

TRANSPORTATION IMPACT STUDY

**HOME FARM
RENTAL DEVELOPMENT**

**TOWN OF THE BLUE MOUNTAINS
COUNTY OF GREY**

PREPARED FOR:

MACPHERSON BUILDERS (BLUE MOUNTAINS) LTD.

PREPARED BY:

**C.F. CROZIER & ASSOCIATES INC.
70 HURON STREET, SUITE 100
COLLINGWOOD, ON L9Y 4L4**

JUNE 2026

CFCA FILE NO. 0721-3464

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Revision Number	Date	Comments
Rev.0	June 2026	TIS First Submission

Executive Summary

MacPherson Builders (Blue Mountains) Ltd. retained C.F. Crozier & Associates Inc. (Crozier) to complete a Transportation Impact Study to support the proposed affordable rental block located within the Home Farm subdivision in the Town of the Blue Mountain. The Site Plan prepared by RN Design, dated May 14, 2026, proposes 56 townhomes, each containing a primary multi-bedroom unit and a single bedroom additional unit within each townhome. The Site Plan illustrates a parking space in the driveway and in the garage of each unit, as well as 56 parking stalls throughout the site. A total of 168 parking spaces are proposed. Access to the rental units from the overall subdivision will be from connections to the cul-de-sacs at the ends of the municipal roads of Street 'A' and Street 'B'.

The proposed development of rental units and the adjacent 192 bed Long Term Care facility is forecast to generate a total of 74 and 99 two-way vehicle trips in the weekday a.m. and weekday p.m. peak hours, respectively.

Assessment of the existing, future background and future total traffic operations concluded that the proposed development and adjacent Long Term Care facility have a minor impact on the boundary road network. The intersection of Grey Road 19 and Birches Boulevard/ Street 'B' is forecasted to operate well with a Level of Service 'B' or better with minimal delay and available capacity. No mitigation measures are required to support the inclusion of the developments.

The Site Plan for the rental units can accommodate the expected vehicles on site and the provided parking adheres to the Town's Zoning By-law depending on the interpretation of the unit types. Blue Mountain Transit currently operates a route past the development. Creation of a new stop and/or rerouting into the subdivision would improve transit access. Sidewalks provided within the site will connect to the Home Farm subdivision providing pedestrian connectivity across the development.

Based on the study findings, the proposed development can be supported from a traffic operations perspective. Parking shall be confirmed with Town staff. The proposed Site Plan is also supported from a maneuverability and connectivity perspective.

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1.0 Introduction

MacPherson Builders (Blue Mountains) Ltd. retained C.F. Crozier & Associates Inc. (Crozier) to complete a Transportation Impact Study to support the proposed affordable rental block located within the Home Farm subdivision in the Town of the Blue Mountains.

1.1 Development Proposal

The site will be located in the northeast of the Home Farm subdivision, east of the proposed 192 bed Long Term Care facility.

Per the Site Plan prepared by RN Design, dated May 14, 2026, the proposed development includes 56 townhomes, each containing a primary multi-bedroom unit and a single bedroom additional unit within an additional dwelling unit in each townhome. The Site Plan illustrates a parking space in the driveway and in the garage of each unit as well as 56 parking stalls throughout the site. A total of 168 parking spaces are proposed. Access to the rental units from the overall subdivision will be from connections to the cul-de-sacs at the ends of the municipal roads of Street 'A' and Street 'B'.

Figure 1 illustrates Site Plan (RN Design, May 14, 2026). **Figure 2** illustrates the Home Farm Draft Plan (Higgins Engineering Ltd., June 11, 2020)

1.2 Study Purpose and Scope

The purpose of the study is to evaluate the transportation-related impacts of the proposed development and to recommend or confirm any required mitigation measures, if warranted. This TIS is in support of the Site Plan application. The study reviews the following main aspects of the proposed development from a transportation engineering perspective:

- Impacts of development traffic on the study road network through analyzing existing, future background, and future total traffic operations;
- Need for external roadway improvements to mitigate traffic impacts;
- Adequacy of the development plan to allow for anticipated vehicle servicing internally; and
- Active transportation network and potential transit connectivity.

Appendix A includes the Terms of Reference for the study, which was confirmed with Town of the Blue Mountains for this study.

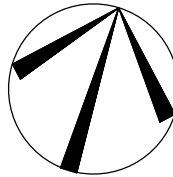
As confirmed in the Terms of Reference, this Transportation Impact Study considers the intersection of Grey Road 19 and Birches Boulevard. As the Home Farm subdivision has not yet been constructed, it is considered a background development for the study. The rental proposal and Long Term Care Facility have been jointly assessed under future total conditions.

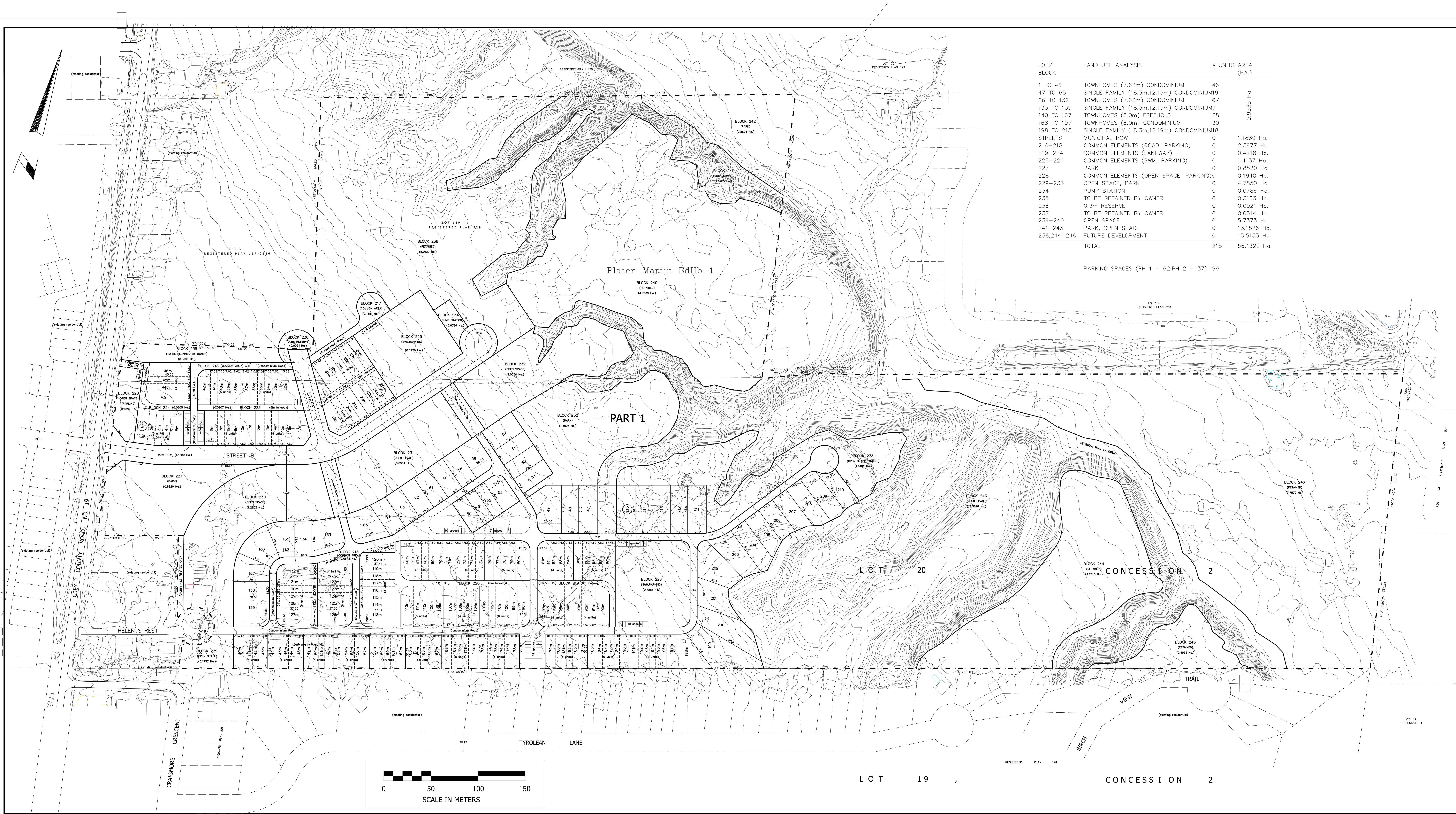


CT CONSULTANTS:

[illegible]

ZONE STANDARDS: R2		MULTIPLE DWELLINGS
ZONING MATRIX		
REQUIRED	PROPOSED	
MIN. LOT AREA (m2)	600.00	50123.00
MIN/ LOT FRONTAGE (m)	20.00	40.00
MIN. FRONT YARD (m)	7.50	69.93
MIN. INTERIOR SIDE YARD (m)	2.40	4.00
MIN. REAR YARD (m)	7.50	55.50
MAX. HEIGHT (m) (FINISHED GRADE @FRONT)	11.00	11.00
MAX. HEIGHT (STOREYS)	3.00	2.00
MIN. AMENITY AREA (m2)	10.00	18.00

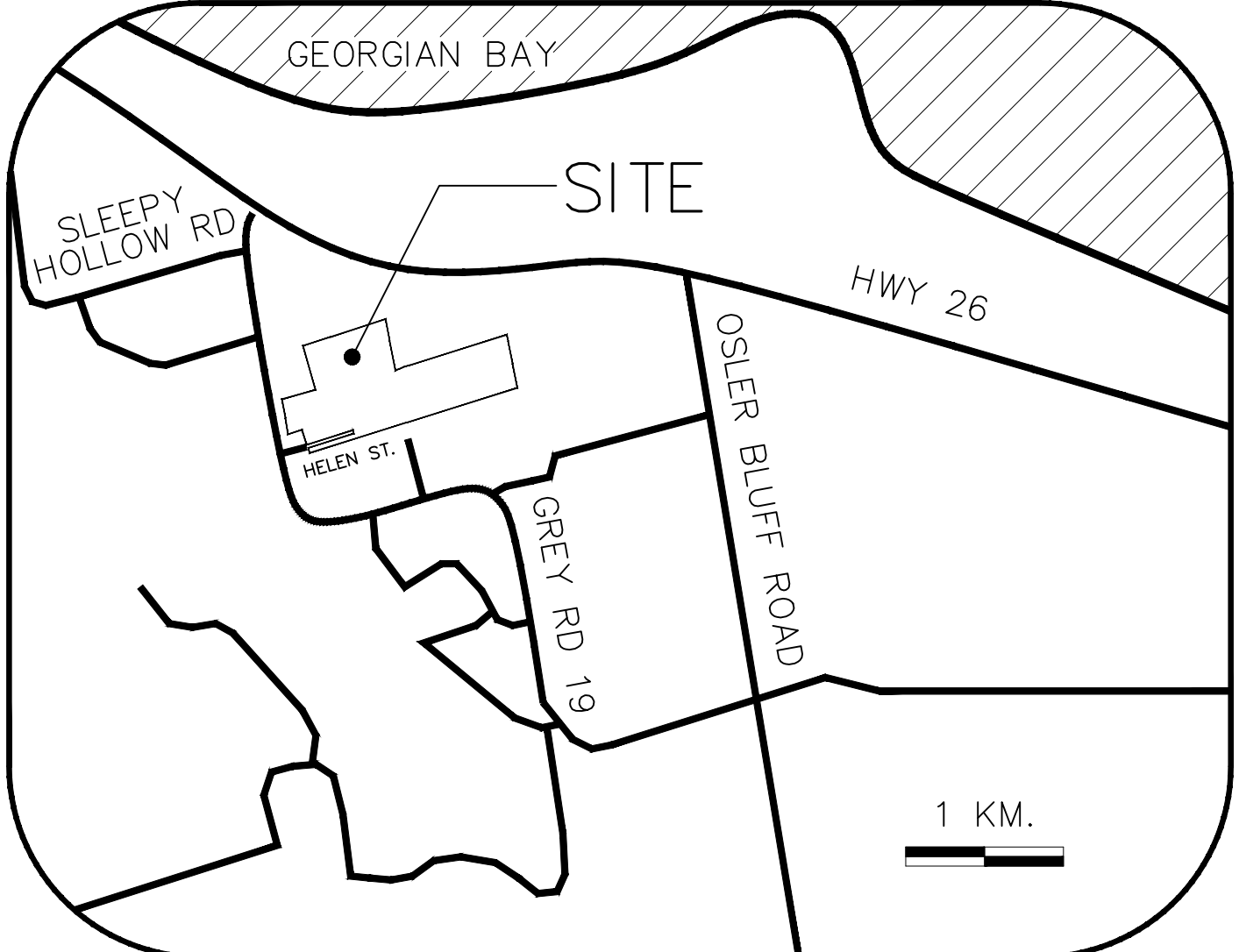
		WWW.RNDESIGN.COM T:905-738-3177 WWW.THEPLUSGROUP.CA	
			
CLIENT Macpherson			
PROJECT/LOCATION PROJECT			
DRAWING CONCEPT 3			
DATE 14-MAY-26		SCALE 1:500	
DRAWN BY PP		CHECKED BY	
PROJECT NUMBER 23051		Figure 1	



LOT/ BLOCK	LAND USE ANALYSIS	# UNITS	AREA (HA.)
1 TO 46	TOWNHOMES (7.62m) CONDOMINIUM	46	
47 TO 65	SINGLE FAMILY (18.3m,12.19m) CONDOMINIUM	19	
66 TO 132	TOWNHOMES (7.62m) CONDOMINIUM	67	
133 TO 139	SINGLE FAMILY (18.3m,12.19m) CONDOMINIUM	7	
140 TO 167	TOWNHOMES (6.0m) FREEHOLD	28	
168 TO 197	TOWNHOMES (6.0m) CONDOMINIUM	30	
198 TO 215	SINGLE FAMILY (18.3m,12.19m) CONDOMINIUM	18	
STREETS	MUNICIPAL ROW	0	1.1889 Ha.
216-218	COMMON ELEMENTS (ROAD, PARKING)	0	2.3977 Ha.
219-224	COMMON ELEMENTS (LANEWAY)	0	0.4718 Ha.
225-226	COMMON ELEMENTS (SWM, PARKING)	0	1.4137 Ha.
227	PARK	0	0.8520 Ha.
228	COMMON ELEMENTS (OPEN SPACE, PARKING)	0	0.1940 Ha.
229-233	OPEN SPACE, PARK	0	4.7850 Ha.
234	PUMP STATION	0	0.0786 Ha.
235	TO BE RETAINED BY OWNER	0	0.3103 Ha.
236	0.3m RESERVE	0	0.0021 Ha.
237	TO BE RETAINED BY OWNER	0	0.0514 Ha.
239-240	OPEN SPACE	0	5.7373 Ha.
241-243	PARK, OPEN SPACE	0	13.1526 Ha.
238,244-246	FUTURE DEVELOPMENT	0	15.5133 Ha.
TOTAL		215	56.1322 Ha.

