | 8 |
| Volume Right | 12 | 4 | 7 | 0 |
| cSH | 571 | 442 | 1343 | 1019 |
| Volume to Capacity | 0.04 | 0.06 | 0.00 | 0.01 |
| Queue Length 95th (m) | 0.9 | 1.4 | 0.1 | 0.2 |
| Control Delay (s) | 11.5 | 13.6 | 0.1 | 0.4 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 11.5 | 13.6 | 0.1 | 0.4 |
| Approach LOS | B | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1.2 | | | |
| Intersection Capacity Utilization | 27.9% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 1 | 78 | 225 | 13 | 43 | 225 |
| Future Volume (Veh/h) | 1 | 78 | 225 | 13 | 43 | 225 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 1 | 83 | 239 | 14 | 46 | 239 |
| 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 | 570 | 239 | | | 253 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 570 | 239 | | | 253 | |
| tC, single (s) | 6.4 | 7.2 | | | 4.9 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 4.2 | | | 2.9 | |
| p0 queue free % | 100 | 87 | | | 95 | |
| cM capacity (veh/h) | 463 | 615 | | | 966 | |

| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 84 | 239 | 14 | 46 | 239 |
| Volume Left | 1 | 0 | 0 | 46 | 0 |
| Volume Right | 83 | 0 | 14 | 0 | 0 |
| cSH | 613 | 1700 | 1700 | 966 | 1700 |
| Volume to Capacity | 0.14 | 0.14 | 0.01 | 0.05 | 0.14 |
| Queue Length 95th (m) | 3.6 | 0.0 | 0.0 | 1.1 | 0.0 |
| Control Delay (s) | 11.8 | 0.0 | 0.0 | 8.9 | 0.0 |
| Lane LOS | B | | | A | |
| Approach Delay (s) | 11.8 | 0.0 | | 1.4 | |
| Approach LOS | B | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 2.3 | | | |
| Intersection Capacity Utilization | 30.1% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 10 | 89 | 66 | 0 | 0 | 0 |
| Future Volume (Veh/h) | 10 | 89 | 66 | 0 | 0 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 11 | 97 | 72 | 0 | 0 | 0 |
| 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 | 72 | | | | 191 | 72 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 72 | | | | 191 | 72 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 99 | | | | 100 | 100 |
| cM capacity (veh/h) | 1528 | | | | 792 | 990 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 108 | 72 | 0 |
| Volume Left | 11 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1528 | 1700 | 1700 |
| Volume to Capacity | 0.01 | 0.04 | 0.01 |
| Queue Length 95th (m) | 0.2 | 0.0 | 0.0 |
| Control Delay (s) | 0.8 | 0.0 | 0.0 |
| Lane LOS | A | | A |
| Approach Delay (s) | 0.8 | 0.0 | 0.0 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.5 | | |
| Intersection Capacity Utilization | 15.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 9 | 33 | 0 | 143 | 150 | 0 |
| Future Volume (Veh/h) | 9 | 33 | 0 | 143 | 150 | 0 |
| 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) | 10 | 37 | 0 | 159 | 167 | 0 |
| 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 | 326 | 167 | 167 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 326 | 167 | 167 | | | |
| tC, single (s) | 6.6 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 3.3 | 2.2 | | | |
| p0 queue free % | 98 | 96 | 100 | | | |
| cM capacity (veh/h) | 624 | 869 | 1411 | | | |

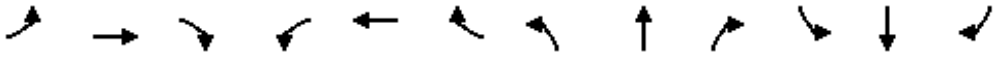
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 47 | 159 | 167 |
| Volume Left | 10 | 0 | 0 |
| Volume Right | 37 | 0 | 0 |
| cSH | 802 | 1700 | 1700 |
| Volume to Capacity | 0.06 | 0.09 | 0.10 |
| Queue Length 95th (m) | 1.4 | 0.0 | 0.0 |
| Control Delay (s) | 9.8 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 9.8 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.2 | | |
| Intersection Capacity Utilization | 17.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 59 | 15 | 109 | 0 | 16 | 113 |
| Future Volume (Veh/h) | 59 | 15 | 109 | 0 | 16 | 113 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 68 | 17 | 125 | 0 | 18 | 130 |
| 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 | 291 | 125 | | | 125 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 291 | 125 | | | 125 | |
| tC, single (s) | 7.0 | 6.6 | | | 4.5 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 4.0 | 3.6 | | | 2.5 | |
| p0 queue free % | 88 | 98 | | | 99 | |
| cM capacity (veh/h) | 586 | 837 | | | 1266 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 85 | 125 | 18 | 130 |
| Volume Left | 68 | 0 | 18 | 0 |
| Volume Right | 17 | 0 | 0 | 0 |
| cSH | 624 | 1700 | 1266 | 1700 |
| Volume to Capacity | 0.14 | 0.07 | 0.01 | 0.08 |
| Queue Length 95th (m) | 3.6 | 0.0 | 0.3 | 0.0 |
| Control Delay (s) | 11.7 | 0.0 | 7.9 | 0.0 |
| Lane LOS | B | | A | |
| Approach Delay (s) | 11.7 | 0.0 | 1.0 | |
| Approach LOS | B | | | |

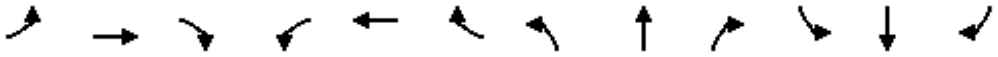
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.2 | | |
| Intersection Capacity Utilization | 18.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 69 | 32 | 67 | 20 | 36 | 15 | 89 | 138 | 22 | 14 | 140 | 64 |
| Future Volume (Veh/h) | 69 | 32 | 67 | 20 | 36 | 15 | 89 | 138 | 22 | 14 | 140 | 64 |
| 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) | 77 | 36 | 74 | 22 | 40 | 17 | 99 | 153 | 24 | 16 | 156 | 71 |
| Pedestrians | | 2 | | | | | | | | | | |
| Lane Width (m) | | 3.7 | | | | | | | | | | |
| Walking Speed (m/s) | | 1.1 | | | | | | | | | | |
| Percent Blockage | | 0 | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 614 | 600 | 194 | 643 | 624 | 165 | 229 | | | 177 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 614 | 600 | 194 | 643 | 624 | 165 | 229 | | | 177 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.2 | 6.5 | 6.4 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.6 | 4.0 | 3.4 | 2.2 | | | 2.3 | | |
| p0 queue free % | 77 | 90 | 91 | 93 | 89 | 98 | 93 | | | 99 | | |
| cM capacity (veh/h) | 335 | 375 | 851 | 301 | 363 | 847 | 1325 | | | 1358 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 77 | 110 | 22 | 57 | 99 | 177 | 16 | 227 |
| Volume Left | 77 | 0 | 22 | 0 | 99 | 0 | 16 | 0 |
| Volume Right | 0 | 74 | 0 | 17 | 0 | 24 | 0 | 71 |
| cSH | 335 | 601 | 301 | 438 | 1325 | 1700 | 1358 | 1700 |
| Volume to Capacity | 0.23 | 0.18 | 0.07 | 0.13 | 0.07 | 0.10 | 0.01 | 0.13 |
| Queue Length 95th (m) | 6.6 | 5.1 | 1.8 | 3.4 | 1.8 | 0.0 | 0.3 | 0.0 |
| Control Delay (s) | 18.9 | 12.3 | 17.9 | 14.5 | 7.9 | 0.0 | 7.7 | 0.0 |
| Lane LOS | C | B | C | B | A | | A | |
| Approach Delay (s) | 15.1 | | 15.4 | | 2.8 | | 0.5 | |
| Approach LOS | C | | C | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 6.3 | | | |
| Intersection Capacity Utilization | 36.9% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 5 | 7 | 9 | 12 | 2 | 3 | 8 | 212 | 10 | 5 | 178 | 5 |
| Future Volume (Veh/h) | 5 | 7 | 9 | 12 | 2 | 3 | 8 | 212 | 10 | 5 | 178 | 5 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Hourly flow rate (vph) | 5 | 7 | 9 | 12 | 2 | 3 | 8 | 219 | 10 | 5 | 184 | 5 |
| 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 | 440 | 442 | 186 | 449 | 439 | 224 | 189 | | | 229 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 440 | 442 | 186 | 449 | 439 | 224 | 189 | | | 229 | | |
| tC, single (s) | 7.3 | 6.8 | 6.7 | 7.2 | 7.5 | 6.7 | 4.3 | | | 4.3 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.7 | 4.3 | 3.8 | 3.6 | 4.9 | 3.8 | 2.4 | | | 2.4 | | |
| p0 queue free % | 99 | 98 | 99 | 98 | 99 | 100 | 99 | | | 100 | | |
| cM capacity (veh/h) | 482 | 462 | 747 | 491 | 387 | 709 | 1300 | | | 1215 | | |

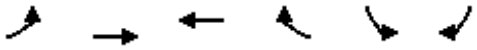
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 21 | 17 | 237 | 194 |
| Volume Left | 5 | 12 | 8 | 5 |
| Volume Right | 9 | 3 | 10 | 5 |
| cSH | 559 | 502 | 1300 | 1215 |
| Volume to Capacity | 0.04 | 0.03 | 0.01 | 0.00 |
| Queue Length 95th (m) | 0.9 | 0.8 | 0.1 | 0.1 |
| Control Delay (s) | 11.7 | 12.4 | 0.3 | 0.2 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 11.7 | 12.4 | 0.3 | 0.2 |
| Approach LOS | B | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1.2 | | | |
| Intersection Capacity Utilization | 25.4% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 15 | 52 | 182 | 12 | 42 | 158 |
| Future Volume (Veh/h) | 15 | 52 | 182 | 12 | 42 | 158 |
| 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) | 17 | 58 | 202 | 13 | 47 | 176 |
| 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 | 472 | 202 | | | 215 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 472 | 202 | | | 215 | |
| tC, single (s) | 6.6 | 7.0 | | | 5.0 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 4.0 | | | 3.0 | |
| p0 queue free % | 97 | 91 | | | 95 | |
| cM capacity (veh/h) | 486 | 675 | | | 966 | |

| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 75 | 202 | 13 | 47 | 176 |
| Volume Left | 17 | 0 | 0 | 47 | 0 |
| Volume Right | 58 | 0 | 13 | 0 | 0 |
| cSH | 621 | 1700 | 1700 | 966 | 1700 |
| Volume to Capacity | 0.12 | 0.12 | 0.01 | 0.05 | 0.10 |
| Queue Length 95th (m) | 3.1 | 0.0 | 0.0 | 1.2 | 0.0 |
| Control Delay (s) | 11.6 | 0.0 | 0.0 | 8.9 | 0.0 |
| Lane LOS | B | | | A | |
| Approach Delay (s) | 11.6 | 0.0 | | 1.9 | |
| Approach LOS | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.5 | | |
| Intersection Capacity Utilization | 26.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 65 | 70 | 0 | 0 | 0 |
| Future Volume (Veh/h) | 0 | 65 | 70 | 0 | 0 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 71 | 76 | 0 | 0 | 0 |
| 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 | 76 | | | | 147 | 76 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 76 | | | | 147 | 76 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 100 | 100 |
| cM capacity (veh/h) | 1523 | | | | 845 | 985 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 71 | 76 | 0 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1523 | 1700 | 1700 |
| Volume to Capacity | 0.00 | 0.04 | 0.01 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | | | A |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 7.0% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 29 | 56 | 0 | 177 | 204 | 0 |
| Future Volume (Veh/h) | 29 | 56 | 0 | 177 | 204 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 32 | 62 | 0 | 195 | 224 | 0 |
| 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 | 419 | 224 | 224 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 419 | 224 | 224 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 95 | 92 | 100 | | | |
| cM capacity (veh/h) | 587 | 813 | 1345 | | | |

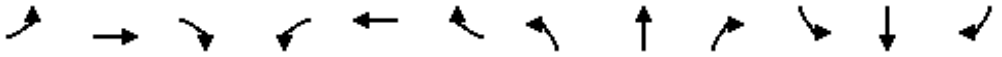
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 94 | 195 | 224 |
| Volume Left | 32 | 0 | 0 |
| Volume Right | 62 | 0 | 0 |
| cSH | 719 | 1700 | 1700 |
| Volume to Capacity | 0.13 | 0.11 | 0.13 |
| Queue Length 95th (m) | 3.4 | 0.0 | 0.0 |
| Control Delay (s) | 10.8 | 0.0 | 0.0 |
| Lane LOS | B | | |
| Approach Delay (s) | 10.8 | 0.0 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.0 | | |
| Intersection Capacity Utilization | 22.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 73 | 33 | 143 | 0 | 19 | 159 |
| Future Volume (Veh/h) | 73 | 33 | 143 | 0 | 19 | 159 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 83 | 38 | 162 | 0 | 22 | 181 |
| 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 | 387 | 162 | | | 162 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 387 | 162 | | | 162 | |
| tC, single (s) | 6.4 | 6.3 | | | 4.2 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.4 | | | 2.3 | |
| p0 queue free % | 86 | 96 | | | 98 | |
| cM capacity (veh/h) | 604 | 862 | | | 1353 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 121 | 162 | 22 | 181 |
| Volume Left | 83 | 0 | 22 | 0 |
| Volume Right | 38 | 0 | 0 | 0 |
| cSH | 667 | 1700 | 1353 | 1700 |
| Volume to Capacity | 0.18 | 0.10 | 0.02 | 0.11 |
| Queue Length 95th (m) | 5.0 | 0.0 | 0.4 | 0.0 |
| Control Delay (s) | 11.6 | 0.0 | 7.7 | 0.0 |
| Lane LOS | B | | A | |
| Approach Delay (s) | 11.6 | 0.0 | 0.8 | |
| Approach LOS | B | | | |

