Traffic Impact Study
(Block 18, 51M-917)
Township of Severn, County of Simcoe

2801829 Ontario Inc.

Traffic Impact Study
(Block 18, 51M-917)
Township of Severn, County of Simcoe

2801829 Ontario Inc.

R.J. Burnside & Associates Limited
128 Wellington Street West Suite 301
Barrie ON L4N 8J6 CANADA

February 2, 2021
300050086.0000

Distribution List

No. of Hard Copies	PDF	Email	Organization Name
0	Yes	Yes	2801829 Ontario Inc. (Client)
0	Yes	Yes	2801829 Ontario Inc. (Client)

Record of Revisions

Revision	Date	Description
0	October 2, 2020	Initial Submission to Client
1	February 2, 2021	Final Report

R.J. Burnside & Associates Limited

Report Prepared By:

Xinli Tu
Transportation Planner
XT:ba

Report Reviewed By:

Henry Centen, P. Eng.
Senior Transportation Engineer
HC:ba

Executive Summary

R.J. Burnside & Associates Limited (Burnside) was retained by 2801829 Ontario Inc. (the Client) to undertake a Traffic Impact Study for an estate lot subdivision located in the east half of Lot 6, Concession 11, Block 18 on Registered Plan 51M-917, geographic Township of Tay, in the Township of Severn. The 10.23 ha site is part of the Georgian Heights Subdivision, located east of Highway 400, and west of County Road 16 in the Village of Fesserton. The site was shown as a block on the already registered plan of subdivision.

The development is proposed to consist of 14 residential estate lots and two stormwater management blocks that will terminate in a cul-de-sac at its north end. The site will be accessed via a proposed public road connection onto Fesserton Sideroad, located about 220 metres to the west of the centreline of the intersection of County Road 16 / Fesserton Sideroad.

The following are the main conclusions and recommendations of the analysis completed in this TIS:

- The proposed development is forecasted to generate a maximum peak hour traffic of 15 vehicles per hour (vph) in the am peak hour and in the pm peak hour (total 2-way traffic).
- Under existing, background and future conditions, during the morning and afternoon peak hours, all study intersections are operating and will operate with excess capacity and a level of service B or better.
- Left turn lanes or right turn lanes are not warranted at the intersection of County Road 16 / Fesserton Sideroad.
- Sight distances are sufficient at both the intersection of Fesserton Sideroad / County Road 16 and Fesserton Sideroad / Proposed Subdivision Road. However, vegetation should be trimmed within the ROW of Fesserton Sideroad and at the daylighting at the intersections to maintain acceptable sight distances.

Table of Contents

Tables

Figures

Appendices

Abbreviations

The following summarizes abbreviations that are utilized within this report:

- Burnside – R.J. Burnside & Associates Limited
- Township – Township of Severn
- County – County of Simcoe
- Directions
  - EB – Eastbound
  - SB – Southbound
  - NB – Northbound
  - WB – Westbound
- ITE – Institute of Transportation Engineers
- LOS – level of service
- LUC – Land Use Code
- MTO – Ministry of Transportation Ontario
- TMP – Transportation Master Plan
- Traffic Movements
  - LT – shared left-through movement
  - LTR – shared left-through-right movement
  - LR – shared left-right movement
  - TR – shared through-right movement
- v/c – volume to capacity ratio

Disclaimer

Other than by the addressee, copying or distribution of this document, in whole or in part, is not permitted without the express written consent of R.J. Burnside & Associates Limited.

In the preparation of the various instruments of service contained herein, R.J. Burnside & Associates Limited was required to use and rely upon various sources of information (including but not limited to: reports, data, drawings, observations) produced by parties other than R.J. Burnside & Associates Limited. For its part R.J. Burnside & Associates Limited has proceeded based on the belief that the third party/parties in question produced this documentation using accepted industry standards and best practices and that all information was therefore accurate, correct and free of errors at the time of consultation. As such, the comments, recommendations and materials presented in this instrument of service reflect our best judgment in light of the information available at the time of preparation. R.J. Burnside & Associates Limited, its employees, affiliates and subcontractors accept no liability for inaccuracies or errors in the instruments of service provided to the client, arising from deficiencies in the aforementioned third-party materials and documents.

R.J. Burnside & Associates Limited makes no warranties, either express or implied, of merchantability and fitness of the documents and other instruments of service for any purpose other than that specified by the contract.

1.0 Introduction

1.1 Background

R.J. Burnside & Associates Limited (Burnside) was retained by 2801829 Ontario Inc. (the Client) to undertake a Traffic Impact Study for a rural subdivision located in the east half of Lot 6, Concession 11, Block 18 on Registered Plan 51M-917, geographic Township of Tay, in the Township of Severn The 10.23 ha site is part of the Georgian Heights Subdivision, located east of Highway 400, and west of County Road 16 in the Village of Fesserton. The site was shown as a block on the already registered plan of subdivision.

The development is proposed to consist of 14 residential estate lots and 0.87 ha of open space (i.e., two stormwater management blocks), with a new public road that will terminate in a cul-de-sac at its north end. The site will be accessed via a proposed subdivision road connection onto Fesserton Sideroad, located about 220 metres west of County Road 16. The site location is illustrated in Figure 1.

Figure 1: Site Location

1.2 Scope of Work

The scope of work is summarized below.

Analysis Scenarios	• Existing traffic conditions • 2026 background traffic conditions • 2031 background traffic conditions • 2026 total traffic conditions (2026 background traffic plus site traffic) • 2031 total traffic conditions (2031 background traffic plus site traffic)
Analysis Time Periods	• Weekday AM peak hour (between 7:00 AM – 9:00 AM) • Weekday PM peak hour (between 4:00 PM – 6:00 PM)
Analysis Intersections	• Fesserton Sideroad and County Road 16 • Proposed Subdivision Road and Fesserton Sideroad

The Township of Severn, County of Simcoe and MTO Traffic Impact Study (TIS) Guidelines were also taken into consideration.

1.3 Intersection Analysis Methodology

Intersection operations were assessed for intersections in the study area using the software program Synchro 9, which employs methodology from the *Highway Capacity Manual (HCM2000 and HCM 2010)*, published by the Transportation Research Board National Research Council. Synchro 9 can analyze both signalized and unsignalized intersections in a road corridor or network, with considerations to spacing, interaction, queues and operations between intersections. The analysis has utilized the HCM2000 methodology.

The two-way unsignalized intersection analysis considers two separate measures of performance:

- The capacity of the intersection's critical movements, which is based on a volume to capacity ratio.
- The level of service for the critical movements, which is based on the average control delay per vehicle for the various critical movements within the intersection. The link between LOS and delay (in seconds) for unsignalized intersections is summarized in the following table:

Level of Service	Control Delay per Vehicle (seconds)
A	0 – 10
B	> 10 – 15
C	> 15 – 25
D	> 25 – 35
E	> 35 – 50
F	> 50

2.0 Existing Site Conditions

2.1 Site Context

The site is located within the Fesserton Settlement Area in the Township of Severn, which is comprised of a residential and employment area south of Fesserton Sideroad, along County Road 16. The proposed subdivision road connection to Fesserton Sideroad will provide full movement access to the proposed site. A road connection to the existing Georgian Heights Subdivision (i.e., Georgian Heights Boulevard) is located about 300 metres to the west of the proposed subdivision road, along Fesserton Sideroad. This adjacent subdivision also has a connection to County Road 16 further to the north, via Glen Echo Ridge.

Towns within 5 km of the site include Waubaushene to the north and Coldwater to the south. Waubaushene (Tay Township) consists of residential and vacation homes on the shore of Georgian Bay, marinas, and sports facilities. Coldwater consists of low density residential and commercial land uses.

2.2 Existing Road Network

The existing road network is described below and is illustrated in Figure 2.

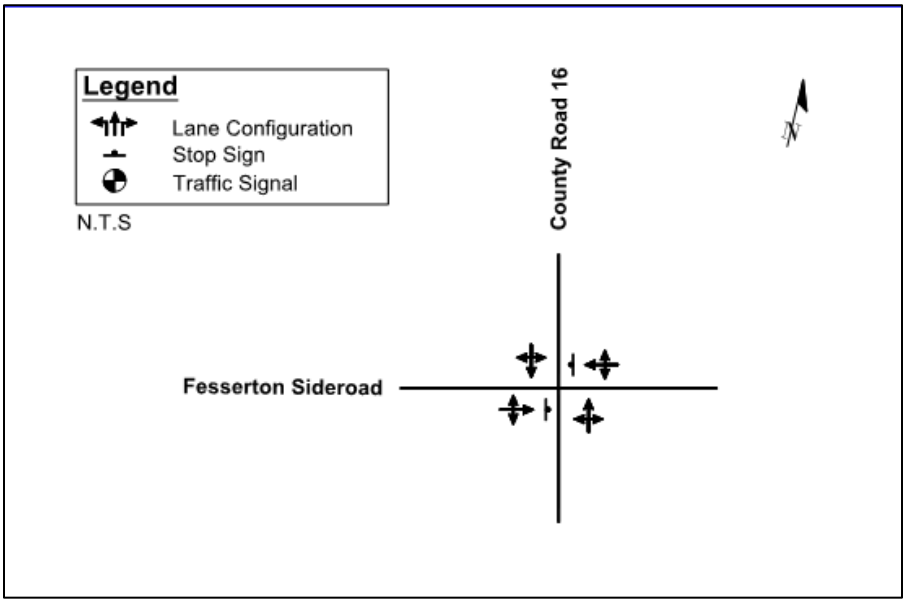
County Road 16

County Road 16 is a north-south county / arterial road that runs parallel to, and crosses, the provincial highway (Highway 400), between Waubaushene and Coldwater. The road connects to Highway 12 at Highway 400 in the north and Simcoe County Road 23 (Vasey Road) in the south. The roadway consists of a 2-lane rural cross section, with semi-urban development adjacent to the road through Fesserton. The road has a posted speed limit of 60 km/h in the study area. County Road 16 is under the jurisdiction of the County of Simcoe.

