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- Environmental Restoration

Brown Lands

Traffic Impact Study

**BROWN LANDS
ALMONTE, ONTARIO
TRAFFIC IMPACT STUDY**

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February 2023

Novatech File: 118178
Ref: R-2023-002

February 10, 2023

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**Reference: Brown Lands
 Traffic Impact Study
 Novatech File No. 118178**

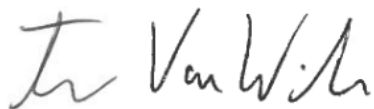
This Traffic Impact Study has been prepared in support of the Brown Lands subdivision. The subdivision is located on the northeast corner of the County Road 29/Christian Street/Strathburn Street/Gleeson Road intersection.

This study determines the traffic impacts of the development. It estimates site generated traffic, and reviews intersection operations and turn lane warrants at the proposed subdivision accesses to Country Road 29 and Strathburn Street.

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

Yours truly,

NOVATECH



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

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EXECUTIVE SUMMARY

This Traffic Impact Study (TIS) has been prepared in support of the Brown Lands subdivision, located on the northeast corner of the County Road 29/Christian Street/Strathburn Street/Gleeson Road intersection.

Currently the subject site is currently occupied by farmlands. The property has a 'Residential' Land Use from the Municipality of Mississippi Mills Official Plan (OP) and is zoned as 'Development' area in the Zoning By-law (ZBL). From the Lanark County OP the property has a 'Settlement Area' Land Use.

The Brown Lands subdivision includes a total of approximately 133 single detached units, 4 semi-detached units, and 88 townhouse units. The proposed development proposes two new accesses, one to Strathburn Street mid-block between County Road 29 and Malcolm Street and one to County Road 29 northwest of the County Road 29/Christian Street/Strathburn Street/Gleeson Road intersection. The development is anticipated to be constructed in phases with full buildout occurring in 2029.

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

- The proposed development is anticipated to generate 149 trips (36 in, 113 out) in the AM peak and 190 trips (120 in, 70 out) in the PM peak;
- Site traffic is not expected to adversely impact the LOS of the County Road 29/Strathburn Street/Gleeson Road intersection as the intersection continues to operate with a LOS B under 2034 Total Traffic conditions;
- The proposed accesses are expected to operate with minimal delay as the County Road 29 access is expected to operate with a LOS B and the Strathburn Street access is expected to operate with a LOS A under 2034 Total Traffic conditions;
- No auxiliary left turn lanes or right turn lanes are recommended at the proposed accesses or the County Road 29/Strathburn Street intersection
- Sufficient intersection sight distance is available at each access for all turning movements;
- Sidewalks are proposed on some roadways within the subdivision to provide pedestrian connectivity to the surrounding roadways and the proposed park. A multi-use pathway is also proposed connecting the southeast corner of Street 5 to a pedestrian lookout at the Mississippi River;
- No roadway modifications are being proposed along Strathburn Street for the purposes of road widening due to low projected volumes; and
- No sidewalk or urbanization features are recommended along Strathburn Street as part of the subdivision development.

1.0 INTRODUCTION

This Traffic Impact Study (TIS) has been prepared in support of the Brown Lands subdivision, located on the northeast corner of the County Road 29/Christian Street/Strathburn Street/Gleeson Road intersection.

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

Figure 1: View of the Subject Site



Currently the subject site is currently occupied by farmlands. The property has a 'Residential' Land Use from the Municipality of Mississippi Mills Official Plan (OP) and is zoned as 'Development' area in the Zoning By-law (ZBL). From the Lanark County OP the property has a 'Settlement Area' Land Use.

The scope of this TIS has been discussed with County of Lanark and Municipality of Mississippi Mills Staff and is summarized as follows:

- Review of existing conditions, including intersection capacity analysis, within the study area;
- Estimate traffic generated by the subdivision during peak hours;
- Review of auxiliary lane requirements at the proposed accesses and the County Road 29/Christian Street/Strathburn Street/Gleeson Road intersection;
- Complete intersection capacity analysis at the proposed accesses to County Road 29 and Strathburn Street and the County Road 29/Christian Street/Strathburn Street/Gleeson Road intersection during the weekday AM and PM peak hours for the build-out year and five-year horizon and recommend the necessity of intersection improvement including traffic signalization;
- Review existing roadway geometry along Strathburn Street to accommodate traffic generated by the proposed development and recommend the necessity of widening, adding sidewalk and curb on north or both sides, and urbanized street features; and
- Review sight distance requirements at the proposed accesses to County Road 29 and Strathburn Street.

1.1 Proposed Development

The Brown Lands subdivision is proposed to include a total of approximately 133 single detached units, 4 semi-detached units, and 88 townhouse units. The proposed development proposes two new accesses, one to Strathburn Street mid-block between County Road 29 and Malcolm Street and one to County Road 29 northwest of the County Road 29/Christian Street/Strathburn Street/Gleeson Road intersection. The development is anticipated to be constructed in phases with full buildout occurring in 2029.

A copy of the Draft Plan of Subdivision is included in **Appendix A**.

1.2 Analysis Parameters

The study will include an analysis of the future accesses to Strathburn Street and County Road 29 and the County Road 29/Christian Street/Strathburn Street/Gleeson Road intersection for the following years:

- 2029 Full subdivision build-out
- 2034 Five year horizon

1.3 Analysis Methods

Intersection capacity analysis was completed using Synchro 11 software. This software uses methodology from the Highway Capacity Manual (HCM), published by the Transportation Research Board, to evaluate signalized and unsignalized intersections.

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

The LOS of a signalized intersection is typically related to the stopped delay per vehicle, measured in seconds. In the 2010 HCM, delay is defined as a measure of driver discomfort and frustration, fuel consumption, and lost travel time. For signalized intersections, Exhibit 18-4 of the 2010 HCM defines the relationship between control delay and LOS as follows:

LOS	Delay (sec)
A	<10
B	10 to 20
C	20 to 35
D	35 to 55
E	55 to 80
F	>80

At signalized intersections, the MTO *General Guidelines for the Preparation of Traffic Impact Studies* identify a v/c ratio of 0.85 as the threshold that defines a 'critical' movement.

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

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

In this study, movements at signalized and unsignalized intersections have been evaluated in terms of the LOS as defined in the foregoing tables. Mitigation measures will be considered for movements with a LOS of E or F for unsignalized intersections, or a v/c ratio exceeding 0.85 for signalized intersections.

2.0 EXISTING CONDITIONS

2.1 Roadways

County Road 29 is a north-south roadway that extends from Ottawa Road 29 in the north to Ramsay Concession 8 in Carleton Place. From Wylie Street to Old Perth Road, County Road 29 is known as Christian Street. Within the vicinity of the subject site, it has a two-lane undivided rural cross section with gravel shoulders. It has a posted speed limit of 60km/hr within the Town of Almonte, transitioning to a posted speed limit of 80km/hr approximately 350m north of Strathburn Street (north of the subject site). For the purposes of this report, this roadway is referred to as County Road 29 within the study area.

Strathburn Street is an east-west local roadway that extends from County Road 29 to the Mississippi River. It has a two-lane undivided rural cross section with a road platform width of approximately 6.1m. It has a regulatory speed limit of 50km/h.

Gleeson Road is an east-west local roadway that extends from Ramsay Concession 8 to County Road 29. It has a two-lane undivided rural cross section with a gravel surface and a regulatory speed limit of 50km/h.

Malcolm Street is a north-south local roadway that extends from Strathburn Street to Almonte Street. It has a two-lane undivided rural cross section from Strathburn Street to Dunn Street, where it transitions to an urban cross section with a sidewalk on the west side of the road. It has a posted speed limit of 40km/hr.

2.2 Intersections

The County Road 29/Strathburn Street/Gleeson Road intersection operates under side street stop control, with free flow on County Road 29. A northbound right turn taper is provided along County Road 29. No other auxiliary lanes are currently provided at this intersection.

2.3 Pedestrian and Cycling Facilities

Currently there are no sidewalks or cycling facilities provided on County Road 29, Strathburn Street or Gleeson Road within the vicinity of the proposed development.

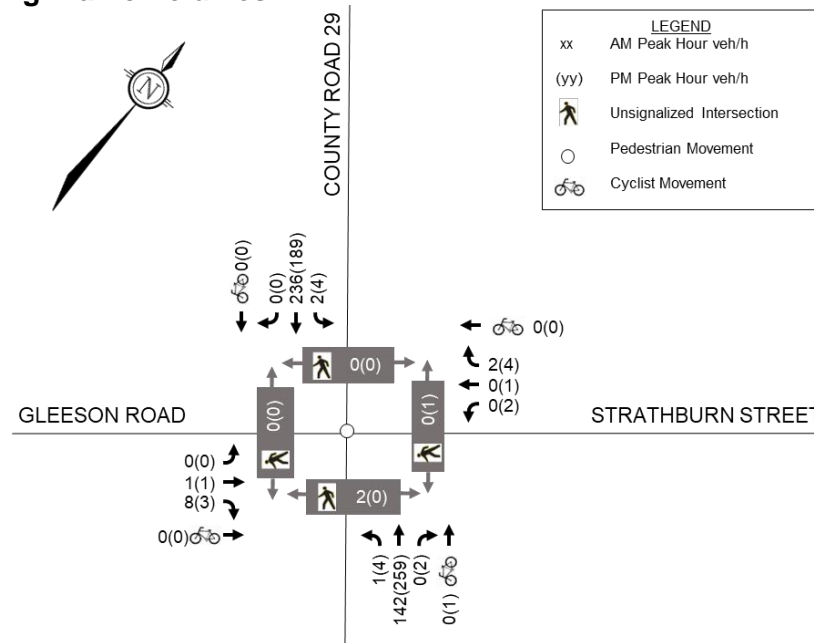
2.4 Transit

Currently there are no transit routes offered within the vicinity of the subject area.

2.5 Existing Traffic Volumes

A weekday traffic count was completed at the County Road 29/Strathburn Street/Gleeson Road intersection on November 8th, 2022. Existing 2022 traffic volumes along the study area roadways are shown in **Figure 2**. Peak hour summary sheets of the above traffic counts are included in **Appendix B**.

Figure 2: Existing Traffic Volumes



3.0 PLANNED CONDITIONS

The construction of the full development will occur in phases with full buildout occurring in 2029. At this time there are no other significant developments within the vicinity of the study area that are anticipated to impact the proposed development.

4.0 SITE TRAFFIC

4.1 Trip Generation

Trip generation assumptions are based on the Institute of Transportation Engineers' (ITE) *Trip Generation Manual* (11th Edition). The proposed residential development was estimated using the ITE code 210 (Single-Family Detached Housing) for Single Lots and ITE code 220 (Multifamily - Low-Rise) for the townhouses. **Table 1** outlines the trip generation results using the relevant rates for the proposed development.

Table 1: Trip Generation

Dwelling Type	Land Use Code	ITE Code	Units	AM Peak			PM Peak		
				IN	OUT	TOT	IN	OUT	TOT
Single Family	Single-Family Detached Housing	210	133	24	73	97	82	48	130
Semi-Detached	Single-Family Attached Housing	215	4	0	2	2	1	1	2
Townhouse	Multi-Family Low-Rise	220	88	12	38	50	37	21	58
Total				36	113	149	120	70	190

From the previous table, the proposed development is anticipated to generate 149 trips (36 in, 113 out) in the AM peak and 190 trips (120 in, 70 out) in the PM peak.

4.2 Trip Distribution

The distribution of trips has been derived based on the existing traffic patterns and is described as follows:

- 35% to/from the north via County Road 29
- 55% to/from the south via County Road 29
- 10% to/from the south via Malcolm Street

4.3 Trip Assignment

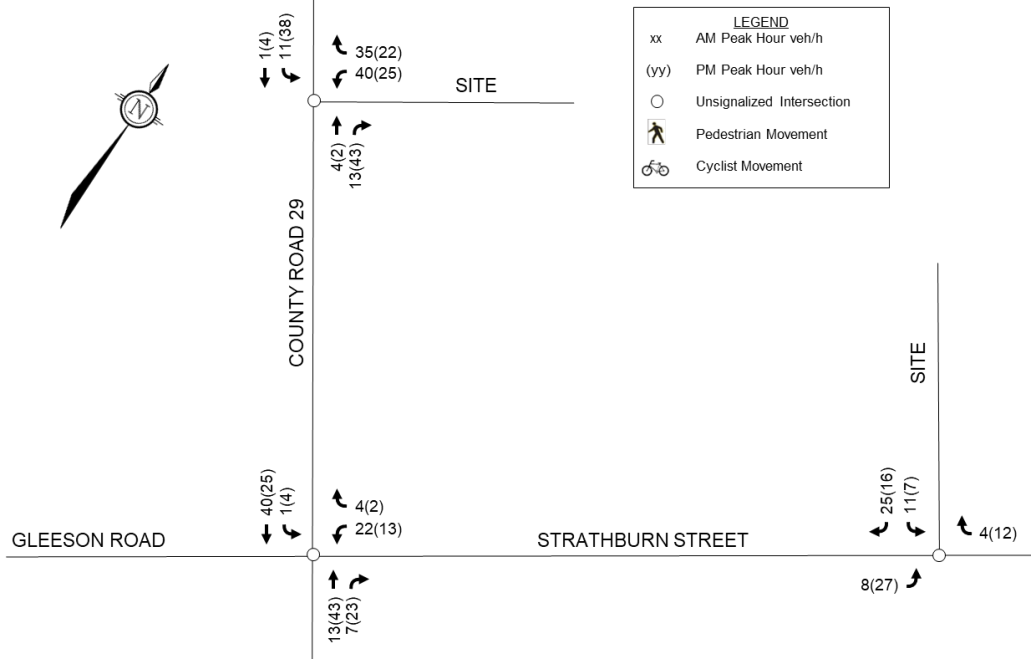
Based on logical routing assumptions all trips generated by the proposed development have been assigned to the accesses at County Road 29 and Strathburn Street. A summary of the percentage of trips assigned to each can be seen in the following table.

Table 2: Trip Assignment Summary

Distribution	Access Assigned To	
	County Road 29	Strathburn Street
North via County Road 29	90%	10%
South via County Road 29	65%	35%
South via Malcolm Street	-	100%

Traffic generated by the proposed residential subdivision for the 2029 build-out year is shown in Figure 3.

Figure 3: 2029 Site Generated Trips



5.0 BACKGROUND TRAFFIC CONDITIONS

5.1 Historic Growth

In September/October of 2019 and 2021 Lanark County completed AADT counts along County Road 29. A comparison of the 2019 and 2021 traffic counts was completed to develop a background growth rate and can be seen in the table below.

Table 3: Traffic Count Data Comparison

Day	Year		Growth Rate
	2019	2021	
Tuesday	7660	7699	0.25%
Wednesday	7942	7901	-0.25%
Thursday	8034	8194	1%
TOTAL	23,636	23,794	0.33%

Based on the above traffic volumes, traffic growth along County Road is expected to be between 0% and 1%. To provide a conservative analysis, a growth factor of 1% was applied to traffic along County Road 29 during the AM and PM peak hours.

5.2 Other Area Developments

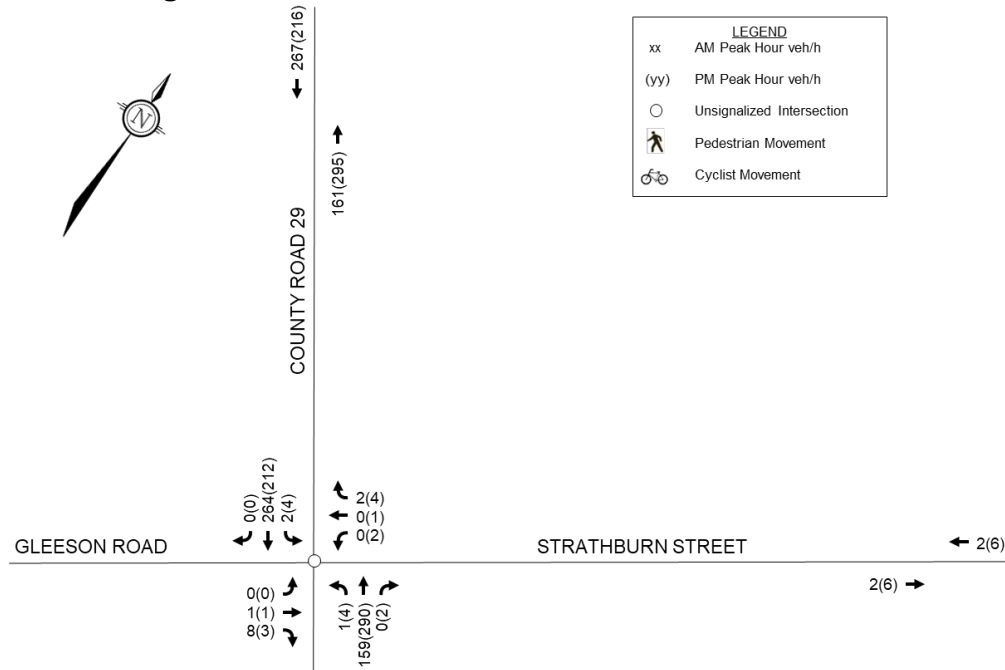
For the purposes of this report no other developments have been identified that would significantly impact traffic volumes within the study area.