PARKING SPACES (PH 1 - 62,PH 2 - 37) 99

DRAFT PLAN
OF PROPOSED SUBDIVISION
LOTS 2, 3, 4, 5, 6 AND 7,
REGISTERED PLAN 555 AND
PART OF LOT 20
CONCESSION 2
PART OF HELEN STREET ROW
R.P. 555
TOWN OF THE BLUE MOUNTAINS
COUNTY OF GREY



KEY PLAN

OWNER'S AUTHORIZATION
I hereby authorize Higgins Engineering Limited, Consulting Engineers
and Planners, to prepare and submit this proposed plan of subdivision
DATE
MACPHERSON BUILDERS (BLUE MOUNTAINS) LIMITED
RUSSELL HIGGINS (AUTHORIZED SIGNING OFFICER)

SURVEYOR'S CERTIFICATE
I hereby certify that the boundary of the lands to be subdivided
as shown on this plan and their relationship to the adjacent
lands are accurately and correctly shown.
DATE
ZUBEK, EMO PATTEN & THOMSEN LTD.

ADDITIONAL INFORMATION
Required under Section 50(2) of the Planning Act
(a) as shown (b) as shown (c) as shown (d) as shown (e) as shown (f) as shown (g) as shown (h) as shown (i) as shown (j) as shown (k) as shown (l) as shown (m) as shown (n) as shown (o) as shown (p) as shown (q) as shown (r) as shown (s) as shown (t) as shown (u) as shown (v) as shown (w) as shown (x) as shown (y) as shown (z) as shown

HIGGINS ENGINEERING LIMITED
CONSULTING ENGINEERS AND PLANNERS
416 MOORE AVENUE, SUITE 306, TORONTO, (416) 443-8001

TOWN OF THE BLUE MOUNTAINS
PLANNING DEPARTMENT

PLAN OF PROPOSED SUBDIVISION
PART LOT 20, CONCESSION 2,
TOWN OF THE BLUE MOUNTAINS
COUNTY OF GREY

SCALE 1:1000
DATE JUNE 11, 2020
Figure 2

2.0 Existing Conditions

This section outlines the current conditions of the transportation network in the vicinity of the site. Details of the study road network, including traffic controls, lane configurations, speed limits, transit routes and stops, active transportation infrastructure and other relevant transportation elements are identified. The existing traffic operations are also summarized.

2.1 Study Road Network

The study road network consists of the county road Grey Road 19 and local road Birches Boulevard. Grey Road 19 is a two-way roadway with a single lane in the northbound and southbound direction. The roadway has a posted speed of 50 km/h along the site frontage. Birches Boulevard is a two-way roadway with a single lane in the eastbound and westbound direction. The roadway is assumed to have a speed limit of 50km/h. The intersection is stop controlled for the local road.

Grey Road 19 has no formal active transportation facilities but provides paved shoulders and is an official cycling route for the County. Birches Boulevard provides sidewalks on both sides of the roadway.

2.2 Transportation Data

Traffic data was collected by Spectrum Traffic Inc. at the intersection of Grey Road 19 and Birches Boulevard on Thursday June 4th, 2026, during the hours of 6:00 a.m. to 10:00 a.m. and 3:00 p.m. to 7:00 p.m. **Appendix B** contains all transportation data used in support of this study.

2.3 Traffic Modelling and Assumptions

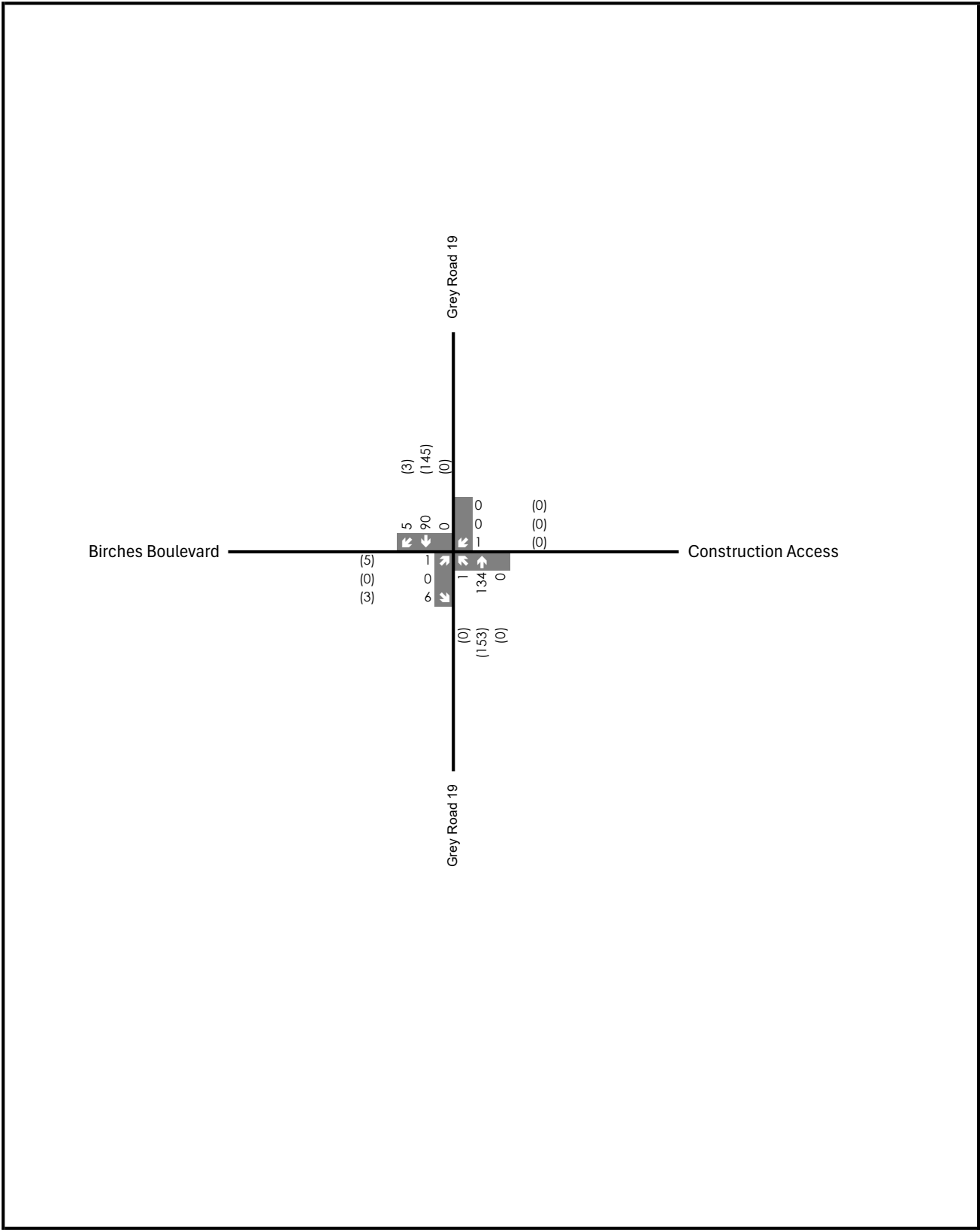
Traffic conditions modelled in Synchro 12 using the Highway Capacity Manual (HCM) methodology and default Synchro parameters. Roadway geometrics were modelled based on the existing study road network. The heavy vehicle volumes and peak hour factors from the collected volumes were applied to the Synchro model.

The assessment of the study intersections is based on the HCM methodology, which prescribes a method for estimating the Level of Service, control delay, and volume-to-capacity of an intersection along with the approaches and movements of the intersection. The Level of Service (LOS) metric provides a general performance measure of the quality of the service from a driver's perspective and ranges a letter from "A" to "F"; "A" representing best performance and "F" representing worst performance. **Appendix C** contains the Level of Service definitions.

Control delay is the additional time added per vehicle as a result of the intersection and its associated control (i.e. Traffic Light / Stop Control) compared to the average speed on the adjoining roadway segments. Finally, volume-to-capacity ratio indicates the fraction of the capacity for a particular movement used by traffic volumes at an intersection.

2.4 Intersection Operations

Table 1 outlines the 2026 existing traffic operations at the study intersection. **Figure 3** illustrates the 2026 existing traffic volumes used in the operational analysis. **Appendix D** contains the detailed capacity analysis worksheets.



Legend xx A.M. Peak Hour Traffic Volumes (xx) P.M. Peak Hour Traffic Volumes	Home Farm Rental Units Grey Road 19, Town of the Blue Mountains	 CROZIER CONSULTING ENGINEERS	Figure 3
	Existing Traffic Volumes		Project No. 0721-3464 Date: June 26, 2025 Analyst: KH

Table 1: Existing Conditions Traffic Operations

Intersection	Movement	LOS		Delay (s)		v/c ratio	
		AM	PM	AM	PM	AM	PM
Grey Road 19 & Birches Boulevard/ Construction Access	NB	A	A	7	0	0.01	-
	EB	A	B	9	10	0.01	0.01
	WB	B	A	10	0	0.01	-
	SB	A	A	0	0	-	-

The minor approach stop-controlled intersection of Grey Road 19 and Birches Boulevard/ Construction Access is operating below capacity, at a LOS "B" or better during the peak hours, with minimal delays and capacity for future growth.

3.0 Future Background Conditions

This section summarizes the future background conditions of the study road network and provides details relating to growth rates, future transportation network improvements, and background developments within the study area. As established in the Terms of Reference, this study considers the 2030, 2035 and 2040 horizon years in the future background traffic analysis.

3.1 Growth Rates

As established in the Terms of Reference, the Town's Phase 1 Official Plan Amendment Matrix notes that the population grew by 2,330 residents between 2006 and 2021, a growth rate of 1.95% per year. The forecasted population growth between 2021 and 2031 is 2.56% per year, however the Home Farm development contributes to the future population of the Town. A growth rate of 2% was utilized to not double count Home Farm's impact on future volumes on Grey Road 19.

3.2 Background Developments

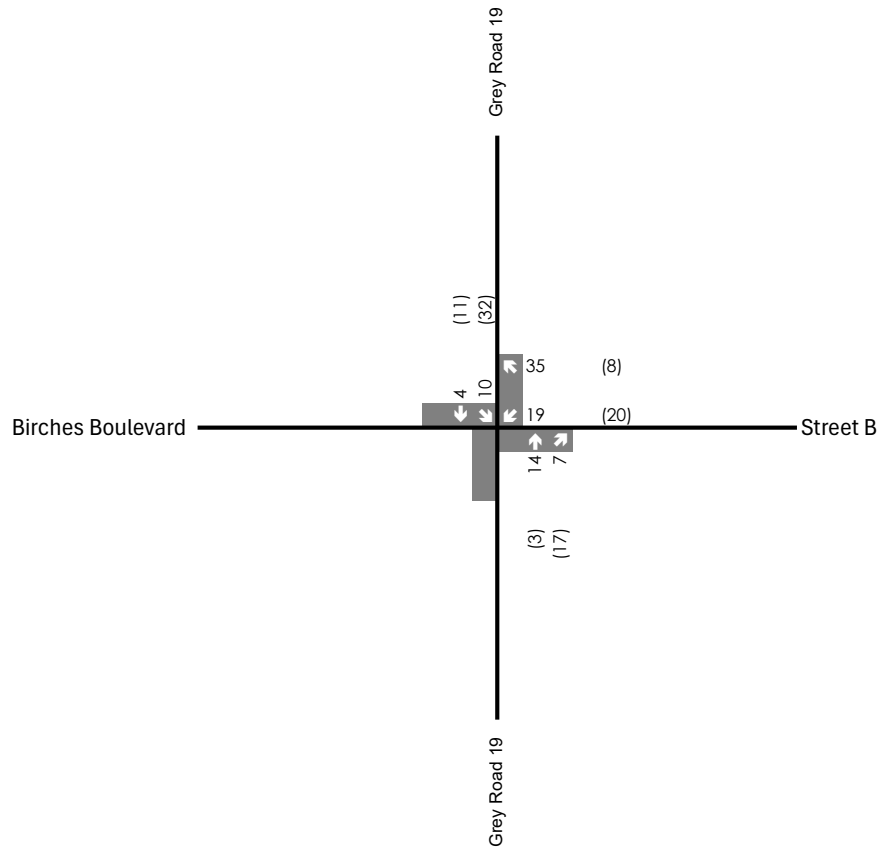
As previously mentioned, the Home Farm development is not yet occupied. Crozier prepared a TIS for the Home Farm subdivision in December 2013 based on a November 2013 Draft Plan and the Institute of Transportation Engineers (ITE) Trip Generation Manual, 8th Edition.