Fesserton Sideroad

Fesserton Sideroad is an east-west local road consisting of a 2-lane rural cross section that serves as a connection to County Road 16 for a number of rural residential properties in this area. Based on the Township's *2017 Road Needs Study* (Burnside, 2017), this road has a speed limit of 60 km/h. This road is under the jurisdiction of the Township of Severn.

Figure 2: Existing Lane Configuration



2.3 Existing Transit Services

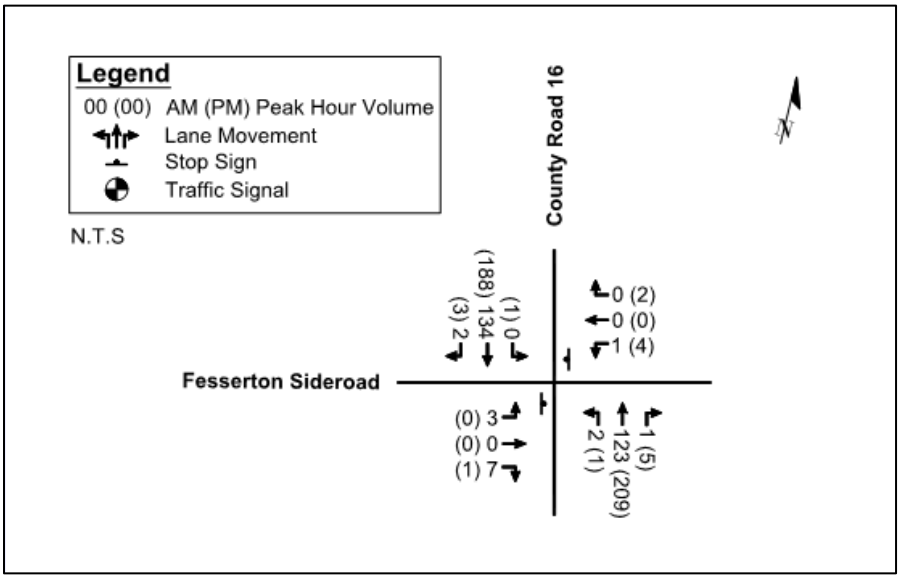
There is no local transit within the Township of Severn. The nearest transit service is a bus station located in Coldwater, which is serviced by Ontario Northland and provides bus connections to Toronto, Sudbury, North Bay, and more. Buses run two trips in each direction (northbound and southbound) daily.

2.4 Existing Traffic Volumes

Existing traffic counts were undertaken at the Fesserton Sideroad / County Road 16 intersection for the weekday morning AM peak period (7:00 AM to 9:00 AM) and afternoon PM peak period (4:00 PM to 6:00 PM). These peak periods were selected as these are typical peak traffic periods for this type of development. The turning movement counts were undertaken by Ontario Traffic Inc., on behalf of Burnside on Wednesday, August 5, 2020. It is acknowledged that the count data was collected during Stage 3 of reopening following the COVID-19 pandemic, however the magnitude of any changes in traffic volumes / distribution from normal conditions is not significant enough to affect the conclusions of the analysis in this current study.

The existing peak hour traffic volumes are illustrated in Figure 3 and the traffic counts are provided in Appendix A.

Figure 3: Existing Traffic Volumes



3.0 Future Background Conditions

Future background traffic consists of existing traffic, background traffic growth and traffic from other developments. Background traffic growth and traffic from other developments are discussed below. The horizon years of 2026 and 2031 (5 and 10-year horizon

periods) were selected for future projections. The future road network, transit improvements and active transportation opportunities within the study area and horizon years are also discussed.

3.1 Background Traffic Growth

The Township of Severn's *Transportation Master Plan* (Ainley Group, January 2014), forecasts population growth in the Township to be approximately 1.6% per annum between 2011 and 2031. However, much of this growth is forecasted for the south part of the Township, which will not have significant impact on the study area. For a conservative analysis, a growth rate of 1.6% per annum, compounded annually, was applied to the through movements on County Road 16.

3.2 Background Developments

Land uses in the Fesserton Settlement Area are shown on Schedule A7 of the Township's *Official Plan* (September 2010), which is included in Appendix B for reference. The proposed subdivision is within the area designated for County Residential in the Official Plan, as was the adjacent part of the Georgian Heights subdivision. There is an area classified as Rural in the Official Plan, located along County Road 16, to the north of Crane Avenue, however no development is currently planned for that area.

The development on the existing part of the Georgian Heights subdivision includes approximately 42 lots based on the assessment parcels map from the County of Simcoe, as shown in Figure 4, three of which appear to have already been built. As a result, it was assumed that 39 lots remain to be developed in this area. This development can be accessed via Glen Echo Ridge to County Road 16 and via Georgian Heights Boulevard to Fesserton Sideroad. The background traffic from the existing part of the Georgian Heights subdivision has been forecasted and included as background traffic in this current TIS. Trip generation for the 39 proposed residential lots was based on land use code (LUC) 210, Single-Family Detached Housing data in the *Trip Generation Manual, 10th Edition,* published by the Institute of Transportation Engineers (ITE). The resulting trip generation is summarized in Table 1.

Figure 4: County of Simcoe Assessment Parcels Map

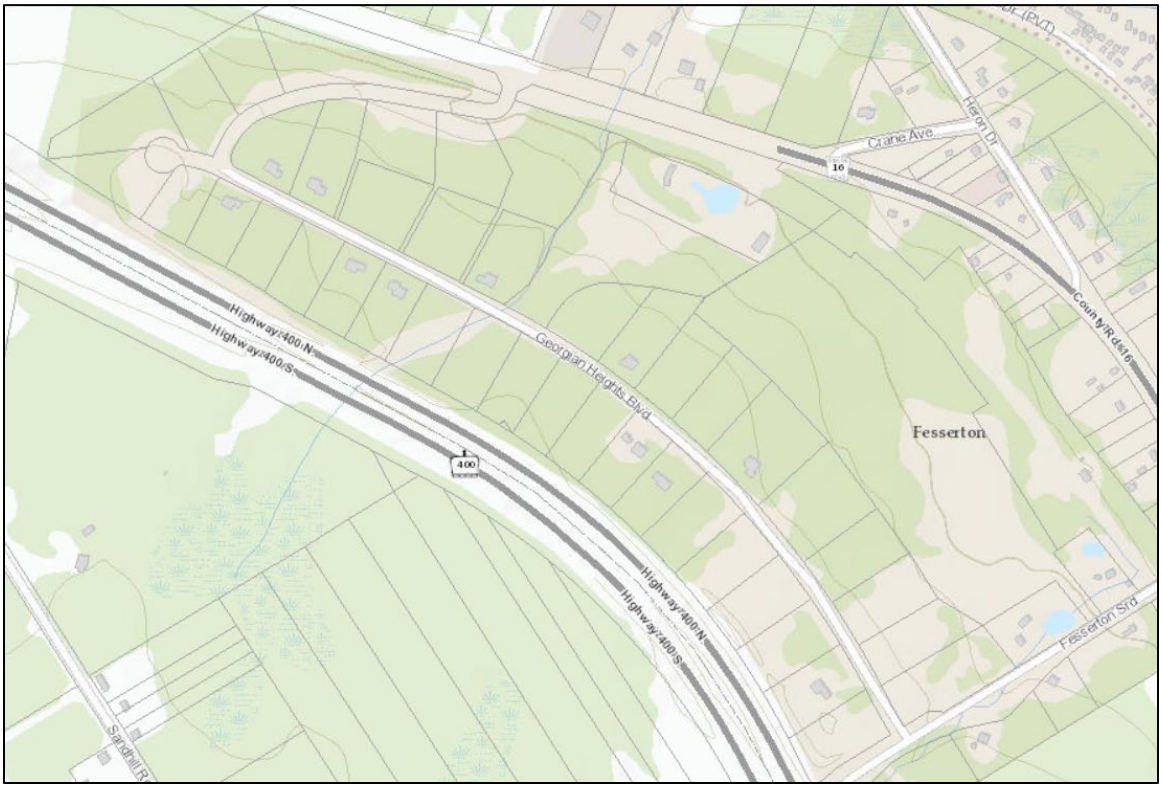


Table 1: Existing Georgian Heights Development Trip Generation

Land Use	Weekday AM Peak Hour			Weekday PM Peak Hour		
	In	Out	Total	In	Out	Total
Single-Family Detached Housing (LUC 210) - 39 Dwelling Units						
Trip Rates	0.21	0.62	0.82	0.67	0.38	1.05
New Trips	8	24	32	26	15	41

3.3 Future Road network

According to the County of Simcoe's *Transportation Master Plan Update* (MMM Group, October 2014) and the Township of Severn's *Transportation Master Plan* (Ainley Group, January 2014), there are no planned road network changes or improvements within the vicinity of the site up to the horizon years of 2026 and 2031.

