Transportation Assessment Report

Brooks Road Landfill Capacity Expansion Environmental Screening

2270386 Ontario Limited

April 1, 2024

→ The Power of Commitment

Project name		Brooks Road Landfill Expansion					
Document title		Transportation Assessment Report | Brooks Road Landfill Capacity Expansion Environmental Screening					
Project number		12561524					
File name		Brooks Road Landfill Capacity Expansion Environmental Screening Transportation Assessment Report-November 2023.docx					
Status Code	**Revision**	**Author**	**Reviewer**		**Approved for issue**		
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1. Introduction

The Brooks Road Landfill Site (Site) is located at 160 Brooks Road, near Cayuga, Haldimand County, Ontario and is owned and operated by 2270386 Ontario Limited, herein referred to as Brooks Road Environmental (BRE, Owner, Proponent). The location of the Site is shown in Figure 1.1.

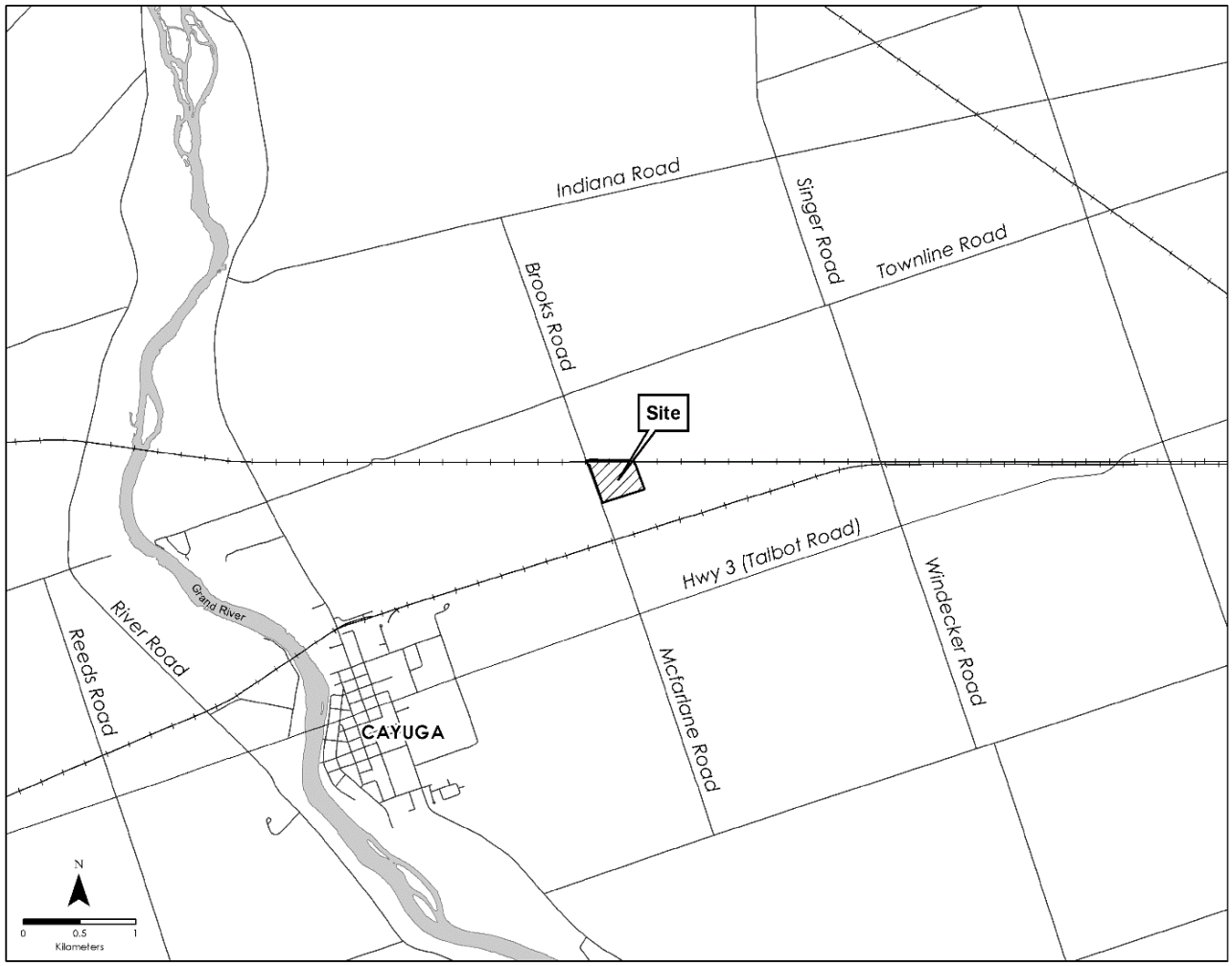


Figure 1.1 Location of the Proposed Undertaking

The Site, which operates under Environmental Compliance Approval (ECA) No. A110302 (Landfill ECA), has an approved annual fill rate of 250,000 tonnes per year and a total capacity of 1,045,065 cubic metres (m^3) (including waste and cover). The Site also operates under an air and noise ECA No. 7323-C6EJUM (Air ECA) and industrial sewage works ECA No. 1122-BKUPSM (Industrial Sewage ECA). The Site has accepted waste (in one form or another) since 1959 and received a Certificate of Approval (CofA, now referred to as an ECA) in 1980, with amendments approved by the Ministry of the Environment (currently the Ministry of Environment, Conservation and Parks (MECP) in 1980, 2002, 2004, 2005, 2007, 2011, 2012, 2013, 2014, 2017, 2018, 2020, and 2021. Under the current ECA, the Site is licenced to receive post-diversion solid non-hazardous Industrial, Commercial & Institutional (IC&I) waste from across Ontario. The 14.3-hectare (ha) Site contains an approved fill area of 6 ha.

In 2018, BRE completed an Individual Environmental Assessment (EA) to increase the total approved capacity at the site to allow for the continued receipt of post-diversion IC&I waste over a five-to-seven-year planning period and an amendment to the Site's rate of fill to provide for a maximum of 151,000 tonnes per year (known as the Brooks Road

Landfill Vertical Capacity Expansion EA). The Brooks Road Landfill Vertical Capacity Expansion EA was approved by the Minister of Environment, Conservation and Parks on January 15, 2019. The Site ECA was amended in 2021 to increase the annual rate of fill from 151,000 tonnes per year to a maximum of 250,000 tonnes per year, which is proportional to the daily maximum of 1,000 tonnes per day. The 2021 ECA amendment was subject to the Environmental Screening Process.

In order to meet the growing demand from waste generators and customer for a safe and reliable waste management facility for their post diversion solid non-hazardous Industrial, Commercial & Institutional waste (including impacted soils), Brooks Road Environmental is proposing to expand the capacity of the Brooks Road Landfill by approximately 219,400 m^3, adding capacity equal to approximately two additional years. This expansion would be achieved through a combination of re-engineering the Site's final contours to expand the Site vertically in the expansion area (not to exceed current approved peak contours), as well as increasing the existing landfill footprint to expand the Site horizontally, as shown in Figure 1.2.

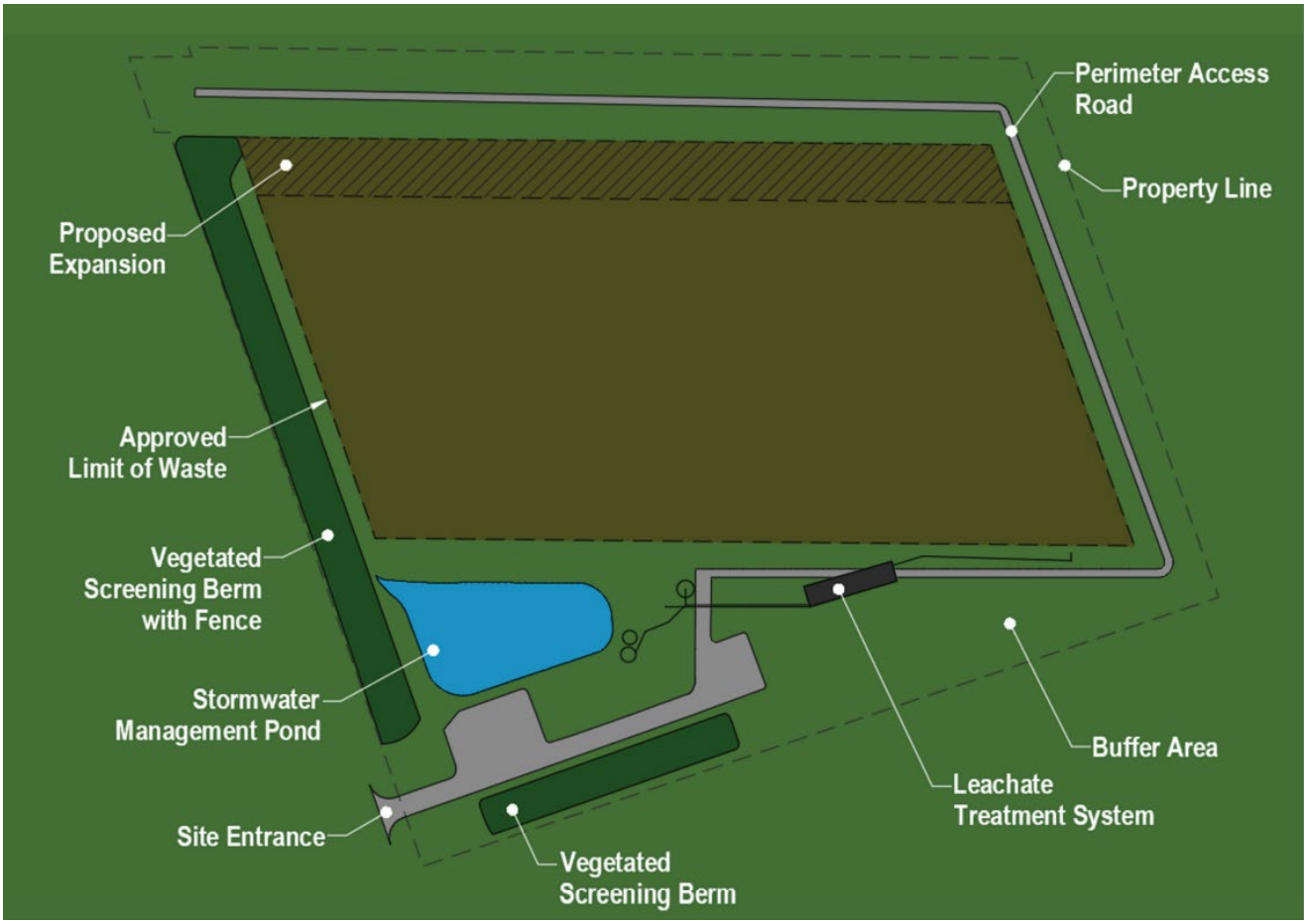


Figure 1.2 Proposed Capacity Expansion Concept

The proposed expansion would amend the approved ECA to allow for landfill volume expansion by approximately 219,400 m^3, allowing for receipt of an approved maximum daily quantity (1,000 tonnes per day) throughout the year, maintaining the approved rate of 250,000 tonnes per year. The proposed change to the total landfill capacity requires additional landfill infrastructure and changes to the currently approved landfill volume, footprint, and final contours.