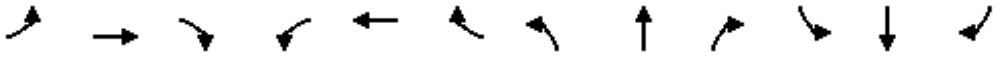
| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 3.2 | | | |
| Intersection Capacity Utilization | 26.9% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 60 | 53 | 77 | 37 | 58 | 41 | 98 | 168 | 44 | 29 | 208 | 51 |
| Future Volume (Veh/h) | 60 | 53 | 77 | 37 | 58 | 41 | 98 | 168 | 44 | 29 | 208 | 51 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 69 | 61 | 89 | 43 | 67 | 47 | 113 | 193 | 51 | 33 | 239 | 59 |
| Pedestrians | | 7 | | | | | | 2 | | | | |
| Lane Width (m) | | 3.7 | | | | | | 3.7 | | | | |
| Walking Speed (m/s) | | 1.1 | | | | | | 1.1 | | | | |
| Percent Blockage | | 1 | | | | | | 0 | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 841 | 812 | 278 | 871 | 816 | 218 | 305 | | | 244 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 841 | 812 | 278 | 871 | 816 | 218 | 305 | | | 244 | | |
| tC, single (s) | 7.2 | 6.6 | 6.2 | 7.2 | 6.5 | 6.3 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.6 | 4.1 | 3.3 | 3.6 | 4.0 | 3.4 | 2.2 | | | 2.2 | | |
| p0 queue free % | 64 | 78 | 88 | 76 | 76 | 94 | 91 | | | 98 | | |
| cM capacity (veh/h) | 194 | 272 | 755 | 177 | 276 | 809 | 1247 | | | 1334 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 69 | 150 | 43 | 114 | 113 | 244 | 33 | 298 |
| Volume Left | 69 | 0 | 43 | 0 | 113 | 0 | 33 | 0 |
| Volume Right | 0 | 89 | 0 | 47 | 0 | 51 | 0 | 59 |
| cSH | 194 | 438 | 177 | 379 | 1247 | 1700 | 1334 | 1700 |
| Volume to Capacity | 0.36 | 0.34 | 0.24 | 0.30 | 0.09 | 0.14 | 0.02 | 0.18 |
| Queue Length 95th (m) | 11.5 | 11.4 | 6.9 | 9.4 | 2.3 | 0.0 | 0.6 | 0.0 |
| Control Delay (s) | 33.4 | 17.4 | 31.7 | 18.5 | 8.2 | 0.0 | 7.8 | 0.0 |
| Lane LOS | D | C | D | C | A | | A | |
| Approach Delay (s) | 22.5 | | 22.1 | | 2.6 | | 0.8 | |
| Approach LOS | C | | C | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 9.0 | | | |
| Intersection Capacity Utilization | 44.3% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 6 | 5 | 6 | 12 | 7 | 4 | 10 | 251 | 10 | 11 | 237 | 8 |
| Future Volume (Veh/h) | 6 | 5 | 6 | 12 | 7 | 4 | 10 | 251 | 10 | 11 | 237 | 8 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Hourly flow rate (vph) | 7 | 6 | 7 | 14 | 8 | 5 | 12 | 295 | 12 | 13 | 279 | 9 |
| 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 | 644 | 640 | 284 | 644 | 639 | 301 | 288 | | | 307 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 644 | 640 | 284 | 644 | 639 | 301 | 288 | | | 307 | | |
| tC, single (s) | 7.3 | 6.5 | 6.4 | 7.1 | 6.5 | 6.5 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.7 | 4.0 | 3.5 | 3.5 | 4.0 | 3.6 | 2.2 | | | 2.3 | | |
| p0 queue free % | 98 | 98 | 99 | 96 | 98 | 99 | 99 | | | 99 | | |
| cM capacity (veh/h) | 348 | 388 | 714 | 374 | 389 | 671 | 1286 | | | 1204 | | |

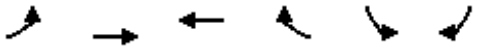
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 20 | 27 | 319 | 301 |
| Volume Left | 7 | 14 | 12 | 13 |
| Volume Right | 7 | 5 | 12 | 9 |
| cSH | 441 | 413 | 1286 | 1204 |
| Volume to Capacity | 0.05 | 0.07 | 0.01 | 0.01 |
| Queue Length 95th (m) | 1.1 | 1.6 | 0.2 | 0.2 |
| Control Delay (s) | 13.6 | 14.3 | 0.4 | 0.4 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 13.6 | 14.3 | 0.4 | 0.4 |
| Approach LOS | B | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1.4 | | | |
| Intersection Capacity Utilization | 27.5% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 11 | 33 | 229 | 4 | 22 | 247 |
| Future Volume (Veh/h) | 11 | 33 | 229 | 4 | 22 | 247 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 12 | 35 | 246 | 4 | 24 | 266 |
| 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 | 560 | 246 | | | 250 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 560 | 246 | | | 250 | |
| tC, single (s) | 6.6 | 6.4 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 3.5 | | | 2.2 | |
| p0 queue free % | 97 | 95 | | | 98 | |
| cM capacity (veh/h) | 452 | 744 | | | 1327 | |

| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 47 | 246 | 4 | 24 | 266 |
| Volume Left | 12 | 0 | 0 | 24 | 0 |
| Volume Right | 35 | 0 | 4 | 0 | 0 |
| cSH | 639 | 1700 | 1700 | 1327 | 1700 |
| Volume to Capacity | 0.07 | 0.14 | 0.00 | 0.02 | 0.16 |
| Queue Length 95th (m) | 1.8 | 0.0 | 0.0 | 0.4 | 0.0 |
| Control Delay (s) | 11.1 | 0.0 | 0.0 | 7.8 | 0.0 |
| Lane LOS | B | | | A | |
| Approach Delay (s) | 11.1 | 0.0 | | 0.6 | |
| Approach LOS | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.2 | | |
| Intersection Capacity Utilization | 28.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 118 | 126 | 0 | 0 | 10 |
| Future Volume (Veh/h) | 0 | 118 | 126 | 0 | 0 | 10 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 128 | 137 | 0 | 0 | 11 |
| 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 | 137 | | | | 265 | 137 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 137 | | | | 265 | 137 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 100 | 99 |
| cM capacity (veh/h) | 1447 | | | | 724 | 911 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 128 | 137 | 11 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 11 |
| cSH | 1447 | 1700 | 911 |
| Volume to Capacity | 0.00 | 0.08 | 0.01 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.3 |
| Control Delay (s) | 0.0 | 0.0 | 9.0 |
| Lane LOS | | | A |
| Approach Delay (s) | 0.0 | 0.0 | 9.0 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.4 | | |
| Intersection Capacity Utilization | 16.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 10 | 53 | 0 | 210 | 185 | 0 |
| Future Volume (Veh/h) | 10 | 53 | 0 | 210 | 185 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 10 | 55 | 0 | 219 | 193 | 0 |
| 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 | 412 | 193 | 193 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 412 | 193 | 193 | | | |
| tC, single (s) | 6.5 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.6 | 3.4 | 2.2 | | | |
| p0 queue free % | 98 | 93 | 100 | | | |
| cM capacity (veh/h) | 576 | 826 | 1380 | | | |

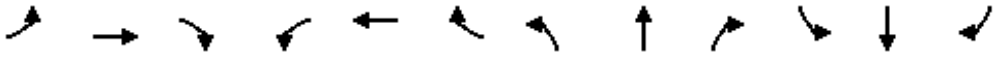
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 65 | 219 | 193 |
| Volume Left | 10 | 0 | 0 |
| Volume Right | 55 | 0 | 0 |
| cSH | 774 | 1700 | 1700 |
| Volume to Capacity | 0.08 | 0.13 | 0.11 |
| Queue Length 95th (m) | 2.1 | 0.0 | 0.0 |
| Control Delay (s) | 10.1 | 0.0 | 0.0 |
| Lane LOS | B | | |
| Approach Delay (s) | 10.1 | 0.0 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.4 | | |
| Intersection Capacity Utilization | 21.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 44 | 18 | 152 | 0 | 35 | 169 |
| Future Volume (Veh/h) | 44 | 18 | 152 | 0 | 35 | 169 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 48 | 20 | 165 | 0 | 38 | 184 |
| 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 | 425 | 165 | | | 165 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 425 | 165 | | | 165 | |
| tC, single (s) | 6.7 | 6.2 | | | 4.3 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.8 | 3.3 | | | 2.4 | |
| p0 queue free % | 91 | 98 | | | 97 | |
| cM capacity (veh/h) | 516 | 885 | | | 1327 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 68 | 165 | 38 | 184 |
| Volume Left | 48 | 0 | 38 | 0 |
| Volume Right | 20 | 0 | 0 | 0 |
| cSH | 588 | 1700 | 1327 | 1700 |
| Volume to Capacity | 0.12 | 0.10 | 0.03 | 0.11 |
| Queue Length 95th (m) | 3.0 | 0.0 | 0.7 | 0.0 |
| Control Delay (s) | 11.9 | 0.0 | 7.8 | 0.0 |
| Lane LOS | B | | A | |
| Approach Delay (s) | 11.9 | 0.0 | 1.3 | |
| Approach LOS | B | | | |

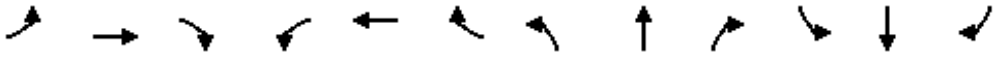
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.4 | | |
| Intersection Capacity Utilization | 24.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 117 | 51 | 84 | 13 | 42 | 19 | 117 | 161 | 32 | 36 | 169 | 72 |
| Future Volume (Veh/h) | 117 | 51 | 84 | 13 | 42 | 19 | 117 | 161 | 32 | 36 | 169 | 72 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 126 | 55 | 90 | 14 | 45 | 20 | 126 | 173 | 34 | 39 | 182 | 77 |
| Pedestrians | | 2 | | | | | | | | | | |
| Lane Width (m) | | 3.7 | | | | | | | | | | |
| Walking Speed (m/s) | | 1.1 | | | | | | | | | | |
| Percent Blockage | | 0 | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 768 | 760 | 222 | 820 | 781 | 190 | 261 | | | 207 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 768 | 760 | 222 | 820 | 781 | 190 | 261 | | | 207 | | |
| tC, single (s) | 7.1 | 6.6 | 6.2 | 7.3 | 6.5 | 6.2 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.1 | 3.3 | 3.7 | 4.0 | 3.3 | 2.2 | | | 2.3 | | |
| p0 queue free % | 48 | 81 | 89 | 93 | 84 | 98 | 90 | | | 97 | | |
| cM capacity (veh/h) | 244 | 287 | 810 | 188 | 283 | 857 | 1289 | | | 1341 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 126 | 145 | 14 | 65 | 126 | 207 | 39 | 259 |
| Volume Left | 126 | 0 | 14 | 0 | 126 | 0 | 39 | 0 |
| Volume Right | 0 | 90 | 0 | 20 | 0 | 34 | 0 | 77 |
| cSH | 244 | 480 | 188 | 357 | 1289 | 1700 | 1341 | 1700 |
| Volume to Capacity | 0.52 | 0.30 | 0.07 | 0.18 | 0.10 | 0.12 | 0.03 | 0.15 |
| Queue Length 95th (m) | 20.5 | 9.6 | 1.8 | 5.0 | 2.5 | 0.0 | 0.7 | 0.0 |
| Control Delay (s) | 34.5 | 15.7 | 25.6 | 17.3 | 8.1 | 0.0 | 7.8 | 0.0 |
| Lane LOS | D | C | D | C | A | | A | |
| Approach Delay (s) | 24.4 | | 18.8 | | 3.1 | | 1.0 | |
| Approach LOS | C | | C | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 9.6 | | | |
| Intersection Capacity Utilization | 43.0% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 8 | 2 | 13 | 15 | 9 | 4 | 5 | 267 | 8 | 10 | 229 | 0 |
| Future Volume (Veh/h) | 8 | 2 | 13 | 15 | 9 | 4 | 5 | 267 | 8 | 10 | 229 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Hourly flow rate (vph) | 8 | 2 | 13 | 15 | 9 | 4 | 5 | 272 | 8 | 10 | 234 | 0 |
| 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 | 548 | 544 | 234 | 554 | 540 | 276 | 234 | | | 280 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 548 | 544 | 234 | 554 | 540 | 276 | 234 | | | 280 | | |
| tC, single (s) | 7.1 | 6.5 | 6.3 | 7.2 | 6.5 | 6.2 | 4.1 | | | 4.6 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.4 | 3.6 | 4.0 | 3.3 | 2.2 | | | 2.7 | | |
| p0 queue free % | 98 | 100 | 98 | 96 | 98 | 99 | 100 | | | 99 | | |
| cM capacity (veh/h) | 436 | 443 | 786 | 421 | 445 | 768 | 1345 | | | 1051 | | |