3.4 Future Transit

There are no planned transit improvements within the vicinity of the site up to the study horizon years of 2026 and 2031.

3.5 Future Active Transportation

According to the Township of Severn's *Transportation Master Plan* (TMP), there are no planned active transportation facilities within the study area. However, the Matchedash Bay Trail can be accessed from Fesserton Sideroad, at a location approximately 150 metres east of County Road 16. This north-south trail subsequently connects to trail systems in the broader area, in both the north and the south. Given the low volumes of traffic and low speeds on Fesserton Sideroad, this road is expected to function as a linkage between the subdivision and the trail in this area, functioning as a shared road accommodating vehicles, cyclists and pedestrians.

3.6 Future Background Traffic Volumes

Background traffic volumes consist of the application of a 1.6% growth rate to the existing traffic volumes, compounded annually (up to the horizon years of 2026 and 2031), plus traffic from the existing part of the Georgian Heights subdivision development. The resulting traffic volumes are illustrated in Figure 5 and Figure 6.

Figure 5: 2026 Background Traffic Volumes

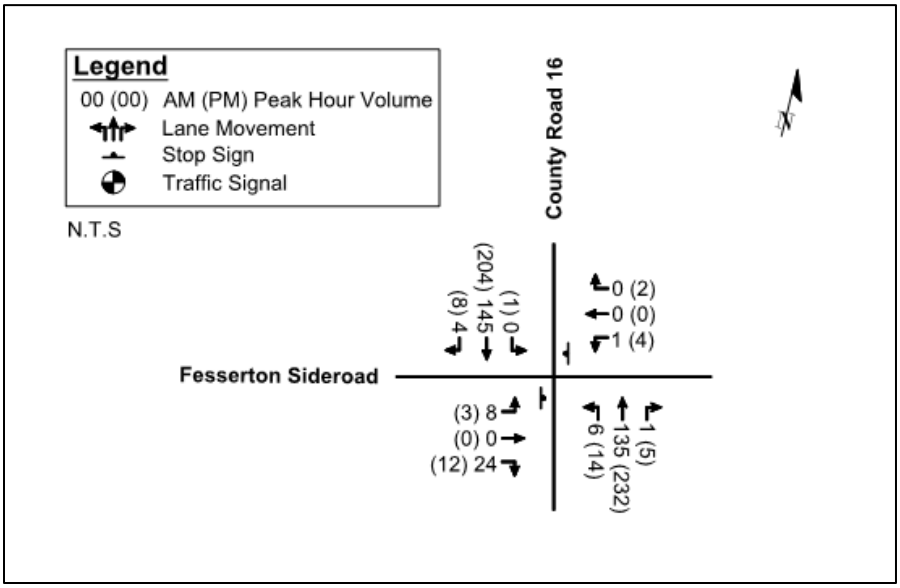
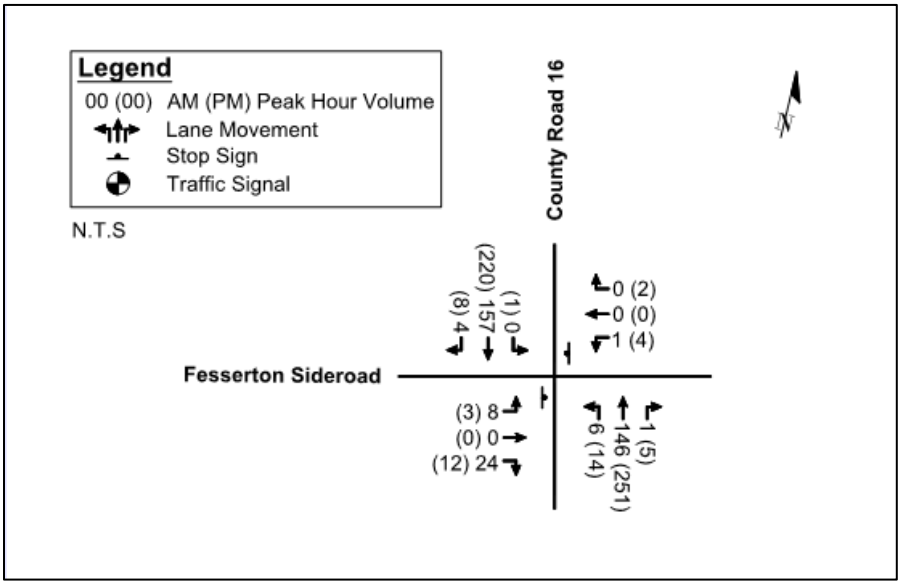


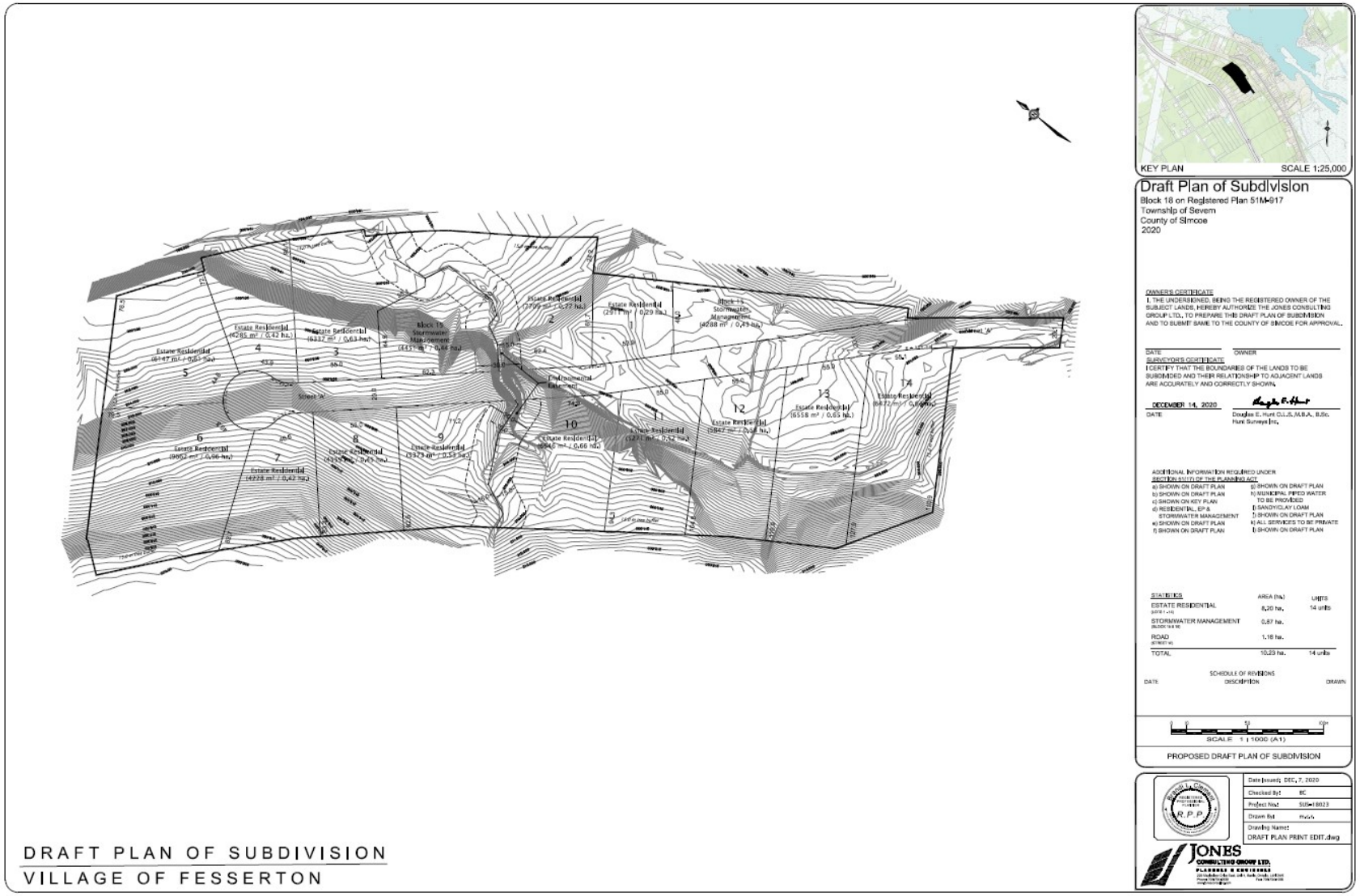
Figure 6: 2031 Background Traffic Volumes



4.0 Proposed Development

The proposed subdivision development will consist of 14 residential lots and 0.87 ha of open space (two stormwater management blocks) on a 10.23 ha site. Full movement access to the site is provided via the subdivision road connection to Fesserton Sideroad. The proposed site plan is shown in Figure 7.