Background traffic volumes for the 2029 buildout year and the 2034 horizon year can be found in **Figures 4 and 5**, respectively.

Figure 4: 2029 Background Traffic Volumes



Figure 5: 2034 Background Traffic Volumes



Total traffic volumes for the 2029 build out year and 2034 horizon year have been calculated by adding the site generated traffic volumes with the projected background traffic volumes. Total traffic volumes for 2029 and 2034 are shown in **Figures 6 and 7**, respectively.

Figure 6: 2029 Total Traffic

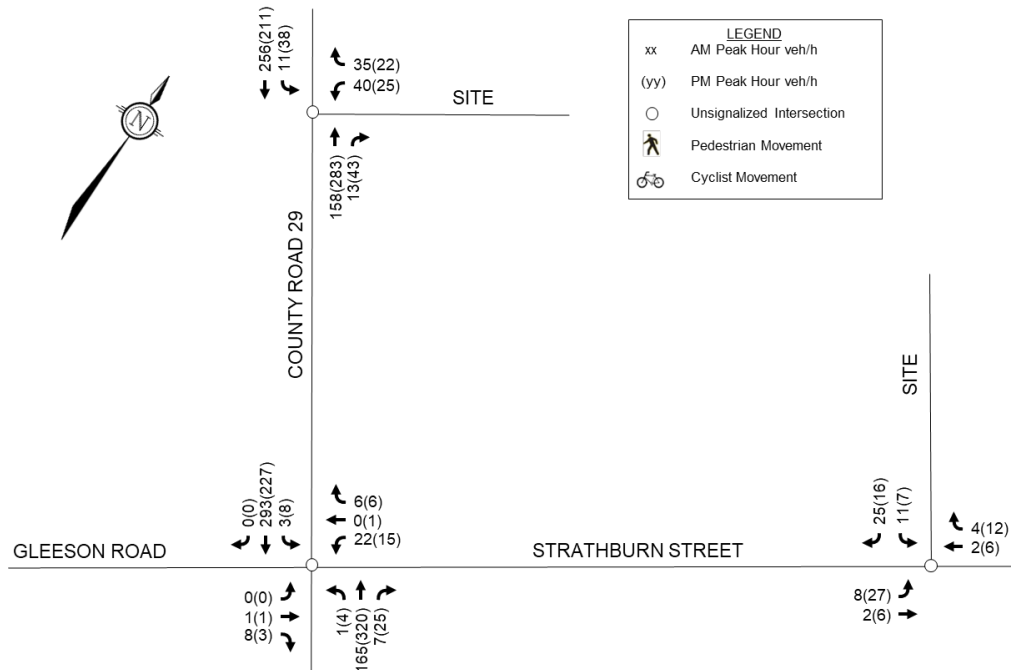
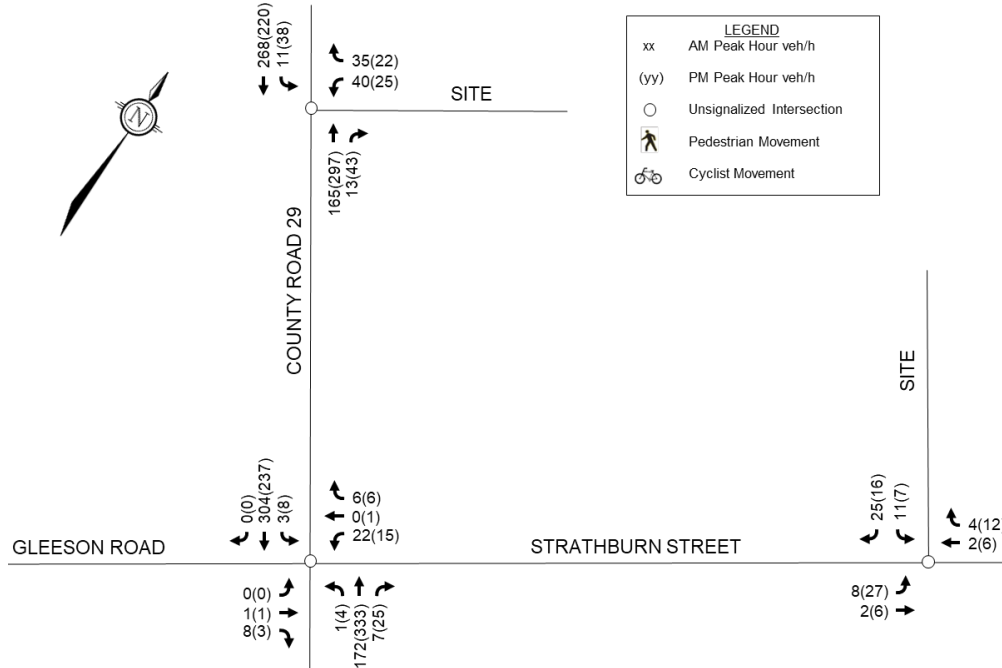


Figure 7: 2034 Total Traffic



6.0 INTERSECTION OPERATING CONDITIONS

6.1 Existing Traffic Operations

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

Table 4: Analysis Results - Existing Traffic Conditions

Intersection	AM Peak			PM Peak		
	Max. delay	LOS	Mvmt	Max. delay	LOS	Mvmt
County Road 29/Strathburn Street/Gleeson Road	10 sec.	B	EB	11 sec.	B	WB

All movements at study area intersections are currently operating with acceptable delays. The County Road 29/Strathburn Street/Gleeson Road intersection is currently operating with a LOS A under the AM peak condition and a LOS B under the PM peak condition.

6.2 Background Traffic Operations

Operating conditions at the study area intersections are summarized in **Table 4** for the 2029 and 2034 weekday AM and PM peak periods. Detailed reports are included in **Appendix C**.

Table 5: Analysis Results - Background Traffic Conditions

Intersection	AM Peak			PM Peak		
	Max. delay	LOS	Mvmt	Max. delay	LOS	Mvmt
<i>2029 Background Traffic</i>						
County Road 29/Strathburn Street/Gleeson Road	10 sec.	B	EB	11 sec.	B	WB
<i>2034 Background Traffic</i>						
County Road 29/Strathburn Street/Gleeson Road	10 sec.	B	EB	12 sec.	B	WB

The County Road 29/Strathburn Street/Gleeson Road is expected to operate with acceptable delays under 2029 and 2034 background traffic conditions. Under 2029 and 2034 background traffic conditions, this intersection is anticipated to operate at a LOS B during the AM and PM peak hour.

6.3 Total Traffic Operations

Operations at the study area intersections and the proposed accesses have been evaluated for the 2029 and 2034 total traffic scenarios, as summarized in the following table. Detailed reports are included in **Appendix C**.

Table 6: Analysis Results - Total Traffic Conditions

Intersection	AM Peak			PM Peak		
	Max. delay	LOS	Mvmt	Max. delay	LOS	Mvmt
<i>2029 Total Traffic</i>						
County Road 29/Strathburn Street/Gleeson Road	13 sec.	B	WB	14 sec.	B	WB
County Road 29 Access	11 sec.	B	WB	13 sec.	B	WB
Strathburn Street Access	9 sec.	A	SB	9 sec.	A	SB
<i>2034 Total Traffic</i>						
County Road 29/Strathburn Street/Gleeson Road	13 sec.	B	WB	14 sec.	B	WB
County Road 29 Access	12 sec.	B	WB	13 sec.	B	WB
Strathburn Street Access	9 sec.	A	SB	9 sec.	A	SB

6.3.1 County Road 29/Strathburn Street/Gleeson Road

Operating conditions at the County Road 29/Strathburn Street/Gleeson Road intersection have been evaluated for the 2029 and 2034 total traffic scenarios, as shown in **Table 5**. Under 2034 total traffic conditions, the intersection is anticipated to operate at a LOS B during the AM and PM peak hour.

A left turn lane warrant analysis was conducted to confirm if a southbound left turn lane would be required under 2034 total traffic conditions. Based on a design speed of 70km/hr, the left turn lane warrants indicated that a southbound left turn lane at the County Road 29/Strathburn Street/Gleeson Road intersection would not be required. Left turn lane warrants are included in **Appendix D**.

6.3.2 County Road 29 Access

Operating conditions at the County Road 29 access have been evaluated for the 2029 and 2034 total traffic scenarios, as shown in **Table 5**. Under 2034 total traffic conditions, the intersection is anticipated to operate at a LOS B during the AM and PM peak hour.

A left turn lane warrant analysis was conducted to confirm if a southbound left turn lane would be required under 2034 total traffic conditions. Based on a design speed of 70km/hr, the left turn lane warrants indicated that a southbound left turn lane at the County Road 29 access would not be required. Left turn lane warrants are included in **Appendix D**.

From the TAC Geometric Design Guide a right-turn taper with auxiliary lanes is required when the volume of decelerating or accelerating vehicles compared with the through traffic volume causes undue hazard. Generally, Novatech recommends a right turn lane should the volumes of right turning vehicles exceed 60vph. As the 2034 Total Traffic scenario projects 13 right turning vehicles in the AM peak hour and 43 in the PM peak hour the 60vph guideline is not met.

6.3.3 Strathburn Street Access

Operating conditions at the Strathburn Street access have been evaluated for the 2029 and 2034 total traffic scenarios, as shown in **Table 5**. Under 2034 total traffic conditions, the intersection is anticipated to operate at a LOS A during the AM and PM peak hour.

7.0 ON-SITE DESIGN

7.1 Site Access

Intersection sight distance (ISD) at the proposed accesses have been determined using the Transportation Association of Canada (TAC) *Geometric Design Guidelines for Canadian Roads*. The ISD requirements for the Strathburn Street access, based on a design speed of 60km/h, is as follows:

- Left Turn from Minor Road 130 metres
- Right Turn from Minor Road 110 metres

As shown on the sight plan shown in **Appendix A** there is roughly 150m to the high point of the road to the west of the proposed Strathburn Street access and therefore sufficient ISD for left turning vehicles. As there is roughly 150m of clear sight distance between the proposed Strathburn Street access and Malcolm Street there is sufficient ISD for right turning vehicles. The ISD requirements for the County Road 29 access, based on a design speed of 70km/h, is as follows:

- Left Turn from Minor Road 150 metres
- Right Turn from Minor Road 130 metres

As the County Road 29 access meets County Road 29 and perpendicular angle and no sightline obstruction have been identified based on a desktop review, available sightlines are within recommended guidelines to allow safe all directional access to the development.

7.2 Subdivision Design

All streets within the subdivision have a proposed right of way (ROW) width of 18.0m. Sidewalks are proposed on some roadways within the subdivision to provide pedestrian connectivity to the surrounding roadways and the proposed park. A multi-use pathway is also proposed connecting the southeast corner of Street 5 to a pedestrian lookout at the Mississippi River. As part of the proposed development, portions of the existing mountain bike trail on the north side of the Mississippi River that meander through the subject property to connect to Strathburn Street will be realigned. A network and pathways plan is provided in **Figure 8**.

Minimum spacing between intersections was reviewed as per section 9.4.2 of the Geometric Design Guide from TAC. The typical minimum spacing for local roads is 60m for four-legged intersections and 40m for three-legged intersections according to the Geometric Design Guide. The intersection spacing within the proposed development meets TAC requirements.

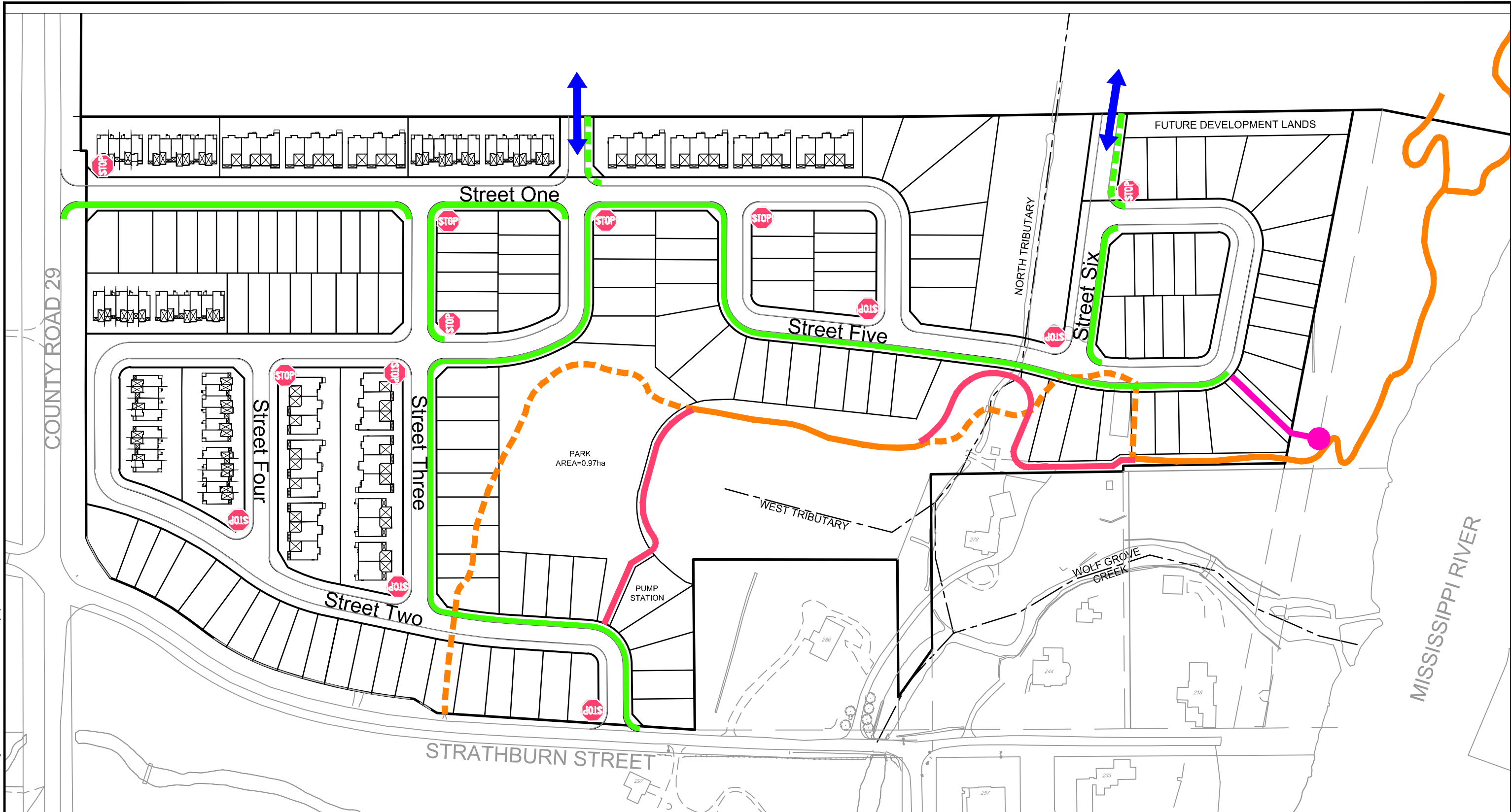
Side street stop control on the minor street is proposed at each of the proposed intersections. The location of each of the proposed stop signs is shown in **Figure 8**.