The trip generation for the site has been updated based on the 2020 Draft Plan and the 12th Edition of the ITE Trip Generation Manual. The distribution of trips established in the December 2013 TIS was applied. The updated trip generation for the development has been provided in **Table 2**.

Table 2: Home Farm Trip Generation

Land Use	Units	AM Peak Hour		PM Peak Hour	
		Inbound	Outbound	Inbound	Outbound
210: Single Family Detached	44	9	26	28	17
215: Single Family Attached	171	21	65	51	39
Total Trips		30	91	79	56

The trip assignment for the Home Farm development is illustrated in **Figure 4**. Relevant excerpts from the Home Farm TIS have been included in **Appendix E**. ITE Trip Generation excerpts are included in **Appendix F**.



Legend xx A.M. Peak Hour Traffic Volumes (xx) P.M. Peak Hour Traffic Volumes	Home Farm Rental Units Grey Road 19, Town of the Blue Mountains	 CROZIER CONSULTING ENGINEERS	Figure 4
	Home Farm Background Development		Project No. 0721-3464 Date: June 26, 2025 Analyst: KH

3.3 Intersection Operations

Figure 5, Figure 6, and Figure 7 illustrate the 2030, 2035 and 2040 future background traffic operations, respectively. **Table 3** outlines the future background traffic operations for the study intersections. **Appendix D** contains the detailed capacity analysis worksheets.

Table 3: Future Background Traffic Operations

Horizon Year	Grey Road 19 & Birches Boulevard / Street 'B'						
	Movement	LOS		Delay (s)		v/c ratio	
		AM	PM	AM	PM	AM	PM
2030	NB	A	A	7	0	0.01	-
	EB	A	B	9	11	0.01	0.02
	WB	B	B	10	12	0.09	0.05
	SB	A	A	8	8	0.01	0.03
2035	NB	A	A	8	0	0.01	-
	EB	A	B	9	12	0.01	0.02
	WB	B	B	11	12	0.09	0.05
	SB	A	A	8	8	0.01	0.03
2040	NB	A	A	8	0	0.01	-
	EB	A	B	10	12	0.01	0.02
	WB	B	B	11	12	0.09	0.06
	SB	A	A	8	8	0.01	0.03

The metrics summarized above indicate that the study intersection is expected to continue operating well with the addition of the Home Farm subdivision. The intersection continues to operate at a LOS 'B' or better with minimal delays and capacity for future volumes.

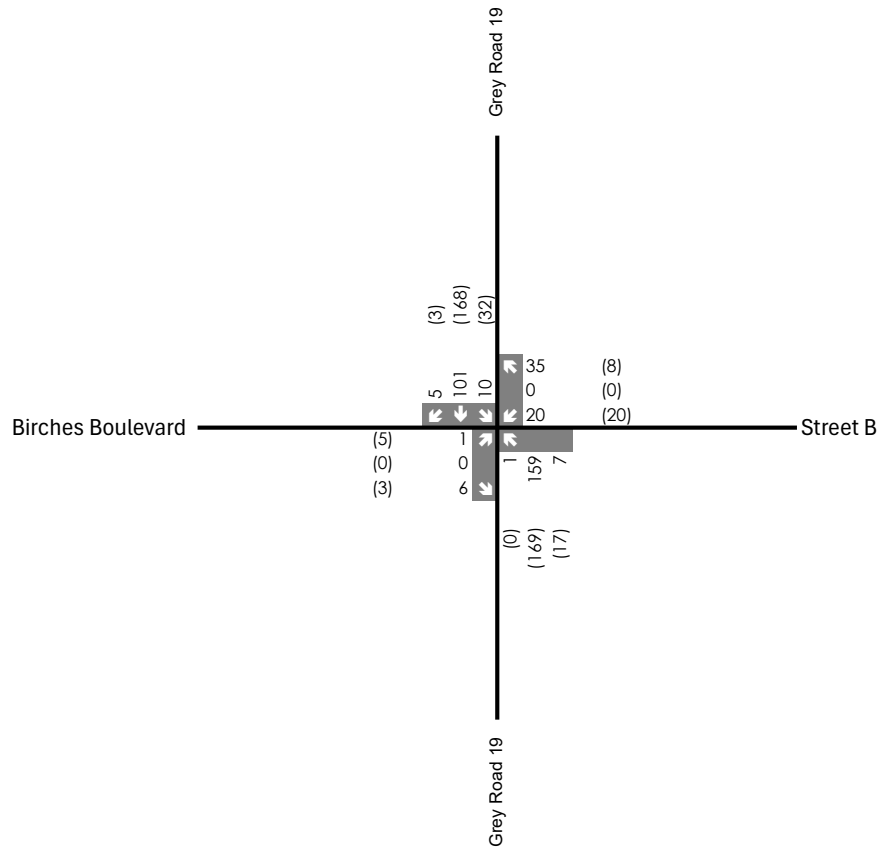
4.0 Site Generated Traffic

The proposed development will result in additional turning movements at the site access. Therefore, this section describes the trip forecasting methodology and results of this forecast for the development proposal.

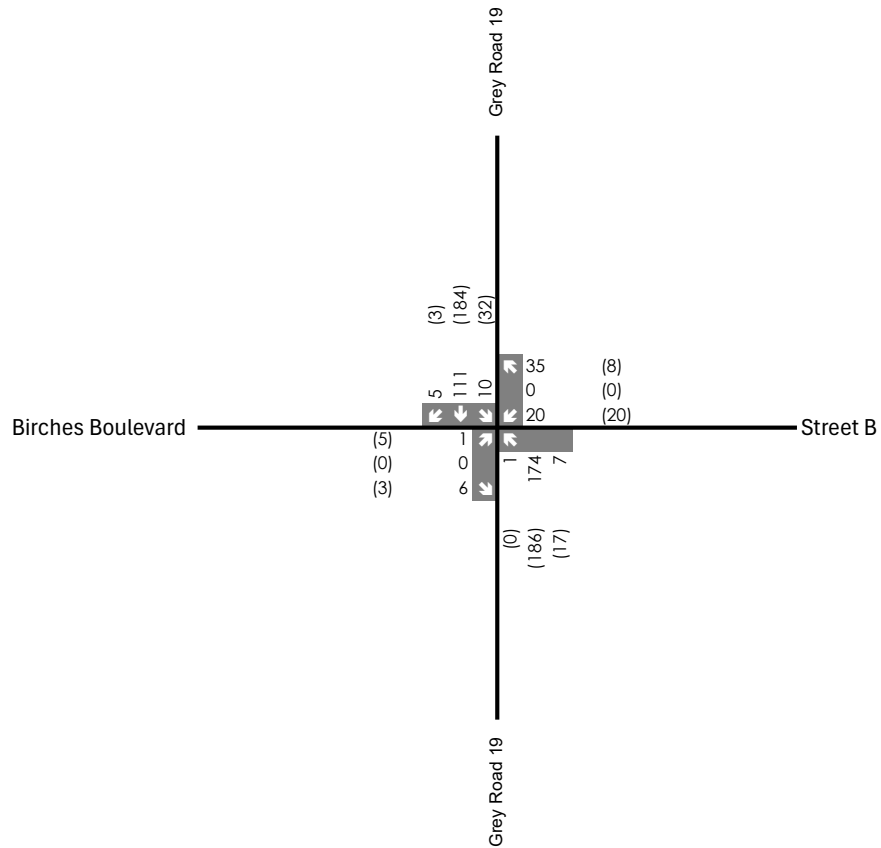
4.1 Trip Generation

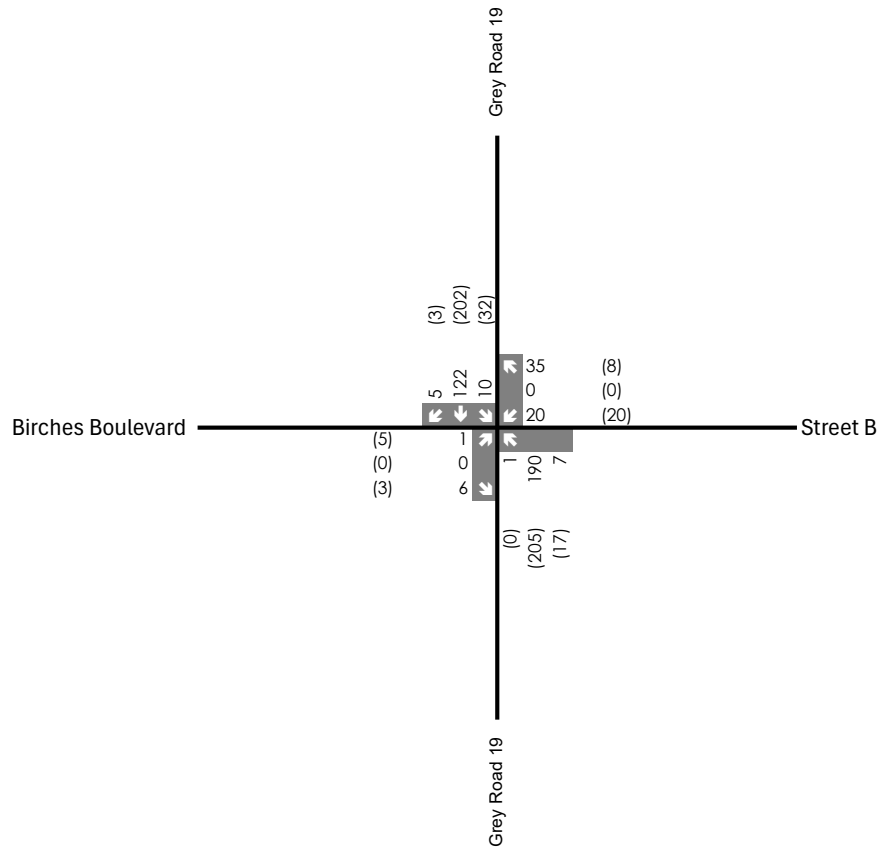
As noted, the development is proposed to include 112 units. The adjacent Long Term Care facility proposes 192 beds. As established in the Term of Reference, these separate developments have been assessed together under future total conditions.

The trip generation of the proposed developments were forecasted using published data from the ITE Trip Generation Manual, 12th Edition. Land Use Category (LUC) 223 "Affordable Housing" was applied to the proposed residential units. LUC 620 "Nursing Home" was applied to the Long Term Care units.



Legend xx A.M. Peak Hour Traffic Volumes (xx) P.M. Peak Hour Traffic Volumes	Home Farm Rental Units Grey Road 19, Town of the Blue Mountains	 CROZIER CONSULTING ENGINEERS	Figure 5 Project No. 0721-3464 Date: June 26, 2025 Analyst: KH
	2030 Future Background Traffic Volumes		





Legend xx A.M. Peak Hour Traffic Volumes (xx) P.M. Peak Hour Traffic Volumes	Home Farm Rental Units Grey Road 19, Town of the Blue Mountains	 CROZIER CONSULTING ENGINEERS	Figure 7 Project No. 0721-3464 Date: June 26, 2025 Analyst: KH
	2040 Future Background Traffic Volumes		

Relevant excerpts from the ITE Trip Generation Manual, 12th Edition have been included in **Appendix F**. The forecasted trip generation of the proposed developments are summarized in **Table 4**.

Table 4: Trip Generation

Land Use	Units/Beds	AM Peak Hour		PM Peak Hour	
		Inbound	Outbound	Inbound	Outbound
223: Affordable Housing	112	12	29	33	24
620: Nursing Home	192	24	9	14	28
Total Trips		36	38	47	52

The full buildout of the proposed development is expected to generate a total of 74 and 99 two-way trips during the weekday a.m. and p.m. peak hours, respectively.

4.2 Trip Distribution and Assignment

The trips generated by the proposed development were distributed to the study road network through Street 'B'. The same distribution of northbound and southbound trips from the Home Farm TIS was applied to the developments. **Figure 8** illustrates the trip assignment for the site and adjacent Long Term Care facility.

5.0 Future Total Conditions

This section will summarize the future total conditions of the study road network. The future total traffic volumes for the horizon years consist of the following components:

- Future background traffic volumes from the corresponding horizon year;
- Proposed development site generated traffic volumes.