The proposed Brooks Road Landfill Site capacity expansion is subject to the Environmental Screening Process in accordance with Section 13 of Ontario Regulation 101/07 – Waste Management Projects Regulation of the Ontario *EA Act*, as follows:

A change to a landfilling site or dump is defined as a major commercial or business enterprise or activity and is designated as an undertaking to which the Act applies, if the changes meet the following criteria:

1. *The total waste disposal volume of the landfilling site or dump after the change would exceed the total waste disposal volume that the landfilling site or dump was authorized to have under the Environmental Protection Act before the change by more than 100,000 cubic metres but by less than or equal to 375,000 cubic metres.*
2. *The increase in the total waste disposal volume of the landfilling site or dump would not exceed 25 per cent of the total waste disposal volume that the landfilling site or dump was authorized to have under the Environmental Protection Act before the change.*
3. *If a notice of completion under the Environmental Screening Process for Waste Management Projects has been submitted to the Ministry in respect of a previous change to the landfilling site or dump that meets the criteria in paragraphs 1 and 2, the day on which the notice of commencement is issued under the Environmental Screening Process for Waste Management Projects in respect of the change is at least 10 years after the day the notice of completion in respect of the previous change was submitted.*

Section 13 of Ontario Regulation 101/07 – Waste Management Projects Regulation exempts this Project from Part II of the *EA Act*, subject to fulfilling the Environmental Screening process. The Screening will be conducted in accordance with the planning and design process outlined in MECP "*Guide to Environmental Assessment Requirements for Waste Management Projects.*" The Environmental Screening Process includes identifying and applying screening criteria to determine and describe potential environmental effects, public/external agency consultation, and the development of measures to mitigate identified environmental effects. The results of the Study will be documented in an Environmental Screening Report, which will be released for review to Stakeholders including Indigenous communities, the public, and government agencies. Upon completion of the Environmental Screening Process an application will be made to amend the existing ECA No. A110302.

GHD has prepared a Transportation Assessment on behalf of BRE for the proposed undertaking. This report documents the following as it relates to the transportation environment:

– Baseline/existing conditions (i.e., what exists in the absence of the proposed project).
– Potential effects on the environment, mitigation measures, and net effects.
– Future monitoring requirements to be implemented.

The Study Areas reviewed for the transportation assessment were as follows (see **Figure 1.3**):

– **Site Study Area (SSA)** – the 14.3 ha area within the existing, approved boundaries of the Site, as defined by ECA No. A110302, as amended; and
– **Local Study Area (LSA)** – the area within the vicinity of the Site extending approximately 1 kilometre (km) in all directions.

Paper Size ANSI B

0 75 150 225 300

Meters

Map Projection: Transverse Mercator
Horizontal Datum: North American 1983
Grid: NAD 1983 UTM Zone 17N

N

GHD

BROOKS ROAD LANDFILL
160 BROOKS ROAD, CAYUGA, ONTARIO
TRANSPORTATION ASSESSMENT REPORT

STUDY AREAS

Project No. **12561524**
Revision No. **-**
Date **Oct 26, 2022**

FIGURE 1.3

Q:\GIS\PROJECTS\12561000s\12561524\Layouts\202210_SurfaceWater\12561524_202210_SurfaceWater_GIS001.mxd
Print date: 26 Oct 2022 - 13:27

Data source: Google Earth Imagery, Date: 07/08/2018

2. Screening Criteria Checklist

At the beginning of the Environmental Screening, the Screening Criteria Checklist (provided as Schedule I, pp 67 – 69, to the "Guide to Environmental Assessment Requirements for Waste Management Projects") is to be completed based on the information provided in the Project Description. The Screening Criteria reflect the broad definition of "environment" contained in the *Ontario Environmental Assessment Act.*

As noted in the Guide:

"*The Screening Criteria are presented in the form of a checklist with the option of a "Yes" or "No" response. Mitigation measures **are not** to be considered in concluding whether there is "No" potential environmental effect. That is, the proponent is required to answer "Yes" even if the proponent believes that a potential environmental effect could likely be mitigated. The reason for requiring a "Yes" is to ensure that mitigation measures are open to discussion and review. Another reason for this approach is that further discussion and review of a potential effect may reveal that there is no actual effect, in which case no mitigation is required. Where a "yes' has been identified, the proponent is to provide additional information in the Environmental Screening Report, explaining the potential effect(s), methods to mitigate or address the effect(s), any net effects that are anticipated and if so, their significance. Even where the proponent indicates that no environmental effects are anticipated, it is recommended that additional information is provided in the Environmental Screening Report in order to support the "no effects" conclusion*."

Each criterion is based on a question which is prefaced with the phrase, "*Might the Project*…" Table 2.1 was completed as the first step of the Environmental Screening Process and is a summary of the criteria for the Transportation discipline. Further descriptions of the criteria for which a "Yes" response was indicated in the Screening table are discussed in Section 4 of this report.

Table 2.1 Screening Criteria Checklist – Transportation

	Criterion	YES	NO	Additional Information
	Might the project…			
1. Socio-Economic				
6.8	Cause negative effects related to traffic?	X		The proposed landfill expansion would result in changes to the existing landfill footprint, cover design (daily, intermediate, final), final contours, and on-site operations and may cause negative effects related to traffic through prolonging the life of the Site.

3. Existing Conditions

The following subsections describe the existing conditions that are found within the SSA and LSA of the proposed project.

3.1 Methodology

3.1.1 Available Secondary Source Information Collection and Review

Available secondary sources of information were collected and reviewed by the Transportation Study Team to determine existing Transportation conditions within the Study Area(s). The following sources of secondary information were collected and reviewed in completing the 2018 Individual Environmental Assessment:

– Haldimand County Annual Average Daily Traffic (AADT) data, 2005

– Haldimand County Annual AADT data, 2011

3.1.2 Process Undertaken

Information on the Transportation Existing Conditions within the Study Area was gathered from a combination of secondary source research, field investigations and discussions with Haldimand County staff.

3.1.3 Field Investigations

As part of the 2018 Individual Environmental Assessment, turning movement counts were conducted at the intersection of Highway 3 and Brooks Road and at the existing Brooks Road Landfill Site driveway during the weekday a.m., mid-day and p.m. peak periods and Saturday mid-day peak periods. These counts were completed on Saturday, December 5, 2015 and on Monday, December 7, 2015.

3.1.4 Agency Consultation

Also, as part of the 2018 Individual Environmental Assessment, discussions with Haldimand County staff took place in December 2015 to confirm AADT data.

3.2 Description of Existing Conditions

Road Network

The following two major roads provide access to the existing Brooks Landfill:

Highway 3 (Talbot Road) – within the vicinity of Brooks Road, Highway 3 (Talbot Road) is a two-lane road with a posted speed limit of 80 kph. The intersection of Highway 3 and Brooks Road is stop controlled on Brooks Road with both eastbound and westbound right turn taper on Highway 3.

Brooks Road – Brooks Road is a two-lane road that extends from Highway 3(Talbot Road) in the south and terminates at Indiana Road to the north. The speed limit on this road is 50 kph. Brooks Road is paved from Highway 3 to just north of the Brooks landfill driveway access where it changes to a gravel road for the remaining length to Indiana Road.

Traffic Data

Historical AADT data was obtained from Haldimand County. The 2005 AADT on Brooks Road approximately 500 metres north of Highway 3 was 144 two-way trips. In 2011 the AADT was slightly lower at 114 two-way trips. Discussions with staff confirmed that the split is approximately 50/50 between north and south volumes.

Turning movement counts were also conducted on Saturday, December 5, 2015 and on Monday, December 7, 2015 at both the intersection of Highway 3 and Brooks Road and at the existing Brooks Road Landfill Site driveway during the weekday a.m., mid-day and p.m. peak periods and Saturday mid-day peak periods. Detailed turning movement data sheets are found in Appendix A.

2022 Base Traffic Conditions

To establish the base 2022 traffic conditions and capture any expected background growth in traffic volumes at the study area intersections, a conservative compound annual growth rate of 2.0 percent was adopted and utilized to forecast grow the 2015 turning movement counts to 2022. The base 2022 traffic volumes also includes the estimated 16 site trucks per day as a result of the proposed vertical expansion approved in 2018. To provide a conservative and worst-case scenario analysis, all 16 of the daily truck trips associated with the vertical expansion were applied to each peak hour (i.e., all 16 would enter/exit the site within each of the peak hours which results in a large over estimation of the daily traffic volumes to the Site).

The resulting 2022 weekday a.m., mid-day and p.m. peak hour as well as the Saturday peak hour volumes are summarized in Figure 3.1.

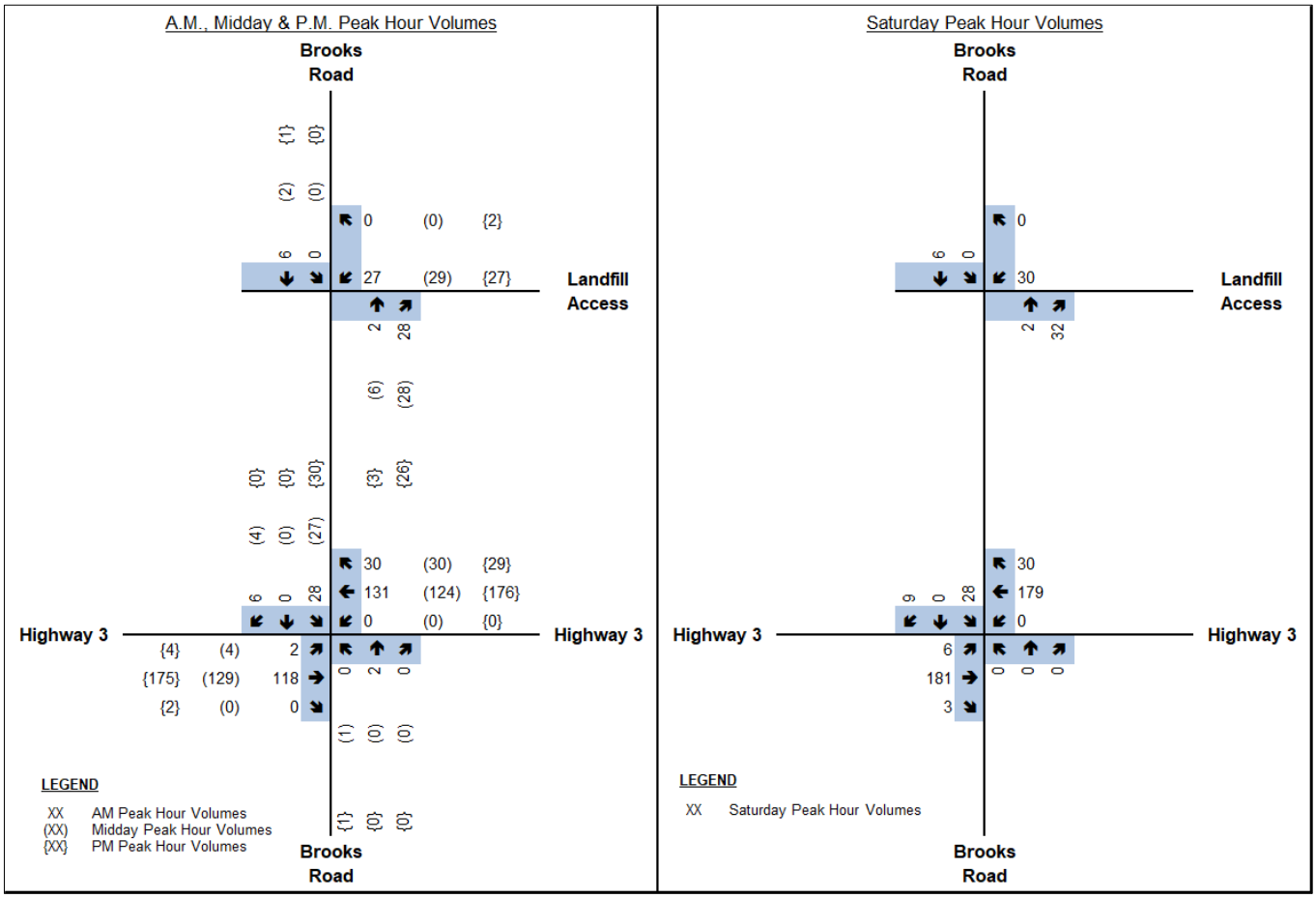


Figure 3.1 2022 Existing Peak Hour Volumes

Traffic on Brooks Road is predominately truck traffic specific to the landfill operation, traffic on Highway 3 is a mix of both commuter and truck traffic.