8.0 OFF-SITE DESIGN









Strathburn Street is a local roadway with a roughly 6m wide roadway platform. Analysis was completed to understand if the increased traffic along Strathburn Street, due to the proposed development, would warrant widening of the roadway platform. Based on Table 4.2.1 of the TAC Geometric Design Guide rural roadways with a design hour directional volume less than 450 vehicles and a design speed 60km/h or less have a recommended lane width of 3.0m to 3.7m. Widening of the roadway is not recommended. Further the Ministry of Transportation of Ontario (MTO) Supplement to the TAC Guideline recommends a lane width of 3m for design hourly volumes less than 60 vehicles. As the projected peak hour directional volumes along Strathburn Street are estimated at 27 to 33 vehicles, widening of the roadway is not recommended.

As no roadway modifications are being proposed along Strathburn Street for the purposes of road widening, no sidewalk or urbanization features are recommended along Strathburn Street as part of the subdivision development. Sidewalks along Strathburn Street would not provide additional connectivity to the greater road network as the nearest sidewalk from the proposed Strathburn Street access is roughly 450m away on Malcolm Street and there are no paved shoulders along County Road 29 south of Strathburn Street. Alternative to a new sidewalk along Strathburn Street, residents of the subdivision can use the proposed internal sidewalk network within the subdivision to connect to County Road 29.

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LEGEND

-  PROPOSED CONCRETE SIDEWALK
-  PROPOSED FUTURE CONCRETE SIDEWALK
-  EXISTING MOUNTAIN BIKE TRAIL (TO REMAIN)
-  EXISTING MOUNTAIN BIKE TRAIL (TO BE REALIGNED)
-  PROPOSED MOUNTAIN BIKE TRAIL REALIGNMENT
-  PROPOSED MULTI-USE PATHWAY & RIVER LOOKOUT
-  VEHICLE CONNECTIONS TO FUTURE DEVELOPMENT LANDS
-  PROPOSED STOP SIGNS

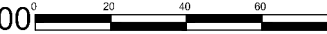
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MUNICIPALITY of MISSISSIPPI MILLS
BROWN LANDS

**NETWORK AND PATHWAYS
PLAN**

SCALE 1 : 2000 

DATE FEB 2023 JOB 118178 FIGURE NPP

9.0 CONCLUSIONS AND RECOMMENDATIONS

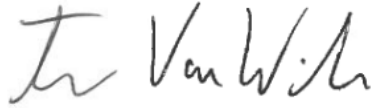
Based on the results of the foregoing analysis, the main conclusions and recommendations of this report are as follows:

- The proposed development is anticipated to generate 149 trips (36 in, 113 out) in the AM peak and 190 trips (120 in, 70 out) in the PM peak;
- Site traffic is not expected to adversely impact the LOS of the County Road 29/Strathburn Street/Gleeson Road intersection as the intersection continues to operate with a LOS B under 2034 Total Traffic conditions;
- The proposed accesses are expected to operate with minimal delay as the County Road 29 access is expected to operate with a LOS B and the Strathburn Street access is expected to operate with a LOS A under 2034 Total Traffic conditions;
- No auxiliary left turn lanes or right turn lanes are recommended at the proposed accesses or the County Road 29/Strathburn Street intersection
- Sufficient intersection sight distance is available at each access for all turning movements;
- Sidewalks are proposed on some roadways within the subdivision to provide pedestrian connectivity to the surrounding roadways and the proposed park. A multi-use pathway is also proposed connecting the southeast corner of Street 5 to a pedestrian lookout at the Mississippi River;
- No roadway modifications are being proposed along Strathburn Street for the purposes of road widening due to low projected volumes; and
- No sidewalk or urbanization features are recommended along Strathburn Street as part of the subdivision development.

Based on the foregoing, the proposed development can be recommended from a transportation perspective.

NOVATECH

Prepared by:



Trevor Van Wiechen, M.Eng.
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Reviewed by:



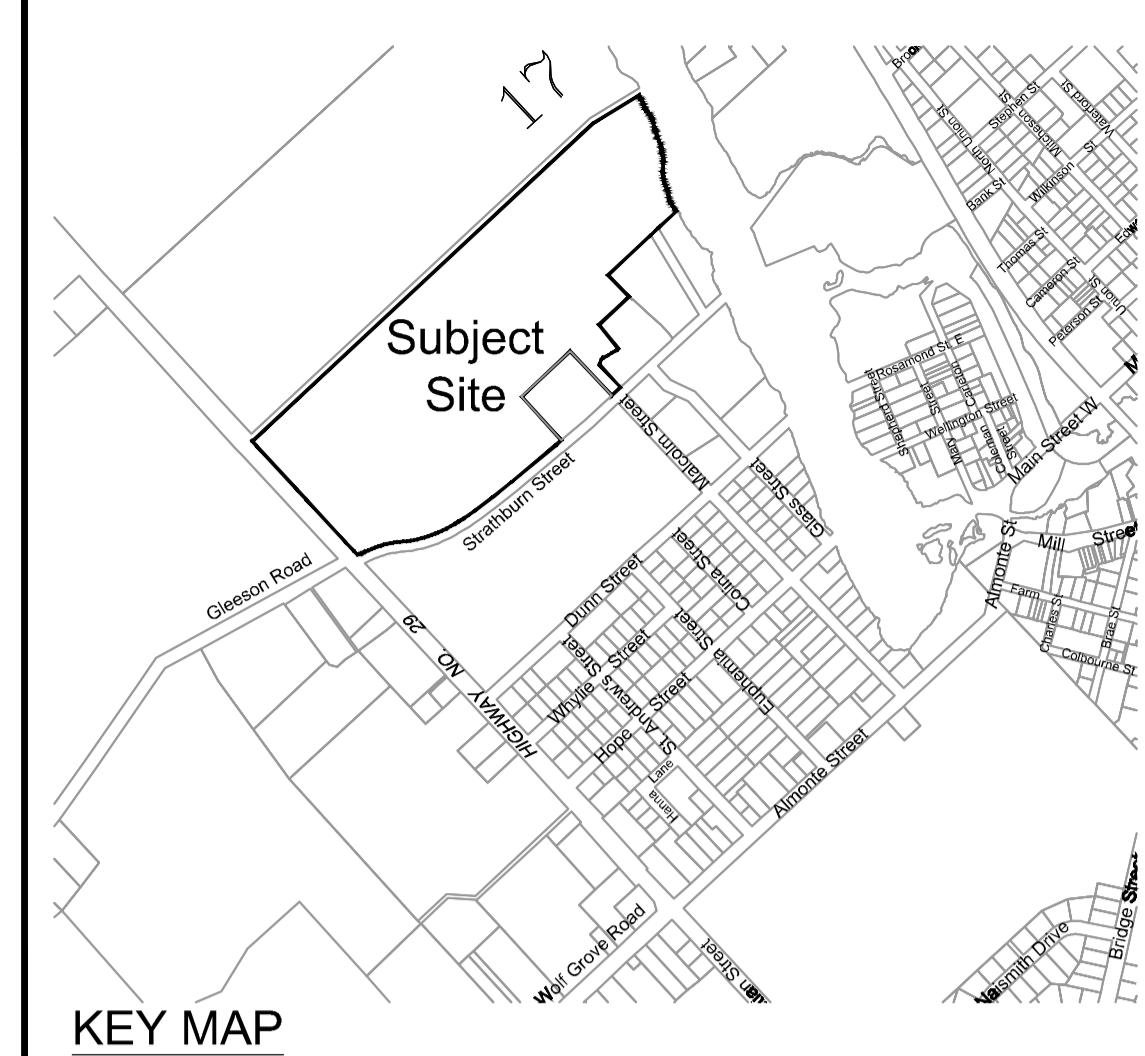
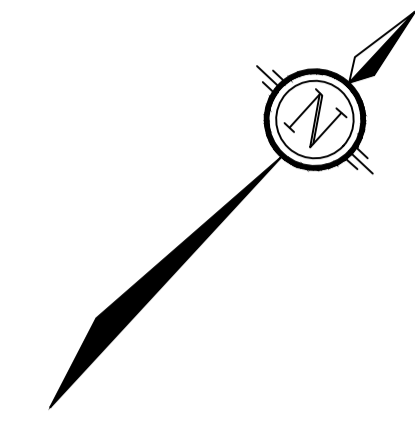
Brad Byvelds, P.Eng.
Project Manager | Transportation

APPENDIX A

Proposed Draft Plan of Subdivision

SCHEDULE OF LANDUSE

BLOCK #s	LAND USE	UNITS	AREA (hectares)
1 - 133	RESIDENTIAL (Single Family Homes)	133	6.65
134 - 142	RESIDENTIAL (Townhomes)	92	2.79
143	PARK		0.97
144	PUMP STATION		0.81
145 - 148	OPEN SPACE		2.38
149	SERVICING		0.04
150	FUTURE DEVELOPMENT		0.16
151 - 152	FUTURE ROAD		1.48
TOTAL			15.28



KEY MAP
NOT TO SCALE

METRIC : MEASUREMENTS SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

DRAFT PLAN OF SUBDIVISION OF
PART OF LOTS 34-40, 46, 77, 79, 81-82, 84-87,
99-100, 108-109, 167-168, AND 176-177
AND ALL OF LOTS 20-28, 47-76, 78, 80, 83, 92-98,
101-107, 115-166 AND 169-175
AND PART OF MALLOCH STREET, JAMES
STREET, MARY STREET, WILLIAM STREET,
MALCOLM STREET, AND JOHN STREET
(CLOSED BY BY-LAW LC204530)
BURNSIDE SECTION PLAN 6262
FORMERLY TOWN OF ALMONTE
MUNICIPALITY OF MISSISSIPPI MILLS
COUNTY OF LANARK

SCALE
1 : 1250

DATE: JANUARY, 2023

SURVEYOR'S CERTIFICATE
I HEREBY CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJOINING LANDS ARE CORRECTLY SHOWN.

DATED _____ Bennett J. Faulhammer
ONTARIO LAND SURVEYOR

Callon Dietz Incorporated
ONTARIO LAND SURVEYORS
JOB No. 22-1819

OWNER'S CERTIFICATE
WE, STRATHBURN ALMONTE REGIONAL INC., BEING THE REGISTERED OWNER(S), HEREBY AUTHORIZE NOVATECH TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION TO THE COUNTY OF LANARK FOR REVIEW AND APPROVAL.

DATED _____ Strathburn Almonte Regional Inc.

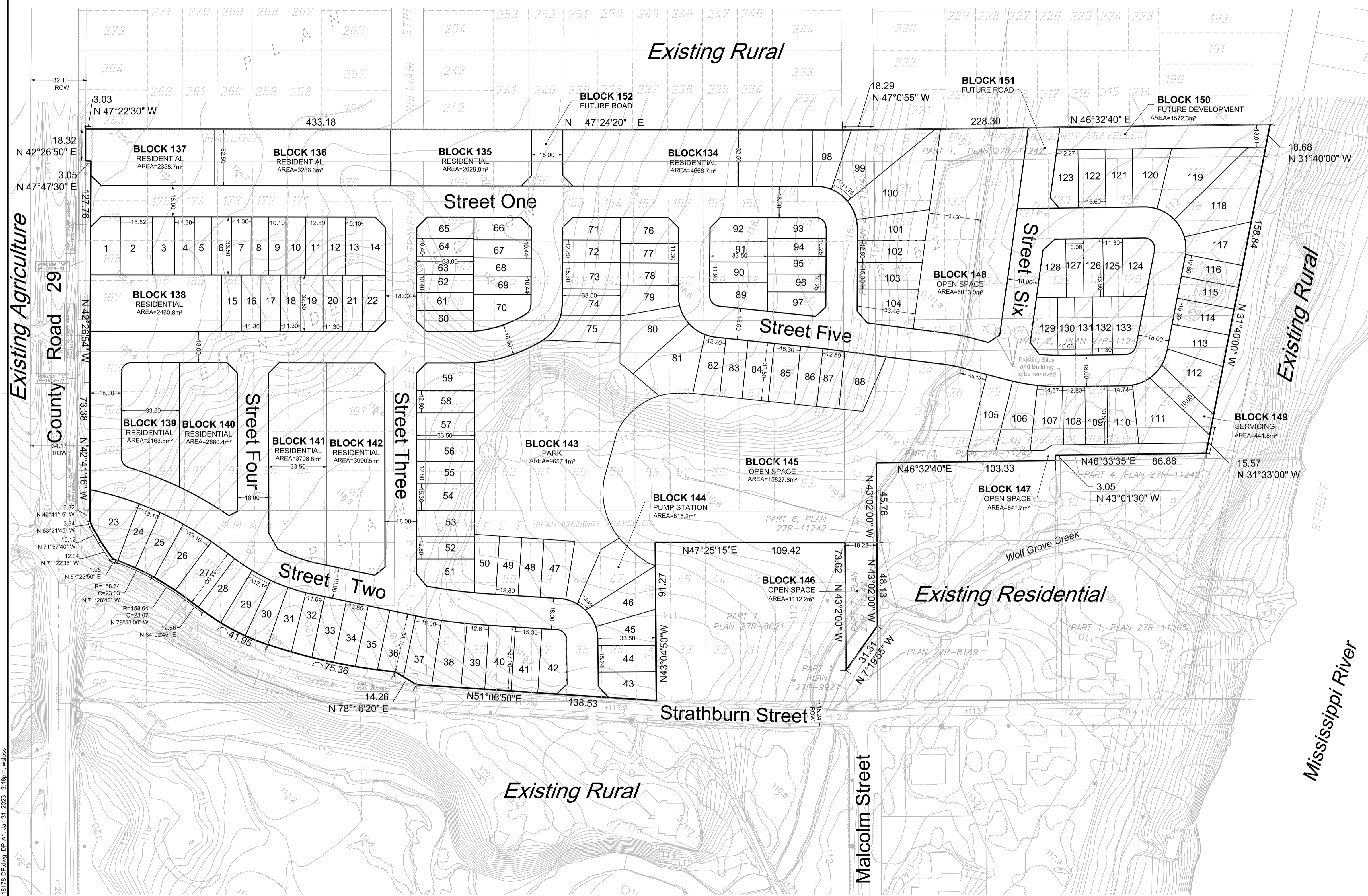
- ADDITIONAL INFORMATION REQUIRED UNDER SECTION 51 (17) OF THE PLANNING ACT.**
- The boundaries of the land proposed to be subdivided, certified by an Ontario Land Surveyor. **As shown on Draft Plan**
 - The locations, widths & names of the proposed Highways within the proposed subdivision & of existing highways on which the proposed subdivision abuts. **As shown on Draft Plan**
 - On a small legend, on a scale of not less than 1cm to 100m, all of the land adjacent to the proposed subdivision that is owned by the applicant or in which the applicant has an interest, every subdivision adjacent to the proposed subdivision & the relationship of the boundaries of the land to be subdivided to the boundaries of the township lot of other original grant of which the land forms the whole part. **As Shown on Draft Plan**
 - The purpose for which the proposed lots are to be used. **Residential, Open Space, and Pump Station shown on Draft Plan**
 - The existing uses of all adjoining lands. **Rural, Residential and Agriculture shown on Draft Plan**
 - The approximate dimensions & layout of the proposed lots. **As shown on Draft Plan**
 - Natural & artificial features such as buildings or other structures or installations, railways, highways, watercourses, drainage ditches, wetlands & wooded areas within or adjacent to the land proposed to be subdivided. **As shown on Draft Plan**
 - The availability and nature of domestic water supply. **Development will be supplied with full municipal piped water service**
 - The nature & capacity of the soil. **Silty Clay and Bedrock near or at surface**
 - Existing contours or elevations as may be required to determine the grade of the highways and the drainage of the land proposed to be subdivided. **Contours shown at 0.5 metre intervals on Draft Plan**
 - The municipal services available or to be available to the land proposed to be subdivided. **Development will be supplied with full sanitary and storm water sewer services.**
 - The nature & extent of any restrictions affecting the land proposed to be subdivided, including restrictive covenants or easements, 1994, c. 23, s. 30, 1998, c. 4, s. 29 (3).

