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## **McNeely Landing**

Carleton Place

**Traffic Impact Study** 



# MCNEELY LANDING CARLETON PLACE TRAFFIC IMPACT STUDY

Prepared By:

#### **NOVATECH**

Suite 200, 240 Michael Cowpland Drive Ottawa, Ontario K2M 1P6

June 10, 2021

Novatech File: 119221 Ref: R-2021-089



June 10, 2021

Ministry of Transportation Eastern Region Engineering Office 1355 John Counter Blvd. Kingston, ON K7L 5A3 Town of Carleton Place 175 Bridge Street Carleton Place, Ontario K2C 2V8

Attention: Mr. Stephen Kapusta

**Corridor Management Planner** 

Attention: Mr. Paul Knowles

**Special Projects Coordinator** 

Dear Sirs:

Reference: McNeely Landing, Carleton Place

Traffic Impact Study Our File No.: 119221

We are pleased to submit the following Traffic Impact Study in support of a Draft Plan of Subdivision application for McNeely Landing (formely RSSR/Laing Lands) in the Town of Carleton Place. The development lands are located south of Captain A. Roy Brown Boulevard and east of Highway 15.

The structure and format of the report adheres to the standards identified in the MTO publication *General Guidelines for the Preparation of Traffic Impact Studies* (February 2021).

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

Yours truly,

**NOVATECH** 

Rochelle Fortier, B.Eng. E.I.T. | Transportation/Traffic

#### **TABLE OF CONTENTS**

EXEC	UTIVE S	SUMMARY	. I
1.0	INTROD	DUCTION	1
1.1.		DSED DEVELOPMENT	
1.2.		SIS METHODS AND PARAMETERS	
2.0		NG CONDITIONS	
2.1		NAYS	
2.2		SECTIONS	
2.3		IC VOLUMES	
3.0	TRAVE	L DEMAND FORECASTING	5
3.1.		RIC BACKGROUND GROWTH	
3.2.		IED NETWORK IMPROVEMENTS	-
3.3.		R AREA DEVELOPMENT	-
		GENERATION	
4.0		ECTION OPERATING CONDITIONS	
5.0	_	E DESIGN	
6.0	CONCL	USIONS AND RECOMMENDATIONS1	0
Figure	e 1: Aeria e 2: High	al View of the Subject Siteway 7 Conceptual Development Plan (2013)	2
<b>Table</b> Table	s 1: Unit E	Breakdownrip Generation	2
	ndices		
Apper		Proposed Draft Plan	
Apper		Traffic Volumes from MTO <i>Highway 7 and Highway 15 Intersection Improvements Preliminary Design and Class EA Study Traffic Analysis</i> Report (June 2020)	
Apper	ndix C	Recommended Plan from MTO Highway 7 and Highway 15 Intersection Improvements Preliminary Design and Class EA Study Traffic Analysis Report (Jun 2020)	e

Novatech Page i

#### **EXECUTIVE SUMMARY**

Novatech has been retained to prepare a Traffic Impact Study in support of a Draft Plan of Subdivision application for lands located south of Captain A. Roy Brown Boulevard and east of Highway 15 in the Town of Carleton Place.

A Transportation Master Plan (TMP), prepared by Novatech, was submitted to the Town and the Ministry of Transportation in September 2013 in support of a Conceptual Development Plan and subsequent development applications for the lands south of Highway 7 within the Town of Carleton Place. The Conceptual Development Plan includes the subject lands. Failures at the Highway 7/Highway 15 intersection were noted in the 2013 existing conditions at the time.

The MTO has completed a Preliminary Design and Class Environmental Assessment (EA) Study for the Highway 7 and Highway 15 intersection. WSP was retained by the MTO to prepare a Traffic Analysis Report (June 2020) that reviews historical growth trends and planned development in the Highway 7 and Highway 15 corridors.

The proposed development includes a total of 198 single detached houses, 32 semi-detached houses, 214 townhouses, and a 5-acre school block. One connection to Captain Roy A. Brown Boulevard and one connection to McNeely Avenue are proposed.

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

#### Trip Generation

- The proposed development is anticipated to generate a total of 666 trips (276 in, 390 out) during the AM peak hour and 455 trips (269 in, 186 out) during the PM peak hour.
- The proposed 444 residential units in addition to the approved 270 residential units at Millers Crossing make up a total of approximately 715 residential units. This is below the TMP Phase 1B scenario which assessed traffic for a total of 760 residential units.

#### On-Site Design

- The subdivision proposes to provide eight local streets with 18m wide rights-of-way throughout. Access to the subdivision is proposed via a 20m right-of-way connection from Captain A. Roy Brown Boulevard.
- During the first few phases of the subdivision construction access will be provided via McNeely Avenue as the primary access. Secondary access via Captain A. Roy Brown Boulevard will occur once this corridor has been constructed by the Town.
- Within the subdivision sidewalks are proposed to be constructed along one side of the street.
- Proposed pathway blocks are shown on the draft plan and described as follows:
  - Block 234 is proposed along Street Two for connectivity to the south;
  - Block 235 is proposed to connect Streets Seven and Eight; and
  - Block 236 is proposed at the northwest corner of the site, to connect Street Seven and the future pathway along Captain A. Roy Brown at Highway 15.
- Two open space blocks are proposed for parks, one at the southeast corner of the site, bordering on McNeely Avenue and the other directly south west of the school block.
- Each dwelling is proposed to have an attached garage to provide tandem parking within both
  the garage and driveway. The single detached dwelling models will have a two-car garage
  and driveway. An additional 93 on-street parking spaces can be accommodated within the

northern portion of the site to accommodate the required 50 visitor parking spaces for the townhouse and semi-detached units.

The proposed road pattern conforms to the minimum TAC guidelines.