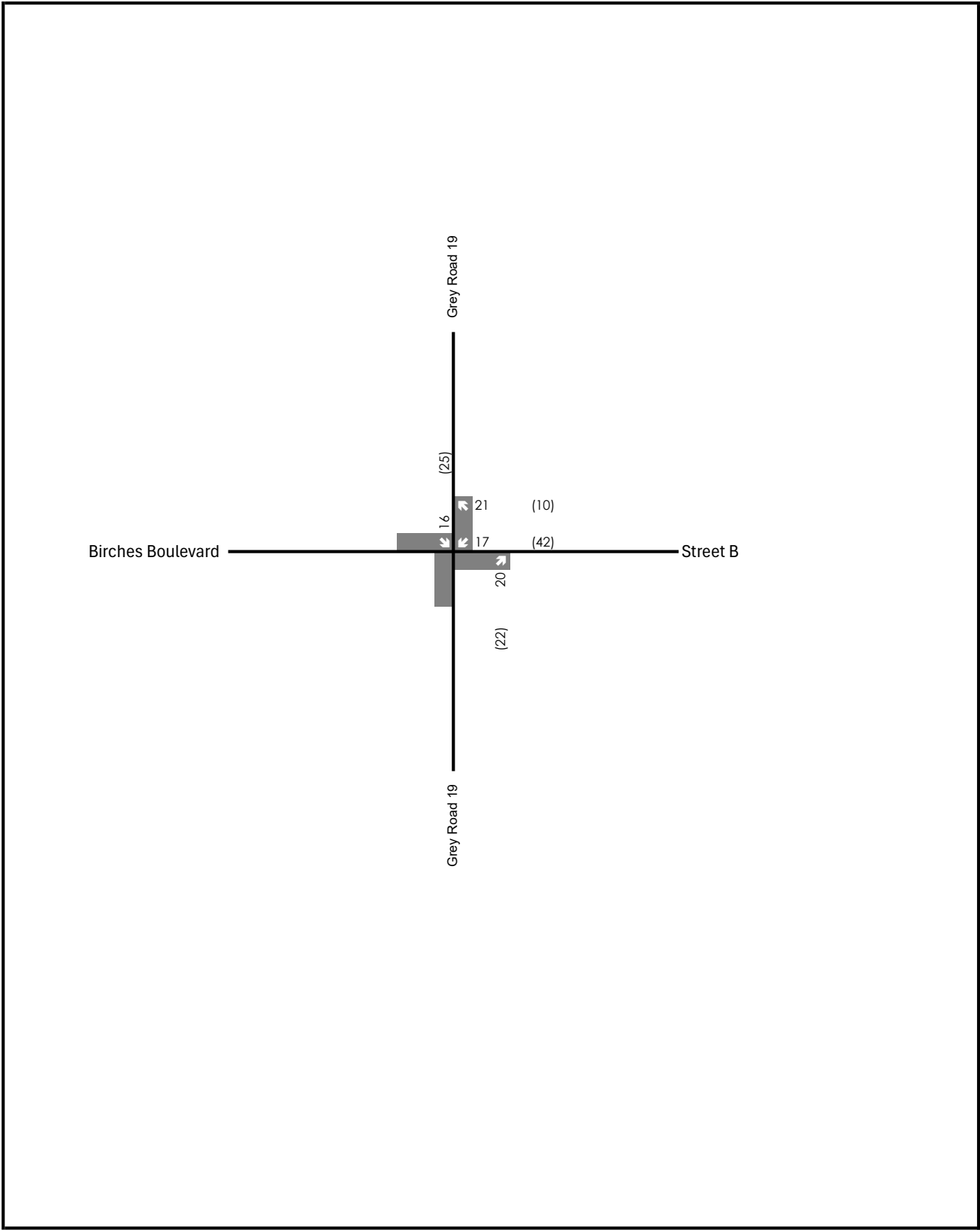
The resulting total volumes in the horizon years 2030, 2035 and 2040 are presented in **Figure 9**, **Figure 10**, and **Figure 11**, respectively.

5.1 Signal Warrant Assessment

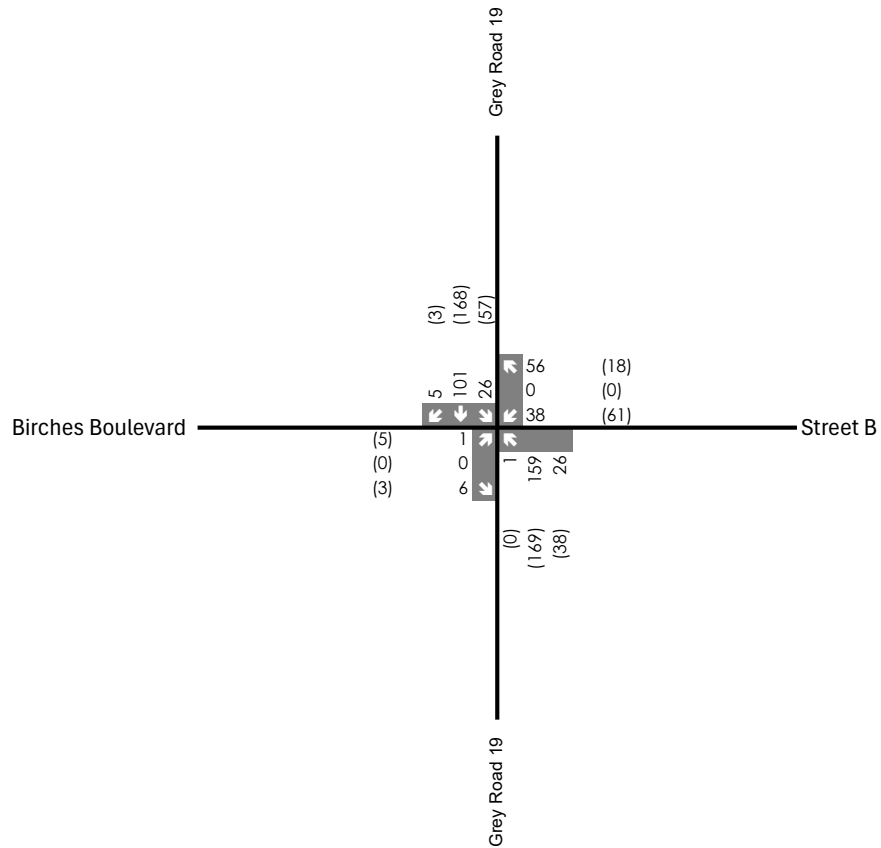
A signal warrant was undertaken at the site access to determine if a traffic signal should be implemented. Justification 7 within the Ontario Traffic Manual Book 12 was utilized as the fourth leg of the intersection is a new roadway, with new volumes. The warrant, included in **Appendix G**, found that signalization of the intersection should not be considered.

5.2 Auxiliary Turn-Lane Warrants Assessment

A left-turn lane warrant was undertaken at the site access for the southbound direction to determine if a turn lane is required to support movements into the new roadway. The warrant charts provided in the Ministry of Transportation's Design Supplement for the Transportation Association of Canada Geometric Design Guide for Canadian Roads were utilized. The warrants, included in **Appendix H**, found that no turn lane is warranted.



Legend xx A.M. Peak Hour Traffic Volumes (xx) P.M. Peak Hour Traffic Volumes	Home Farm Rental Units Grey Road 19, Town of the Blue Mountains	 CROZIER CONSULTING ENGINEERS	Figure 8 Project No. 0721-3464 Date: June 26, 2025 Analyst: KH
	Trip Assignment		



Legend

xx A.M. Peak Hour Traffic Volumes
(xx) P.M. Peak Hour Traffic Volumes

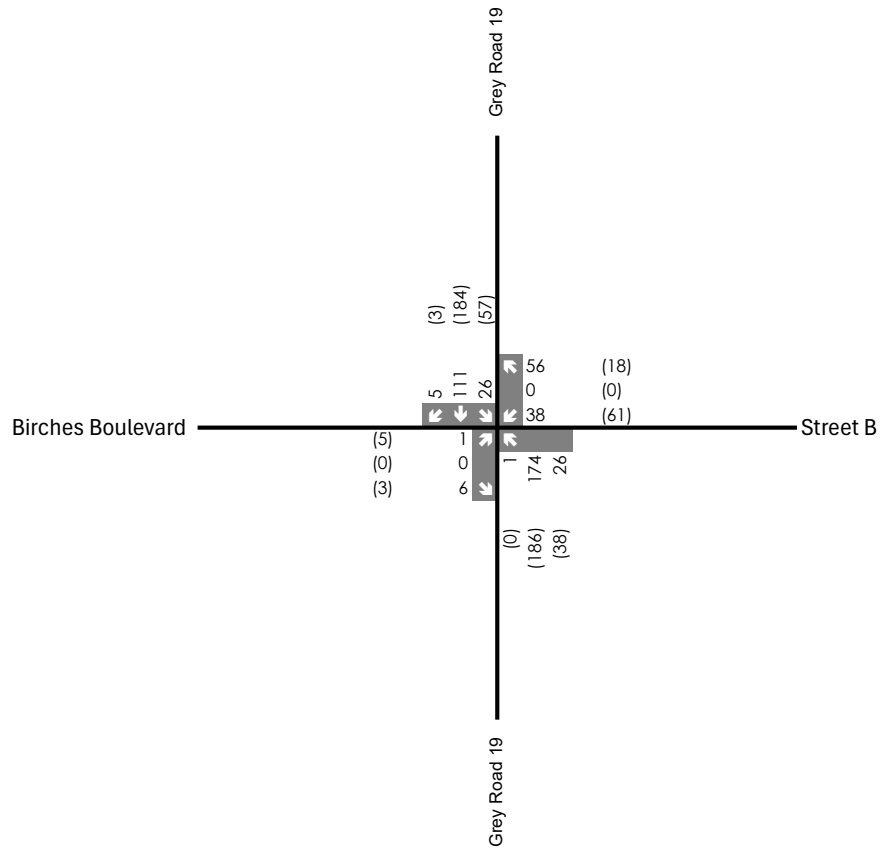
**Home Farm Rental Units
Grey Road 19, Town of the Blue Mountains**

2030 Future Total Traffic Volumes

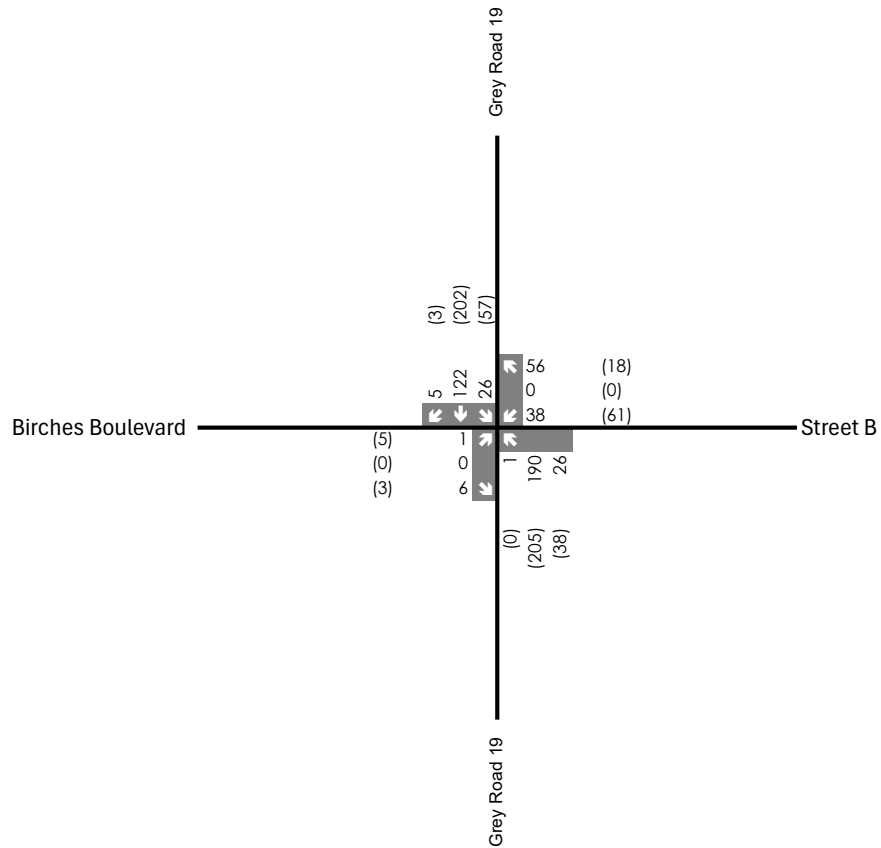


Figure 9

Project No. 0721-3464
Date: June 26, 2025
Analyst: KH



Legend xx A.M. Peak Hour Traffic Volumes (xx) P.M. Peak Hour Traffic Volumes	Home Farm Rental Units Grey Road 19, Town of the Blue Mountains	 CROZIER CONSULTING ENGINEERS	Figure 10 Project No. 0721-3464 Date: June 26, 2025 Analyst: KH
	2035 Future Total Volumes		



Legend xx A.M. Peak Hour Traffic Volumes (xx) P.M. Peak Hour Traffic Volumes	Home Farm Rental Units Grey Road 19, Town of the Blue Mountains	 CROZIER CONSULTING ENGINEERS	Figure 11 Project No. 0721-3464 Date: June 26, 2025 Analyst: KH
	2040 Future Total Volumes		

5.3 Intersection Operations

Table 5 outlines the future total traffic operations. **Appendix D** contains the detailed capacity analysis worksheets.

Table 5: Future Total Traffic Operations

Horizon Year	Grey Road 19 & Birches Boulevard / Street 'B'						
	Movement	LOS		Delay (s)		v/c ratio	
		AM	PM	AM	PM	AM	PM
2030	NB	A	A	7	0	0.01	-
	EB	A	B	9	12	0.01	0.02
	WB	B	B	11	13	0.16	0.16
	SB	A	A	8	8	0.02	0.05
2035	NB	A	A	8	0	0.01	-
	EB	A	B	10	12	0.01	0.02
	WB	B	B	11	14	0.16	0.17
	SB	A	A	8	8	0.02	0.05
2040	NB	A	A	8	0	0.01	-
	EB	A	B	10	13	0.01	0.02
	WB	B	B	12	15	0.17	0.18
	SB	A	A	8	8	0.02	0.05

The intersection of Grey Road 19 and Birches Boulevard/ Street 'B' is forecasted to continue operating well with a LOS 'B' or better. The additional traffic generated by the proposed developments are expected to have a minimal impact on the operations of the boundary road network. Accordingly, the proposed development can be supported from an operations perspective.