Figure 7: Proposed Site Plan



4.1 Trip Generation

Trip generation for the 14 proposed residential lots was based on land use code (LUC) 210 or Single-Family Detached Housing data contained in the *Trip Generation Manual, 10th Edition,* published by the Institute of Transportation Engineers (ITE). The 0.87 stormwater management blocks assumed to generate no trips.

Based on the 2016 Transportation Tomorrow Survey (TTS), only 2% of the trips made by residents within the planning district of Severn are non-vehicular trips. Thus, a trip reduction to account for the non-auto modal split was not applied.

The resulting trip generation is summarized in Table 2.

Table 2: Site Traffic Generation

Land Use	Weekday AM Peak Hour			Weekday PM Peak Hour		
	In	Out	Total	In	Out	Total
Single-Family Detached Housing (LUC 210) - 14 Dwelling Units						
Trip Rates	0.29	0.79	1.07	0.64	0.43	1.07
New Trips	4	11	15	9	6	15

4.2 Trip Distribution and Assignment

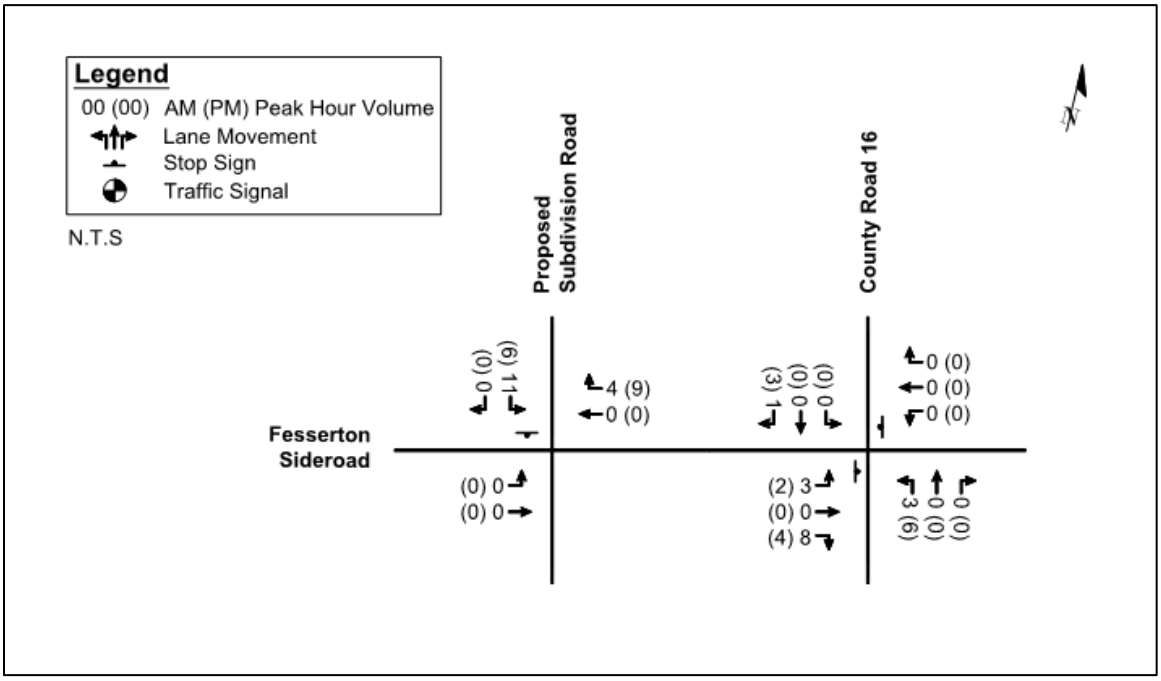
Trip distribution and assignment was derived from TTS data, existing travel patterns and the available road network. The estimated distribution of site trips is summarized in Table 3.

Table 3: Trip Distribution

To/From	Via	Residential Distribution
North	County Road 16	28%
South	County Road 16	70%
East	Fesserton Sideroad	0%
West	Fesserton Sideroad	1%
	Total	100%

It is projected that the majority (70%) of site traffic will travel to / from the south via County Road 16. Based on TTS data, more than half of the residents within the planning district of Severn are making trips to / from Orillia, which would require residents to take County Road 16 south of Fesserton Sideroad. Most trips are directed onto County Road 16 because it connects to two major highways (Highway 400 and Highway 12), both of which provides direct access to major municipalities outside of the County. The resulting site traffic assignment is shown in Figure 8.

Figure 8: Site Trips



5.0 Future Total Traffic Conditions

5.1 Future Total Traffic Volumes

Total traffic volumes consist of the background traffic volumes in Figure 5 and Figure 6 plus the site trips illustrated in Figure 8. The resulting 2026 and 2031 total traffic volumes are shown in Figure 9 and Figure 10, respectively.

Figure 9: 2026 Future Total Traffic Volumes

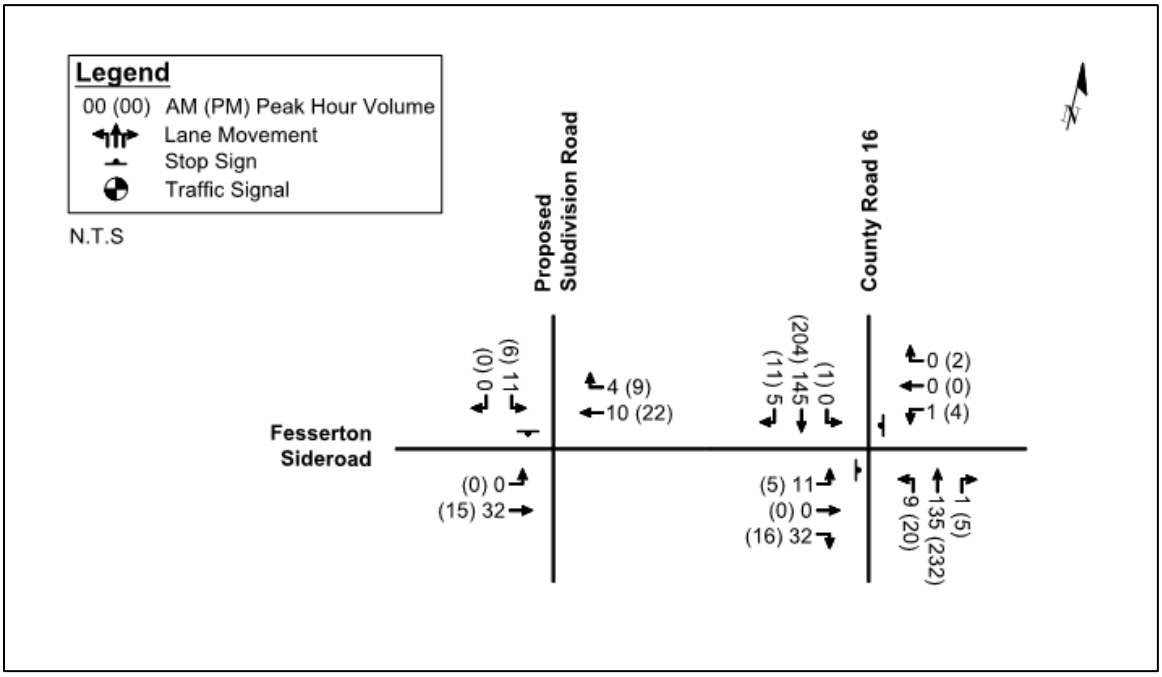
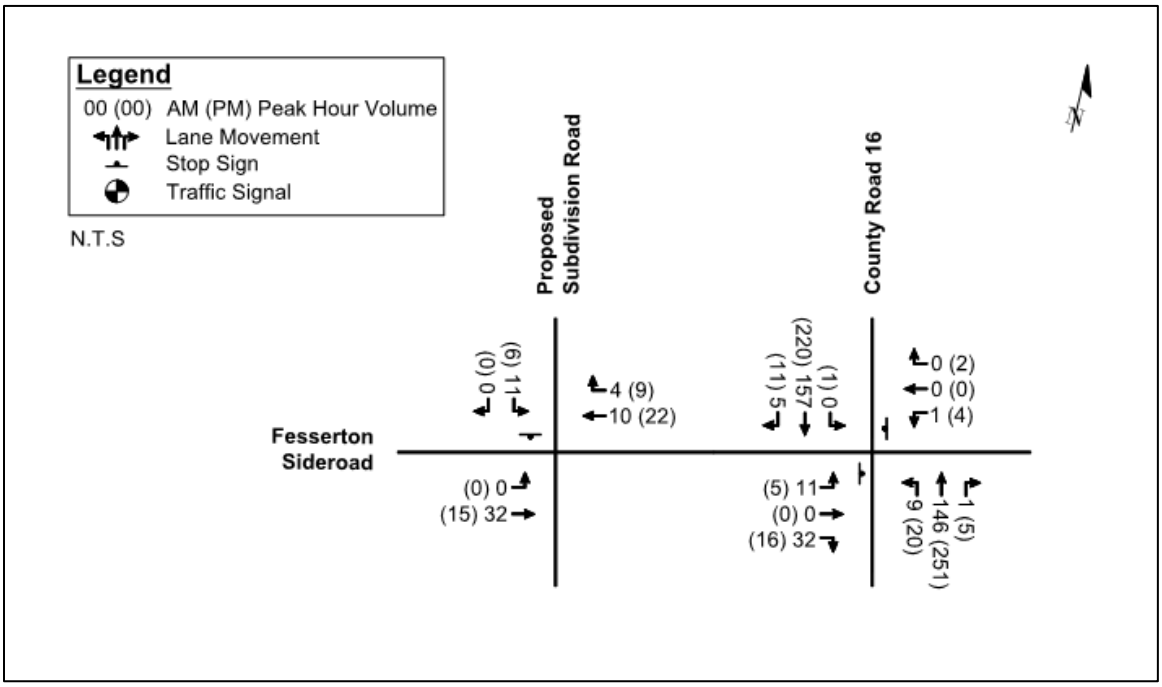