#### 1.0 INTRODUCTION

Novatech has been retained to prepare a Traffic Impact Study in support of a Draft Plan of Subdivision application for lands located south of Captain A. Roy Brown Boulevard and east of Highway 15 in the Town of Carleton Place. The study area is shown in **Figure 1**.

Figure 1: Aerial View of the Subject Site



The site is bounded by future Captain Roy A. Brown Boulevard to the north, McNeely Avenue and new residential development (Miller's Crossing) to the east, Beckwith Township to the south, and Highway 15 to the west.

A Transportation Master Plan (TMP), prepared by Novatech, was submitted to the Town and the Ministry of Transportation in September 2013 in support of a Conceptual Development Plan and subsequent development applications for the lands south of Highway 7 within the Town of Carleton Place. The Conceptual Development Plan, which includes the subject lands, is included as **Figure 2**. Failures at the Highway 7/Highway 15 intersection were noted in the 2013 existing conditions at the time.

Based on the findings of the 2013 TMP, 380 residential units could be constructed and accommodated by a single access via the existing Highway 7/McNeely Avenue intersection. The TMP referred to this interim build out scenario as Phase 1A. The analysis identified a future need for a new access (Highway 15/Captain A. Roy Brown Boulevard) past this 380-unit threshold.

Figure 2: Highway 7 Conceptual Development Plan (2013) Highway 7 South Conceptual Development Plan TRANS CANADA HWY 7 TOWNSHIP OF BECKWITH TOWNSHIP OF BECKWITH NOTE: Conceptual Plan is illustrated so that infrastructure can be appropriately sized to plan for future development.

Traffic Impact Study McNeely Landing

The MTO has completed a Preliminary Design and Class Environmental Assessment (EA) Study for the Highway 7 and Highway 15 intersection. WSP was retained by the MTO to prepare a Traffic Analysis Report (June 2020) that reviews historical growth trends and planned development in the Highway 7 and Highway 15 corridors.

#### 1.1. **Proposed Development**

The proposed development includes a total of 198 single detached houses, 32 semi-detached houses, 214 townhouses, and a 5-acre school block. One connection to Captain Roy A. Brown Boulevard and one connection to McNeely Avenue are proposed.

The development will be phased, with Phase 1 built out in 2028, and Phase 2 in 2032. A breakdown of the unit count is included in Table 1.

**Table 1: Unit Breakdown** 

Land Use	Phase 1 (2028)	Phase 2 (2032)	Total
Single Detached Houses	84	114	198
Semi-Detached Houses	18	14	32
Townhouses	89	125	214
School Block	-	5-acre	5-acre

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

#### 1.2. Analysis Methods and Parameters

This report will reference the MTO Highway 7 and Highway 15 Intersection Improvements Preliminary Design and Class EA Study Traffic Analysis Report (June 2020).

The structure and format of this Traffic Impact Study (TIS) report adheres to the standards identified in the MTO publication *General Guidelines for the Preparation of Traffic Impact Studies* (February 2021). Some required sections of this TIS have been already addressed as part of the MTO Traffic Analysis Report and remained unchanged as part of this application. In these cases, the relevant sections of the MTO Traffic Analysis Report have been referenced.

#### 2.0 EXISTING CONDITIONS

#### 2.1 Roadways

Highway 7 is a major provincial highway that connects the Ottawa Region to the Greater Toronto Area, and passes through several major towns such as Carleton Place, Perth, and Peterborough. East of Carleton Place, it forms an interchange with Highway 417 at Stittsville. The section of Highway 7 between Stittsville and Carleton Place is a four-lane divided highway with controlled access and a posted speed of 100km/h. Within the study area, Highway 7 has a posted speed limit of 60km/h, with a four-lane rural cross section east of McNeely Avenue, and a five-lane urban cross section west of McNeely Avenue. The centre lane consists of a two-way left turn lane (TWLTL) that serves a number of access driveways located on both sides of Highway 7. West of Highway 15, Highway 7 has a two-lane rural cross section.

Highway 15 is a provincial highway that connects the Town of Carleton Place with Kingston, passing through the nearby town of Smith's Falls. The signalized intersection of Highway 7 and Highway 15 marks the northern terminus of Highway 15. The southern terminus of Highway 15 is located at its interchange with Highway 401. Within the study area, Highway 15 has a two-lane rural cross section and a posted speed of 70km/h, changing to 50km/h as it approaches Highway 7.

McNeely Avenue is a north-south arterial roadway within the Town of Carleton Place. North of Highway 7, it is within the jurisdiction of the County of Lanark and known as County Road 29. South of Highway 7 it is currently under the jurisdiction of the Town of Carleton Place. The speed limit on McNeely Avenue is 60km/h. South of Highway 7, McNeely Avenue has a four-lane cross-section, reducing to two lanes south of the signalized access to Home Depot/RONA.

Captain A. Roy Brown Boulevard is a future east-west arterial roadway, a portion of which has been recently constructed east of McNeely Avenue and is to be constructed between McNeely Avenue and Highway 15.

#### 2.2 Intersections

#### Highway 7/Highway 15/Franktown Road

- Signalized intersection
- Northbound: one left turn lane, one through lane, one right turn channel
- Southbound: one left turn lane, one through lane, one right turn lane
- Eastbound: one left turn lane, one through lane, one right turn lane
- Westbound: one left turn lane, one through lane, one right turn channel



#### Highway 7/McNeely Avenue

- Signalized intersection
- Northbound: one left turn lane, one through lane, one shared through/right lane
- Southbound: dual left turn lanes, two through lanes, one right turn lane
- Eastbound: duel left turn lanes, two through lanes, one right turn lane
- Westbound: one left turn lane, two through lanes, one right turn lane



#### McNeely Avenue/Captain A. Roy Brown Boulevard

- Recently constructed roundabout
- One circulating lane



#### 2.3 Traffic Volumes

A review of existing traffic volumes was provided in the MTO Highway 7 and Highway 15 Intersection Improvements Preliminary Design and Class EA Study Traffic Analysis Report (June 2020). Existing traffic volume figures from this report have been included in **Appendix B** as reference.