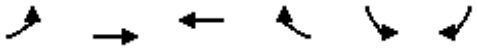
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 23 | 28 | 285 | 244 |
| Volume Left | 8 | 15 | 5 | 10 |
| Volume Right | 13 | 4 | 8 | 0 |
| cSH | 584 | 459 | 1345 | 1051 |
| Volume to Capacity | 0.04 | 0.06 | 0.00 | 0.01 |
| Queue Length 95th (m) | 0.9 | 1.5 | 0.1 | 0.2 |
| Control Delay (s) | 11.4 | 13.4 | 0.2 | 0.4 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 11.4 | 13.4 | 0.2 | 0.4 |
| Approach LOS | B | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1.4 | | | |
| Intersection Capacity Utilization | 27.4% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 268 | 0 | 0 | 275 |
| Future Volume (Veh/h) | 0 | 0 | 268 | 0 | 0 | 275 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 0 | 0 | 285 | 0 | 0 | 293 |
| 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 | 578 | 285 | | | 285 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 578 | 285 | | | 285 | |
| tC, single (s) | 6.4 | 7.2 | | | 4.9 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 4.2 | | | 2.9 | |
| p0 queue free % | 100 | 100 | | | 100 | |
| cM capacity (veh/h) | 481 | 576 | | | 937 | |

| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 0 | 285 | 0 | 0 | 293 |
| Volume Left | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 | 0 | 0 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.07 | 0.17 | 0.00 | 0.00 | 0.17 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | | | |
| Approach Delay (s) | 0.0 | 0.0 | | 0.0 | |
| Approach LOS | A | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 17.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 10 | 97 | 73 | 0 | 0 | 0 |
| Future Volume (Veh/h) | 10 | 97 | 73 | 0 | 0 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 11 | 105 | 79 | 0 | 0 | 0 |
| 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 | 79 | | | | 206 | 79 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 79 | | | | 206 | 79 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 99 | | | | 100 | 100 |
| cM capacity (veh/h) | 1519 | | | | 777 | 981 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 116 | 79 | 0 |
| Volume Left | 11 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1519 | 1700 | 1700 |
| Volume to Capacity | 0.01 | 0.05 | 0.00 |
| Queue Length 95th (m) | 0.2 | 0.0 | 0.0 |
| Control Delay (s) | 0.8 | 0.0 | 0.0 |
| Lane LOS | A | | A |
| Approach Delay (s) | 0.8 | 0.0 | 0.0 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.4 | | |
| Intersection Capacity Utilization | 15.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 10 | 27 | 0 | 162 | 142 | 0 |
| Future Volume (Veh/h) | 10 | 27 | 0 | 162 | 142 | 0 |
| 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) | 11 | 30 | 0 | 180 | 158 | 0 |
| 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 | 338 | 158 | 158 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 338 | 158 | 158 | | | |
| tC, single (s) | 6.6 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 3.3 | 2.2 | | | |
| p0 queue free % | 98 | 97 | 100 | | | |
| cM capacity (veh/h) | 613 | 880 | 1422 | | | |

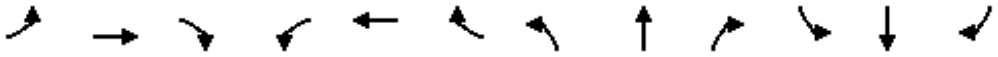
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 41 | 180 | 158 |
| Volume Left | 11 | 0 | 0 |
| Volume Right | 30 | 0 | 0 |
| cSH | 788 | 1700 | 1700 |
| Volume to Capacity | 0.05 | 0.11 | 0.09 |
| Queue Length 95th (m) | 1.2 | 0.0 | 0.0 |
| Control Delay (s) | 9.8 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 9.8 | 0.0 | 0.0 |
| Approach LOS | A | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.1 | | |
| Intersection Capacity Utilization | 18.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 27 | 17 | 135 | 0 | 20 | 140 |
| Future Volume (Veh/h) | 27 | 17 | 135 | 0 | 20 | 140 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 31 | 20 | 155 | 0 | 23 | 161 |
| 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 | 362 | 155 | | | 155 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 362 | 155 | | | 155 | |
| tC, single (s) | 7.0 | 6.6 | | | 4.5 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 4.0 | 3.6 | | | 2.5 | |
| p0 queue free % | 94 | 98 | | | 98 | |
| cM capacity (veh/h) | 528 | 805 | | | 1233 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 51 | 155 | 23 | 161 |
| Volume Left | 31 | 0 | 23 | 0 |
| Volume Right | 20 | 0 | 0 | 0 |
| cSH | 610 | 1700 | 1233 | 1700 |
| Volume to Capacity | 0.08 | 0.09 | 0.02 | 0.09 |
| Queue Length 95th (m) | 2.1 | 0.0 | 0.4 | 0.0 |
| Control Delay (s) | 11.4 | 0.0 | 8.0 | 0.0 |
| Lane LOS | B | | A | |
| Approach Delay (s) | 11.4 | 0.0 | 1.0 | |
| Approach LOS | B | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.0 | | |
| Intersection Capacity Utilization | 23.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 74 | 35 | 73 | 23 | 38 | 17 | 103 | 157 | 28 | 17 | 155 | 77 |
| Future Volume (Veh/h) | 74 | 35 | 73 | 23 | 38 | 17 | 103 | 157 | 28 | 17 | 155 | 77 |
| 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) | 82 | 39 | 81 | 26 | 42 | 19 | 114 | 174 | 31 | 19 | 172 | 86 |
| Pedestrians | | 2 | | | | | | | | | | |
| Lane Width (m) | | 3.7 | | | | | | | | | | |
| Walking Speed (m/s) | | 1.1 | | | | | | | | | | |
| Percent Blockage | | 0 | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 697 | 688 | 217 | 728 | 716 | 190 | 260 | | | 205 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 697 | 688 | 217 | 728 | 716 | 190 | 260 | | | 205 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.2 | 6.5 | 6.4 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.6 | 4.0 | 3.4 | 2.2 | | | 2.3 | | |
| p0 queue free % | 71 | 88 | 90 | 90 | 87 | 98 | 91 | | | 99 | | |
| cM capacity (veh/h) | 284 | 328 | 826 | 252 | 316 | 820 | 1290 | | | 1326 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 82 | 120 | 26 | 61 | 114 | 205 | 19 | 258 |
| Volume Left | 82 | 0 | 26 | 0 | 114 | 0 | 19 | 0 |
| Volume Right | 0 | 81 | 0 | 19 | 0 | 31 | 0 | 86 |
| cSH | 284 | 553 | 252 | 391 | 1290 | 1700 | 1326 | 1700 |
| Volume to Capacity | 0.29 | 0.22 | 0.10 | 0.16 | 0.09 | 0.12 | 0.01 | 0.15 |
| Queue Length 95th (m) | 8.8 | 6.2 | 2.6 | 4.2 | 2.2 | 0.0 | 0.3 | 0.0 |
| Control Delay (s) | 22.7 | 13.3 | 20.9 | 15.9 | 8.1 | 0.0 | 7.8 | 0.0 |
| Lane LOS | C | B | C | C | A | | A | |
| Approach Delay (s) | 17.1 | | 17.4 | | 2.9 | | 0.5 | |
| Approach LOS | C | | C | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 6.8 | | | |
| Intersection Capacity Utilization | 39.4% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 5 | 8 | 10 | 13 | 2 | 3 | 10 | 193 | 13 | 7 | 166 | 7 |
| Future Volume (Veh/h) | 5 | 8 | 10 | 13 | 2 | 3 | 10 | 193 | 13 | 7 | 166 | 7 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Hourly flow rate (vph) | 5 | 8 | 10 | 13 | 2 | 3 | 10 | 199 | 13 | 7 | 171 | 7 |
| 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 | 418 | 420 | 174 | 428 | 418 | 206 | 178 | | | 212 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 418 | 420 | 174 | 428 | 418 | 206 | 178 | | | 212 | | |
| tC, single (s) | 7.3 | 6.8 | 6.7 | 7.2 | 7.5 | 6.7 | 4.3 | | | 4.3 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.7 | 4.3 | 3.8 | 3.6 | 4.9 | 3.8 | 2.4 | | | 2.4 | | |
| p0 queue free % | 99 | 98 | 99 | 97 | 99 | 100 | 99 | | | 99 | | |
| cM capacity (veh/h) | 498 | 473 | 759 | 505 | 398 | 727 | 1312 | | | 1233 | | |

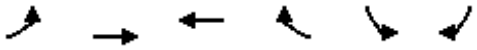
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 23 | 18 | 222 | 185 |
| Volume Left | 5 | 13 | 10 | 7 |
| Volume Right | 10 | 3 | 13 | 7 |
| cSH | 573 | 516 | 1312 | 1233 |
| Volume to Capacity | 0.04 | 0.03 | 0.01 | 0.01 |
| Queue Length 95th (m) | 1.0 | 0.8 | 0.2 | 0.1 |
| Control Delay (s) | 11.5 | 12.2 | 0.4 | 0.3 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 11.5 | 12.2 | 0.4 | 0.3 |
| Approach LOS | B | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1.4 | | | |
| Intersection Capacity Utilization | 24.8% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 220 | 0 | 0 | 193 |
| Future Volume (Veh/h) | 0 | 0 | 220 | 0 | 0 | 193 |
| 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) | 0 | 0 | 244 | 0 | 0 | 214 |
| 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 | 458 | 244 | | | 244 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 458 | 244 | | | 244 | |
| tC, single (s) | 6.6 | 7.0 | | | 5.0 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 4.0 | | | 3.0 | |
| p0 queue free % | 100 | 100 | | | 100 | |
| cM capacity (veh/h) | 521 | 637 | | | 939 | |

| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 0 | 244 | 0 | 0 | 214 |
| Volume Left | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 | 0 | 0 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.07 | 0.14 | 0.00 | 0.00 | 0.13 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | | | |
| Approach Delay (s) | 0.0 | 0.0 | | 0.0 | |
| Approach LOS | A | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 14.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 71 | 77 | 0 | 0 | 0 |
| Future Volume (Veh/h) | 0 | 71 | 77 | 0 | 0 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 77 | 84 | 0 | 0 | 0 |
| 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 | 84 | | | | 161 | 84 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 84 | | | | 161 | 84 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 100 | 100 |
| cM capacity (veh/h) | 1513 | | | | 830 | 975 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 77 | 84 | 0 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1513 | 1700 | 1700 |
| Volume to Capacity | 0.00 | 0.05 | 0.00 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | | | A |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 7.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 33 | 56 | 0 | 213 | 228 | 0 |
| Future Volume (Veh/h) | 33 | 56 | 0 | 213 | 228 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 36 | 62 | 0 | 234 | 251 | 0 |
| 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 | 485 | 251 | 251 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 485 | 251 | 251 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 93 | 92 | 100 | | | |
| cM capacity (veh/h) | 537 | 785 | 1314 | | | |

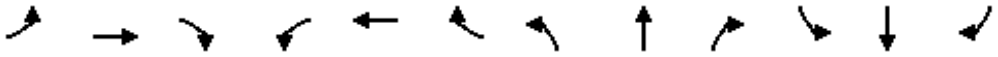
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 98 | 234 | 251 |
| Volume Left | 36 | 0 | 0 |
| Volume Right | 62 | 0 | 0 |
| cSH | 672 | 1700 | 1700 |
| Volume to Capacity | 0.15 | 0.14 | 0.15 |
| Queue Length 95th (m) | 3.9 | 0.0 | 0.0 |
| Control Delay (s) | 11.3 | 0.0 | 0.0 |
| Lane LOS | B | | |
| Approach Delay (s) | 11.3 | 0.0 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.9 | | |
| Intersection Capacity Utilization | 23.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 60 | 36 | 178 | 0 | 23 | 198 |
| Future Volume (Veh/h) | 60 | 36 | 178 | 0 | 23 | 198 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 68 | 41 | 202 | 0 | 26 | 225 |
| 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 | 479 | 202 | | | 202 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 479 | 202 | | | 202 | |
| tC, single (s) | 6.4 | 6.3 | | | 4.2 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.4 | | | 2.3 | |
| p0 queue free % | 87 | 95 | | | 98 | |
| cM capacity (veh/h) | 533 | 819 | | | 1307 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 109 | 202 | 26 | 225 |
| Volume Left | 68 | 0 | 26 | 0 |
| Volume Right | 41 | 0 | 0 | 0 |
| cSH | 613 | 1700 | 1307 | 1700 |
| Volume to Capacity | 0.18 | 0.12 | 0.02 | 0.13 |
| Queue Length 95th (m) | 4.9 | 0.0 | 0.5 | 0.0 |
| Control Delay (s) | 12.1 | 0.0 | 7.8 | 0.0 |
| Lane LOS | B | | A | |
| Approach Delay (s) | 12.1 | 0.0 | 0.8 | |
| Approach LOS | B | | | |