Landfill Operations

The Brooks Road Landfill Site is currently open and accepting waste during the week and on Saturdays. The site currently handles 1,000 tonnes of material per day based on the following five different truck configurations:

– Walking floor – can handle 25 to 40 metric tonnes per load
– Roll-off – can handle 0.5 to 10 metric tonnes per load
– Front End – can handle 3 to 12 metric tonnes per load
– Tri-axle – can handle 14 to 22 metric tonnes per load
– Dump trailer – can handle 34 to 42 metric tonnes per load

The current maximum daily truck traffic at the landfill assuming delivery of 1,000 tonnes of material per day is 16 to 24 walking floor trucks, 2 to 4 front end trucks and 2 to 6 roll-offs for a total of 34 inbound and 34 outbound trucks plus another one or two trips for staff over the period of a day. This number can increase slightly if there are certain soil jobs on the site as the walking floor trucks are replaced with Dump trailers and Tri-axle trucks.

The turning movement counts conducted at the site driveway on Saturday December 5, 2015 and Monday December 7, 2015 show the following total volume of trucks entering and exiting the landfill during the peak hours:

– Weekday am peak hour – 12 inbound and 11 outbound
– Weekday mid-day peak hour – 12 inbound and 13 outbound
– Weekday pm peak hour – 10 inbound and 13 outbound
– Saturday mid-day peak hour – 16 inbound and 14 outbound

The traffic volumes confirm that the peak operating times for the landfill occur during both the weekday and Saturday mid-day peak hours when the maximum volumes of inbound and outbound traffic were observed.

Coincidentally, a review of the 2015 traffic counts confirms that the volume of inbound and outbound traffic from the landfill during the two survey dates was considerably higher than the typically expected volumes provided by the operator assuming delivery of 1,000 tonnes of material per day. It was confirmed that during the two survey dates, there was a transfer of clean clay to another property that resulted in approximately 75 additional loads throughout both days.

As a result, the analysis of the existing 2022 conditions not only includes the approved vertical expansion but also includes additional traffic that is not typical for existing operations and results in slightly reduced capacity at both the site driveway on Brooks Road and at the intersection of Brooks Road and Highway 3.

Capacity Analysis

As a measure of the existing capacity on the adjacent road network surrounding the Brooks Landfill, both the site access on Brooks Road and the stop-controlled intersection of Brooks Road and Highway 3 were analyzed using the projected 2022 turning movement volumes for the weekday am, mid-day, pm and Saturday peak hours. A summary of the capacity analysis using Synchro version 10 is summarized in Table 3.1 below with detailed reports provided in Appendix A.

Table 3.1 Existing Capacity Analysis

Intersection	Movement v/c ratio (LOS) delay			
	A.M. Peak	Mid-Day Peak	P.M. Peak	Sat Peak
Brooks Road and Landfill access	WBLR = 0.03 LOS A 9 Sec NBTR = 0.02 LOS A 0 Sec SBTL = 0 LOS A 0 Sec	WBLR = 0.03 LOS A 9 Sec NBTR = 0.02 LOS A 0 Sec SBTL = 0 LOS A 0 Sec	WBLR = 0.03 LOS A 9 Sec NBTR = 0.02 LOS A 0 Sec SBTL = 0 LOS A 0 Sec	WBLR = 0.03 LOS A 9 Sec NBTR = 0.02 LOS A 0 Sec SBTL = 0 LOS A 0 Sec
Brooks Road and Highway 3	EBTLR = 0 LOS A 0 Sec WBTLR = 0 LOS A 0 Sec NBTLR = 0 LOS B 11 Sec SBTLR = 0.05 LOS B 10 Sec	EBTLR = 0 LOS A 0 Sec WBTLR = 0 LOS A 0 Sec NBTLR = 0 LOS B 11 Sec SBTLR = 0.05 LOS B 11 Sec	EBTLR = 0 LOS A 0 Sec WBTLR = 0 LOS A 0 Sec NBTLR = 0 LOS B 12 Sec SBTLR = 0.06 LOS B 12 Sec	EBTLR = 0.01 LOS A 0 Sec WBTLR = 0 LOS A 0 Sec NBTLR = 0 LOS A 0 Sec SBTLR = 0.07 LOS B 12 Sec

The turning movements at both study intersections currently operate with levels of service ‘B’ or better during the weekday am, mid-day, pm and Saturday mid-day peak hours.

The analysis of existing conditions confirms no current capacity constraints at either study intersection despite the higher than normal traffic volumes captured during the survey of existing traffic volumes as a result of the movement of clean clay off-site.

Safety Analysis

Collision Analysis

A review of available data shows that there is no indication that either Highway 3 in the vicinity of Brooks Road, or Brooks Road north to the site has experienced significantly higher collision frequency than the historical average accident rate along Highway 3 in Haldimand County.

Sight Line Analysis

The site entrance in its current location satisfies the sight distance requirements for trucks approaching and departing from the site. Brooks Road is fairly straight with little deviation in the horizontal or vertical alignment. Existing sight distances are in excess of 350 metres both to the north and south of the driveway access which exceeds the required sight distance based on TACC standard of 85 metres for stopping sight distance which for a posted speed limit of 50 kph (60 kph design speed).

4. Potential Effects, Mitigation Measures & Net Effects

A Project Description, which includes proposed engineering design figures, was prepared so that potential environmental effects and mitigation measures could be identified. The following subsections provide a general summary of the proposed undertaking.

4.1 Description of Project Components and Activities

The project for which the Environmental Screening Process is being undertaken is a proposed capacity expansion of 219,400 m^3 and involves a change to the final site capacity, contours, and footprint. Some level of construction is required to implement the proposal. This would be a combination of re-engineering the Site's final contours to expand the Site vertically in the expansion area (not to exceed current approved peak contours, as well as increasing the existing landfill footprint to expand the Site horizontally. Modification to the northern perimeter access road and stormwater drainage ditch would be required to accommodate the proposed changes to the final Site contours. The former railway property would continue to provide buffer land for the Site. The Brooks Road Landfill will continue to operate within currently approved operating hours and current construction activities and daily operations will continue as usual. There are no changes to the annual fill rate limits (maximum 1,000 tonnes per day and 250,000 tonnes per year) proposed as part of this project.

A summary of the key elements of the proposed capacity expansion compared to the existing approved Site is provided in Table 4.1.

Table 4.1 Summary of Proposed Brooks Road Landfill Capacity Expansion Design vs Existing Landfill

Design Component	Existing Landfill	Proposed Capacity Expansion
Volume (m^3)	1,045,065	1,264,4651
Footprint Area (ha)	6.07	7.15
Peak Elevation (mAMSL) (top of final cover)	221.50	225.66
Peak Elevation – top of waste (mAMSL)	220.75	224.91
Crest of Slope Elevation (mAMSL)	221.0	225.30

Design Component	Existing Landfill	Proposed Capacity Expansion
Slopes (Top/Sides)	Top – 20:1 (5%) Sides – 4:1 (25%)	Top – 20:1 (5%) Sides – 4:1 (25%) New stage is 4:1 (25%) north side slope, extends to a new peak elevation (i.e., elevated 20:1 [5%] plateau), and the south side slope (25%) ties-in to existing approved top of waste plateau. All other sides remain the same.
Stormwater Pond	Permanent pool – 1,266 m^3 Total live storage – >5,502 m^3	Pond capacity is sufficient for the proposed expansion based on existing Stormwater Management Plan.
Stormwater Drainage Ditch		Stormwater drainage ditch shifted by 30 m. East and west ditches will extend to maintain full perimeter ditch.
Perimeter Roads		Northern perimeter access road shifted by 29 m. East access road extended as appropriate. Access road will extend west, proposed to connect to Brooks Road as a secondary site access (locked during normal operation). A turnaround area will be provided in the northwest corner.
Maximum Daily Truck Traffic	25 to 50	25 to 50
Post-Closure Leachate Generation Rate	33 m^3/day	39 m^3/day
Capacity anticipated to be reached (year)	2024	2026

4.2 Methodology and Investigations

The assessment of effects associated with the proposed undertaking was carried out through a series of steps that is based, in part, on the description of existing conditions as well as the Project Description and Site Plan. The assessment of effects was also undertaken within the context of the previously completed Screening Criteria Checklist, as summarized in **Section 2** of this report.

Based on the description of the Alternative Methods provided in **Section 2** and the characterization of Transportation Existing Conditions within the Study Area described in **Section 3**, the following section provides the Transportation Future Conditions within the Study Area and any recommended mitigation measures for the 2026 horizon year when the Site is anticipated to reach capacity. The future conditions traffic analysis utilizes the existing 2022 conditions as a baseline and incorporates additional corridor growth to the traffic volumes.

As previously presented in **Table 4.1**, the maximum daily truck traffic before and after the proposed capacity expansion does not change and remains at 25 to 50 trucks per day. As a result, the turning volumes entering and exiting the site access are not expected to change from exiting conditions.

4.3 Future Transportation Conditions

4.3.1 Methodology

Horizon Year

The proposed capacity expansion for the existing site is expected to extend the life of the landfill by one approximately two years from 2024 to 2026. Therefore, a future horizon year of 2026 has been assumed representing the worst-case

scenario which includes the anticipated corridor growth expected until the Site reaches capacity. Haldimand County's Traffic Impact Study Guidelines for developments generating less than 500 peak hour vehicle trips requires future conditions traffic analysis be conducted for both the opening year and 5 years after opening. However, post 2026, the Site will generate no traffic onto the surrounding road network and therefore, analysis of future conditions was limited to the 2026 horizon year.

Background Volume Growth Rate

In order to capture any expected background growth in traffic volumes at the study area intersections, a conservative compound annual growth rate of 2.0 percent has been adopted and will be utilized to forecast for the 2026 traffic volumes.

Future Traffic Volumes

The Forecasted 2026 turning movement counts were projected at both the intersection of Highway 3 and Brooks Road and at the existing Brooks Road Landfill Site driveway during the weekday a.m., mid-day and p.m. peak periods and Saturday mid-day peak periods. This includes the existing truck traffic corresponding to approximately 1,000 tonnes per day. As previously noted, to provide a conservative and worst-case scenario analysis, the daily truck trips associated with the Site were applied to each peak hour (i.e., the total amount of daily truck trips would enter/exit the site within each of the peak hours). The resulting weekday a.m., mid-day and p.m. peak hour as well as the Saturday peak hour volumes are summarized in Figure 4.1. No additional site trips were accounted for in the 2026 horizon year as the maximum daily number of trucks generated by the Site remains at 25 to 50 trucks after the proposed capacity expansion.