6.0 Site Plan Review

6.1 Vehicle Maneuverability Review

Vehicle maneuverability for the rental Site Plan was assessed using Auto-TURN vehicle turning software. The vehicles expected to operate within and service the development proposal were assessed as to whether they can be safely accommodated without conflicts or constraints.

Appendix I includes the vehicle turning diagrams for an aerial fire truck, waste collection vehicle, snowplow and passenger car vehicle, which are the expected design vehicles to operate onsite.

6.2 Parking Review

As noted in the Terms of Reference the site was assessed from a parking perspective. The proposed parking supply of the development was assessed against the requirements outlined in the Town of the Blue Mountains' Zoning By-Law No. 2018-65 requirements.

The Site Plan identified a parking reduction for the multiple dwelling unit use. The By-law defines the use as a "building containing four or more dwelling units that would not be considered another type

of dwelling unit as defined by this By-law." As the units have independent entrances, they may alternatively be classified as townhouse units. The additional dwelling units (ADU) do not have a definition or parking rate within the By-law, however accessory dwelling units, which are within non-residential uses could be considered a comparable use.

Table 6 outlines the different use requirements and the proposed supply. Town Planning Staff should confirm the parking requirement, and further investigation can be provided within a Parking Study if required.

Table 6: Parking Review

Multiple Dwelling Unit						
Units	Bedroom	Parking Rate	Visitor Rate	Required Parking	Provided Parking ²	Surplus/Deficiency
112 ¹	3+	2.25	0.25	140	112	-56
	1	1.25	0.25	84	56	
Townhouse/Additional Units						
56 Towns	N/A	2	N/A	112	112	0
56 ADU	N/A	1	N/A	56	56	
Proposed Parking Rate						
112 ¹	3+	2	N/A	112	112	0
	1	1	N/A	56	56	

Note 1: 50/50 split of bedrooms assumed.

Note 2: 56 spaces within garages and 56 within driveways, assumed for Townhouses. 56 spaces within parking stalls, assumed for ADUs.

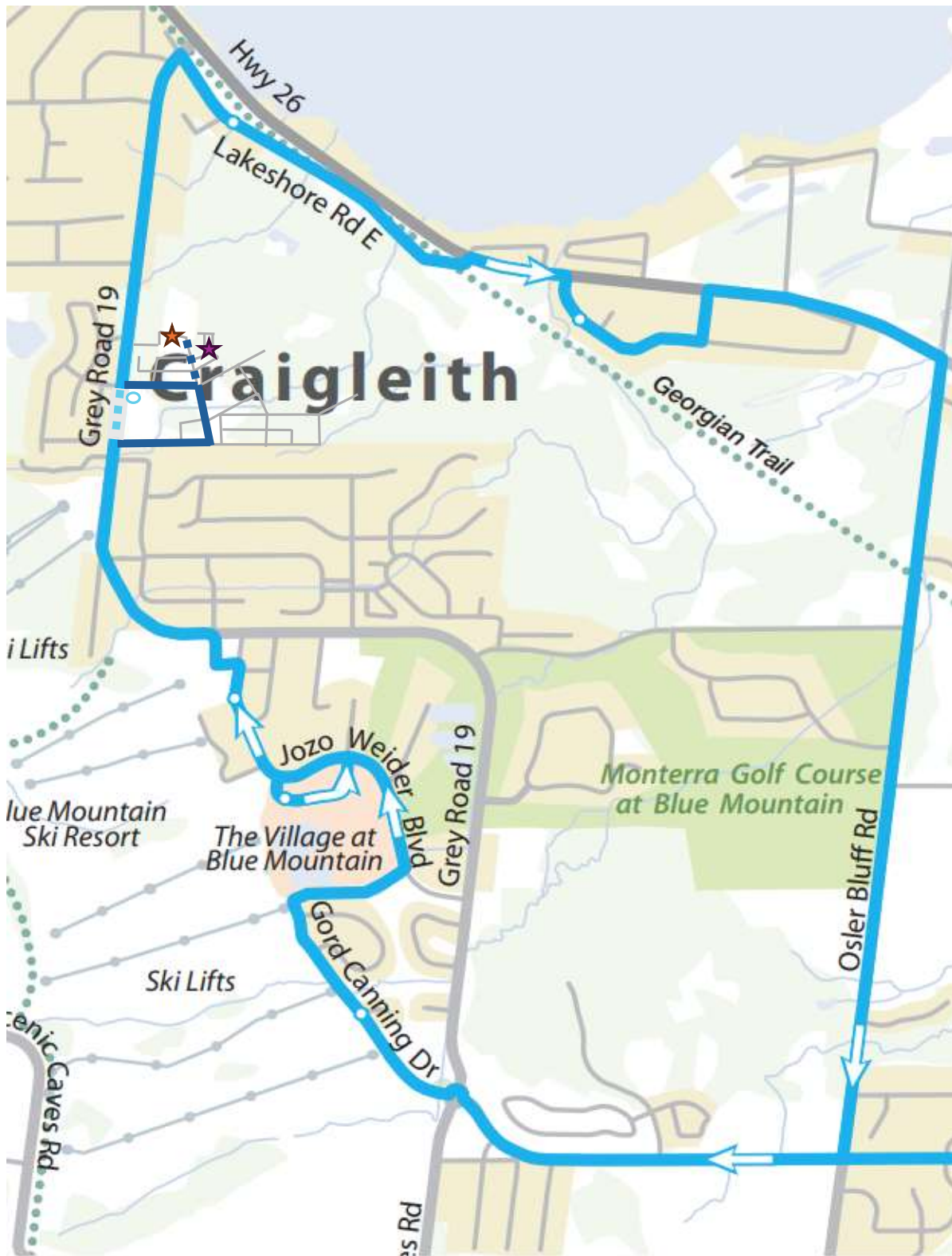
6.3 Transportation Demand Management

Transportation Demand Management is the practice of influencing the travel choices for users through infrastructure improvements, strategic services, or public outreach, with the purpose of shifting travel demands away from single occupancy vehicles to make more efficient use of the transportation system.

The Blue Mountain Transit Link operates Monday through Sunday between Blue Mountain and Downtown Collingwood. Buses operate hourly with the closest stops located at Lakeshore Road E to the north and Blue Mountain Inn to the south. Transit operates in a one-way loop, northbound on Grey Road 19. Pre-consultation comments provided by the Town requested a review of the Town's existing transit services for extension or rerouting to service the site. **Figure 12** illustrates three potential options for the Town to consider.

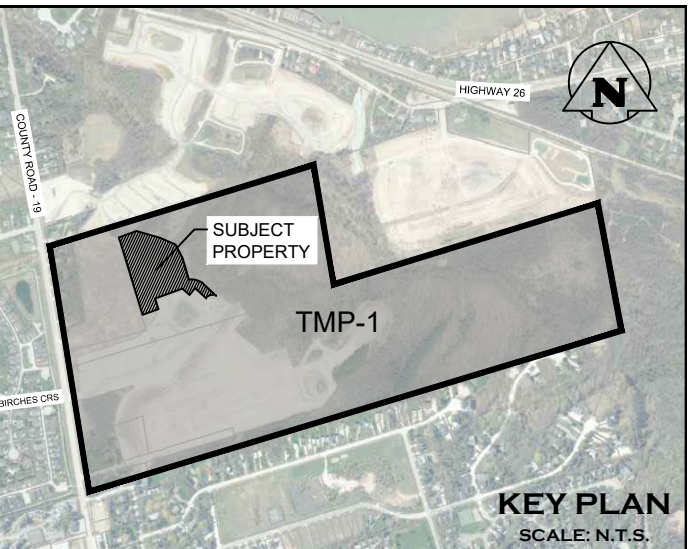
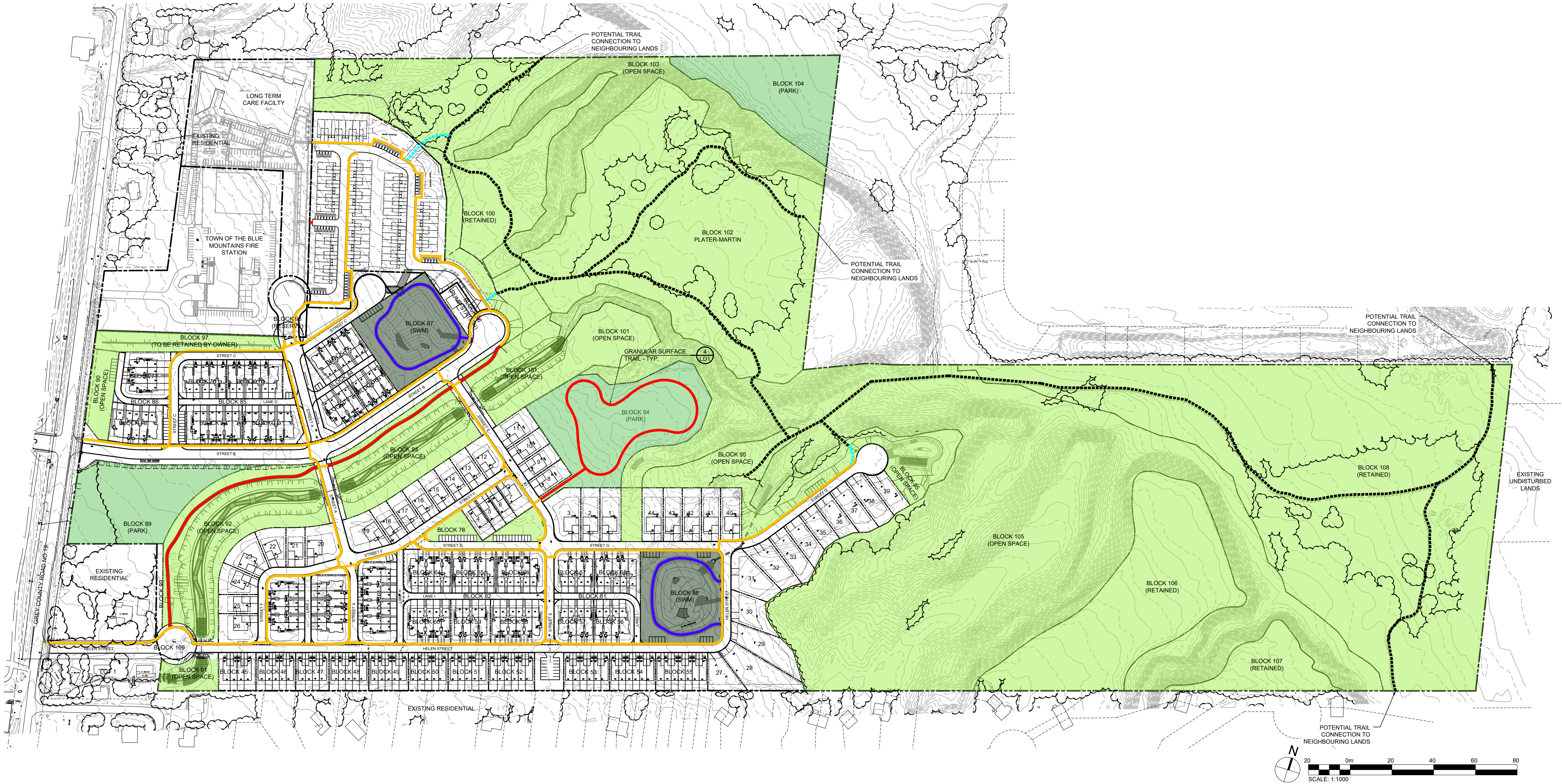
- A new stop can be added on Grey Road 19 at Street 'B' to service the Home Farm subdivision as well as surrounding residential neighbourhoods.
- The route could move through the subdivision along Helen Street, Street 'A' and Street 'B'.
- The route could move through the subdivision along Helen Street and Street 'A', looping through the Long Term Care facility before returning to Grey Road 19 via Street 'B'.

The Town also requested a review of active transportation connectivity of the proposed development and overall subdivision. A Trails Master Plan was prepared by Crozier, which illustrates the sidewalk connectivity throughout the site. Extension of the sidewalks on Birches Boulevard is recommended to allow for accessible connectivity between the two neighbourhoods. **Figure 13** illustrates the Trails Master Plan.