Figure 10: 2031 Future Total Traffic Volumes



6.0 Traffic Operations Analysis

Traffic operations analyses were conducted for existing, background and future traffic volumes for the weekday AM and PM peak hours at all study intersections. No queuing concerns were found. Detailed Synchro reports are provided in Appendices C to G.

6.1 County Road 16 and Fesserton Sideroad

The traffic operations are summarized in Table 4, for the existing, background and future traffic volumes at the County Road 16 and Fesserton Sideroad intersection. As shown in the table, all movements are operating or projected to operate with excess capacity and a level of service (LOS) of B or better.

Table 4: County Road 16 and Fesserton Sideroad Unsignalized Intersection Operations

Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
	v/c	LOS	v/c	LOS
Existing Conditions				
Eastbound LTR	0.02	A	0	A
Westbound LTR	0	B	0.01	B
Northbound LTR	0	A	0	A
Southbound LTR	0	-	0	A
Background 2026 Conditions				
Eastbound LTR	0.05	A	0.02	B
Westbound LTR	0	B	0.01	B
Northbound LTR	0	A	0.01	A
Southbound LTR	0	-	0	A
Future Total 2026 Conditions				
Eastbound LTR	0.07	A	0.03	B
Westbound LTR	0	B	0.01	B
Northbound LTR	0.01	A	0.02	A
Southbound LTR	0	-	0	A
Background 2031 Conditions				
Eastbound LTR	0.05	A	0.02	B
Westbound LTR	0	B	0.01	B
Northbound LTR	0.01	A	0.01	A
Southbound LTR	0	-	0	A
Future Total 2031 Conditions				
Eastbound LTR	0.07	B	0.03	B
Westbound LTR	0	B	0.01	B
Northbound LTR	0.01	A	0.02	A
Southbound LTR	0	-	0	A

6.2 Fesserton Sideroad and Proposed Subdivision Road

The traffic operations are summarized in Table 5, for the future total traffic volumes at the Fesserton Sideroad / Proposed Subdivision intersection. As shown in the table, all movements are operating or projected to operate with excess capacity and a level of service (LOS) of B or better.

Table 5: Fesserton Sideroad and Proposed Subdivision Road Unsignalized Intersection Operations

Movement	Weekday AM Peak Hour		Weekday PM Peak Hour	
	v/c	LOS	v/c	LOS
Future Total 2026 Conditions				
Eastbound LTR	0	-	0	-
Westbound LTR	0.01	-	0.02	-
Southbound LTR	0.01	A	0.01	A
Future Total 2031 Conditions				
Eastbound LTR	0	-	0	-
Westbound LTR	0.01	-	0.02	-
Southbound LTR	0.01	A	0.01	A

7.0 Review of Turn Lane Requirements

The warrants for left turn lanes were reviewed at the intersection of County Road 16 / Fesserton Sideroad, based on Ministry of Transportation monographs contained in the *MTO Design Supplement For Geometric Design Guide for Canadian Roads – June 2017*. The results of the left turn lane warrant analysis indicated that a turning lane is not required at this location, as summarized in Table 6.

Table 6: Left Turn Lane Warrant Analysis

Location: County Road 16 / Fesserton Sideroad		
Design Speed = 70 km/h	**Time Period = 2031 Total Traffic**	
Approach Direction	**Northbound**	
Peak Hours	Morning	Afternoon
Advancing Traffic	156	276
Opposing Traffic	162	232
Left Turning Traffic	9	20
Percentage of Left Turning Traffic	5.7%	7.2%
Figure Used from *MTO Design Supplement for Geometric Design Guide for Canadian Roads – June 2017*	Exhibit 9A-10	Exhibit 9A-10
Storage Length or Warrant	**Left Turn Lane Not Warranted**	

The *Geometric Design Standards for Ontario Highways* (MTO, 1991) indicate that right-turn lanes or tapers may be considered where right-turn volumes exceed 60 vph and where right turning vehicles create a hazard or reduce capacity at the intersection. The peak hour southbound right turn movements at the County Road 16 / Fesserton Sideroad intersection are forecasted to be 11 vph and therefore a right turn lane is not warranted at this intersection.

8.0 Sightline Review

County Road 16 is relatively straight and flat to the north and south of the Fesserton Sideroad intersection and therefore sufficient stopping sight distances and turning sight distances are well within the standard requirements. However, given the relatively high approach gradient on the eastbound approach (i.e., west leg) of the intersection, consideration may be given to improving the approach sight distance by clearing the vegetation to create a daylight triangle.

Fesserton Sideroad has an appreciable gradient to both the east and west of the location of the proposed subdivision road intersection. However, since this gradient is consistent (i.e., falling from west to east) this does not impact the available sight distances. Assuming a posted speed of 60 km/h (design speed of 70 km/h), the stopping distances recommended by the *Geometric Design Guide for Canadian Roads* (Transportation Association of Canada, June 2017) are as follows:

- Stopping Sight Distance – 105 metres.
- Intersection Sight Distance – 150 metres.

The sight distance available to the east of the subdivision road to the intersection of County Road 16 (i.e., approximately 220 metres), while the sight distance available to the west is approximately 320 metres (i.e., limited by the horizontal curve in that area). Therefore, sufficient sight distances are available at the proposed subdivision road intersection with Fesserton Sideroad. However, it is noted that there is vegetation that encroaches into the right-of-way along Fesserton Sideroad that may require trimming to maintain these sight distances.

9.0 Conclusions and Recommendations

The following are the main conclusions and recommendations of the analysis completed in this TIS:

- The proposed development is forecasted to generate a maximum peak hour traffic of 15 vehicles per hour (vph) in the am peak hour and in the pm peak hour (total 2-way traffic).
- Under existing, background and future conditions, during the morning and afternoon peak hours, all study intersections are operating and will operate with excess capacity and a level of service B or better.
- Left turn lanes or right turn lanes are not warranted at the intersection of County Road 16 / Fesserton Sideroad.
- Sight distances are sufficient at both the intersection of Fesserton Sideroad / County Road 16 and Fesserton Sideroad / Proposed Subdivision Road. However, vegetation should be trimmed within the ROW of Fesserton Sideroad and at the daylighting at the intersections to maintain acceptable sight distances.