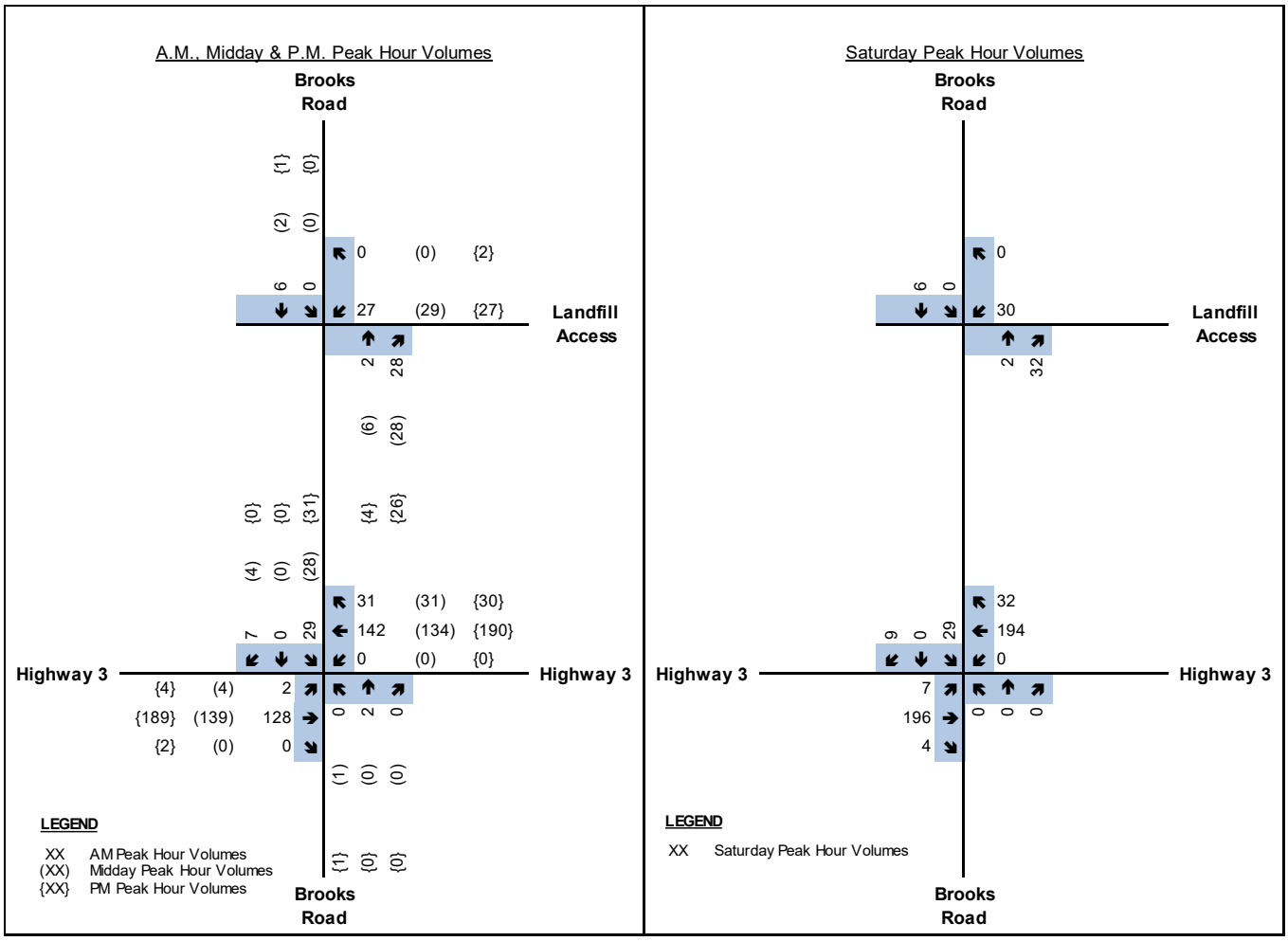


Figure 4.1 2026 Future Total Peak Hour Volumes

4.3.2 Capacity Analysis

As a measure of the capacity on the adjacent road network surrounding the Brooks Road Landfill at peak operations (i.e., 1,000 tonnes of material per day translating to 25 to 50 daily trucks), both the Site access on Brooks Road and the stop-controlled intersection of Brooks Road and Highway 3 were analyzed using the projected 2026 peak turning movement volumes for the weekday a.m., mid-day, p.m. and Saturday peak hours. A summary of the capacity analysis using Synchro version 10 is summarized in the Table 4.2 with detailed reports provided in Appendix A.

Table 4.2 2026Future Conditions Capacity Analysis at Peak Operations

Intersection	Movement v/c ratio (LOS) delay			
	A.M. Peak	Mid-Day Peak	P.M. Peak	Sat Peak
Brooks Road & Brooks Road Landfill Site access	WBLR = 0.03 LOS A 9 SEC NBTR = 0.02 LOS A 0 SEC SBTL = 0 LOS A 0	WBLR = 0.03 LOS A 9 SEC NBTR = 0.02 LOS A 0 SEC SBTL = 0 LOS A 0 SEC	WBLR = 0.03 LOS A 9 SEC NBTR = 0.02 LOS A 0 SEC SBTL = 0 LOS A 0 SEC	WBLR = 0.03 LOS A 9 SEC NBTR = 0.02 LOS A 0 SEC SBTL = 0 LOS A 0 SEC
Brooks Road & Highway 3	EBTLR = 0 LOS A 0 SEC WBTLR = 0 LOS A 0 SEC NBTLR = 0 LOS B 11 SEC SBTLR = 0.06 LOS B 11 SEC	EBTLR = 0 LOS A 0 SEC WBTLR = 0 LOS A 0 SEC NBTLR = 0 LOS B 11 SEC SBTLR = 0.05 LOS B 11 SEC	EBTLR = 0 LOS A 0 SEC WBTLR = 0 LOS A 0 SEC NBTLR = 0 LOS B 12 SEC SBTLR = 0.06 LOS B 12 SEC	EBTLR = 0.01 LOS A 0 SEC WBTLR = 0 LOS A 0 SEC NBTLR = 0 LOS A 0 SEC SBTLR = 0.08 LOS B 12 SEC

Both intersections overall are expected to operate with minimal delay and substantial excess capacity under future 2026 conditions. Individual movements at both study intersections are expected to operate with levels of service ‘B’ or better representing minimal delay, and volume-to-capacity (v/c) ratios not exceeding 0.08 representing substantial excess capacity, during the weekday a.m., mid-day, p.m. and Saturday mid-day peak hours.

The analysis of future 2026 conditions under peak operations confirms no vehicle delay issues or capacity constraints at either study intersection resulting from the proposed capacity expansion.

4.3.3 Safety Analysis

4.3.3.1 Collision Analysis

Existing conditions collision analysis determined no indication that either Highway 3 in the vicinity of Brooks Road or Brooks Road north to the site has experienced significantly higher collision frequency than the historical average accident rate along Highway 3 in Haldimand County. Since no additional site traffic is generated by the proposed capacity expansion, safety conditions remain unchanged.

4.3.3.2 Sight Line Analysis

Existing conditions sight line analysis determined the site entrance in its current location satisfies the sight distance requirements for trucks approaching and departing from the site.

4.4 Transportation Net Effects

This Section provides an assessment of the potential negative environmental effects (i.e., those for which a “Yes” answer was given in the Screening Criteria Checklist) for those Transportation criteria which might be affected by the project as identified in **Section 2**. The effects assessment describes how existing environmental conditions in the Study Area(s) would change as a result of the construction and operation of the proposed undertaking.

As described in Section 2, a “Yes” was applied to the following Transportation criteria:

6. Socio-Economic				
6.8	Cause negative effects related to traffic?	X		The proposed landfill expansion would result in changes to the existing landfill footprint, cover design (daily, intermediate, final), final contours, and on-site operations and may cause negative effects related to traffic through prolonging the life of the Site.

With respect to the above criterion, a description of the potential negative environmental effects, necessary mitigation measures and the resultant net effects on the environment are discussed. Studies conducted during the Environmental Screening Process showed that the anticipated effects will be much less than expected or will not occur at all. In all cases, impact management (mitigation) measures have been identified that, when applied, will eliminate the potential environmental effects, or reduce them to acceptable levels.

4.4.1 Potential Effects on Transportation Environment

Based on the Future Conditions traffic analysis undertaken in **Section 4.1**, it is expected that the proposed capacity expansion will have a negligible transportation effect at the study area intersections and surrounding road network. Truck traffic associated with the proposed capacity expansion will not contribute any additional truck traffic within the study area, therefore it is not expected to adversely affect residents, businesses, institutions and movement of farm vehicles in the LSA.

4.5 Mitigation Measures

With no additional truck traffic generated by the proposed capacity expansion, no mitigation measures are recommended in order to avoid or minimize impacts on Transportation.

4.5.1 Net Effects

As no mitigation measures beyond those incorporated into the design are recommended, the net impacts of the capacity expansion from a transportation perspective are represented in the Future Transportation Conditions analysis undertaken in Section 4.1.

4.6 Monitoring Requirements

Since no mitigation measures were identified in **Section 4.5** are implemented as envisioned, no further monitoring of the transportation effects are recommended.

4.7 Additional Approvals

No additional approvals are required for transportation.

5. Conclusion

Under existing 2022 traffic conditions the site is expected to be acceptable from a traffic operations and safety perspective. The capacity analysis under peak operations confirms no current capacity constraints in the LSA road network. Concerning safety, a review of previously obtained data shows the LSA road network has not experienced significantly higher collision frequency than the local historical average accident rate, and a review of the site entrance in its current location satisfies the sight distance requirements.

The analysis of future conditions undertaken for the 2026 horizon year when the Site is anticipated to reach maximum capacity, indicates the site will continue to be acceptable from a traffic operations and safety perspective. Under peak operations no vehicle delay issues or capacity constraints at either study intersection are expected. Concerning safety, it is expected that since no additional site traffic is generated by the proposed capacity expansion, existing safety conditions will not deteriorate, and Site traffic will continue to be safely accommodated by the existing site entrance.

No mitigation measures beyond those incorporated into the design have been recommended as a result of the proposed capacity expansion.

Concerning the truck transportation effects along access roads, no effects are expected. With no additional traffic being generated by the Site, there is an expected minimal impact on traffic safety, traffic operations, and no potential road improvements are required or recommended.

Appendices

Appendix A

Detailed Turning Movement Data Sheets and Synchro Capacity Reports

Ontario Traffic Inc

Morning Peak Diagram

Specified Period
From: 8:30:00
To: 10:30:00

One Hour Peak
From: 9:30:00
To: 10:30:00

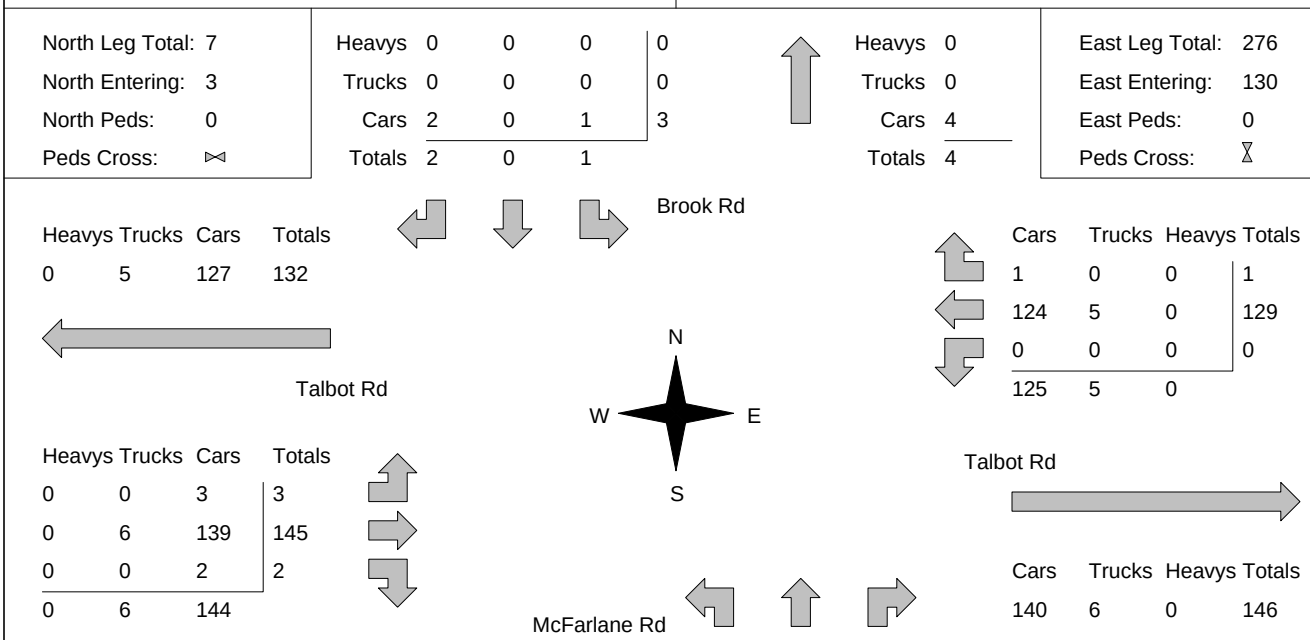
Municipality: Cayuga
Site #: 1533100001
Intersection: Talbot Rd & Brook Rd
TFR File #: 1
Count date: 5-Dec-15