BROWN LANDS

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

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

PROJECT No. 118178



Existing Agriculture

County Road 29

Existing Rural

Mississippi River

Malcolm Street

M:\2018\118178\CAD\Planning\Draft Plans\118178-DP.dwg, DP-A1, Jan 31, 2023, 3:18pm, walshs

APPENDIX B

Traffic Count Data



Turning Movement Count

Summary Report Including Peak Hours, AADT and Expansion Factors

All Vehicles Except Bicycles



County Road 29 & Gleeson Road/Strathburn Street Almonte, ON

Survey Date: Tuesday, November 08, 2022 **Start Time:** 0700 **AADT Factor:** 1.0
Weather AM: Clear & Sunny +1° C **Survey Duration:** 8 Hrs. **Survey Hours:** 0700-1000, 1130-1330 & 1500-1800
Weather PM: Clear & Sunny +6° C **Surveyor(s):** T. Carmody

Gleeson Rd.					Strathburn St.					CR 29					CR 29				
Eastbound					Westbound					Northbound					Southbound				

Time Period	LT	ST	RT	UT	E/B Tot	LT	ST	RT	UT	W/B Tot	Street Total	LT	ST	RT	UT	N/B Tot	LT	ST	RT	UT	S/B Tot	Street Total	Grand Total
0700-0800	0	1	6	0	7	0	0	2	0	2	9	0	129	0	0	129	1	223	0	0	224	353	362
0800-0900	0	2	7	0	9	1	1	3	0	5	14	4	124	2	1	131	3	181	1	0	185	316	330
0900-1000	0	1	5	0	6	1	0	4	0	5	11	2	147	2	0	151	1	154	0	0	155	306	317
1130-1230	1	0	4	0	5	1	2	4	0	7	12	2	149	2	0	153	0	143	2	0	145	298	310
1230-1330	1	1	3	0	5	3	1	3	0	7	12	1	134	0	0	135	4	135	0	0	139	274	286
1500-1600	1	0	3	0	4	3	1	3	0	7	11	5	220	1	0	226	6	188	0	0	194	420	431
1600-1700	0	1	1	0	2	1	0	4	0	5	7	7	272	2	0	281	0	174	0	0	174	455	462
1700-1800	0	1	0	0	1	2	0	0	0	2	3	4	209	1	0	214	1	179	1	0	181	395	398
Totals	3	7	29	0	39	12	5	23	0	40	79	25	1384	10	1	1420	16	1377	4	0	1397	2817	2896

Equivalent 12 & 24-hour Vehicle Volumes Including the Annual Average Daily Traffic (AADT) Factor Applicable to the Day and Month of the Turning Movement Count

Expansion factors are applied exclusively to standard weekday 8-hour turning movement counts conducted during the hours of 0700h - 1000h, 1130h - 1330h and 1500h - 1800h

Equivalent 12-hour vehicle volumes. These volumes are calculated by multiplying the 8-hour totals by the 8 → 12 expansion factor of 1.39

Equ. 12 Hr	4	10	40	0	54	17	7	32	0	56	110	35	1924	14	1	1974	22	1914	6	0	1942	3916	4025
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Average daily 12-hour vehicle volumes. These volumes are calculated by multiplying the equivalent 12-hour totals by the AADT factor of: 1.0

AADT 12-hr	4	10	40	0	54	17	7	32	0	56	110	35	1924	14	1	1974	22	1914	6	0	1942	3916	4025
------------	---	----	----	---	----	----	---	----	---	----	-----	----	------	----	---	------	----	------	---	---	------	------	------

24-Hour AADT. These volumes are calculated by multiplying the average daily 12-hour vehicle volumes by the 12 → 24 expansion factor of 1.31

AADT 24 Hr	5	13	53	0	71	22	9	42	0	73	144	46	2520	18	2	2586	29	2507	7	0	2544	5129	5273
------------	---	----	----	---	----	----	---	----	---	----	-----	----	------	----	---	------	----	------	---	---	------	------	------

AADT and expansion factors provided by the City of Ottawa

AM Peak Hour Factor → 0.94											Highest Hourly Vehicle Volume Between 0700h & 1000h												
AM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
0715-0815	0	1	8	0	9	0	0	2	0	2	11	1	142	0	1	144	2	236	0	0	238	382	393
OFF Peak Hour Factor → 0.88											Highest Hourly Vehicle Volume Between 1130h & 1330h												
OFF Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1130-1230	1	0	4	0	5	1	2	4	0	7	12	2	149	2	0	153	0	143	2	0	145	298	310
PM Peak Hour Factor → 0.87											Highest Hourly Vehicle Volume Between 1500h & 1800h												
PM Peak Hr	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	LT	ST	RT	UT	Total	LT	ST	RT	UT	Total	Str. Tot.	Gr. Tot.
1530-1630	0	1	3	0	4	2	1	4	0	7	11	4	259	2	0	265	4	189	0	0	193	458	469

Comments:

Private buses and school buses comprise 18.54% of the heavy vehicle traffic. There isn't a street light at this intersection.

Notes:

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



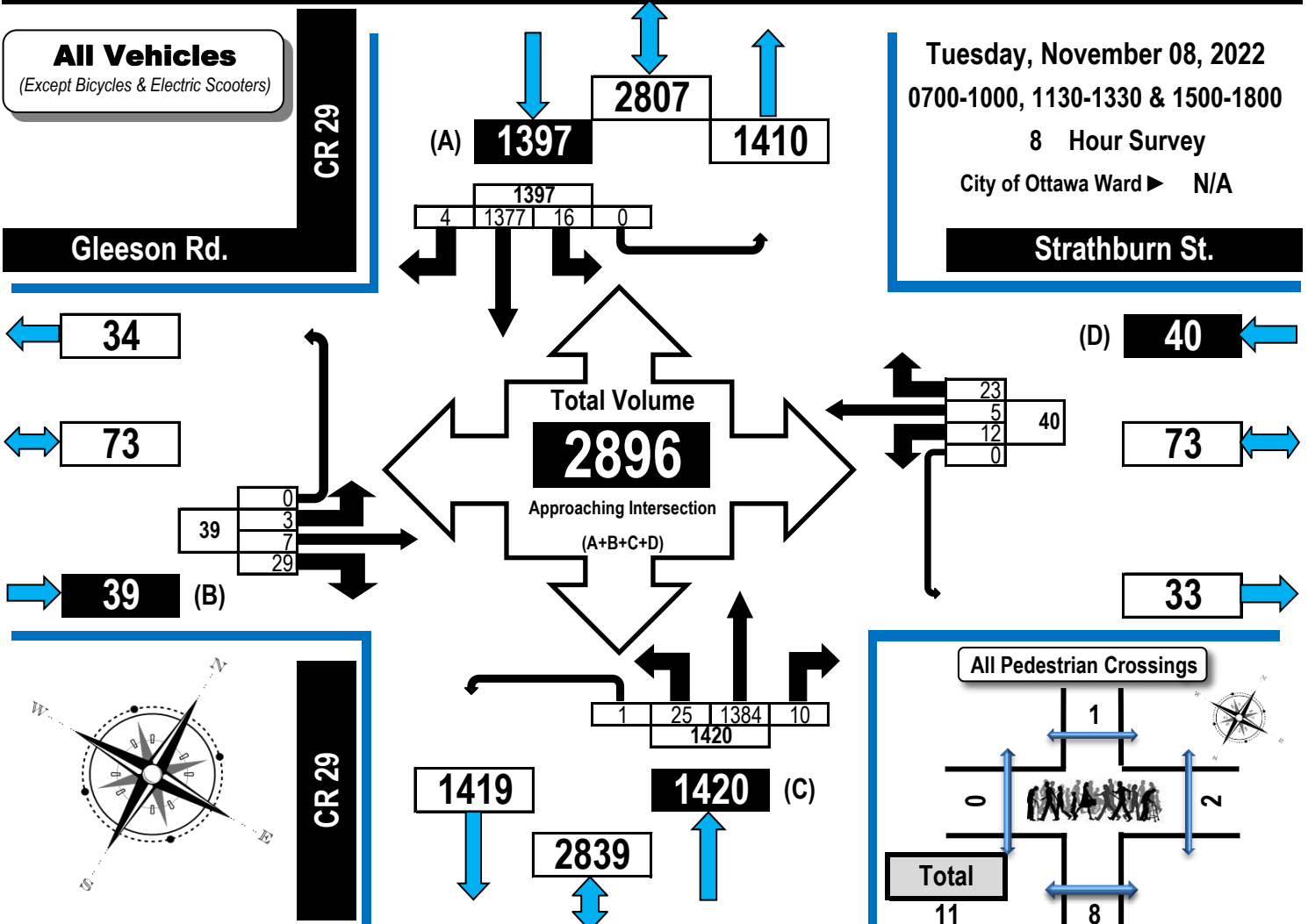
Turning Movement Count Summary, AM and PM Peak Hour Flow Diagrams