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix A

Existing Traffic Counts

Peak Hour Diagram

Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Specified Period		One Hour Peak	
From:	07:00:00	From:	07:30:00
To:	10:00:00	To:	08:30:00

Intersection: County Rd 16 & Fesserton Sideroad
Site ID: 2011200001
Count Date: Aug 05, 2020

Weather conditions:

**** Signalized Intersection ****

Major Road: CR 16 runs N/S

North Approach

	Out	In	Total
Cars	133	110	243
MT	2	5	7
HT	1	11	12
	136	**126**	**262**

CR 16

HT	0	1	0	0
MT	0	2	0	0
Cars	2	131	0	0
Totals	**2**	**134**	**0**	**0**

East Approach

	Out	In	Total
Cars	1	1	2
MT	0	0	0
HT	0	0	0
	1	**1**	**2**

Peds: 0

Fesserton Sideroad

HT	MT	Cars	Totals
0	0	0	**0**
0	0	3	**3**
0	0	0	**0**
0	0	7	**7**

Peds: 0

Peds: 0

Fesserton Sideroad

Totals	Cars	MT	HT
0	0	0	0
0	0	0	0
0	0	0	0
1	1	0	0

Peds: 0

West Approach

	Out	In	Total
Cars	10	4	14
MT	0	0	0
HT	0	0	0
	10	**4**	**14**

Totals	**2**	**123**	**1**	**0**
Cars	2	107	1	0
MT	0	5	0	0
HT	0	11	0	0

CR 16

South Approach

	Out	In	Total
Cars	110	139	249
MT	5	2	7
HT	11	1	12
	126	**142**	**268**

Cars - Cars MT - Medium Trucks HT - Heavy Trucks

Comments

Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: County Rd 16 & Fesserton Sideroad
Count Date: Aug 05, 2020
Period: 07:00 - 10:00

Peak Hour Data (07:30 - 08:30)

Start Time	North Approach CR 16						South Approach CR 16						East Approach Fesserton Sideroad						West Approach Fesserton Sideroad						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
07:30	0	38	2	0	0	40	1	37	0	0	0	38	0	0	0	0	0	0	1	0	3	0	0	4	82
07:45	0	30	0	0	0	30	0	39	0	0	0	39	0	0	0	0	0	0	0	0	0	0	0	0	69
08:00	0	39	0	0	0	39	0	24	0	0	0	24	0	0	0	0	0	0	2	0	1	0	0	3	66
08:15	0	27	0	0	0	27	1	23	1	0	0	25	1	0	0	0	0	1	0	0	3	0	0	3	56
Grand Total	**0**	**134**	**2**	**0**	**0**	**136**	**2**	**123**	**1**	**0**	**0**	**126**	**1**	**0**	**0**	**0**	**0**	**1**	**3**	**0**	**7**	**0**	**0**	**10**	**273**
Approach %	0	98.5	1.5	0		-	1.6	97.6	0.8	0		-	100	0	0	0		-	30	0	70	0		-	
Totals %	0	49.1	0.7	0		49.8	0.7	45.1	0.4	0		46.2	0.4	0	0	0		0.4	1.1	0	2.6	0		3.7	
PHF	**0**	**0.86**	**0.25**	**0**		**0.85**	**0.5**	**0.79**	**0.25**	**0**		**0.81**	**0.25**	**0**	**0**	**0**		**0.25**	**0.38**	**0**	**0.58**	**0**		**0.63**	**0.83**
Cars	0	131	2	0		133	2	107	1	0		110	1	0	0	0		1	3	0	7	0		10	254
% Cars	0	97.8	100	0		97.8	100	87	100	0		87.3	100	0	0	0		100	100	0	100	0		100	93
Medium Trucks	0	2	0	0		2	0	5	0	0		5	0	0	0	0		0	0	0	0	0		0	7
% Medium Trucks	0	1.5	0	0		1.5	0	4.1	0	0		4	0	0	0	0		0	0	0	0	0		0	2.6
Heavy Trucks	0	1	0	0		1	0	11	0	0		11	0	0	0	0		0	0	0	0	0		0	12
% Heavy Trucks	0	0.7	0	0		0.7	0	8.9	0	0		8.7	0	0	0	0		0	0	0	0	0		0	4.4
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

Peak Hour Diagram

Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Specified Period		One Hour Peak	
From:	16:00:00	From:	16:15:00
To:	18:00:00	To:	17:15:00

Intersection: County Rd 16 & Fesserton Sideroad
Site ID: 2011200001
Count Date: Aug 05, 2020

Weather conditions:

**** Signalized Intersection ****

Major Road: CR 16 runs N/S

North Approach

	Out	In	Total
Cars	179	199	378
MT	4	6	10
HT	9	6	15
	192	**211**	**403**

CR 16

HT	0	9	0	0
MT	0	4	0	0
Cars	3	175	1	0
Totals	**3**	**188**	**1**	**0**

East Approach

	Out	In	Total
Cars	6	6	12
MT	0	0	0
HT	0	0	0
	6	**6**	**12**

Peds: 0

Fesserton Sideroad

HT	MT	Cars	Totals
0	0	0	**0**
0	0	0	**0**
0	0	0	**0**
0	0	1	**1**

Peds: 0

N
W E
S

Peds: 0

Fesserton Sideroad

Totals	Cars	MT	HT
0	0	0	0
2	2	0	0
0	0	0	0
4	4	0	0

Peds: 0

West Approach

	Out	In	Total
Cars	1	4	5
MT	0	0	0
HT	0	0	0
	1	**4**	**5**

Totals	**1**	**209**	**5**	**0**
Cars	1	197	5	0
MT	0	6	0	0
HT	0	6	0	0

CR 16

South Approach

	Out	In	Total
Cars	203	180	383
MT	6	4	10
HT	6	9	15
	215	**193**	**408**

Cars - Cars MT - Medium Trucks HT - Heavy Trucks

Comments

Ontario Traffic Inc.
TRAFFIC MONITORING SERVICES & PRODUCTS

Peak Hour Summary

Intersection: County Rd 16 & Fesserton Sideroad
Count Date: Aug 05, 2020
Period: 16:00 - 18:00

Peak Hour Data (16:15 - 17:15)

Start Time	North Approach CR 16						South Approach CR 16						East Approach Fesserton Sideroad						West Approach Fesserton Sideroad						Total Vehicles
					Peds	Total					Peds	Total					Peds	Total					Peds	Total	
16:15	0	54	2	0	0	56	1	46	1	0	0	48	2	0	0	0	0	2	0	0	0	0	0	0	106
16:30	1	46	0	0	0	47	0	56	1	0	0	57	0	0	2	0	0	2	0	0	1	0	0	1	107
16:45	0	44	1	0	0	45	0	51	1	0	0	52	1	0	0	0	0	1	0	0	0	0	0	0	98
17:00	0	44	0	0	0	44	0	56	2	0	0	58	1	0	0	0	0	1	0	0	0	0	0	0	103
Grand Total	**1**	**188**	**3**	**0**	**0**	**192**	**1**	**209**	**5**	**0**	**0**	**215**	**4**	**0**	**2**	**0**	**0**	**6**	**0**	**0**	**1**	**0**	**0**	**1**	**414**
Approach %	0.5	97.9	1.6	0		-	0.5	97.2	2.3	0		-	66.7	0	33.3	0		-	0	0	100	0		-	
Totals %	0.2	45.4	0.7	0		46.4	0.2	50.5	1.2	0		51.9	1	0	0.5	0		1.4	0	0	0.2	0		0.2	
PHF	**0.25**	**0.87**	**0.38**	**0**		**0.86**	**0.25**	**0.93**	**0.63**	**0**		**0.93**	**0.5**	**0**	**0.25**	**0**		**0.75**	**0**	**0**	**0.25**	**0**		**0.25**	**0.97**
Cars	1	175	3	0		179	1	197	5	0		203	4	0	2	0		6	0	0	1	0		1	389
% Cars	100	93.1	100	0		93.2	100	94.3	100	0		94.4	100	0	100	0		100	0	0	100	0		100	94
Medium Trucks	0	4	0	0		4	0	6	0	0		6	0	0	0	0		0	0	0	0	0		0	10
% Medium Trucks	0	2.1	0	0		2.1	0	2.9	0	0		2.8	0	0	0	0		0	0	0	0	0		0	2.4
Heavy Trucks	0	9	0	0		9	0	6	0	0		6	0	0	0	0		0	0	0	0	0		0	15
% Heavy Trucks	0	4.8	0	0		4.7	0	2.9	0	0		2.8	0	0	0	0		0	0	0	0	0		0	3.6
Peds					0	-					0	-					0	-					0	-	0
% Peds					0	-					0	-					0	-					0	-	