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Talbot Rd runs W/E



Comments

Ontario Traffic Inc

Mid-day Peak Diagram

Specified Period
From: 11:30:00
To: 14:30:00

One Hour Peak
From: 11:30:00
To: 12:30:00

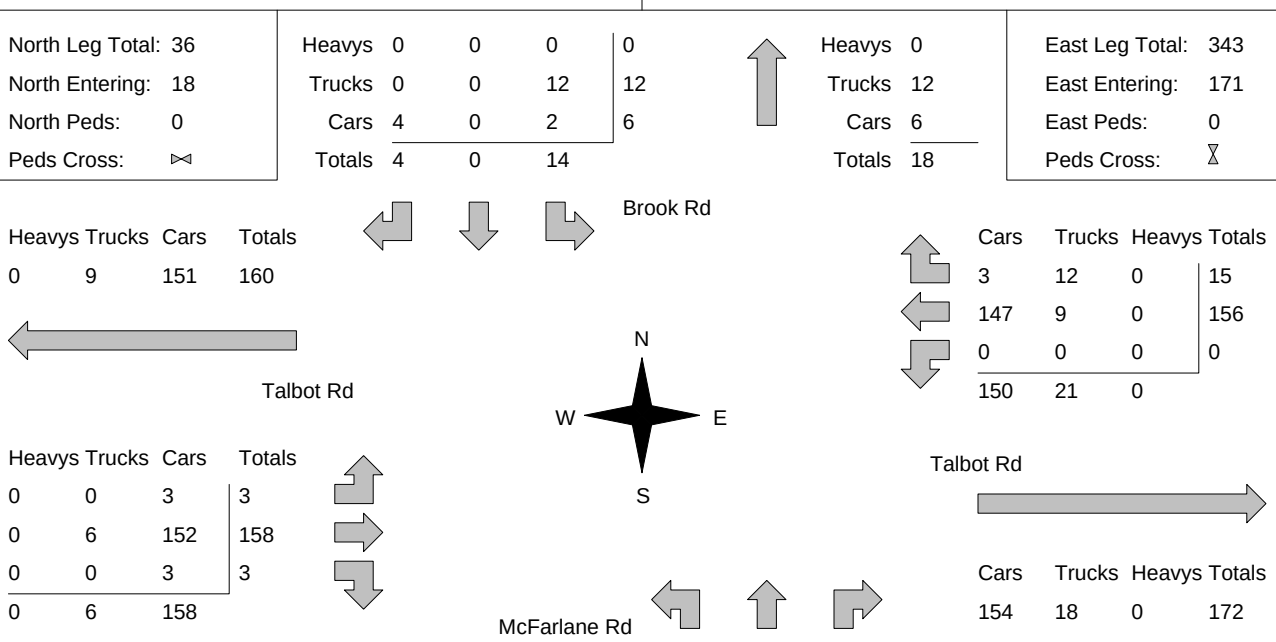
Municipality: Cayuga
Site #: 1533100001
Intersection: Talbot Rd & Brook Rd
TFR File #: 1
Count date: 5-Dec-15

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Talbot Rd runs W/E



Comments

Ontario Traffic Inc

Total Count Diagram

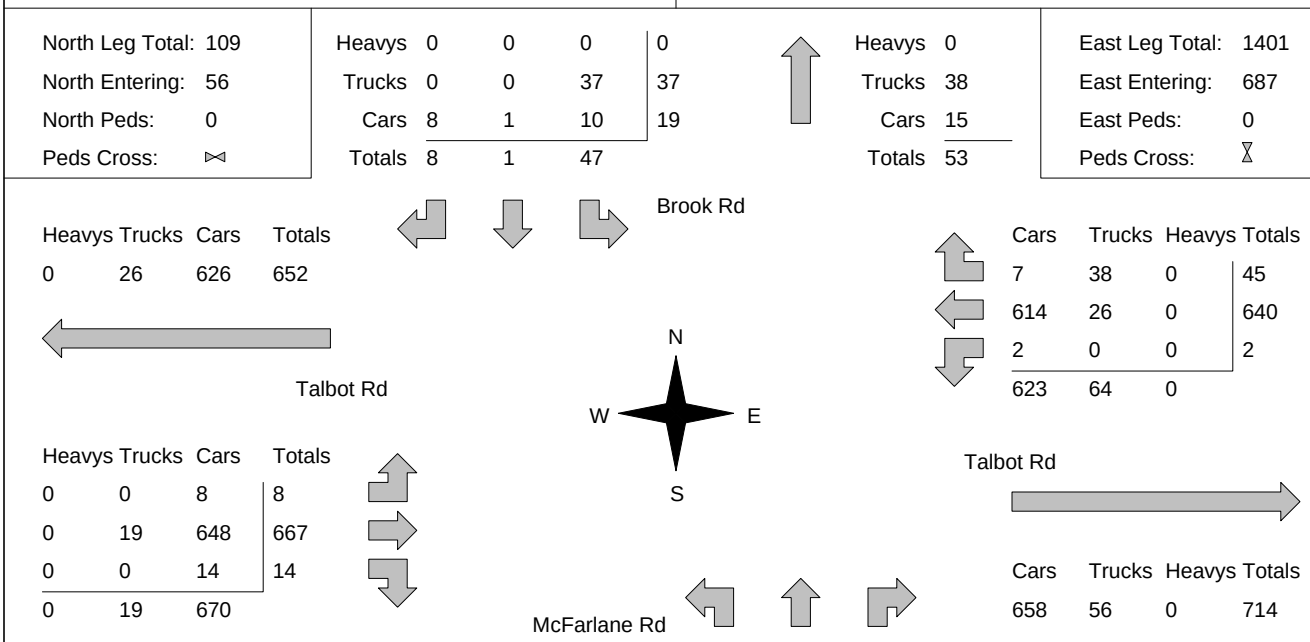
Municipality: Cayuga
Site #: 1533100001
Intersection: Talbot Rd & Brook Rd
TFR File #: 1
Count date: 5-Dec-15

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Talbot Rd runs W/E



Comments

Ontario Traffic Inc

Morning Peak Diagram

Specified Period
From: 8:30:00
To: 10:30:00

One Hour Peak
From: 8:30:00
To: 9:30:00

Municipality: Cayuga
Site #: 1533100002
Intersection: Brooks Rd & Landfill Access
TFR File #: 1
Count date: 5-Dec-15

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

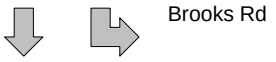
Major Road: Brooks Rd runs N/S

North Leg Total: 10
North Entering: 6
North Peds: 0
Peds Cross: ⋈

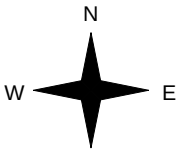
Heavys	0	0	0
Trucks	0	0	0
Cars	6	0	6
Totals	6	0	

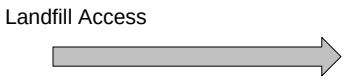
Heavys	0
Trucks	0
Cars	4
Totals	4

East Leg Total: 0
East Entering: 0
East Peds: 0
Peds Cross: ⋈



Cars	Trucks	Heavys	Totals
0	0	0	0
0	0	0	0
0	0	0	





Cars	Trucks	Heavys	Totals
0	0	0	0

Cars	6
Trucks	0
Heavys	0
Totals	6

Cars	4	0	4
Trucks	0	0	0
Heavys	0	0	0
Totals	4	0	

Peds Cross: ⋈
South Peds: 0
South Entering: 4
South Leg Total: 10

Comments

Ontario Traffic Inc

Mid-day Peak Diagram

Specified Period
From: 11:30:00
To: 14:30:00

One Hour Peak
From: 12:15:00
To: 13:15:00

Municipality: Cayuga
Site #: 1533100002
Intersection: Brooks Rd & Landfill Access
TFR File #: 1
Count date: 5-Dec-15

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Brooks Rd runs N/S

North Leg Total: 7
North Entering: 5
North Peds: 0
Peds Cross: ⋈

Heavys	0	0	0
Trucks	0	0	0
Cars	5	0	5
Totals	5	0	

Heavys	0
Trucks	0
Cars	2
Totals	2

East Leg Total: 30
East Entering: 14
East Peds: 0
Peds Cross: ⋈

Brooks Rd

Cars	Trucks	Heavys	Totals
0	0	0	0
0	14	0	14
0	14	0	

N
W E
S

Landfill Access

Cars	Trucks	Heavys	Totals
0	16	0	16

Brooks Rd

Cars	5
Trucks	14
Heavys	0
Totals	19

Cars	2	0	2
Trucks	0	16	16
Heavys	0	0	0
Totals	2	16	

Peds Cross: ⋈
South Peds: 0
South Entering: 18
South Leg Total: 37

Comments

Ontario Traffic Inc

Total Count Diagram

Municipality: Cayuga
Site #: 1533100002
Intersection: Brooks Rd & Landfill Access
TFR File #: 1
Count date: 5-Dec-15

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Brooks Rd runs N/S

North Leg Total: 29
North Entering: 18
North Peds: 0
Peds Cross: ⋈

Heavys	0	0	0
Trucks	1	0	1
Cars	17	0	17
Totals	18	0	

Heavys	0
Trucks	0
Cars	11
Totals	11

East Leg Total: 77
East Entering: 41
East Peds: 0
Peds Cross: ⋈

Brooks Rd

	Cars	Trucks	Heavys	Totals
	0	0	0	0
	1	40	0	41
	1	40	0	

N
W E
S

Landfill Access

	Cars	Trucks	Heavys	Totals
	0	36	0	36

Brooks Rd

Cars	18	Cars	11	0	11
Trucks	41	Trucks	0	36	36
Heavys	0	Heavys	0	0	0
Totals	59	Totals	11	36	