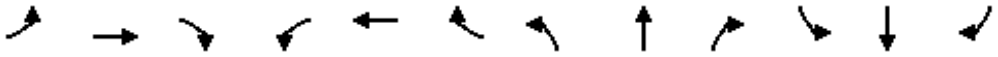
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.7 | | |
| Intersection Capacity Utilization | 28.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 65 | 58 | 83 | 41 | 62 | 45 | 111 | 204 | 55 | 35 | 245 | 56 |
| Future Volume (Veh/h) | 65 | 58 | 83 | 41 | 62 | 45 | 111 | 204 | 55 | 35 | 245 | 56 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 75 | 67 | 95 | 47 | 71 | 52 | 128 | 234 | 63 | 40 | 282 | 64 |
| Pedestrians | | 7 | | | | | | 2 | | | | |
| Lane Width (m) | | 3.7 | | | | | | 3.7 | | | | |
| Walking Speed (m/s) | | 1.1 | | | | | | 1.1 | | | | |
| Percent Blockage | | 1 | | | | | | 0 | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 978 | 954 | 323 | 1014 | 954 | 266 | 353 | | | 297 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 978 | 954 | 323 | 1014 | 954 | 266 | 353 | | | 297 | | |
| tC, single (s) | 7.2 | 6.6 | 6.2 | 7.2 | 6.5 | 6.3 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.6 | 4.1 | 3.3 | 3.6 | 4.0 | 3.4 | 2.2 | | | 2.2 | | |
| p0 queue free % | 47 | 69 | 87 | 63 | 68 | 93 | 89 | | | 97 | | |
| cM capacity (veh/h) | 141 | 219 | 712 | 126 | 224 | 761 | 1198 | | | 1276 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 75 | 162 | 47 | 123 | 128 | 297 | 40 | 346 |
| Volume Left | 75 | 0 | 47 | 0 | 128 | 0 | 40 | 0 |
| Volume Right | 0 | 95 | 0 | 52 | 0 | 63 | 0 | 64 |
| cSH | 141 | 368 | 126 | 319 | 1198 | 1700 | 1276 | 1700 |
| Volume to Capacity | 0.53 | 0.44 | 0.37 | 0.39 | 0.11 | 0.17 | 0.03 | 0.20 |
| Queue Length 95th (m) | 19.6 | 16.5 | 11.7 | 13.3 | 2.7 | 0.0 | 0.7 | 0.0 |
| Control Delay (s) | 56.1 | 22.2 | 49.4 | 23.2 | 8.4 | 0.0 | 7.9 | 0.0 |
| Lane LOS | F | C | E | C | A | | A | |
| Approach Delay (s) | 32.9 | | 30.4 | | 2.5 | | 0.8 | |
| Approach LOS | D | | D | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 11.8 | | | |
| Intersection Capacity Utilization | 47.8% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 7 | 5 | 7 | 13 | 8 | 4 | 13 | 264 | 13 | 14 | 259 | 10 |
| Future Volume (Veh/h) | 7 | 5 | 7 | 13 | 8 | 4 | 13 | 264 | 13 | 14 | 259 | 10 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Hourly flow rate (vph) | 8 | 6 | 8 | 15 | 9 | 5 | 15 | 311 | 15 | 16 | 305 | 12 |
| 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 | 701 | 699 | 311 | 702 | 698 | 318 | 317 | | | 326 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 701 | 699 | 311 | 702 | 698 | 318 | 317 | | | 326 | | |
| tC, single (s) | 7.3 | 6.5 | 6.4 | 7.1 | 6.5 | 6.5 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.7 | 4.0 | 3.5 | 3.5 | 4.0 | 3.6 | 2.2 | | | 2.3 | | |
| p0 queue free % | 97 | 98 | 99 | 96 | 97 | 99 | 99 | | | 99 | | |
| cM capacity (veh/h) | 316 | 357 | 689 | 340 | 358 | 656 | 1255 | | | 1185 | | |

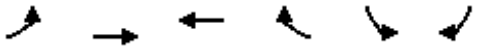
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 22 | 29 | 341 | 333 |
| Volume Left | 8 | 15 | 15 | 16 |
| Volume Right | 8 | 5 | 15 | 12 |
| cSH | 409 | 377 | 1255 | 1185 |
| Volume to Capacity | 0.05 | 0.08 | 0.01 | 0.01 |
| Queue Length 95th (m) | 1.3 | 1.9 | 0.3 | 0.3 |
| Control Delay (s) | 14.3 | 15.3 | 0.5 | 0.5 |
| Lane LOS | B | C | A | A |
| Approach Delay (s) | 14.3 | 15.3 | 0.5 | 0.5 |
| Approach LOS | B | C | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.5 | | |
| Intersection Capacity Utilization | 29.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 0 | 278 | 0 | 0 | 300 |
| Future Volume (Veh/h) | 0 | 0 | 278 | 0 | 0 | 300 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 0 | 0 | 299 | 0 | 0 | 323 |
| 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 | 622 | 299 | | | 299 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 622 | 299 | | | 299 | |
| tC, single (s) | 6.6 | 6.4 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 3.5 | | | 2.2 | |
| p0 queue free % | 100 | 100 | | | 100 | |
| cM capacity (veh/h) | 423 | 694 | | | 1274 | |

| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 0 | 299 | 0 | 0 | 323 |
| Volume Left | 0 | 0 | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 | 0 | 0 |
| cSH | 1700 | 1700 | 1700 | 1700 | 1700 |
| Volume to Capacity | 0.07 | 0.18 | 0.00 | 0.00 | 0.19 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Lane LOS | A | | | | |
| Approach Delay (s) | 0.0 | 0.0 | | 0.0 | |
| Approach LOS | A | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 19.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 130 | 0 | 137 | 0 | 10 |
| Future Volume (Veh/h) | 0 | 130 | 0 | 137 | 0 | 10 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 141 | 0 | 149 | 0 | 11 |
| 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 | 149 | | | | 216 | 74 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 149 | | | | 216 | 74 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 100 | 99 |
| cM capacity (veh/h) | 1432 | | | | 773 | 987 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 141 | 149 | 11 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 149 | 11 |
| cSH | 1432 | 1700 | 987 |
| Volume to Capacity | 0.00 | 0.09 | 0.01 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.3 |
| Control Delay (s) | 0.0 | 0.0 | 8.7 |
| Lane LOS | | | A |
| Approach Delay (s) | 0.0 | 0.0 | 8.7 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.3 | | |
| Intersection Capacity Utilization | 18.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 10 | 62 | 0 | 225 | 219 | 0 |
| Future Volume (Veh/h) | 10 | 62 | 0 | 225 | 219 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Hourly flow rate (vph) | 10 | 65 | 0 | 234 | 228 | 0 |
| 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 | 462 | 228 | 228 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 462 | 228 | 228 | | | |
| tC, single (s) | 6.5 | 6.3 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.6 | 3.4 | 2.2 | | | |
| p0 queue free % | 98 | 92 | 100 | | | |
| cM capacity (veh/h) | 538 | 789 | 1340 | | | |

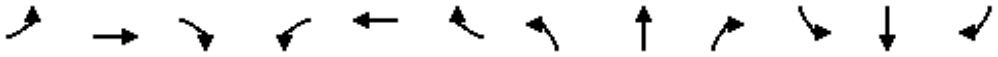
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 75 | 234 | 228 |
| Volume Left | 10 | 0 | 0 |
| Volume Right | 65 | 0 | 0 |
| cSH | 743 | 1700 | 1700 |
| Volume to Capacity | 0.10 | 0.14 | 0.13 |
| Queue Length 95th (m) | 2.5 | 0.0 | 0.0 |
| Control Delay (s) | 10.4 | 0.0 | 0.0 |
| Lane LOS | B | | |
| Approach Delay (s) | 10.4 | 0.0 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.5 | | |
| Intersection Capacity Utilization | 22.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 78 | 18 | 152 | 0 | 35 | 169 |
| Future Volume (Veh/h) | 78 | 18 | 152 | 0 | 35 | 169 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 85 | 20 | 165 | 0 | 38 | 184 |
| 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 | 425 | 165 | | | 165 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 425 | 165 | | | 165 | |
| tC, single (s) | 6.7 | 6.2 | | | 4.3 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.8 | 3.3 | | | 2.4 | |
| p0 queue free % | 84 | 98 | | | 97 | |
| cM capacity (veh/h) | 516 | 885 | | | 1327 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 105 | 165 | 38 | 184 |
| Volume Left | 85 | 0 | 38 | 0 |
| Volume Right | 20 | 0 | 0 | 0 |
| cSH | 561 | 1700 | 1327 | 1700 |
| Volume to Capacity | 0.19 | 0.10 | 0.03 | 0.11 |
| Queue Length 95th (m) | 5.2 | 0.0 | 0.7 | 0.0 |
| Control Delay (s) | 12.9 | 0.0 | 7.8 | 0.0 |
| Lane LOS | B | | A | |
| Approach Delay (s) | 12.9 | 0.0 | 1.3 | |
| Approach LOS | B | | | |

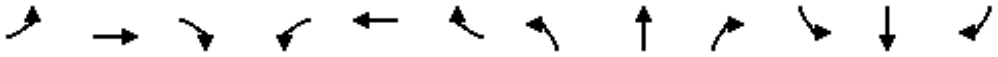
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.4 | | |
| Intersection Capacity Utilization | 26.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 117 | 51 | 84 | 13 | 42 | 19 | 117 | 174 | 32 | 36 | 170 | 72 |
| Future Volume (Veh/h) | 117 | 51 | 84 | 13 | 42 | 19 | 117 | 174 | 32 | 36 | 170 | 72 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 126 | 55 | 90 | 14 | 45 | 20 | 126 | 187 | 34 | 39 | 183 | 77 |
| Pedestrians | | 2 | | | | | | | | | | |
| Lane Width (m) | | 3.7 | | | | | | | | | | |
| Walking Speed (m/s) | | 1.1 | | | | | | | | | | |
| Percent Blockage | | 0 | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 783 | 774 | 224 | 834 | 796 | 204 | 262 | | | 221 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 783 | 774 | 224 | 834 | 796 | 204 | 262 | | | 221 | | |
| tC, single (s) | 7.1 | 6.6 | 6.2 | 7.3 | 6.5 | 6.2 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.1 | 3.3 | 3.7 | 4.0 | 3.3 | 2.2 | | | 2.3 | | |
| p0 queue free % | 47 | 80 | 89 | 92 | 84 | 98 | 90 | | | 97 | | |
| cM capacity (veh/h) | 238 | 282 | 809 | 183 | 278 | 842 | 1288 | | | 1325 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 126 | 145 | 14 | 65 | 126 | 221 | 39 | 260 |
| Volume Left | 126 | 0 | 14 | 0 | 126 | 0 | 39 | 0 |
| Volume Right | 0 | 90 | 0 | 20 | 0 | 34 | 0 | 77 |
| cSH | 238 | 473 | 183 | 350 | 1288 | 1700 | 1325 | 1700 |
| Volume to Capacity | 0.53 | 0.31 | 0.08 | 0.19 | 0.10 | 0.13 | 0.03 | 0.15 |
| Queue Length 95th (m) | 21.4 | 9.8 | 1.9 | 5.1 | 2.5 | 0.0 | 0.7 | 0.0 |
| Control Delay (s) | 36.0 | 15.9 | 26.3 | 17.6 | 8.1 | 0.0 | 7.8 | 0.0 |
| Lane LOS | E | C | D | C | A | | A | |
| Approach Delay (s) | 25.3 | | 19.2 | | 2.9 | | 1.0 | |
| Approach LOS | D | | C | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 9.7 | | | |
| Intersection Capacity Utilization | 43.0% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 8 | 2 | 13 | 15 | 9 | 4 | 5 | 345 | 8 | 10 | 272 | 0 |
| Future Volume (Veh/h) | 8 | 2 | 13 | 15 | 9 | 4 | 5 | 345 | 8 | 10 | 272 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 | 0.98 |
| Hourly flow rate (vph) | 8 | 2 | 13 | 15 | 9 | 4 | 5 | 352 | 8 | 10 | 278 | 0 |
| 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 | 672 | 668 | 278 | 678 | 664 | 356 | 278 | | | 360 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 672 | 668 | 278 | 678 | 664 | 356 | 278 | | | 360 | | |
| tC, single (s) | 7.1 | 6.5 | 6.3 | 7.2 | 6.5 | 6.2 | 4.1 | | | 4.6 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.4 | 3.6 | 4.0 | 3.3 | 2.2 | | | 2.7 | | |
| p0 queue free % | 98 | 99 | 98 | 96 | 98 | 99 | 100 | | | 99 | | |
| cM capacity (veh/h) | 359 | 376 | 742 | 347 | 378 | 693 | 1296 | | | 976 | | |