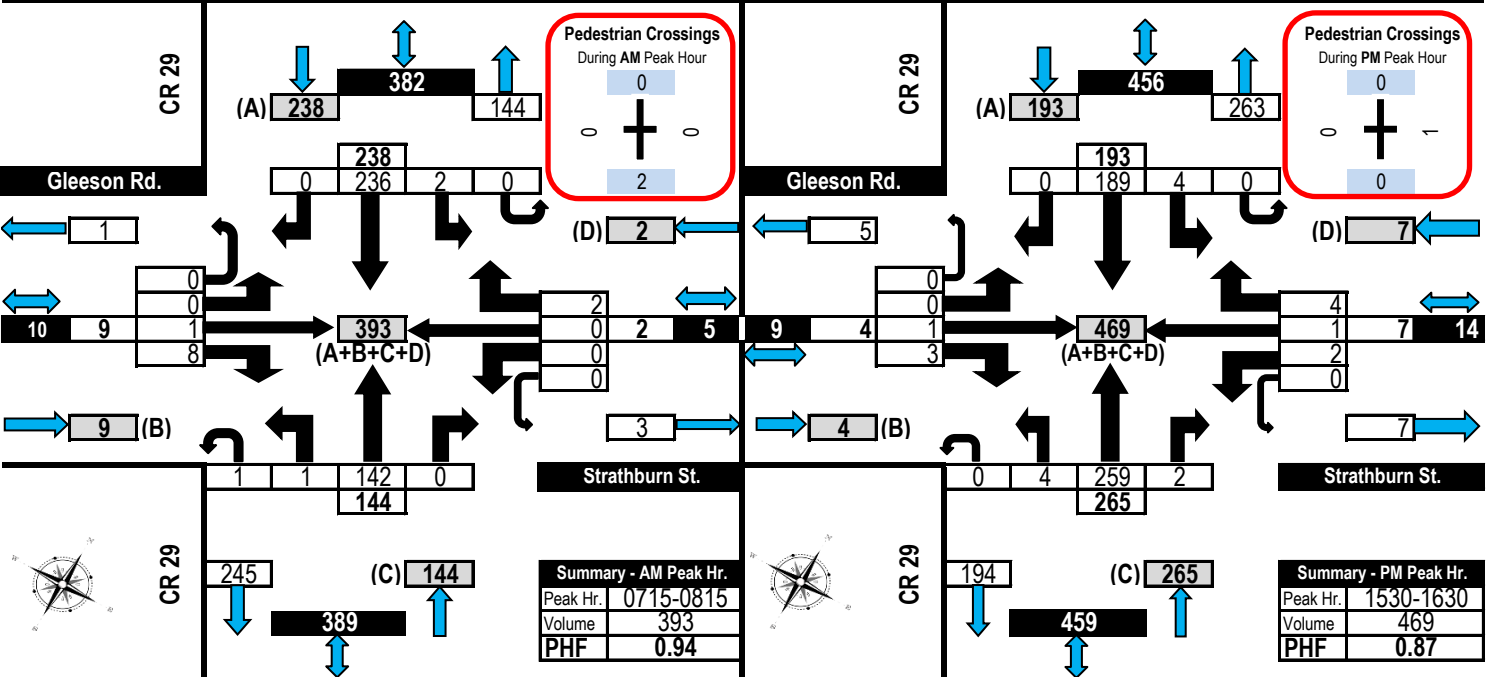
All Vehicles Except Bicycles

County Road 29 & Gleeson Road/Strathburn Street

Almonte, ON



AM Peak Hour Flow Diagram PM Peak Hour Flow Diagram





Turning Movement Count

Summary, OFF and EVENING Peak Hour

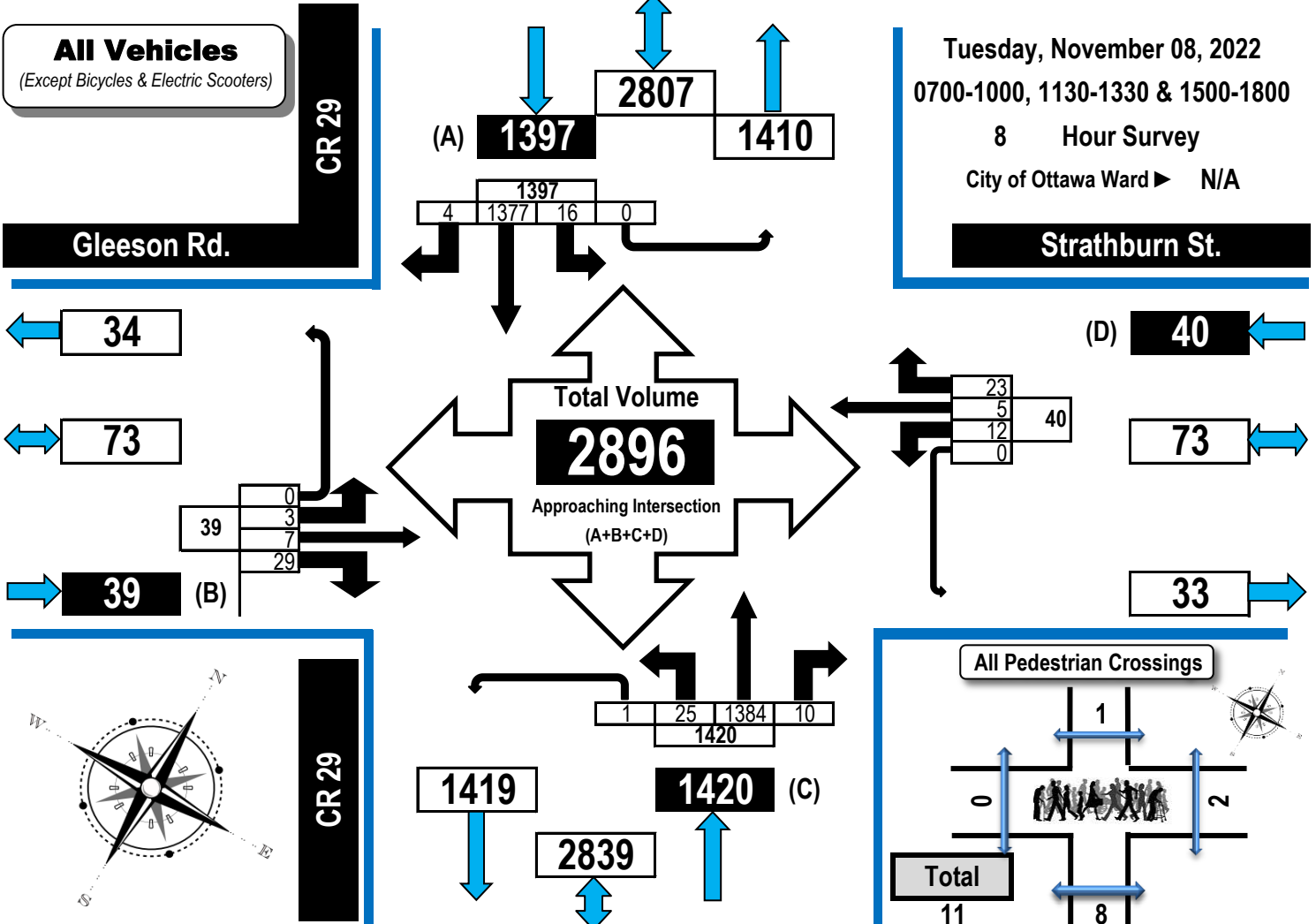
Flow Diagrams



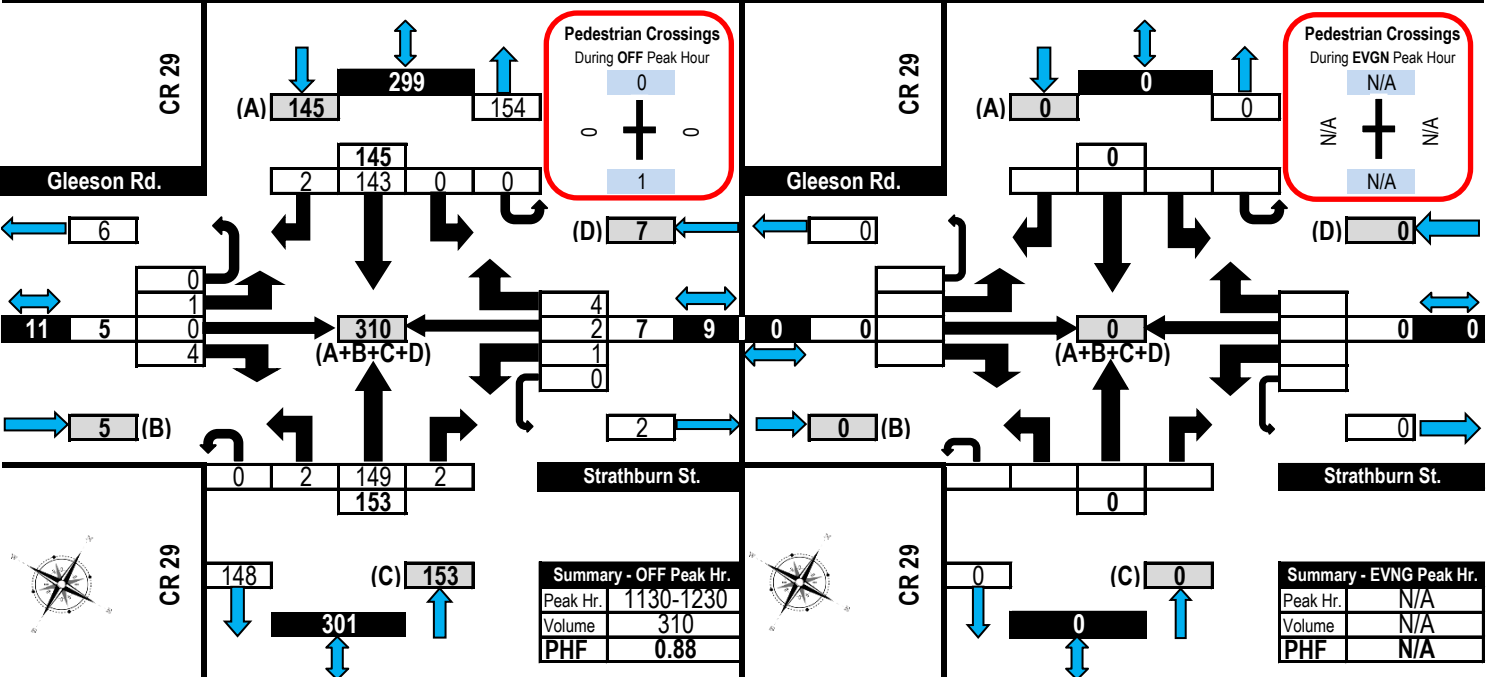
All Vehicles Except Bicycles

County Road 29 & Gleeson Road/Strathburn Street

Almonte, ON



Off Peak Hour Flow Diagram Evening Peak Hour Flow Diagram



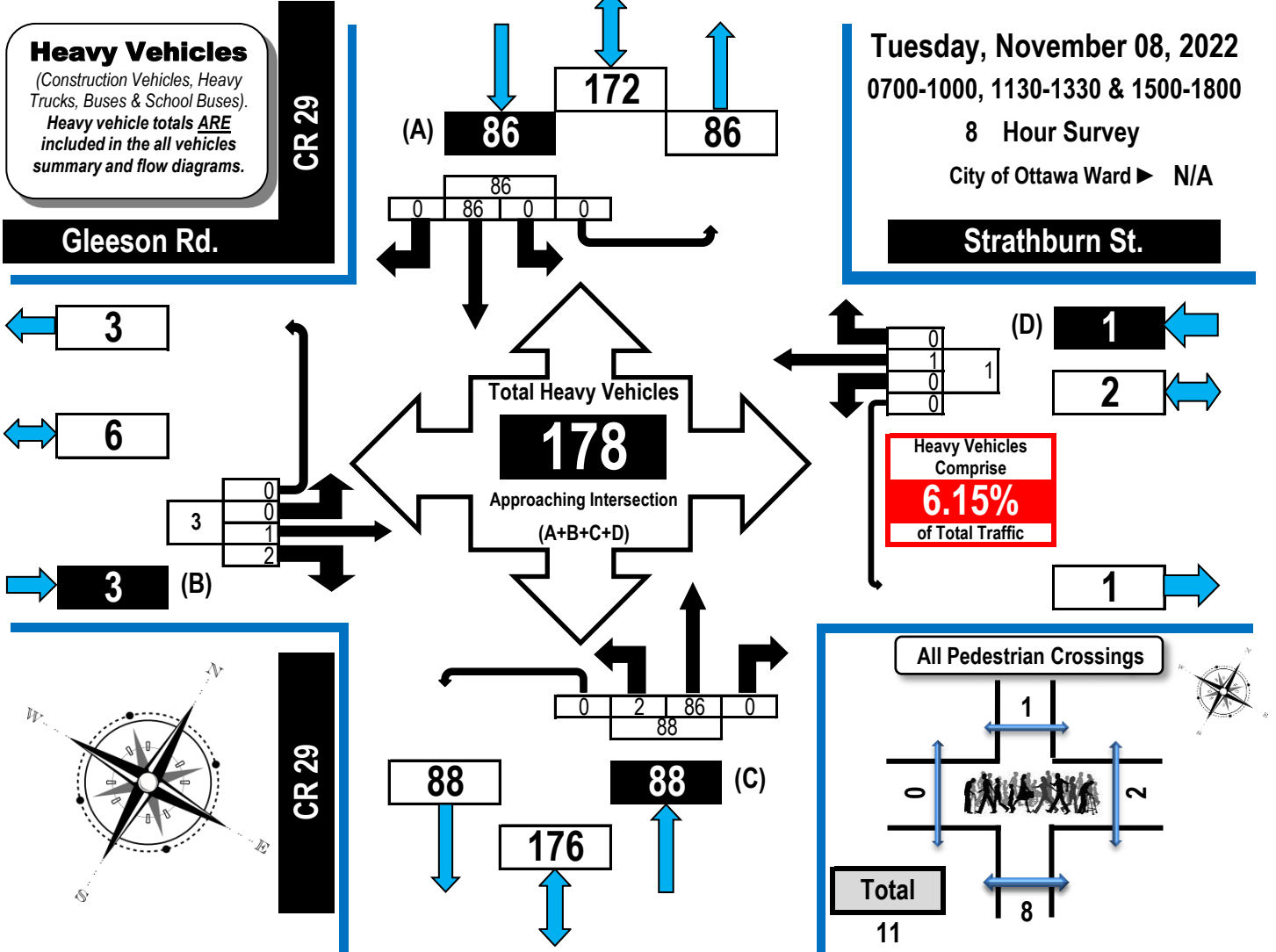


Turning Movement Count Heavy Vehicle Summary (FHWA Class 4-13) Flow Diagram



County Road 29 & Gleeson Road/Strathburn Street

Almonte, ON



Gleeson Rd.					Strathburn St.					CR 29					CR 29				
Eastbound					Westbound					Northbound					Southbound				

Time Period	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	GR Tot
0700-0800	0	0	1	0	1	0	0	0	0	0	0	20	0	0	20	0	17	0	0	17	38
0800-0900	0	1	0	0	1	0	0	0	0	0	1	4	0	0	5	0	7	0	0	7	13
0900-1000	0	0	0	0	0	0	0	0	0	0	0	19	0	0	19	0	16	0	0	16	35
1130-1230	0	0	1	0	1	0	0	0	0	0	0	10	0	0	10	0	13	0	0	13	24
1230-1330	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	0	8	0	0	8	15
1500-1600	0	0	0	0	0	0	1	0	0	1	0	15	0	0	15	0	10	0	0	10	26
1600-1700	0	0	0	0	0	0	0	0	0	0	1	10	0	0	11	0	8	0	0	8	19
1700-1800	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	7	0	0	7	8
Totals	0	1	2	0	3	0	1	0	0	1	2	86	0	0	88	0	86	0	0	86	178

Comments:

Private buses and school buses comprise 18.54% of the heavy vehicle traffic. There isn't a street light at this intersection.



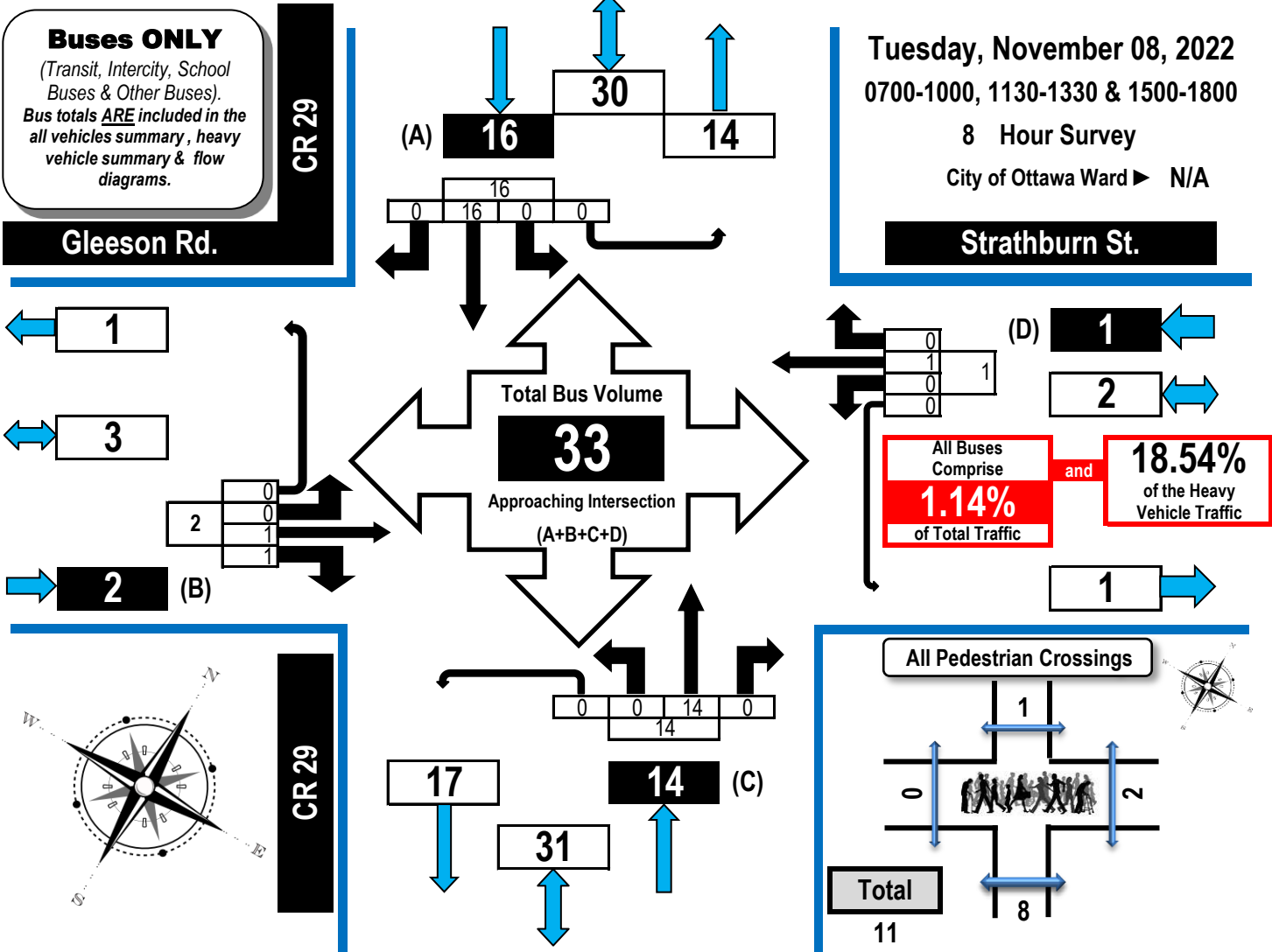
Turning Movement Count

All Buses Summary (FHWA Class 4 ONLY)

Flow Diagram



County Road 29 & Gleeson Road/Strathburn Street Almonte, ON



Time Period	Gleeson Rd. Eastbound					Strathburn St. Westbound					CR 29 Northbound					CR 29 Southbound					GR Tot
	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot	
0700-0800	0	0	1	0	1	0	0	0	0	0	0	4	0	0	4	0	6	0	0	6	11
0800-0900	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	3
0900-1000	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	3	0	0	3	6
1130-1230	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
1230-1330	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500-1600	0	0	0	0	0	0	1	0	0	1	0	4	0	0	4	0	0	0	0	0	5
1600-1700	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	2	0	0	2	5
1700-1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Totals	0	1	1	0	2	0	1	0	0	1	0	14	0	0	14	0	16	0	0	16	33

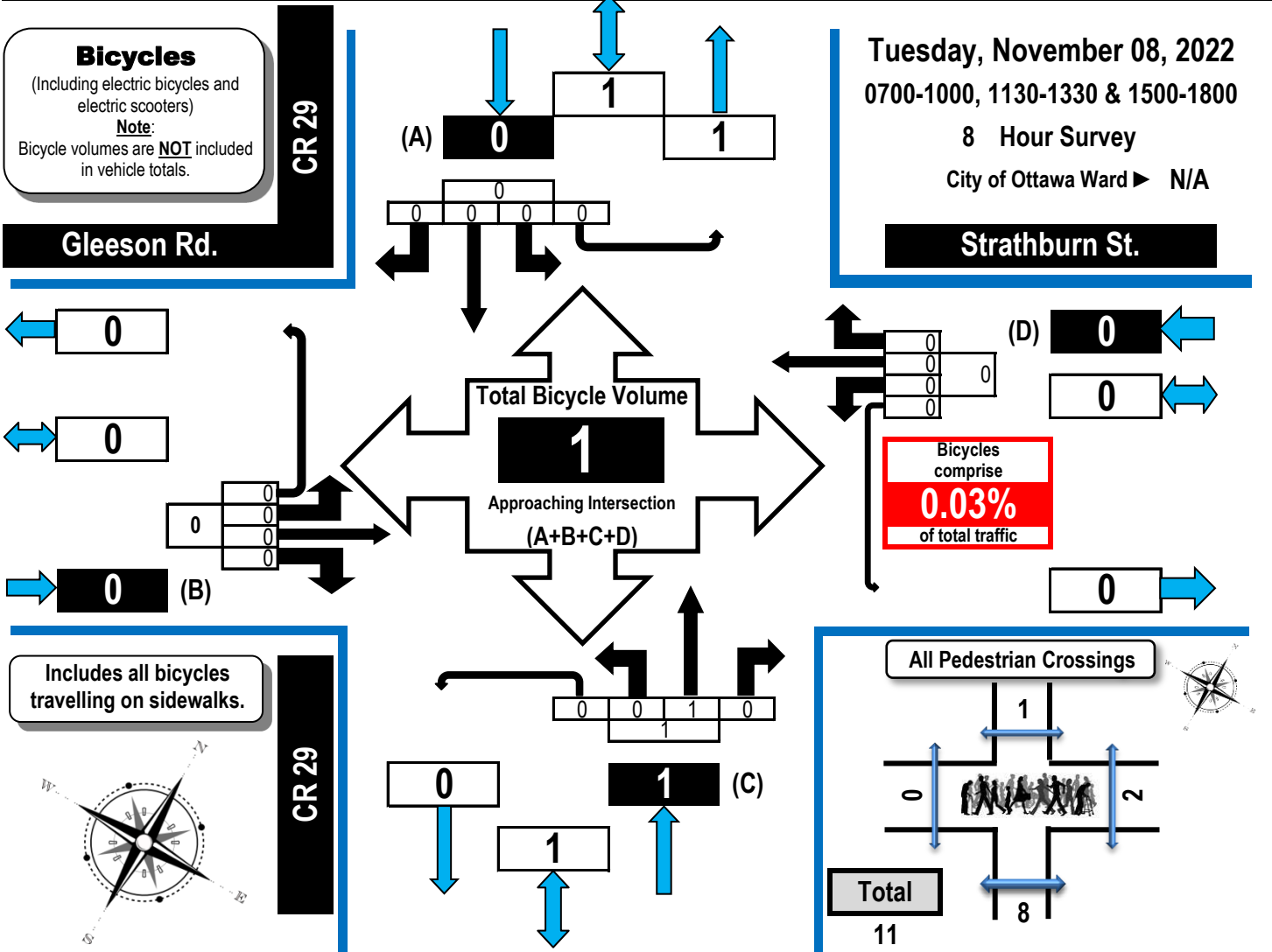
Comments:
Private buses and school buses comprise 18.54% of the heavy vehicle traffic. There isn't a street light at this intersection.