Peds Cross: ⋈
South Peds: 0
South Entering: 47
South Leg Total: 106

Comments

Ontario Traffic Inc

Morning Peak Diagram

Specified Period
From: 7:30:00
To: 10:30:00

One Hour Peak
From: 7:30:00
To: 8:30:00

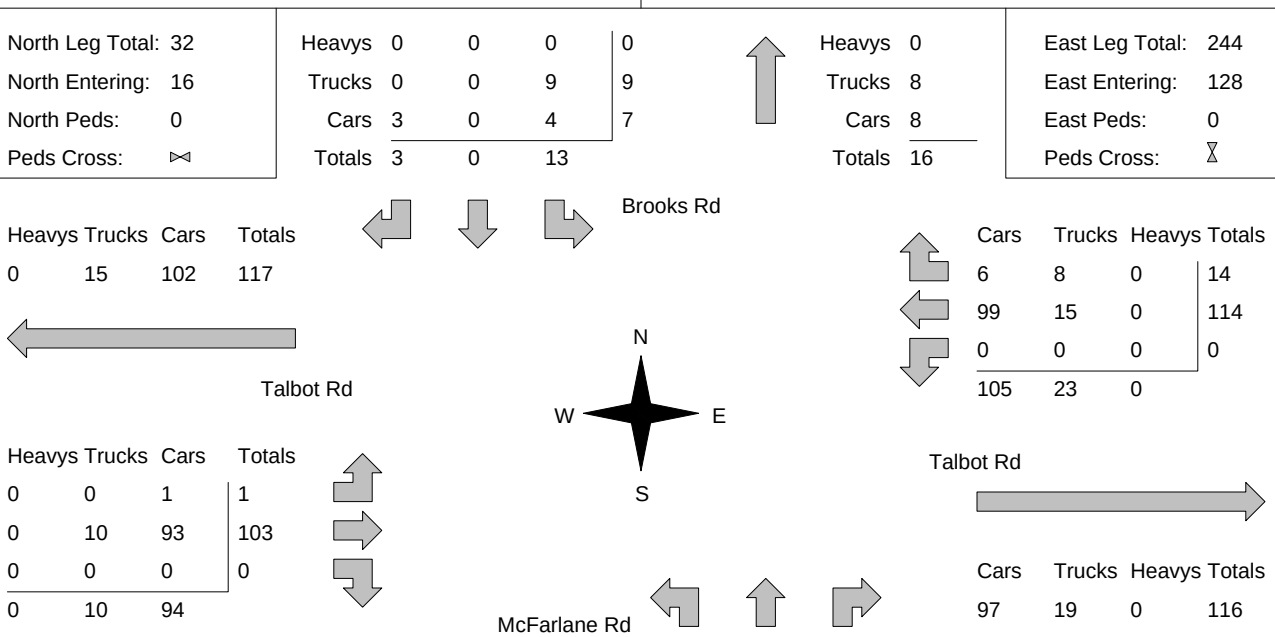
Municipality: Cayuga
Site #: 1533100003
Intersection: Talbot Rd & Brooks Rd
TFR File #: 2
Count date: 7-Dec-15

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Talbot Rd runs W/E



Comments

Ontario Traffic Inc

Mid-day Peak Diagram

Specified Period
From: 11:30:00
To: 13:30:00

One Hour Peak
From: 12:30:00
To: 13:30:00

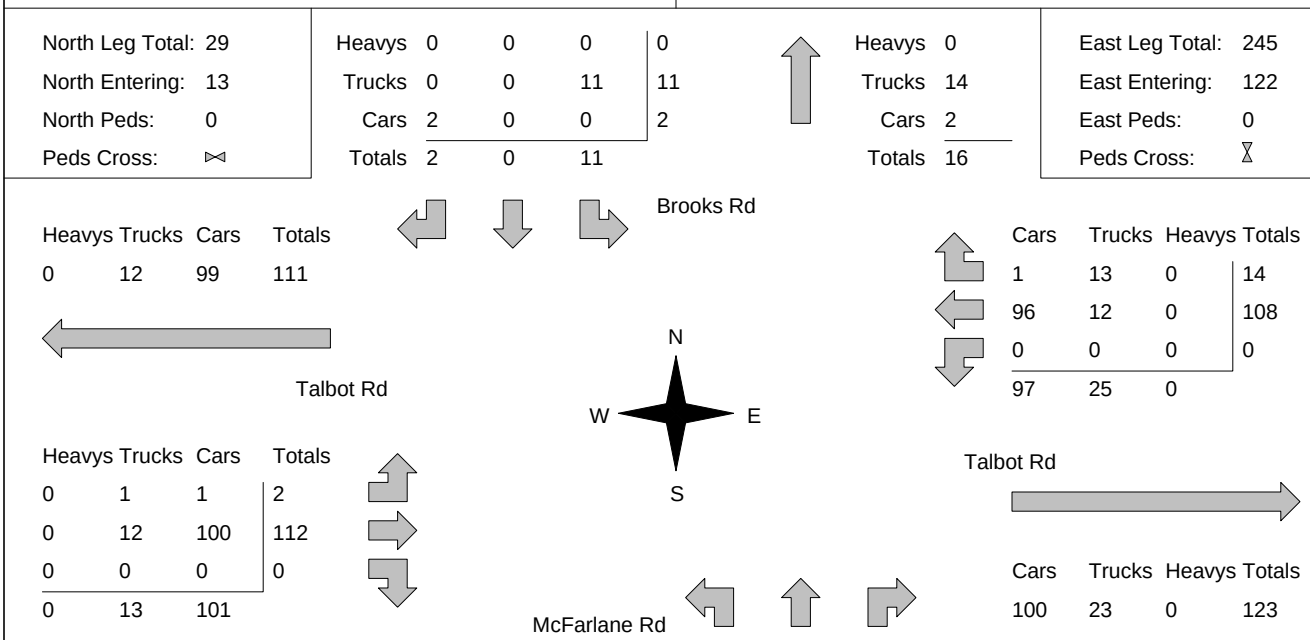
Municipality: Cayuga
Site #: 1533100003
Intersection: Talbot Rd & Brooks Rd
TFR File #: 2
Count date: 7-Dec-15

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Talbot Rd runs W/E



Comments

Ontario Traffic Inc

Afternoon Peak Diagram

Specified Period
From: 14:00:00
To: 16:30:00

One Hour Peak
From: 15:30:00
To: 16:30:00

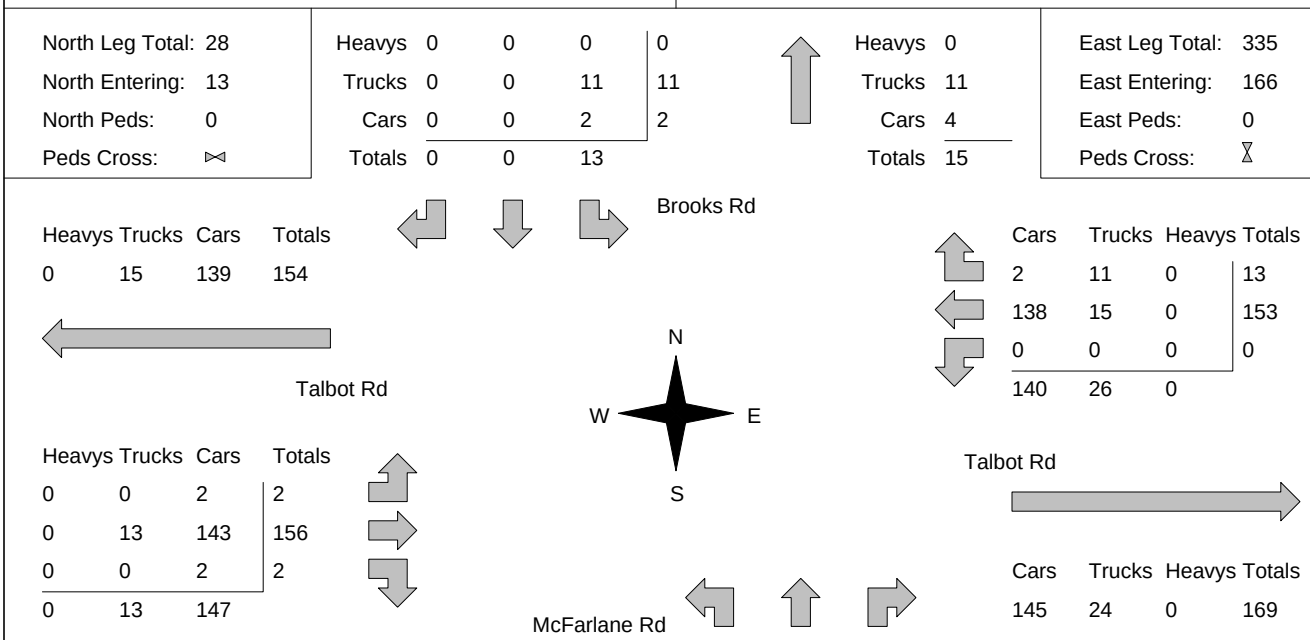
Municipality: Cayuga
Site #: 1533100003
Intersection: Talbot Rd & Brooks Rd
TFR File #: 2
Count date: 7-Dec-15

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Talbot Rd runs W/E



Comments

Ontario Traffic Inc

Total Count Diagram

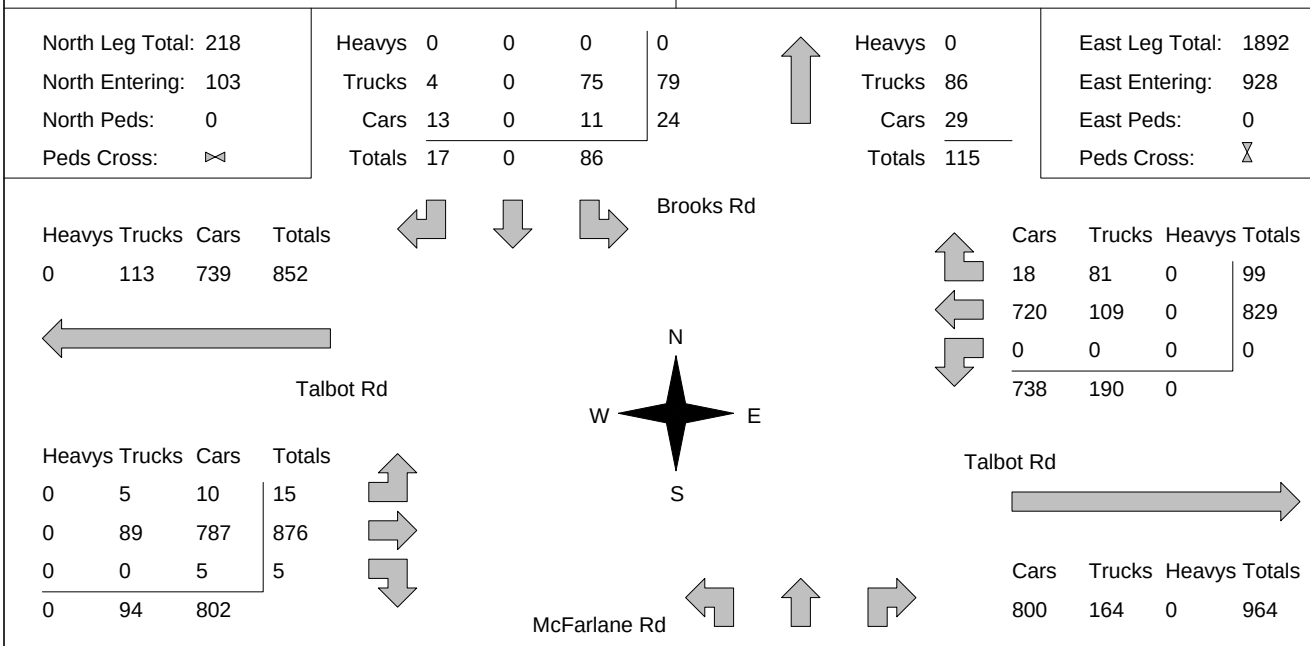
Municipality: Cayuga
Site #: 1533100003
Intersection: Talbot Rd & Brooks Rd
TFR File #: 2
Count date: 7-Dec-15

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Talbot Rd runs W/E



Comments

Ontario Traffic Inc

Morning Peak Diagram

Specified Period
From: 7:30:00
To: 10:30:00

One Hour Peak
From: 7:30:00
To: 8:30:00

Municipality: Cayuga
Site #: 1533100004
Intersection: Brooks Rd & Landfill Access
TFR File #: 2
Count date: 7-Dec-15

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Brooks Rd runs N/S

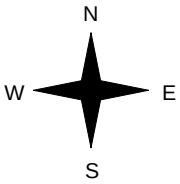
North Leg Total: 7
North Entering: 5
North Peds: 0
Peds Cross: ⋈