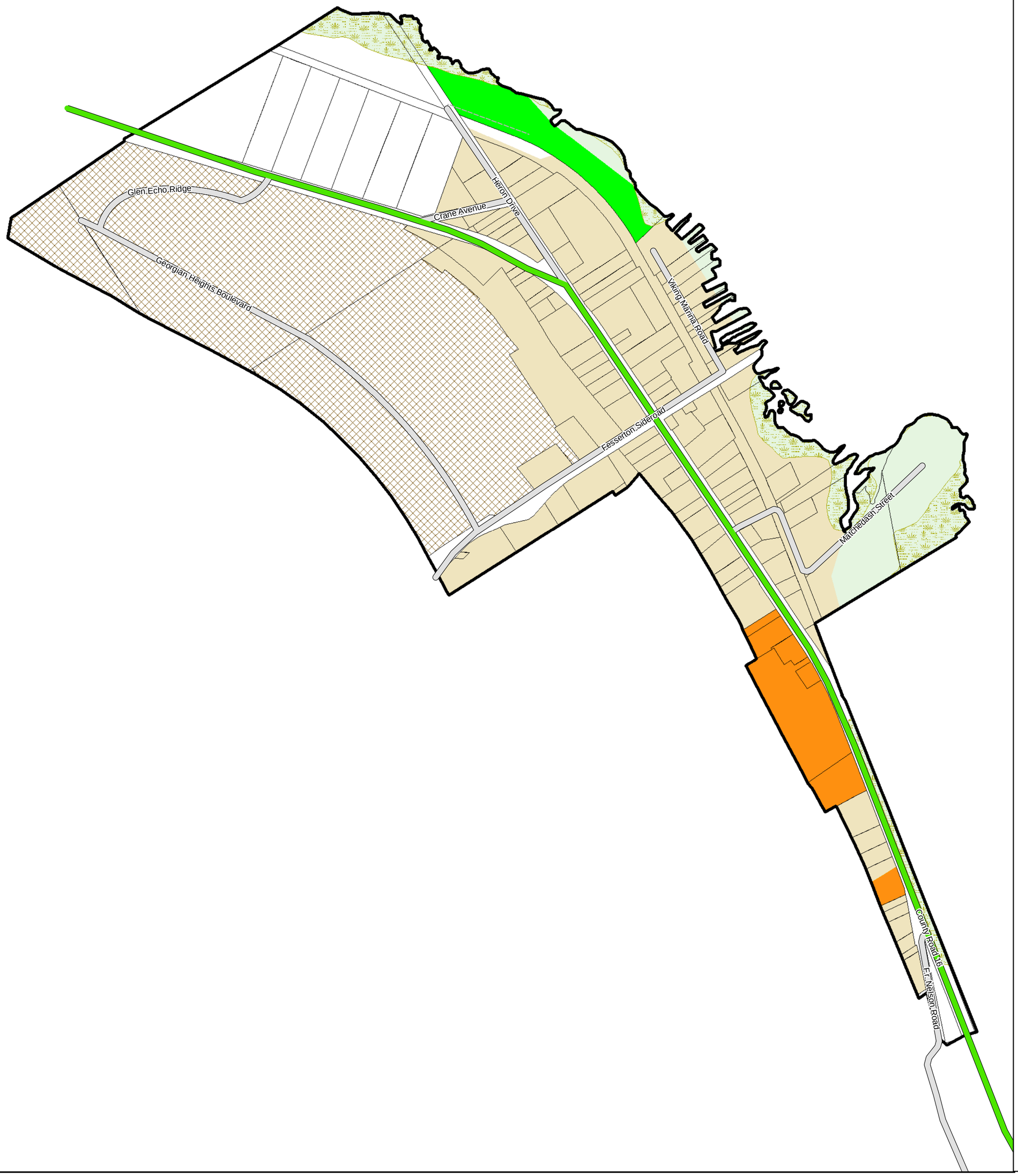
BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix B

Township of Severn Official Plan – Schedule A7

Township of Severn
Schedule A7
Fesserton Settlement Area



μ

0 125 250
Meters

Legend

- PROVINCIAL HIGHWAY
- COUNTY ROAD
- LOCAL ROAD
- PRIVATE ROAD
- Settlement Boundary
- Country Residential
- Settlement Employment Area
- Highway Employment
- Settlement Living Area
- Major Recreation Area
- Resort Commercial
- Rural
- Shoreline Residential
- Settlement Employment SP Area
- Settlement Living SP Area
- Agricultural Land
- Greenlands

Classified Wetlands

- Provincial

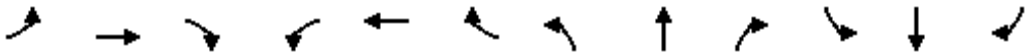
*** SP = Special Policy**

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix C

Existing Traffic Operations



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	3	0	7	1	0	0	2	123	1	0	134	2
Future Volume (Veh/h)	3	0	7	1	0	0	2	123	1	0	134	2
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	4	0	8	1	0	0	2	148	1	0	161	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	314	315	162	322	316	148	163			149		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	314	315	162	322	316	148	163			149		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	100	100	100	100			100		
cM capacity (veh/h)	641	603	888	628	603	904	1428			1445		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	12	1	151	163
Volume Left	4	1	2	0
Volume Right	8	0	1	2
cSH	787	628	1428	1445
Volume to Capacity	0.02	0.00	0.00	0.00
Queue Length 95th (m)	0.4	0.0	0.0	0.0
Control Delay (s)	9.6	10.7	0.1	0.0
Lane LOS	A	B	A	
Approach Delay (s)	9.6	10.7	0.1	0.0
Approach LOS	A	B		

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	18.1%	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)	0	0	1	4	0	2	1	209	5	1	188	3
Future Volume (Veh/h)	0	0	1	4	0	2	1	209	5	1	188	3
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)	0	0	1	4	0	2	1	215	5	1	194	3
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	420	196	418	418	218	197			220		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	419	420	196	418	418	218	197			220		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	100	99	100	100	100			100		
cM capacity (veh/h)	546	527	851	548	528	827	1388			1361		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	1	6	221	198
Volume Left	0	4	1	1
Volume Right	1	2	5	3
cSH	851	617	1388	1361
Volume to Capacity	0.00	0.01	0.00	0.00
Queue Length 95th (m)	0.0	0.2	0.0	0.0
Control Delay (s)	9.2	10.9	0.0	0.0
Lane LOS	A	B	A	A
Approach Delay (s)	9.2	10.9	0.0	0.0
Approach LOS	A	B		

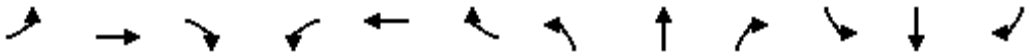
Intersection Summary				
Average Delay	0.2			
Intersection Capacity Utilization	22.5%	ICU Level of Service	A	
Analysis Period (min)	15			

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix D

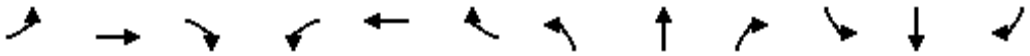
2026 Background Traffic Operations



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	24	1	0	0	6	135	1	0	145	4
Future Volume (Veh/h)	8	0	24	1	0	0	6	135	1	0	145	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	10	0	29	1	0	0	7	163	1	0	175	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	355	356	178	384	358	164	180			164		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	355	356	178	384	358	164	180			164		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	97	100	100	100	100			100		
cM capacity (veh/h)	602	571	871	557	569	886	1408			1427		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	39	1	171	180
Volume Left	10	1	7	0
Volume Right	29	0	1	5
cSH	781	557	1408	1427
Volume to Capacity	0.05	0.00	0.00	0.00
Queue Length 95th (m)	1.2	0.0	0.1	0.0
Control Delay (s)	9.9	11.5	0.3	0.0
Lane LOS	A	B	A	
Approach Delay (s)	9.9	11.5	0.3	0.0
Approach LOS	A	B		

Intersection Summary				
Average Delay	1.2			
Intersection Capacity Utilization	22.0%	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)	3	0	12	4	0	2	14	232	5	1	204	8
Future Volume (Veh/h)	3	0	12	4	0	2	14	232	5	1	204	8
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)	3	0	12	4	0	2	14	239	5	1	210	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	488	488	214	498	490	242	218			244		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	488	488	214	498	490	242	218			244		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	99	100	100	99			100		
cM capacity (veh/h)	488	478	831	475	477	802	1364			1334		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	15	6	258	219
Volume Left	3	4	14	1
Volume Right	12	2	5	8
cSH	729	550	1364	1334
Volume to Capacity	0.02	0.01	0.01	0.00
Queue Length 95th (m)	0.5	0.3	0.2	0.0
Control Delay (s)	10.0	11.6	0.5	0.0
Lane LOS	B	B	A	A
Approach Delay (s)	10.0	11.6	0.5	0.0
Approach LOS	B	B		

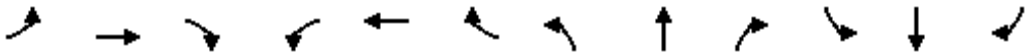
Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	32.6%	ICU Level of Service	A	
Analysis Period (min)	15			

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix E

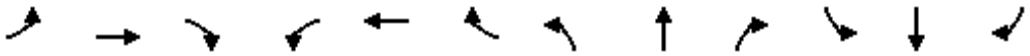
2031 Background Traffic Operations



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	8	0	24	1	0	0	6	146	1	0	157	4
Future Volume (Veh/h)	8	0	24	1	0	0	6	146	1	0	157	4
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	10	0	29	1	0	0	7	176	1	0	189	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	382	382	192	411	384	176	194			177		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	382	382	192	411	384	176	194			177		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	97	100	100	100	99			100		
cM capacity (veh/h)	577	551	855	534	550	872	1391			1411		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	39	1	184	194
Volume Left	10	1	7	0
Volume Right	29	0	1	5
cSH	761	534	1391	1411
Volume to Capacity	0.05	0.00	0.01	0.00
Queue Length 95th (m)	1.2	0.0	0.1	0.0
Control Delay (s)	10.0	11.8	0.3	0.0
Lane LOS	A	B	A	
Approach Delay (s)	10.0	11.8	0.3	0.0
Approach LOS	A	B		