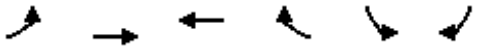
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 23 | 28 | 365 | 288 |
| Volume Left | 8 | 15 | 5 | 10 |
| Volume Right | 13 | 4 | 8 | 0 |
| cSH | 510 | 384 | 1296 | 976 |
| Volume to Capacity | 0.05 | 0.07 | 0.00 | 0.01 |
| Queue Length 95th (m) | 1.1 | 1.8 | 0.1 | 0.2 |
| Control Delay (s) | 12.4 | 15.1 | 0.1 | 0.4 |
| Lane LOS | B | C | A | A |
| Approach Delay (s) | 12.4 | 15.1 | 0.1 | 0.4 |
| Approach LOS | B | C | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1.2 | | | |
| Intersection Capacity Utilization | 30.6% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 1 | 78 | 268 | 13 | 43 | 275 |
| Future Volume (Veh/h) | 1 | 78 | 268 | 13 | 43 | 275 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 1 | 83 | 285 | 14 | 46 | 293 |
| 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 | 670 | 285 | | | 299 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 670 | 285 | | | 299 | |
| tC, single (s) | 6.4 | 7.2 | | | 4.9 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 4.2 | | | 2.9 | |
| p0 queue free % | 100 | 86 | | | 95 | |
| cM capacity (veh/h) | 404 | 576 | | | 924 | |

| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 84 | 285 | 14 | 46 | 293 |
| Volume Left | 1 | 0 | 0 | 46 | 0 |
| Volume Right | 83 | 0 | 14 | 0 | 0 |
| cSH | 573 | 1700 | 1700 | 924 | 1700 |
| Volume to Capacity | 0.15 | 0.17 | 0.01 | 0.05 | 0.17 |
| Queue Length 95th (m) | 3.9 | 0.0 | 0.0 | 1.2 | 0.0 |
| Control Delay (s) | 12.4 | 0.0 | 0.0 | 9.1 | 0.0 |
| Lane LOS | B | | | A | |
| Approach Delay (s) | 12.4 | 0.0 | | 1.2 | |
| Approach LOS | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.0 | | |
| Intersection Capacity Utilization | 32.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 10 | 97 | 73 | 0 | 0 | 0 |
| Future Volume (Veh/h) | 10 | 97 | 73 | 0 | 0 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 11 | 105 | 79 | 0 | 0 | 0 |
| 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 | 79 | | | | 206 | 79 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 79 | | | | 206 | 79 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 99 | | | | 100 | 100 |
| cM capacity (veh/h) | 1519 | | | | 777 | 981 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 116 | 79 | 0 |
| Volume Left | 11 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1519 | 1700 | 1700 |
| Volume to Capacity | 0.01 | 0.05 | 0.01 |
| Queue Length 95th (m) | 0.2 | 0.0 | 0.0 |
| Control Delay (s) | 0.8 | 0.0 | 0.0 |
| Lane LOS | A | | A |
| Approach Delay (s) | 0.8 | 0.0 | 0.0 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.4 | | |
| Intersection Capacity Utilization | 15.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 10 | 35 | 0 | 172 | 176 | 0 |
| Future Volume (Veh/h) | 10 | 35 | 0 | 172 | 176 | 0 |
| 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) | 11 | 39 | 0 | 191 | 196 | 0 |
| 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 | 387 | 196 | 196 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 387 | 196 | 196 | | | |
| tC, single (s) | 6.6 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 3.3 | 2.2 | | | |
| p0 queue free % | 98 | 95 | 100 | | | |
| cM capacity (veh/h) | 574 | 838 | 1377 | | | |

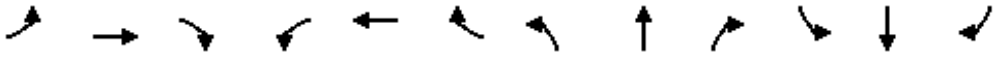
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 50 | 191 | 196 |
| Volume Left | 11 | 0 | 0 |
| Volume Right | 39 | 0 | 0 |
| cSH | 761 | 1700 | 1700 |
| Volume to Capacity | 0.07 | 0.11 | 0.12 |
| Queue Length 95th (m) | 1.6 | 0.0 | 0.0 |
| Control Delay (s) | 10.1 | 0.0 | 0.0 |
| Lane LOS | B | | |
| Approach Delay (s) | 10.1 | 0.0 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.2 | | |
| Intersection Capacity Utilization | 19.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 61 | 17 | 135 | 0 | 20 | 140 |
| Future Volume (Veh/h) | 61 | 17 | 135 | 0 | 20 | 140 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 70 | 20 | 155 | 0 | 23 | 161 |
| 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 | 362 | 155 | | | 155 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 362 | 155 | | | 155 | |
| tC, single (s) | 7.0 | 6.6 | | | 4.5 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 4.0 | 3.6 | | | 2.5 | |
| p0 queue free % | 87 | 98 | | | 98 | |
| cM capacity (veh/h) | 528 | 805 | | | 1233 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 90 | 155 | 23 | 161 |
| Volume Left | 70 | 0 | 23 | 0 |
| Volume Right | 20 | 0 | 0 | 0 |
| cSH | 572 | 1700 | 1233 | 1700 |
| Volume to Capacity | 0.16 | 0.09 | 0.02 | 0.09 |
| Queue Length 95th (m) | 4.2 | 0.0 | 0.4 | 0.0 |
| Control Delay (s) | 12.5 | 0.0 | 8.0 | 0.0 |
| Lane LOS | B | | A | |
| Approach Delay (s) | 12.5 | 0.0 | 1.0 | |
| Approach LOS | B | | | |

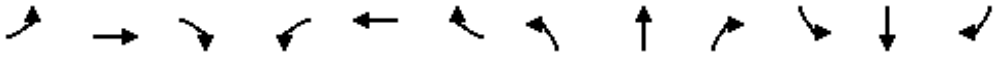
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.0 | | |
| Intersection Capacity Utilization | 24.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 74 | 35 | 73 | 23 | 38 | 17 | 104 | 169 | 28 | 17 | 170 | 77 |
| Future Volume (Veh/h) | 74 | 35 | 73 | 23 | 38 | 17 | 104 | 169 | 28 | 17 | 170 | 77 |
| 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) | 82 | 39 | 81 | 26 | 42 | 19 | 116 | 188 | 31 | 19 | 189 | 86 |
| Pedestrians | | 2 | | | | | | | | | | |
| Lane Width (m) | | 3.7 | | | | | | | | | | |
| Walking Speed (m/s) | | 1.1 | | | | | | | | | | |
| Percent Blockage | | 0 | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 732 | 723 | 234 | 763 | 750 | 204 | 277 | | | 219 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 732 | 723 | 234 | 763 | 750 | 204 | 277 | | | 219 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.2 | 6.5 | 6.4 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.6 | 4.0 | 3.4 | 2.2 | | | 2.3 | | |
| p0 queue free % | 69 | 87 | 90 | 89 | 86 | 98 | 91 | | | 99 | | |
| cM capacity (veh/h) | 267 | 312 | 808 | 237 | 301 | 805 | 1272 | | | 1310 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 82 | 120 | 26 | 61 | 116 | 219 | 19 | 275 |
| Volume Left | 82 | 0 | 26 | 0 | 116 | 0 | 19 | 0 |
| Volume Right | 0 | 81 | 0 | 19 | 0 | 31 | 0 | 86 |
| cSH | 267 | 533 | 237 | 373 | 1272 | 1700 | 1310 | 1700 |
| Volume to Capacity | 0.31 | 0.23 | 0.11 | 0.16 | 0.09 | 0.13 | 0.01 | 0.16 |
| Queue Length 95th (m) | 9.6 | 6.5 | 2.8 | 4.4 | 2.3 | 0.0 | 0.3 | 0.0 |
| Control Delay (s) | 24.4 | 13.7 | 22.1 | 16.5 | 8.1 | 0.0 | 7.8 | 0.0 |
| Lane LOS | C | B | C | C | A | | A | |
| Approach Delay (s) | 18.0 | | 18.2 | | 2.8 | | 0.5 | |
| Approach LOS | C | | C | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 6.9 | | | |
| Intersection Capacity Utilization | 40.2% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 5 | 8 | 10 | 13 | 2 | 3 | 10 | 245 | 13 | 7 | 208 | 7 |
| Future Volume (Veh/h) | 5 | 8 | 10 | 13 | 2 | 3 | 10 | 245 | 13 | 7 | 208 | 7 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 | 0.97 |
| Hourly flow rate (vph) | 5 | 8 | 10 | 13 | 2 | 3 | 10 | 253 | 13 | 7 | 214 | 7 |
| 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 | 515 | 518 | 218 | 525 | 514 | 260 | 221 | | | 266 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 515 | 518 | 218 | 525 | 514 | 260 | 221 | | | 266 | | |
| tC, single (s) | 7.3 | 6.8 | 6.7 | 7.2 | 7.5 | 6.7 | 4.3 | | | 4.3 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.7 | 4.3 | 3.8 | 3.6 | 4.9 | 3.8 | 2.4 | | | 2.4 | | |
| p0 queue free % | 99 | 98 | 99 | 97 | 99 | 100 | 99 | | | 99 | | |
| cM capacity (veh/h) | 427 | 415 | 716 | 433 | 345 | 676 | 1264 | | | 1176 | | |

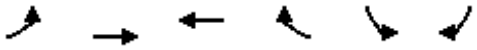
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 23 | 18 | 276 | 228 |
| Volume Left | 5 | 13 | 10 | 7 |
| Volume Right | 10 | 3 | 13 | 7 |
| cSH | 512 | 447 | 1264 | 1176 |
| Volume to Capacity | 0.04 | 0.04 | 0.01 | 0.01 |
| Queue Length 95th (m) | 1.1 | 1.0 | 0.2 | 0.1 |
| Control Delay (s) | 12.4 | 13.4 | 0.4 | 0.3 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 12.4 | 13.4 | 0.4 | 0.3 |
| Approach LOS | B | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1.3 | | | |
| Intersection Capacity Utilization | 28.0% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 15 | 52 | 220 | 12 | 42 | 193 |
| Future Volume (Veh/h) | 15 | 52 | 220 | 12 | 42 | 193 |
| 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) | 17 | 58 | 244 | 13 | 47 | 214 |
| 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 | 552 | 244 | | | 257 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 552 | 244 | | | 257 | |
| tC, single (s) | 6.6 | 7.0 | | | 5.0 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 4.0 | | | 3.0 | |
| p0 queue free % | 96 | 91 | | | 95 | |
| cM capacity (veh/h) | 434 | 637 | | | 927 | |

| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 75 | 244 | 13 | 47 | 214 |
| Volume Left | 17 | 0 | 0 | 47 | 0 |
| Volume Right | 58 | 0 | 13 | 0 | 0 |
| cSH | 576 | 1700 | 1700 | 927 | 1700 |
| Volume to Capacity | 0.13 | 0.14 | 0.01 | 0.05 | 0.13 |
| Queue Length 95th (m) | 3.4 | 0.0 | 0.0 | 1.2 | 0.0 |
| Control Delay (s) | 12.2 | 0.0 | 0.0 | 9.1 | 0.0 |
| Lane LOS | B | | | A | |
| Approach Delay (s) | 12.2 | 0.0 | | 1.6 | |
| Approach LOS | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.3 | | |
| Intersection Capacity Utilization | 28.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 71 | 77 | 0 | 0 | 0 |
| Future Volume (Veh/h) | 0 | 71 | 77 | 0 | 0 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 77 | 84 | 0 | 0 | 0 |
| 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 | 84 | | | | 161 | 84 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 84 | | | | 161 | 84 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 100 | 100 |
| cM capacity (veh/h) | 1513 | | | | 830 | 975 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 77 | 84 | 0 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 0 |
| cSH | 1513 | 1700 | 1700 |
| Volume to Capacity | 0.00 | 0.05 | 0.01 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.0 |
| Control Delay (s) | 0.0 | 0.0 | 0.0 |
| Lane LOS | | | A |
| Approach Delay (s) | 0.0 | 0.0 | 0.0 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.0 | | |
| Intersection Capacity Utilization | 7.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 33 | 60 | 0 | 215 | 256 | 0 |
| Future Volume (Veh/h) | 33 | 60 | 0 | 215 | 256 | 0 |
| Sign Control | Stop | | | Free | Free | |
| Grade | 0% | | | 0% | 0% | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 36 | 66 | 0 | 236 | 281 | 0 |
| 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 | 517 | 281 | 281 | | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 517 | 281 | 281 | | | |
| tC, single (s) | 6.4 | 6.2 | 4.1 | | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | 2.2 | | | |
| p0 queue free % | 93 | 91 | 100 | | | |
| cM capacity (veh/h) | 515 | 755 | 1282 | | | |