Heavys	0	0	0
Trucks	0	0	0
Cars	5	0	5
Totals	5	0	

Heavys	0
Trucks	0
Cars	2
Totals	2

East Leg Total: 23
East Entering: 11
East Peds: 0
Peds Cross: ⋈

Cars	Trucks	Heavys	Totals
0	0	0	0
3	8	0	11
3	8	0	



Landfill Access

Cars	Trucks	Heavys	Totals
3	9	0	12

Brooks Rd

Cars	8
Trucks	8
Heavys	0
Totals	16

Cars	2	3	5
Trucks	0	9	9
Heavys	0	0	0
Totals	2	12	

Peds Cross: ⋈
South Peds: 0
South Entering: 14
South Leg Total: 30

Comments

Ontario Traffic Inc

Mid-day Peak Diagram

Specified Period
From: 11:30:00
To: 13:30:00

One Hour Peak
From: 12:30:00
To: 13:30:00

Municipality: Cayuga
Site #: 1533100004
Intersection: Brooks Rd & Landfill Access
TFR File #: 2
Count date: 7-Dec-15

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Brooks Rd runs N/S

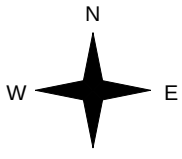
North Leg Total: 8
North Entering: 3
North Peds: 0
Peds Cross: ⋈

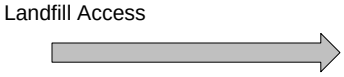
Heavys	0	0	0
Trucks	0	0	0
Cars	3	0	3
Totals	3	0	

Heavys	0
Trucks	1
Cars	4
Totals	5

East Leg Total: 25
East Entering: 13
East Peds: 0
Peds Cross: ⋈

Cars	Trucks	Heavys	Totals
0	0	0	0
1	12	0	13
1	12	0	





Cars	Trucks	Heavys	Totals
0	12	0	12

Cars	4
Trucks	12
Heavys	0
Totals	16

Cars	4	0	4
Trucks	1	12	13
Heavys	0	0	0
Totals	5	12	

Peds Cross: ⋈
South Peds: 0
South Entering: 17
South Leg Total: 33

Comments

Ontario Traffic Inc

Afternoon Peak Diagram

Specified Period
From: 14:00:00
To: 16:30:00

One Hour Peak
From: 15:15:00
To: 16:15:00

Municipality: Cayuga
Site #: 1533100004
Intersection: Brooks Rd & Landfill Access
TFR File #: 2
Count date: 7-Dec-15

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Brooks Rd runs N/S

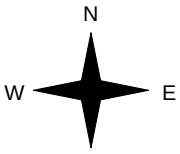
North Leg Total: 5
North Entering: 1
North Peds: 0
Peds Cross: ⋈

Heavys	0	0	0
Trucks	0	0	0
Cars	1	0	1
Totals	1	0	

Heavys	0
Trucks	0
Cars	4
Totals	4

East Leg Total: 23
East Entering: 13
East Peds: 0
Peds Cross: ⋈

Cars	Trucks	Heavys	Totals
1	0	0	1
1	11	0	12
2	11	0	



Landfill Access

Cars	Trucks	Heavys	Totals
0	10	0	10

Cars	2		
Trucks	11		
Heavys	0		
Totals	13		

Cars	3	0	3
Trucks	0	10	10
Heavys	0	0	0
Totals	3	10	

Peds Cross: ⋈
South Peds: 0
South Entering: 13
South Leg Total: 26

Comments

Ontario Traffic Inc

Total Count Diagram

Municipality: Cayuga
Site #: 1533100004
Intersection: Brooks Rd & Landfill Access
TFR File #: 2
Count date: 7-Dec-15

Weather conditions:

Person(s) who counted:

**** Non-Signalized Intersection ****

Major Road: Brooks Rd runs N/S

North Leg Total: 43
North Entering: 23
North Peds: 1
Peds Cross: ⋈

Heavys	0	0	0
Trucks	1	0	1
Cars	22	0	22
Totals	23	0	

Heavys	0
Trucks	1
Cars	19
Totals	20

East Leg Total: 163
East Entering: 85
East Peds: 0
Peds Cross: ⋈

Brooks Rd

	Cars	Trucks	Heavys	Totals
	1	0	0	1
	7	77	0	84
	8	77	0	

N
W E
S

Landfill Access

Cars	Trucks	Heavys	Totals
4	74	0	78

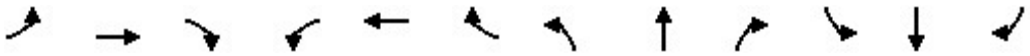
Brooks Rd

Cars	29	Cars	18	4	22
Trucks	78	Trucks	1	74	75
Heavys	0	Heavys	0	0	0
Totals	107	Totals	19	78	

Peds Cross: ⋈
South Peds: 0
South Entering: 97
South Leg Total: 204

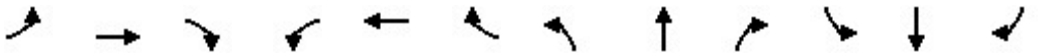
Comments

Synchro Reports



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	2	118	0	0	130	30	0	2	0	27	0	6
Future Volume (vph)	2	118	0	0	130	30	0	2	0	27	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.974						0.974	
Flt Protected		0.999									0.961	
Satd. Flow (prot)	0	1882	0	0	1834	0	0	1883	0	0	1763	0
Flt Permitted		0.999									0.961	
Satd. Flow (perm)	0	1882	0	0	1834	0	0	1883	0	0	1763	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		582.0			708.0			1694.7			1063.5	
Travel Time (s)		43.7			53.1			127.1			79.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2	128	0	0	141	33	0	2	0	29	0	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	130	0	0	174	0	0	2	0	0	36	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 23.9%		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)	2	118	0	0	130	30	0	2	0	27	0	6
Future Volume (Veh/h)	2	118	0	0	130	30	0	2	0	27	0	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	128	0	0	141	33	0	2	0	29	0	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	174			128			296	306	128	290	290	158
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	174			128			296	306	128	290	290	158
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	96	100	99
cM capacity (veh/h)	1403			1458			650	607	922	659	620	888

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	130	174	2	36
Volume Left	2	0	0	29
Volume Right	0	33	0	7
cSH	1403	1458	607	694
Volume to Capacity	0.00	0.00	0.00	0.05
Queue Length 95th (m)	0.0	0.0	0.1	1.2
Control Delay (s)	0.1	0.0	11.0	10.5
Lane LOS	A		B	B
Approach Delay (s)	0.1	0.0	11.0	10.5
Approach LOS			B	B

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	23.9%	ICU Level of Service	A	
Analysis Period (min)	15			

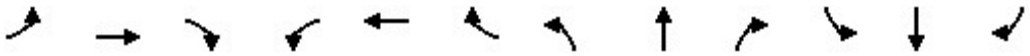
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	27	0	2	28	0	5
Future Volume (vph)	27	0	2	28	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.873			
Flt Protected	0.950					
Satd. Flow (prot)	1789	0	1644	0	0	1883
Flt Permitted	0.950					
Satd. Flow (perm)	1789	0	1644	0	0	1883
Link Speed (k/h)	48		48			48
Link Distance (m)	758.3		1063.5			423.8
Travel Time (s)	56.9		79.8			31.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	0	2	30	0	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	29	0	32	0	0	5
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	27	0	2	28	0	5
Future Volume (Veh/h)	27	0	2	28	0	5
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)	29	0	2	30	0	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	22	17			32	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	22	17			32	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	995	1062			1580	

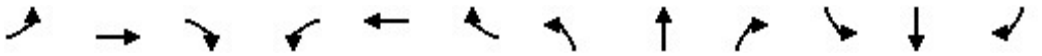
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	29	32	5
Volume Left	29	0	0
Volume Right	0	30	0
cSH	995	1700	1580
Volume to Capacity	0.03	0.02	0.00
Queue Length 95th (m)	0.7	0.0	0.0
Control Delay (s)	8.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.7	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	128	0	0	124	30	1	0	0	26	0	4
Future Volume (vph)	4	128	0	0	124	30	1	0	0	26	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.973						0.983	
Flt Protected		0.999						0.950			0.958	
Satd. Flow (prot)	0	1882	0	0	1833	0	0	1789	0	0	1774	0
Flt Permitted		0.999						0.950			0.958	
Satd. Flow (perm)	0	1882	0	0	1833	0	0	1789	0	0	1774	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		582.0			708.0			1694.7			1063.5	
Travel Time (s)		43.7			53.1			127.1			79.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	139	0	0	135	33	1	0	0	28	0	4
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	143	0	0	168	0	0	1	0	0	32	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 20.0%		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)	4	128	0	0	124	30	1	0	0	26	0	4
Future Volume (Veh/h)	4	128	0	0	124	30	1	0	0	26	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	139	0	0	135	33	1	0	0	28	0	4
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	168			139			302	315	139	298	298	152
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	168			139			302	315	139	298	298	152
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	96	100	100
cM capacity (veh/h)	1410			1445			646	599	909	652	612	895

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	143	168	1	32
Volume Left	4	0	1	28
Volume Right	0	33	0	4
cSH	1410	1445	646	675
Volume to Capacity	0.00	0.00	0.00	0.05
Queue Length 95th (m)	0.1	0.0	0.0	1.1
Control Delay (s)	0.2	0.0	10.6	10.6
Lane LOS	A		B	B
Approach Delay (s)	0.2	0.0	10.6	10.6
Approach LOS			B	B

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	20.0%	ICU Level of Service	A
Analysis Period (min)	15		

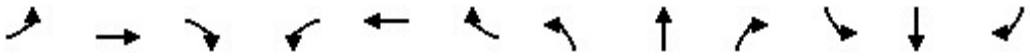
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	29	0	5	28	0	2
Future Volume (vph)	29	0	5	28	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.884			
Flt Protected	0.950					
Satd. Flow (prot)	1789	0	1665	0	0	1883
Flt Permitted	0.950					
Satd. Flow (perm)	1789	0	1665	0	0	1883
Link Speed (k/h)	48		48			48
Link Distance (m)	758.3		1063.5			423.8
Travel Time (s)	56.9		79.8			31.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	0	5	30	0	2
Shared Lane Traffic (%)						
Lane Group Flow (vph)	32	0	35	0	0	2
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	29	0	5	28	0	2
Future Volume (Veh/h)	29	0	5	28	0	2
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)	32	0	5	30	0	2
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	22	20			35	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	22	20			35	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	995	1058			1576	

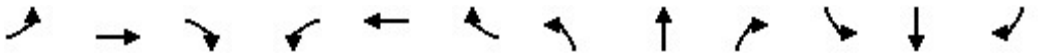
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	32	35	2
Volume Left	32	0	0
Volume Right	0	30	0
cSH	995	1700	1576
Volume to Capacity	0.03	0.02	0.00
Queue Length 95th (m)	0.8	0.0	0.0
Control Delay (s)	8.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.7	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	4.1		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	174	2	0	175	28	1	0	0	29	0	0
Future Volume (vph)	4	174	2	0	175	28	1	0	0	29	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.982							
Flt Protected		0.999						0.950			0.950	
Satd. Flow (prot)	0	1880	0	0	1850	0	0	1789	0	0	1789	0
Flt Permitted		0.999						0.950			0.950	
Satd. Flow (perm)	0	1880	0	0	1850	0	0	1789	0	0	1789	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		582.0			708.0			1694.7			1063.5	
Travel Time (s)		43.7			53.1			127.1			79.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	189	2	0	190	30	1	0	0	32	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	195	0	0	220	0	0	1	0	0	32	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 22.5%		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)	4	174	2	0	175	28	1	0	0	29	0	0
Future Volume (Veh/h)	4	174	2	0	175	28	1	0	0	29	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	189	2	0	190	30	1	0	0	32	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	220			191			403	418	190	403	404	205
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	220			191			403	418	190	403	404	205
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	94	100	100
cM capacity (veh/h)	1349			1383			557	524	852	557	534	836