Intersection Summary				
Average Delay	1.1			
Intersection Capacity Utilization	22.6%	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)	3	0	12	4	0	2	14	232	5	1	204	8
Future Volume (Veh/h)	3	0	12	4	0	2	14	232	5	1	204	8
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)	3	0	12	4	0	2	14	239	5	1	210	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	488	488	214	498	490	242	218			244		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	488	488	214	498	490	242	218			244		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	99	99	100	100	99			100		
cM capacity (veh/h)	488	478	831	475	477	802	1364			1334		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	15	6	258	219
Volume Left	3	4	14	1
Volume Right	12	2	5	8
cSH	729	550	1364	1334
Volume to Capacity	0.02	0.01	0.01	0.00
Queue Length 95th (m)	0.5	0.3	0.2	0.0
Control Delay (s)	10.0	11.6	0.5	0.0
Lane LOS	B	B	A	A
Approach Delay (s)	10.0	11.6	0.5	0.0
Approach LOS	B	B		

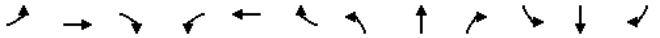
Intersection Summary				
Average Delay	0.7			
Intersection Capacity Utilization	32.6%	ICU Level of Service	A	
Analysis Period (min)	15			

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix F

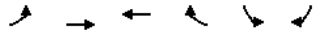
2026 Future Total Traffic Operations



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	32	1	0	0	9	135	1	0	145	5
Future Volume (Veh/h)	11	0	32	1	0	0	9	135	1	0	145	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	13	0	39	1	0	0	11	163	1	0	175	6
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	364	364	178	402	366	164	181			164		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	364	364	178	402	366	164	181			164		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	96	100	100	100	99			100		
cM capacity (veh/h)	593	563	870	534	561	886	1407			1427		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	52	1	175	181
Volume Left	13	1	11	0
Volume Right	39	0	1	6
cSH	779	534	1407	1427
Volume to Capacity	0.07	0.00	0.01	0.00
Queue Length 95th (m)	1.6	0.0	0.2	0.0
Control Delay (s)	10.0	11.8	0.5	0.0
Lane LOS	A	B	A	
Approach Delay (s)	10.0	11.8	0.5	0.0
Approach LOS	A	B		

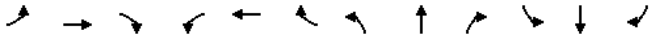
Intersection Summary				
Average Delay			1.5	
Intersection Capacity Utilization			24.6%	ICU Level of Service
Analysis Period (min)			15	



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	32	10	4	11	0
Future Volume (Veh/h)	0	32	10	4	11	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	0	39	12	5	13	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	17				54	14
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	17				54	14
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				99	100
cM capacity (veh/h)	1600				955	1065

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	39	17	13
Volume Left	0	0	13
Volume Right	0	5	0
cSH	1600	1700	955
Volume to Capacity	0.00	0.01	0.01
Queue Length 95th (m)	0.0	0.0	0.3
Control Delay (s)	0.0	0.0	8.8
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.8
Approach LOS			A

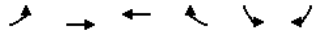
Intersection Summary				
Average Delay			1.7	
Intersection Capacity Utilization			13.3%	ICU Level of Service
Analysis Period (min)			15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	16	4	0	2	20	232	5	1	204	11
Future Volume (Veh/h)	5	0	16	4	0	2	20	232	5	1	204	11
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	0	16	4	0	2	21	239	5	1	210	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	503	504	216	517	506	242	221			244		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	503	504	216	517	506	242	221			244		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	98	99	100	100	98			100		
cM capacity (veh/h)	475	466	829	457	464	802	1360			1334		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	21	6	265	222
Volume Left	5	4	21	1
Volume Right	16	2	5	11
cSH	704	534	1360	1334
Volume to Capacity	0.03	0.01	0.02	0.00
Queue Length 95th (m)	0.7	0.3	0.4	0.0
Control Delay (s)	10.3	11.8	0.7	0.0
Lane LOS	B	B	A	A
Approach Delay (s)	10.3	11.8	0.7	0.0
Approach LOS	B	B		

Intersection Summary				
Average Delay		1.0		
Intersection Capacity Utilization		37.2%	ICU Level of Service	A
Analysis Period (min)		15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	15	22	9	6	0
Future Volume (Veh/h)	0	15	22	9	6	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	15	23	9	6	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	32				42	28
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	32				42	28
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				99	100
cM capacity (veh/h)	1580				968	1048

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	15	32	6
Volume Left	0	0	6
Volume Right	0	9	0
cSH	1580	1700	968
Volume to Capacity	0.00	0.02	0.01
Queue Length 95th (m)	0.0	0.0	0.1
Control Delay (s)	0.0	0.0	8.7
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.7
Approach LOS			A

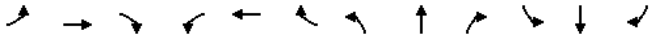
Intersection Summary				
Average Delay		1.0		
Intersection Capacity Utilization		13.3%	ICU Level of Service	A
Analysis Period (min)		15		

BURNSIDE

[THE DIFFERENCE IS OUR PEOPLE]

Appendix G

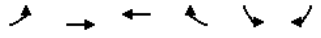
2031 Future Total Traffic Operations



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	11	0	32	1	0	0	9	146	1	0	157	5
Future Volume (Veh/h)	11	0	32	1	0	0	9	146	1	0	157	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	13	0	39	1	0	0	11	176	1	0	189	6
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	391	192	430	394	176	195			177		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	390	391	192	430	394	176	195			177		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	95	100	100	100	99			100		
cM capacity (veh/h)	569	543	855	512	542	872	1390			1411		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	52	1	188	195
Volume Left	13	1	11	0
Volume Right	39	0	1	6
cSH	759	512	1390	1411
Volume to Capacity	0.07	0.00	0.01	0.00
Queue Length 95th (m)	1.7	0.0	0.2	0.0
Control Delay (s)	10.1	12.0	0.5	0.0
Lane LOS	B	B	A	
Approach Delay (s)	10.1	12.0	0.5	0.0
Approach LOS	B	B		

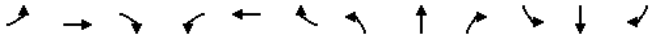
Intersection Summary				
Average Delay	1.5			
Intersection Capacity Utilization	25.1%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	32	10	4	11	0
Future Volume (Veh/h)	0	32	10	4	11	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83
Hourly flow rate (vph)	0	39	12	5	13	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	17				54	14
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	17				54	14
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				99	100
cM capacity (veh/h)	1600				955	1065

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	39	17	13
Volume Left	0	0	13
Volume Right	0	5	0
cSH	1600	1700	955
Volume to Capacity	0.00	0.01	0.01
Queue Length 95th (m)	0.0	0.0	0.3
Control Delay (s)	0.0	0.0	8.8
Lane LOS			A
Approach Delay (s)	0.0	0.0	8.8
Approach LOS			A

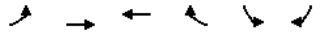
Intersection Summary				
Average Delay	1.7			
Intersection Capacity Utilization	13.3%	ICU Level of Service		A
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	5	0	16	4	0	2	20	251	5	1	220	11
Future Volume (Veh/h)	5	0	16	4	0	2	20	251	5	1	220	11
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	0	16	4	0	2	21	259	5	1	227	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	540	540	232	554	544	262	238			264		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	540	540	232	554	544	262	238			264		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	100	98	99	100	100	98			100		
cM capacity (veh/h)	449	444	812	432	442	782	1341			1312		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	21	6	285	239
Volume Left	5	4	21	1
Volume Right	16	2	5	11
cSH	681	508	1341	1312
Volume to Capacity	0.03	0.01	0.02	0.00
Queue Length 95th (m)	0.7	0.3	0.4	0.0
Control Delay (s)	10.5	12.2	0.7	0.0
Lane LOS	B	B	A	A
Approach Delay (s)	10.5	12.2	0.7	0.0
Approach LOS	B	B		

Intersection Summary					
Average Delay		0.9			
Intersection Capacity Utilization		38.3%	ICU Level of Service		A
Analysis Period (min)		15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	15	22	9	6	0
Future Volume (Veh/h)	0	15	22	9	6	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	0	15	23	9	6	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	32				42	28
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	32				42	28
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				99	100
cM capacity (veh/h)	1580				968	1048

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	15	32	6
Volume Left	0	0	6
Volume Right	0	9	0
cSH	1580	1700	968
Volume to Capacity	0.00	0.02	0.01
Queue Length 95th (m)	0.0	0.0	0.1
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		1.0		
Intersection Capacity Utilization		13.3%	ICU Level of Service	A
Analysis Period (min)		15		

R.J. Burnside & Associates Limited