#### 3.0 TRAVEL DEMAND FORECASTING

#### 3.1. Historic Background Growth

As noted in the MTO Highway 7 and Highway 15 Intersection Improvements Preliminary Design and Class EA Study Traffic Analysis Report (June 2020), traffic volumes along Highway 7 and Highway 15 within the study area are increasing in a range of 0.7% to 1.5 per annum. The traffic analysis used in the MTO report conservatively assumed a background growth rate of 1.5% per year to estimate future background traffic volumes for the interim (2025) and long term (2040) planning horizon years. Background traffic volume figures from this report have been included in **Appendix B** as reference.

#### 3.2. Planned Network Improvements

As noted in the Highway 7 and Highway 15 Intersection Improvements Preliminary Design and Class EA Study, modifications to the study area roadways are proposed in order to accommodate planned growth. These modifications include widening Highway 7 and Highway 15 by one lane in each direction, the addition of dual left turn lanes at the Highway 7/Highway 15 and northbound/westbound approaches at the Highway 7/McNeely Avenue intersections and elimination of the existing channelized right-turn lanes at the Highway 7/Highway 15 intersection. The recommended plan also includes the installation of a median at Highway 7/Highway 15 and Highway 7/McNeely Avenue as part of the interim improvements. As part of the ultimate improvements, the median will extend along the Highway 7 corridor between Highway 15 and McNeely Avenue and will restrict access to right-in right-out. The report notes that ultimate improvements are planned to be implemented within three to five years of the interim improvements, pending MTO's priorities and funding.

The interim and ultimate improvements recommended plan from the Highway 7 and Highway 15 Intersection Improvements Preliminary Design and Class EA Study has been included in **Appendix C** as reference.

The construction of Captain A. Roy Brown Boulevard is currently planned for 2022-2023, in advance of the MTO Highway 7/Highway 15 improvements. Captain A. Roy Brown Boulevard is planned to be used as a night-time detour route during construction of the MTO improvements.

As noted in the MTO report, the further easterly extension of Captain A. Roy Brown Boulevard to Cemetery Road (the third connection for the Highway 7 South Development) is not planned at this stage. The MTO traffic report reassigned traffic originally planned for this third connection to Highway 7.

#### 3.3. Other Area Development

As noted in the MTO Highway 7 and Highway 15 Intersection Improvements Preliminary Design and Class EA Study Traffic Analysis Report (June 2020), the following developments are planned within the study area:

- Olympia Homes Subdivision (TIS by CastleGlenn, July 2012)
- Thruway Commercial Plaza (TIS by Novatech, April 2013)
- Coleman Street Subdivision (TIS by McIntosh Perry, October 2012)
- Remaining Highway 7 South CDP (TMP by Novatech, September 2013)
- Bodnar Subdivision (TIS by Stantec, May 2017)

Traffic generated by these developments was added to the background traffic in the MTO Traffic Analysis Report.

#### 3.4. Trip Generation

Trip generation assumptions are based on the Institute of Transportation Engineers' (ITE) *Trip Generation Manual* (10<sup>th</sup> Edition). The 10<sup>th</sup> Edition of the ITE *Trip Generation Manual* provides rates for Single Family Detached Housing (land use code 210) and Multi-Family Housing – Low-Rise (land use code 220), which includes data from apartments, townhouses, and condominiums located within the same building with at least three other dwelling units. As semi-detached housing does not fall within the description for either of these land uses, but is anticipated to be somewhere in the middle of these two rates, these trips have been estimated by taking an average of the rates for Single Family Detached Housing and Multi-Family Housing (Low-Rise).

**Table 2** outlines the trip generation results using the relevant rates for the proposed development.

**Table 2: Site Trip Generation** 

Dwelling	Land Use	ITE	Units	AM Peak Hour			PM Peak Hour		
Type	Lanu USE	Code	Ullits	IN	OUT	ТОТ	IZ	OUT	TOT
Phase 1									
Single Family	Single Family Detached Housing	210	84	16	48	64	54	32	86
	Multi-Family Housing (Low-Rise)	220	18	2	7	9	8	5	13
Semi- Detached	Single Family Detached Housing	210	18	4	14	18	12	8	20
	Blended Rate	-	18	3	11	14	10	7	17
Townhouses	Multi-Family Housing (Low-Rise)	220	89	10	33	43	33	20	53
Total Phase 1			29	92	121	97	59	156	

Dwelling	Land Use	ITE Unite	AM Peak Hour			PM Peak Hour			
Type	Land Use	Code	Units	IN	OUT	TOT	IN	OUT	TOT
Phase 2									
Single Family	Single Family Detached Housing	210	114	21	65	86	72	43	115
	Multi-Family Housing (Low-Rise)	220	14	1	6	7	6	4	10
Semi- Detached	Single Family Detached Housing	210	14	4	11	15	9	6	15
	Blended Rate	-	14	2	9	11	8	5	13
Townhouses	Multi-Family Housing (Low-Rise)	220	125	14	45	59	45	27	72
School	Elementary School	520	580 students	210	179	389	47	52	99
Total Phas			I Phase 2	247	298	545	172	127	299
Total Site					390	666	269	186	455

The proposed development is anticipated to generate a total of 666 trips (276 in, 390 out) during the AM peak hour and 455 trips (269 in, 186 out) during the PM peak hour.