Turning Movement Count Bicycle Summary Flow Diagram



County Road 29 & Gleeson Road/Strathburn Street

Almonte, ON



Time Period	Gleeson Rd. Eastbound					Strathburn St. Westbound					CR 29 Northbound					CR 29 Southbound					GR Tot	
	LT	ST	RT	UT	EB Tot	LT	ST	RT	UT	WB Tot	LT	ST	RT	UT	NB Tot	LT	ST	RT	UT	SB Tot		
0700-0800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0800-0900	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0900-1000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1130-1230	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1230-1330	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1500-1600	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1600-1700	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
1700-1800	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1

Comments:

Private buses and school buses comprise 18.54% of the heavy vehicle traffic. There isn't a street light at this intersection.



Turning Movement Count Pedestrian Crossings Summary and Flow Diagram



County Road 29 & Gleeson Road/Strathburn Street **Almonte, ON**

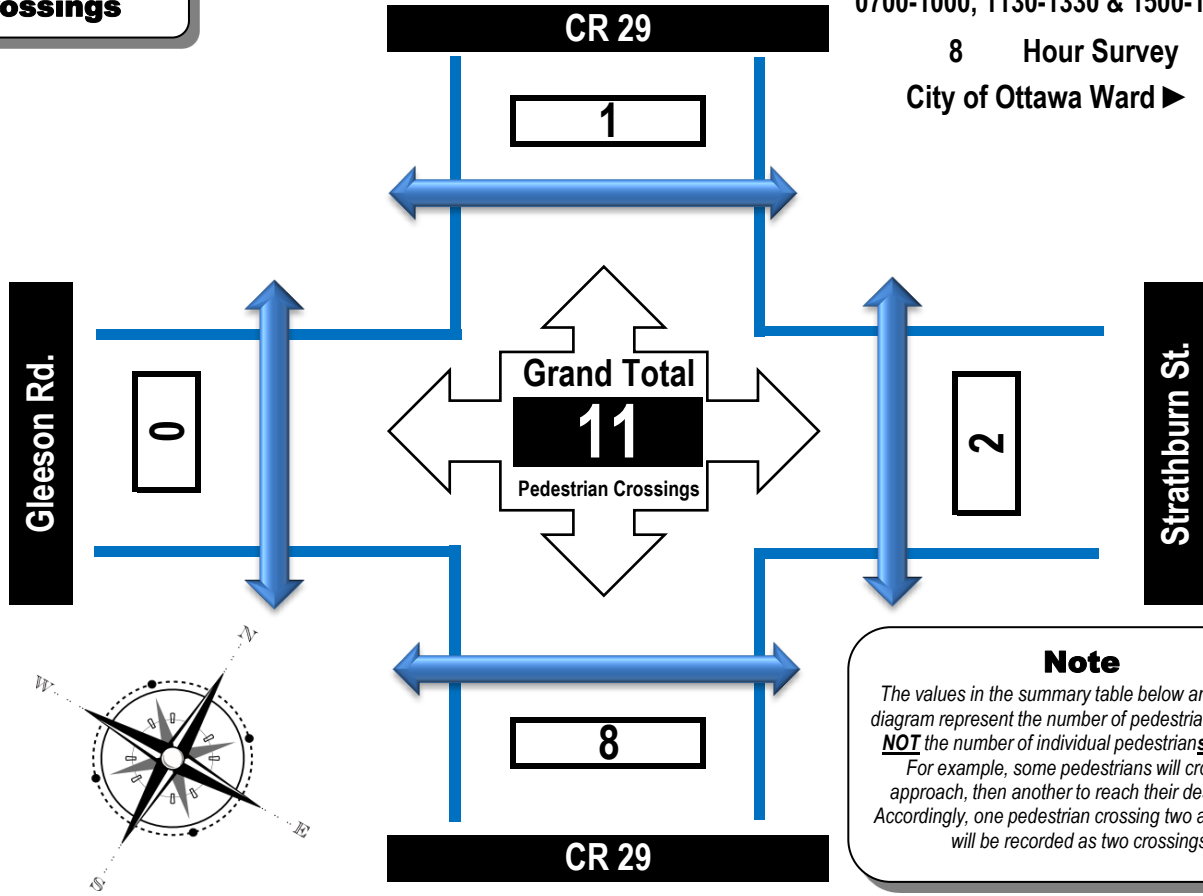
**Pedestrian
Crossings**

Tuesday, November 08, 2022

0700-1000, 1130-1330 & 1500-1800

8 Hour Survey

City of Ottawa Ward ► N/A



Note

The values in the summary table below and the flow diagram represent the number of pedestrian crossings **NOT** the number of individual pedestrians crossing. For example, some pedestrians will cross one approach, then another to reach their destination. Accordingly, one pedestrian crossing two approaches will be recorded as two crossings.

Time Period	West Side Crossing Gleeson Rd.	East Side Crossing Strathburn St.	Street Total	South Side Crossing CR 29	North Side Crossing CR 29	Street Total	Grand Total
0700-0800	0	0	0	4	0	4	4
0800-0900	0	0	0	2	0	2	2
0900-1000	0	1	1	0	0	0	1
1130-1230	0	0	0	1	0	1	1
1230-1330	0	0	0	0	0	0	0
1500-1600	0	0	0	0	0	0	0
1600-1700	0	1	1	0	0	0	1
1700-1800	0	0	0	1	1	2	2
Totals	0	2	2	8	1	9	11

Comments:

Private buses and school buses comprise 18.54% of the heavy vehicle traffic. There isn't a street light at this intersection.

Traffic Summary

Station # - FJ42GN15, Cr 7B 007921 Bridge Street to Mc Neely Ave. (Co. Rd #29).

Date - September 28, 2021 to October 1, 2021 (3 days of data)

Volume						
	Total	Weekday	Weekend	ADT	AWDT	AWET
Combined	23794	23794	0	7931	7931	0
East	11898	11898	0	3966	3966	0
West	11896	11896	0	3965	3965	0
Days	3	3	-	3	3	-

Speed				
	All Days	Weekdays	Weekend	
Mean speed	51.5	51.5	-	km/h
Median speed	51.1	51.1	-	km/h
85% speed	58.7	58.7	-	km/h

PSL = 60 km/h

Class				
Class (Scheme F3)	All Days	%	Weekdays	Weekend
1 - CYCLE	126	0.5%	126	0
2 - PC	17453	73.4%	17453	0
3 - 2A-4T	5017	21.1%	5017	0
4 - BUS	297	1.2%	297	0
5 - 2A-6T	602	2.5%	602	0
6 - 3A-SU	161	0.7%	161	0
7 - 4A-SU	23	0.1%	23	0
8 - <5A DBL	4	0.0%	4	0
9 - 5A DBL	58	0.2%	58	0
10 - >6A DBL	26	0.1%	26	0
11 - <6A MULTI	0	0.0%	0	0
12 - 6A MULTI	0	0.0%	0	0
13 - >6A MULTI	27	0.1%	27	0

Average Daily Volume							
	Mon	Tue	Wed	Thu	Fri	Sat	Sun
East	0	3819	3961	4118	0	0	0
West	0	3880	3940	4076	0	0	0
Combined	0	7699	7901	8194	0	0	0
AM Pk East	-	258	245	301	-	-	-
PM Pk East	-	477	481	468	-	-	-
AM Pk West	-	354	350	362	-	-	-
PM Pk West	-	301	301	326	-	-	-
Days	-	1	1	1	-	-	-

Traffic Summary

Station # - FP771PAC, Cr 7B 007921 Bridge Street to McNeely Ave. (Co. Rd. #29. **Located at 106 Townline Rd East at 40km begins posted sign**

Date - Tuesday, October 01, 2019 to Friday, October 04, 2019 (3 days of data)

Volume						
	Total	Weekday	Weekend	ADT	AWDT	AWET
Combined	23636	23636	0	7879	7879	0
North	11739	11739	0	3913	3913	0
South	11897	11897	0	3966	3966	0
Days	3	3	-	3	3	-

Speed				
	All Days	Weekdays	Weekend	
Mean speed	51.6	51.6	-	km/h
Median speed	51.5	51.5	-	km/h
85% speed	58.3	58.3	-	km/h

PSL = 60 km/h

Class				
Class (Scheme F3)	All Days	%	Weekdays	Weekend
1 - CYCLE	55	0.2%	55	0
2 - PC	18087	76.5%	18087	0
3 - 2A-4T	4296	18.2%	4296	0
4 - BUS	292	1.2%	292	0
5 - 2A-6T	464	2.0%	464	0
6 - 3A-SU	258	1.1%	258	0
7 - 4A-SU	59	0.2%	59	0
8 - <5A DBL	5	0.0%	5	0
9 - 5A DBL	57	0.2%	57	0
10 - >6A DBL	45	0.2%	45	0
11 - <6A MULTI	0	0.0%	0	0
12 - 6A MULTI	0	0.0%	0	0
13 - >6A MULTI	18	0.1%	18	0


















Average Daily Volume							
	Mon	Tue	Wed	Thu	Fri	Sat	Sun
North	0	3798	3954	3987	0	0	0
South	0	3862	3988	4047	0	0	0
Combined	0	7660	7942	8034	0	0	0
AM Pk North	-	233	259	258	-	-	-
PM Pk North	-	477	528	532	-	-	-
AM Pk South	-	350	329	330	-	-	-
PM Pk South	-	286	283	298	-	-	-
Days	-	1	1	1	-	-	-

APPENDIX C

Synchro Reports


















3: County Road 29 & Gleeson Road/Strathburn Street
Existing 2023 AM Peak

Brown Lands

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	8	0	0	2	1	142	0	2	236	0
Future Volume (Veh/h)	0	1	8	0	0	2	1	142	0	2	236	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	9	0	0	2	1	158	0	2	262	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	428	426	262	436	426	158	262			158		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	428	426	262	436	426	158	262			158		
tC, single (s)	7.2	6.6	6.3	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	100	100	99	100	100	100	100			100		
cM capacity (veh/h)	525	510	762	521	518	885	1279			1398		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	10	2	159	0	264							
Volume Left	0	0	1	0	2							
Volume Right	9	2	0	0	0							
cSH	726	885	1279	1700	1398							
Volume to Capacity	0.01	0.00	0.00	0.00	0.00							
Queue Length 95th (m)	0.3	0.1	0.0	0.0	0.0							
Control Delay (s)	10.0	9.1	0.1	0.0	0.1							
Lane LOS	B	A	A		A							
Approach Delay (s)	10.0	9.1	0.1		0.1							
Approach LOS	B	A										
Intersection Summary												
Average Delay			0.3									
Intersection Capacity Utilization			24.8%		ICU Level of Service					A		
Analysis Period (min)			15									


















3: County Road 29 & Gleeson Road/Strathburn Street
Existing 2023 PM Peak

Brown Lands

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	3	2	1	4	4	259	2	4	189	0
Future Volume (Veh/h)	0	1	3	2	1	4	4	259	2	4	189	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	3	2	1	4	4	288	2	4	210	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	518	516	210	518	514	288	210			290		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	518	516	210	518	514	288	210			290		
tC, single (s)	7.2	6.6	6.3	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	100	100	100	100	100	99	100			100		
cM capacity (veh/h)	453	452	815	462	460	749	1337			1249		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	4	7	292	2	214							
Volume Left	0	2	4	0	4							
Volume Right	3	4	0	2	0							
cSH	679	591	1337	1700	1249							
Volume to Capacity	0.01	0.01	0.00	0.00	0.00							
Queue Length 95th (m)	0.1	0.3	0.1	0.0	0.1							
Control Delay (s)	10.3	11.2	0.1	0.0	0.2							
Lane LOS	B	B	A		A							
Approach Delay (s)	10.3	11.2	0.1		0.2							
Approach LOS	B	B										
Intersection Summary												
Average Delay			0.4									
Intersection Capacity Utilization			27.4%		ICU Level of Service				A			
Analysis Period (min)			15									


















3: County Road 29 & Gleeson Road/Strathburn Street
Background 2029 AM Peak

Brown Lands

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	8	0	0	2	1	152	0	2	253	0
Future Volume (Veh/h)	0	1	8	0	0	2	1	152	0	2	253	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	9	0	0	2	1	169	0	2	281	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	458	456	281	466	456	169	281			169		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	458	456	281	466	456	169	281			169		
tC, single (s)	7.2	6.6	6.3	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	100	100	99	100	100	100	100			100		
cM capacity (veh/h)	501	491	744	498	498	872	1259			1385		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	10	2	170	0	283							
Volume Left	0	0	1	0	2							
Volume Right	9	2	0	0	0							
cSH	707	872	1259	1700	1385							
Volume to Capacity	0.01	0.00	0.00	0.00	0.00							
Queue Length 95th (m)	0.3	0.1	0.0	0.0	0.0							
Control Delay (s)	10.2	9.1	0.1	0.0	0.1							
Lane LOS	B	A	A		A							
Approach Delay (s)	10.2	9.1	0.1		0.1							
Approach LOS	B	A										
Intersection Summary												
Average Delay			0.3									
Intersection Capacity Utilization			25.7%		ICU Level of Service				A			
Analysis Period (min)			15									


















3: County Road 29 & Gleeson Road/Strathburn Street
Background 2029 PM Peak

Brown Lands

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	3	2	1	4	4	277	2	4	202	0
Future Volume (Veh/h)	0	1	3	2	1	4	4	277	2	4	202	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	3	2	1	4	4	308	2	4	224	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	552	550	224	552	548	308	224			310		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	552	550	224	552	548	308	224			310		
tC, single (s)	7.2	6.6	6.3	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	100	100	100	100	100	99	100			100		
cM capacity (veh/h)	430	432	801	439	440	730	1321			1228		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	4	7	312	2	228							
Volume Left	0	2	4	0	4							
Volume Right	3	4	0	2	0							
cSH	660	568	1321	1700	1228							
Volume to Capacity	0.01	0.01	0.00	0.00	0.00							
Queue Length 95th (m)	0.1	0.3	0.1	0.0	0.1							
Control Delay (s)	10.5	11.4	0.1	0.0	0.2							
Lane LOS	B	B	A		A							
Approach Delay (s)	10.5	11.4	0.1		0.2							
Approach LOS	B	B										
Intersection Summary												
Average Delay			0.4									
Intersection Capacity Utilization			28.1%		ICU Level of Service				A			
Analysis Period (min)			15									


















3: County Road 29 & Gleeson Road/Strathburn Street
Background 2034 AM Peak

Brown Lands

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	8	0	0	2	1	159	0	2	264	0
Future Volume (Veh/h)	0	1	8	0	0	2	1	159	0	2	264	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	9	0	0	2	1	177	0	2	293	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	478	476	293	486	476	177	293			177		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	478	476	293	486	476	177	293			177		
tC, single (s)	7.2	6.6	6.3	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	100	100	99	100	100	100	100			100		
cM capacity (veh/h)	486	478	732	483	485	863	1246			1375		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	10	2	178	0	295							
Volume Left	0	0	1	0	2							
Volume Right	9	2	0	0	0							
cSH	695	863	1246	1700	1375							
Volume to Capacity	0.01	0.00	0.00	0.00	0.00							
Queue Length 95th (m)	0.3	0.1	0.0	0.0	0.0							
Control Delay (s)	10.3	9.2	0.1	0.0	0.1							
Lane LOS	B	A	A		A							
Approach Delay (s)	10.3	9.2	0.1		0.1							
Approach LOS	B	A										
Intersection Summary												
Average Delay			0.3									
Intersection Capacity Utilization			26.3%		ICU Level of Service				A			
Analysis Period (min)			15									


