Base Map from Collingwood Transit Map (Effective January 2025)

Legend  Proposed LTC Facility  Proposed Rental Units  Potential Route Change	Home Farm Rental Units Grey Road 19, Town of the Blue Mountains Potential Transit Connections	 CROZIER CONSULTING ENGINEERS	Figure 12 Project No. 0721-3464 Date: June 26, 2025 Analyst: KH
---	--	---	---

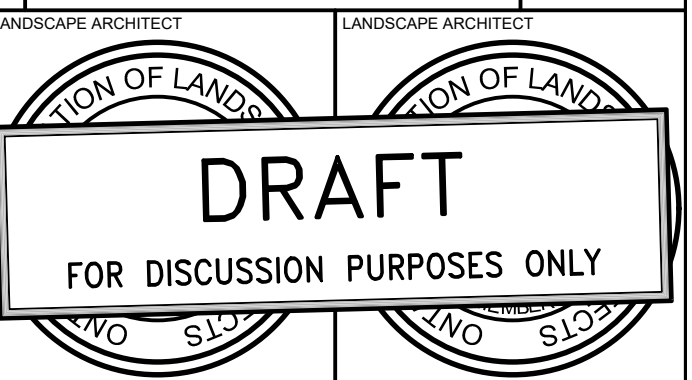


LEGEND	
	PROPERTY BOUNDARY
	LOT BOUNDARY
	EDGE OF EXISTING VEGETATION
	PARK/PARKETTE
	OPEN SPACE/ENVIRONMENTAL PROTECTION & ADDITIONAL LANDS RETAINED BY OWNER
	STORMWATER MANAGEMENT
	STREET BASED TRAIL (1.5m CONCRETE SIDEWALK)
	SWM POND TRAIL (4.0m ASPHALT WALKWAY)
	OPEN SPACE TRAIL (3.0m LIMESTONE SCREENING)
	POTENTIAL TRAIL CONNECTION
	EXISTING TRAIL TO REMAIN

- NOTES:
1. TOPOGRAPHIC SURVEY AND BASE PLAN PROVIDED BY ****.
 2. BASE INFORMATION PROVIDED BY ****.
 3. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE NOTED.
 4. CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UTILITIES BEFORE CONSTRUCTION BEGINS.

1. THIS DRAWING IS THE EXCLUSIVE PROPERTY OF C.F. CROZIER & ASSOCIATES INC. AND THE MODIFICATION AND/OR REPRODUCTION OF ANY PART OF THIS DRAWING IS STRICTLY PROHIBITED WITHOUT WRITTEN AUTHORIZATION FROM THIS OFFICE.
2. THE DIGITAL FILES CONTAIN INTELLECTUAL AND DIGITAL DATA PROPERTY THAT IS THE EXCLUSIVE PROPERTY OF C.F. CROZIER & ASSOCIATES INC.
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4. THIS DRAWING IS TO BE READ AND UNDERSTOOD IN CONJUNCTION WITH ALL OTHER PLANS AND DOCUMENTS APPLICABLE TO THIS PROJECT.
5. ALL EXISTING UNDERGROUND UTILITIES TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO CONSTRUCTION. DO NOT SCALE DRAWINGS.

NO.	ISSUE	YYYYMMDD
0.	*NOT ISSUED	
1.	*NOT ISSUED	
2.	ISSUED FOR THIRD SUBMISSION	2023/04/18
3.	ISSUED FOR FOURTH SUBMISSION	2024/03/15
4.	ISSUED FOR CLIENT REVIEW	2024/07/19
5.	ISSUED FOR FIFTH SUBMISSION	2025/04/17
6.	ISSUED FOR SUBDIVISION AGREEMENT	2025/06/06
7.	ISSUED FOR RENTAL APPLICATION	2026/06/XX



Project
HOME FARM RENTAL DEVELOPMENT
TOWN OF THE BLUE MOUNTAINS

Drawing
TRAIL MASTER PLAN



Drawn By
K.C.

Design By
K.C./A.P.

Project No.
721-3464-2

Check By
M.C.

Check By
A.P.

Figure 13

7.0 Conclusions and Recommendations

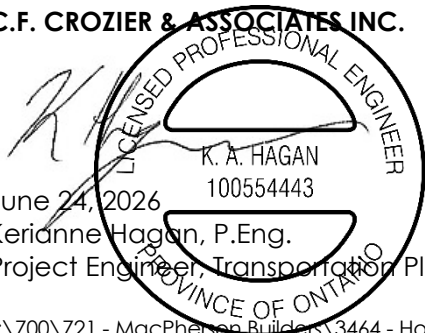
This study has assessed the transportation impacts of the proposed affordable rental unit development within the Home Farm subdivision. Assessment of the existing, future background and future total traffic operations concluded that the proposed development and adjacent Long Term Care facility have a minor impact on the boundary road network. No mitigation measures are required to support the inclusion of the developments.

The Site Plan for the rental units can accommodate the expected vehicles on site and the provided parking adheres to the Town's Zoning By-law depending on the interpretation of the unit types. Blue Mountain Transit currently operates past the development. Creation of a new stop and/or rerouting into the subdivision would improve transit access. Sidewalks provided within the site will connect to the Home Farm subdivision providing pedestrian connectivity across the development.

The analysis undertaken herein was prepared using the most recent Site Plan. Any minor changes to the Plan will not materially affect the conclusions contained within this report. In conclusion, the proposed rental development can be supported from a traffic operations and safety perspective.

Respectfully submitted by,

C.F. CROZIER & ASSOCIATES INC.


June 24, 2026
Kerianne Hagan, P.Eng.
Project Engineer, Transportation Planning

J:\700\721 - MacPherson Builders\3464 - Home Farm TIS\Traffic\2026\3464_Transportation Impact Study.docx

APPENDIX A

Terms of Reference Correspondence

Kerianne Hagan

From: Evan Hancock <ehancock@thebluemountains.ca>
Sent: June 1, 2026 1:43 PM
To: Kerianne Hagan; Brian Worsley; Scott Taylor
Cc: Damian Flis
Subject: RE: Home Farm Affordable Units Terms of Reference

Follow Up Flag: Follow up
Flag Status: Flagged

Thank you Kerianne,

Can you please incorporate the Long Term Care as apart of the analysis. If you need contact information please advise us.

Thank you,



Evan Hancock

Development Engineering Reviewer

Town of The Blue Mountains, 32 Mill Street, P.O. Box 310, Thornbury, ON N0H 2P0

Tel: 519-599-3131 ext. 279 | Fax: 519-599-7723

Email: ehancock@thebluemountains.ca | Website: www.thebluemountains.ca

From: Kerianne Hagan <khagan@cfcrozier.ca>
Sent: Monday, June 1, 2026 12:36 PM
To: Brian Worsley <bworsley@thebluemountains.ca>; Evan Hancock <ehancock@thebluemountains.ca>; Scott Taylor <scott.taylor@grey.ca>
Cc: Damian Flis <dflis@cfcrozier.ca>
Subject: Home Farm Affordable Units Terms of Reference

Good afternoon Brian, Evan, and Scott.

Crozier has been retained to review the Transportation Impacts of the addition of 112 affordable housing rental units to the approved Home Farm development in the Town of the Blue Mountains. We have prepared the following Terms of Reference for a Transportation Impact Study.

If there are additional contacts we should reach out to regarding the TOR, please let us know.

To address the additional units, we will complete the following:

- Updated data will be collected at the intersection of Grey Road 19 and Birches Boulevard to reflect 2026 existing conditions. Data will be collected on a weekday this week or next (June 1- 12). We are just awaiting confirmation of the date.
- As the Home Farm development is still under construction and has not been occupied, the previously reviewed trip generation and assignment for the approved development will be assessed under the future background conditions.
- Background growth on Grey Road 19 will be applied as 2%. No growth will be applied to Birches Boulevard as the subdivision is fully constructed and occupied, with no through streets to other neighbourhoods.
 - The Town's Phase 1 OPA Matrix notes that the population grew by 2,330 residents between 2006 and 2021, a growth rate of 1.95% per year. The forecasted population growth between 2021 and 2031 is 2.56% per year, however the Home Farm development contributes to the future population of the Town. We have proposed a growth rate of 2% to not double count Home Farm's impact on future volumes on Grey Road 19.
- Assessment of new trips per the ITE Trip Generation Manual 12th Edition will be completed for the proposed rental units as well as the proposed neighbouring Long Term Care facility proposed. Both proposed additions will be assessed under future total conditions.
- Assessment of signalization and turn lane requirements at the intersection of Grey Road 19 and Birches Boulevard/Street B will be undertaken.
- Circulation of the Site Plan will be assessed from a vehicle circulation perspective using AutoCAD software.
- Parking requirements and the proposed supply will be noted in the TIS. Should justification be required, a separate report and TOR will be prepared.
- Comments provided by the Town requested a review of pedestrian connections between the Site Plan, the overall Draft Plan and the external road network. A pedestrian circulation plan will be prepared to accompany the report and visually address the comment.
- Comments also provided by the Town requested a review of the Town's existing transit services and the potential for extension or rerouting. This will be reviewed within the TIS.

Thank you all for your time and review.
If you have any questions, please let us know.

Have a great day,

Kerianne Hagan, P.Eng.
Project Engineer, Transportation
Office: 705.434.3407
Collingwood | Burlington | Toronto | Bradford | Guelph

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APPENDIX B

Transportation Data



Turning Movement Count (1 . GREY RD 19 & BIRCHES BLVD)

Start Time	Southbound GREY RD 19						Westbound BIRCHES BLVD						Northbound GREY RD 19						Eastbound BIRCHES BLVD						Int. Total (15 min)	Int. Total (1 hr)	
	Left N:E	Thru N:S	Right N:W	UTurn N:N	Peds N:	Approach Total	Left E:S	Thru E:W	Right E:N	UTurn E:E	Peds E:	Approach Total	Left S:W	Thru S:N	Right S:E	UTurn S:S	Peds S:	Approach Total	Left W:N	Thru W:E	Right W:S	UTurn W:W	Peds W:	Approach Total			
2026-06-04 06:00:00	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4		
2026-06-04 06:15:00	0	6	1	0	0	7	0	0	0	0	0	0	0	6	0	0	0	6	0	0	1	0	1	1	14		
2026-06-04 06:30:00	0	7	0	0	0	7	0	0	0	0	0	0	0	9	0	0	0	9	0	0	0	0	0	0	16		
2026-06-04 06:45:00	0	13	1	0	0	14	0	0	0	0	0	0	0	12	0	0	0	12	0	0	0	0	0	0	26	60	
2026-06-04 07:00:00	0	8	0	0	0	8	0	0	0	0	0	0	1	13	0	0	0	14	0	0	0	0	0	0	22	78	
2026-06-04 07:15:00	0	18	0	0	0	18	0	0	0	0	0	0	0	18	0	0	0	18	0	0	0	0	0	0	36	100	
2026-06-04 07:30:00	0	19	0	0	0	19	0	0	0	0	0	0	0	23	0	0	0	23	0	0	2	0	0	2	44	128	
2026-06-04 07:45:00	0	26	0	0	0	26	0	0	0	0	0	0	0	32	1	0	0	33	0	0	0	0	1	0	59	161	
2026-06-04 08:00:00	0	17	0	0	1	17	1	0	0	0	1	1	0	39	0	0	1	39	0	0	2	0	2	2	59	198	
2026-06-04 08:15:00	0	23	0	0	0	23	0	0	0	0	0	0	0	29	0	0	0	29	1	0	1	0	0	2	54	216	
2026-06-04 08:30:00	0	21	2	0	0	23	0	0	0	0	0	0	1	31	0	0	0	32	0	0	0	0	0	0	55	227	
2026-06-04 08:45:00	0	29	3	0	0	32	0	0	0	0	2	0	0	35	0	0	0	35	0	0	3	0	0	3	70	238	
2026-06-04 09:00:00	0	29	0	0	0	29	0	0	0	0	1	0	0	20	0	0	0	20	1	0	2	0	1	3	52	231	
2026-06-04 09:15:00	0	25	2	0	0	27	0	0	0	0	0	0	4	26	0	0	0	30	0	0	1	0	0	1	58	235	
2026-06-04 09:30:00	0	15	0	0	0	15	0	0	0	0	0	0	1	30	0	0	0	31	2	0	1	0	0	3	49	229	
2026-06-04 09:45:00	0	18	1	0	0	19	0	0	0	0	0	0	1	28	0	0	0	29	2	0	2	0	1	4	52	211	
BREAK																											
2026-06-04 15:00:00	0	23	2	0	0	25	0	0	1	0	0	1	0	34	1	0	0	35	0	0	0	0	0	0	61		
2026-06-04 15:15:00	0	33	2	0	0	35	0	0	0	0	0	0	0	24	0	0	0	24	0	0	1	0	1	1	60		
2026-06-04 15:30:00	0	37	2	0	0	39	0	0	0	0	0	0	1	30	0	0	0	31	1	0	2	0	0	3	73		
2026-06-04 15:45:00	0	35	0	0	1	35	0	0	0	0	0	0	0	33	0	0	0	33	2	0	1	0	0	3	71	265	
2026-06-04 16:00:00	0	36	1	0	0	37	0	0	0	0	0	0	0	43	0	0	0	43	1	0	1	0	0	2	82	286	
2026-06-04 16:15:00	0	37	0	0	0	37	0	0	0	0	0	0	0	38	0	0	0	38	2	0	1	0	0	3	78	304	
2026-06-04 16:30:00	0	37	2	0	0	39	0	0	0	0	0	0	0	39	0	0	0	39	0	0	0	0	0	0	78	309	
2026-06-04 16:45:00	0	31	2	0	0	33	0	0	0	0	0	0	0	29	0	0	0	29	2	0	2	0	3	4	66	304	
2026-06-04 17:00:00	0	36	2	0	0	38	0	0	0	0	0	0	1	34	0	0	0	35	1	0	1	0	0	2	75	297	
2026-06-04 17:15:00	1	24	2	0	0	27	0	0	0	0	0	0	2	36	0	0	1	38	0	0	5	0	1	5	70	289	
2026-06-04 17:30:00	0	19	1	0	0	20	0	0	0	0	0	0	1	33	0	0	0	34	1	0	2	0	0	3	57	268	
2026-06-04 17:45:00	0	22	0	0	0	22	0	0	0	0	0	0	1	25	0	0	0	26	1	0	0	0	0	1	49	251	
2026-06-04 18:00:00	0	13	0	0	0	13	0	0	0	0	0	0	0	23	0	0	0	23	1	0	1	0	0	2	38	214	
2026-06-04 18:15:00	0	20	0	0	0	20	0	0	0	0	0	0	2	24	0	0	0	26	1	0	0	0	0	1	47	191	
2026-06-04 18:30:00	0	13	0	0	0	13	0	0	0	0	0	0	1	30	0	0	2	31	1	0	0	0	0	1	45	179	
2026-06-04 18:45:00	0	18	1	0	0	19	0	0	0	0	0	0	0	19	0	0	0	19	0	0	1	0	0	1	39	169	
Grand Total	1	712	27	0	2	740	1	0	1	0	4	2	17	847	2	0	4	866	20	0	33	0	11	53	1661	-	
Approach%	0.1%	96.2%	3.6%	0%		-	50%	0%	50%	0%		-	2%	97.8%	0.2%	0%		-	37.7%	0%	62.3%	0%		-	-	-	
Totals %	0.1%	42.9%	1.6%	0%		44.6%	0.1%	0%	0.1%	0%		0.1%	1%	51%	0.1%	0%		52.1%	1.2%	0%	2%	0%		3.2%	-	-	
Heavy	1	32	0	0		-	0	0	0	0		-	0	47	0	0		-	1	0	0	0		-	-	-	
Heavy %	100%	4.5%	0%	0%		-	0%	0%	0%	0%		-	0%	5.5%	0%	0%		-	5%	0%	0%	0%		-	-	-	
Bicycles	0	29	0	0		-	0	0	0	0		-	0	31	0	0		-	0	0	5	0		-	-	-	
Bicycle %	0%	4.1%	0%	0%		-	0%	0%	0%	0%		-	0%	3.7%	0%	0%		-	0%	0%	15.2%	0%		-	-	-	



Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (9 °C)

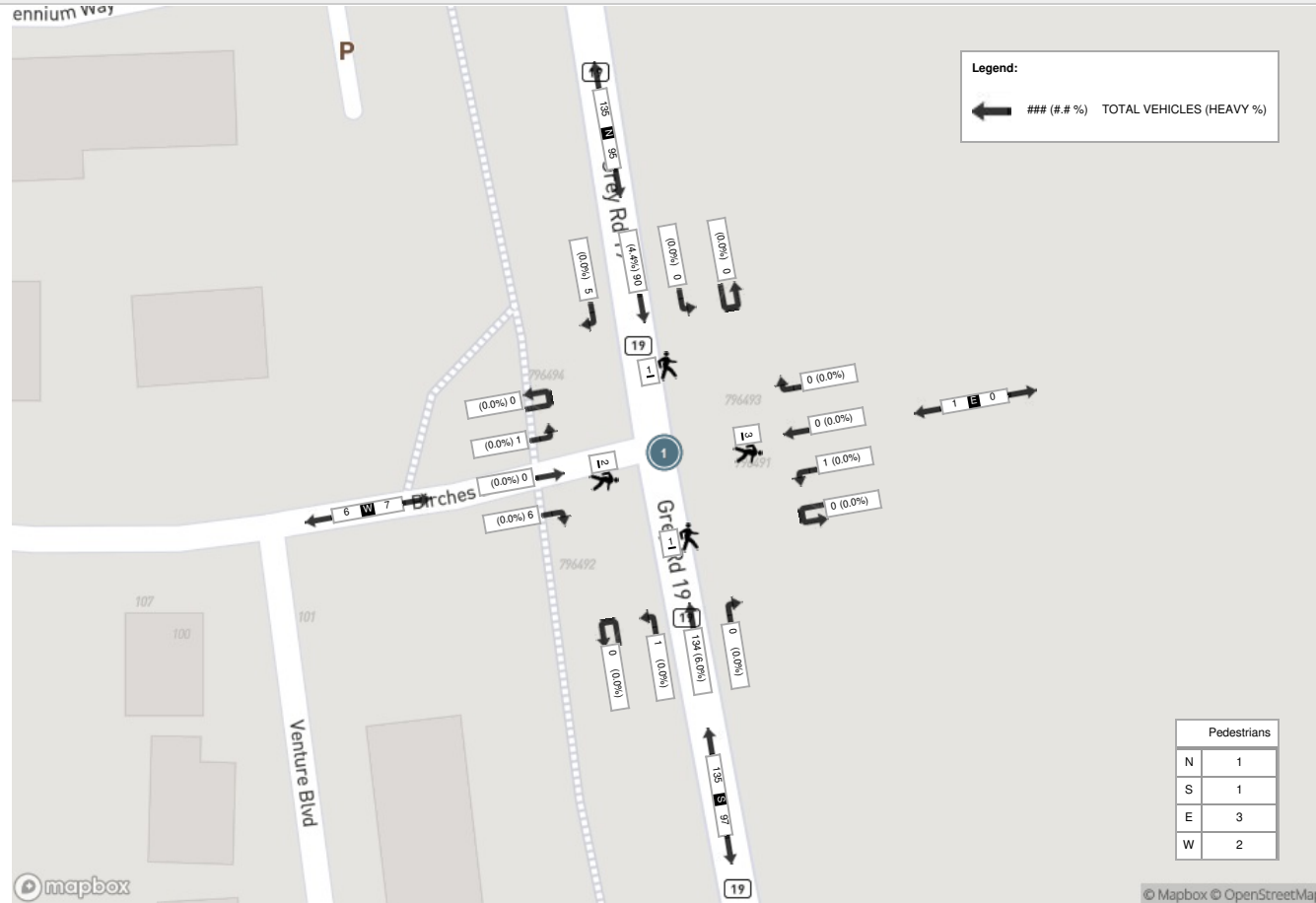
Start Time	Southbound GREY RD 19						Westbound BIRCHES BLVD						Northbound GREY RD 19						Eastbound BIRCHES BLVD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
2026-06-04 08:00:00	0	17	0	0	1	17	1	0	0	0	1	1	0	39	0	0	1	39	0	0	2	0	2	2	59
2026-06-04 08:15:00	0	23	0	0	0	23	0	0	0	0	0	0	0	29	0	0	0	29	1	0	1	0	0	2	54
2026-06-04 08:30:00	0	21	2	0	0	23	0	0	0	0	0	0	1	31	0	0	0	32	0	0	0	0	0	0	55
2026-06-04 08:45:00	0	29	3	0	0	32	0	0	0	0	2	0	0	35	0	0	0	35	0	0	3	0	0	3	70
Grand Total	0	90	5	0	1	95	1	0	0	0	3	1	1	134	0	0	1	135	1	0	6	0	2	7	238
Approach%	0%	94.7%	5.3%	0%		-	100%	0%	0%	0%		-	0.7%	99.3%	0%	0%		-	14.3%	0%	85.7%	0%		-	-
Totals %	0%	37.8%	2.1%	0%		39.9%	0.4%	0%	0%	0%		0.4%	0.4%	56.3%	0%	0%		56.7%	0.4%	0%	2.5%	0%		2.9%	-
PHF	0	0.78	0.42	0		0.74	0.25	0	0	0		0.25	0.25	0.86	0	0		0.87	0.25	0	0.5	0		0.58	0.85
Heavy	0	4	0	0		4	0	0	0	0		0	0	8	0	0		8	0	0	0	0		0	12
Heavy %	0%	4.4%	0%	0%		4.2%	0%	0%	0%	0%		0%	0%	6%	0%	0%		5.9%	0%	0%	0%	0%		0%	5%
Lights	0	86	5	0		91	1	0	0	0		1	1	126	0	0		127	1	0	6	0		7	226
Lights %	0%	95.6%	100%	0%		95.8%	100%	0%	0%	0%		100%	100%	94%	0%	0%		94.1%	100%	0%	100%	0%		100%	95%
Single-Unit Trucks	0	2	0	0		2	0	0	0	0		0	0	6	0	0		6	0	0	0	0		0	8
Single-Unit Trucks %	0%	2.2%	0%	0%		2.1%	0%	0%	0%	0%		0%	0%	4.5%	0%	0%		4.4%	0%	0%	0%	0%		0%	3.4%
Buses	0	1	0	0		1	0	0	0	0		0	0	2	0	0		2	0	0	0	0		0	3
Buses %	0%	1.1%	0%	0%		1.1%	0%	0%	0%	0%		0%	0%	1.5%	0%	0%		1.5%	0%	0%	0%	0%		0%	1.3%
Articulated Trucks	0	1	0	0		1	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	1
Articulated Trucks %	0%	1.1%	0%	0%		1.1%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0%	0%	0%	0%		0%	0.4%
Pedestrians	-	-	-	-	1	-	-	-	-	-	3	-	-	-	-	-	1	-	-	-	-	-	2	-	-
Pedestrians%	-	-	-	-	14.3%	-	-	-	-	-	42.9%	-	-	-	-	-	14.3%	-	-	-	-	-	28.6%	-	-
Bicycles on Road	0	0	0	0		-	0	0	0	0		-	0	2	0	0		-	0	0	0	0		-	-
Bicycles on Road%	0%	0%	0%	0%			0%	0%	0%	0%			0%	100%	0%	0%			0%	0%	0%	0%			-



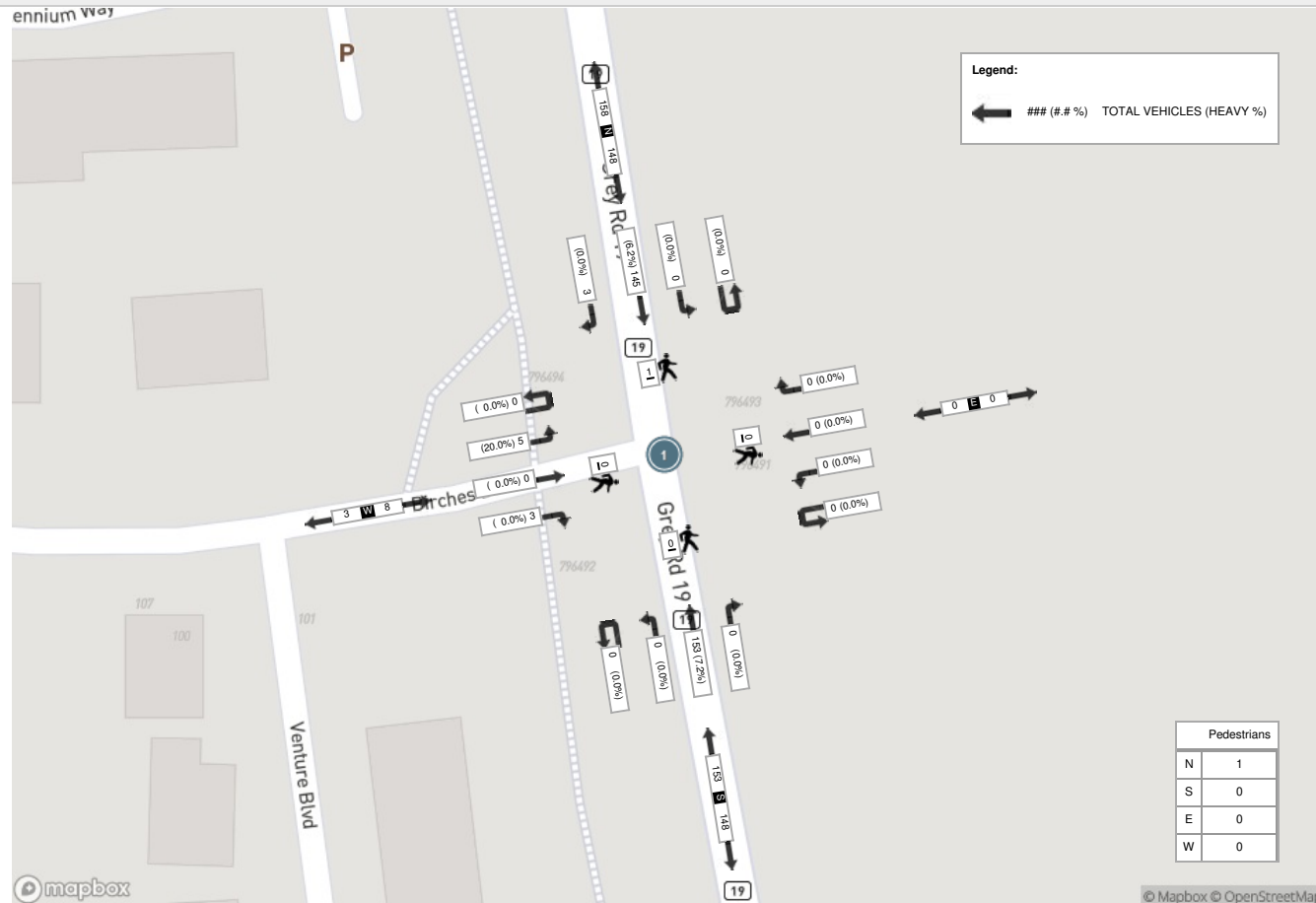
Peak Hour: 03:45 PM - 04:45 PM Weather: Broken Clouds (27 °C)