#### 4.0 INTERSECTION OPERATING CONDITIONS

As indicated above, the Highway 7 South Conceptual Development Plan included the subject lands. The TMP assessed the impacts of two interim scenarios as well as the ultimate development scenario. Analysis was completed to determine the development that could be supported by a single access connection via the Highway 7/McNeely Avenue intersection (Phase 1A) and a second access via the new Highway 15/Captain A. Roy Brown Boulevard intersection (Phase 1B). Phase 1A included 380 residential units while Phase 1B included an additional 380 residential units (760 units total) and 50% of employment lands. An alternate scenario for Phase 1B included 510 total residential units and 60,000ft² of commercial development.

Currently, the Millers Crossing development is the only residential development to have proceeded within the CDP lands. Phases 1, 2, and 3 of the Millers Crossing subdivision make up half of the TMP Phase 1A unit count (or approximately 190 units). Phases 4 and 5 were subsequently approved for an additional 80 units, for a total of approximately 270 units.

It is anticipated the construction of the Captain A. Roy Brown Boulevard connection to Highway 15 will be complete when approximately half of Phase 1 of the development (approximately 100 units) will be built out. This is consistent with the Phase 1A scenario from the TMP, which determined a total of 380 residential units can be supported by a single access vis the Highway 7/McNeely Avenue intersection.

The site's proposed 444 residential units in addition to the approved 270 residential units at Millers Crossing make up a total of approximately 715 residential units. This is below the TMP Phase 1B scenario which assessed traffic for a total of 760 residential units.

A review of intersection operating conditions was more recently conducted as part of the MTO Highway 7 and Highway 15 Intersection Improvements Preliminary Design and Class EA Study Traffic Analysis Report (June 2020).

#### 5.0 ON-SITE DESIGN

The subdivision proposes to provide eight local streets with 18m wide rights-of-way throughout. Access to the subdivision is proposed via a 20m right-of-way connection from Captain A. Roy Brown Boulevard. During the first few phases of the subdivision construction access will be provided via McNeely Avenue as the primary access. Secondary access via Captain A. Roy Brown Boulevard will occur once this corridor has been constructed by the Town.

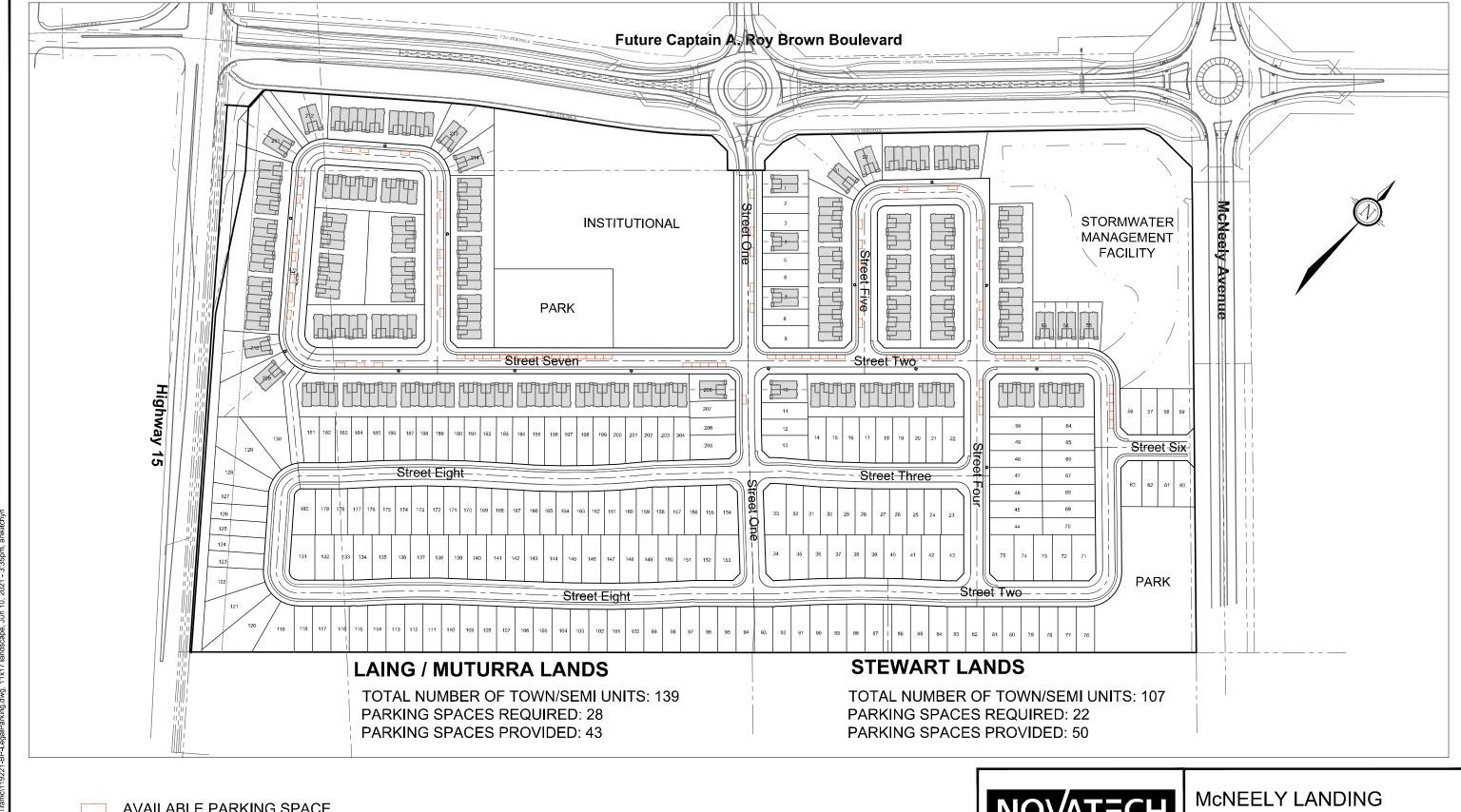
Within the subdivision sidewalks are proposed to be constructed along one side of the street to provide pedestrian connections throughout the subdivision and to the surrounding community. Pathway blocks are also proposed within the subdivision to increase connectivity to adjoining lands. Proposed pathway blocks are shown on the draft plan and described as follows:

- Block 234 is proposed along Street Two for connectivity to the south;
- Block 235 is proposed to connect Streets Seven and Eight; and
- Block 236 is proposed at the northwest corner of the site, to connect Street Seven and the future pathway along Captain A. Roy Brown at Highway 15.