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	195	220	1	32
Volume Left	4	0	1	32
Volume Right	2	30	0	0
cSH	1349	1383	557	557
Volume to Capacity	0.00	0.00	0.00	0.06
Queue Length 95th (m)	0.1	0.0	0.0	1.4
Control Delay (s)	0.2	0.0	11.5	11.9
Lane LOS	A		B	B
Approach Delay (s)	0.2	0.0	11.5	11.9
Approach LOS			B	B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	22.5%	ICU Level of Service	A
Analysis Period (min)	15		

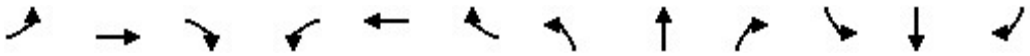
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	27	2	3	26	0	1
Future Volume (vph)	27	2	3	26	0	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.991		0.878			
Flt Protected	0.955					
Satd. Flow (prot)	1782	0	1654	0	0	1883
Flt Permitted	0.955					
Satd. Flow (perm)	1782	0	1654	0	0	1883
Link Speed (k/h)	48		48			48
Link Distance (m)	758.3		1063.5			423.8
Travel Time (s)	56.9		79.8			31.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	2	3	28	0	1
Shared Lane Traffic (%)						
Lane Group Flow (vph)	31	0	31	0	0	1
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	27	2	3	26	0	1
Future Volume (Veh/h)	27	2	3	26	0	1
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)	29	2	3	28	0	1
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	18	17			31	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	18	17			31	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	1000	1062			1582	

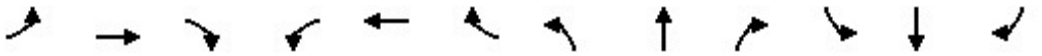
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	31	31	1
Volume Left	29	0	0
Volume Right	2	28	0
cSH	1004	1700	1582
Volume to Capacity	0.03	0.02	0.00
Queue Length 95th (m)	0.7	0.0	0.0
Control Delay (s)	8.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.7	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	181	3	0	179	30	0	0	0	28	0	8
Future Volume (vph)	6	181	3	0	179	30	0	0	0	28	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.980						0.969	
Flt Protected		0.998									0.963	
Satd. Flow (prot)	0	1876	0	0	1846	0	0	1883	0	0	1758	0
Flt Permitted		0.998									0.963	
Satd. Flow (perm)	0	1876	0	0	1846	0	0	1883	0	0	1758	0
Link Speed (k/h)		48			48			48			48	
Link Distance (m)		582.0			708.0			1694.7			1063.5	
Travel Time (s)		43.7			53.1			127.1			79.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	197	3	0	195	33	0	0	0	30	0	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	207	0	0	228	0	0	0	0	0	39	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			0.0			0.0	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		1.6			1.6			1.6			1.6	
Two way Left Turn Lane												
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24		14	24		14	24		14	24		14
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 24.6%		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)	6	181	3	0	179	30	0	0	0	28	0	8
Future Volume (Veh/h)	6	181	3	0	179	30	0	0	0	28	0	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	7	197	3	0	195	33	0	0	0	30	0	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	228			200			433	440	198	424	426	212
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	228			200			433	440	198	424	426	212
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	100	100	94	100	99
cM capacity (veh/h)	1340			1372			525	508	843	538	518	829

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	207	228	0	39
Volume Left	7	0	0	30
Volume Right	3	33	0	9
cSH	1340	1372	1700	586
Volume to Capacity	0.01	0.00	0.00	0.07
Queue Length 95th (m)	0.1	0.0	0.0	1.6
Control Delay (s)	0.3	0.0	0.0	11.6
Lane LOS	A		A	B
Approach Delay (s)	0.3	0.0	0.0	11.6
Approach LOS			A	B

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	24.6%	ICU Level of Service	A	
Analysis Period (min)	15			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	30	0	2	32	0	5
Future Volume (vph)	30	0	2	32	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.872			
Flt Protected	0.950					
Satd. Flow (prot)	1789	0	1642	0	0	1883
Flt Permitted	0.950					
Satd. Flow (perm)	1789	0	1642	0	0	1883
Link Speed (k/h)	48		48			48
Link Distance (m)	758.3		1063.5			423.8
Travel Time (s)	56.9		79.8			31.8
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	0	2	35	0	5
Shared Lane Traffic (%)						
Lane Group Flow (vph)	33	0	37	0	0	5
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(m)	3.7		0.0			0.0
Link Offset(m)	0.0		0.0			0.0
Crosswalk Width(m)	1.6		1.6			1.6
Two way Left Turn Lane						
Headway Factor	0.99	0.99	0.99	0.99	0.99	0.99
Turning Speed (k/h)	24	14		14	24	
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 13.3%		ICU Level of Service A	
Analysis Period (min) 15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	30	0	2	32	0	5
Future Volume (Veh/h)	30	0	2	32	0	5
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)	33	0	2	35	0	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	24	20			37	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	24	20			37	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	991	1058			1574	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	33	37	5
Volume Left	33	0	0
Volume Right	0	35	0
cSH	991	1700	1574
Volume to Capacity	0.03	0.02	0.00
Queue Length 95th (m)	0.8	0.0	0.0
Control Delay (s)	8.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.8	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		

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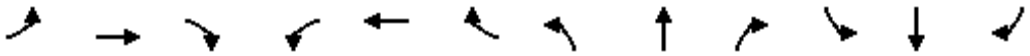
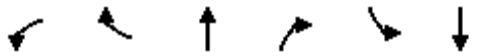


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	2	128	0	0	142	31	0	2	0	29	0	7
Future Volume (Veh/h)	2	128	0	0	142	31	0	2	0	29	0	7
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	2	139	0	0	154	34	0	2	0	32	0	8
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	188			139			322	331	139	315	314	171
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	188			139			322	331	139	315	314	171
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	95	100	99
cM capacity (veh/h)	1386			1445			624	588	909	635	601	873

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	141	188	2	40
Volume Left	2	0	0	32
Volume Right	0	34	0	8
cSH	1386	1445	588	672
Volume to Capacity	0.00	0.00	0.00	0.06
Queue Length 95th (m)	0.0	0.0	0.1	1.4
Control Delay (s)	0.1	0.0	11.1	10.7
Lane LOS	A		B	B
Approach Delay (s)	0.1	0.0	11.1	10.7
Approach LOS			B	B

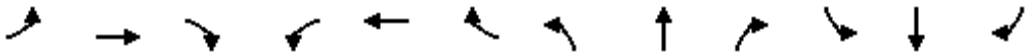
Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	24.7%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	27	0	2	28	0	6
Future Volume (Veh/h)	27	0	2	28	0	6
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)	29	0	2	30	0	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	24	17			32	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	24	17			32	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	992	1062			1580	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	29	32	7
Volume Left	29	0	0
Volume Right	0	30	0
cSH	992	1700	1580
Volume to Capacity	0.03	0.02	0.00
Queue Length 95th (m)	0.7	0.0	0.0
Control Delay (s)	8.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.7	0.0	0.0
Approach LOS	A		

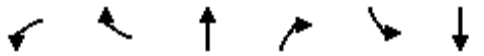
Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	4	139	0	0	134	31	1	0	0	28	0	4
Future Volume (Veh/h)	4	139	0	0	134	31	1	0	0	28	0	4
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	151	0	0	146	34	1	0	0	30	0	4
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	180			151			326	339	151	322	322	163
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	180			151			326	339	151	322	322	163
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	95	100	100
cM capacity (veh/h)	1396			1430			623	581	895	630	594	882

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	155	180	1	34
Volume Left	4	0	1	30
Volume Right	0	34	0	4
cSH	1396	1430	623	651
Volume to Capacity	0.00	0.00	0.00	0.05
Queue Length 95th (m)	0.1	0.0	0.0	1.3
Control Delay (s)	0.2	0.0	10.8	10.8
Lane LOS	A		B	B
Approach Delay (s)	0.2	0.0	10.8	10.8
Approach LOS			B	B

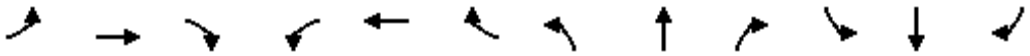
Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	20.5%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	29	0	6	28	0	2
Future Volume (Veh/h)	29	0	6	28	0	2
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)	32	0	7	30	0	2
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	24	22			37	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	24	22			37	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	992	1055			1574	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	32	37	2
Volume Left	32	0	0
Volume Right	0	30	0
cSH	992	1700	1574
Volume to Capacity	0.03	0.02	0.00
Queue Length 95th (m)	0.8	0.0	0.0
Control Delay (s)	8.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.8	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	13.3%	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)	4	189	2	0	190	30	1	0	0	31	0	0
Future Volume (Veh/h)	4	189	2	0	190	30	1	0	0	31	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	4	205	2	0	207	33	1	0	0	34	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	240			207			438	454	206	438	438	224
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	240			207			438	454	206	438	438	224
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	94	100	100
cM capacity (veh/h)	1327			1364			528	500	835	528	511	816

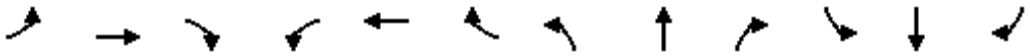
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	211	240	1	34
Volume Left	4	0	1	34
Volume Right	2	33	0	0
cSH	1327	1364	528	528
Volume to Capacity	0.00	0.00	0.00	0.06
Queue Length 95th (m)	0.1	0.0	0.0	1.6
Control Delay (s)	0.2	0.0	11.8	12.3
Lane LOS	A		B	B
Approach Delay (s)	0.2	0.0	11.8	12.3
Approach LOS			B	B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	23.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	27	2	4	26	0	1
Future Volume (Veh/h)	27	2	4	26	0	1
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)	29	2	4	28	0	1
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	19	18			32	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	19	18			32	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	998	1061			1580	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	31	32	1
Volume Left	29	0	0
Volume Right	2	28	0
cSH	1002	1700	1580
Volume to Capacity	0.03	0.02	0.00
Queue Length 95th (m)	0.7	0.0	0.0
Control Delay (s)	8.7	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.7	0.0	0.0
Approach LOS	A		

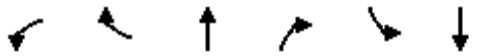
Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	7	196	4	0	194	32	0	0	0	29	0	9
Future Volume (Veh/h)	7	196	4	0	194	32	0	0	0	29	0	9
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	8	213	4	0	211	35	0	0	0	32	0	10
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	246			217			470	477	215	460	462	228
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	246			217			470	477	215	460	462	228
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			100	100	100	94	100	99
cM capacity (veh/h)	1320			1353			496	484	825	510	494	811

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	225	246	0	42
Volume Left	8	0	0	32
Volume Right	4	35	0	10
cSH	1320	1353	1700	559
Volume to Capacity	0.01	0.00	0.00	0.08
Queue Length 95th (m)	0.1	0.0	0.0	1.8
Control Delay (s)	0.3	0.0	0.0	12.0
Lane LOS	A		A	B
Approach Delay (s)	0.3	0.0	0.0	12.0
Approach LOS			A	B

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	26.2%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	30	0	2	32	0	6
Future Volume (Veh/h)	30	0	2	32	0	6
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)	33	0	2	35	0	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	26	20			37	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	26	20			37	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	100			100	
cM capacity (veh/h)	989	1058			1574	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	33	37	7
Volume Left	33	0	0
Volume Right	0	35	0
cSH	989	1700	1574
Volume to Capacity	0.03	0.02	0.00
Queue Length 95th (m)	0.8	0.0	0.0
Control Delay (s)	8.8	0.0	0.0
Lane LOS	A		
Approach Delay (s)	8.8	0.0	0.0
Approach LOS	A		

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	13.3%	ICU Level of Service	A
Analysis Period (min)	15		