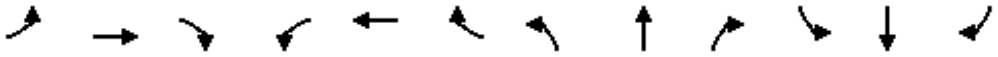
| Direction, Lane # | EB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 102 | 236 | 281 |
| Volume Left | 36 | 0 | 0 |
| Volume Right | 66 | 0 | 0 |
| cSH | 649 | 1700 | 1700 |
| Volume to Capacity | 0.16 | 0.14 | 0.17 |
| Queue Length 95th (m) | 4.2 | 0.0 | 0.0 |
| Control Delay (s) | 11.6 | 0.0 | 0.0 |
| Lane LOS | B | | |
| Approach Delay (s) | 11.6 | 0.0 | 0.0 |
| Approach LOS | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.9 | | |
| Intersection Capacity Utilization | 25.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 78 | 36 | 178 | 0 | 23 | 198 |
| Future Volume (Veh/h) | 78 | 36 | 178 | 0 | 23 | 198 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 89 | 41 | 202 | 0 | 26 | 225 |
| 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 | 479 | 202 | | | 202 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 479 | 202 | | | 202 | |
| tC, single (s) | 6.4 | 6.3 | | | 4.2 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.4 | | | 2.3 | |
| p0 queue free % | 83 | 95 | | | 98 | |
| cM capacity (veh/h) | 533 | 819 | | | 1307 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 130 | 202 | 26 | 225 |
| Volume Left | 89 | 0 | 26 | 0 |
| Volume Right | 41 | 0 | 0 | 0 |
| cSH | 599 | 1700 | 1307 | 1700 |
| Volume to Capacity | 0.22 | 0.12 | 0.02 | 0.13 |
| Queue Length 95th (m) | 6.2 | 0.0 | 0.5 | 0.0 |
| Control Delay (s) | 12.7 | 0.0 | 7.8 | 0.0 |
| Lane LOS | B | | A | |
| Approach Delay (s) | 12.7 | 0.0 | 0.8 | |
| Approach LOS | B | | | |

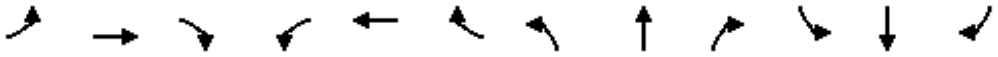
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.2 | | |
| Intersection Capacity Utilization | 29.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 65 | 58 | 83 | 41 | 62 | 45 | 111 | 208 | 55 | 35 | 256 | 56 |
| Future Volume (Veh/h) | 65 | 58 | 83 | 41 | 62 | 45 | 111 | 208 | 55 | 35 | 256 | 56 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 75 | 67 | 95 | 47 | 71 | 52 | 128 | 239 | 63 | 40 | 294 | 64 |
| Pedestrians | | 7 | | | | | | 2 | | | | |
| Lane Width (m) | | 3.7 | | | | | | 3.7 | | | | |
| Walking Speed (m/s) | | 1.1 | | | | | | 1.1 | | | | |
| Percent Blockage | | 1 | | | | | | 0 | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (m) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 996 | 971 | 335 | 1031 | 972 | 270 | 365 | | | 302 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 996 | 971 | 335 | 1031 | 972 | 270 | 365 | | | 302 | | |
| tC, single (s) | 7.2 | 6.6 | 6.2 | 7.2 | 6.5 | 6.3 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.6 | 4.1 | 3.3 | 3.6 | 4.0 | 3.4 | 2.2 | | | 2.2 | | |
| p0 queue free % | 45 | 69 | 86 | 61 | 68 | 93 | 89 | | | 97 | | |
| cM capacity (veh/h) | 136 | 214 | 701 | 122 | 219 | 756 | 1185 | | | 1270 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 75 | 162 | 47 | 123 | 128 | 302 | 40 | 358 |
| Volume Left | 75 | 0 | 47 | 0 | 128 | 0 | 40 | 0 |
| Volume Right | 0 | 95 | 0 | 52 | 0 | 63 | 0 | 64 |
| cSH | 136 | 361 | 122 | 312 | 1185 | 1700 | 1270 | 1700 |
| Volume to Capacity | 0.55 | 0.45 | 0.39 | 0.39 | 0.11 | 0.18 | 0.03 | 0.21 |
| Queue Length 95th (m) | 20.6 | 17.1 | 12.2 | 13.8 | 2.8 | 0.0 | 0.7 | 0.0 |
| Control Delay (s) | 59.7 | 22.9 | 52.1 | 23.8 | 8.4 | 0.0 | 7.9 | 0.0 |
| Lane LOS | F | C | F | C | A | | A | |
| Approach Delay (s) | 34.5 | | 31.6 | | 2.5 | | 0.8 | |
| Approach LOS | D | | D | | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 12.1 | | | |
| Intersection Capacity Utilization | 48.4% | ICU Level of Service | | A |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 7 | 5 | 7 | 13 | 8 | 4 | 13 | 297 | 13 | 14 | 281 | 10 |
| Future Volume (Veh/h) | 7 | 5 | 7 | 13 | 8 | 4 | 13 | 297 | 13 | 14 | 281 | 10 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 | 0.85 |
| Hourly flow rate (vph) | 8 | 6 | 8 | 15 | 9 | 5 | 15 | 349 | 15 | 16 | 331 | 12 |
| 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 | 765 | 763 | 337 | 766 | 762 | 356 | 343 | | | 364 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 765 | 763 | 337 | 766 | 762 | 356 | 343 | | | 364 | | |
| tC, single (s) | 7.3 | 6.5 | 6.4 | 7.1 | 6.5 | 6.5 | 4.1 | | | 4.2 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.7 | 4.0 | 3.5 | 3.5 | 4.0 | 3.6 | 2.2 | | | 2.3 | | |
| p0 queue free % | 97 | 98 | 99 | 95 | 97 | 99 | 99 | | | 99 | | |
| cM capacity (veh/h) | 285 | 328 | 666 | 307 | 328 | 623 | 1227 | | | 1147 | | |

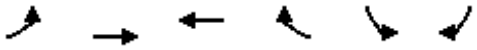
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 22 | 29 | 379 | 359 |
| Volume Left | 8 | 15 | 15 | 16 |
| Volume Right | 8 | 5 | 15 | 12 |
| cSH | 377 | 344 | 1227 | 1147 |
| Volume to Capacity | 0.06 | 0.08 | 0.01 | 0.01 |
| Queue Length 95th (m) | 1.4 | 2.1 | 0.3 | 0.3 |
| Control Delay (s) | 15.2 | 16.4 | 0.4 | 0.5 |
| Lane LOS | C | C | A | A |
| Approach Delay (s) | 15.2 | 16.4 | 0.4 | 0.5 |
| Approach LOS | C | C | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | 1.5 | | | |
| Intersection Capacity Utilization | 31.0% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 11 | 33 | 278 | 4 | 22 | 300 |
| Future Volume (Veh/h) | 11 | 33 | 278 | 4 | 22 | 300 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 |
| Hourly flow rate (vph) | 12 | 35 | 299 | 4 | 24 | 323 |
| 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 | 670 | 299 | | | 303 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 670 | 299 | | | 303 | |
| tC, single (s) | 6.6 | 6.4 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.7 | 3.5 | | | 2.2 | |
| p0 queue free % | 97 | 95 | | | 98 | |
| cM capacity (veh/h) | 388 | 694 | | | 1269 | |

| Direction, Lane # | WB 1 | NB 1 | NB 2 | SB 1 | SB 2 |
|---|---|---|---|---|---|
| Volume Total | 47 | 299 | 4 | 24 | 323 |
| Volume Left | 12 | 0 | 0 | 24 | 0 |
| Volume Right | 35 | 0 | 4 | 0 | 0 |
| cSH | 578 | 1700 | 1700 | 1269 | 1700 |
| Volume to Capacity | 0.08 | 0.18 | 0.00 | 0.02 | 0.19 |
| Queue Length 95th (m) | 2.0 | 0.0 | 0.0 | 0.4 | 0.0 |
| Control Delay (s) | 11.8 | 0.0 | 0.0 | 7.9 | 0.0 |
| Lane LOS | B | | | A | |
| Approach Delay (s) | 11.8 | 0.0 | | 0.5 | |
| Approach LOS | B | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.1 | | |
| Intersection Capacity Utilization | 28.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 0 | 130 | 137 | 0 | 0 | 10 |
| Future Volume (Veh/h) | 0 | 130 | 137 | 0 | 0 | 10 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 0 | 141 | 149 | 0 | 0 | 11 |
| 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 | 149 | | | | 290 | 149 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 149 | | | | 290 | 149 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 100 | 99 |
| cM capacity (veh/h) | 1432 | | | | 701 | 898 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 141 | 149 | 11 |
| Volume Left | 0 | 0 | 0 |
| Volume Right | 0 | 0 | 11 |
| cSH | 1432 | 1700 | 898 |
| Volume to Capacity | 0.00 | 0.09 | 0.01 |
| Queue Length 95th (m) | 0.0 | 0.0 | 0.3 |
| Control Delay (s) | 0.0 | 0.0 | 9.1 |
| Lane LOS | | | A |
| Approach Delay (s) | 0.0 | 0.0 | 9.1 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.3 | | |
| Intersection Capacity Utilization | 17.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

# B

# SimTraffic Queueing Reports

## Summary of All Intervals

| Run Number | 1 | 2 | 3 | 4 | 5 | Avg |
|---|---|---|---|---|---|---|
| Start Time | 6:50 | 6:50 | 6:50 | 6:50 | 6:50 | 6:50 |
| End Time | 8:00 | 8:00 | 8:00 | 8:00 | 8:00 | 8:00 |
| Total Time (min) | 70 | 70 | 70 | 70 | 70 | 70 |
| Time Recorded (min) | 60 | 60 | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 | 1 | 1 |
| Vehs Entered | 1138 | 1085 | 1077 | 1135 | 1137 | 1112 |
| Vehs Exited | 1062 | 1010 | 1011 | 1080 | 1090 | 1050 |
| Starting Vehs | 70 | 77 | 85 | 76 | 66 | 73 |
| Ending Vehs | 146 | 152 | 151 | 131 | 113 | 135 |
| Travel Distance (km) | 3095 | 2940 | 2881 | 2984 | 3100 | 3000 |
| Travel Time (hr) | 117.4 | 113.6 | 121.8 | 106.2 | 114.9 | 114.8 |
| Total Delay (hr) | 50.3 | 49.3 | 58.6 | 41.1 | 47.4 | 49.3 |
| Total Stops | 728 | 736 | 746 | 733 | 755 | 742 |
| Fuel Used (l) | 243.1 | 234.0 | 232.1 | 232.2 | 241.4 | 236.6 |

## Interval #0 Information Seeding

| | |
|---|---|
| Start Time | 6:50 |
| End Time | 7:00 |
| Total Time (min) | 10 |

Volumes adjusted by Growth Factors.

No data recorded this interval.

## Interval #1 Information Recording

| | |
|---|---|
| Start Time | 7:00 |
| End Time | 8:00 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 1 | 2 | 3 | 4 | 5 | Avg |
|---|---|---|---|---|---|---|
| Vehs Entered | 1138 | 1085 | 1077 | 1135 | 1137 | 1112 |
| Vehs Exited | 1062 | 1010 | 1011 | 1080 | 1090 | 1050 |
| Starting Vehs | 70 | 77 | 85 | 76 | 66 | 73 |
| Ending Vehs | 146 | 152 | 151 | 131 | 113 | 135 |
| Travel Distance (km) | 3095 | 2940 | 2881 | 2984 | 3100 | 3000 |
| Travel Time (hr) | 117.4 | 113.6 | 121.8 | 106.2 | 114.9 | 114.8 |
| Total Delay (hr) | 50.3 | 49.3 | 58.6 | 41.1 | 47.4 | 49.3 |
| Total Stops | 728 | 736 | 746 | 733 | 755 | 742 |
| Fuel Used (l) | 243.1 | 234.0 | 232.1 | 232.2 | 241.4 | 236.6 |

## Intersection: 13: Inbound Scale/Office & Primary Facility Access

| Movement | EB | EB | NB | SB |
|---|---|---|---|---|
| Directions Served | LT | R | LTR | LTR |
| Maximum Queue (m) | 13.6 | 84.9 | 27.2 | 9.0 |
| Average Queue (m) | 0.5 | 20.9 | 8.3 | 0.7 |
| 95th Queue (m) | 9.6 | 84.5 | 23.2 | 4.6 |
| Link Distance (m) | 111.3 | 111.3 | 224.5 | 78.6 |
| Upstream Blk Time (%) | | 7 | | |
| Queuing Penalty (veh) | | 2 | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

## Intersection: 27: Outbound Scale/Inbound Scale & Weigh Scale

| Movement | NB | B30 | B32 | SB |
|---|---|---|---|---|
| Directions Served | T | T | T | T |
| Maximum Queue (m) | 196.8 | 95.2 | 387.1 | 224.9 |
| Average Queue (m) | 181.6 | 71.1 | 204.6 | 152.4 |
| 95th Queue (m) | 218.6 | 122.4 | 465.7 | 263.8 |
| Link Distance (m) | 174.0 | 66.3 | 373.2 | 224.5 |
| Upstream Blk Time (%) | 88 | 79 | 28 | 25 |
| Queuing Penalty (veh) | 0 | 0 | 0 | 12 |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