Two open space blocks are proposed for parks, one at the southeast corner of the site, bordering on McNeely Avenue and the other directly south west of the school block.

The *Transportation Association of Canada (TAC) Geometric Design Guide* suggests a minimum spacing of 60 meters between intersections along collector and local roads. For adjacent tee intersections on local roads TAC suggests a minimum spacing of 40 meters. The proposed road pattern conforms to the minimum TAC guidelines.

Within the Town of Carleton Place, two parking spaces per unit are required for single detached, semi-detached, and townhouses. An additional requirement of 0.2 spaces per unit is also required to accommodate visitor parking. Each dwelling is proposed to have an attached garage to provide tandem parking within both the garage and driveway. The single detached dwelling models will have a two-car garage and driveway, meeting the resident and visitor parking requirements. An additional 93 on-street parking spaces can be accommodated within the northern portion of the site to accommodate the required 50 visitor parking spaces for the townhouse and semi-detached units, as shown in **Figure 3**.



AVAILABLE PARKING SPACE



21 Table 119221 Table 119221-PP

#### 6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the foregoing, the conclusions and recommendations of this TIS can be summarized as follows:

#### **Trip Generation**

- The proposed development is anticipated to generate a total of 666 trips (276 in, 390 out) during the AM peak hour and 455 trips (269 in, 186 out) during the PM peak hour.
- The proposed 444 residential units in addition to the approved 270 residential units at Millers Crossing make up a total of approximately 715 residential units. This is below the TMP Phase 1B scenario which assessed traffic for a total of 760 residential units.

#### On-Site Design

- The subdivision proposes to provide eight local streets with 18m wide rights-of-way throughout. Access to the subdivision is proposed via a 20m right-of-way connection from Captain A. Roy Brown Boulevard.
- During the first few phases of the subdivision construction access will be provided via McNeely Avenue as the primary access. Secondary access via Captain A. Roy Brown Boulevard will occur once this corridor has been constructed by the Town.
- Within the subdivision sidewalks are proposed to be constructed along one side of the street.
- Proposed pathway blocks are shown on the draft plan and described as follows:
  - Block 234 is proposed along Street Two for connectivity to the south;
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- Two open space blocks are proposed for parks, one at the southeast corner of the site, bordering on McNeely Avenue and the other directly south west of the school block.
- Each dwelling is proposed to have an attached garage to provide tandem parking within both
  the garage and driveway. The single detached dwelling models will have a two-car garage
  and driveway. An additional 93 on-street parking spaces can be accommodated within the
  northern portion of the site to accommodate the required 50 visitor parking spaces for the
  townhouse and semi-detached units.
- The proposed road pattern conforms to the minimum TAC guidelines.