3: County Road 29 & Gleeson Road/Strathburn Street
Background 2034 PM Peak

Brown Lands

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	3	2	1	4	4	290	2	4	212	0
Future Volume (Veh/h)	0	1	3	2	1	4	4	290	2	4	212	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	3	2	1	4	4	322	2	4	236	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	578	576	236	578	574	322	236			324		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	578	576	236	578	574	322	236			324		
tC, single (s)	7.2	6.6	6.3	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	100	100	100	100	100	99	100			100		
cM capacity (veh/h)	413	417	788	421	425	717	1308			1214		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	4	7	326	2	240							
Volume Left	0	2	4	0	4							
Volume Right	3	4	0	2	0							
cSH	645	552	1308	1700	1214							
Volume to Capacity	0.01	0.01	0.00	0.00	0.00							
Queue Length 95th (m)	0.1	0.3	0.1	0.0	0.1							
Control Delay (s)	10.6	11.6	0.1	0.0	0.2							
Lane LOS	B	B	A		A							
Approach Delay (s)	10.6	11.6	0.1		0.2							
Approach LOS	B	B										
Intersection Summary												
Average Delay			0.4									
Intersection Capacity Utilization			28.7%		ICU Level of Service				A			
Analysis Period (min)			15									









3: County Road 29 & Gleeson Road/Strathburn Street
 Total 2029 AM Peak

Brown Lands

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	8	22	0	6	1	165	7	3	293	0
Future Volume (Veh/h)	0	1	8	22	0	6	1	165	7	3	293	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	9	24	0	7	1	183	8	3	326	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	524	525	326	526	517	183	326			191		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	524	525	326	526	517	183	326			191		
tC, single (s)	7.2	6.6	6.3	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	100	100	99	95	100	99	100			100		
cM capacity (veh/h)	450	448	702	453	459	857	1211			1359		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	10	31	184	8	329							
Volume Left	0	24	1	0	3							
Volume Right	9	7	0	8	0							
cSH	664	507	1211	1700	1359							
Volume to Capacity	0.02	0.06	0.00	0.00	0.00							
Queue Length 95th (m)	0.3	1.5	0.0	0.0	0.1							
Control Delay (s)	10.5	12.6	0.1	0.0	0.1							
Lane LOS	B	B	A		A							
Approach Delay (s)	10.5	12.6	0.0		0.1							
Approach LOS	B	B										
Intersection Summary												
Average Delay			0.9									
Intersection Capacity Utilization			33.8%		ICU Level of Service				A			
Analysis Period (min)			15									

6: County Road 29 & Site Access
Total 2029 AM Peak

Brown Lands

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	40	35	158	13	11	256
Future Volume (Veh/h)	40	35	158	13	11	256
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	44	39	176	14	12	284
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	491	183			190	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	491	183			190	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	92	95			99	
cM capacity (veh/h)	532	859			1360	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	83	190	296			
Volume Left	44	0	12			
Volume Right	39	14	0			
cSH	648	1700	1360			
Volume to Capacity	0.13	0.11	0.01			
Queue Length 95th (m)	3.3	0.0	0.2			
Control Delay (s)	11.4	0.0	0.4			
Lane LOS	B		A			
Approach Delay (s)	11.4	0.0	0.4			
Approach LOS	B					
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization			34.9%		ICU Level of Service	A
Analysis Period (min)			15			


















Total 2029 AM Peak



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	2	2	4	11	25
Future Volume (Veh/h)	8	2	2	4	11	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	2	2	4	12	28
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	6				24	4
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	6				24	4
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				99	97
cM capacity (veh/h)	1608				986	1080
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	11	6	40			
Volume Left	9	0	12			
Volume Right	0	4	28			
cSH	1608	1700	1050			
Volume to Capacity	0.01	0.00	0.04			
Queue Length 95th (m)	0.1	0.0	0.9			
Control Delay (s)	5.9	0.0	8.6			
Lane LOS	A		A			
Approach Delay (s)	5.9	0.0	8.6			
Approach LOS			A			
Intersection Summary						
Average Delay			7.2			
Intersection Capacity Utilization			17.2%		ICU Level of Service	A
Analysis Period (min)			15			










3: County Road 29 & Gleeson Road/Strathburn Street
 Total 2029 PM Peak

Brown Lands

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	3	15	1	6	4	320	25	8	227	0
Future Volume (Veh/h)	0	1	3	15	1	6	4	320	25	8	227	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	3	17	1	7	4	356	28	9	252	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	642	662	252	638	634	356	252			384		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	642	662	252	638	634	356	252			384		
tC, single (s)	7.2	6.6	6.3	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	100	100	100	96	100	99	100			99		
cM capacity (veh/h)	371	370	772	383	391	686	1290			1153		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	4	25	360	28	261							
Volume Left	0	17	4	0	9							
Volume Right	3	7	0	28	0							
cSH	608	437	1290	1700	1153							
Volume to Capacity	0.01	0.06	0.00	0.02	0.01							
Queue Length 95th (m)	0.2	1.4	0.1	0.0	0.2							
Control Delay (s)	11.0	13.7	0.1	0.0	0.4							
Lane LOS	B	B	A		A							
Approach Delay (s)	11.0	13.7	0.1		0.4							
Approach LOS	B	B										
Intersection Summary												
Average Delay			0.8									
Intersection Capacity Utilization			34.1%		ICU Level of Service				A			
Analysis Period (min)			15									

6: County Road 29 & Site Access
Total 2029 PM Peak

Brown Lands

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	25	22	283	43	38	211
Future Volume (Veh/h)	25	22	283	43	38	211
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	24	314	48	42	234
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	656	338			362	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	656	338			362	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	93	97			96	
cM capacity (veh/h)	415	704			1175	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	52	362	276			
Volume Left	28	0	42			
Volume Right	24	48	0			
cSH	512	1700	1175			
Volume to Capacity	0.10	0.21	0.04			
Queue Length 95th (m)	2.6	0.0	0.8			
Control Delay (s)	12.8	0.0	1.5			
Lane LOS	B		A			
Approach Delay (s)	12.8	0.0	1.5			
Approach LOS	B					
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			45.7%	ICU Level of Service	A	
Analysis Period (min)			15			


















Total 2029 PM Peak



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	27	6	6	12	7	16
Future Volume (Veh/h)	27	6	6	12	7	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	30	7	7	13	8	18
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	20			80	14	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	20			80	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 %	98			99	98	
cM capacity (veh/h)	1590			904	1067	
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	37	20	26			
Volume Left	30	0	8			
Volume Right	0	13	18			
cSH	1590	1700	1011			
Volume to Capacity	0.02	0.01	0.03			
Queue Length 95th (m)	0.4	0.0	0.6			
Control Delay (s)	6.0	0.0	8.7			
Lane LOS	A		A			
Approach Delay (s)	6.0	0.0	8.7			
Approach LOS			A			
Intersection Summary						
Average Delay			5.4			
Intersection Capacity Utilization			18.6%	ICU Level of Service	A	
Analysis Period (min)			15			

3: County Road 29 & Gleeson Road/Strathburn Street
 Total 2034 AM Peak

Brown Lands
 Baseline

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	8	22	0	6	1	172	7	3	304	0
Future Volume (Veh/h)	0	1	8	22	0	6	1	172	7	3	304	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	9	24	0	7	1	191	8	3	338	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	544	545	338	546	537	191	338				199	
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	544	545	338	546	537	191	338				199	
tC, single (s)	7.2	6.6	6.3	7.1	6.5	6.2	4.2				4.2	
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.5	4.0	3.3	2.3				2.3	
p0 queue free %	100	100	99	95	100	99	100				100	
cM capacity (veh/h)	436	436	691	439	448	848	1199				1350	
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	10	31	192	8	341							
Volume Left	0	24	1	0	3							
Volume Right	9	7	0	8	0							
cSH	653	493	1199	1700	1350							
Volume to Capacity	0.02	0.06	0.00	0.00	0.00							
Queue Length 95th (m)	0.4	1.5	0.0	0.0	0.1							
Control Delay (s)	10.6	12.8	0.0	0.0	0.1							
Lane LOS	B	B	A		A							
Approach Delay (s)	10.6	12.8	0.0		0.1							
Approach LOS	B	B										
Intersection Summary												
Average Delay			0.9									
Intersection Capacity Utilization			34.4%		ICU Level of Service				A			
Analysis Period (min)			15									

6: County Road 29 & Site Access
 Total 2034 AM Peak

Brown Lands
 Baseline



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	40	35	165	13	11	268
Future Volume (Veh/h)	40	35	165	13	11	268
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	44	39	183	14	12	298
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	512	190			197	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	512	190			197	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	91	95			99	
cM capacity (veh/h)	517	852			1352	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	83	197	310			
Volume Left	44	0	12			
Volume Right	39	14	0			
cSH	634	1700	1352			
Volume to Capacity	0.13	0.12	0.01			
Queue Length 95th (m)	3.4	0.0	0.2			
Control Delay (s)	11.5	0.0	0.4			
Lane LOS	B		A			
Approach Delay (s)	11.5	0.0	0.4			
Approach LOS	B					
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			35.6%		ICU Level of Service	A
Analysis Period (min)			15			


















8: Strathburn Street & Site Access
Total 2034 AM Peak



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	8	2	2	4	11	25
Future Volume (Veh/h)	8	2	2	4	11	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	9	2	2	4	12	28
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	6				24	4
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	6				24	4
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				99	97
cM capacity (veh/h)	1608				986	1080
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	11	6	40			
Volume Left	9	0	12			
Volume Right	0	4	28			
cSH	1608	1700	1050			
Volume to Capacity	0.01	0.00	0.04			
Queue Length 95th (m)	0.1	0.0	0.9			
Control Delay (s)	5.9	0.0	8.6			
Lane LOS	A		A			
Approach Delay (s)	5.9	0.0	8.6			
Approach LOS			A			
Intersection Summary						
Average Delay			7.2			
Intersection Capacity Utilization			17.2%		ICU Level of Service	A
Analysis Period (min)			15			










3: County Road 29 & Gleeson Road/Strathburn Street
 Total 2034 PM Peak

Brown Lands

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1	3	15	1	6	4	333	25	8	237	0
Future Volume (Veh/h)	0	1	3	15	1	6	4	333	25	8	237	0
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	1	3	17	1	7	4	370	28	9	263	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	666	687	263	662	659	370	263			398		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	666	687	263	662	659	370	263			398		
tC, single (s)	7.2	6.6	6.3	7.1	6.5	6.2	4.2			4.2		
tC, 2 stage (s)												
tF (s)	3.6	4.1	3.4	3.5	4.0	3.3	2.3			2.3		
p0 queue free %	100	100	100	95	100	99	100			99		
cM capacity (veh/h)	357	358	761	368	378	673	1278			1139		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	4	25	374	28	272							
Volume Left	0	17	4	0	9							
Volume Right	3	7	0	28	0							
cSH	594	422	1278	1700	1139							
Volume to Capacity	0.01	0.06	0.00	0.02	0.01							
Queue Length 95th (m)	0.2	1.4	0.1	0.0	0.2							
Control Delay (s)	11.1	14.1	0.1	0.0	0.3							
Lane LOS	B	B	A		A							
Approach Delay (s)	11.1	14.1	0.1		0.3							
Approach LOS	B	B										
Intersection Summary												
Average Delay			0.8									
Intersection Capacity Utilization			34.9%		ICU Level of Service				A			
Analysis Period (min)			15									

6: County Road 29 & Site Access
 Total 2034 PM Peak

Brown Lands

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	25	22	297	43	38	220
Future Volume (Veh/h)	25	22	297	43	38	220
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	28	24	330	48	42	244
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	682	354			378	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	682	354			378	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	93	97			96	
cM capacity (veh/h)	400	690			1159	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	52	378	286			
Volume Left	28	0	42			
Volume Right	24	48	0			
cSH	497	1700	1159			
Volume to Capacity	0.10	0.22	0.04			
Queue Length 95th (m)	2.7	0.0	0.9			
Control Delay (s)	13.1	0.0	1.5			
Lane LOS	B		A			
Approach Delay (s)	13.1	0.0	1.5			
Approach LOS	B					
Intersection Summary						
Average Delay			1.6			
Intersection Capacity Utilization			47.0%	ICU Level of Service		A
Analysis Period (min)			15			

8: Strathburn Street & Site Access
 Total 2034 PM Peak

Brown Lands

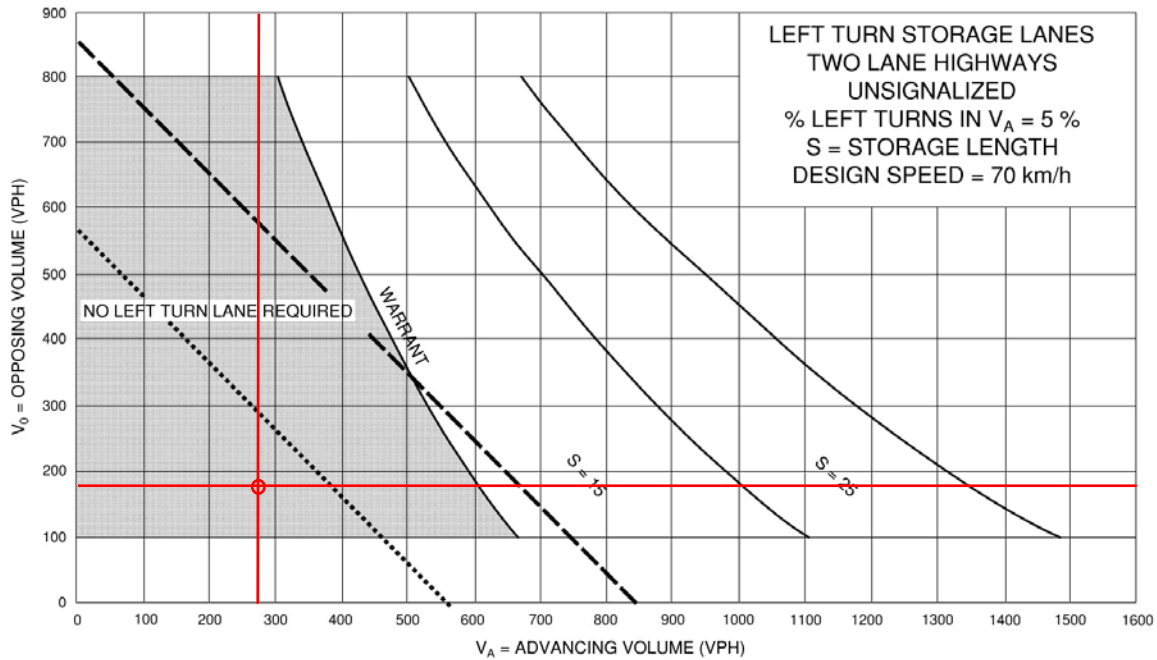


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	27	6	6	12	7	16
Future Volume (Veh/h)	27	6	6	12	7	16
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	30	7	7	13	8	18
Pedestrians						
Lane Width (m)						
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	20				80	14
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	20				80	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 %	98				99	98
cM capacity (veh/h)	1590				904	1067
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	37	20	26			
Volume Left	30	0	8			
Volume Right	0	13	18			
cSH	1590	1700	1011			
Volume to Capacity	0.02	0.01	0.03			
Queue Length 95th (m)	0.4	0.0	0.6			
Control Delay (s)	6.0	0.0	8.7			
Lane LOS	A		A			
Approach Delay (s)	6.0	0.0	8.7			
Approach LOS			A			
Intersection Summary						
Average Delay			5.4			
Intersection Capacity Utilization			18.6%	ICU Level of Service	A	
Analysis Period (min)			15			