## Zone Summary

Zone wide Queuing Penalty: 14

## Intersection: 5: Nauvoo Road & Primary Facility Access

| Movement | WB | NB | NB | SB | SB |
|---|---|---|---|---|---|
| Directions Served | LR | T | R | L | T |
| Maximum Queue (m) | 22.8 | 2.5 | 1.8 | 48.6 | 52.2 |
| Average Queue (m) | 7.8 | 0.1 | 0.2 | 10.5 | 5.0 |
| 95th Queue (m) | 20.6 | 1.3 | 2.3 | 55.9 | 55.8 |
| Link Distance (m) | 111.3 | 2113.9 | | | 298.0 |
| Upstream Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |
| Storage Bay Dist (m) | | | 85.0 | 140.0 | |
| Storage Blk Time (%) | | | | 1 | 1 |
| Queuing Penalty (veh) | | | | 3 | 0 |

## Summary of All Intervals

| Run Number | 1 | 2 | 3 | Avg |
|---|---|---|---|---|
| Start Time | 6:50 | 6:50 | 6:50 | 6:50 |
| End Time | 8:00 | 8:00 | 8:00 | 8:00 |
| Total Time (min) | 70 | 70 | 70 | 70 |
| Time Recorded (min) | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 |
| Vehs Entered | 927 | 903 | 946 | 925 |
| Vehs Exited | 865 | 868 | 905 | 880 |
| Starting Vehs | 59 | 68 | 54 | 56 |
| Ending Vehs | 121 | 103 | 95 | 105 |
| Travel Distance (km) | 2343 | 2291 | 2525 | 2386 |
| Travel Time (hr) | 89.2 | 85.7 | 79.9 | 84.9 |
| Total Delay (hr) | 38.9 | 36.3 | 25.0 | 33.4 |
| Total Stops | 647 | 620 | 610 | 626 |
| Fuel Used (l) | 183.9 | 178.8 | 188.6 | 183.8 |

## Interval #0 Information Seeding

| | |
|---|---|
| Start Time | 6:50 |
| End Time | 7:00 |
| Total Time (min) | 10 |

Volumes adjusted by Growth Factors.

No data recorded this interval.

## Interval #1 Information Recording

| | |
|---|---|
| Start Time | 7:00 |
| End Time | 8:00 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 1 | 2 | 3 | Avg |
|---|---|---|---|---|
| Vehs Entered | 927 | 903 | 946 | 925 |
| Vehs Exited | 865 | 868 | 905 | 880 |
| Starting Vehs | 59 | 68 | 54 | 56 |
| Ending Vehs | 121 | 103 | 95 | 105 |
| Travel Distance (km) | 2343 | 2291 | 2525 | 2386 |
| Travel Time (hr) | 89.2 | 85.7 | 79.9 | 84.9 |
| Total Delay (hr) | 38.9 | 36.3 | 25.0 | 33.4 |
| Total Stops | 647 | 620 | 610 | 626 |
| Fuel Used (l) | 183.9 | 178.8 | 188.6 | 183.8 |

## Intersection: 13: Inbound Scale/Office & Primary Facility Access

| Movement | EB | NB | SB |
|---|---|---|---|
| Directions Served | R | LTR | LTR |
| Maximum Queue (m) | 73.6 | 25.9 | 9.2 |
| Average Queue (m) | 15.4 | 8.8 | 3.2 |
| 95th Queue (m) | 65.1 | 24.5 | 10.3 |
| Link Distance (m) | 111.3 | 224.5 | 78.6 |
| Upstream Blk Time (%) | 1 | | |
| Queuing Penalty (veh) | 0 | | |
| Storage Bay Dist (m) | | | |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

## Intersection: 27: Outbound Scale/Inbound Scale & Weigh Scale

| Movement | NB | B30 | B32 | SB |
|---|---|---|---|---|
| Directions Served | T | T | T | T |
| Maximum Queue (m) | 197.6 | 91.3 | 165.6 | 227.7 |
| Average Queue (m) | 174.9 | 51.7 | 47.3 | 174.4 |
| 95th Queue (m) | 217.8 | 116.1 | 168.2 | 248.8 |
| Link Distance (m) | 174.0 | 66.3 | 373.2 | 224.5 |
| Upstream Blk Time (%) | 73 | 51 | | 22 |
| Queuing Penalty (veh) | 0 | 0 | | 10 |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

## Zone Summary

Zone wide Queuing Penalty: 10

## Intersection: 5: Nauvoo Road & Primary Facility Access

| Movement | WB | NB | SB |
|---|---|---|---|
| Directions Served | LR | T | L |
| Maximum Queue (m) | 24.9 | 2.2 | 28.2 |
| Average Queue (m) | 8.6 | 0.1 | 4.0 |
| 95th Queue (m) | 20.9 | 1.2 | 17.6 |
| Link Distance (m) | 111.3 | 2113.9 | |
| Upstream Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |
| Storage Bay Dist (m) | | | 140.0 |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

## Summary of All Intervals

| Run Number | 1 | 2 | 3 | Avg |
|---|---|---|---|---|
| Start Time | 6:50 | 6:50 | 6:50 | 6:50 |
| End Time | 8:00 | 8:00 | 8:00 | 8:00 |
| Total Time (min) | 70 | 70 | 70 | 70 |
| Time Recorded (min) | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 |
| Vehs Entered | 1249 | 1234 | 1193 | 1225 |
| Vehs Exited | 1236 | 1211 | 1178 | 1210 |
| Starting Vehs | 87 | 70 | 76 | 72 |
| Ending Vehs | 100 | 93 | 91 | 93 |
| Travel Distance (km) | 3309 | 3283 | 3040 | 3211 |
| Travel Time (hr) | 80.2 | 84.2 | 79.2 | 81.2 |
| Total Delay (hr) | 9.1 | 13.7 | 13.5 | 12.1 |
| Total Stops | 789 | 760 | 729 | 757 |
| Fuel Used (l) | 235.8 | 234.9 | 217.8 | 229.5 |

## Interval #0 Information Seeding

| | |
|---|---|
| Start Time | 6:50 |
| End Time | 7:00 |
| Total Time (min) | 10 |

Volumes adjusted by Growth Factors.

No data recorded this interval.

## Interval #1 Information Recording

| | |
|---|---|
| Start Time | 7:00 |
| End Time | 8:00 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 1 | 2 | 3 | Avg |
|---|---|---|---|---|
| Vehs Entered | 1249 | 1234 | 1193 | 1225 |
| Vehs Exited | 1236 | 1211 | 1178 | 1210 |
| Starting Vehs | 87 | 70 | 76 | 72 |
| Ending Vehs | 100 | 93 | 91 | 93 |
| Travel Distance (km) | 3309 | 3283 | 3040 | 3211 |
| Travel Time (hr) | 80.2 | 84.2 | 79.2 | 81.2 |
| Total Delay (hr) | 9.1 | 13.7 | 13.5 | 12.1 |
| Total Stops | 789 | 760 | 729 | 757 |
| Fuel Used (l) | 235.8 | 234.9 | 217.8 | 229.5 |

## Intersection: 13: Inbound Scale/Office & Primary Facility Access

| Movement | NB | SB |
|---|---|---|
| Directions Served | LTR | LTR |
| Maximum Queue (m) | 24.4 | 9.2 |
| Average Queue (m) | 8.0 | 2.9 |
| 95th Queue (m) | 22.7 | 9.8 |
| Link Distance (m) | 224.5 | 78.6 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

## Intersection: 27: Outbound Scale/Inbound Scale & Weigh Scale

| Movement | NB | B30 | SB |
|---|---|---|---|
| Directions Served | T | T | T |
| Maximum Queue (m) | 142.6 | 4.8 | 100.2 |
| Average Queue (m) | 75.9 | 0.2 | 43.5 |
| 95th Queue (m) | 164.9 | 2.6 | 120.5 |
| Link Distance (m) | 174.0 | 66.3 | 224.5 |
| Upstream Blk Time (%) | 4 | | |
| Queuing Penalty (veh) | 0 | | |
| Storage Bay Dist (m) | | | |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

## Zone Summary

Zone wide Queuing Penalty: 0

## Intersection: 5: Nauvoo Road & Primary Facility Access

| Movement | WB | SB |
|---|---|---|
| Directions Served | LR | L |
| Maximum Queue (m) | 20.3 | 9.1 |
| Average Queue (m) | 6.4 | 0.6 |
| 95th Queue (m) | 15.5 | 4.3 |
| Link Distance (m) | 111.3 | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | 140.0 |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

## Summary of All Intervals

| Run Number | 1 | 2 | 3 | 4 | 5 | Avg |
|---|---|---|---|---|---|---|
| Start Time | 6:50 | 6:50 | 6:50 | 6:50 | 6:50 | 6:50 |
| End Time | 8:00 | 8:00 | 8:00 | 8:00 | 8:00 | 8:00 |
| Total Time (min) | 70 | 70 | 70 | 70 | 70 | 70 |
| Time Recorded (min) | 60 | 60 | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 | 1 | 1 |
| Vehs Entered | 1312 | 1333 | 1371 | 1311 | 1335 | 1332 |
| Vehs Exited | 1255 | 1267 | 1311 | 1244 | 1280 | 1275 |
| Starting Vehs | 93 | 94 | 86 | 85 | 94 | 84 |
| Ending Vehs | 150 | 160 | 146 | 152 | 149 | 146 |
| Travel Distance (km) | 3342 | 3527 | 3616 | 3456 | 3626 | 3514 |
| Travel Time (hr) | 136.0 | 115.7 | 122.0 | 122.5 | 133.0 | 125.8 |
| Total Delay (hr) | 63.2 | 39.5 | 43.2 | 47.1 | 53.9 | 49.4 |
| Total Stops | 751 | 775 | 782 | 828 | 795 | 784 |
| Fuel Used (l) | 265.9 | 270.5 | 275.2 | 266.4 | 278.6 | 271.3 |

## Interval #0 Information Seeding

| | |
|---|---|
| Start Time | 6:50 |
| End Time | 7:00 |
| Total Time (min) | 10 |

Volumes adjusted by Growth Factors.

No data recorded this interval.

## Interval #1 Information Recording

| | |
|---|---|
| Start Time | 7:00 |
| End Time | 8:00 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 1 | 2 | 3 | 4 | 5 | Avg |
|---|---|---|---|---|---|---|
| Vehs Entered | 1312 | 1333 | 1371 | 1311 | 1335 | 1332 |
| Vehs Exited | 1255 | 1267 | 1311 | 1244 | 1280 | 1275 |
| Starting Vehs | 93 | 94 | 86 | 85 | 94 | 84 |
| Ending Vehs | 150 | 160 | 146 | 152 | 149 | 146 |
| Travel Distance (km) | 3342 | 3527 | 3616 | 3456 | 3626 | 3514 |
| Travel Time (hr) | 136.0 | 115.7 | 122.0 | 122.5 | 133.0 | 125.8 |
| Total Delay (hr) | 63.2 | 39.5 | 43.2 | 47.1 | 53.9 | 49.4 |
| Total Stops | 751 | 775 | 782 | 828 | 795 | 784 |
| Fuel Used (l) | 265.9 | 270.5 | 275.2 | 266.4 | 278.6 | 271.3 |

## Intersection: 13: Inbound Scale/Office & Primary Facility Access

| Movement | EB | EB | NB | SB |
|---|---|---|---|---|
| Directions Served | LT | R | LTR | LTR |
| Maximum Queue (m) | 13.9 | 62.9 | 26.0 | 8.7 |
| Average Queue (m) | 1.5 | 19.7 | 8.9 | 0.9 |
| 95th Queue (m) | 17.1 | 80.0 | 24.1 | 5.3 |
| Link Distance (m) | 111.3 | 111.3 | 224.5 | 78.6 |
| Upstream Blk Time (%) | | 4 | | |
| Queuing Penalty (veh) | | 1 | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

## Intersection: 27: Outbound Scale/Inbound Scale & Weigh Scale

| Movement | NB | B30 | B32 | SB |
|---|---|---|---|---|
| Directions Served | T | T | T | T |
| Maximum Queue (m) | 198.4 | 95.1 | 377.9 | 222.8 |
| Average Queue (m) | 187.7 | 72.5 | 208.9 | 139.3 |
| 95th Queue (m) | 204.3 | 121.5 | 464.3 | 258.7 |
| Link Distance (m) | 174.0 | 66.3 | 373.2 | 224.5 |
| Upstream Blk Time (%) | 91 | 80 | 27 | 25 |
| Queuing Penalty (veh) | 0 | 0 | 0 | 12 |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

## Zone Summary

Zone wide Queuing Penalty: 13

## Intersection: 5: Nauvoo Road & Primary Facility Access

| Movement | WB | NB | NB | SB | SB |
|---|---|---|---|---|---|
| Directions Served | LR | T | R | L | T |
| Maximum Queue (m) | 24.4 | 1.3 | 9.5 | 39.0 | 18.9 |
| Average Queue (m) | 8.2 | 0.0 | 0.9 | 8.1 | 0.6 |
| 95th Queue (m) | 21.7 | 0.9 | 7.5 | 34.3 | 13.3 |
| Link Distance (m) | 111.3 | 2113.9 | | | 298.0 |
| Upstream Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |
| Storage Bay Dist (m) | | | 85.0 | 140.0 | |
| Storage Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |

## Summary of All Intervals

| Run Number | 1 | 2 | 3 | Avg |
|---|---|---|---|---|
| Start Time | 6:50 | 6:50 | 6:50 | 6:50 |
| End Time | 8:00 | 8:00 | 8:00 | 8:00 |
| Total Time (min) | 70 | 70 | 70 | 70 |
| Time Recorded (min) | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 |
| Vehs Entered | 1034 | 1072 | 1042 | 1050 |
| Vehs Exited | 1001 | 1035 | 1013 | 1016 |
| Starting Vehs | 79 | 70 | 81 | 70 |
| Ending Vehs | 112 | 107 | 110 | 108 |
| Travel Distance (km) | 2821 | 2990 | 2768 | 2860 |
| Travel Time (hr) | 86.9 | 89.9 | 85.8 | 87.6 |
| Total Delay (hr) | 26.3 | 25.6 | 25.9 | 25.9 |
| Total Stops | 666 | 675 | 692 | 677 |
| Fuel Used (l) | 210.4 | 222.3 | 203.8 | 212.2 |

## Interval #0 Information Seeding

| | |
|---|---|
| Start Time | 6:50 |
| End Time | 7:00 |
| Total Time (min) | 10 |

Volumes adjusted by Growth Factors.