#### **NOVATECH**

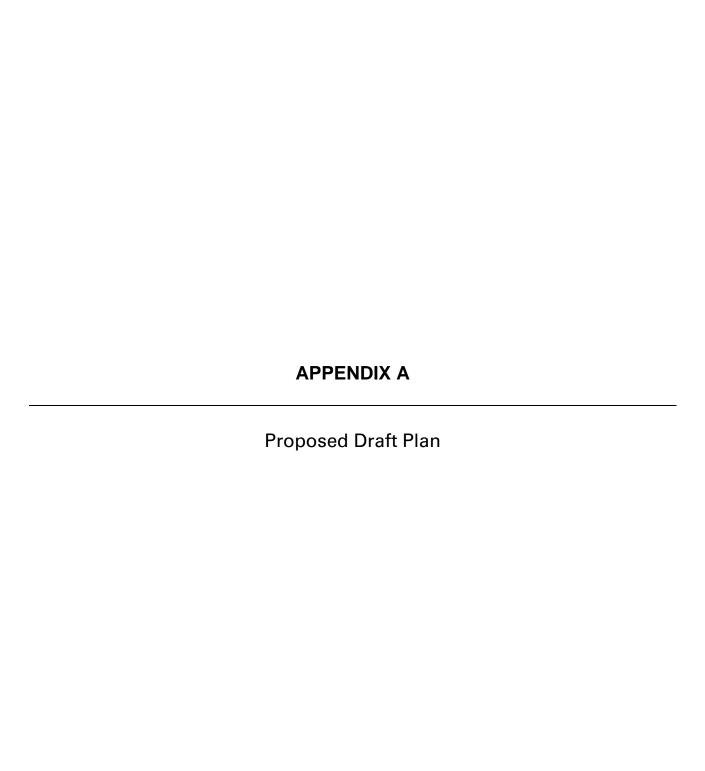
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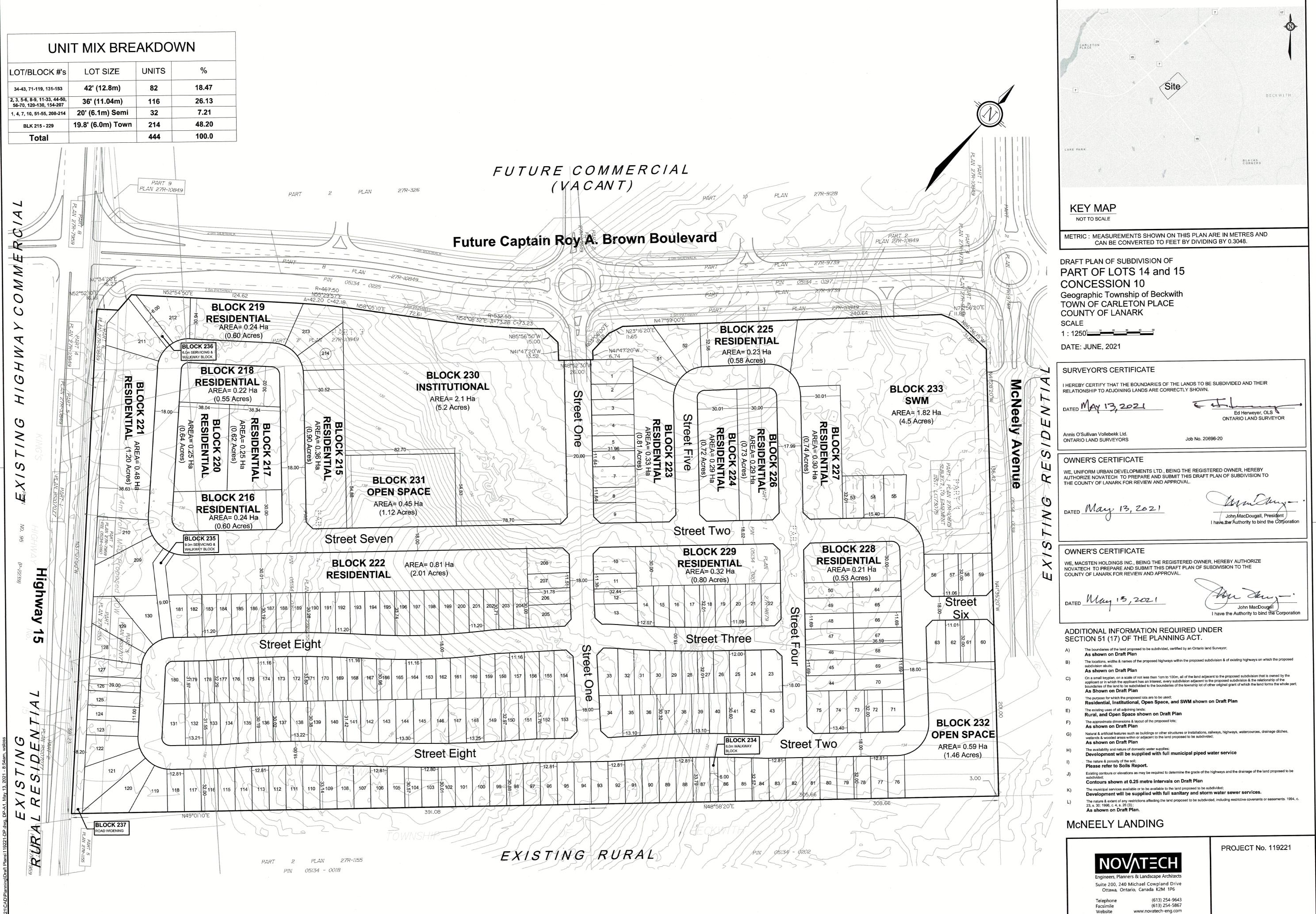
Rochelleforte

Rochelle Fortier, B.Eng. E.I.T. | Transportation/Traffic Reviewed by:



Jennifer Luong, P.Eng. Senior Project Manager | Transportation/Traffic





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Website

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#### **APPENDIX B**

**Traffic Volumes** 

from MTO *Highway 7 and Highway 15 Intersection Improvements Preliminary Design and Class EA Study Traffic Analysis Report* (June 2020)