APPENDIX D

Left Turn Lane Graphs

Exhibit 9A-11



Va: 279
Vo: 178

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

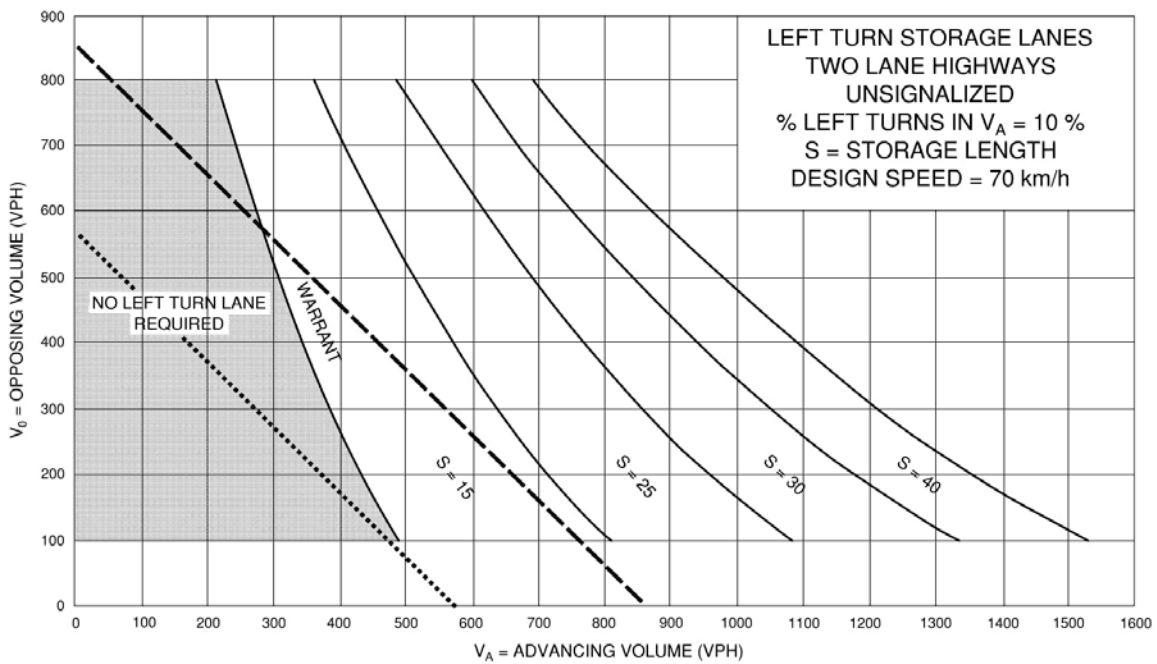
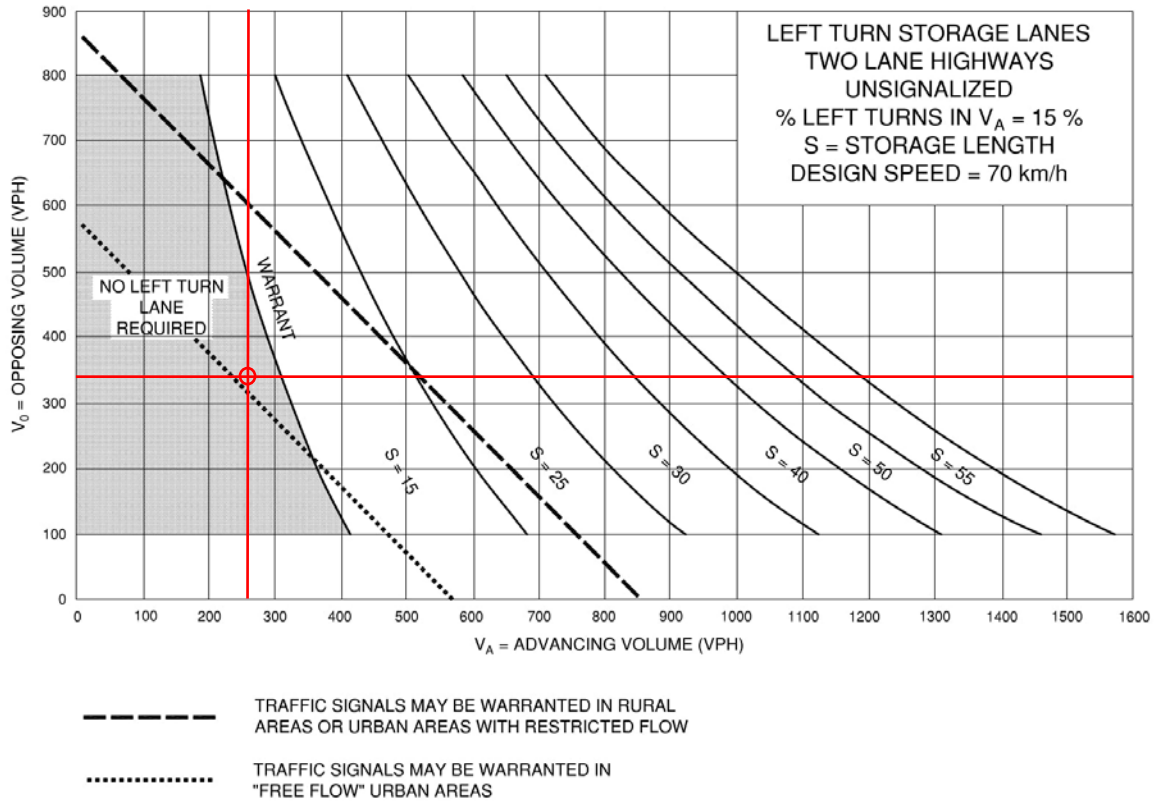
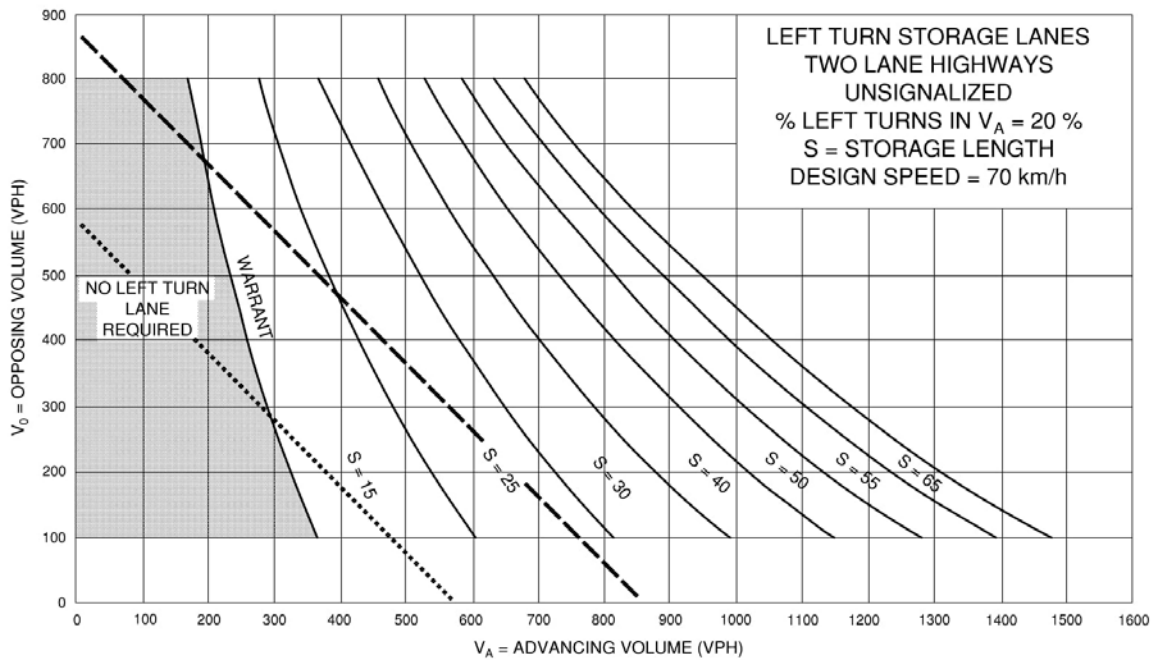


Exhibit 9A-12

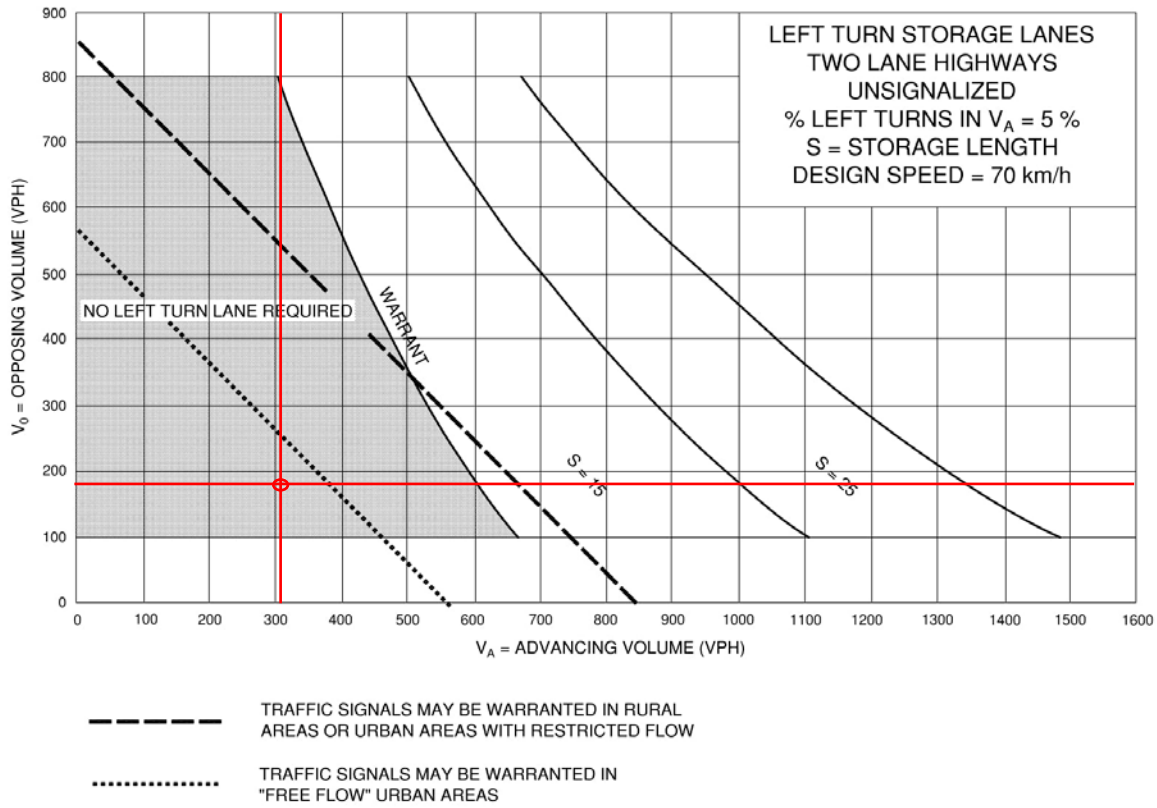


Va: 258
Vo: 340

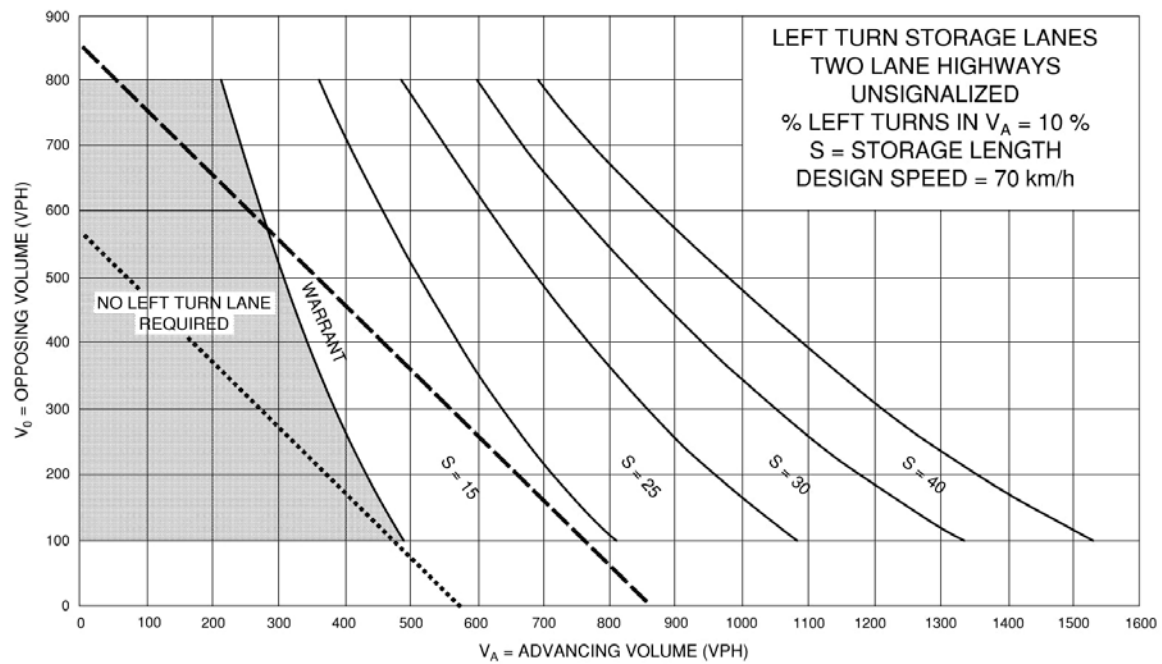


Southbound Left County Road 29/Strathburn
Street/Gleeson Road Total 2034 AM

Exhibit 9A-11

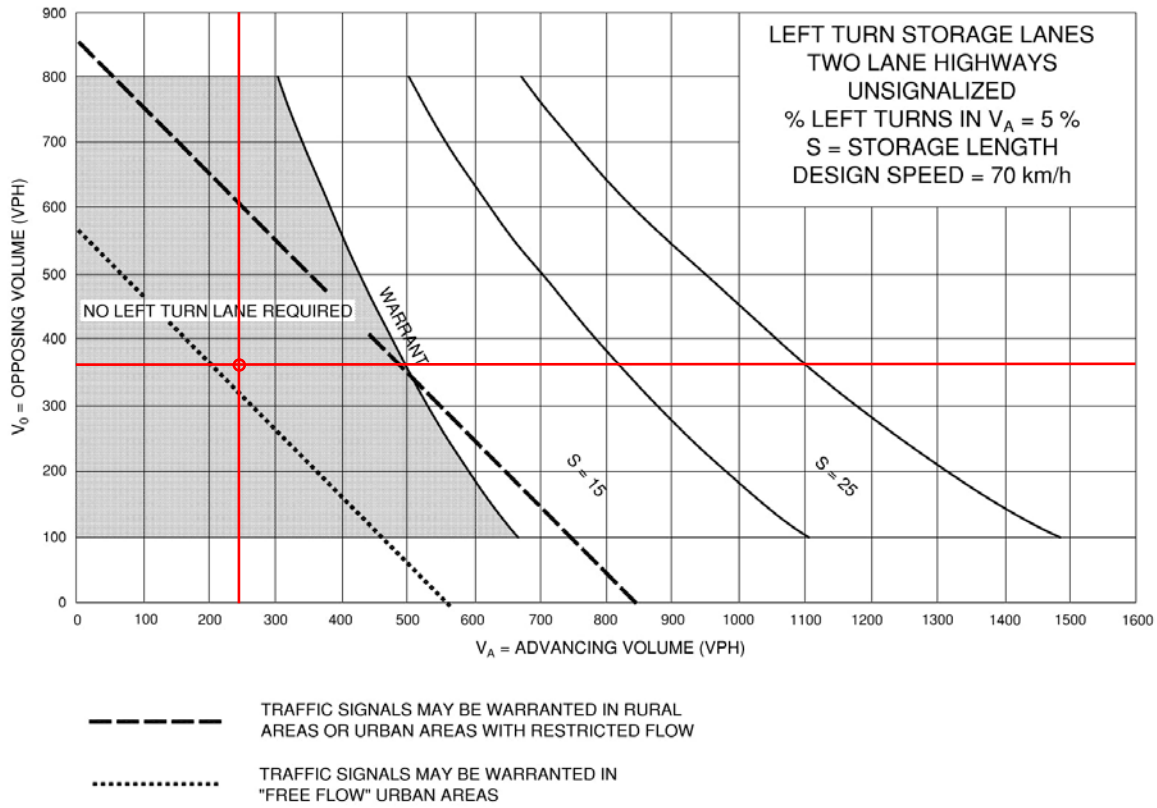


Va: 307
Vo: 180



Southbound Left County Road 29/Strathburn
Street/Gleeson Road Total 2034 PM

Exhibit 9A-11



Va: 245
Vo: 362