No data recorded this interval.

## Interval #1 Information Recording

| | |
|---|---|
| Start Time | 7:00 |
| End Time | 8:00 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 1 | 2 | 3 | Avg |
|---|---|---|---|---|
| Vehs Entered | 1034 | 1072 | 1042 | 1050 |
| Vehs Exited | 1001 | 1035 | 1013 | 1016 |
| Starting Vehs | 79 | 70 | 81 | 70 |
| Ending Vehs | 112 | 107 | 110 | 108 |
| Travel Distance (km) | 2821 | 2990 | 2768 | 2860 |
| Travel Time (hr) | 86.9 | 89.9 | 85.8 | 87.6 |
| Total Delay (hr) | 26.3 | 25.6 | 25.9 | 25.9 |
| Total Stops | 666 | 675 | 692 | 677 |
| Fuel Used (l) | 210.4 | 222.3 | 203.8 | 212.2 |

## Intersection: 13: Inbound Scale/Office & Primary Facility Access

| Movement | EB | NB | SB |
|---|---|---|---|
| Directions Served | R | LTR | LTR |
| Maximum Queue (m) | 55.7 | 25.3 | 9.2 |
| Average Queue (m) | 6.3 | 8.9 | 3.0 |
| 95th Queue (m) | 34.8 | 24.5 | 10.0 |
| Link Distance (m) | 111.3 | 224.5 | 78.6 |
| Upstream Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |
| Storage Bay Dist (m) | | | |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

## Intersection: 27: Outbound Scale/Inbound Scale & Weigh Scale

| Movement | NB | B30 | B32 | SB |
|---|---|---|---|---|
| Directions Served | T | T | T | T |
| Maximum Queue (m) | 195.1 | 71.2 | 56.8 | 225.3 |
| Average Queue (m) | 153.7 | 25.1 | 7.3 | 137.3 |
| 95th Queue (m) | 222.9 | 83.7 | 43.2 | 243.3 |
| Link Distance (m) | 174.0 | 66.3 | 373.2 | 224.5 |
| Upstream Blk Time (%) | 48 | 22 | | 16 |
| Queuing Penalty (veh) | 0 | 0 | | 7 |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

## Zone Summary

Zone wide Queuing Penalty: 7

## Intersection: 5: Nauvoo Road & Primary Facility Access

| Movement | WB | SB |
|---|---|---|
| Directions Served | LR | L |
| Maximum Queue (m) | 24.1 | 23.9 |
| Average Queue (m) | 10.6 | 4.0 |
| 95th Queue (m) | 21.3 | 17.3 |
| Link Distance (m) | 111.3 | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | 140.0 |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

## Summary of All Intervals

| Run Number | 1 | 2 | 3 | Avg |
|---|---|---|---|---|
| Start Time | 6:50 | 6:50 | 6:50 | 6:50 |
| End Time | 8:00 | 8:00 | 8:00 | 8:00 |
| Total Time (min) | 70 | 70 | 70 | 70 |
| Time Recorded (min) | 60 | 60 | 60 | 60 |
| # of Intervals | 2 | 2 | 2 | 2 |
| # of Recorded Intervals | 1 | 1 | 1 | 1 |
| Vehs Entered | 1384 | 1449 | 1352 | 1395 |
| Vehs Exited | 1355 | 1445 | 1354 | 1384 |
| Starting Vehs | 94 | 104 | 95 | 95 |
| Ending Vehs | 123 | 108 | 93 | 107 |
| Travel Distance (km) | 3565 | 3871 | 3563 | 3666 |
| Travel Time (hr) | 93.0 | 95.2 | 88.2 | 92.1 |
| Total Delay (hr) | 16.2 | 12.0 | 11.5 | 13.2 |
| Total Stops | 789 | 877 | 783 | 819 |
| Fuel Used (l) | 253.8 | 274.0 | 253.6 | 260.5 |

## Interval #0 Information Seeding

| | |
|---|---|
| Start Time | 6:50 |
| End Time | 7:00 |
| Total Time (min) | 10 |

Volumes adjusted by Growth Factors.

No data recorded this interval.

## Interval #1 Information Recording

| | |
|---|---|
| Start Time | 7:00 |
| End Time | 8:00 |
| Total Time (min) | 60 |

Volumes adjusted by Growth Factors.

| Run Number | 1 | 2 | 3 | Avg |
|---|---|---|---|---|
| Vehs Entered | 1384 | 1449 | 1352 | 1395 |
| Vehs Exited | 1355 | 1445 | 1354 | 1384 |
| Starting Vehs | 94 | 104 | 95 | 95 |
| Ending Vehs | 123 | 108 | 93 | 107 |
| Travel Distance (km) | 3565 | 3871 | 3563 | 3666 |
| Travel Time (hr) | 93.0 | 95.2 | 88.2 | 92.1 |
| Total Delay (hr) | 16.2 | 12.0 | 11.5 | 13.2 |
| Total Stops | 789 | 877 | 783 | 819 |
| Fuel Used (l) | 253.8 | 274.0 | 253.6 | 260.5 |

## Intersection: 13: Inbound Scale/Office & Primary Facility Access

| Movement | NB | SB |
|---|---|---|
| Directions Served | LTR | LTR |
| Maximum Queue (m) | 26.8 | 9.2 |
| Average Queue (m) | 7.6 | 3.0 |
| 95th Queue (m) | 21.9 | 9.9 |
| Link Distance (m) | 224.5 | 78.6 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

## Intersection: 27: Outbound Scale/Inbound Scale & Weigh Scale

| Movement | NB | B30 | B32 | SB |
|---|---|---|---|---|
| Directions Served | T | T | T | T |
| Maximum Queue (m) | 127.9 | 31.0 | 15.5 | 104.2 |
| Average Queue (m) | 66.7 | 6.0 | 1.2 | 47.8 |
| 95th Queue (m) | 151.1 | 39.7 | 12.0 | 110.6 |
| Link Distance (m) | 174.0 | 66.3 | 373.2 | 224.5 |
| Upstream Blk Time (%) | 10 | 5 | | |
| Queuing Penalty (veh) | 0 | 0 | | |
| Storage Bay Dist (m) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

## Zone Summary

Zone wide Queuing Penalty: 0

## Intersection: 5: Nauvoo Road & Primary Facility Access

| Movement | WB | SB |
|---|---|---|
| Directions Served | LR | L |
| Maximum Queue (m) | 21.4 | 11.5 |
| Average Queue (m) | 5.9 | 1.1 |
| 95th Queue (m) | 15.0 | 6.3 |
| Link Distance (m) | 111.3 | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (m) | | 140.0 |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

# C

# Ontario Traffic Manual Book 12 – Justification 7 Projected Volumes

# TRAFFIC SIGNAL WARRANT ANALYSIS FORM FOR INTERSECTION CONTROL

**OTM Book 12 Justification 7 Projected Volumes (March 2012)**

Major Street: **Nauvoo Road** — New intersection? Y or N: **N**
Minor Street: **Confederation Line (CR39)** — ' T ' intersection? Y or N: **N**

## WARRANT 1 - MINIMUM VEHICULAR VOLUME

100% SATISFIED YES [ ] NO [X]
80% SATISFIED YES [X] NO [ ]

| | MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) | | | | PERCENTAGE WARRANT | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| APPROACH LANES | 1 | | 2 OR MORE | | HOUR ENDING | | | | | | | | | |
| FLOW CONDITION | RURAL | URBAN | RURAL | URBAN | AHV | | | | | | | | | |
| | X | | | | | | | | | | | | | |
| 1A. ALL APPROACHES | 576 (461) | 864 (691) | 720 (576) | 1080 (864) | 503 | | | | | | | | TOTAL ACROSS | |
| 100% FULFILLED | | | | | 0 | | | | | | | | 0 | |
| 80% FULFILLED | | | | | 80 | | | | | | | | 80 | SECTIONAL |
| ACTUAL % IF BELOW 80% VALUE | | | | | | | | | | | | | 0 | PERCENT |
| | | | | | | | | | | | | TOTAL | 80 | **80** |

| | MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) | | | | PERCENTAGE WARRANT | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| APPROACH LANES | 1 | | 2 OR MORE | | HOUR ENDING | | | | | | | | | |
| FLOW CONDITION | RURAL | URBAN | RURAL | URBAN | AHV | | | | | | | | | |
| | X | | | | | | | | | | | | | |
| 1B. MINOR STREET BOTH APPROACHES | 144 (115) | 204 (163) | 144 (115) | 204 (163) | 171 | | | | | | | | TOTAL ACROSS | |
| 100% FULFILLED | | | | | 100 | | | | | | | | 100 | |
| 80% FULFILLED | | | | | 0 | | | | | | | | 0 | SECTIONAL |
| ACTUAL % IF BELOW 80% VALUE | | | | | | | | | | | | | 0 | PERCENT |
| | | | | | | | | | | | | TOTAL | 100 | **100** |

## WARRANT 2 - DELAY TO CROSS TRAFFIC

100% SATISFIED YES [ ] NO [X]
80% SATISFIED YES [ ] NO [X]

| | MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) | | | | PERCENTAGE WARRANT | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| APPROACH LANES | 1 | | 2 OR MORE | | HOUR ENDING | | | | | | | | | |
| FLOW CONDITION | RURAL | URBAN | RURAL | URBAN | AHV | | | | | | | | | |
| | X | | | | | | | | | | | | | |
| A. MAJOR STREET BOTH APPROACHES | 576 (461) | 864 (691) | 720 (576) | 1080 (864) | 332 | | | | | | | | TOTAL ACROSS | |
| 100% FULFILLED | | | | | 0 | | | | | | | | 0 | |
| 80% FULFILLED | | | | | 0 | | | | | | | | 0 | SECTIONAL |
| ACTUAL % IF BELOW 80% VALUE | | | | | 58% | | | | | | | | 58 | PERCENT |
| | | | | | | | | | | | | TOTAL | 58 | **58** |

| | MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) | | | | PERCENTAGE WARRANT | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| APPROACH LANES | 1 | | 2 OR MORE | | HOUR ENDING | | | | | | | | | |
| FLOW CONDITION | RURAL | URBAN | RURAL | URBAN | AHV | | | | | | | | | |
| | X | | | | | | | | | | | | | |
| B. TRAFFIC CROSSING MAJOR STREET | 60 (48) | 90 (72) | 144 (115) | 204 (163) | 87 | | | | | | | | TOTAL ACROSS | |
| 100% FULFILLED | | | | | 100 | | | | | | | | 100 | |
| 80% FULFILLED | | | | | 0 | | | | | | | | 0 | SECTIONAL |
| ACTUAL % IF BELOW 80% VALUE | | | | | | | | | | | | | 0 | PERCENT |
| | | | | | | | | | | | | TOTAL | 100 | **100** |

## WARRANT 4 - COMBINATION WARRANT

Used if neither Justification 1 or 2 met 100%

SATISFIED YES [ ] NO [X]

| REQUIREMENT | WARRANT SATISFIED 80% OR MORE | Yes | No |
|---|---|---|---|
| Two Warrants Satisfied 80% | Warrant 1 - Minimum Vehicular Volume | X | |
| | Warrant 2 - Delay to Cross Traffic | | X |

| FULFILLED | |
|---|---|
| Yes | No |
| | X |

**CONCLUSION: TRAFFIC SIGNALS WARRANTED?** YES [ ] NO [X]