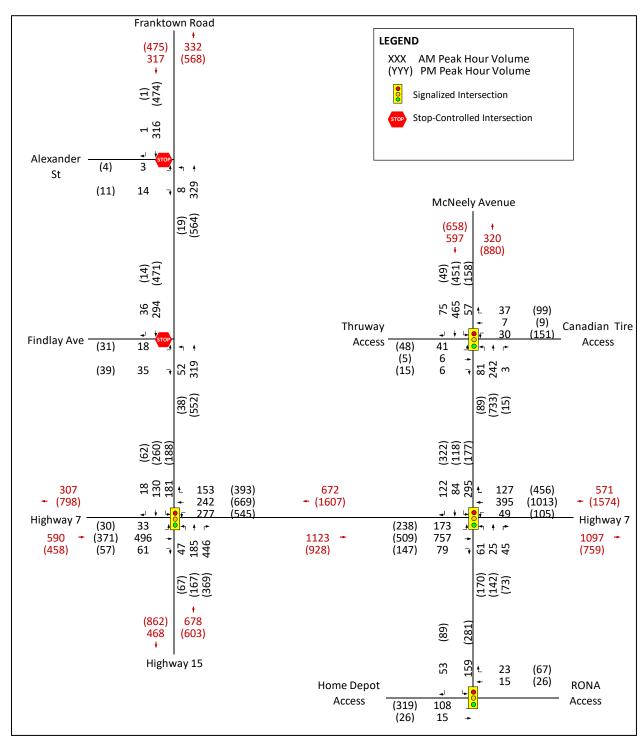


Figure 3: Existing (2018) Peak Hour Traffic Volumes

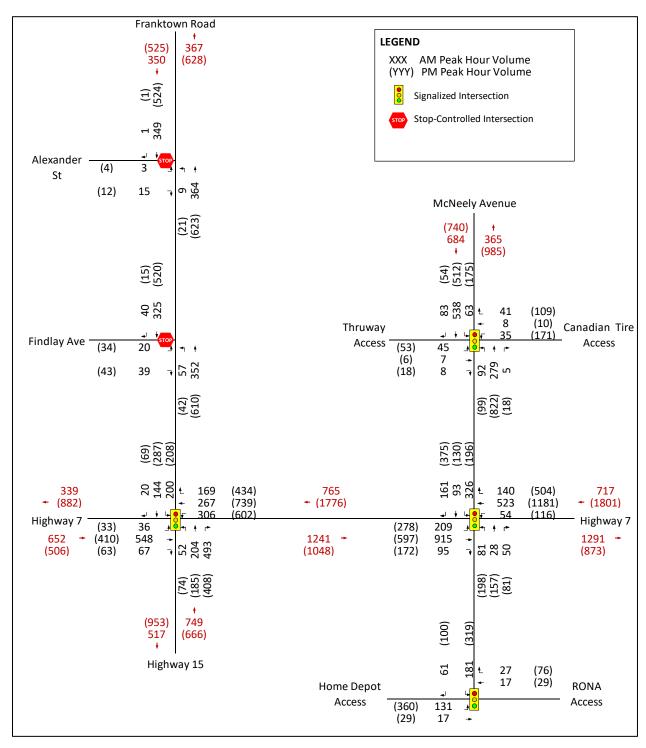


Figure 10: Future Background Traffic Volumes for 2025

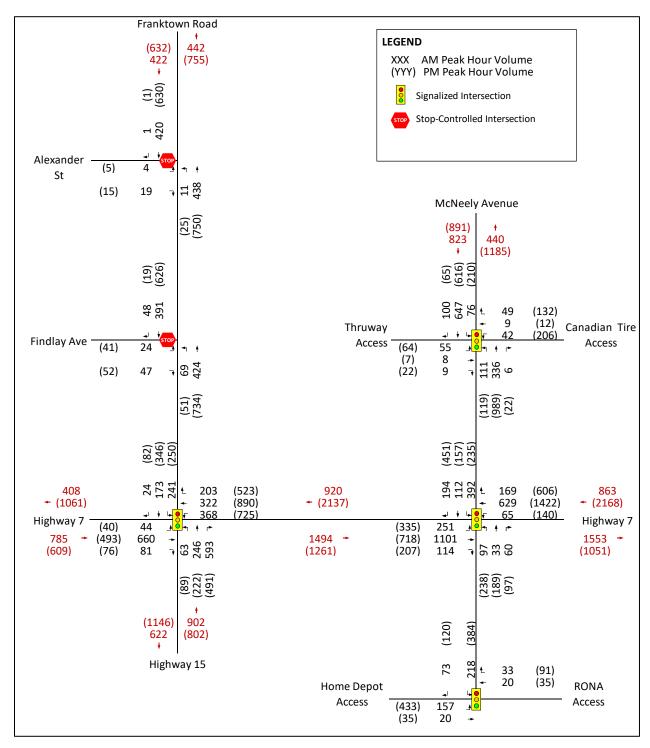
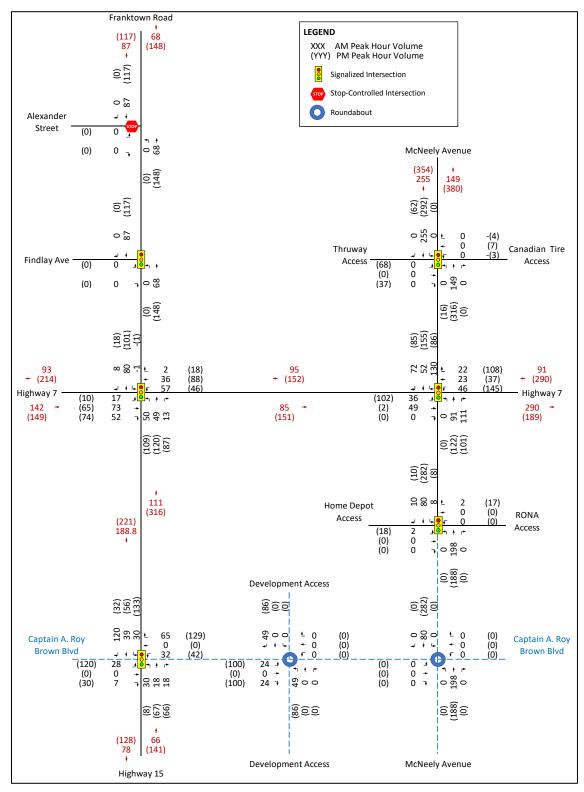


Figure 11: Future Background Traffic Volumes for 2040



Note: Traffic demands at Captain A. Roy Brown Blvd roundabouts were assumed for 2025 planning horizon