Start Time	Southbound GREY RD 19						Westbound BIRCHES BLVD						Northbound GREY RD 19						Eastbound BIRCHES BLVD						Int. Total (15 min)
	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	Left	Thru	Right	UTurn	Peds	Approach Total	
2026-06-04 15:45:00	0	35	0	0	1	35	0	0	0	0	0	0	0	33	0	0	0	33	2	0	1	0	0	3	71
2026-06-04 16:00:00	0	36	1	0	0	37	0	0	0	0	0	0	0	43	0	0	0	43	1	0	1	0	0	2	82
2026-06-04 16:15:00	0	37	0	0	0	37	0	0	0	0	0	0	0	38	0	0	0	38	2	0	1	0	0	3	78
2026-06-04 16:30:00	0	37	2	0	0	39	0	0	0	0	0	0	0	39	0	0	0	39	0	0	0	0	0	0	78
Grand Total	0	145	3	0	1	148	0	0	0	0	0	0	0	153	0	0	0	153	5	0	3	0	0	8	309
Approach%	0%	98%	2%	0%		-	0%	0%	0%	0%		-	0%	100%	0%	0%		-	62.5%	0%	37.5%	0%		-	-
Totals %	0%	46.9%	1%	0%		47.9%	0%	0%	0%	0%		0%	0%	49.5%	0%	0%		49.5%	1.6%	0%	1%	0%		2.6%	-
PHF	0	0.98	0.38	0		0.95	0	0	0	0		0	0	0.89	0	0		0.89	0.63	0	0.75	0		0.67	0.94
Heavy	0	9	0	0		9	0	0	0	0		0	0	11	0	0		11	1	0	0	0		1	21
Heavy %	0%	6.2%	0%	0%		6.1%	0%	0%	0%	0%		0%	0%	7.2%	0%	0%		7.2%	20%	0%	0%	0%		12.5%	6.8%
Lights	0	136	3	0		139	0	0	0	0		0	0	142	0	0		142	4	0	3	0		7	288
Lights %	0%	93.8%	100%	0%		93.9%	0%	0%	0%	0%		0%	0%	92.8%	0%	0%		92.8%	80%	0%	100%	0%		87.5%	93.2%
Single-Unit Trucks	0	6	0	0		6	0	0	0	0		0	0	5	0	0		5	0	0	0	0		0	11
Single-Unit Trucks %	0%	4.1%	0%	0%		4.1%	0%	0%	0%	0%		0%	0%	3.3%	0%	0%		3.3%	0%	0%	0%	0%		0%	3.6%
Buses	0	1	0	0		1	0	0	0	0		0	0	5	0	0		5	0	0	0	0		0	6
Buses %	0%	0.7%	0%	0%		0.7%	0%	0%	0%	0%		0%	0%	3.3%	0%	0%		3.3%	0%	0%	0%	0%		0%	1.9%
Articulated Trucks	0	2	0	0		2	0	0	0	0		0	0	1	0	0		1	1	0	0	0		1	4
Articulated Trucks %	0%	1.4%	0%	0%		1.4%	0%	0%	0%	0%		0%	0%	0.7%	0%	0%		0.7%	20%	0%	0%	0%		12.5%	1.3%
Pedestrians	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
Pedestrians%	-	-	-	-	100%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-
Bicycles on Road	0	2	0	0		-	0	0	0	0		-	0	1	0	0		-	0	0	0	0		-	-
Bicycles on Road%	0%	100%	0%	0%			0%	0%	0%	0%			0%	100%	0%	0%			0%	0%	0%	0%			-

Peak Hour: 08:00 AM - 09:00 AM Weather: Broken Clouds (9 °C)



Peak Hour: 03:45 PM - 04:45 PM Weather: Broken Clouds (27 °C)



APPENDIX C

Level of Service Definitions

Level of Service Definitions

Two-Way Stop Controlled Intersections

Level of Service	Control Delay per Vehicle (seconds)	Interpretation
A	≤ 10	EXCELLENT. Large and frequent gaps in traffic on the main roadway. Queuing on the minor street is rare.
B	> 10 and ≤ 15	VERY GOOD. Many gaps exist in traffic on the main roadway. Queuing on the minor street is minimal.
C	> 15 and ≤ 25	GOOD. Fewer gaps exist in traffic on the main roadway. Delay on minor approach becomes more noticeable.
D	> 25 and ≤ 35	FAIR. Infrequent and shorter gaps in traffic on the main roadway. Queue lengths develop on the minor street.
E	> 35 and ≤ 50	POOR. Very infrequent gaps in traffic on the main roadway. Queue lengths become noticeable.
F	> 50	UNSATISFACTORY. Very few gaps in traffic on the main roadway. Excessive delay with significant queue lengths on the minor street.

Adapted from Highway Capacity Manual 2000, Transportation Research Board

APPENDIX D

Detailed Capacity Analysis Reports

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	6	1	0	0	1	134	0	0	90	5
Future Vol, veh/h	1	0	6	1	0	0	1	134	0	0	90	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	6	0	0	4	0
Mvmt Flow	1	0	7	1	0	0	1	158	0	0	106	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	269	269	109	273	272	158	112	0	0	158	0	0
Stage 1	109	109	-	160	160	-	-	-	-	-	-	-
Stage 2	160	160	-	113	112	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	688	641	950	684	638	893	1490	-	-	1434	-	-
Stage 1	901	809	-	847	769	-	-	-	-	-	-	-
Stage 2	847	769	-	897	807	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	687	640	950	679	637	893	1490	-	-	1434	-	-
Mov Cap-2 Maneuver	687	640	-	679	637	-	-	-	-	-	-	-
Stage 1	900	809	-	846	768	-	-	-	-	-	-	-
Stage 2	846	768	-	890	807	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9	10.3	0.1	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1490	-	-	901 679	1434	-	-
HCM Lane V/C Ratio	0.001	-	-	0.009 0.002	-	-	-
HCM Ctrl Dly (s/v)	7.4	0	-	9 10.3	0	-	-
HCM Lane LOS	A	A	-	A B	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0 0	0	-	-

Intersection

Int Delay, s/veh 0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	3	0	0	0	0	153	0	0	145	3
Future Vol, veh/h	5	0	3	0	0	0	0	153	0	0	145	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	20	0	0	0	0	0	0	7	0	0	6	0
Mvmt Flow	5	0	3	0	0	0	0	163	0	0	154	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	319	319	156	320	320	163	157	0	0	163	0	0
Stage 1	156	156	-	163	163	-	-	-	-	-	-	-
Stage 2	163	163	-	157	157	-	-	-	-	-	-	-
Critical Hdwy	7.3	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.3	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.3	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.68	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	600	601	895	637	600	887	1435	-	-	1428	-	-
Stage 1	805	772	-	844	767	-	-	-	-	-	-	-
Stage 2	798	767	-	850	772	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	600	601	895	634	600	887	1435	-	-	1428	-	-
Mov Cap-2 Maneuver	600	601	-	634	600	-	-	-	-	-	-	-
Stage 1	805	772	-	844	767	-	-	-	-	-	-	-
Stage 2	798	767	-	847	772	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	10.3	0	0	0
HCM LOS	B	A		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1435	-	-	685	-	1428	-
HCM Lane V/C Ratio	-	-	-	0.012	-	-	-
HCM Ctrl Dly (s/v)	0	-	-	10.3	0	0	-
HCM Lane LOS	A	-	-	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-	0	-

Intersection

Int Delay, s/veh 2.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	6	20	0	35	1	159	7	10	101	5
Future Vol, veh/h	1	0	6	20	0	35	1	159	7	10	101	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	6	0	0	4	0
Mvmt Flow	1	0	7	24	0	41	1	187	8	12	119	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	360	343	122	343	342	191	125	0	0	195	0	0
Stage 1	146	146	-	193	193	-	-	-	-	-	-	-
Stage 2	214	197	-	150	149	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	599	583	935	615	583	856	1474	-	-	1390	-	-
Stage 1	861	780	-	813	745	-	-	-	-	-	-	-
Stage 2	793	742	-	857	778	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	566	577	935	606	577	856	1474	-	-	1390	-	-
Mov Cap-2 Maneuver	566	577	-	606	577	-	-	-	-	-	-	-
Stage 1	860	773	-	812	744	-	-	-	-	-	-	-
Stage 2	754	741	-	843	771	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	9.3	10.3	0	0.7
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1474	-	-	855	744	1390	-
HCM Lane V/C Ratio	0.001	-	-	0.01	0.087	0.008	-
HCM Ctrl Dly (s/v)	7.4	0	-	9.3	10.3	7.6	0
HCM Lane LOS	A	A	-	A	B	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0	-

Intersection												
Int Delay, s/veh	1.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	3	20	0	8	0	169	17	32	168	3
Future Vol, veh/h	5	0	3	20	0	8	0	169	17	32	168	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	20	0	0	0	0	0	0	7	0	0	6	0
Mvmt Flow	5	0	3	21	0	9	0	180	18	34	179	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	443	447	181	439	439	189	182	0	0	198	0	0
Stage 1	249	249	-	189	189	-	-	-	-	-	-	-
Stage 2	194	198	-	250	250	-	-	-	-	-	-	-
Critical Hdwy	7.3	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.3	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.3	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.68	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	495	509	867	532	515	858	1405	-	-	1387	-	-
Stage 1	717	704	-	817	748	-	-	-	-	-	-	-
Stage 2	768	741	-	759	704	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	480	495	867	519	501	858	1405	-	-	1387	-	-
Mov Cap-2 Maneuver	480	495	-	519	501	-	-	-	-	-	-	-
Stage 1	717	685	-	817	748	-	-	-	-	-	-	-
Stage 2	760	741	-	736	685	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	11.3		11.5		0		1.2	
HCM LOS	B		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1405	-	-	576	585	1387	-
HCM Lane V/C Ratio	-	-	-	0.015	0.051	0.025	-
HCM Ctrl Dly (s/v)	0	-	-	11.3	11.5	7.7	0
HCM Lane LOS	A	-	-	B	B	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.2	0.1	-

Intersection

Int Delay, s/veh 1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	6	20	0	35	1	174	7	10	111	5
Future Vol, veh/h	1	0	6	20	0	35	1	174	7	10	111	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	6	0	0	4	0
Mvmt Flow	1	0	7	24	0	41	1	205	8	12	131	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	390	373	134	373	372	209	137	0	0	213	0	0
Stage 1	158	158	-	211	211	-	-	-	-	-	-	-
Stage 2	232	215	-	162	161	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	573	561	920	588	561	836	1459	-	-	1369	-	-
Stage 1	849	771	-	796	731	-	-	-	-	-	-	-
Stage 2	775	729	-	845	769	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	541	555	920	579	555	836	1459	-	-	1369	-	-
Mov Cap-2 Maneuver	541	555	-	579	555	-	-	-	-	-	-	-
Stage 1	848	764	-	795	730	-	-	-	-	-	-	-
Stage 2	736	728	-	831	762	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	9.3		10.5		0		0.6	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1459	-	-	836 720	1369	-	-
HCM Lane V/C Ratio	0.001	-	-	0.01 0.09	0.009	-	-
HCM Ctrl Dly (s/v)	7.5	0	-	9.3 10.5	7.7	0	-
HCM Lane LOS	A	A	-	A B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0 0.3	0	-	-

Intersection

Int Delay, s/veh 1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	0	3	20	0	8	0	186	17	32	184	3
Future Vol, veh/h	5	0	3	20	0	8	0	186	17	32	184	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	20	0	0	0	0	0	0	7	0	0	6	0
Mvmt Flow	5	0	3	21	0	9	0	198	18	34	196	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	478	482	198	474	474	207	199	0	0	216	0	0
Stage 1	266	266	-	207	207	-	-	-	-	-	-	-
Stage 2	212	216	-	267	267	-	-	-	-	-	-	-
Critical Hdwy	7.3	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.3	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.3	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.68	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	469	487	848	504	492	839	1385	-	-	1366	-	-
Stage 1	701	692	-	800	734	-	-	-	-	-	-	-
Stage 2	751	728	-	743	692	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	454	473	848	491	478	839	1385	-	-	1366	-	-
Mov Cap-2 Maneuver	454	473	-	491	478	-	-	-	-	-	-	-
Stage 1	701	673	-	800	734	-	-	-	-	-	-	-
Stage 2	743	728	-	719	673	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	11.6	11.8	0	1.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1385	-	-	550 557	1366	-	-
HCM Lane V/C Ratio	-	-	-	0.015 0.053	0.025	-	-
HCM Ctrl Dly (s/v)	0	-	-	11.6 11.8	7.7	0	-
HCM Lane LOS	A	-	-	B B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0 0.2	0.1	-	-

Intersection

Int Delay, s/veh 1.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	6	20	0	35	1	190	7	10	122	5
Future Vol, veh/h	1	0	6	20	0	35	1	190	7	10	122	5
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	6	0	0	4	0
Mvmt Flow	1	0	7	24	0	41	1	224	8	12	144	6

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	422	405	147	405	404	228	150	0	0	232	0	0
Stage 1	171	171	-	230	230	-	-	-	-	-	-	-
Stage 2	251	234	-	175	174	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	546	538	905	560	539	816	1444	-	-	1348	-	-
Stage 1	836	761	-	777	718	-	-	-	-	-	-	-
Stage 2	758	715	-	832	759	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	514	532	905	551	533	816	1444	-	-	1348	-	-
Mov Cap-2 Maneuver	514	532	-	551	533	-	-	-	-	-	-	-
Stage 1	835	753	-	776	717	-	-	-	-	-	-	-
Stage 2	719	714	-	817	751	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Ctrl Dly, s/v	9.5		10.7		0		0.6	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1444	-	-	816 695	1348	-	-
HCM Lane V/C Ratio	0.001	-	-	0.01 0.093	0.009	-	-
HCM Ctrl Dly (s/v)	7.5	0	-	9.5 10.7	7.7	0	-
HCM Lane LOS	A	A	-	A B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0 0.3	0	-	-