Figure 12: Future Site Traffic Volumes for 2025

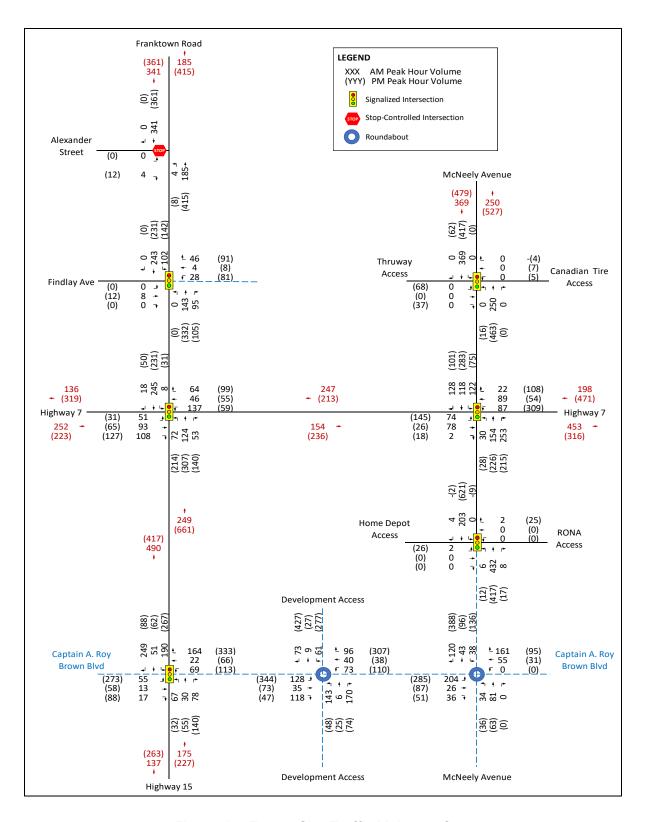
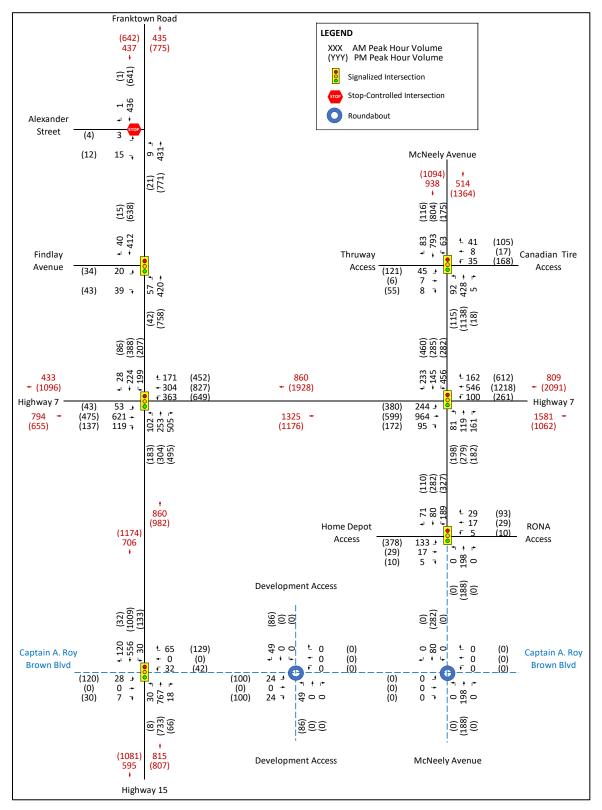


Figure 13: Future Site Traffic Volumes for 2040



Note: Traffic demands at Captain A. Roy Brown Blvd roundabouts were assumed for 2025 planning horizon

Figure 14: Future Total Traffic Volumes for 2025

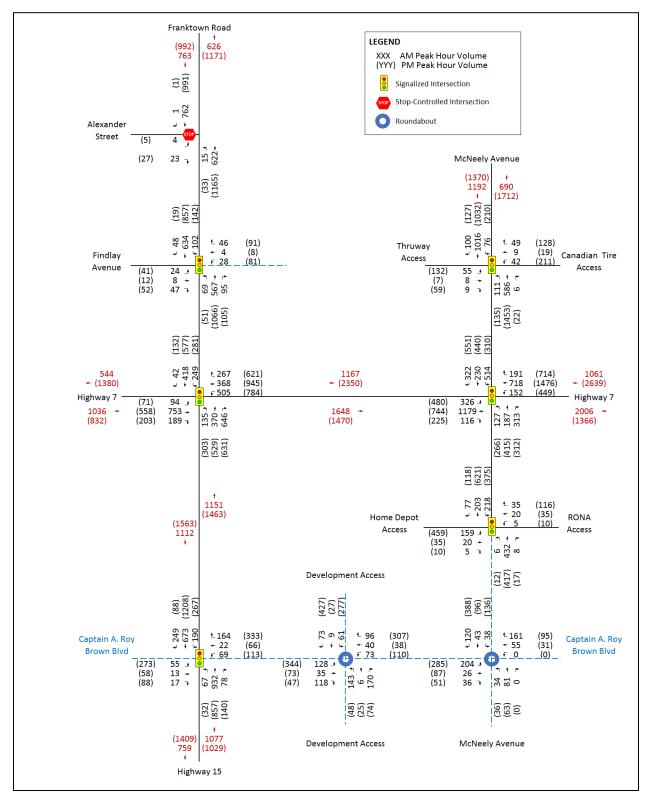


Figure 15: Future Total Traffic Volumes for 2040

### **APPENDIX C**

Recommended Plan from MTO *Highway 7 and Highway 15 Intersection Improvements Preliminary Design and Class EA Study Traffic Analysis Report* (June 2020)





HIGHWAY 7 & 15 INTERSECTION IMPROVEMENTS PRELIMINARY DESIGN AND CLASS EA STUDY

Figure 6-3: Interim Improvements

MTO RIGHT OF WAY

PROPOSED RIGHT OF WAY ( new MTO PROPERTY LIMITS )

PROPOSED EDGE OF PAVEMENT

EXISTING PROPERTY FABRIC

EXISTING CULVERT
EXISTING EDGE OF PAVEMENT

0 50 100 Meters 1:1000 Date:

July 9, 2020





HIGHWAY 7 & 15 INTERSECTION IMPROVEMENTS PRELIMINARY DESIGN AND CLASS EA STUDY

Figure 1-2: Recommended Plan - Technically Preferred Alternative

MTO RIGHT OF WAY PROPOSED RIGHT OF WAY ( new MTO PROPERTY LIMITS ) PROPOSED GRADING LIMIT PROPOSED EDGE OF PAVEMENT

— - - — EXISTING PROPERTY FABRIC

EXISTING CULVERT

— EXISTING EDGE OF PAVEMENT

1:1000

July 9, 2020